

AIR HOIST

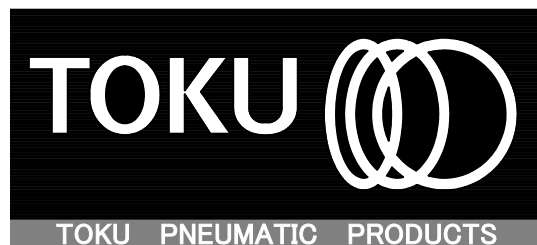
TCR-series

TCR-500P/C

TCR-1000P2/C2

TCR-1000P/C

TCR-2000P2/C2



www.air-allied.com.au

MANUAL

INSTRUCTION MANUAL

Carefully read all instructions before operating
or servicing any TOKU Products.

TOKU PNEUMATIC CO., LTD.

14-05

No.11

(1)INTRODUCTION

We thank you for your recent purchase of a TOKU CHAIN HOIST


This manual is a guide book which will show you how to use the air chain hoist safely and efficiently. Please read this manual in its entirety and understand the contents before proceeding to operate the hoist. Also convey this information to the actual operators of the hoist.


The air chain hoist was designed to operate on compressed air to lift and lower loads. As a result before operating the hoist it is necessary to also read the instruction manual for the compressor. In addition, for proper regulations about usage of the hoist, consult the “ crane safety regulation standards “

Usage other than the ones written in this manual should be performed with the consideration of safety and responsibility.

PLEASE UNDERSTAND THE FOLLOWING POINTS BEFORE READING THIS MANUAL;

- ◆With regards to the safety precautions, the following words are used to identify safety messages in the manual.

 **WARNING;** This word is used on safety messages and labels where a potential dangerous situation could result in serious injury or death if the hazard is not avoided.

 **CAUTION;** This word is used in safety messages and on labels for hazards which could result in minor or moderate injury if the hazard is not avoided.

IMPORTANT; This word may indicate hazards whose result could be damage to the equipment.

- ◆ Keep this manual handy and read it periodically
- ◆ If this manual is lost or becomes dirty, ask for a replacement manual from Air & Allied Sales (Pacific) P/L.
- ◆ If the hoist is not used by one person, please have the new person read this manual before operating the hoist.
- ◆ If you transfer the hoist to another source, make sure that you give the manual to the new owner.

If you have any questions about the hoist or this instruction manual, please contact Air & Allied Sales (Pacific) Pty Ltd (see below for contact details).

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(3) Safety Precautions

WARNING

- When using the chain hoist, obey the safety precautions written in this instruction manual.

WARNING; Obey the safety rules at the job site.

- The people who operate the hoist should be the one who have received instruction to properly operate the hoist.
- Obey all rules, safety procedures and operational methods at the job sit
- When using the hoist with other people, make sure your signals during operation are well discussed before jointly using the hoist.

WARNING; Wear proper clothing and safety protection.

- Wear proper clothing when operating the hoist.
- To protect the body, wear safety items such as a helmet, mask, safety shoes and gloves. Or if the sound level is high, where ear plugs.
- Do not wear a tie or loose fit clothing when operating the hoist. They may get caught in the chain during operation.



WARNING; Safe operation begins with proper posture.

- It is dangerous to operate the hoist when your posture is not in balance. Make sure your footing is proper and your body is stable when operating the hoist.

WARNING; Do not allow unauthorized staff near the hoist area.

- Do not allow unauthorized staff near the hoist area.
Especially children.



WARNING; Difficult operations will lead to accidents.

- Do not use the hoist for operations over its capacity. These operations may lead to damage of the hoist and should be avoided.



WARNING; Stop operating the hoist if trouble is detected.

- When operating the hoist if trouble is found, immediately stop operating the hoist and inspect or repair.



WARNING; Attach the hose properly.

- Make sure the hose socket is securely tight using a hose band.



WARNING; Do not modify the hoist.

- Do not remove screws of covers which are on the hoist.
- Do not modify the hoist. This will lead to danger.
The responsibility will be yours if an accident occurs due to these modifications.



WARNING; Handle the hoist with care.

- Do not drop or hit the hoist externally. This will lead to cracks and damage to the hoist. Also, do not stamp or engrave information directly onto the hoist. If a crack develops, and air is leaking through the crack, do not operate the hoist.



WARNING; Periodically inspection of the hoist is the basics to safety.

- Periodic inspection of the hoist will allow your hoist to operate smoothly and safely.
Referring to the crane safety standards, daily and monthly inspection programs should be performed.



CAUTION; For inspection or repair of the hoist, consult your dealer.

- Contact your dealer for repairs or inspections of the hoist. When parts are needed to be changed, use only genuine TOKU parts.



CAUTION; Do not use the chain or hook as an earth connection.

- During a weld operation, do not use the chain or hook as an earth connection. This may lead to the cause of an accident or other damages.



CAUTION; Keeping the area tidy is the first step to safety.

- Keeping the job site tidy is the first step to a safe environment. Keep the facility clean and neat at all times.

IMPORTANT; Good Maintenance will extend the life of your hoist.

- Keep a good maintenance program for the hoist and keep it clean.

(4) Precautions during Operation



WARNING; Installation of the hoist must be performed by trained personal only.

- Installation of the hoist must be performed by trained personal only.
If installation is not performed properly this may lead to an accident with personal and is very dangerous.



WARNING; All supporting materials and installation items must meet safety standards.

- Before installing the hoist, make sure all supporting materials will hold the rated load of the hoist and a the safety factor involved to support the hoist with load. If not performed properly the load may fall and is very dangerous.



WARNING; Only trained personal are allowed to operate the hoist.

- The hoist must be operated only by personal that have received safety and operational training. If this is not obeyed, this may lead to an accident with personal and is very dangerous.



WARNING; Before operating the hoist, reconfirm the safety issues with the operators and the personal involved.

- Check the operating position and footing before operating the hoist. Make sure the surrounding personal are safe and make sure everyone is aware of the signals when operating the hoist.



WARNING; Use agreed upon signals when working with a partner.

- When using the hoist jointly with another person, use signals agreed at the job site and obey them during a joint operation.



WARNING; Do not over load the hoist.

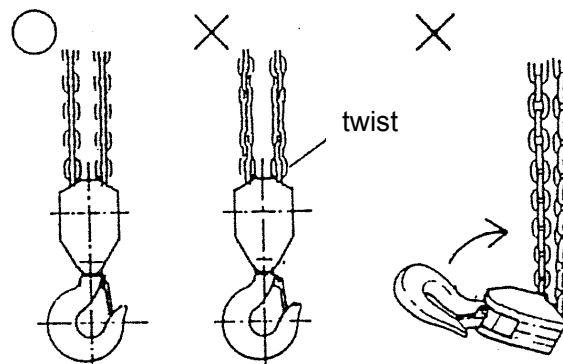
- Before lifting the load, confirm that the load is within the rated load of the hoist.
The hoist or chain may break and the load may fall and this is very dangerous.

⚠ WARNING; Check the slings and hook safety claw before using the hoist.

- Make sure the sling is connected correctly before lifting. Also make sure the hook safety claw is working correctly. If it is used in poor conditions, this may lead to removal of the sling and the load may fall.

⚠ WARNING; Before using the hoist, make sure the chain is not twisted.

- As shown in the diagram, make sure the chain is not twisted during usage of the hoist. If the chain is twisted, this will lead to jamming and also possible breakage of the chain.

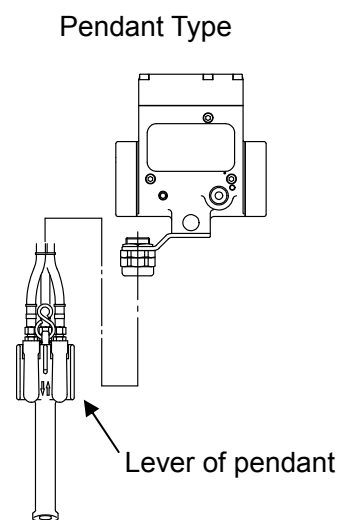
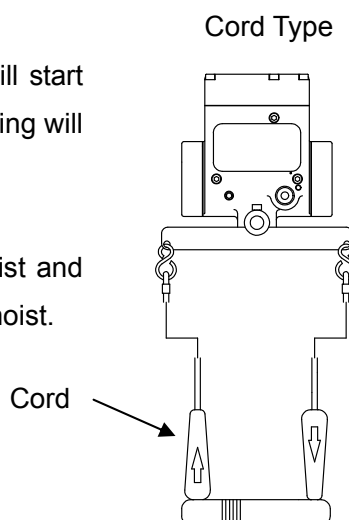


⚠ WARNING; Do not depress the pendant lever unnecessarily.

- Make sure the conditions are correct before operating the hoist. Under poor conditions, the load may fall onto the floor or the load may fall onto the operator. It is very dangerous.

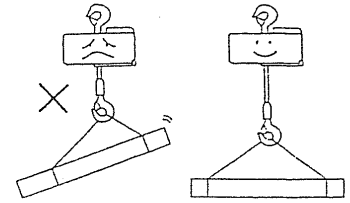
- Depressing the pendant lever will start operation of the hoist and releasing will stop the hoist.

- Pulling the cord will start the hoist and releasing the hoist will stop the hoist.



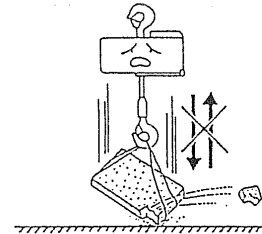
⚠ WARNING; Make sure the load is balanced.

- When using a wire rope or a sling, make sure the load is balanced before lifting. The load may fall and it is dangerous.



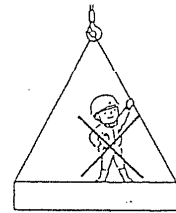
⚠ WARNING; Do not lift/lower suddenly.

- When suddenly lowering the load, this may lead to poor balance of the load and the load may fall.



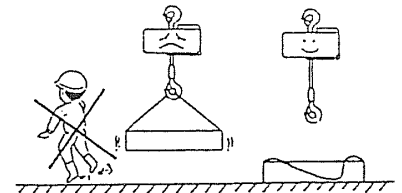
⚠ WARNING; Do not use the hoist to lift people.

