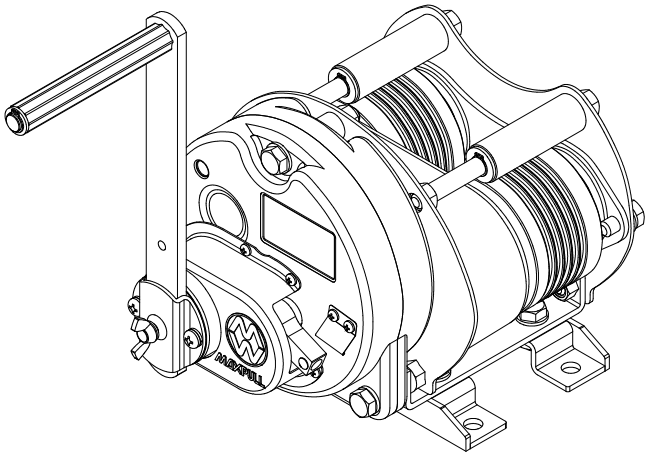
01200406

MAXPULL WINCH

Instruction Manual

MAXPULL Manual Winch
Model ME-5-B, ME-10-B (Type SI, NSIL and SIC)
Model RME-5-B, RME-10-B (Type SI, NSIL and SIC)
(Mechanical Brake)



⚠ WARNING

- For your safety, always read this manual and understand the contents fully before starting operation.
- Keep this manual at a designated place at all times to have quick access when required

MAXPULL MACHINERY & ENGINEERING CO.,LTD.
マックスプル工業株式会社

Table of Contents

Appendix

[How to Use This Equipment Safely]

Thank you for purchasing MAXPULL manual winch.
Thoroughly read this Instruction Manual before using the equipment to ensure that the operator understands the equipment and can operate it correctly.
Store this Instruction Manual in a location that is easily accessible for everyone that will be operating the Winch and make sure everyone has read it.
2 categories **"DANGER" and "WARNING"** on this instruction manual.

⚠ DANGER	Indicates an imminently hazardous situation which, if ignored, will result in death or serious injury and/or property damage.
⚠ WARNING	Indicates a potentially hazardous situation which, if ignored, could result in death or serious injury and/or property damage.

(General Handling)

⚠ DANGER

- Careless or incorrect handling may result in severe accidents. Do not allow the equipment to be handled by third parties or people who are not thoroughly familiar with the contents of this manual.
- Read this manual thoroughly before use, and familiarize yourself with the contents. Always store this manual within easy reach of any operators of this equipment.
- This winch is designed for load lifting only. Do not use it to lift people, or to move lifted people laterally. This winch is not appropriate for lifting people, neither legally, structurally, or from a safety perspective.
- This winch has been designed and manufactured for use as a manual winch. Do not modify the winch to use other power sources (electrical motors, air motors, hydraulic motors, etc.).
- Fine operation adjustments have been made to the brake mechanism and reduction gears. Do not make any modifications, such as welding or machining, to this winch.
- Only use genuine winch product parts and accessories.
- Never apply loads in excess of the rated maximum load.
- Never operate the winch when you are tired, after drinking alcohol and/or having medicine.

※ Please understand that we shall not be held responsible for any and all damage or loss arising from injuries or accidents that occur due to the customer's failure to follow the instructions described in this manual, or from injuries or accidents that occur due to the customer's remodeling.

[Safety Precautions]

◆ This winch has been designed and manufactured as a general purpose winch for industrial use. Therefore, be sure to install safety equipment such as emergency brakes and risk-sensing emergency stops on the equipment end when using the winch in applications where a major impact on human life and property is expected.

◆ Make sure to follow all required safety regulations for the location where the unit will be installed and for the equipment that will be used. (Ordinance on Industrial Safety, etc.)

◆ When using the product in places where condensation occurs due to temperature difference in the installing environment, such as on food machinery or in a clean room, and particularly when using on devices that cannot tolerate grease, please make sure to attach a damage prevention apparatus, such as an oil sump, in preparation for unlikely events of grease leakage.

⚠ WARNING

- CALIFORNIA PROPOSITION 65 WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

1. Inspecting the Winch upon Delivery

⚠ WARNING

- **Installing the wrong product may cause injury and damage to the equipment.**
  In addition, do not remove nor disfigure any warning label or the name plate on the winch.
- **To avoid danger, keep babies and children from the enclosed plastic bag, winch, and other parts and accessories.**

❒ Please check the following items first when the winch is delivered to you.

(1) Do the descriptions on the name plate such as the model and specifications etc., match what you have ordered?
(2) Are there any damages caused by accidents during transport?
(3) Are there any missing or detached parts?
(4) Are there any loose bolts and nuts?

Please contact us if you have any questions or concerns regarding the above items.

2. Specifications

Specifications on Model ME and RME (Mechanical Brake) *Includes Type SI, NSIL and SIC

Model	ME-5-B RME-5-B	ME-10-B RME-10-B
Wire Rope Tension	500kg (1,100lbs)	1,000kg (2,200lbs)
Wire Rope (Wire Rope Composition)	Φ6mm (6×37) 1/4 inch (6×36)	Φ8mm (6×37) 5/16 inch (6×36)
Gear Ratio	13.3:1	19:1
Effective Handle Length	250mm（9.84 inch）	300mm（11.81 inch）
Handle Force	9.9kg (21.8lbs)	11.6kg (25.6lbs)
Weight (Winch+Handle)	About 30kg(66lbs)	About 30kg(66lbs)

○ Model ME and RME are an endless winch for both direction pulling.
○ Model ME and RME with B type brake (Mechanical Brake) are suitable for both direction pulling of the truck on inclined place in one direction or the load lifting.

⚠ DANGER

- **In all manual winch work, there is a risk depending on pulley resistance or installed position that the wire rope will twist, etc. resulting in an unpredictably large force exerted on the winch.**
- **Always make sure to use the winch below its capacity (wire rope tension) in order to safely perform work such as vertical lifting and horizontal pulling.**
- **Due to the structure of the manual winch, the mechanical brake mechanism may not be operated properly when there is no load or a load that is too light for the rated load (about 5% or less of load rating wire rope tension).**
- **In using the manual winch, we recommend that you check the necessary safety regulations before conducting maintenance management, and that you educate workers regarding winch operations.**

3. Names of Each Part

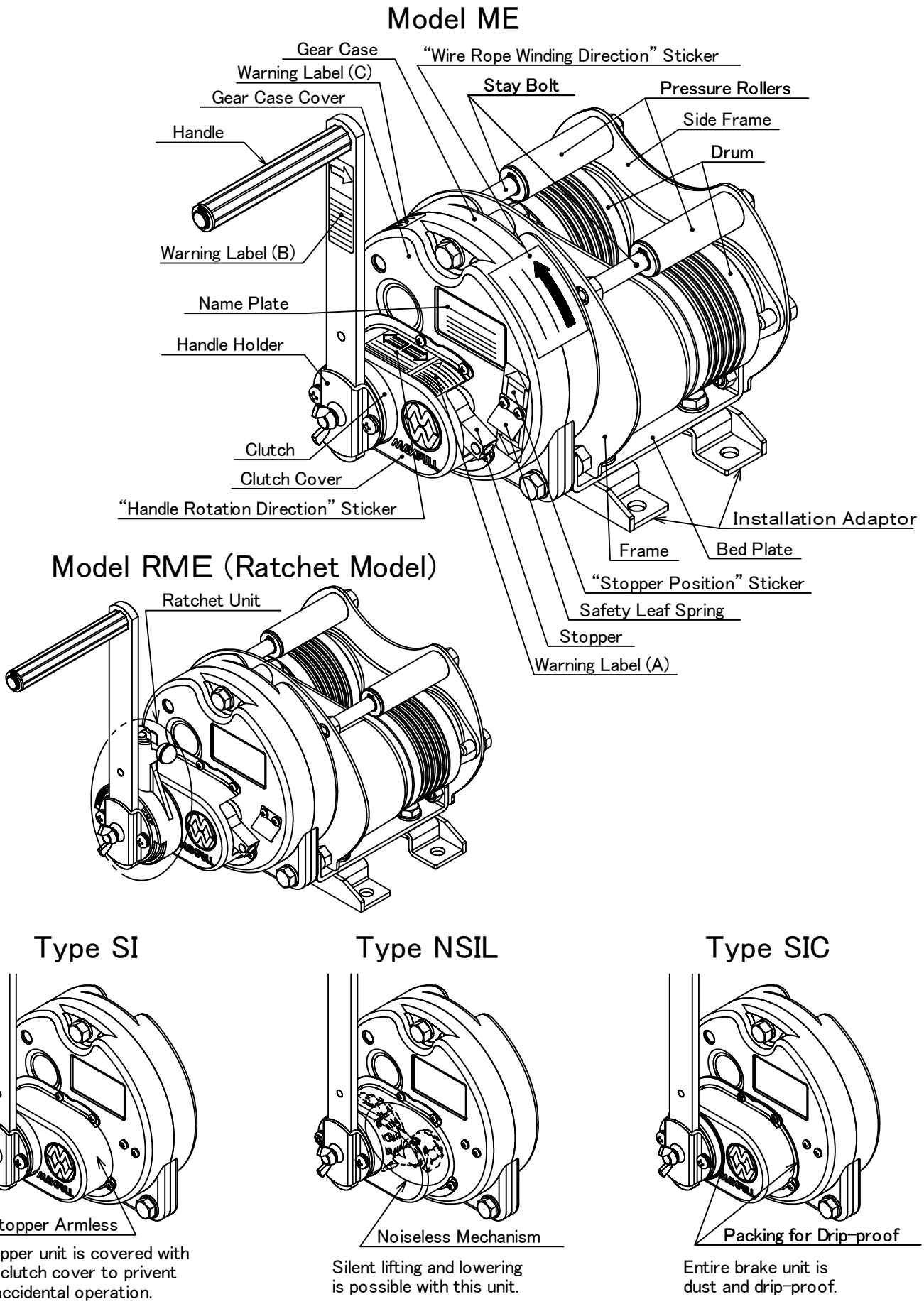


Figure 1　Names of Each Part

4. Name Plate and Warning Labels

The following labels and name plate are attached to the winch. Read and understand the contents of each label fully starting operation. If any label or name plate becomes damaged or illegible, contact MAXPULL MACHINERY & ENGINEERING Co., Ltd. or your local distributor immediately. A replacement will be supplied at your own cost.

