AIR HOIST

TMH-series

TMH-25TP2E/C2 TMH-30TP2E/C2





MANUAL

INSTRUCTION MANUAL

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

TOKU PNEUMATIC CO., LTD.

18-06

No.5

(1) INTRODUCTION

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

This manual is a guidebook 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.



MARNING; 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.



A 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.

Should you have any question on the product or the content of this manual, please contact Air & Allied Sales (Pacific) Pty Ltd (see below for contact details).

(2) Table of Contents

	Page
(1) Introduction	1
(2) Table of Contents	2
(3) Safety Precautions	3
(4) Precautions during operation	6
(5) Specifications	1 3
1. Operating conditions	1 3
2 . Specifications	1 3
(6) Name of Parts	1 4
(7) Preparation before operation	1 5
1. Preparation of the compressor and drain removal	1 5
2. Piping	1 5
3 . Preparation the Air hose	1 6
4. Check the hanging strength of the location of the beam	1 6
5. Installation of the chain basket	17
6 . Installation of the Pendant	18
7 . Installation of the Cord	18
8 . Installation of the Air Hoist	1 9
9. Check the chain (Double fall type)	2 0
(8) Before Operation	2 1
1 . Check operating Air Pressure	2 1
2 Lubrication	2 1
3 . Test operation	2 2
4. Check of the install position for the attachment of lifting and	d lowering limiter 2 2
5. Check the lifting and lowering limiters before actual operati	on 2 2
6 . Check the sling equipment	2 3
(9) How to operate	2 4
1. How to start and stop the Hoist	2 4
2 . Speed adjustment	2 4
3 . Lifting and lowering the load	2 5
4 . Adjustment the load limiter	2 6
5 . Emergency stop button	3 0
6 . Adjustment for Pendant Hose Extension	3 1
(10) Maintenance and inspection	3 2
(11) How to install the chain	3 4
(12) Trouble shooting	3 5

(3) Safety Precautions

A WARNING

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

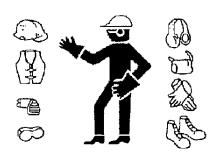


A WARNING; Obey the safety rules at the job site.

- · 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.

A 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.

A 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. Ungenuine parts are not certified their strength and durability. That may cause fatal accidents, and it is very dangerous.

A 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.

A 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

MARNING; 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.

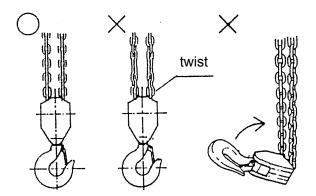


▲ WARNING; Check the slings and hook safety claw before using the hoist.

· 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.

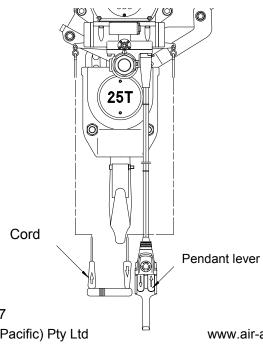
WARNING; Before using the hoist, make sure the chain is not twisted.

· 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.



A WARNING; Do not depress the pendant lever unnecessarily.

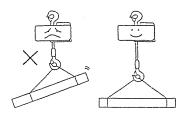
- · Make sure the conditions are correct before operating the hoist. Under poor conditions, the load may fall onto the floor or the load may fall onto the operator. It is very dangerous.
- Depressing the pendant lever will start operation of the hoist and releasing will stop the hoist.
- ·Pulling the cord will start the hoist and releasing the hoist will stop the hoist.





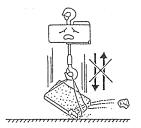
MARNING; Make sure the load is balanced.

· 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.





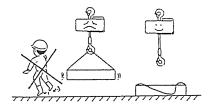
▲ WARNING; Do not use the hoist to lift people.

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



MARNING; 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.

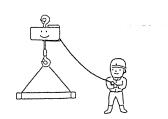




WARNING; Do not operate the hoist under the load.

· 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.

A 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; 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(TMH-6000-2), 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 This may allow the limit spring on the chain to enter the chain entrance in the under loosen. 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.

