



Tiger Industrial Air Hoists

TAH21 Range 1.5t, 2.0t and 3.0t

ORIGINAL INSTRUCTION GUIDE

- PLEASE PASS ONTO OPERATOR

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www.tigerlifting.com

Instruction Guide Tiger TAH21 En 201910 v1.0





Operator Instruction Guide



MUST READ BEFORE USE

1. It is important that this manual is read and fully understood and that all instructions are followed before using this Tiger product.
2. Inspect the machine and accessories for any damage or wear before use. Do not use the machine if it is not in good working order.
3. When a “DO NOT OPERATE” sign is placed on the product, do not operate until the sign has been removed by designated personnel.
4. The product must be operated, inspected, maintained and repaired by a competently trained person in accordance with applicable safety codes and regulations.
5. Do not use the machine to lift, support or transport people in any way.
6. Do not hoist loads over or near people.
7. Never work under or near hoisted loads.
8. Do not use the product in explosive environments unless an ATEX version has been supplied.
9. It is the responsibility of the operator to exercise caution, use good practice, common sense and be familiar with proper rigging techniques.
10. Improper use could result in death or serious injury.
11. The supplier takes no responsibility for any form of consequential loss or damage as the result of unauthorised repair or use of spare part other than those issued on behalf of the manufacturer/supplier.

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For details of the full Tiger product range visit our website: www.tigerlifting.com

Due to our policy of continual product development, dimensions, weights and specifications may change without prior notice.

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1. Safety Information


The operating company is responsible for the proper and professional instruction of the operating personnel. The personnel responsible for operation, maintenance or repair of the product must read, understand and follow these operating instructions. These instructions are intended to make the user familiar with the product and enable them to use it to the full extent of its intended capabilities.

The operating instructions must always be available at the place where the product is operated. Apart from the operating instructions and the accident prevention act valid for the respective country and area where the product is used, statutory regulations and procedures along with the commonly accepted regulations for safe and professional work must also be adhered to. The indicated protective measures will only provide the necessary safety if the product is operated correctly and installed and/or maintained according to the instructions. The operating company must be committed to ensure safe and trouble-free operation of the product.

Health and Safety at Work

All lifting equipment must be maintained and tested to meet relevant in country standards. It is the responsibility of every company to ensure that their employees have been fully and properly trained in the safe operation of their equipment.

Equipment Labelling

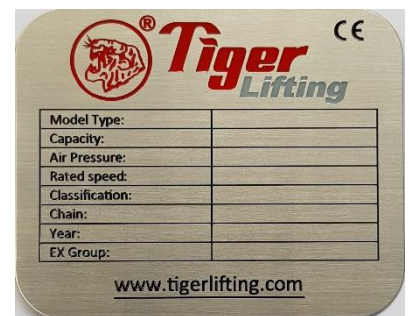
The identification label/name plate details the model type, capacity, manufacturer, air pressure, rated speed, classification, chain, year of manufacture, EX group. The CE marking indicates compliance with the essential health and safety requirements of the Machinery Directive 2006/42/EC. Other international standards that the unit conforms to may be shown. ATEX models will be marked with the  logo.

Safety Instructions

! WARNING

Improper use of this equipment could result in death or serious injury, to avoid these hazards:

- Always** allow only competently trained people to operate the hoist.
- Always** make sure the hoist suspension hook is securely attached to a suitable support.
- Always** keep hands and clothing free from the toggle lever.
- Always** maintain a firm footing or be otherwise secured when operating the hoist.
- Always** make sure that load slings or other approved sling attachments are properly sized and seated in the hook saddle.
- Always** make sure that the hook latch, is closed and not supporting any part of the load.
- Always** make sure that the load is free to move and will clear all obstructions.
- Always** take up slack chain carefully, check load balance, then lift a few centimetres and check to be sure the brake will hold the load and that attachments to the load are firmly seated.
- Always** avoid any swinging of the load or load hook.
- Always** protect load chain from weld spatter or other damaging contaminants.
- Always** report any malfunction, unusual performance or damage of lifting equipment to the appropriate person promptly.
- Always** inspect the hoist regularly, replace damaged or worn parts and keep appropriate records of maintenance.
- Always** use genuine Tiger parts when repairing the hoist.
- Always** warn personnel of your intention to move a load in their area.
- Always** be sure that the hoist's rated capacity, is in excess of the weight of the load.
- Always** keep the load from hitting the chain.
- Always** use two hoists which have rated capacities equal to or more than the load to be lifted whenever you must use two hoists to lift a load.



An example of the Tiger TAH21 label.



- Always** check that the air supply is shut off before performing maintenance on the hoist.
- Always** check for loose or missing parts before use.
- Always** pay attention to the load at all times when operating the hoist.
- Always** secure a hoist and loads properly after use.
- Always** stop using the hoist immediately in case of functional defects or abnormal operating noise.
- Always** observe that the chain hangs straight (without twists) from air hoist to lower hook.
- Always** lift in a straight line from hook to hook.
- Always** make sure the hoist is free to swivel on the upper hook.
- Always** secure the hoist before leaving it unattended

! WARNING

Improper use of air hoists could result in death or serious injury, to avoid these hazards:

- Never** attempt to lift more than the rated load capacity (WLL) of the suspension and the supporting structure.
- Never** allow your attention to be diverted from operating the hoist during operation.
- Never** operate the hoist with twisted, kinked or damaged chain.
- Never** use the up and down stops (travel limit buffers) as a means of stopping a hoist. The up and down stops are emergency devices only.
- Never** leave a load suspended for extended periods.
- Never** attempt to operate this equipment under the influence of alcohol or drugs.
- Never** wrap the load chain around the load and hook onto itself as a sling/choker chain.
- Never** insert the point of the hook into a chain link.
- Never** lift a load if binding prevents equal loading on the load chain.
- Never** let the load swing or come into contact with other objects.
- Never** use the air hoist to lift, lower, support or transport people.
- Never** lift a load over people.
- Never** work near or under hoisted loads.
- Never** operate a hoist when the load chain is not centred under the hook. Do not pull the load sideways.
- Never** use a damaged air hoist or air hoist that is not working correctly.
- Never** use a hoist if the hook latch is missing or broken (if one is intended to be fitted).
- Never** attempt to lengthen the load chain or repair damaged load chain.
- Never** use the air hoist with twisted, kinked, damaged, stretched or worn chain.
- Never** swing a suspended load.
- Never** support a load on the tip of the hook.
- Never** leave a suspended load unattended.
- Never** weld or cut a load suspended by a hoist.
- Never** allow the chain or hook to be used as an earth for welding.
- Never** use the hoist with rusty chain.
- Never** run the lower hook block into the air hoist frame or bring the load in contact with the hoist.
- Never** use the chain stop as an operational limit device.
- Never** operate a hoist if chain is jumping, if there is excessive noise, or if jamming, overloading or binding occurs.
- Never** use a hoist without both load chain anchoring points correctly fitted.
- Never** use a hoist without a name plate/label or with illegible name plate/label.
- Never** use modified or deformed hooks.
- Never** use a hoist near fire or where hot objects may touch it.
- Never** adjust or repair a hoist unless qualified to perform air hoist maintenance.
- Never** perform maintenance on the hoist while it is supporting a load.
- Never** use the unit for pulling free a jammed load.
- Never** allow loads to drop when the chain is in a slack condition (danger of chain breakage and shock loading).
- Never** reach into moving parts.



- Never** allow the unit to fall from height.
- Never** shock load air hoist, chain or hook.
- Never** drag the chain, air hoist or hook along the floor or across other objects.
- Never** use the hoist for any unauthorised purpose that is beyond the operation instructions contained in this manual.
- Never** use the chain hoist in acidic conditions.