⚠ WARNING

- **Check the measurement unit of pound(lbs) or kilogram(kgf) on name plate and make sure that the load must not exceed the load rating of the winch before use the winch.**
- **Never remove nor disfigure any warning label or name plate on the winch.**

Location of Name Plate

There are two types of Name Plate which indicated at Metric System and Yard-Pound System.

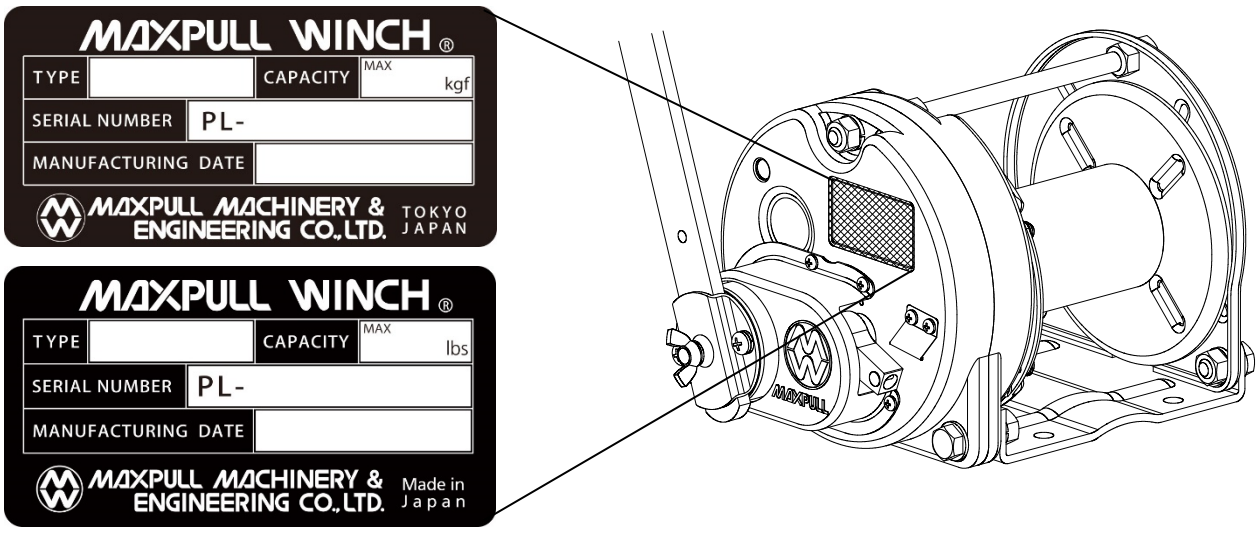


Figure 2 Name Plate

Types and Location of Waring Labels

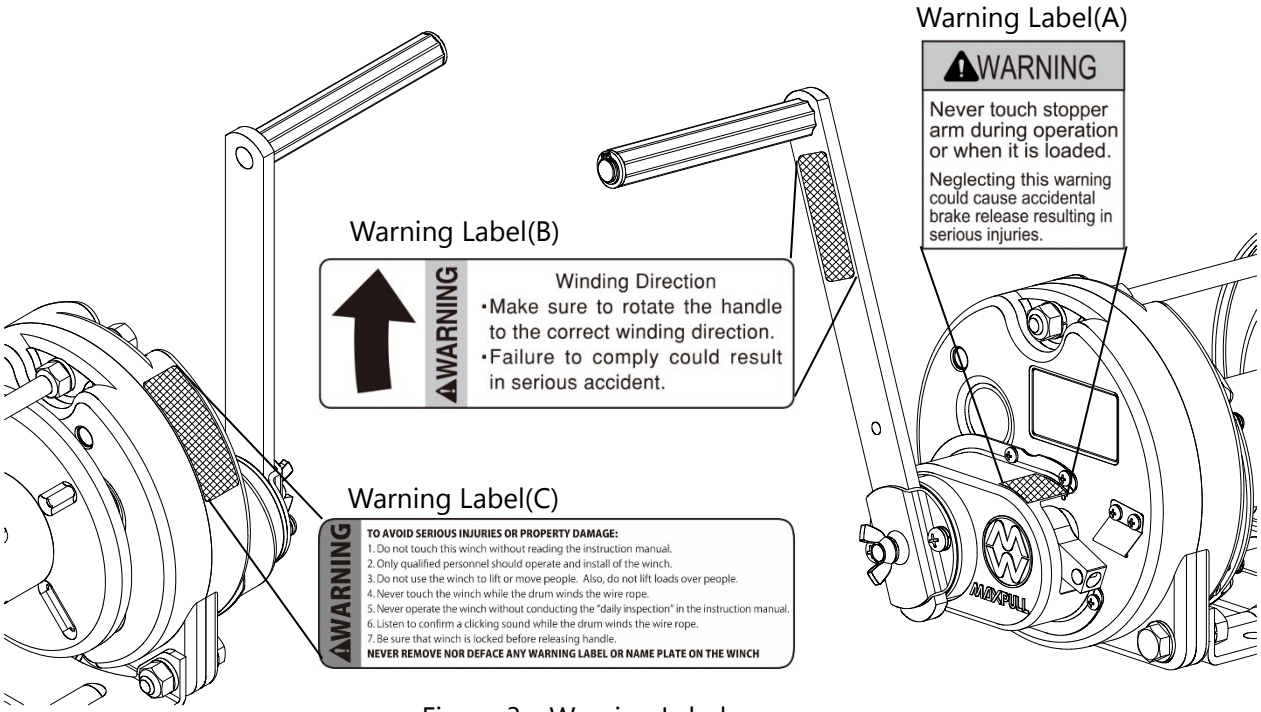


Figure 3 Warning Labels

5. Installation

⚠ DANGER

- **Installation and mounting of the manual winch must not be performed by anyone other than specialized contractors or people with expert knowledge.**
- **Make sure the winch does not fall or tip over while in transport or during installation. Be thoroughly careful when moving the winch.**
- **Install the winch in an area with easy access to the winch for inspections and maintenance.**
- **Please check that the installing area or mounting frame of the manual winch has sufficient strength and that it is a level surface.**
- **If there is a clearance due to distortion, etc. between the installation adaptor of the manual winch and the surface of the mounting frame, insert a shim plate and use the designated bolts and nuts to tighten and fix it into place.**
- **Please do not fix it into place by welding, because not only will it lower the precision of the winch and become a cause for injuries, it will also make it impossible to conduct maintenance.**

❒Please follow the items below when mounting the winch body.

（1） The installation position of the winch in which it is easiest for the operator to conduct work is the position where the handle rotation center (clutch) is at the height of the worker's waist. Please fix the winch into place at this height before working.
In addition, please do not install the winch in places where it is unstable under the worker's feet.

（2） Please install the winch in a spacious area where work can be done safely that gives the operator a view of the load and wire rope conditions while operating the winch.

（3） After installing the winch, if the "Handle Rotation Direction" sticker affixed to the clutch cover is no longer visible, request it to us for a new one at your cost and re-affix it at the visible position. This is to prevent an accidental operation.

（4） In terms of the position of the winch and pulley, they should be installed in a straight line along the wire rope that comes out of the drum, and use a winch that has a diameter (pitch diameter) over 15 times of the diameter of the wire rope being used and that rotates smoothly. In addition, please attach a latching device for the wire rope to the pulley.

⚠ WARNING

- **If the positions of the winch and pulley are not appropriate, the wire rope may drop off of the drum groove or the wire rope may be damaged resulting in shorter life. Furthermore, it may also cause failure or damage to the winch body.**
- **Install the pulley so that it is in a straight line along the wire rope coming out of the drum.**

6. Precautions on Usage Environment

⚠ WARNING

Make sure not to install or use the winch in the following special environments, because it will shorten its life and it will be extremely dangerous.

- **The limit of usage and installation in cold climates is -10℃(14℉). Using it at -10℃(14℉) or below will cause cold shortness of the metal, as well as alteration and deterioration of grease, resulting in accidents.**
- **Locations with a high ambient temperature of 40℃(104℉) or over and humidity that exceeds 90%.**
- **Locations with a lot of dust, oil or locations that require waterproof properties.**
- **Locations with a lot of acid or salt.**
- **Locations outdoor exposed to wind, rain or snow.**

(1) Please consult us in advance when using the winch in special environments such as the ones described above.

(2) When the winch is installed outdoor and exposed to wind, rain or snow, we recommend protecting it with a rainproof cover in order to prevent corrosion due to rust.

(3) Depending on the installation location, we recommend installing a tray, etc. to collect oily liquid, because condensation may occur inside the gear case and brake mechanism of a winch installed in a location with temperature difference; and, over time, the grease coated on the gear and sliding part inside may become oily by dissolving in the condensed water; and the oily grease may drop from the joint of the gear case.

7. Installing the Wire Rope

In the ME and RME model winch, the wire rope can be wound around the drum from any location.

⚠ DANGER

- **Use a wire rope that meets the specifications for the winch.**
  Using a wire rope with the wrong specifications may cause it to break.

❒ **Follow this procedure to install the wire rope onto the drum.**

Loosen the side frame fixing bolts and side frame fixing nuts, then remove the side frame and pressure rollers.