- The hoist is used to lift loads. Never lift people using the hoist. This is very dangerous.



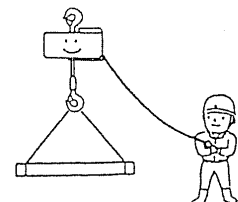
⚠ WARNING; Do not leave the job site.

- Do not leave the job site when a load is in suspension. Always lower the load and un-load the load before departing.



⚠ WARNING; Do not operate the hoist under the load.

- Make sure you are away from the load when operating the hoist. It is dangerous if the load falls.



⚠ WARNING; Do not touch the hoist, under hook area and chain during operation of the hoist.

- It is dangerous if your hand gets caught in these areas.



WARNING; Do not touch the hoist after operation.

- After operating the hoist, do not touch the hoist. After operation, the hoist may become hot. Please let the hoist cool before touching.



WARNING; Do not use the limiter to stop the hoist all the time.

- This mechanism is a safety device. The limiter for over lifting and over lowering will operate continuously using this device may lead to an accident and it is not recommended to use it continuously.



WARNING; Do not over look the load limiter setting and confirm before using the hoist.

- A load limiter is equipped within the hoist but please understand that this device is the final emergency measure to stop the hoist. During actual operation, it is necessary that the load is within the rated load of the hoist before it is used.



WARNING; The load limiter must be adjusted when the air pressure changes.

- The load limiter needs to be adjusted according to the air pressure being used. At the factory it has been set at 125% of the rated load at 0.6 Mpa. If the hoist will be used above this air pressure, referring to the section of “ how to adjust the load limiter “ must be refereed. Also, depending on the piping and hose size and length the setting may change. If the setting adjustment is not made the hoist may stop below the rated capacity. It is dangerous to perform lifting of a load above 125% of the rated load.



WARNING; Use one hoist when lifting.

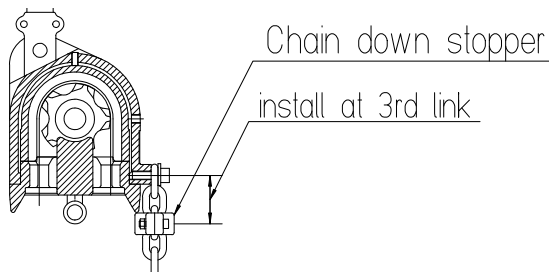
- When lifting for more than 2 hoists, balance becomes a factor and one hoist may be stronger and this type of operation can become dangerous.

⚠ WARNING; Install the chain down stopper at the designated position certainly.

- Chain down stopper is the final safety equipment to prevent the chain from dropping, in case lowering limiter does not operate properly.

If the chain down stopper is not installed at the designated position, limiter may not operate properly, and the hoist and chain may be damaged and it is very dangerous.

TCR-500~TCR-2000-2

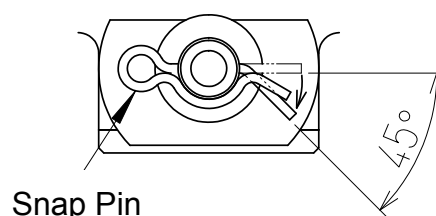
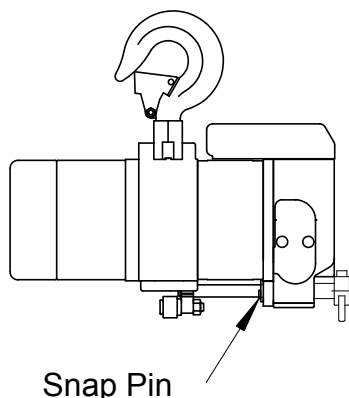


⚠ WARNING; Inspect the Air Hoist after the chain down stopper operated.

- The chain down stopper is the final safety equipment and if it operated, it means overload is applied on the hoist and chain. So, the hoist must be inspected at the designated service center. If the hoist is operated without inspection, this may lead to dropping of the load and personal injury, it is very dangerous.

⚠ WARNING; Inspection of the Snap Pin.

- As shown in the drawing, make sure the Snap pin is assembled on the Air Hoist. If this item is not assembled, stop using the hoist. If this item is used with out the snap pin, the hoist will not operate properly (will not stop during operation) the over wind limit will not function and if may result in dropping of the load and may result in a human accident and is dangerous.
- When assembling the snap pin, make sure the snap pin is inserted properly and the end of the pin should be bent 45 degrees using plyers. (to secure the snap pin)
- Once a snap pin has been used, do not re-use this part. When assembling this part, make sure the snap pin is new.





WARNING; When using 2-load suspension type, be sure to use sling chain or wire style equipment when lifting.

- When lifting a load using an under hook 2-load suspension type(TCR-1000-2, TCR-2000-2), be sure to use a sling chain or wire style equipment and be sure to lift the center of the load with under hook in vertical position. Please do not tilt or drag the under hook when lifting.
If the load is lifted wrong way, there is a possibility that under hook block will tilt or the chain will loosen. This may allow the limit spring on the chain to enter the chain entrance in the under hook and jam, or the chain can get hung up and may lead to chain breakage or an accident.
When lifting the load, make sure the chain can move smoothly into the under hook block entry holes.



WARNING; Lubrication for the chain.

- Please apply lubrication oil to the lifting chain certainly. If there is no oil on the chain, chain will be worn out soon. This may lead to dropping of the load and personal injury due to breaking of the chain and it is very dangerous.
Please use industrial general-purpose lithium grease or machine oil for lubrication.



CAUTION; Do not pull or use the hoist side ways.

- The hoist was designed to be used in the vertical direction. Using the hoist in the horizontal direction is not recommended and may result in a accident or premature wear of parts.



CAUTION; Do not suddenly change the direction of the hoist.

- Suddenly changing the direction of the hoist will shock certain areas of the hoist and may cause breakage of parts or lead to an accident.



CAUTION; Do not pull on the pendant hose or cords when trying to move the hoist.

- This will lead to damage to the hose and may cause the hoist to malfunction.



CAUTION; Use the hoist indoors.

- Using the hoist outside may become effected by rain and moisture allowing the hoist to rust leading to malfunction. Do not use the hoist outdoors.



CAUTION; Storage must be considered carefully.

- Store the hoist away from children in a dry area. When storing the hoist for a longer period of time, to prevent internal rust, apply 3 cc of lubrication into the air hose and operate the hoist for 3-4 sec.



CAUTION; Make sure the correct air pressure is used with the hoist.

- Operating air pressure is 0.4~0.6Mpa «Recommended air pressure 0.6MPa»
Operating at air pressures above 0.4~0.6Mpa will effect the durability, performance and safety of the hoist. As a result, it is important to consider the pressure for the air compressor, volume and piping aspects to operate the hoist at its best level.
- ※ Please note the air pressures stated above are actual operating air pressures and not the air pressure when the hoist is not operating, which is normally slightly lower. As a result, always check the air pressure when the air hoist is operating.



CAUTION; Operate the hoist in the correct ambient temperature.

- The recommended ambient temperature for the hoist is in the range of -10°C~60°C.
«Recommended 20°C»
Operating the hoist out of the above temperature range will effect the durability, performance and safety of the hoist.



CAUTION; Air maintenance is important.

- Always use a air filter, regulator and lubricator (line oiler) near the hoist
The size we recommend is a size larger than the actual piping size and for the air regulator we recommend the pilot type regulator. If a pilot style regulator is not available, we recommend a regulator one size larger than the standard size. (To keep the performance level for the hoist)
With regards to the lubricator (line oiler), we recommend a flow of 10-15 drops/min. of lubrication. If air maintenance is not performed properly, this will lead to rust, malfunctioning and premature wear of the internal parts, and this may result in personal injury.

IMPORTANT; Avoid operating the hoist with no load for extended periods.

- This may lead to damage to the internal parts of the motor or premature wear of these parts.

(5) Specifications

1. Operation Conditions

- ① Operating Air pressure: 0.4 MPa~0.6MPa <<Recommended 0.6MPa>>
- ② Operating Ambient Temp. range: -10°C~60°C <<Recommended 20°C>>
- ③ Operating location: Inside
- ④ Applications: For lifting loads

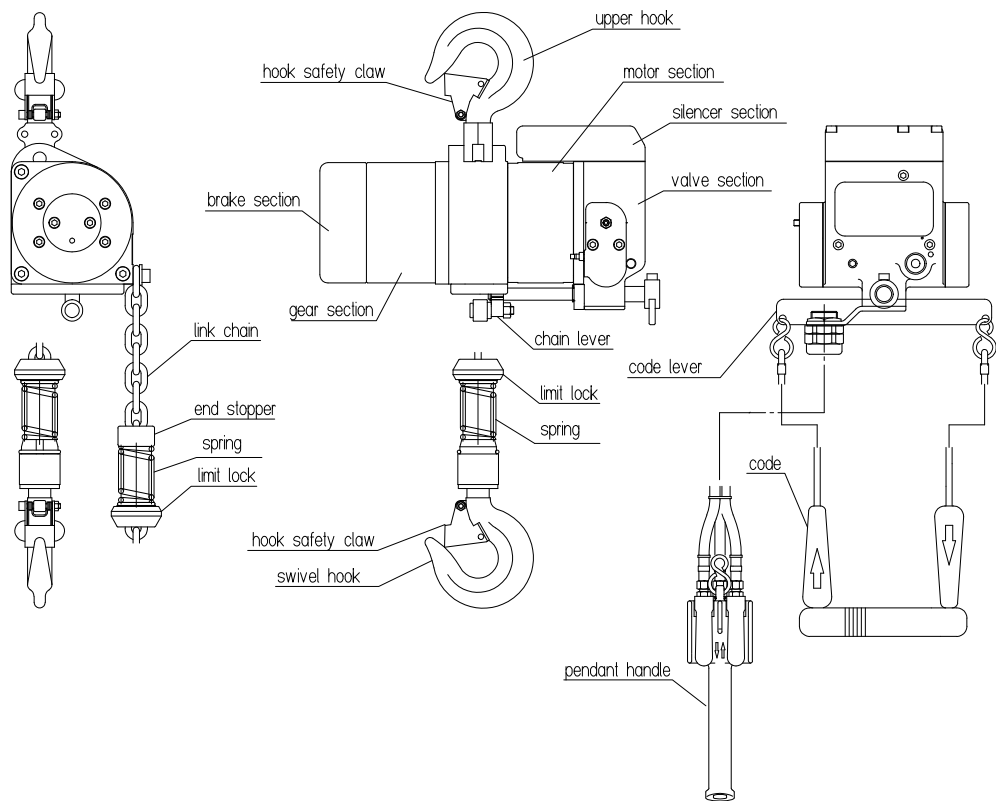
2. Specifications

Model	Operating type	No. of Falls	Rated Load (kg)	Air Pressure (MPa)	Lift Speed w/Rated Load(m/min) / Air Consumption(m³/min)	Lift Speed w/o Load(m/min) / Air Consumption (m³/min)	Std. Lift (m)	Air Inlet	Weight Inc. Cain (kg)
TCR-500P	Pendant	1	500	0.6~0.4	10/1.4	19/1.7	3	1/2” 12.7mm	31
TCR-1000P2		2	1000		5/1.4	9.6/1.7			36
TCR-1000P		1			5.8/1.4	10.5/1.7			34
TCR-2000P2		2	2000		2.9/1.4	5.3/1.7			40