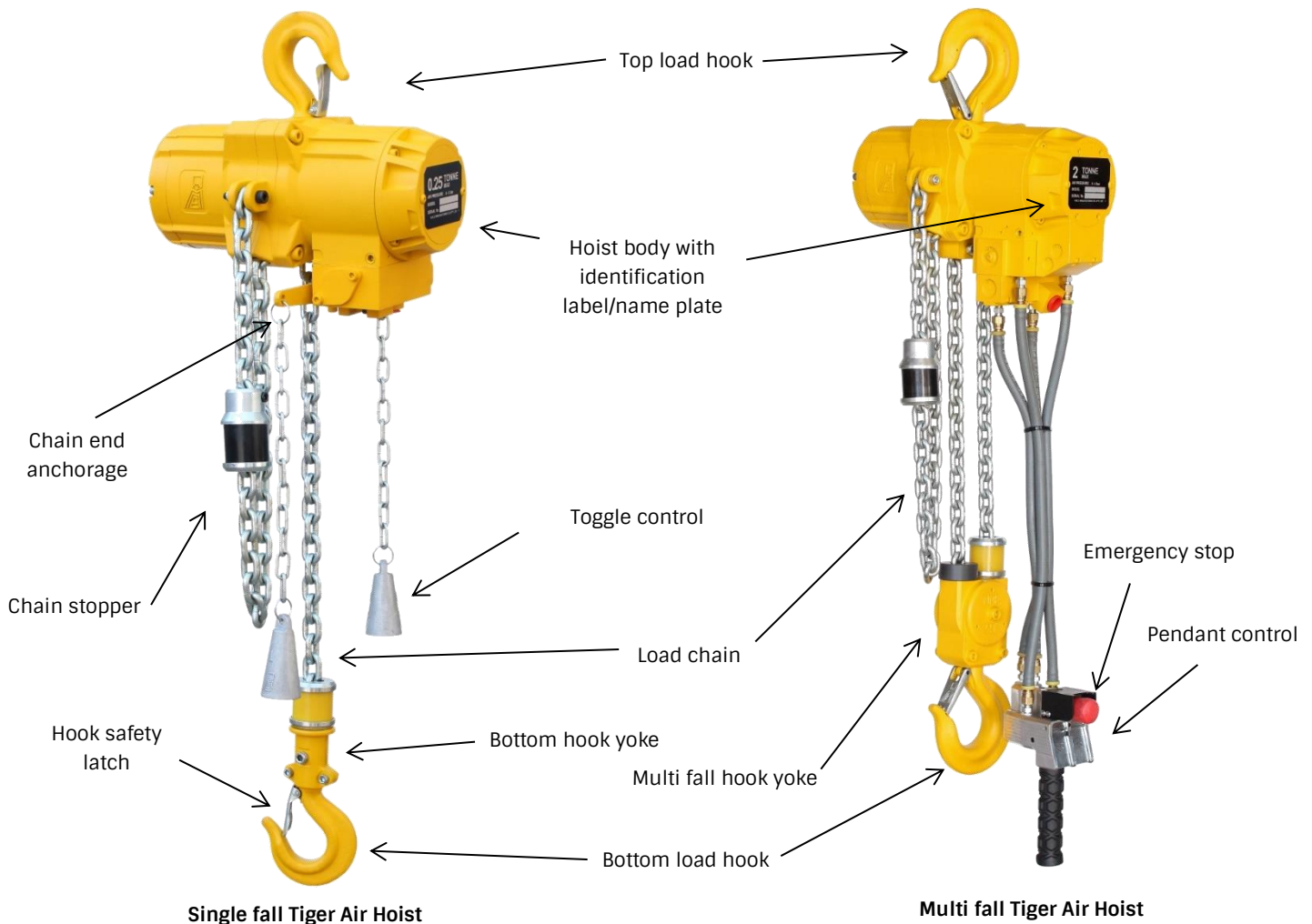
2. General Information

All items come with a test certificate or an EC Declaration of Conformity stating compliance with the essential health and safety requirements of the Machinery Directive 2006/42/EC and relevant EN standards.

Choose the Right hoist for the Job

The load capacity indicated on the unit is the maximum working load limit (WLL) that may be attached. Choose an air hoist with the correct capacity for the job. Know the capacities of your loads, then match them. The application, environment it is to be used in, the size and type of load, the attachments to be used and the period of use must also be taken into consideration in selecting the right air hoist for the job.

Key parts of a Tiger Air hoist





3. Function/Operation

Proper initial installation of the hoist will ensure long trouble-free service and will also limit the possibility of accidents occurring.

The hoist must be attached safely to a secure structure of sufficient strength. The structure should be able to hold at least 5 times the hoist and its rated load. Preferably use a shackle or a sling to attach the hoist to the structure. The anchorage, fittings and framework must not show any signs of distortion when the hoist is lifting its rated load.

Note: Before use at ambient temperatures of less than 0°C, check the brake for freezing by lifting and lowering a small load 2 - 3 times. Before operating the hoist in special atmospheres (high humidity, salty, caustic, alkaline) or handling hazardous goods (e.g. molten compounds, radioactive materials), consult the manufacturer for advice.

Installation of the Chain Bag/Container:

1. The chain container must be able to accommodate the full length of load chain. If the load chain will not feed into the chain container due to it being over full, a bigger container must be fitted.
2. Allow the hoist to lower the bottom hook until the lower hook is at its lowest point of travel. Do not stall the hoist.
3. Attach the chain container to the hoist.
4. Now run the hoist so that the hook is lifting. The slack side of the chain will naturally feed into the chain container.

! WARNING

- Ensure that the chain container is positioned such that the load chain, hook or undercarriage does not come into contact with the chain container.
- Do not fill the chain container by hand. This may cause the chain to twist resulting in jamming of the hoist.

Air Supply

The TAH21 series air hoists are rated at 6bar. This pressure must be maintained at entry to the hoist to enable the hoist to operate at rated load as specified. The hoists will however operate at pressures of as low as 4 bar but performance will be affected. The air supply to the hoist must be clean, free from water and contain lubrication.

! WARNING

The hoist must NOT be subjected to air pressures exceeding 7 bar as this may cause excessive dynamic loading of the hoist.

Air Lines

It is recommended that the minimum inner diameter of the supply hose to the hoist be 19.0mm. For supply hose lengths to the hoist in excess of 15m use a larger diameter hose. Before connecting the hose to the hoist, remove any dirt from the hose by blowing compressed air through the hose into atmosphere. Do not point the hose at anyone while doing this. In order to reduce pressure drops in the supply hose which affect hoist performance, the supply hose should be kept as short and straight as possible. Keep the number of hose fittings to a minimum as they cause unnecessary restrictions.

! WARNING

Always use an air line filter-lubricator unit with a Tiger Lifting air hoists.



Air Line Lubricator

The lubricator must have inlet and outlet ports at least as large as the inlet on the hoist motor. Install the airline lubricator as close to the air inlet on the hoist motor as possible. Refer to “Accessories” in the “PARTS” section for the recommended Filter-Lubricator. The use of a pressure regulator is also recommended since it allows for constant Pendant control sensitivity and hoist performance.

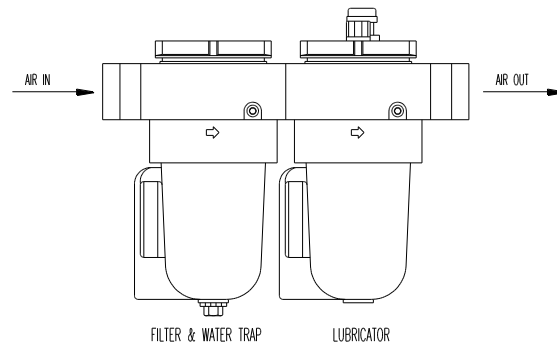


Figure 2. Filter / Lubricator Assembly

! WARNING

The lubricator must be installed no more than 3m from the hoist.

The airline lubricator must be set to deliver a minimum of 1 to 3 drops per minute when the hoist is running at full speed. The recommended lubricant is a light oil i.e. ISO VG10.

! WARNING

- Do not use automotive type detergent oil. These oils will delaminate the motor vanes and cause motor failure.
- Shut off air supply before filling airline lubricator.

Air Line Filter

Dirt or grit entering the hoist motor will cause severe damage to the internal components. We recommend the installation of a 10-micron airline filter as close as possible to the hoist. The filter should be cleaned weekly to prevent excessive pressure drops due to constriction of the filter element. Filters incorporating a water trap are recommended. Moisture entering the hoist motor reduces the efficient operating life of the hoist and should be removed.

Operation

Operators must be physically competent. Operators must have no health condition which might affect their ability to act, and they must have good hearing, vision and depth perception. The hoist operator must be carefully instructed in his duties and must understand the operation of the hoist, including a study of the manufacturer’s literature. The operator must thoroughly understand proper methods of hitching loads and should have a good attitude regarding safety. It is the operator’s responsibility to refuse to operate the hoist under unsafe conditions.

Key instructions

- Follow all safety instructions when operating the equipment.
- Allow only people trained in safety and operation of this product to operate the equipment.
- Subject each hoist to a regular inspection and maintenance as outlined in this manual under the section “INSPECTION”.
- Be aware of the hoist capacity and weight of load at all times.



Initial Operating Checks

Hoists are tested for proper operation prior to leaving the factory. Before the hoist is placed into service after repair, the following initial operating checks should be performed.