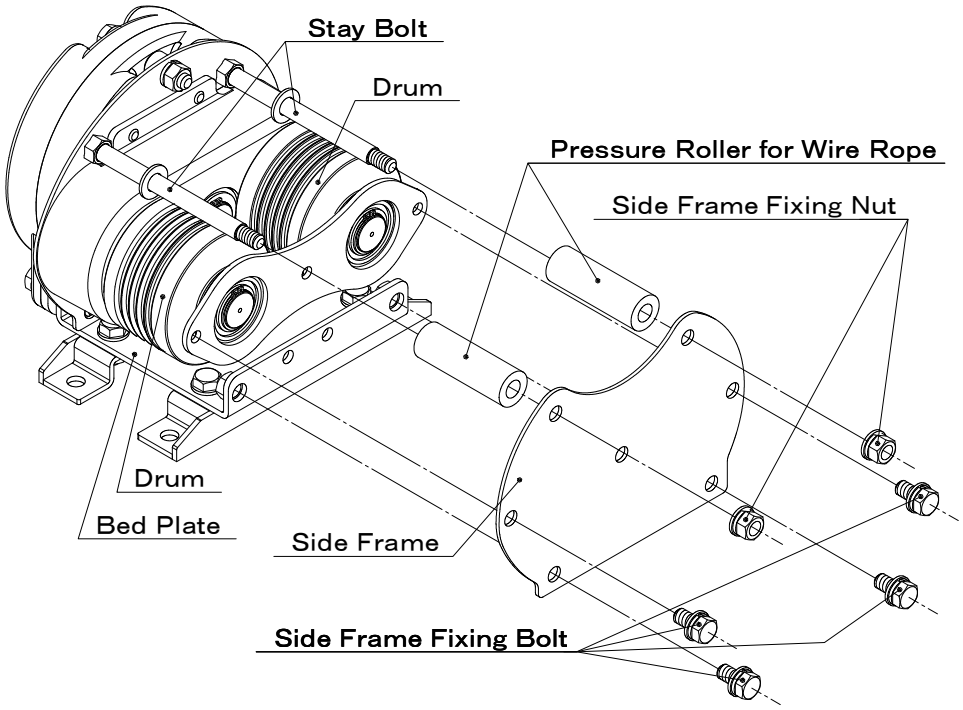


Figure 4 Remove the Side Frame and the Pressure Rollers for Wire Rope

(1) Pass the wire rope through the groove in the end on the stay bolt side of the drum on the left, take

it out from the bed plate side after winding it half way around along the groove in the end of the drum on the right, wind it half way around along the second groove from the end of the drum on the left, and then wind it to the drum on the right from the stay bolt side.

As described now, please wind the wire rope around the left and right drums in spiral form.

Ⓐ When taking both ends of the wire rope out of one side, the wire rope needs to be wound around the 3.5 winding drum as shown in the Figure 5-1, and then finally taken out from the bed plate side of the drum on the left. (The groove in the front of the drum on the right is free.)

Ⓑ When taking one end of the wire rope out of one side, the wire rope needs to be wound around the 4 winding drum as shown in the Figure 5-2, and then finally taken out from the stay bolt side on the right.

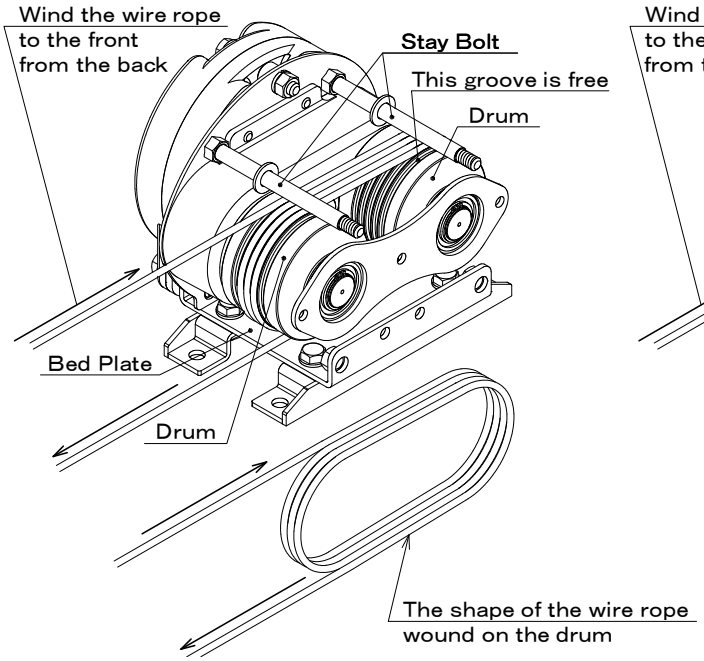


Figure 5-1 ⒶHow to wind the wire rope when taking both ends of the wire rope out of one side

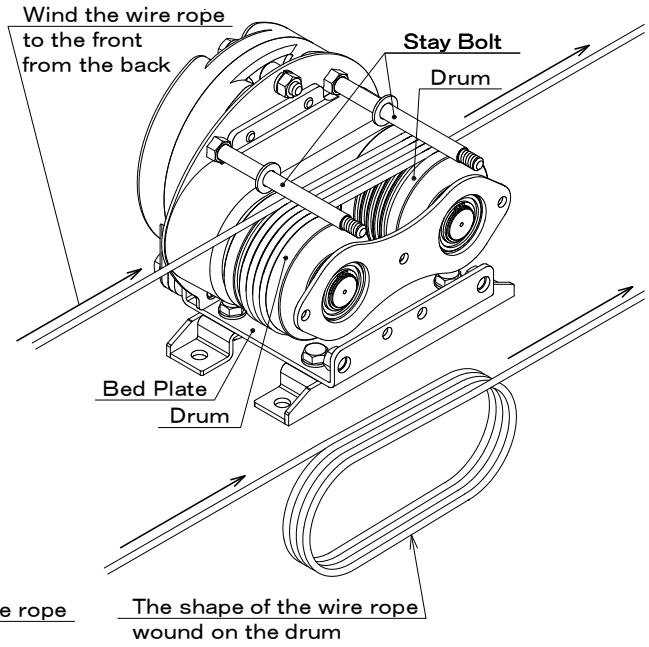


Figure 5-2 ⒷHow to wind the wire rope when taking one end of the wire rope out of one side

(3) Once you are done winding the wire ropes: [1] Set the pressure rollers to the stay bolt so that the wire rope does not drop off of the drum groove. [2] Set the side frame back to normal. [3] Use your hand to screw in the two bottom bolts. [4] Use your hand to screw in the two top bolts. [5] Use your hand to screw in the two nuts of the stay bolt. After you have screwed in all bolts and nuts with your hand, use a tool such as a wrench to do the final tightening in the same order, and check that the bolts and nuts in each part are tightened securely. Also, confirm that the wire rope is inserted in the drum grooves in the proper order. (A flat washer and spring washer are attached to each bolt and nut)

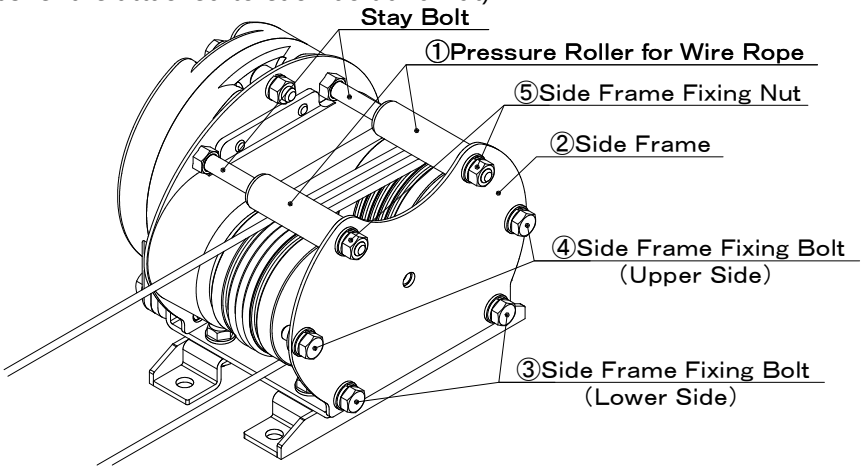


Figure 6 Attaching of Side Frame

(4) Wire ropes that are wound just by your hands are loose.

a. When using an endless wire rope, remove the looseness of the wire rope by sufficiently tightening it with a wire stretcher. (Refer to Figure 7-1)
Next, operate the handle to rotate both winch drums about 15 to 20 times each to the left and right in order to remove the looseness of the wire rope between them. (Refer to Figure 7-2)
Lastly, use the wire stretcher to do the final tightening one more time, and check that the looseness of the wire rope has been completely removed before conducting the actual work. (Refer to Figure 7-3)

b. When using the wire rope in a method other than the endless method, constantly pull the outgoing wire rope and apply tension. (Refer to Figure 8-1)
The looseness between the winch drums will be gradually removed. Once you stop applying tension, the wire rope between the two drums will start getting loose, so make sure to apply tension at all times. (Refer to Figure 8-2)

In both cases, always set the side frame and perform the work to remove looseness from the wire rope, or to apply tension, in a state where the wire rope is fixed into place.

(5) Looseness in the wire rope will result in slipping, so even in cases where the wire rope stretches depending on the usage condition, follow the same steps as described above to remove the looseness of the wire rope.