Lubricate chain links and sprockets contacting part on both Load Sheave and Free Chain Wheel with Fricttle 2 (liquid type, Rix Corporation product) in every 300 cycles. Make sure to lubricate chain when it is dry even before reaching 300 cycles. Viscogen KL300 (Castrol .Ltd product) can be used instead of Fricttle 2 in a light use, less than 30 cycles a day. In this case lubricate chain every 30 cycles. Spray type is recommended for easy lubricating.



A 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 an accident or premature wear of parts.



A 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.



A 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.

A 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.
- X 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 -20°C ~70°C.
 - ≪Recommended20°C≫

Operating the hoist out of the above temperature range will affect the durability, performance and safety of the hoist.



A 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 15-20 drops/min (approximately 0.3-0.4cc) 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

①Operating Air pressure: 0.4 MPa~0.6MPa ≪Recommended 0.6MPa≫

②Operating Ambient Temp. range: -20°C~70°C ≪Recommended 20°C≫

③Operating location: Inside

4Applications: For lifting loads

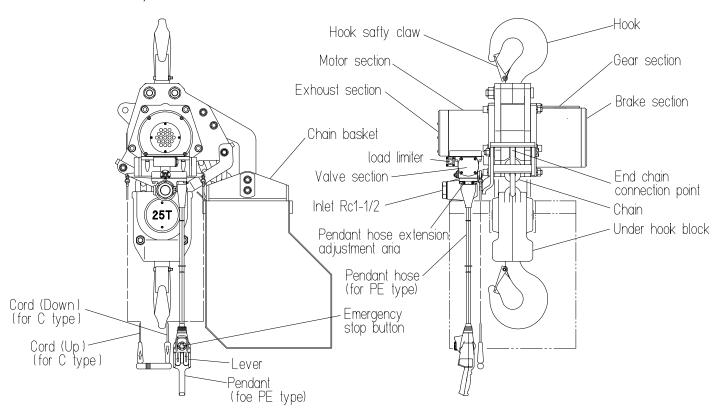
2. Specifications

Model	No. of Falls	Rated Load(kg)	Lift Speed w/RatedLoad(m/min) /AirConsumption (m3/min)	Lift Speed w/o Load (m/min) /Air Consumption (m3/min)	Vibration Value (dBA)	Std. Lift (m)	Air Iinlet	Weight Inc.Cain (w/o chain)kg	Min hook Distance mm	Chain Dimension (waight kg/m)
TMH-25TP2E	2	25000	1.4/6.5	2.7/10	84.1	3	Rc 1-1/2	581(473)	1290	23.5 × 66(12.2)
TMH-30TP2E	2	30000	1.0/6.5	2.7/10	84.1	3	Rc1-1/2	581(473)	1290	23.5X66(12.2)

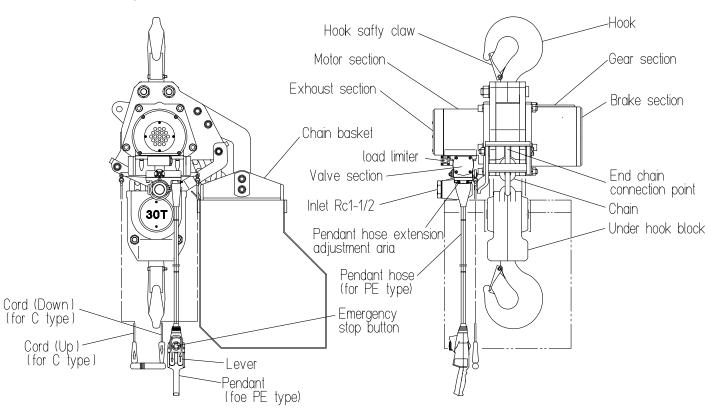
- X Lifting speed is measured at 0.6 MPa with a pendant hose length of 2 meters.
- Please note, using a pendant valve hose exceeding 2 meters may change the performance specifications.
- Operating the hoist at air pressures of 0.5MPa, or 0.4Mpa will result in lower performance levels as shown in the chart.
- * The Noise Level shown above is average sound pressure level measured according to ISO3744.
- * Appropriate load chain shall be used according to each load capacity, 25 and 30 ton, even though the chain size is the same.