1. After installation of trolley mounted hoists, check to ensure the hoist is centred below the trolley.
2. Check for air leaks in the supply hose and fittings to the pendant, and from the pendant to the control valve block.
3. When first running the hoist or trolley motors, some light oil (ISO VG10) should be injected into the inlet connection to allow good lubrication.
4. When first operating the hoist and trolley, it is recommended that the motors be driven slowly in both directions for a few minutes.
5. Test hoist performance when raising and lowering test load(s). Hoists must operate smoothly and at rated specifications prior to being entered into service.
6. Check that trolley (if equipped) and hook movement is in the same direction as arrows on the pendant control.
7. Raise and lower a light load to check operation of the hoist brake.
8. Check hoist operation by raising and lowering a load equal to the rated capacity of the hoist a few centimetres off the floor.
9. Check operation of the travel limit buffers. These operate in conjunction with the load limiter.
10. Check to see that the hoist is directly over the load for vertical lifting operations.
11. Check to see that the hoist is securely connected to the overhead crane, monorail, trolley or supporting member.
12. Check to see that the load is securely attached to the hook, and that the hook safety latch is engaged.

! WARNING

- Only allow personnel trained in safety and operation of this product to operate the hoist and trolley.
- The hoist is not designed or suitable for lifting, lowering or moving persons. Never lift loads over people.
- The hook latch is intended to retain loose slings or devices under slack conditions. Hook latches are not intended to support any load.

Hoist Controls

Pilot Pendant Control (Lever Type)

The hoist is operated via a two-lever pilot pendant control. The two levers control the lifting and lowering of the hoist. For hoists mounted on motorized trolleys a four-lever pilot pendant control is supplied which controls the horizontal movement of the trolley in addition to the lifting and lowering of the hoist. The pilot pendant control allows for precise spotting and variable speed control and has arrows indicating the direction of movement of the lower hook and the trolley. The harder the pendant levers are pressed the faster the hoist or trolley will operate. When the levers are released, the control valve shuts off the air supply to the hoist thereby applying the brake and stopping the hoist.

Pilot Pendant Control (Twist Lever Type)

The hoist is operated by rotating the control handle. The further the handle is rotated the faster the hoist will operate. This control allows for precise spotting and variable speed. When the control lever is released, the control valve shuts off the air supply to the hoist thereby applying the brake and stopping the hoist.

Toggle Control

To operate a toggle control hoist, pull on one of the chains attached to the control handle on the control block. The two aluminium handles are marked for lifting or lowering. The harder the chains are pulled the faster the hoist operates. When released, the control handle returns to its neutral position and shuts off the air supply to the hoist, thereby applying the brake and stopping the hoist.



Operation of Air Hoists fitted with Load Limiters & Emergency Stop (CE Specification)

The CE specification air hoists are fitted with a built-in load limiter and an emergency stop valve. The hoist is pilot pendant controlled with the pendant handle controlling the following functions:

1. Variable speed lifting.
2. Variable speed lowering.
3. Emergency stop activation.

Emergency Stop

To operate the hoist, check that the red emergency stop button is in the reset position (twist to reset) This allows air to pass through the emergency stop valve to the control valve. Lifting and lowering is controlled by pressing the levers on the pendant handle marked and the harder the lifting and lowering levers are pressed, the faster the hoist motor runs thereby providing variable speed control.

By pressing the lifting or lowering levers on the pendant handle allows the spool in the control valve to move thereby channelling pressurized air to the correct side of the motor. Before the motor can start turning, the high-pressure air passes through the shuttle valve and then releases the brake. The disc brake is spring applied, and air is released. It will be applied automatically if the air supply to the hoist is cut off. Once the brake is released the motor is free to turn and perform lifting or lowering operations.

The emergency stop valve fitted to the unit interrupts the main air supply to the control valve and not only the pilot signals to the control valve. This covers the emergency condition where the control valve spool is stuck and interrupting the pilot signals to the control valve will not stop the hoist. It is activated by pressing the red emergency stop button on the pendant control handle. Once the red emergency stop button has been pressed, the hoist brake will be applied automatically. The button has a decent mechanism locking it in position once pressed. The emergency stop button can be reset by twisting the button until it pops up into the reset position. This will allow hoisting operations to start once the emergency condition has been rectified.

! WARNING

Do not resume hoisting operations until all conditions (operational or mechanical) related to the activation of the emergency stop have been safely rectified.

Load Limiter

The load limiter valve is factory set to operate at between 10% and 25% overload and is protected from tampering by a tamper resistant cover.

The load limiter functions as a differential pressure valve. At the set value, the valve activates and allows the failsafe brake to be applied thereby stopping the lifting effort. The hoist must be running for the valve to measure the pressure differential. When in the overload condition, the load can still be lowered to rectify the overload condition. The load limiter may activate if shock loads are applied to the hoist. The load limiter also operates in conjunction with both the travel limits.

Since the load limiter valve measures a pressure differential and not the in-line air pressure, the valve will still operate within the allowable overload limits as prescribed in EN 14492 at pressures of up to 7 bar.

Travel Limits

The TAH21 series hoists are fitted with travel limit buffers. These are emergency stops only and not intended as routine travel limits. The travel limits operate in conjunction with the load limiter to arrest the hoist when the end positions are reached. If the buffers are pulled against the hoist body, the hoist stops. Release the controls and listen for the sound of the load limiter valve resetting as it exhausts a small amount of air.



! WARNING

- Avoid shock loads on the hoist.
- Always take up the slack chain slowly before lifting the load.
- Do not leave the hoist unattended while any loads are suspended if it is not necessary

4. Inspection

According to national and international accident prevention and safety regulations (for example LOLER in the UK), hoisting equipment must be inspected:

- in accordance with the risk assessment of the operating company
- prior to initial operation
- before the unit is put into service for any subsequent use
- after substantial changes
- however, at least once per year, by a competent person.

The intervals of inspection must be determined by the individual application and are based upon the type of service to which the air hoist will be subjected.

An inspection record should be maintained for each hoist, listing all points requiring periodic inspection. A written report should be made monthly on the condition of the critical parts of each hoist. These reports should be dated, signed by each person who performed the inspection, and kept on file where they are readily available to authorized personnel.

On hoists in continuous service, frequent inspection should be made at the beginning of each shift. In addition, visual inspections should be conducted during regular service for any damage or evidence of malfunction.

Typical pre-use inspection will consist of a visual inspection and a function check. These inspections are intended to establish that the hoist is in a safe condition, has been set up appropriately and is ready for operation, and that any defects or damage are detected and eliminated.

Inspect the air hoist for operation warning notices and legibility. Deficiencies should be noted and brought to the attention of supervisors. Be sure defective air hoist are tagged and taken out of service until repairs are made.

The following checks should be carried out before starting work:

Check the unit

Operation

- Check for visual signs or abnormal noises (grinding etc.) which could indicate a potential problem.
- Make sure all controls function properly and return to neutral when released.
- Check chain feed through the chain guides and undercarriage. If chain jams, wedges, jumps, is excessively noisy or "clicks", clean and lubricate the chain. If problem persists, replace the chain.
- Do not operate the hoist until all problems have been corrected.
- Inspect the unit for visual defects, e.g. deformations, damage, cracks, wear and corrosion marks.
- The hoist is supplied with a test certificate and an instruction, maintenance and parts manual. When initially receiving the hoist check that the serial number on the hoist and certificate correspond.
- Check that the name plate/label showing the hoist capacity is attached and clearly legible.
- Check lubrication and lubricate if necessary.
- Check for loose or missing nuts and for missing split pins.
- Check that the hoist has been delivered is capable of performing the required task.



- All the hoists internal components are lubricated internally in the factory. It is however recommended that the load chain be lubricated before the hoist is put into service.

Hooks

1. Check for wear or damage, increased throat width, bent shank or twisting of the hook.
2. Replace hooks which exceed the throat opening specified in Table 2 or exceed a 10° twist (see Figure 3).
3. If the hook latch snaps past the tip of the hook, the hook is sprung and must be replaced.
4. Check hook support swivels for excessive clearance or damage.
5. Ensure they swivel easily and smoothly.

Travel Limit Buffers

1. The travel limit buffers are fitted above the lower hook, undercarriage as well as in front of the chain stopper on the slack end of the chain.
2. When functioning as hook travel limits, they operate in conjunction with the load limiter which stops the motor when pulled against the hoist body.
3. To test the travel limits:
 - a) Without any load attached, move the travel limit buffer to a position just short of the chain guide and stop the hoist.
 - b) By repeatedly activating the control, move the buffer into its end position. The buffer will be compressed, and the hoist will stop. When the control is released, listen for the sound of the load limiter valve resetting as it exhausts a small amount of air.
4. Reverse the hoist so that the buffer is unloaded.

! WARNING

Do not operate the hoist if the travel limit buffers are damaged or missing. Replace buffers and test as above before returning to service.