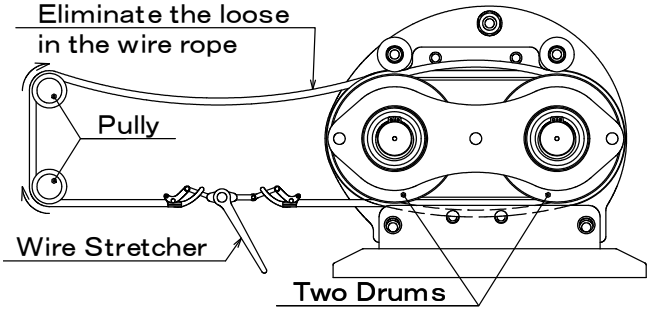


Figure 7-1 Tightening the endless wire rope

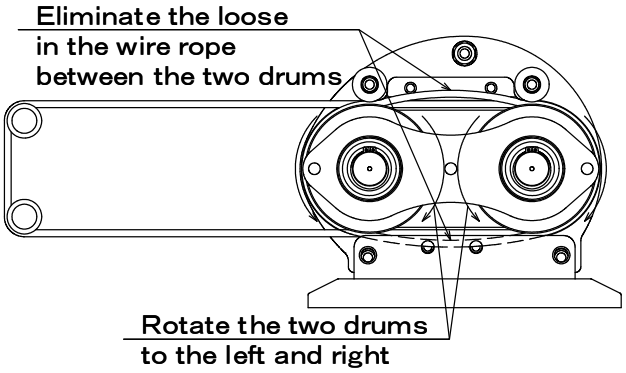


Figure 7-2 Tightening the endless wire rope

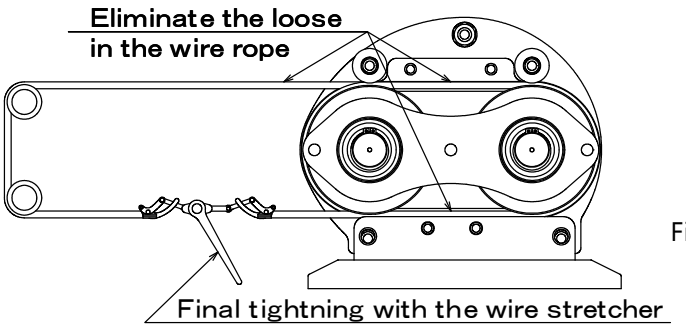


Figure 7-3 Tightening the endless wire rope

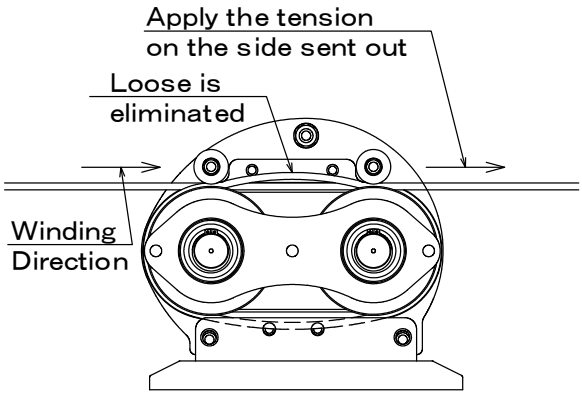


Figure 8-1 If the endless method is not used

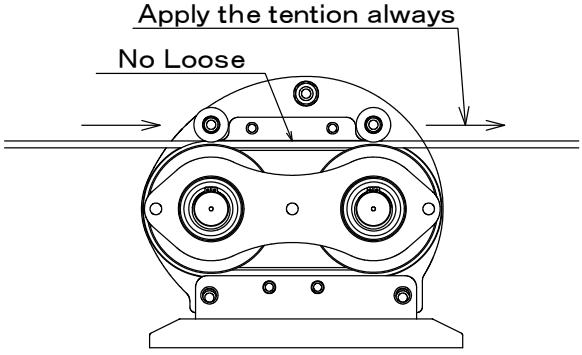


Figure 8-2 If the endless method is not used

* These figures are for explaining how to remove the looseness from the wire rope and are different than setting up the wire rope.

⚠ WARNING

- It is shown without the side frame to make it easier to understand. When using a wire stretcher to tighten the wire rope, perform the operation with the side frame set into place.
- Do not apply load when the side frame is removed. When removing the side frame, confirm that no load is applied to the wire rope.

8. How to Operate the Winch, and Pre-work Inspection/Precautions

⚠ DANGER

- Please check that the winch body is completely attached and fixed into place.
  If you start work while the attachment/fixing of the winch is unstable, it will lead to accidents and injuries.
- Check that the load is below the winch's capacity before starting work.
  When working with the winch, there is a risk that the wire rope will become twisted or an unpredictable overload will be applied to the winch due to the pulley resistance or the installed position of the pulley. Always make sure to use the winch below its indicated capacity in order to conduct the vertical lifting and horizontal pulling work safely.
- Wind the wrong direction will result in no functioning of the brake and serious accidents or injuries due to the load falling. Make sure the winding direction of the wire rope is same as the direction on the sticker affixed on the winch or describing on this manual.
- Make sure that the stopper arm is set to the "A" position of the "lifting" position as shown in the Figure 9. Set the position of the stopper arm correctly using this manual and the sticker affixed on the winch. (Exclude the Stopper Armless Type SI, SIC and NSIL)
- Check that the wire rope is properly inserted in the left/right drum grooves and the designated number of winding times is secured.
- Check that the wire rope is coming out in parallel to the drum groove so that the wire rope does not drop off of the drum groove.
- Immediately replace the wire rope when any of the following conditions occur: breakage of the wire rope's wire strands; reduction in outer diameter (those with diameter reduction ratio of 7% or more than the nominal diameter); wire rope with a kink; considerable deformation; or, corrosion, etc.
- Make sure there are no damaged parts or other conditions that may affect the operation of the winch.

⚠ WARNING

- Do not remove the name plate or the "Handle Rotation Direction", "Wire Rope Winding Direction", "Stopper Position" sticker and any warning labels, and do not use a winch when it is dirty.
  When you cannot read the sticker or name plate due to considerable dirt, or when it has fallen off and has been lost, please submit a request to us for a new one and re-attach it to the designated location.
- The mechanical brake unit on a winch that has been left out without using for a long time may not operate properly. Please conduct inspection or disassembly & inspection of the brake unit and confirm that it operates properly before using the winch.

Inspection before Use

❒Always conduct inspection of the following items before use.

(1) Checking the Stopper Arm Position

Make sure that the stopper arm is set to the "A" position of green arrow as shown in the Figure 9. If the stopper arm is at position "B" of red arrow, the brake is not applied. Do not move the stopper arm from the position "A" while the winch is under load. Do not touch the stopper arm carelessly when working or under loaded. If the stopper come off when touched the stopper arm, the brake will not work. When checking the operation of the brake, keep the brake position to the "A". The safety spring is to prevent accident to lifting up the stopper arm and no braking.

If it is necessary to release the brake (pulling out the wire rope from winch drum by hand) in an emergency, first remove the handle from the handle holder. And make sure that no load is applied to the wire rope and winch. Next, lift the stopper arm while pressing the safety spring against the winch, and set the stopper arm to position "B" of red arrow. The drum is now ready to spin and the wire rope can be pulled out by hand.

When finished to pulling out the wire rope by hand, be sure to return the stopper arm to the position "A" of green arrow. The stopper arm can get over the safety spring and lower it to set it. (Note: Type SI , SIC and NSIL do not correspond to the item of "(1) Checking the Stopper Arm Position" because the stopper is built into the clutch cover.)

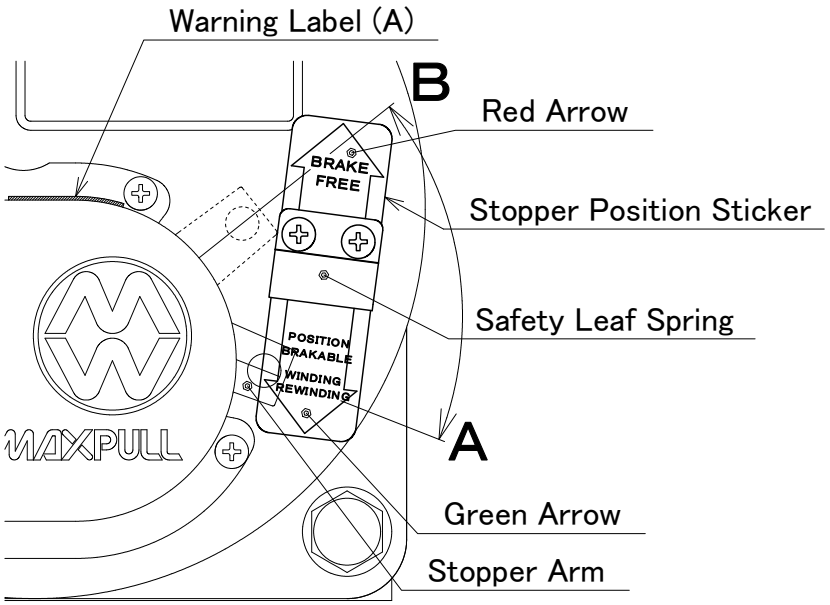


Figure 9 Stopper Arm Position

(2) Checking the Brake Operation

Turning the handle to the lifting direction (right rotation in view of the winch front: clockwise) makes a clicking sound. Turning the handle to the lowering (counterclockwise) does not make sound. When the winch always makes clicking sound by turning the handle to the lifting direction for 3 or 4 times, the brake unit operates correctly.

For the models with ratchet handle, operate the handle by setting the switch lever to "Lifting/Lowering". Refer to "Ratchet Handle Operation for Model RME" on page 12.

The brake unit is designed not to function without load. When inspecting without load, turn the drum with both hands. When the drum turns to the direction indicated on the stickers as an arrow which the wire rope winding direction (counterclockwise) and the drum does not turn to the opposite direction (clockwise), the brake operates correctly. Repeated turning the drum for 3 or 4 times to make sure the drum does not turn to the reverse direction. Remove the handle before turning the drum by hands.