(6) Name of parts

TMH-25TP2E,C2



TMH-30TP2E,C2



(7) Preparation before operation

- 1. Preparation of the compressor and drain removal.
 - Method of selection; (Air Consumption for each hoist is shown on Page 13)

(Air consumption \times 10) \times Hoist Quantity \leq 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)

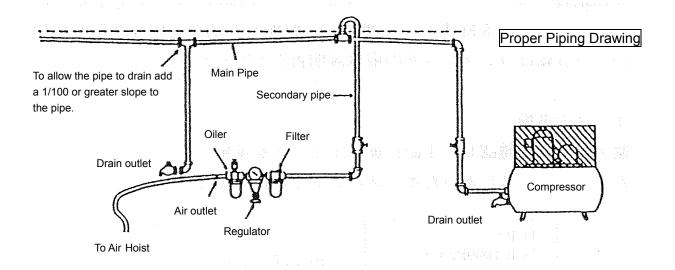
2. Piping

Refer to the diagram below for piping or installation. The main and secondary pipes should be larger than the air hoist hose size. It 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 15-20 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.



Preparation of the Air Hose

▲ WARNING; Do not use Quick Coupler for connection.

- Quick Coupler restricts air flow too much. This leads to significant degradation of the hoist performance and to trouble on brake part.
 - Size of Hose: The hose size for this hoist is **ID 38mm or larger**. Prepare suitable hose band for hose size.

·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 ID larger than 50mm.

Please refer to the following chart showing the relationship between air flow and pressure drop for a 10 meter long hose.

Size of Hose	Air Pressure	Hose;10 meters in Length with free air flow (m³/min)				
(mm)	(MPa)	6	8	10	12	14
	0. 4	0. 0066	0. 0117	0. 0182	0. 0263	0. 0358
38	0. 5	0. 0055	0. 0097	0. 0152	0. 0219	0. 0298
	0. 6	0. 0047	0. 0084	0. 0131	0. 0188	0. 0256

(MPa)

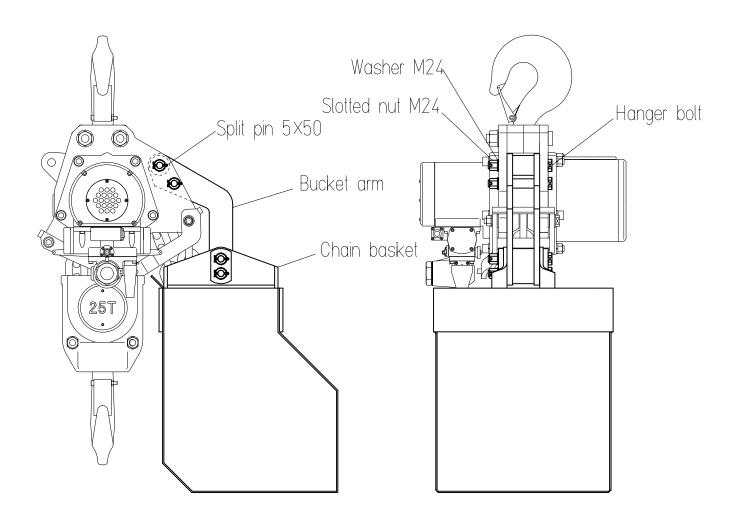
- *The chart information shows the pressure reduction at each Air Pressure at free flow. The pressure drop has been calculated by subtracting the pressure from the inlet of the hose to the outlet port.
- XIf the hose length is longer than 10 meters, the relationship of the pressure drop if proportional 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.



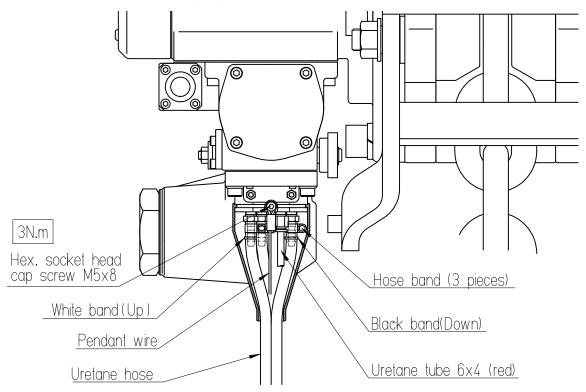
WARNING; Before installing the hoist to the beam make sure the safety factor is met.