Air System

1. Visually inspect all connections, fittings, hoses and components for indication of air leaks.
2. Repair any leaks found

Controls

1. During operation of the hoist, check the response of the hoist to the pendant is smooth and not sticky.
2. Ensure that the control handle switches to its maximum position in both directions.
3. The control handle must return to neutral when released.
4. If hoist responds slowly or movement is unsatisfactory, do not operate hoist until all deficiencies have been corrected.

Silencer

1. Check that the hoist performance is not restricted due to the silencer element clogging.
2. Hoist performance with silencer fitted should be at least 80% of the hoist performance with the silencer removed.
3. If not, clean or replace the filter element.

Hook Safety Latch

1. Make sure the hook safety latch is present and operating. Replace if necessary.



! WARNING

Do not use hoist if hook safety latch is missing or damaged.

Load Chain

1. Examine each of the links for bending, cracks in weld areas or shoulders, traverse nicks and gouges, corrosion pits and chain wear, including bearing surfaces between chain links (see Figure 5).
2. Replace a chain that fails any of the inspections.
3. Check chain lubrication and lubricate if necessary.

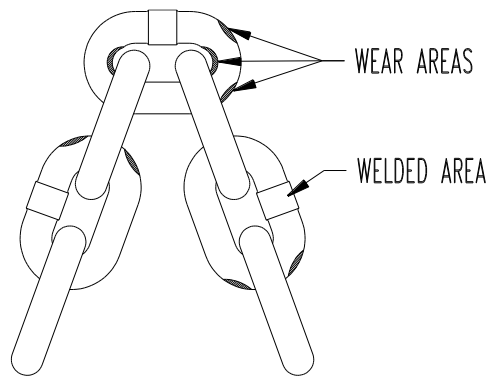


Figure 4. Chain Wear and Corrosion Areas

! WARNING

The full extent of load chain wear cannot be determined by visual inspection only. At any indication of load chain wear inspect chain and chain wheel in accordance with instructions in “Periodic Inspection”.

Load Chain Reeving

1. Ensure welds on upright links are away from the driven load sheave.
2. Re-install chain if necessary.
3. Make sure chain is not twisted or kinked - Adjust as required.

Periodic Inspection

Frequency of periodic inspection depends on the severity of usage:

Normal	Heavy	Severe
Yearly	Twice Yearly	Quarterly

Disassembly may be required for HEAVY or SEVERE usage. Keep accumulative written records of periodic inspections to provide a basis for continuing evaluation. Inspect all the items in “Frequent Inspection”.

Also inspect the following:

1. **Fasteners** - Check capscrews and nuts. Replace if missing or tighten if loose.
2. **All Components**. Inspect for wear, damage, distortion, deformation and cleanliness. If external evidence indicates the need, disassemble. Check gears, shafts, bearing, load sheaves, chain guides, springs and covers. Replace worn or damaged parts. Clean, lubricate and reassemble.
3. **Hooks** - Inspect hooks carefully for cracks using magnetic particle or other suitable non-destructive testing methods. Inspect hook swivels. Tighten swivel bolts if necessary.





4. **Load Sheaves** - Check for damage or excessive wear. Replace if necessary. Observe the action of the load chain feeding through the hoist. Do not operate a hoist unless the load chain feeds through the hoist and undercarriage smoothly and without audible clicking or other evidence of jamming, wedging or malfunctioning.
5. **Motor** - If performance is poor, disassemble the motor and check for wear or damage to bearings and other parts. The parts should be cleaned, lubricated and reassembled. Replace worn or damaged parts.
6. **Brake** - Raise a load equal to the 125% of the rated capacity of the hoist about 200mm off the floor. Verify hoist holds the load without slipping. If slipping occurs, disassemble. Remove brake disc as described in the "MAINTENANCE" section. Check and clean the brake parts each time the hoist is disassembled. Replace the brake disc if the thickness is less than 5.00mm.
7. **Supporting Structure** - Check for distortion, wear and continued ability to support the load.
8. **Trolley** - (if equipped) Check that the trolley wheels run properly on the beam and that the distance between wheel flanges exceeds the beam flange size by 4.5 to 6 mm. Ensure that the anti tilt devices prevent the wheel flange from riding on top of the beam. Check that wheels and rail are not excessively worn and inspect the side plates for opening up due to bending. Do not operate the hoist until any problems have been identified and corrected.
9. **Nameplate** - Check for presence and legibility. Replace if necessary.
10. **Load Chain End Anchors** - Ensure both ends of the load chain are securely attached. Secure if loose, repair if damaged, replace if missing.
11. **Load Chain** - Measure the load chain for wear and stretching as shown below and compare to the allowable limits in Table 3. Take care to take the measurements on that part of the chain which comes into contact with the load sheave most often. If the measurements exceed the maximum values shown below, replace the chain. Always use the load chain recommended by Tiger Lifting for the desired application.

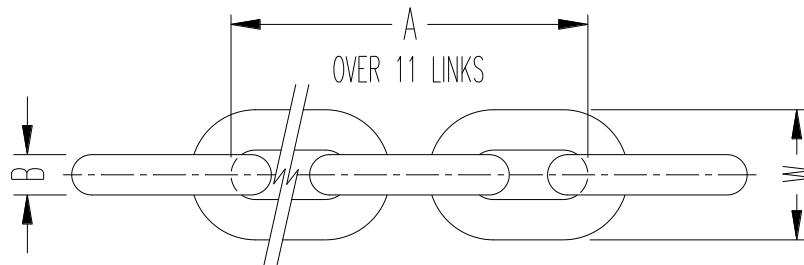


Figure 5. Chain Wear Limits

Chain Bag/Container - Check for damage or excessive wear and that chain container is securely attached to the hoist. Secure or replace if necessary. Ensure correct positioning of the chain bag

Hoists Not in Regular Use

1. A hoist which has been idle for a period of one month or more, but less than one year, should be given an inspection conforming with the requirements of "Frequent Inspection" prior to being placed into service.
2. A hoist which has been idle for a period of more than one year should be given an inspection conforming with the requirements of "Periodic Inspection" prior to being placed into service.
3. Standby hoists should be inspected at least biannually in accordance with the requirements of "Frequent Inspection". In abnormal operating conditions hoists should be inspected at shorter intervals.

Testing the Load Limiter

When testing the load limiter, the TAH21 series air hoists must be subjected to a dynamic test.

The test weight must be equivalent to 125% of the working load limit. The hoist must arrest the lifting effort and hold the test weight stationary. Once the load limiter has activated it will be possible to lower the test weight.

The load limiter must not activate at or below the working load limit.



Lubrication

To ensure continued satisfactory operation of the hoist, all points requiring lubrication must be serviced with the correct lubricant at the proper time interval. Correct lubrication is one of the most important factors in maintaining efficient operation.

The lubrication intervals recommended in this manual are based on intermittent operation of the hoist eight hours each day, five days per week. If the hoist is operated almost continuously or more than the eight hours each day, more frequent lubrication will be required. Also, the lubricant types and change intervals are based on operation in an environment relatively free of dust, moisture, and corrosive fumes. Use only those lubricants recommended. Failure to observe this precaution may result in damage to the hoist and/or its associated components.

Gearboxes for the TAH21 series hoists use a Fuchs Super Luplex M2 grease, generally filled to the level of the annulus gear plus a smear of grease on the cluster gear section that mates with the load gear.



Whenever a Tiger Air Hoist is disassembled for overhaul or replacement of parts, lubricate as follows:

1. Coat all motor parts with a light film of ISO VG10 or a good quality hydraulic oil before assembling.
2. Apply a coating of grease to all gearing before assembly. Neglect of proper lubrication will lead to bearing failure. The recommended grease is as follows: FUCHS SUPER LUPLEX M2. If this specific grease is not available use an equivalent grease.

! WARNING

Do not use automotive type detergent oil. Detergents will delaminate the motor vanes and cause motor failure.

Load Chain

1. Lubricate load chain weekly, or more frequently, depending on severity of service.
2. In a corrosive environment, lubricate more frequently than normal.
3. Lubricate each link of the load chain and apply new lubricant over existing layer.
4. If required, clean chain with acid free solvent to remove rust or abrasive dust build-up and re-lubricate the chain.
5. Use SAE50 to 90 EP oil for chain lubrication.

! WARNING

Failure to maintain, clean and keep the load chain well lubricated will result in rapid load chain wear that can lead to chain failure resulting in severe injury, death or substantial property damage.

Hook Assemblies

1. Lubricate the hook swivel and hook latch pivot points. Hook and latch should swivel/pivot freely.
2. Use SPANJAARD COPPER SLIP COMPOUND or alternatively SAE50 to 90 EP oil for hook lubrication.