(Note: The noiseless mechanism type NSIL, does not make a clicking sound.)

In this case, be careful not to get your hand caught in the rotating part and do not get injured.

If you have already lifted an object, hold the handle firmly with both hands and turn the handle three or four times in the lifting direction and the lowering direction, and turn the handle to check that the brakes are working properly before operation.

(3) Checking the Wire Rope Winding Direction

When the handle is turned in the lifting direction, the winding direction is correct if the wire rope is wound onto the drum. Conversely, if the wire rope is wound up when the handle is turned in the lowering direction, the brake will not work due to the mechanical brake structure.

Do not wind the wrong direction of the wire rope. Wind the wrong direction will result in no functioning of the brake and serious accidents or injuries due to the load falling.

According to the sticker attached to the winch, wind the wire rope in the correct direction. Lifting

direction in view of the winch front is right rotation for the handle and left rotation for the drum.

How to Fix the Handle into Place

For all winch models, loosen the wing screw as shown in the Figure 10, and insert the handle into the handle holder. Make sure that the handle does not fall out while working by firmly screwing in the wing screw, which fixes the handle into place, into the blind holes of the handle. If the wing screws loosen while working, screw them into the blind holes one more time before restarting to work.

Please do not fix the handle into place in positions other than the blind holes. It is dangerous because the handle will fall out.

Ratchet Handle Operation for Model RME

(1) When unwinding (lowering) the wire rope from the drum, set the switch lever (red ball) to the left as viewed from the front of the winch as shown in the Figure 11.
When the handle is reciprocated left and right, the wire rope is unwound from the drum when the handle is moved to the left.

(2) When winding (Lifting) the wire rope around the drum, set the switch lever (red ball) to the right as viewed from the front of the winch as shown in the Figure 12.
When the handle is reciprocated left and right, the wire rope is wound around the drum when the handle is moved to the right.

(3) Originally, Model RME has been designed for use in an installation location where the handle cannot be rotated 360 degree, however this model can be used as a rotation type like Model ME.

(4) Model RME cannot operate normally without load.
5% or more of the rated load is necessary for normal handle operation.

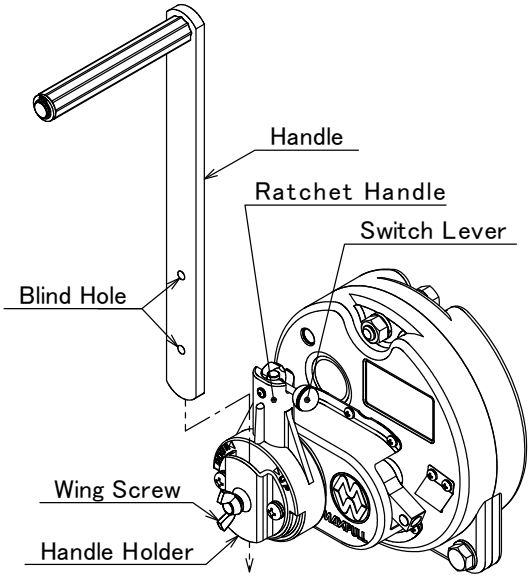


Figure 10 Fastening of Handle

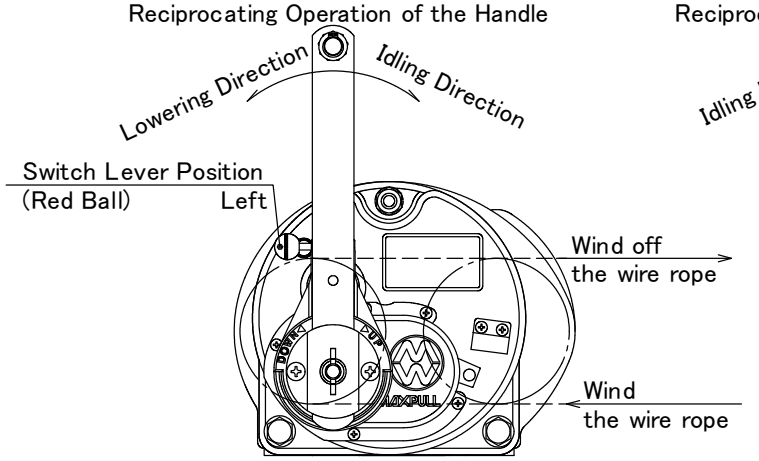


Figure 11 Switch Lever Position at Lowering Operation

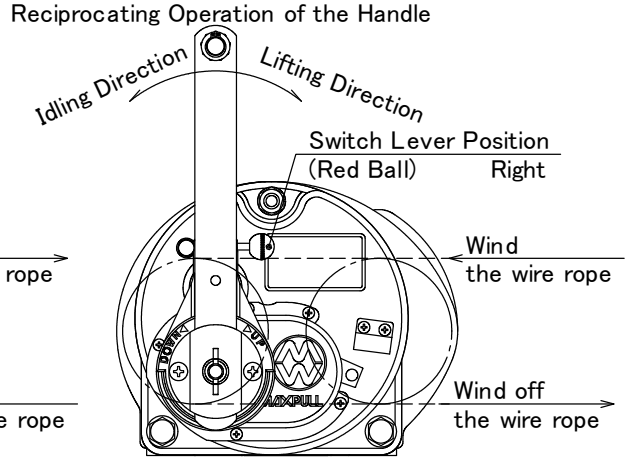


Figure 12 Switch Lever Position at Lifting Operation

Handle Operation with the Load Lifted up (Exclude Model RME)

If the lifted load is held for a long period of time, reverse the handle (the grip faces to the drum side) and insert to the handle holder as shown in the Figure 13 to 15.
By setting this way, even if the stopper arm is accidentally touch or release the brake, the handle does not rotate to preventing the load falling. (Exclude Model RME)
In this case also, securely tighten the handle-holder wing screw to the handle.

⚠ WARNING

- **When the load is kept lifted for a long period of time, apply another effective brake unit or lock unit other than the main brake unit on the winch.**

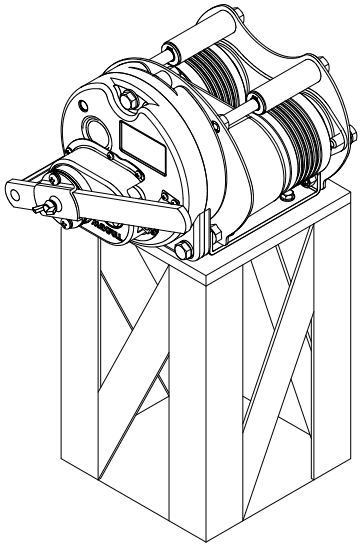


Figure 13
Regular Instollation

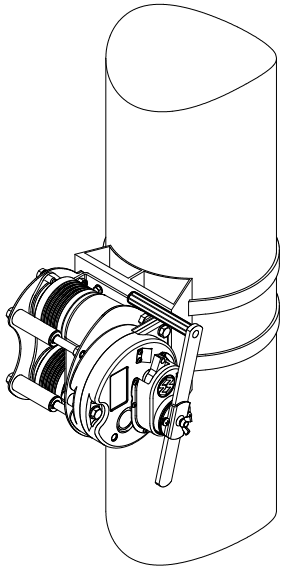


Figure 14
Winch installation to a pole
(Example 1)

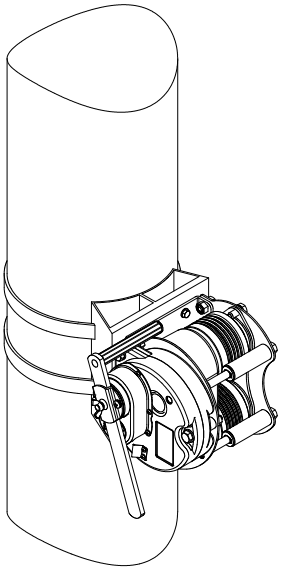


Figure 15
Winch installation to a pole
(Example 2)

Precautions While Working

⚠ DANGER

- **Never use the winch for purposes such as traversing with a person on top, going on top of the load, etc.**
- **Before starting work, always conduct an inspection of the winch and wire rope as well as the entire traversing equipment. If you find a problem, fix it immediately and start working after that.**
- **Keep all personnel away at safe distances from 1) operating winches, 2) loads, 3) transverse areas, and 4) areas near the wire rope to avoid potential breaks**
- **Never stand 1) under loads, 2) transverse areas, or 3) areas near the wire rope to avoid potential breaks. Entering the range may result in serious accidents such as being run over by the load or being wedged between it.**
- **Workers should not be distracted from the loads or winch in transverse motion or lifting while working.**
- **Do not jerk or swing the load. Never exceed the maximum load capacity specified for each model and operate the winch slowly during the starting and stopping point.**
- **Absolutely refrain from extending the length of the handle to conduct work beyond the winch's capacity, from pulling down the handle with your weight by hanging onto it, and from pressing your leg against the handle to operate it. Never operate the winch with a motor or any kind. Only use your hands. It could lead to serious accidents such as by causing damage to the winch body or brake unit, or by breakage of the wire rope that cause the fall of the loads.**
- **Grip the handle tightly while working and make sure that the winch is locked before releasing handle. If the handle started to spinning by itself, do not try to stop a spinning handle until the spinning stops.**

- Never attempt to invert the load or to hook the load to the structures and/or other objects.
- **Do not use the winch for lateral work in the places where the slope changes to descent on the way, as the brakes will not work.**
- Always wear anti-slip safety shoes to protect your toes and keep proper footing and balance at all times.
- Always wear safety glasses, helmet, heavy duty working gloves, and protective clothing when handling wire ropes and winches.