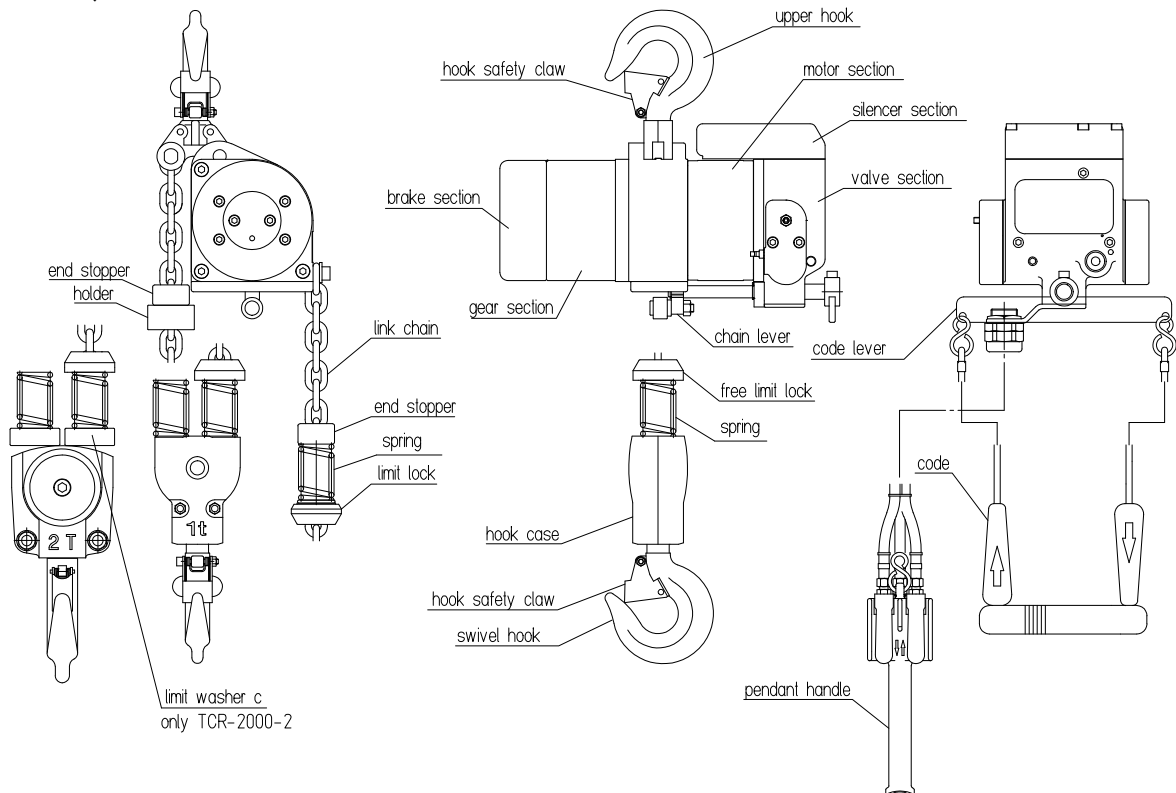
- ※ Lifting speed is measured at 0.6 Mpa with a pendant hose length of 2 meters using cord control.
- ※ Please note, using a pendant valve hose exceeding 2 meters may change the performance specifications.
- ※ The C-type is 1 kg lighter than the PE-type. All other specifications are the same.
- ※ Operating the hoist at air pressures of 0.5MPa, or 0.4Mpa will result in lower performance levels as shown in the chart.

(6) Name of parts

TCR-500P, C
TCR-1000P, C



TCR-1000P2, C2
TCR-2000P2, C2



(7) Preparation before operation

1. Selection of the compressor and drain removal.

- Method of selection; (Air Consumption for each hoist is shown on Page 12)

$$(\text{Air consumption} \times 10) \times \text{Hoist Quantity} \leq \text{Compressor Horse Power}$$

- Method of drain removal;

Rust will develop leading to the cause of trouble if the drain is not removed from the compressor.

Remove the drain at the bottom of the air tank on your compressor. Remove excess water and oil.

Supply clean dry air to the hoist. (Refer to the compressor manual for details)

2. Piping

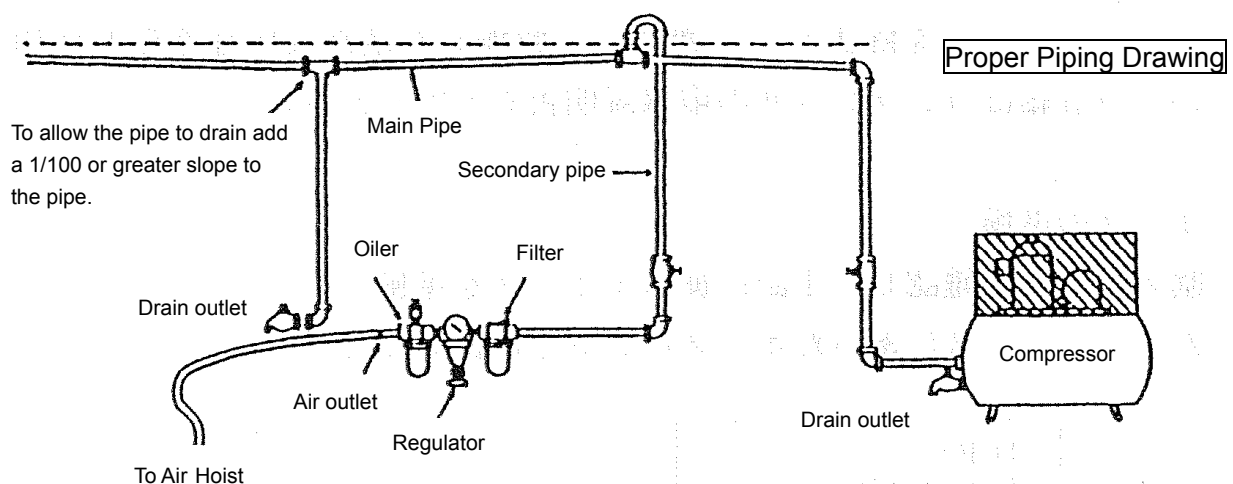
Refer to the diagram below for piping or installation. The main and secondary pipes should be larger than the air hoist hose size. If the main or secondary pipe is smaller in diameter or too long, you will experience pressure drop and this will reduce the performance of your hoist.

⚠ CAUTION; Always install an Air Filter, regulator and lubricator (Line Oiler) near the hoist.

- Always use an air filter, regulator and lubricator (line oiler) near the hoist

The size we recommend is a size larger than the actual piping size and for the air regulator we recommend the pilot type regulator. If a pilot style regulator is not available, we recommend a regulator one size larger than the standard size. (To keep the performance level for the hoist)

With regards to the lubricator (line oiler), we recommend a flow of 10-15 drops/min. of lubrication. If air maintenance is not performed properly, this will lead to rust, malfunctioning and premature wear of the internal parts, and this may result in personal injury.



3. Preparation of the Air Hose

- Size of Hose: Check the model you have purchased and referring to the chart below select the correct hose size for your hoist

TCR-500P/C	Inside diameter over 12.7mm
TCR-1000P2/C2	
TCR-1000P/C	
TCR-2000P2/C2	

- Length of Hose :

IMPORTANT; We recommend to keep the hose length within 10 meters.

- If the hose is too long, the air pressure will drop at the hoist. In order to prevent the pressure drop, use a hose with an I.D. of 19 mm or larger. Please refer to the following chart showing the relationship between air flow and pressure drop for a 10 meter long hose.

Size of Hose (mm)	Air Pressure (MPa)	Hose; 10 meters in Length with free air flow (m3/min)				
		0.5	1.0	1.5	2.0	2.5
12.7	0.4	0.0105	0.0416	0.0913		
	0.5	0.0089	0.0353	0.0764		
	0.6	0.0764	0.0303	0.0655	0.116	
	0.7	0.007	0.0264	0.0571	0.0979	0.153

(MPa)

※The chart information shows the pressure reduction at each Air Pressure at free flow. The pressure drop has been calculated by subtracting the pressure from the inlet of the hose to the outlet port.

※If the hose length is longer than 10 meters, the relationship of the pressure drop is proportional to the extended length. As a result, if the hose length is 20 meters, you would multiply the above chart numbers by 2.