Chain Replacement

Refer to "INSPECTION" section for information on load chain inspection.

Excessive chain wear cannot be detected by casual observation. Load chain is case hardened to a depth of 0.25 to 0.30 mm, and once this case is worn through, wear will progress rapidly and the strength of the chain will be considerably reduced. Further, the chain will no longer fit the load sheave properly, greatly increasing the chance of malfunction and chain breakage.

One load sheave will outlast several chains if the chain is replaced as recommended. The use of a worn chain will cause the load sheave to wear rapidly.

If the chain is visibly damaged, examine the load sheave and chain guides and chain stripper. Install a new load sheave if the old one is visibly worn. Install new chain guides if the old one is broken or distorted.

For Single Fall Hoists

1. Disconnect the slack end of the chain from its anchoring bolt on the side of the chain guide and remove the chain stopper and buffers.
2. Remove the hook from the other end of the chain by removing the bottom hook pin. Remove the buffers.
3. Run the hoist slowly until the end of the chain passes over the load sheave and falls free from the hoist.
4. Remove the brake housing by slacking the four brake housing screws. Remove the brake disc, brake piston and springs.
5. Push a piece of steel wire through the chain passage in the chain guide. Attach this piece of wire to the last link of the chain.



6. Pull the wire so that the first link lies flat in the load sheave pocket. Also ensure that the welded section faces outwards from the load sheave.
7. Turn the brake disc coupler by hand until the chain has fed through the chain guide.
8. Replace the buffer and chain stopper. Attach the slack end of the chain to the chain guide taking care not to twist the chain.
9. Replace the buffer and attach the chain to the hook swivel using a new nut to secure the bottom hook pin.

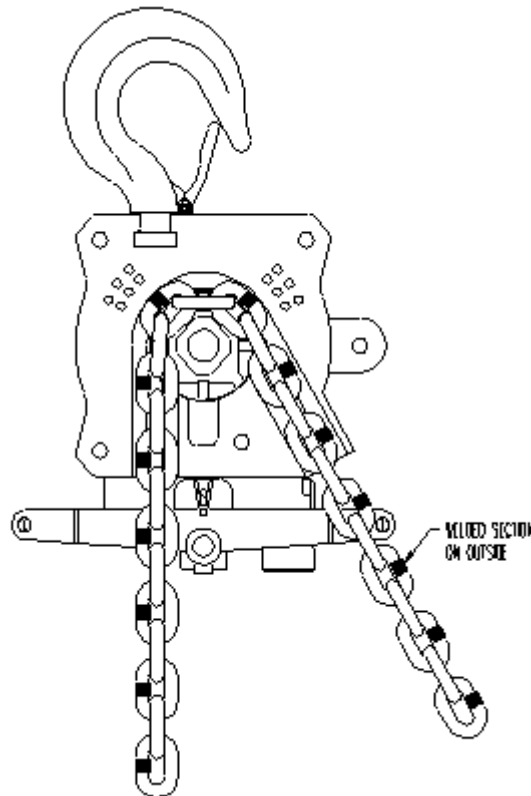


Figure 6. Installation of the Load Chain

For Double Fall Hoists

! WARNING

The replacement chain for TAH21 series double fall hoists must have an odd number of links.

1. Install the chain as in Steps 1 through 9 of the instructions for single fall hoists.
2. Ensure that the chain is straight and not twisted.
3. For double fall hoists feed the end of the chain through the undercarriage making sure that it seats on the load sheave. The welded section of the chain must face outwards from the undercarriage load sheave.
4. Keeping the chain straight, replace the buffers and attach the free end of the chain to the chain guide using the doubling down bolt.

! WARNING

A twisted chain can jam as it passes over the load sheave, which can result in damage to the hoist or even breakage of the chain causing severe injury, death or substantial property damage.



Hoist Disassembly

! WARNING

Disconnect the air supply hose before performing any maintenance or repairs on this hoist.

1. Do not disassemble the hoist any further than necessary to replace or repair damaged parts.
2. Whenever grasping a component in a vice, always use leather covered or copper covered vice jaws to protect the surface of the component and help prevent distortion. This is particularly true of threaded members and housings.
3. Do not remove any component which is a press fit in or on a sub-assembly unless the removal of that component is necessary to complete the repair or replacement of the component.
4. Do not disassemble this hoist unless you have a complete set of new gaskets, o-rings and seals on hand for replacement. These are available in the Overhaul Seal and Gasket Kit.
5. Do not attempt to wash sealed bearings. We recommend that bearings be replaced when the hoist is disassembled.

Disassembly of the Control Valve (Pilot Pendant Control)

1. If the hoist has a pendant control, remove the three pendant control hoses.
2. Unscrew the four bolts attaching the control valve to the rotor housing. Remove the control valve from the hoist. Remove the gasket.
3. Remove both circlips securing the valve covers in position. Using a copper punch, tap the valve cover inwards to force the opposite cover out of the valve housing. Remove the spring. Now tap the sleeve towards to opposite side to force the other valve cover out. Remove the spring.
4. Remove the spool valve from the sleeve.
5. Using a soft copper punch, gently tap the control valve sleeve out of the housing. Care should be taken not to burr the inner surfaces of the sleeve.
6. Examine all components for wear, replacing damaged or worn components. Replace all gaskets, seals and o-rings before re-assembly.
7. Remove all sharp edges and burrs from components. Wipe all components with ISO VG10 oil before re-assembling in the reverse order to stripping.

Disassembly of the Control Valve (Toggle Control)

1. Unscrew the four bolts attaching the control valve to the rotor housing. Remove the control valve from the hoist.
2. Remove the control valve spring using a pliers. Apply caution so that the spring does not shoot away when unwinding itself.
3. Remove the spool valve toggle and the toggle shaft.
4. Remove the spool valve covers.
5. Remove the spool valve from the control valve sleeve.
6. Remove the locking screw which locks the control valve sleeve.
7. Using a soft copper punch, gently tap the control valve sleeve out of the housing. Care should be taken not to burr the inner surfaces of the sleeve.
8. Examine all components for wear, replacing damaged or worn components. Replace all gaskets, seals and o-rings before re-assembly.
9. Remove all sharp edges and burrs from components. Wipe all components with ISO VG10 oil before re-assembling in the reverse order to stripping.

! WARNING

The spool valve and the control valve sleeve are lapped as a set. If they are worn or defective both components must be replaced.



Disassembly of the Brake Mechanism

1. Remove the brake housing by evenly unscrewing the four brake housing screws.
2. Remove the brake port seal, brake disc and thrust plate from the brake housing.
3. Remove the load limiter, if fitted, by unscrewing the four screws.
4. Unscrew the brake housing cover complete with nameplate.
5. For further disassembly, compress the brake springs by pressing the brake housing and spring compression plate towards each other in a vice. Remove the brake piston screw. Slowly release the vice to release the brake housing.
6. Remove the brake piston, spring compression plate and the brake springs.
7. Clean and inspect all components for wear or damage. Replace excessively worn or damaged components. The brake disc must be replaced if it is less than 5.0mm thick.
8. Replace the brake piston seal, brake rod seal, brake chamber seals and the brake port seal.
9. Before re-assembly lightly wipe some ISO VG10 oil on the surfaces where the seals work. Do not allow oil to come into contact with the brake disc or thrust plate.
10. Re-assemble in the reverse order to stripping.

Disassembly of the Motor

1. Remove the entire brake mechanism. Refer to "Disassembly of the Brake Mechanism". Remove the control valve. Refer to "Disassembly of the Control Valve". Remove the four main housing screws and the doubling down bolt (if present) which hold the motor, gearbox and centre section together. Split these three main sub-assemblies.
2. Unscrew the drive dogs in the disc brake coupler and remove the disc brake coupler.
3. Remove the rotor housing cover screws. Using a copper punch knock the rotor shaft at the brake end. This action will remove the rotor, vanes, vane springs, rotor ring (drive end), end shield and its bearing, rotor ring (brake end) and rotor housing cover. Using a copper punch knock the rotor out of the end shield bearing. Remove the bearing from the rotor housing cover.
4. Remove the bearing retainer plate including the rotor seal and the brake chamber seal around the rotor air shield bearing.
5. Tap the air shield lightly with a plastic hammer to remove the cylinder and air shield from the rotor housing. Remove the air shield seal and the air shield bearing from the air shield.
6. Remove the cylinder pin from the rotor housing if it has not fallen out with the air shield and cylinder.
7. Unscrew the shuttle valve plugs from the sides of the motor housing.
8. Using an allen key, remove the two shuttle valve stoppers and the shuttle valve ball.
9. Clean and inspect all components for wear and damage. Check for excessive scouring of the rotor, cylinder, air shield and end shield. If deep grooves are present replace the components and check the in line filter for correct operation. Check the faces of the vanes for excessive wear.
10. Replace both the rotor bearings and any other worn or damaged components.
11. Wipe all components with ISO VG10 oil before re-assembly in the reverse order to stripping.
12. Install the cylinder pin in the motor housing before inserting the air shield and cylinder.
13. The motor must turn freely by hand when assembled.