⚠ WARNING

- When the winding wire rope is stretched, temporarily stop the operation of the winch and make sure to check that the load is in good condition and brake does not slip before starting lifting.
- **The brake slippage may occur under conditions that the load does not free fall vertically or the load is too small for rated load.**
- When operating the winch, firmly screw in the wing screws (wing bolts) into the blind holes for fixing the handle into place before conducting work.

Troubleshooting and Its Measures

Problem	Checking of the Cause	Measure
The stopper brake does not work	Is the wire rope being wound in reverse?	Check the wire rope winding direction. Make the wire rope wind when handle is turned clockwise.
	Is the wire rope loosened?	The brake unit does not work without load. Apply a load to the winch.
	Check if there are any dust, obstacles or water on the mechanical brake unit by removing the clutch cover.	If any, clean the brake unit referring to the disassembly and inspection of the mechanical brake unit.
	Maladjustment of mechanical brake unit.	Adjustment of the mechanical brake unit, referring to the disassembly and inspection of the mechanical brake unit.
	Check if load on the winch is too small.	The brake unit may not operate properly when the load is insufficient. Use a winch which is appropriate for the load.
	Brake lining abrasion	Replace to the new brake lining, referring to the disassembly and inspection of the mechanical brake unit.
	Damage on the mechanical brake unit.	Replace to the new brake lining, referring to the disassembly and inspection of the mechanical brake unit.
	Has the minimum temperature of the installation and usage location dropped -10℃ (14℉) or below?	Contact to MAXPULL
Lowering cannot be performed.	Engagement of the mechanical brake unit.	The mechanical brake unit is tighten too much. Strongly turn the handle in lowering direction.
The handle does not turn.	Are parts such as the gear damaged due to excessive load?	Replace the damaged parts.
Abnormal sound during operation	Abrasion of the gear or the bearing	Replace the abraded parts.
Suddenly, the handle force becomes heavy.	Has the wire rope dropped off of the drum groove?	Make sure that the wire rope does not drop off of the drum groove, because there is a risk that the winch will break.
	Is it getting caught in something on the way?	Stop the operation and remove the obstacle before restarting.
	Does the wire rope have any twists, kinks, etc.?	Replace the wire rope.
Suddenly, the handle force becomes light.	Is it getting caught in something on the way?	Stop the operation and remove the obstacle before restarting.
	Are the drum and wire rope slipping?	If they are slipping due to abrasion, replace the abraded parts. If the wire rope is loosening, stretch the wire rope.

⚠ WARNING

- **The performance of the mechanical brake unit drops after the mechanical brake unit is too tightened and stuck. Disassemble and inspect the mechanical brake unit.**

9. Maintenance Inspection and Repair

Maintenance inspection and repair are necessary in order to maintain the performance of the MAXPULL Winch and to conduct work safely and securely. This maintenance inspection and repair consist of the following two types: daily inspection, which is conducted before work; and regular inspection, which is a combination of daily inspection + disassembly and inspection of mechanical brake unit, conducted periodically.

For both types of maintenance inspection and repair, please make sure that someone with expert knowledge is conducting it, and clearly indicate that it is "under maintenance inspection and repair" so that the winch is not operated by mistake.

In addition, maintenance inspection and repair should be done after confirming that no tension is applied to the wire rope and winch. All loads must be lowered before any maintenance inspection and repair.

Please conduct the maintenance inspection and repair while recording the results in the Appendix 1. "MAXPULL Winch Inspection Sheet".

⚠ DANGER

- **Please conduct the maintenance inspection and repair after making sure that no tension is applied to the wire rope and winch. All loads must be lowered before any the maintenance inspection and repair.**
- **Someone with expert knowledge should perform the maintenance inspection and repair.**
- **During maintenance inspection and repair, clearly indicate that the winch is "under maintenance inspection and repair" so that the winch is not operated by someone else.**
- **Please do not conduct work without completing the daily inspection.**
- **If there is a problem, do not start work without fixing the problem. Repair and replace the parts before starting work.**
- **Wire ropes are consumables. If there is a problem with even one part of it, please replace it.**
- **Please do not use any parts other than genuine parts.**
- **If repair is necessary, please clearly indicate that it is "out of order" so that it is not used.**

Disassembly and Inspection of the Mechanical Brake Unit

⚠ DANGER

- **Always perform the maintenance inspection after confirming that there is no tension (load) applied to the wire rope and winch.**
- **Someone with expert knowledge should perform the maintenance inspection.**
  Please wear work clothes for the inspection, and conduct inspection after making sure that you are suitably attired.
- **When mud, dirt or water enters, becoming a cause for the mechanical brake unit not to function or the brakes slip, so please periodically disassemble and inspect the mechanical brake unit.**
  Indoor: Every year
  Outdoor: Every 6 months
  Very dusty places: Every 3 months
  Slight differences exist depending on the installing location and usage frequency.
- **If the winch is left out or unused for a long period, the mechanical brake unit may not work properly. Please operate the winch at least once every two weeks. When using the winch after it has been unused for a long period, always disassemble and inspect the mechanical brake unit.**

（1） Follow the steps below to disassemble and inspect the mechanical brake unit. (See the parts list in the Appendix 2 and 3.)

(a) **Completely eliminate load from the wire rope and make sure that no force is applied to the winch**, either by removing the load that is being lifted or by killing the tension in the wire rope that is wound around the drum by using the wire stretcher. Disassembling the mechanical brake unit while there is tension working on the wire rope will cause accidents. **Always confirm that the wire rope is completely free of load before starting work.**

(b) Remove the handle, remove the two phillips pan head screws (No. 56), and then remove the handle holder (No. 25).

(c) Disassembly of the ratchet unit is necessary for Model RME (Ratchet Model).
Skip this step (c) for Model ME (Rotation Model).
Remove the two hexagon socket head cap screws M6x15 (No.77) and ratchet handle (No.73).
Set the switch lever to the neutral position (on the winch side)
Remove the two hexagon socket head cap screws M8x15 (No.72) and ratchet wheel (No.71) and axis (No. 70). The ratchet wheel and the axis have front and back side. Be careful not to assemble wrongly.

(d) Dismount the clutch shield plate (No.26). Skip this step (d) for Model RME (Ratchet Model).

(e) Remove the five tapping screws (No.43) and dismount the clutch cover (No.10).

(f) Remove the hexagon nut (No.47-A), plain washer (No.46), and dodecagon hole tongued washer (No.22) in this order.

(g) Turn the clutch (No.20) counterclockwise to disassemble. (See Figure 17 on page 18)

(h) Disassemble the stopper.

・For type SI and SIC (Stopper Armless Type)
Remove the retaining ring C type (No.51) and the hinge pin washer (No.50) to dismount the stopper (No.23).
Rotate the stopper until it no longer interferes with the torsion spring (No.80) and pull the stopper forward.

・For type NSIL (Noiseless Mechanism)
Remove the retaining ring C type (No.51) and the hinge pin washer (No.50), and the magnetic plate (No.91) to dismount the stopper (No.23).
Be careful not to deform the magnet plate. If deformed, the magnet plate may cause the malfunction of the brake.
Lastly, rotate the stopper until it no longer interfere with the torsion spring (No.80) and pull the stopper forward.

・For other cases (Stopper Released Type)
Remove the retaining ring C type (No.51) and the hinge pin washer (No.50), and pull the stopper (No.23) forward.
Carefully pull the stopper. The steel ball in the stopper pops out.

(i) This completes the disassembly work for the Mechanical brake unit. Be sure not to lose any small parts removed from the mechanical brake unit.

(j) Due to the dry brake lining, wipe off the dirt or oil on the ratchet gear (No.18), ratchet metal (No.17), clutch (No.20), and the contact surface of the back plate (No.19) to the brake lining (No.21) using thinner before assembling.
And make sure that there are no scratches or deformation on the thread.
If any, replace the part(s) with the new one(s).

(k) For assembly, please follow the procedure of disassemble in reverse. When assembling, coat the greasing on the triple thread screw of the clutch pinion (No.14) and the contact part of the stopper (No. 23) and the hinge pin. Depending on the type of the stopper, coat the greasing to the movement area of steel ball or to the torsion spring (No.80).
For Type NSIL (Noiseless Mechanism), coat the greasing thinly to the movement part of the magnetic plate (No.91) and the outer circumference of the clutch (No.20) where the magnet contact. (See Figure 19 on page 19)

Also, apply grease thinly to the inner groove of the ratchet metal (No.17).
Be sure not to coat excessive amount of grease due to the malfunction of the brake unit.
The recommended grease for the brake unit is “Multinoc Wide 2 by ENEOS Corporation”.
Use this grease or an equivalent grease.

(l) Assembling of the clutch part
The brake lining is one set for two pieces in the black colour. Assemble the following order; the clutch (No.20), the brake lining (No.21), the ratchet metal (No.17), the ratchet gear (No.18), and the brake lining (No.21). (See Figure 16 on page 18)
First, install the back plate (No.19) to the winch side, then tighten the assembled clutch set onto the triple thread screw while rotating clockwise.

(m) As shown in the figure 16, set the boss and the dodecagon hole tongued washer with its angle of 10 to 15 degrees while the clutch (No.20) is fully closed. When the angle is greater than above mentioned, the stop time of the brake unit may get longer or the brake unit has slippage. Cover the clutch cover (No.10) after check that the stopper operates smoothly by rotating the clutch in the lifting direction (clockwise)

(n) Make sure to tighten nuts, screws sufficiently and the like so that they do not loosen.
Once you are done with assembling and adjusting, please check that the brake operates properly by following the procedures described in “Checking the Brake Operation”.
This completes the disassembly and inspection work for the mechanical brake unit.