4. Check the strength of the beam before installing the hoist.



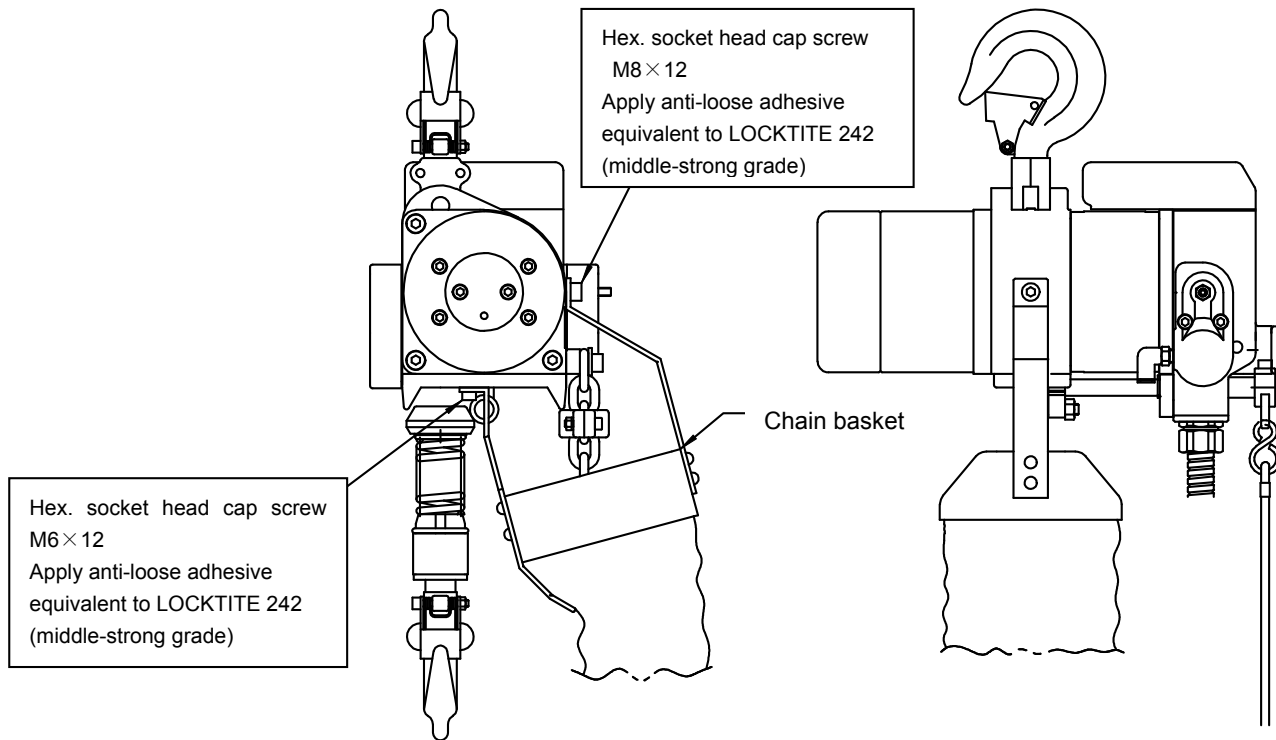
WARNING; Before installing the hoist to the beam make sure the safety factor is met.

- Before installing the Air hoist to the beam, make sure the rated load for the beam exceeds the rated load for the air hoist with the proper safety factor. If the rated load of the beam does not exceed the rated load of the air hoist, please do not install the air hoist to this location.

5. Installing the chain basket

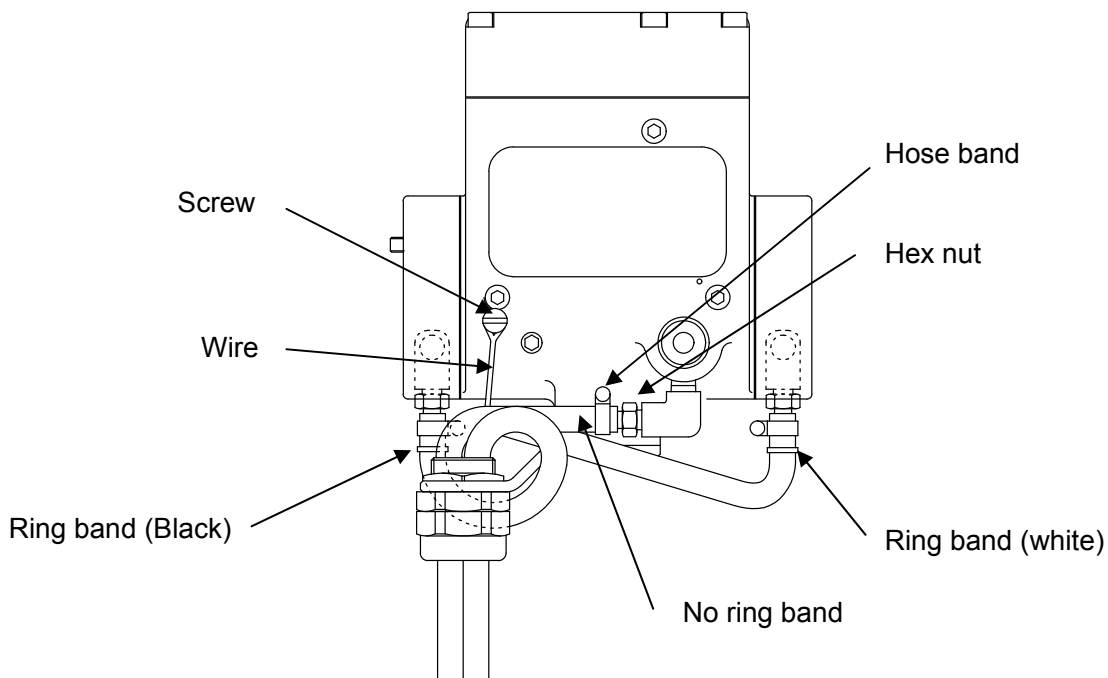
- Assembly the chain basket according to the drawing below.
- Locktite 242 (mid-strength) must be applied to each bolt.

TCR-500~2000-2



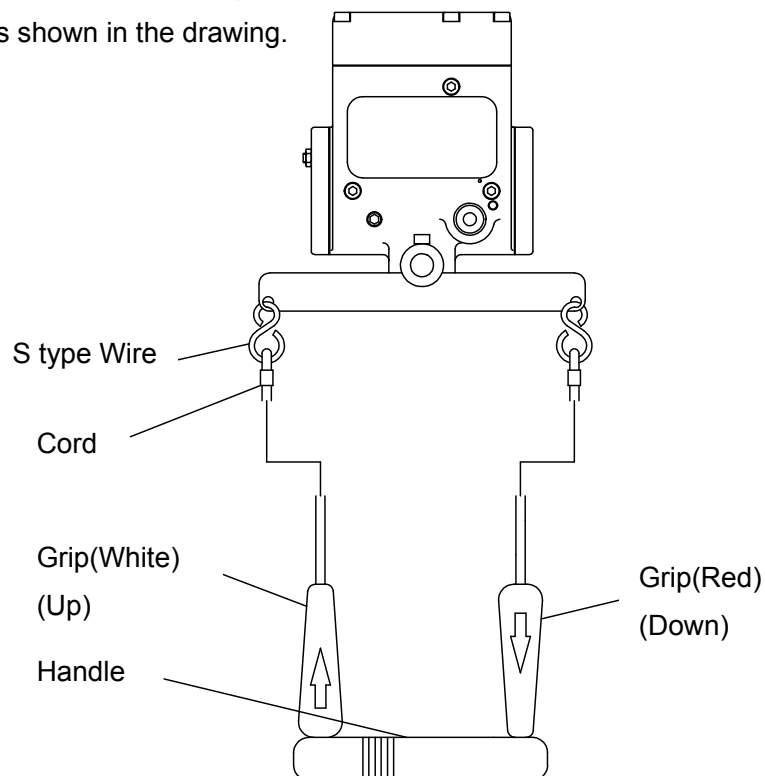
6. Assembly of the Pendant (P type)

- Install the pendant valve as shown in the drawing below.
- Assemble the wire to the hoist using the screw.
- The pendant hose consists of 3 urethane hoses. It consists of one ring band (white), one ring band (black) and one without a ring band. As shown in the drawing, assemble the hoses and secure. Also make sure the hex nut is also secured.



7. Assemble of the cord band (C type)

- Assemble as shown in the drawing.



8. Installation of the Air Hoist

- ① Install the upper hook to the supporting beam.



WARNING; Make sure the upper hook is assembled correctly.

- Make sure the upper hook is assembled to the recommended material and also make sure the hook safety claw is securely locked.

- ② Apply seal tape to the hose nipple, and assemble to the Air Hoist.

- ③ Stop the air flow by closing the main valve on the compressor.

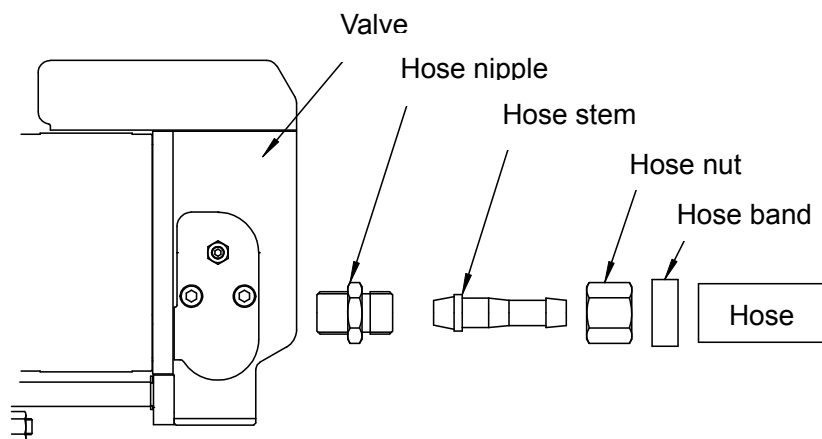
- ④ Before connecting the air line to the air hoist, apply 10 drops of lubricating oil into the hose.

IMPORTANT; Remove all dirt or foreign matter from the connecting area of the hose.

- If foreign matter enters the hoist, this may lead to seizure of the hoist or malfunctioning.

- ⑤ Assemble the hose stem and nut securely to the hose using the hose band.

(Please note the hose band is not an accessory item)

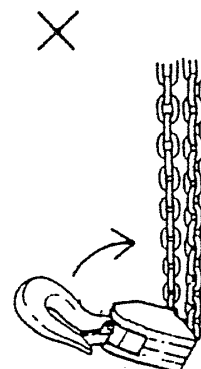


9. Checking the Chain (Double fall type)



WARNING; Make sure the chain is not twisted.

- The hook block can get twisted through the chain. In this case make sure the hook block is not twisted before operating the air hoist.. If the hook block is twisted, fix the twist before operating the hoist. If the chain is used twisted, this may lead to personal injury and is very dangerous.



(8) Before Operation

1. Checking the operating air pressure



CAUTION; Maintain the correct air pressure.