· 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. Installation of the chain basket (See the drawing shown below)
 - · Assemble chain basket as below diagram.
 - Put chain in chain basket completely.
 - ※Make sure to assemble Split pin.
 - XAssemble chain basket without removing chain end.

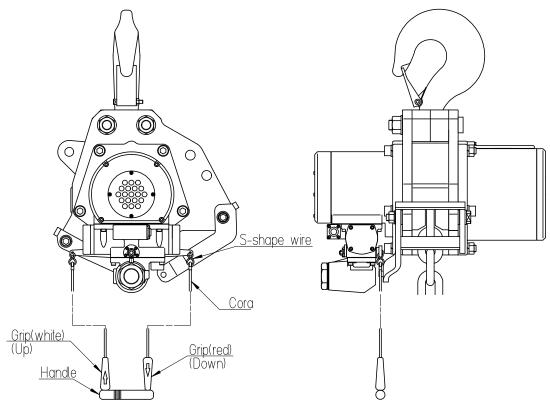


- 6. Installation of the Pendant (PE type)
 - · Install the pendant valve as shown in the drawing below.
 - Make sure each pendant hose is connected to the correct port.
 - · Fasten the hose band tightly.



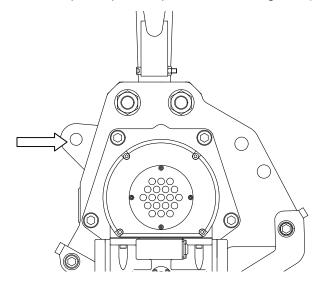
7. Installation of the Cord (C type)

•Install the Cord as shoe below.



8. Installation of the Air Hoist

①Hang the hoist up with pointed part as below diagram. (Hole diameter 27mm)



2 Install the upper hook to the supporting beam.

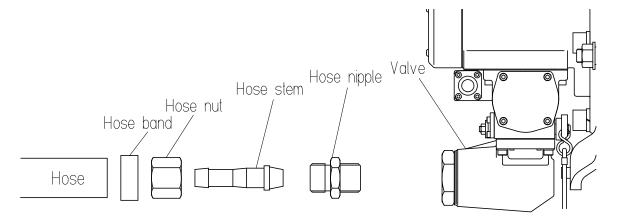


■ WARNING; Make sure the upper hook is assembled correctly.

- · Make sure the upper hook is assembled to the recommended material and also make sure the hook safety claw is securely locked.
- (3) Apply seal tape to the hose nipple, and assemble to the Air Hoist.
- (4)Stop the air flow by closing the main valve on the compressor.
- ⑤Before connecting the air line to the air hoist, apply 20 drops of lubricating oil into the hose.

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

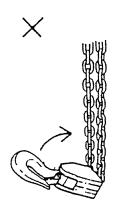
- If foreign matter enters the hoist, this may lead to seizure of the hoist or malfunctioning.
- 6 Assemble the hose stem and nut securely to the hose using the hose band. (Please note the hose band is not an accessory item)



9. Check 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

Checking the operating air pressure



A 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.
- X 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..

Lubrication



A CAUTION; Maintain correct lubrication.

- The lubricator (line oiler) in the air line will supply lubrication to the air motor. Oil supply should be 15-20 drops/min. (0.3-0.4 cc)
- · For the chain, Lubricate chain links and sprockets contacting part on both Load Sheave and Free Chain Wheel with Fricttle 2 (liquid type, Rix Corporation product) in every 300 cycles. Make sure to lubricate chain when it is dry even before reaching 300 cycles. Viscogen KL300 (Castrol .Ltd product) can be used instead of Fricttle 2 in a light use, less than 30 cycles a day. In this case lubricate chain every 30 cycles. Spray type is recommended for easy lubricating.
 - 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	ISOVG46 or Equivalent (Recommended Oil: Super Malpas DX 46)	Air Motor	Line Oiler in piping
Chain Iubricant	Fricttle 2 or Castrol Viscogen KL300	Chain	Lubricate chain links and sprockets contacting part on both Load Sheave and Free Chain Wheel in every 300 cycles or 30cycles.