⚠ DANGER

- **Make sure that the direction of the ratchet gear (No.18) teeth mesh with the stopper. If wrongly installed, ratchet gear does not mesh with the stopper result in malfunction of the brake unit. The minimum thickness of the brake lining is 2.45mm (0.0965 inch). Replace the brake lining with a new one when the thickness of it becomes less than this.**

⚠ WARNING

- If the lowering work is performed continuously while the load is applied, the brake may become hot. There is no problem in the function, but please take cooling time depending on the situation.

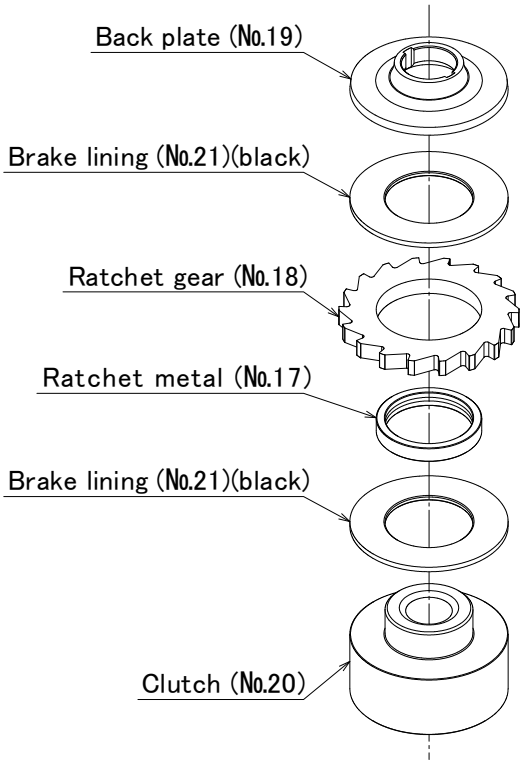


Figure 16 Clutch Set

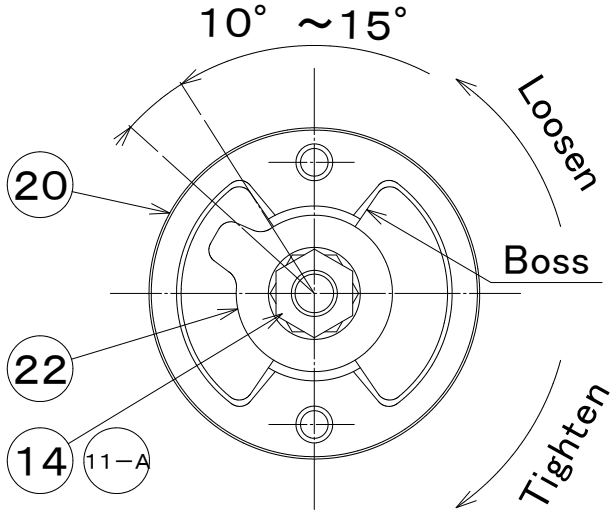


Figure 17 The angle of the dodecagon hole tongued washer

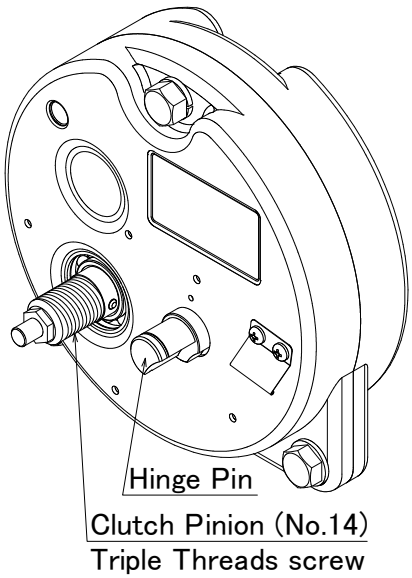


Figure 18 Triple Thread Screw

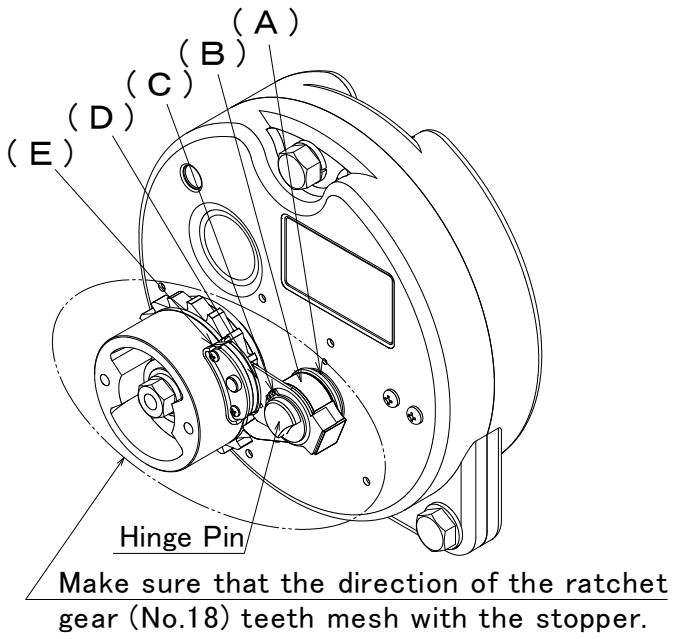


Figure 19 Greasing Point for Type NSIL

Greasing Points on the magnetic unit for Type NSIL

(A)– Contact part between torsion spring and hinge pin
(B) – Contact part between hinge pin and stopper
(C) – Contact part among the magnetic unit, hinge pin washer and retaining ring C type
(D) – Connecting part between linkage screw and linkage plate
(E) – Contact part between magnet and clutch (coat the greasing thinly on the outer circumference)

10. Questions or Comments

If you have any questions about unclear problems, repairs or parts on the parts list, please look up the following information and contact the distributor, agent or our offices for more information

Check items

① Model ②Serial Number
③Installation Location(Use Environment) ④Years in Service

Appendix 1. MAXPULL Winch Inspection Sheet

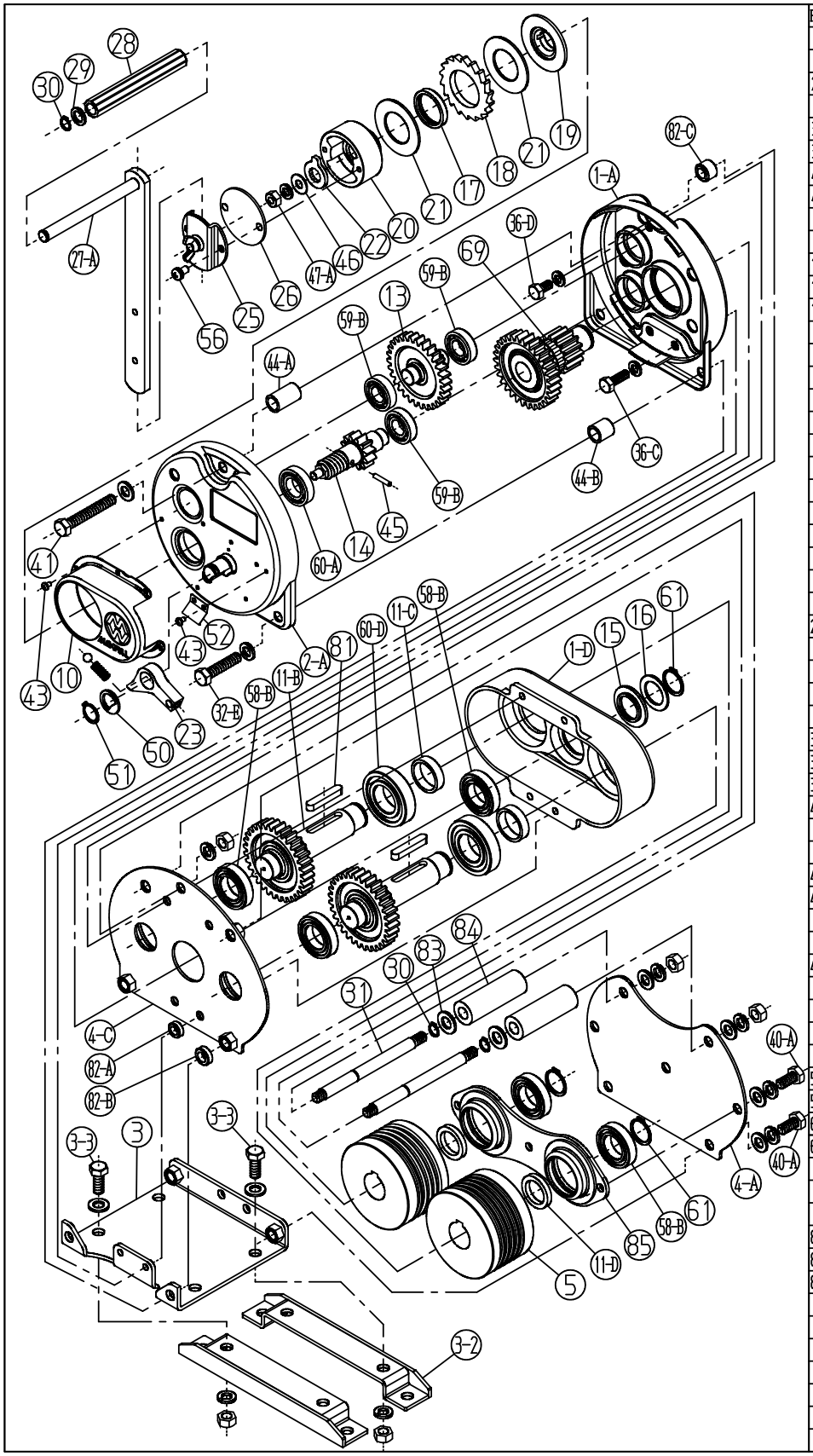
Inspector _____ Inspection Date year month day