- The operating air pressure is 0.4~0.6Mpa «Recommended 0.6MPa»
Operating at air pressures above 0.4~0.6Mpa will effect the durability, performance and safety of the hoist. As a result, it is important to consider the pressure for the air compressor, volume and piping aspects to operate the hoist at its best level.
- ※ Please note the air pressures stated above are actual operating air pressures and not the air pressure when the hoist is not operating, which is normally slightly lower. As a result, always check the air pressure when the air hoist is operating..

2. Lubrication



CAUTION; Maintain correct lubrication.

- The lubricator (line oiler) in the air line will supply lubrication to the air motor. Oil supply should be 10-15 drops/min. (0.2-0.3 cc)
- For the lifting chain, please apply industrial general-purpose lithium grease to the chain link (the part each link is in touch).
If air maintenance is not performed properly, this will lead to rust, malfunctioning and premature wear of the internal parts, and this may result in personal injury.
- Lubrication to the reduction gears is not needed on a daily basis. Grease up when the hoist is disassembled.

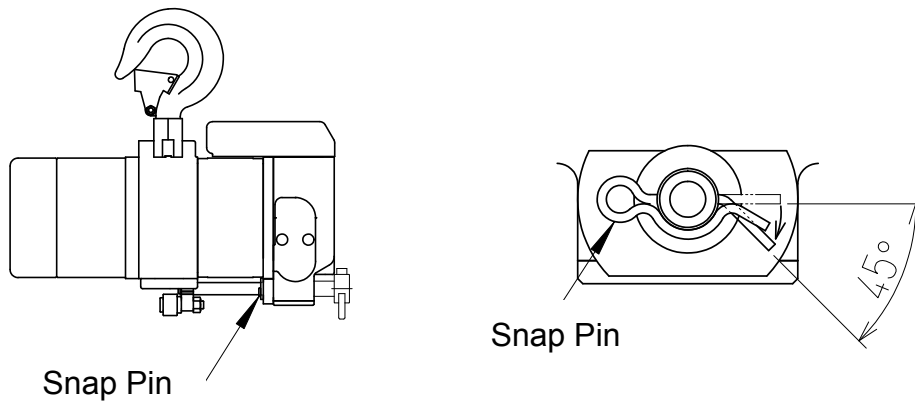
Lubrication

Type	Grade	Location	Method
Turbine Oil	ISOVG32~56 Or Equivalent	Air Motor	Line Oiler in piping
Machine oil or lithium grease	ISOVG32~46	Chain	Part of chain link
	No.0		

3. Inspection of the Snap Pin

⚠ WARNING; Inspection of the Snap Pin.

- As shown in the drawing, make sure the Snap pin is assembled on the Air Hoist.
If this item is not assembled, stop using the hoist.
If this item is used without the snap pin, the hoist will not operate properly (will not stop during operation) the over wind limit will not function and it may result in dropping of the load and may result in a human accident and is dangerous.
- When assembling the snap pin, make sure the snap pin is inserted properly and the end of the pin should be bent 45 degrees using pliers. (to secure the snap pin)
- Once a snap pin has been used, do not re-use this part. When assembling this part, make sure the snap pin is new.



4. Test operation

⚠ WARNING; Before actual operation, check for abnormal operation or sounds.

- Operate the hoist with no load up and down at low speed. Check for abnormal operation or sounds.
If abnormal operation or sounds are found, stop operation and return the unit for inspection to your service center. If the hoist is operated with problems this may lead to personal injury.

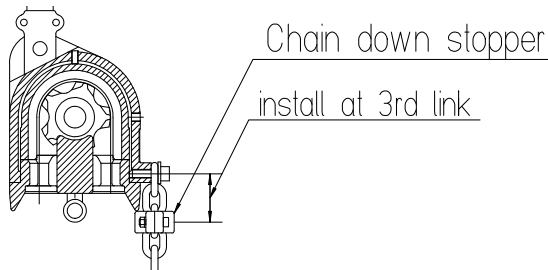
5. Checking of the install position for the chain down stopper

⚠ WARNING; Install the chain down stopper at the designated position certainly.

•Chain down stopper is the final safety equipment to prevent the chain from dropping, in case lowering limiter does not operate properly.

If the chain down stopper is not installed at the designated position, limiter may not operate properly, and the hoist and chain may be damaged and it is very dangerous.

TCR-500~TCR-2000-2



6. Checking of the install position for the attachment of lifting and lowering limiter.

⚠ WARNING; Install the attachment of lifting and lowering limiter at the designated position certainly.

•Install the attachment of lifting and lowering limiter at the designated position according to this manual page 32-34. If it is installed wrongly, install it again certainly at the designated position.

If the attachment is not installed at the designated position, the safety equipment does not operate properly. This may lead to breaking of the chain, dropping of the load and personal injury and it is very dangerous.

7. Check the lifting and lowering limiters before actual operation

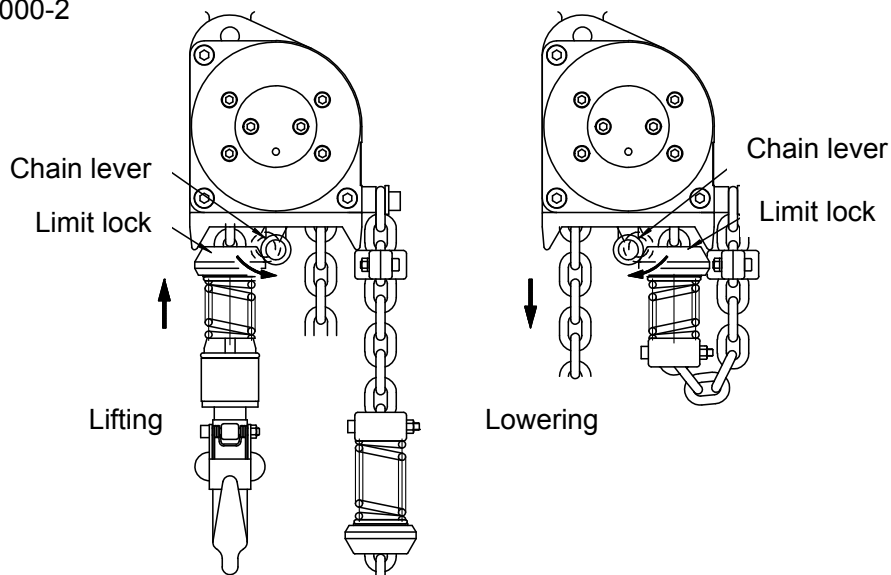
⚠ WARNING; Before actual operation, check the lifting and lowering limiters.

- Using no load, slowly operate the air hoist to check the operation of the limit lever in the lifting and lowering mode. Make sure the air hoist stops properly in both directions and also make sure the chain is lifting the chain lever properly.

If any problems are found, stop operation and return the unit for inspection to your service center.

If the hoist is operated with problems this may lead to personal injury.

TCR-500~2000-2



8. Check the sling equipment

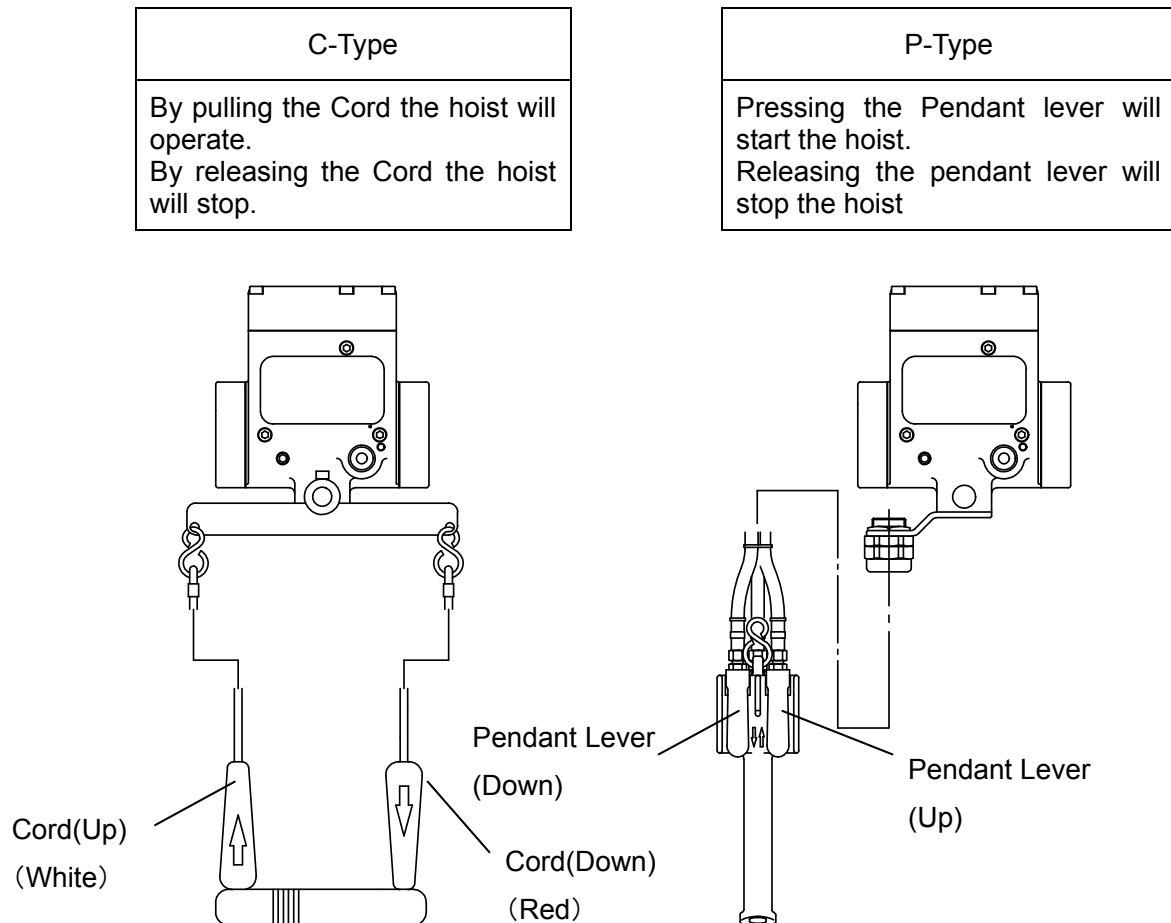
⚠ WARNING; Check the sling chain and wire rope.