- Super Malpas DX 46 (JXTG Nippon Oil & Energy Corporation)
- ※Fricttle 2 (Rix Corporation product)
- *Castrol Viscogen KL300 (BP P.L.C. product)

3. Test operation

WARNING; Before actual operation, check for abnormal operation or

- 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.
- 4. Check the install position for the attachment of lifting and lowering limiter.

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

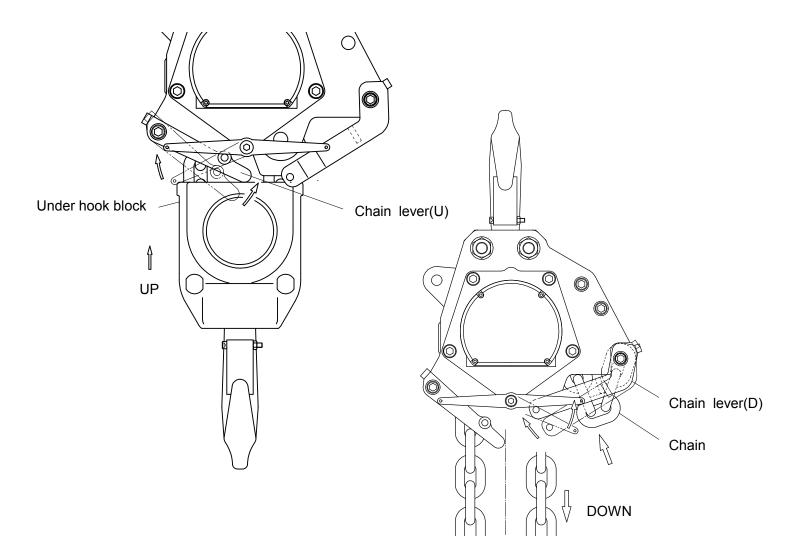
Install the attachment of lifting and lowering limiter at the designated position according to this manual page 16 (chain basket) and 32-33. If it is installed wrongly, install it again certainly at the designated position.

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.

5. Check the lifting and lowering limiters before actual operation

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

- Make sure to check in slow speed without load if the hoist stops working when limit lever is pushed up by Under hook block or Chain at each ends.
 - 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.



6. Check the sling equipment

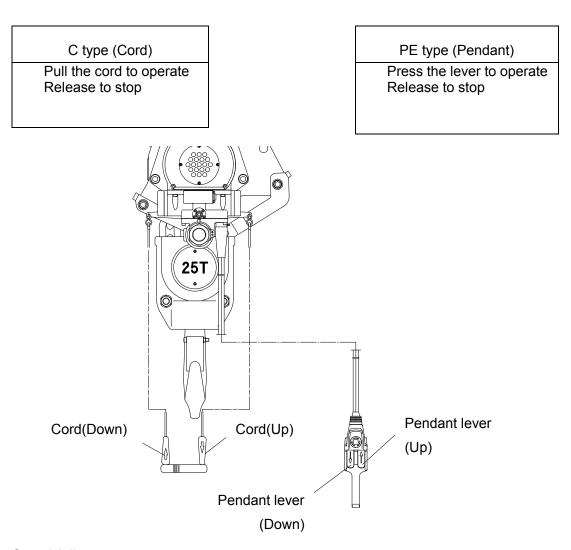


▲ WARNING; Check the sling chain and wire rope.

- · 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) How to operate

1 . How to start and stop the Hoist

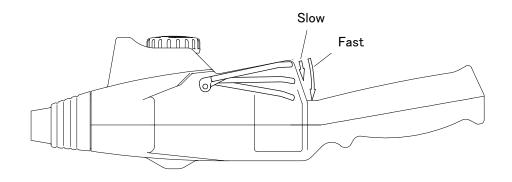


2. Speed Adjustment

•PE type

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

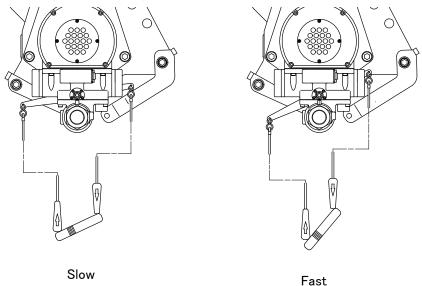
As shown in the diagram below, if you depress the lever a small amount the speed will be slow.