Disassembly of Centre Section

1. Remove the motor and gearbox assemblies as described in "Disassembly of the Motor".
2. Using a plastic hammer, knock the side of the hook to split the two halves of the chain guide. A screwdriver can be used to split the chain guides further until the load sheave and its load bearing are fully out of one of the chain guide halves.
3. Once the two halves are split, remove the chain stripper, hook and the load sheave.
4. Clean and inspect all the components for wear and damage. Replace excessively worn components. Inspect the hook as described under the section "INSPECTION".



! WARNING

Excessive wear of the load sheave and chain guide will enable the chain to climb out of the pockets and cause shock loading on the hoist.

5. Ensure that exhaust air passages are open and free from dirt.
6. Replace both the load bearings before re-assembly.
7. Use SAE50 to 90 EP oil for hook shank lubrication.
8. Re-assemble in the reverse order to stripping.

Disassembly of the Gearbox

1. Remove the gearbox from the rest of the hoist as described in "Disassembly of the Motor".
2. Remove the silencer element locking ring and the silencer element from the end of the gearbox housing. If required, the silencer adaptor can be removed by unscrewing the four locking screws in the side of the gearbox housing and using a puller to extract the adaptor.
3. Unscrew the four gearbox cover screws. Insert two jacking bolts in the tapped holes in the cover and evenly jack the cover out of the housing. The output load gear should come out with the cover.
4. Remove the output gear, gear housing seal and gear housing load bearing from the gear housing cover.
5. To remove the cluster gear carrier, turn the gearbox housing upside down and strike the housing firmly with a plastic mallet until the cluster gear carrier falls out. This operation will also remove the drive shaft.
6. Tap the small end of the drive shaft gently so that it pushes one of the cluster gear carrier bearings out of the cluster gear carrier. This will free the drive shaft.
7. Remove the other cluster gear carrier bearing and the two cluster gear carrier circlips.
8. Unscrew the three cluster gear shaft locking screws and gently knock the shafts out of the cluster gear carrier using a copper punch. Remove the six cluster gear bearings from the cluster gears.
9. Remove the drive shaft bearing from the gearbox housing by pressing the bearing withdrawal spacer out.
10. Use a puller to remove the annulus gear and its keys or dowels from the gearbox housing.
11. Clean and inspect all gearbox components for wear and damage. Each gear tooth must be checked for excessive wear and cracking. Replace all damaged and excessively worn components. Replace all gearbox bearings before re-assembly.
12. All bearings must be liberally packed with grease before re-assembly. The specified lubricants are listed under the section "LUBRICATION".
13. Start re-assembly by replacing the silencer adaptor and silencer element.
14. Insert the annulus gear with its keys or dowels.
15. Insert the drive shaft bearing into its recess in the gearbox housing.
16. Assemble the cluster gears with their bearings and cluster gear rings (if removed). Re-assemble the cluster gear sub-assembly complete with cluster gears, cluster gear shafts and circlips. Only insert the cluster gear carrier bearing which fits at the bottom of the gearbox.
17. Place the other cluster gear carrier bearing on the bearing insert in the load gear. Insert the drive shaft through the load gear. Align the timing marks on the load gear with those on the cluster gears. The load gear is stamped A, B and C on the face where the gear teeth are machined. Each cluster gear is also marked A, B and C. Insert the cluster gear carrier assembly into the load gear ensuring that the letters on the load gear and cluster gears coincide and that the cluster gear teeth mesh properly with the load gear teeth and the drive shaft teeth.
18. Liberally apply the specified grease to the gears and bearings in this sub-assembly and to the annulus gear and bearings in the gearbox housing.
19. Insert the entire sub-assembly into the gearbox housing ensuring that the annulus gear teeth mesh with the cluster gear teeth. Lightly knock the entire assembly into its home position.
20. Insert the gear housing seal in its recess in the gear housing cover.
21. Replace the gear housing cover and load bearing.
22. Test the gearbox by turning the drive shaft by hand. It must turn smoothly and not be jerky.



Disassembly of the Load Limiter

1. The load limiter valve is a pre assembled unit that is pre set at the factory. The unit may require adjustment during service but this will not require disassembly.
2. We recommend that the load limiter not be stripped. It should instead be returned to Tiger Lifting for testing or overhaul if required.

Disassembly of the Pilot Pendant Control Handle (Lever Type)

1. Remove the three pendant hoses from the pendant control. Ensure that the main air supply to the hoist is shut off.
2. Unscrew the shaft locking screw and remove the pivot shaft and the pendant levers.
3. Unscrew the two guide locking screws.
4. Remove the two plugs at the back of the housing. Use a copper punch to lightly tap out the pistons and piston guides.
5. Remove the pendant springs from the pendant control housing.
6. Extract the piston from the piston guide and remove the stopper seal and piston guide seals.
7. Clean and inspect all components for wear and damage. If there is excessive air leakage between the piston and the piston guide, both components must be replaced.
8. Replace all seals.
9. Wipe all components with ISO VG10 oil before re-assembling in the reverse order to disassembly.

Disassembly of the Pilot Pendant Control Handle (Twist Lever Type)

1. Remove the three pendant hoses from the pendant control. Ensure that the main air supply to the hoist is shut off.
2. Remove the nut and the handle. Take care when removing the spring from the spring pins. Protective eyewear should be worn. Remove the shaft bush.
3. Unscrew the four housing screws and remove the housing cover. Remove the circlip from the cam shaft. Push the cam out of the housing cover and remove the thrust washer and seal.
4. Unscrew the two guide locking screws as well as the screws securing the guides in the recess of the handle housing.
5. Remove the two plugs at the back of the housing. Use a copper punch to lightly tap out the pistons and piston guides.
6. Remove the pendant springs from the pendant control housing.
7. Extract the piston from the piston guide and remove the stopper seal and piston guide seals.
8. Clean and inspect all components for wear and damage. If there is excessive air leakage between the piston and the piston guide, both components must be replaced.
9. Replace all seals.
10. Wipe all components with ISO VG10 oil before re-assembling in the reverse order to disassembly.

Disassembly of the E/Stop Pilot Pendant Control Handle (Twist Lever Type)

1. Remove the four pendant hoses from the pendant control. Ensure that the main air supply to the hoist is shut off.
2. Remove the nut and the handle. Take care when removing the spring from the spring pins. Protective eyewear should be worn. Remove the shaft bush.
3. Unscrew the four housing screws and remove the housing cover. Remove the circlip from the cam shaft. Push the cam out of the housing cover and remove the thrust washer and seal.
4. Unscrew the three guide locking screws as well as the screws securing the guides in the recess of the handle housing.
5. Unscrew the E/Stop button locking screw and unscrew the button. Remove the spaces washer.
6. Remove the three plugs at the back of the housing. Use a copper punch to lightly tap out the pistons and piston guides.
7. Remove the pendant springs from the pendant control housing.
8. Extract the piston from the piston guide and remove the stopper seal and piston guide seals.
9. Clean and inspect all components for wear and damage. If there is excessive air leakage between the piston and the piston guide, both components must be replaced.
10. Replace all seals.
11. Wipe all components with ISO VG10 oil before re-assembling in the reverse order to disassembly.



Disassembly of the Emergency Stop Valve

1. Remove the three pendant hoses.
2. Remove the valve by unscrewing the four screws securing it in place.
3. Remove both circlips securing the valve covers in position. Using a copper punch, tap the spool valve cover inwards to force the opposite cover out of the valve housing.
4. Carefully remove the spool seals from the housing.
5. Examine all components for wear, replacing damaged or worn components. Replace all seals and o-rings before re-assembly.
6. Remove all sharp edges and burrs from components. Wipe all components with ISO VG10 oil before re-assembling in the reverse order to stripping. Note the order of the spool valve seals.

Disassembly of the Undercarriage

1. Remove the doubling down bolt from the lugs on the chain guides.
2. Feed the slack chain through the undercarriage until the undercarriage is free.
3. Remove the shaft bolt and the two undercarriage bolts. This will enable the two undercarriage halves to be split and the hook and load sheave to be removed.
4. Use a small punch to knock the bearing out of the undercarriage side plate through the three holes in each side plate.
5. Clean and inspect all components for wear and damage.
6. Inspect the hooks as described under the section "INSPECTION".
7. Check for load sheave deformation or cracks.
8. Use SAE50 to 90 EP oil for hook shank lubrication.
9. Replace the undercarriage bearings.
10. Re-assemble in the reverse order to stripping.