- Before using the slings and wire ropes, make sure they are rated correctly to use for the job, and also make sure they are not damaged in any way.

If the hoist is operated with abnormally, this may lead to dropping of the load and may lead to personal injury.

(9) Method of operation

1. How to start and stop the hoist

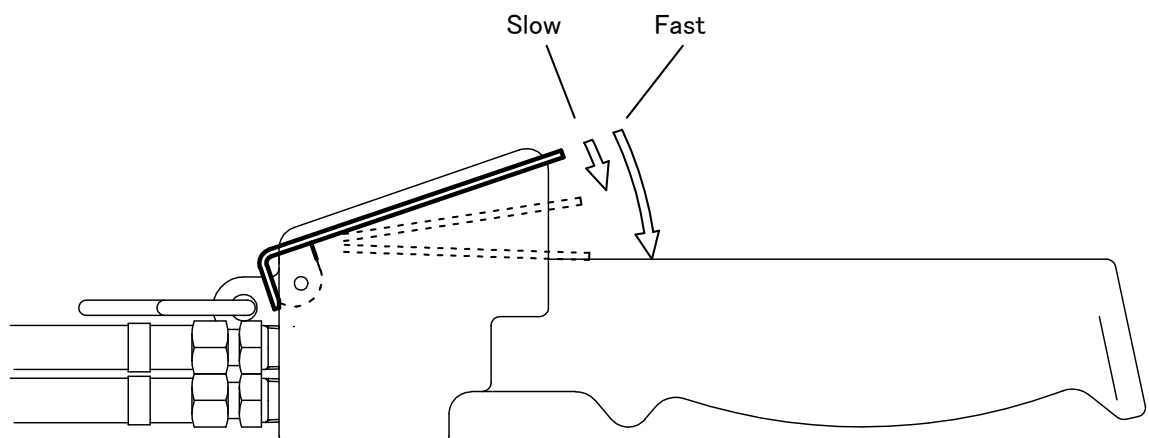


2. Speed Adjustment

- For pendant valve (PE type)

For the pendant type, the more you depress the lever, the faster the hoist will operate.

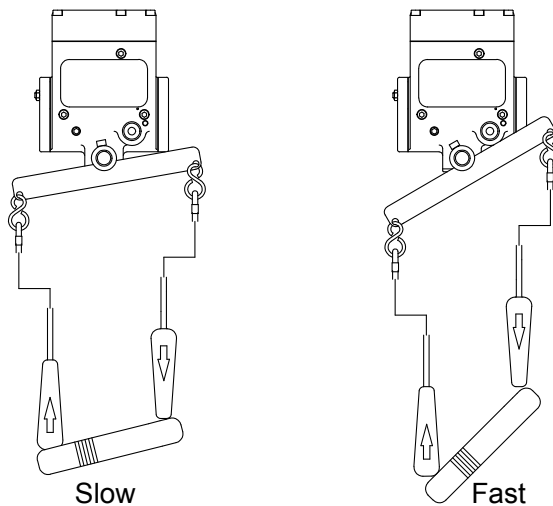
As shown in the diagram below, if you depress the lever a small amount the speed will be slow. The more you depress the lever, the faster the hoist will operate



- Cord Type (C-Type)

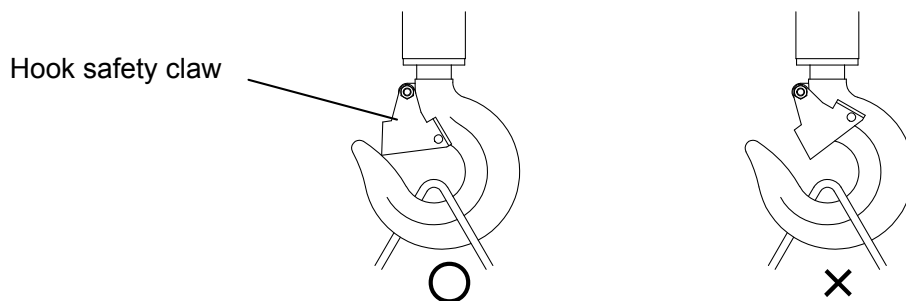
With the Cord type, the more you pull the cord, the faster the air hoist will operate.

As shown in the diagram below, if you pull the cord a small amount the speed will be slow. The more you pull the cord, the faster the hoist will operate.



3. Lifting and lowering the load

- ① Put a wire rope or a chain sling onto the load.
- ② Put the wire rope or chain sling onto the swivel hook.
- ③ Make sure the hook safety claw is locked and secured.



- ④ Operating the hoist slowly, bring the hook up so slowly until the chain is hanging in the air and stop the hoist.
- ⑤ Make sure the wire rope or chain sling has not come off the hook.
- ⑥ In the slow mode, lift UP and make sure everything is secure. If you do not see any problems, proceed to lift the load.
- ⑦ Confirm a stable lowering location and in the slow mode rest the load in the that location.

⚠ CAUTION; When using 2-load suspension type, be sure to use sling chain or wire style equipment when lifting.

- When lifting a load using an under hook 2-load suspension type(TCR-1000-2, TCR-2000-2), be sure to use a sling chain or wire style equipment and be sure to lift the center of the load with under hook in vertical position. Please do not tilt or drag the under hook when lifting. If the load is lifted wrong way, there is a possibility that under hook block will tilt or the chain will loosen. This may allow the limit spring on the chain to enter the chain entrance in the under hook and jam, or the chain can get hung up and may lead to chain breakage or an accident. When lifting the load, make sure the chain can move smoothly into the under hook block entry holes.

4. Adjusting the Load Limiter

- Concerning the operation;

By mistake, if a load heavier than the rated load is lifted, the hoist will automatically stop lifting, and will caution the operator that the load exceeds the rated load for the air hoist.

If the load limiter is activated, promptly seek a stable area and slowing lower the load to this area.

It is necessary to lower the over load safely. In this case when lowering the load the load limiter will not be activated.

Also, please note when operating in the feathering mode the load limiter may not activate due to instability of the operation.



WARNING; Do not rely on the load limiter and check the load before lifting.

- A load limiter is equipped within the hoist but please understand that this device is the final emergency measure to stop the hoist. During actual operation, it is necessary that the load is within the rated load of the hoist before it is used.

- Adjusting;



WARNING; The load limiter needs to be adjusted based on the operating air pressure used.

- The load limiter needs to be adjusted according to the air pressure being used. At the factory it has been set at 125% of the rated load at 0.6 Mpa. If the hoist will be used above this air pressure, referring to the section of “ how to adjust the load limiter “ must be refereed. Also, depending on the piping and hose size and length the setting may change. If the setting adjustment is not made the hoist may stop below the rated capacity. It is dangerous to perform lifting of a load above 125% of the rated load.

This load limiter operates when an over load is lifted the pressure within the air motor increases and relays this information to the load limiter valve and this mechanism allows the hoist to stop.

This load limiter is adjusted based on the operating air pressure. As a result depending on the air pressure the load limiter was adjusted to, the results may change such as “ the hoist may not lift the rated load “ or “ the load limiter may not activate with an over load “ as a result, it is necessary to adjust your hoist based on the air pressure you are using to operate the hoist.

The method of adjusting the load limiter is explained in the following page.

•How to adjust

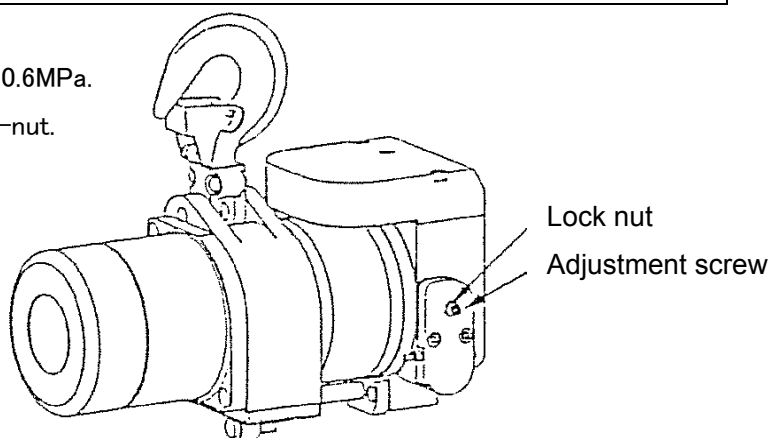
⚠ WARNING; Safety first when working in high locations.

- When working in high locations use safety equipment and obey safety rules when working. If safety rules are not obeyed, this may lead to personal injury.

⚠ WARNING; Do not over wind the load limiter adjustment screw.

- Do not turn the adjustment screw more that 12 rotations after the screw contacts the spring. It will exceed the limits of the load limiter and the load limiter will not operate correctly and may lift a load exceeding the rated load and can be dangerous.