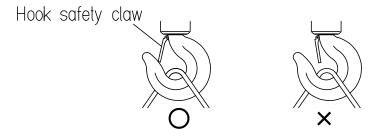
C type

For the cord type, the more you pull the cord, the faster the hoist will operate.

As shown in the diagram below, if you pull the cord a small amount the speed will be slow.



- 3. Lifting and lowering the load
 - 1 Put a wire rope or a chain sling onto the load.
 - 2 Put the wire rope of 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.
- ① 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 loading on double fall type hoist, make sure that under hook is straight. Hook the center of load using sling chain or wire. Keep chain and under hook vertically, and do not drag the load in 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. Adjustment of the load limiter
 - Concerning the operation;

By mistake, if a load heavier than the rate 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.

 he 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.

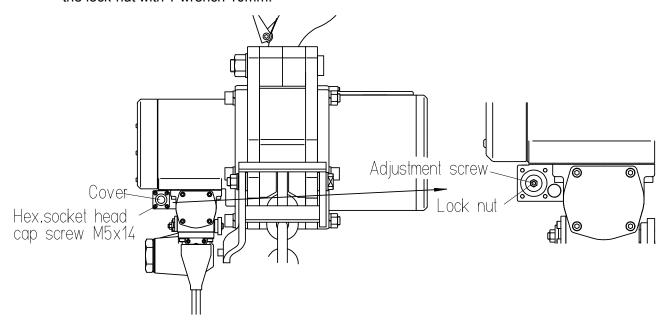
How to adjust

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.

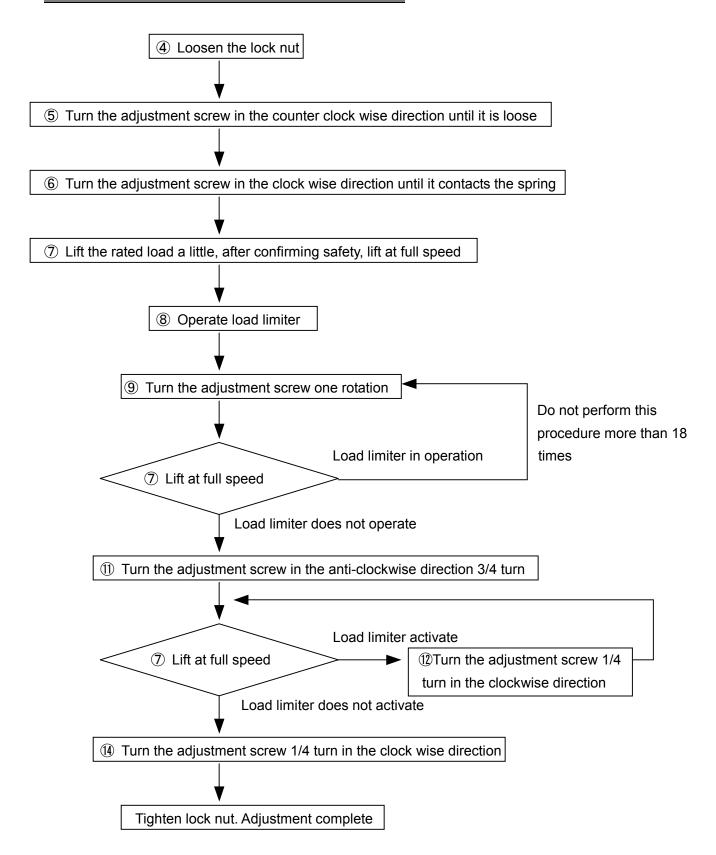
- Do not turn the adjustment screw more than 18 rotations after the screw contacts the spring. It will exceed the limits of the load limiter and the load limiter will not operate correctly and may lift a load exceeding the rated load and can be dangerous.
- 1 Confirm the rated capacity of the hoist.
- ② Set the operating pressure. Normally at 0.6MPa.
- 3 Loosen 4 Hex socket head cap screws M5x14 to open the cover.
- 4 As shown in the sketch, loosen the lock-nut with T wrench 10mm.