Inspect the supporting structure and attachment point

The attachment point for the hoist must be selected so that the supporting structure to which it is to be fitted has sufficient stability and to ensure that the expected forces can be safely absorbed. The unit must align freely also under load in order to avoid impermissible additional loading. Check that the hoist and the load are correctly attached.

Inspection of the Load Chain Anchoring

The load chain anchoring must always be fitted securely at both ends. There must be no wear or incorrect alignment.

Thorough Examination

The air hoist must be subject to periodic thorough examination in compliance with national statutory regulations including on initial use or following installation.

Reports of thorough examination can be based on statutory maximum intervals or via a written examination scheme based on risks and hazards associated with use.

Initial inspection and recurring inspections must be documented. Chapter 11 contains the inspection log which must be maintained for each block. Any deficiencies noted are to be corrected before the air hoist is returned to service.

Any parts that are deemed unserviceable are to be replaced with new parts before the unit is returned to service. It is very important that the unserviceable parts are destroyed to prevent possible future use as a repair item and are properly disposed of.



5. Maintenance

! WARNING

Never perform maintenance on the hoist while it is supporting a load.

Servicing and repairs should only be carried out by qualified, competent, and responsible people.

After performing any maintenance to the hoist, always perform a functional test before returning to service. After the replacement of components, a subsequent inspection by a competent person is obligatory!

Repair work may only be carried out by a specialist workshop that uses original Tiger spare parts.

Before handling lubricants, read the associated product health and safety data information sheet obtained from the lubricant supplier.

Load Chain

To determine if load chain should be continued in service, check gauge lengths and condition. Chain worn beyond the maximum allowable gauge length (as shown in Chapter 4), nicked, gouged or twisted chain should be replaced before returning the air hoist to service.

It is recommended that you lubricate load chain at least weekly, or more frequently than normal depending on severity of service. Apply new lubricant over existing layer. Lubricate chain more frequently in a corrosive environment. A dry film lubricant, e.g. PTFE spray, should be used in environments where abrasives like sand, etc., occur. The service life of the load chain can be increased by careful lubrication to 20 - 30 times, compared with a chain that is not serviced.

When lubricating the chain, make sure the chain is in no-load condition so that the oil can reach the contact points (crown/saddle) of the chain links which are subject to wear.

Make sure that the load chain is lubricated over its entire length, also including the part of the chain in the housing of the hoist around the load sheave/wheel. Remove excess lubricant from the chain by wiping with a cloth.

Clean dirty chains with acid free or water based solvent or a similar cleaning agent, to remove rust or abrasive dust build up. Never heat the chain.

Hooks

Lubricate the hook shank, the head within the hook yoke and the hook latch pivot points with the same lubricant used on load chain.

Exterior Finish

Normally, the exterior surfaces can be cleaned by wiping with a cloth. Paint damage should be touched up in order to avoid corrosion. All joints and sliding surfaces should be slightly greased. In the case of heavy contamination, the unit must be cleaned using acid free or water based solvent or a similar cleaning agent.

Preventative Maintenance

In addition to the periodic inspection procedure, a preventative maintenance program should be established to prolong the useful life of the air hoist and maintain its dependability and continued safe use. The program should include the periodic inspections with particular attention being paid to the lubrication of various components using the recommended lubricants.



! WARNING

Use only Tiger supplied replacement parts. Parts may look alike however Tiger parts are made of specific materials, processed to achieve specific properties or precisely machined to fit only Tiger hoists.

Any repairs to this lever hoist must be undertaken by a suitably qualified and competent person. Following any repairs, this lever hoist must be tested in line with relevant standards prior to its reintroduction to service.

6. Transport, Storage, Decommissioning and Disposal

Transporting the unit:

- Do not drop or throw the unit, always deposit it carefully.
- Load chains must be transported in a way to avoid knotting and formation of loops.
- Use suitable transport means. These depend on the local conditions.

Storing or temporarily taking the unit out of service:

1. If the hoist is to be stored for a long time, spray anti corrosion spray or ISO VG10 oil into the air inlet port and run the hoist slowly for a few seconds.
2. Plug hoist air inlet port.
3. Always store the hoist in a no-load condition. Do not run the hoist into the travel limit buffers.
4. Wipe off all dirt and water.
5. Oil the load chain, hook pins and hook latch.
6. Store the hoist in a clean dry environment.
7. Before returning the hoist to service, follow instructions for hoists not in regular service in the "INSPECTION" section.

To ensure the continuing integrity of the unit you should store the unit in conditions that do not lead to damage or deterioration. Therefore:

- Always store the hoist unloaded.
- The hoist should be secured against unauthorised and unwarranted use.
- Store the unit in a clean and dry place.
- Protect the unit including all accessories against contamination, humidity and damage by means of a suitable cover.
- Protect against corrosion.
- Wipe off all dirt and water.
- A light oil film should be applied to the chains, hook pins and hook latch pins.
- Since the brake disks may freeze at temperature below 0°C, the unit should be stored with closed brake. Turn the hand chain wheel clockwise to this effect and hold the load fall at the same time.
- If the unit is to be used again after it has been taken out of service, it must first be inspected again by a competent person.

When the product comes to the end of its lifecycle, after taking the unit out of service, recycle or dispose of the parts of the unit respecting local and national environmental regulations.



7. Manufacturer Testing and Verification

This product was manufactured under our single-unit control of quality and was passed with strict inspection in accordance with our inspection standards.

Capacity (tonne)	WLL (kg)	Test Load (kg)
1.5t	1500	1875
2.0t	2000	2500
3.0t	3000	3750

Declaration of Conformity

Products are tested in line with the requirements within applicable sections of the European standard Supplied in accordance with BS EN 14492-2:2006. All items comply with the essential health and safety requirements of the Machinery Directive 2006/42/EC.

8. Troubleshooting

This section provides the information necessary for troubleshooting the TAHS series hoists. The troubleshooting guide provides a general outline of problems which could be experienced with normal use of this hoist. It lists the symptom, the possible cause, and the possible remedy for the trouble being experienced.

Problem	Cause	Solution
Hoist will not operate	No air supply to hoist, or too little quantity of air or pressure.	Refer to "SPECIFICATIONS" section for correct quantity (m ³ /min) and pressure (bar).
	Throttle valve or control handle sticking.	Check control handle, throttle valve for free movement.
	Throttle valve travel is restricted.	Check control handle and throttle valve for free movement.
	Pendant malfunction.	Check pressure at pendant. Minimum operating pressure in pendant line is 4 bar.
	Load limiter valve operating prematurely.	Check valve setting.
	Motor is damaged.	Repair or replace. See "MAINTENANCE" section. Check for worn motor bearings, vanes or vane lifters.
	Silencer clogged.	Clean or replace silencer element.
	Emergency Stop activated	Reset emergency stop button by twisting button.
Load continues to move when hoist is stopped. "UP" direction.	Brake is not releasing.	Check brake release circuit, brake seals and pressure at the brake inlet. (4 bar minimum).
	Throttle valve or control handle sticking.	Check control handle, throttle valve for free movement.
	Pendant lever sticking.	Check lever and restore free movement.
	Control spring faulty.	Check and refit control spring.



<p>Load continues to move when hoist is stopped. "DOWN" direction</p>	<p>Throttle valve or control handle sticking.</p> <p>Brake is slipping.</p> <p>Hoist is overloaded.</p> <p>Pendant lever sticking.</p> <p>Control spring faulty.</p>	<p>Check control handle, throttle valve for free movement.</p> <p>Check brake springs and brake disc linings for wear. See "MAINTENANCE" section.</p> <p>Reduce load to within rated capacity.</p> <p>Check lever and restore free movement.</p> <p>Check and refit control spring.</p>
<p>Hoist will not lift rated capacity.</p>	<p>Hoist is overloaded.</p> <p>No air supply to hoist, or too little quantity of air or pressure.</p> <p>Throttle valve travel is restricted.</p> <p>Pendant malfunction.</p> <p>Pendant hoses leaking.</p> <p>Load limiter valve operating prematurely.</p> <p>Motor is damaged.</p> <p>Silencer clogged.</p>	<p>Reduce load to within rated capacity.</p> <p>Check pressure at control valve inlet. Refer to "SPECIFICATIONS" section for correct quantity (m³/min) and pressure (bar).</p> <p>Check control handle and throttle valve for free movement.</p> <p>Minimum operating pressure in pendant line is 4 bar.</p> <p>Inspect, repair or replace hoses and fittings.</p> <p>Check valve setting.</p> <p>Repair or replace. See "MAINTENANCE" section. Check for worn motor bearings, vanes or vane lifters.</p> <p>Clean or replace silencer element.</p>
<p>Hook lowers, but will not raise.</p>	<p>No air supply to hoist, or too little quantity of air.</p> <p>Hoist is overloaded.</p> <p>Load limiter valve operating prematurely.</p> <p>Throttle valve travel is restricted.</p> <p>Pendant malfunction.</p> <p>Pendant hoses leaking.</p> <p>Brake not releasing.</p>	<p>Check air supply and connections, in air supply line.</p> <p>Reduce load to within rated capacity.</p> <p>Check valve setting.</p> <p>Check control handle and throttle valve for free movement.</p> <p>Check pressure at air inlet connection on pendant. Inspect, repair or replace hoses and fittings.</p> <p>Check shuttle valve operation.</p>