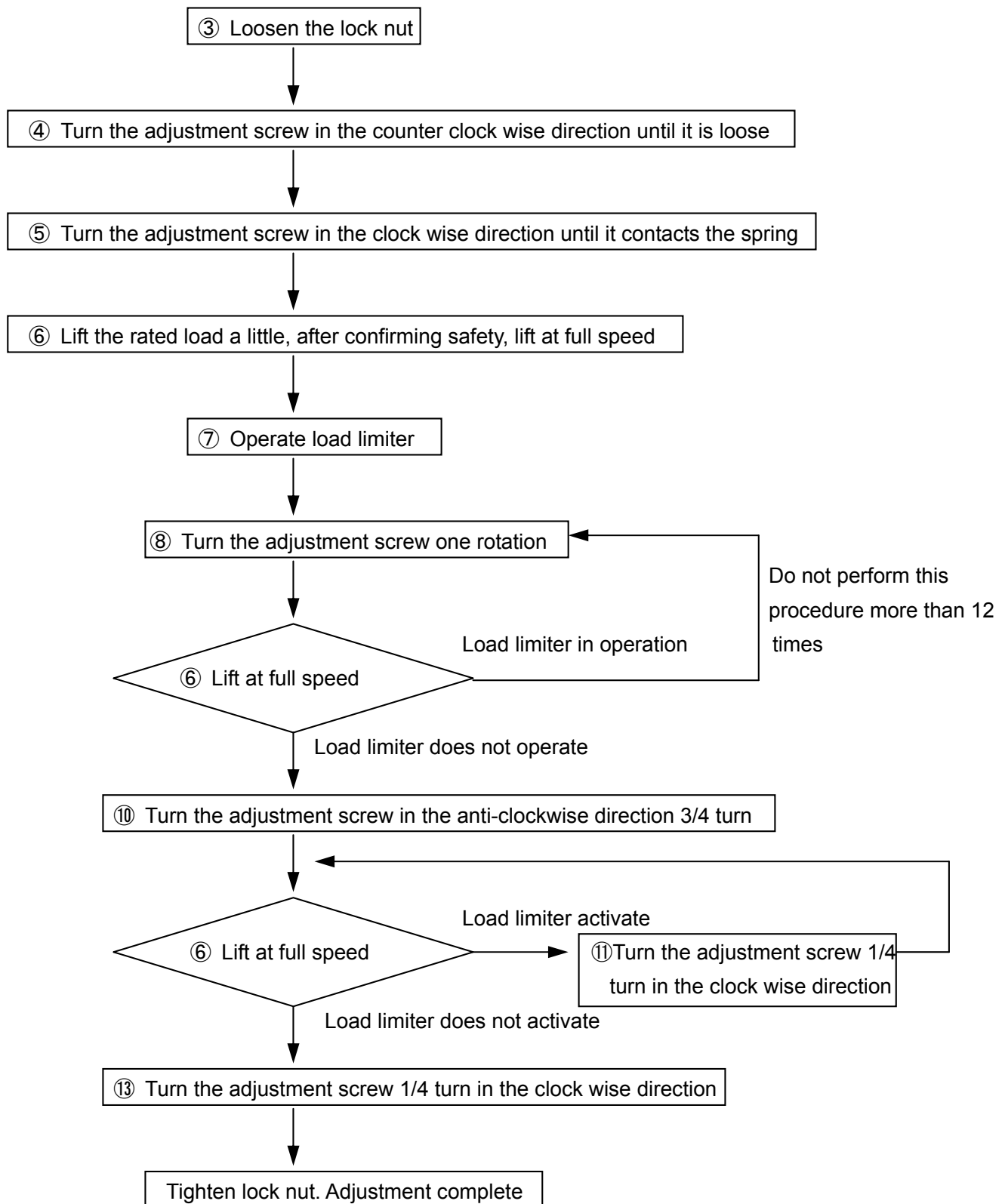
- ① Confirm the rated capacity of the hoist.
- ② Set the operating pressure. Normally at 0.6MPa.
- ③ As shown in the sketch, loosen the lock-nut.



- ④ Turn the screw in the counter-clockwise direction slowly until it is loose. This means the screw is no longer hitting the spring inside the load limiter.
- ⑤ Turn the screw with your fingers in the clock-wise direction until you meet the spring and you feel some friction.
- ⑥ As explained in the operation of the hoist. Lift a load which is the rated capacity of the hoist slowly then, at full speed.
- ⑦ At this time the load limiter will work and the hoist will stop automatically.
- ⑧ Then turn the screw in the clock-wise direction one revolution.
- ⑨ Continue to perform steps ⑥ and ⑧ until the load limiter does not operate. (Does not stop automatically)
- ⑩ After performing in the step mentioned in ⑨, then turn the screw in the counter-clockwise direction 3/4 of a turn and perform step ⑥.
- ⑪ After performing step ⑩, and the load limiter does not function, performing step ⑬.
- ⑫ Continue step ⑪ until the load limiter dose not function.
- ⑬ When you find a point where the load limiter dose not function, turn the adjustment screw in the clock-wise direction a 1/4 turn and fasten the lock nut to secure the adjustment screw.

※ Refer to the load limiter adjustment chart on the next page.

Flow chart to set up the load limiter



(10) Maintenance and inspection

⚠ WARNING; Inspect the Air Hoist regularly.

- To operate the hoist safely, it is necessary to obey the crane safety regulations and also perform daily inspections, monthly inspections and annual inspections. If the hoist is not inspected on a regular basis this may lead to damage to the hoist and result in personal injury.

★ DAILY INSPECTION

1. Inspection of the air pressure and oil.

Confirm the hoist is operating at 0.6 MPa air pressure. Also make sure the line oiler is operating correctly. If oil lacks to the motor, this will lead to early wear of the motor parts.

2. Inspect the hook and hook claw;

If the hook is unable to rotate the chain may become twisted and the load may rotate leading to danger. Also make sure the safety hook is working correctly or it will be very dangerous.

3. Is the chain lubricated

The chain may wear prematurely if it is not lubricated properly.

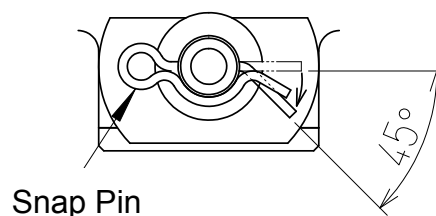
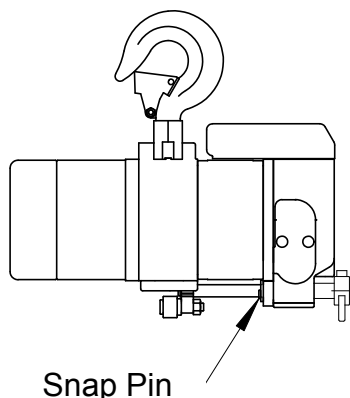
4. Does the hoist operate smoothly without abnormal sounds?

Stop the hoist if you hear any abnormal sounds coming when the hoist is operating

5. Inspection of the Snap Pin.

⚠ WARNING; Inspection of the Snap Pin.

- As shown in the drawing, make sure the Snap pin is assembled on the Air Hoist.
If this item is not assembled, stop using the hoist.
If this item is used with out the snap pin, the hoist will not operate properly (will not stop during operation) the over wind limit will not function and if may result in dropping of the load and may result in a human accident and is dangerous.
- When assembling the snap pin, make sure the snap pin is inserted properly and the end of the pin should be bent 45 degrees using plyers. (to secure the snap pin)
- Once a snap pin has been used, do not re-use this part. When assembling this part, make sure the snap pin is new.



★MONTHLY INSPECTION

1 . Inspection of the chain (For damage and elongation)

Inspect the chain according to the maintenance manual.

If the chain is out of tolerance, stop operation and replace the chain.

This may lead to breakage and is dangerous.

2 . Check if the brake is operating correctly.

Check the operation of the brake. If the load slips contact your dealer or distribution for repair.

It is dangerous to continue the use of the hoist in these conditions.

3 . Inspection of the hook

Inspect the hook for damage, deformation, non-rotation and also confirm the safety claw operates properly. Concerning the shape of the hook, review the maintenance chart for dimensions (L) and (H). If these areas exceed the recommended amount, it is dangerous to use. Replace with a new one.

4 . Inspect for loose bolts and nuts

It is dangerous to use the hoist with loose bolts or nuts. And this may cause damage to the other areas of the hoist.

5 . Inspect the lifting limiter

Check to make sure the lifting limiter is functioning and stops correctly. Check this function with no load.

★ANNUAL INSPECTION (Disassemble and inspect)

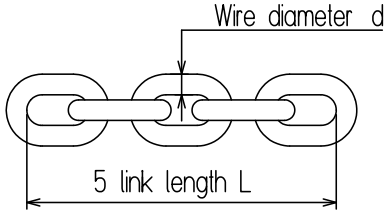
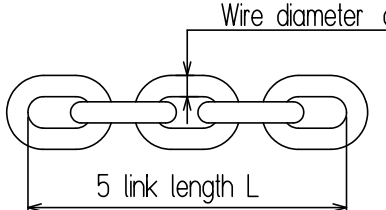
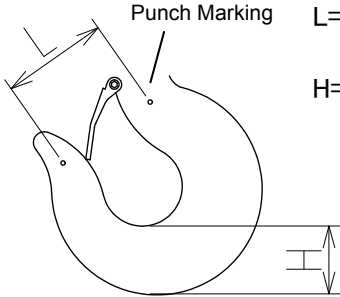
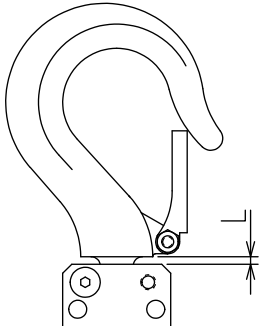
The annual inspection should be performed once a year by the manufacturer or at a authorized service location. As for the servicing, it should be performed once a year, or every 500,000 cycles of operation, or 400 hours of actual operating time of the air hoist,

Which ever comes first. But please note, depending on the environment where the hoist is being used, it may be necessary to inspect the hoist as needed.

INSPECTION AND TEST RESULTS

★When using the hoist with a trolley, according to the crane safety regulations, it is necessary to have a monthly and annual inspection of the equipment and this information must be recorded and kept for a minimum of 3 years.

★When using the chain hoist and trolley together it is necessary to report this equipment to the government authorities.

MAINTENANCE CHART		
PART	BASIC DIMENSIONS	CONDITIONS FOR REPLACEMENT
Link chain	TCR-500 TCR-1000-2 	* 5 Link Length 95.5mm ~ 98.5mm Wire diameter 6.3mm ~ 5.7mm If the chain does not meet the above specifications, replace the chain with a new one. * Replace the chain is damaged. * Replace if the rust of chain is serious condition.
	TCR-1000 TCR-2000-2 	* 5 Link Length 106.0mm ~ 109.1mm Wire diameter 7.1mm ~ 6.4mm If the chain does not meet the above specifications, replace the chain with a new one. * Replace the chain is damaged. * Replace if the rust of chain is serious condition.
Hook	Measure when new  L= _____ H= _____	* When the opening of the hook exceeds $L + 2\text{mm}$, replace the parts. * Lower hook; Replace part when H reduces by 2 mm. * When the hook cannot be easily rotated. In this case repair or replace * Make sure the safety latch works properly
Hook Hook end pipece		* Replace both Hook and Hook end piece when L exceeds; TCR-500P/C 2.5mm TCR-1000P2/C2 2.5mm TCR-1000P/C 2.5mm TCR-2000P2/C2 2.8mm.

(11)How to install the chain

Installing the chain into the hoist needs experience and is a difficult procedure. We recommend that a service facility perform this procedure.