- ⑤ 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. (Hex Wrench 3mm)
- 6 Turn the screw with fingers in clock-wise direction until it meets the spring and you feel friction.
- (7) As explained in page 24 "3. Lifting and Lowering" in the chapter "How to Operate", lift rated load to some distance to confirm the safety. Then lift in max speed.
- (8) At this time the load limiter will work and the hoist will stop automatically.
- (9) Then turn the screw in the clock-wise direction one revolution.
- (Does not stop automatically)
- ① After performing in the step mentioned in ②, then turn the screw in the counter-clockwise direction 3/4 of a turn and perform step \Im .

- ② After performing step ①, and the load limiter does not function, performing step ③.
- ③ Continue step ② until the load limiter dose not function.
- (4) 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.
- (5) Tighten 4 Hex socket head cap screws M5x14 to close the cover.
- Refer to the load limiter adjustment chart on the next page.

Flow chart to set up the load limiter



5. Emergency Stop Button (PE type)

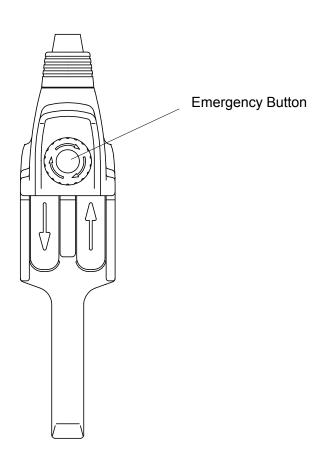
A CAUTION; Do not hit the Emergency Button.

• When using the Emergency button, do not hit the button but use your finger. If you hit the button, it may break and lead to injury of your hand or body and can be dangerous.

During operation of the Air Hoist, if a problem develops with the pendant valve and the hoist does not stop after the pendant lever is released, press the Emergency stop button to stop the hoist

·How to use

By pressing the RED button in the middle of the pendant valve, it will stop the hoist. Turn emergency button in clockwise or pull it up to release Emergency stop.



6. Adjustment for Pendant Hose Extension

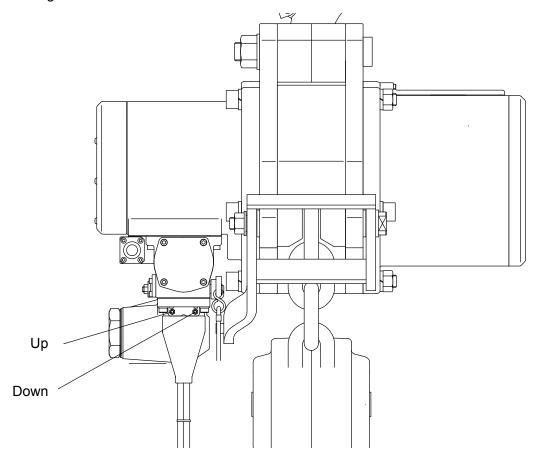
The standard length for Pendant hose is 2m. When the pendant hose is extended, due to air pressure loss, the operation of the pendant valve become poor or non functional. This mechanism was developed to improve this situation.

· How to adjust

As shown in below diagram, hex nut on the left is lifting adjust and on the right is lowering adjust. To improve operation, loosen hex nut which needs to be adjusted and turn hex socket set screw M5x22 in clockwise. After adjustment, tighten the hex nut properly.

By tightening the pressure adjust hole, this makes up for the pressure loss caused by pendant hose extension. If the screw is over-tightened, the hoist cannot be operated in slow speed.

*The pressure adjust hole is full-opened in Ex-factory setting. No need to adjust in standard usage.



(10) Maintenance and inspection

A 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



▲ WARNING; Always keep chain lubricated.