<p>Hook can be raised but not lowered.</p>	<p>Throttle valve travel is restricted.</p> <p>Pendant malfunction.</p> <p>Pendant hoses leaking.</p> <p>Brake not releasing.</p>	<p>Check control handle and throttle valve for free movement.</p> <p>Check pressure at air inlet connection on pendant.</p> <p>Inspect, repair or replace hoses and fittings.</p> <p>Check shuttle valve operation.</p>
<p>Load chain jumps on sheave or is making a snapping sound.</p>	<p>No oil on load chain.</p> <p>Worn or rusted chain.</p> <p>Worn load sheave.</p> <p>Hoist not in-line with load.</p> <p>Incorrectly reeved load chain.</p> <p>Chain stripper worn.</p>	<p>Lubricate load chain. See "LUBRICATION" section.</p> <p>See "INSPECTION" to determine wear limit. Replace if necessary and lubricate frequently.</p> <p>Replace worn parts.</p> <p>Align hoist with load. Do not pull sideways.</p> <p>Check load chain is correctly reeved and not twisted.</p> <p>Replace chain stripper.</p>

! WARNING

- Never perform maintenance on the hoist while it is supporting a load.
- Shut off air system and depressurize air lines before performing any maintenance.
- Before performing maintenance, tag controls: **DANGER - DO NOT OPERATE - EQUIPMENT BEING REPAIRED.**
- Only allow personnel trained in the operation and service of this hoist to perform maintenance.
- After performing any maintenance on the hoist, conduct a proof load and braking test (125% of its rated capacity) as well as a dynamic performance and load limiter test before returning the hoist to service.





9. Product Warranty and Warnings

Definitions

'Customer' means the individual, firm, company or other party with whom the Company contracts;

'Company' means Tiger Lifting UK Limited or Woo Sing Industrial Co., Ltd;

'Contract' the contract between the Company and the Customer for the sale and purchase of this product;

'Defective Goods' goods, parts or materials, which by reason of fault or incorrect design or workmanship, are found to be defective or fail or are unable to perform in accordance with a Contract;

One Year Limited Warranty

The Company makes every effort to assure that its products meet high quality and durability standards and extends the following warranty to the Customer of new products manufactured by the Company:

1. The Company warrants that this product, when shipped, shall be free from defects in materials and workmanship under normal use and service and the Company shall, at its election, repair or replace free of charge any Defective Goods, provided that all claims for defects under this warranty shall be made in writing immediately upon discovery and, in any event, within one (1) year from the date of purchase of this product by the Customer and provided, further, that Defective Goods shall be kept for examination by the Company or its authorised agents or returned to the Company or an authorised service centre upon request by the Company.
2. The Company does not warrant components of products provided by other manufacturers. However to the extent possible, the Company will assign to the "Purchaser" applicable warranties of such other manufacturers.
3. Except for the repair or replacement mentioned in (1.) above, which is the Company's sole liability and Customer's exclusive remedy under this warranty, the Company shall not be responsible for any other claims arising out of the purchase and use of this product, regardless of whether the Customer's claims are based on breach of contract, tort (including negligence), breach of statutory duty, or otherwise, including claims for any loss of profit, goodwill or business opportunity or any indirect or consequential loss arising under or in connection with the Contract.
4. This one year limited warranty is conditional upon the installation, maintenance and use of this product pursuant to the product manuals prepared in accordance with content instructions by the Company. The warranty on this product does not apply to defects due directly or indirectly to misuse, abuse, negligence or accidents. This warranty does not apply if the product has been subjected to improper fittings, alignment or maintenance.
5. The Company shall not be responsible for any loss or damage caused by transportation, prolonged or improper storage or normal wear and tear of this product or for loss of operating time.
6. This warranty shall not apply to this product if it has been fitted with or repaired with parts, components or items not supplied or approved by the Company or which have been modified or altered.
7. The Company limits all implied warranties to the period specified above from the date the product was purchased by the Customer.
8. Except as stated herein, any implied warranties or merchantability and fitness are excluded.

If our inspection discloses a defect, the Company will repair, replace the product or refund the purchase price, if we cannot readily or quickly provide a repair or replacement and if you are willing to accept such refund. The Company will return repaired or replacement products at The Company's expense, but if it is determined there is no defect, or that the defect resulted from causes not within the scope of Tiger Lifting's warranty, then the Customer must bear the cost of storing and retrieving the product.

! WARNING

The use of this product is beyond the control of Tiger Lifting. The warranty of this product is limited to the replacement cost of this product should it be found to be defective in material and/or workmanship. The warranty is void if the air hoist is damaged, worn or used improperly. Normal wear and tear is not considered grounds for replacement.

The Tiger Lifting product warranty does not apply where there has been excessive overloading of the air hoist.

Disclaimer

We believe that the information in this document, including technical information and any advice, is reliable although we give no guarantee as to its accuracy or completeness. The user of our products must determine if the product, either used alone or conjunction with other products, is suitable for their purpose and assumes all risk and liability in connection with those decisions. We have made every effort to make sure this document is accurate. The information contained in this document does not form part of any contract.

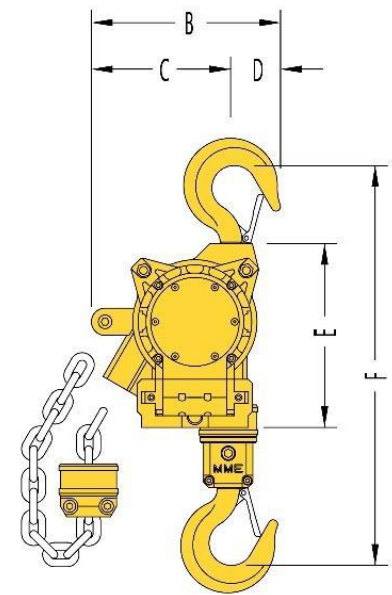
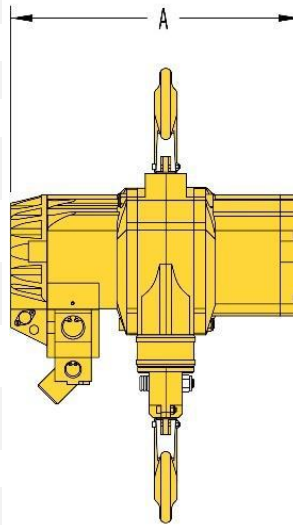
Please also refer to our terms and conditions which can be found at: www.tigerlifting.com/terms-conditions/



10. Technical Data

TAH21 Range – 1.5, 2.0, 3.0 tonne Technical Data (at 6 bar)

	AH-015	AH-021	AH-032
Lifting Capacity (tonne)	1.5	2.0	3.0
Falls of Chain	1	1	2
Chain Size (mm)	10 x 28	10 x 28	10 x 28
Total Weight (kg) *	55	55	67
Full Load Lifting Speed (m/min)	6.2	5.3	3.1
No Load Lifting Speed (m/min)	8.7	8.7	4.3
Full Load Lowering Speed (m/min)	8.6	9.0	4.3
No Load Lowering Speed (m/min)	7.5	7.5	3.7
Air Consumption (m ³ /min)	2.6	2.6	2.6
Air Connection	G ³ / ₄	G ³ / ₄	G ³ / ₄
Supply Hose (Inside Ø) (mm)	19.0	19.0	19.0
Sound Level (dB(A))	81	81	81
Dimensions (mm)	A	382	382
	B	250	250
	C	184	184
	D	66	66
	E	213	213
Min F	515	515	-
Min G	-	-	610






* Weight of TAH21 model includes 3m lift, 2m toggle. For longer lifts add 2.2kg per metre of lift for AH-015 and AH-021 and 4.4kg for the AH-032 per metre of lift. For pendant control add 0.4kg, for E/Stop pendant add 2.1kg.



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Instruction Guide Tiger TAHS En 201910 v1.0