But if the customer must assemble the chain into hoist, please obey the caution points and proceed as follows.

WARNING;

- Install the chain down stopper at **3rd link** from the end of chain for TCR-500~TCR-2000-2 as shown in the illustration. If the chain down stopper is not installed properly, hoist or lowering limiter may be damaged and this may lead to dropping of the chain and it is very dangerous.

WARNING;

- For TCR-500-TCR-2000-2, as shown in the right side of the drawing, connect the end of the chain to the end stopper at more than **10 links** in length.
If it is connected less than 10 links to the end stopper, the limiter in the lowering mode will not operate and chain may fall and may result in a accident and is dangerous.

WARNING;

- When connecting the end of the chain to the hoist, make sure the chain is not twisted when assembling the chain through the hook case.
If the chain is twisted and assembled, the chain will break and may result in personal injury.

WARNING;

- For TCR-1000P2,C2 (1ton double fall), on the holder side, connect the end of the chain to the end stopper at exactly 8 links in length.
If it is connected at **8 links** to the end stopper, the limiter in the lifting mode will not operate and chain may break and may result in an accident and is dangerous.

WARNING;

- For TCR-2000P2,C2 (2 ton double fall), on the holder side, connect the end of the chain to the end stopper at exactly **7 links** in length.
If it is connected at 8 links to the end stopper, the limiter in the lifting mode will not operate and chain may break and may result in a accident and is dangerous.

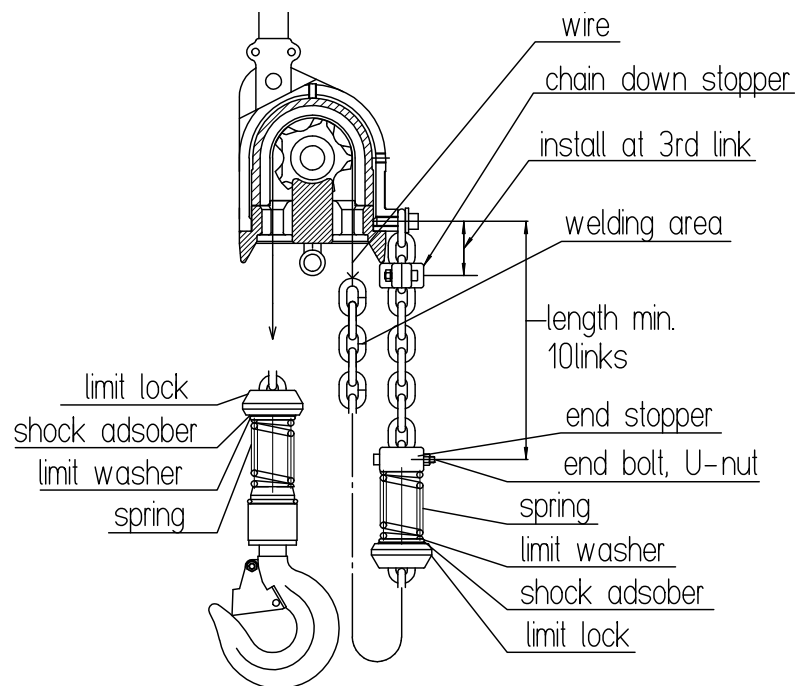
WARNING;

- As shown in the drawing, when assembling the limit lock, make sure the upper and lower limit lock position is not mistaken. If they are assembled incorrectly the limiter in the lifting and lowering mode will not operate and lead to breakage of the chain and possible personal injury.

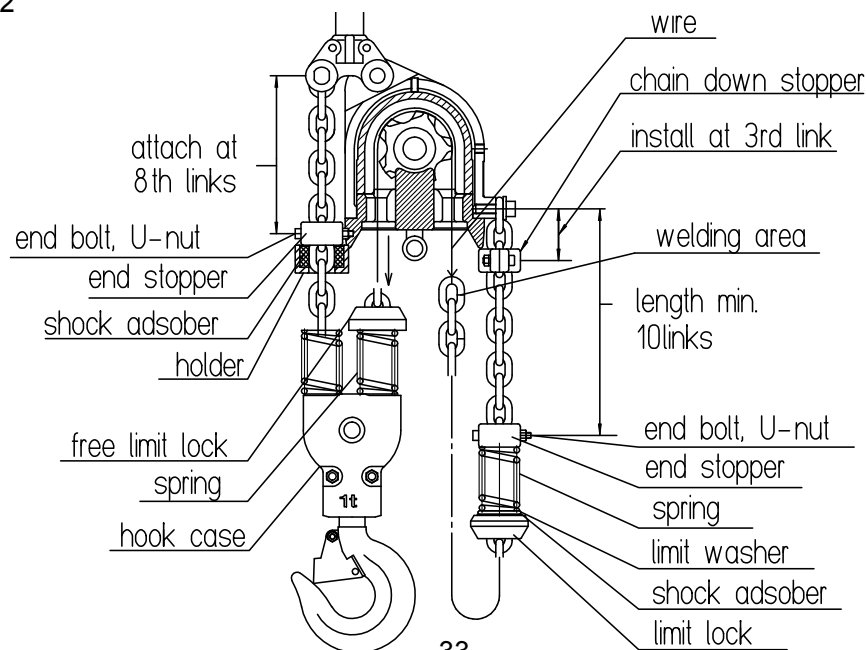
- ① Arrange the chain (We recommend Toku Genuine chain)
- ② Suspend the hoist and attach a wire to the end of the chain.
- ③ Operate the hoist, adjust the chain sprocket as shown in the diagram below.
- ④ Feed the wire into the chain opening on the lower side of the hoist.
- ⑤ Pull the wire and feed the chain into the hoist from the vertical link, and allow the chain to contact the sprocket. Make sure at this time that the weld on the chain link is facing the outside.
- ⑥ Continue to pull the wire and operate the air hoist at slow speed (Down mode) and allow the chain to slowly feed into the hoist. At this time make sure the chain does not jam into the sprocket and guide area. If the chain does get jammed into this area, the chain and the internal parts must be inspected.
- ⑦ Remove the steel wire from the chain and assemble the washer, spring and under hook to the end of the chain as shown in the drawing below.
- ⑧ Secure the end of the chain (No load side) on the side of the hoist. Make sure the chain is not twisted more than 90 degrees when assembling to the hoist

TCR-500 P/C

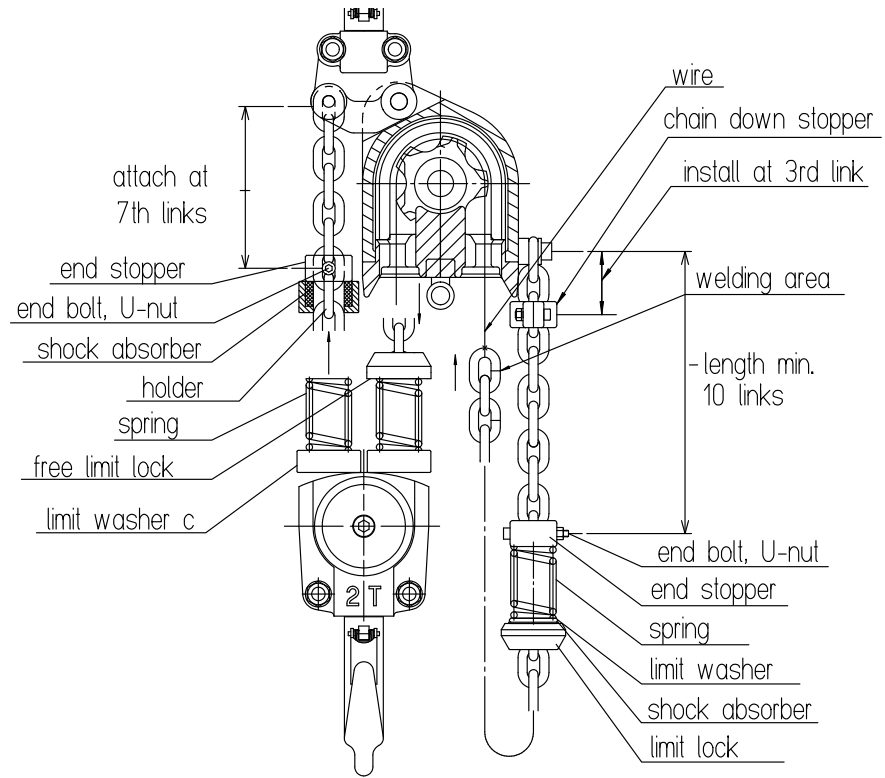
TCR-1000 P/C



TCR-1000 P2/C2



TCR-2000 P2/C2



(12) Trouble shooting



WARNING; Contact the distributor for inspection and repairs.

- When the air hoist needs to be disassembled or repaired, please contact Air & Allied Sales (Pacific) P/L for your local authorised service center. Use genuine Toku parts to make sure the strength and durability of the parts are correct, if imitation parts are used this may lead to personal injury and is dangerous.

Item	Cause	Countermeasure
Does not operate	* Lack of air pressure	* Adjust air pressure. Ref; P20
	* Rusting of the valve	* Repair at Service facility
	* Problem with motor area	* Repair at Service facility
	* Problem with brake area	* Repair at Service facility
	* Bending or crimping of pendant hose	* Correct band or crimp
Lifting speed is slow	* Lack of air pressure	* Adjust air pressure
	* The hose size is too small	* Check hose P16
	* Malfunction of brake	* Repair at Service facility
	* Problem with motor area	* Repair at Service facility
	* Plugged silencer area	* Repair at Service facility
	* Bending or crimping of pendant hose	* Correct band or crimp
Cannot lift rated load	* Lack of air pressure	* Adjust air pressure
	* Poor adjustment of the load limiter	* set the load limiter at a higher position
	* Problem with motor area	* Repair at Service facility

CUSTOMER MEMO

Record information such as the distributor name, model number and serial number.
It will be of good use when you bring the unit in for servicing.

Date of Purchase	Distributor Name
Model	
Serial Number	

This is a high precision manufactured product. As a result if the unit does not work
Operate properly do not attempt to repair the unit. Contact our distributor Air & Allied Sales
(Pacific) Pty Ltd. Also, if parts are needed or if you have any questions about how the
unit works, please do not hesitate to contact us.