Model _____ Serial Number _____

Inspection Period		Contents of Inspection	Judgment
Daily	Periodical		
○	○	The name plate and warning labels are affixed in the correct locations, and are clearly legible.	Pass / Fail
○	○	The mounting bolts of the winch are not loosened.	Pass / Fail
○	○	There is no defect on the installation base of the winch.	Pass / Fail
○	○	There is no damage, missing parts, or defect on the winch.	Pass / Fail
○	○	All bolts, nuts and screws are tightened securely.	Pass / Fail
○	○	There is no deformation or abnormality in the handle and it functions properly.	Pass / Fail
○	○	Check that the stopper can be moved smoothly and it functions properly.	Pass / Fail
○	○	The wire rope winding direction is correct.	Pass / Fail
○	○	There is no kink on the wire rope.	Pass / Fail
○	○	There is no frayed the element wire of the wire rope.	Pass / Fail
○	○	The wire rope is lubricated properly.	Pass / Fail
○	○	The wire rope diameter has not fallen by 7% or more of its nominal diameter.	Pass / Fail
○	○	There is no abnormality in the joints of the endless wire rope. (If endless type is used)	Pass / Fail
○	○	The wire rope is not deformed.	Pass / Fail
○	○	The wire rope is not corroded.	Pass / Fail
○	○	The wire rope wound around the drum is properly inserted in the drum grooves.	Pass / Fail
○	○	The wire rope coming out of the winch is in parallel to the drum groove.	Pass / Fail
○	○	The wire rope is not loose.	Pass / Fail
○	○	The wire rope is wound around the drum 3.5 or 4 times.	Pass / Fail
○	○	The designated amount of tension is applied to the wire rope on the side it is sent out of the winch.	Pass / Fail
○	○	There is no wear or damage on the wire presser and it is functioning properly.	Pass / Fail
Refer to “Disassembly and Inspection of the Mechanical Brake Unit” for the following inspection			
×	○	There is no damage on the brake lining and the thickness is 2.45mm (0.0965inch) or more.	Pass / Fail
×	○	There is no damage, abrasion or deform on the stopper.	Pass / Fail
×	○	There is no damage, abrasion or deform on the ratchet gear.	Pass / Fail
×	○	There is no damage, abrasion or deform on the ratchet metal.	Pass / Fail
×	○	There is no damage, abrasion or deform on the hinge pin	Pass / Fail
×	○	There is no damage, abrasion or deform on the triple thread screw.	Pass / Fail
×	○	There is no damage, abrasion or deform on the clutch.	Pass / Fail
×	○	The angle of dodecagon hole tongued washer is 10 to 15 degrees.	Pass / Fail
×	○	There is no damage, abrasion or deform on the ratchet handle and switch pin. (Model RME)	Pass / Fail
×	○	There is no damage, abrasion or deform on the ratchet wheel and the axis. (Model RME)	Pass / Fail
×	○	There is no damage, abrasion or deform on the torsion spring and it functions properly. (Type SI, SIC and NSIL)	Pass / Fail
×	○	There is no damage, abrasion or deform on the magnetic plate and it functions properly.(Type NSIL)	Pass / Fail

* If any defects are found during inspection, correct them before the operation.
* When repairs are required, clearly state that the winch is “OUT OF ORDER” to prevent the winch being used accidentally.

Appendix 2. Parts List of Model ME-5-B and ME-10-B

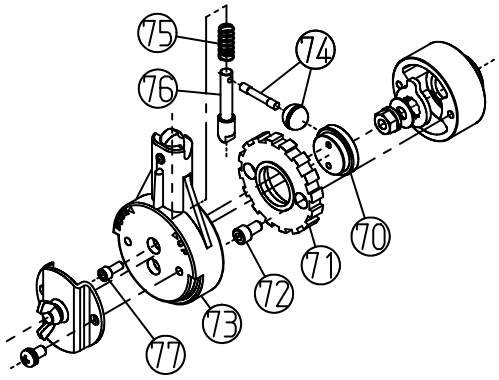


Part No	Part Name	Qty	Remarks
1-A	Gear Case	1	
1-D	Gear Case C	1	
2-A	Gear Case Cover	1	
3	Bed Plate	1	
3-2	Attachiment Adapter	2	
3-3	Hexagon Head Bolt M12×30	4	*2
4-A	Side Frame	1	
4-C	Frame	1	
5	Drum	2	*1
10	Clutch Cover	1	
11-B	Drum Shaft Main Gear	2 Sets	
11-C	Shaft Collar A	2	
11-D	Shaft Collar B	2	
13	Spur Gear Pinion	1 Set	
14	Clutch Pinion	1	
15	Shaft Washer A	1	
16	Shaft Washer B	1	
17	Ratchet Metal	1	
18	Ratchet Gear	1	
19	Back Plate	1	
20	Clutch	1	
21	Brake Lining	2	
22	Dodecagon Hole Tongued Washer	1	
23	Stopper	1set	Ball, Spring ASSY
25	Handle Holder	1	
26	Clutch Shieled Plate	1	
27-A	Handle Arm	1	
28	Handle Grip	1	
29	Handle Washer	1	
30	Retaining Ring C Type S-14	3	
31	Stay Bolt M12	2	*2
32-B	Hexagon Head Bolt M12×55	2	*3
36-C	Hexagon Head Bolt M10×30	2	*3
36-D	Hexagon Head Bolt M10×20	2	*3
40-A	Hexagon Head Bolt M12×25	4	*4
41	Hexagon Head Bolt M12×80	1	*2
43	Tapping Screw M5×8	7	
44-A	Spacer	1	
44-B	Spacer	2	
45	Parallel Pin	1	
46	Plain Washer	1	
47-A	Nut M10	1	*3
50	Hinge Pin Washer	1	
51	Retaining Ring C Type S-22	1	
52	Safety Spring	1	
56	Phillips Pan Head Screw M8×15	2	
58-B	Bearing 6006	5	
59-B	Bearing 6004	3	
60-A	Bearing 6005	1	
60-D	Bearing 6207	2	
61	Retaining Ring C Type S-30	3	
69	Main Gear Pinion	1	*5
81	Parallel Pin	2	
82-A	Collar A	2	
82-B	Collar B	2	
82-C	Collar C	1	
83	Washer M14	2	
84	Pressure Roller	2	
85	Shaft End Distance Plate	1	

*1 Same Left and Right
*2 With Nut, Helical Spring Lock Washer and Plain Washer
*3 With Helical Spring Lock Washer
*4 With Helical Spring Lock Washer and Plain Washer
*5 With Bearing

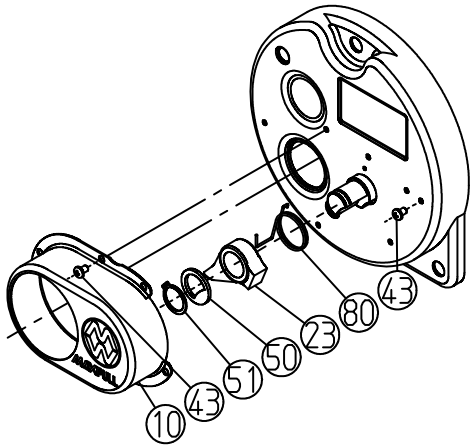
Appendix 3. Ratchet Handle Parts List for Model RME
Stopper Parts List for Type SI and NSIL

Ratchet Handle for Model RME
(Ratchet Model)



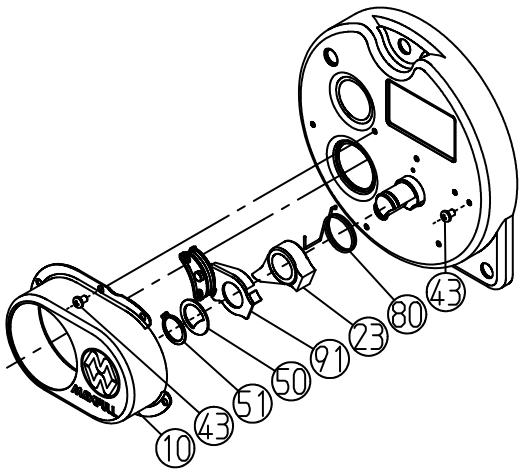
Part No	Part Name	Qty	Remarks
70	Sleeve	1	Model MR
71	Ratchet Wheel	1	Model MR
72	Hexagon Socket Head Cap Screw M8×15	2	Model MR
73	Ratchet Handle	1	Model MR
74	Switch Lever	1set	Model MR
75	Coil Spring	1	Model MR
76	Switch Pin	1	Model MR
77	Hexagon Socket Head Cap Screw M6×15	2	Model MR

Stopper for Type SI
(Stopper Armless)



Part No	Part Name	Qty	Remarks
10	Clutch Cover	1	Type SI
23	Stopper	1	Type SI
43	Tapping Screw M5×8	7	
50	Hinge Pin Washer	1	
51	Retaining Ring C Type	1	S-22
80	Torsion Spring	1	Type SI

Stopper for Type NSIL
(Noiseless Mechanism)



Part No	Part Name	Qty	Remarks
10	Clutch Cover	1	Type NSIL
23	Stopper	1	Type NSIL
43	Tapping Screw M5×8	7	
50	Hinge Pin Washer	1	
51	Retaining Ring C Type	1	S-22
80	Torsion Spring	1	Type NSIL
91	Magnet Plate	1set	Type NSIL

Safety Information

Read this manual thoroughly before installing and using this product, operate the winch correctly.
Comply with relevant laws and regulations.

MAXPULL MACHINERY & ENGINEERING CO.,LTD.
マックスプル工業株式会社
1296-22, Nakaya, Nishifukai, Nagareyama-shi,
Chiba 270-0107 JAPAN
TEL:+81-4-7186-6797　FAX:+81-4-7186-6798
Web Site : www.maxpull.co.jp
E-mail　: maxpull@maxpull.co.jp

Est.1 2022/04 MEBUSWEB