- ·Without sufficient lubricant, chain wears fast and it leads chain breakage. This may result in serious accidents. Lubricate chain links and sprockets contacting part on both Load Sheave and Free Chain Wheel with Fricttle 2 (liquid type, Rix Corporation product) in every 300 cycles. Make sure to lubricate chain when it is dry even before reaching 300 cycles.
 - Viscogen KL300 (Castrol .Ltd product) can be used instead of Fricttle 2 in a light use, less than 30 cycles a day. In this case lubricate chain every 30 cycles.
 - Spray type is recommended for easy lubricating.
 - 4. Does the hoist operate smoothly without abnormal sounds? Stop the hoist if you hear any abnormal sounds coming when the hoist is operating

★ MONTHLY INSPECTION (Inspect the hoist every 1 month, 60 hours or 6,000 cycles, whichever comes first.)

- 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 conform 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 at least once a year by the manufacturer or at an authorized service location. As for the servicing, it should be performed once a year, or every 10,000 cycles of operation, or 100 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.

RECORD FOR INSPECTION AND TEST RESULTS (in case of using with Trolley)

- ① 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.
- ② When using the chain hoist and trolley together it is necessary to report this equipment to the government authorities.

MAINTENANCE CHART

MAINTENAN	ICL CHART	
PART	BASIC DIMENSIONS	CONDITIONS FOR REPLACEMENT
Hook	Punch Marking Measure when new L= H=	* When the opening of the hook exceeds original length, 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
Link chain	Wire diameter 1 link length 11 link length	* 1 link length 66.0mm~69.3mm * 11 Link Length 726.0mm~470.5mm Wire diameter 23.5mm~21.2mm 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.

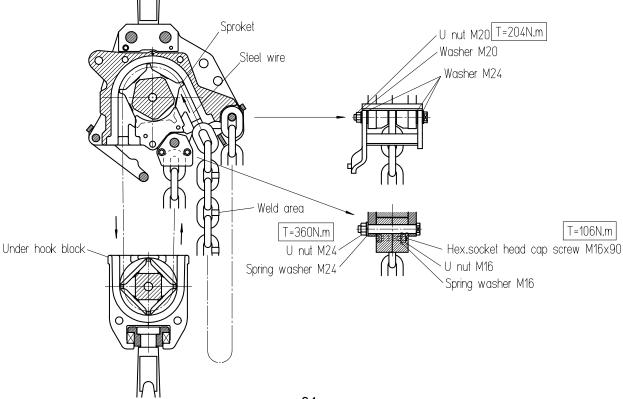
(11) How to install the chain

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.

A WARNING;

- When connecting the end of the chain to the hoist, make sure the chain is not twisted when assembling the chain through the under hook block.
 - If the chain is twisted and assembled, the chain will break and may result in personal injury.
- ① Arrange the chain (We recommend Toku Genuine chain. The total Chain link quantity must be odd number.)
- 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.
- © 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.
- Pass the chain through the under hook block as below diagram.
- Remove steel wire from the chain. Assemble chain end at loading side as below diagram.
- Assemble chain end at free side. During this process, be careful not to twist chain.



(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.

ltem	Cause	Countermeasure	
	* Lack of air pressure	* Adjust air pressure. Ref; P20	
	* Rusting of the valve	* Repair at Service facility	
Does not operate	* Problem with motor area	* Repair at Service facility	
Bood not opoliate	* Problem with brake area	* Repair at Service facility	
	* Bending or crimping of pendant hose	* Correct band or crimp	
	*Pressure loss for Pendant extension	*Adjust for pendant extension. Ref; P30	
	* Lack of air pressure	* Adjust air pressure	
	* The hose size is too small	* Check hose P15	
	* Malfunction of brake	* Repair at Service facility	
Lifting speed is slow	* 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	
	*Pressure loss for Pendant extension	*Adjust for pendant extension. Ref; P30	
Cannot lift rated load	* Lack of air pressure	* Adjust air pressure _。 Ref; P20	
	* Poor adjustment of the load limiter	*Set the load limiter at a higher position Ref; P25	
	* 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
Date of Fulcilase	Distributor Name
Madal	
iviodei	
Carial Number	
Senai Number	
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) P/L. Also, if parts are needed of if you have any questions about how the unit works, please do not hesitate to contact Air & Allied Sales (Pacific) Pty Ltd.