Supply this manual to the user.

INSTRUCTION MANUAL

HOSE REEL

HR-4000 SERIES
HR-5000 SERIES
HR-6000 SERIES
HR-7000 SERIES

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⚠ WARNING

- **Read this manual before use.**
- **Keep this manual available.**

ENDO KOGYO CO., LTD

ENDO

RM-10638a

Issued on Mar. 2020

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SAFETY ALERT SYMBOL AND ALERT SIGNS

Please read this manual carefully and follow its instructions.

The SAFETY ALERT SYMBOL (⚠), WARNING, CAUTION, and NOTE carry special messages.

⚠ **This SAFETY ALERT SYMBOL is used to call your attention to items or operations that could be dangerous to you or other persons using this equipment.**

Please read these messages and follow these instructions carefully.

⚠ **WARNING** : **WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.**

⚠ **CAUTION** : **CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury, damage or destruction of the equipment and others.**

NOTE : NOTE indicates a special instruction in operation or maintenance.

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Scope of warranty and liabilities for the equipment

1. We will repair or replace the product free of charge if a failure due to manufacturing defects occurs under proper usage during the warranty period.
   For details, contact us or your dealer.

2. The warranty will be void in the following cases:
   1) Change in ownership.
   2) Repair, adjustment, or modification performed by a party other than the manufacturer, agents, or dealers.

3. The warranty period is one (1) year from the date of purchase except for consumables.

4. Repairs applicable to any of the following shall be charged even during the warranty period:
   1) Failure/damage caused by incorrect use.
   2) Failure/damage caused by use of non-genuine parts.
   3) Failure/damage caused by fire, earthquake, natural disaster, or other unexpected incident.
   4) Incident caused by fall, shock, negligence, or by inadequate storage.
   5) Failure/damage caused by use of parts or other equipment that are not included in this product.
   6) Replacement of consumables.
   7) Usage in violation of dangers or cautions stipulated in this Instruction Manual or the warning labels.
   8) Failure/damage caused by any reason that is not attributable to the manufacturer.

5. Warranty exclusions such as mechanical loss.
   Either during or after the warranty period, mechanical loss, damage to anything other than our product(s), or other duties incurred on you/your customer as a result of the failure of our product(s) are outside the scope of the warranty.

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Contents

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1. ⚠ Safety instructions

Regarding name plates, warning labels and labels:

⚠ WARNING

- **Never remove or deface any name plates, warning labels or labels which are attached to the body.**
  The operator should always observe them.

Regarding installation (page 8):

⚠ WARNING

- **Take sufficient care not to knock or drop the reel when handling.**
  Never use the arm of the guide roller (special accessories) to lift the reel.

Regarding hose connection (page 9):

⚠ WARNING

- **Fluid leakage hazard.**
  Stop supplying the fluid to the hose reel before the work.

⚠ CAUTION

- **Do not install hose to drum over winding length plus dead turn (2-3 turns).**
  Make free space in drum, otherwise hose could spill out from drum cover.
  If hose spilled, it causes accidents as a hose cutting.
- **When used for vertical lift or horizontal stretch application, in order to prevent severing of the hose and then a fall in case of a spring breakage, protect the hose by wrapping rubber or the like around the hose portion which contacts with the oblong hole in the drum cover.**
- **Connect hose securely to prevent the fluid leakage from connected part.**

Regarding initial tension setting (page 12):

⚠ WARNING

- **Never let go of the drum during any work.**
  When released, the drum suddenly rotates, possibly causing personal injury.
- **After setting the initial tension, hose connection requires more than 2 people to secure the drum and connect the hose.**

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Safety instructions on use (page 14):

⚠ WARNING

- **Never approach the moving parts during operation.**
  There is a danger of being caught up.
- **Before supplying defferent fluid into the hose, take maker’s advise.**
  If there is no specification request on the type of fluid application, the product will be for air, water (less than 80℃), lubricating oil (mineral type), grease (lithium type).
  If you are applying different kinds of fluid from standard fluid type, teke maker’s advise.
- **Shut off the fluid supply immediately in case of any trouble to avoid the problem escalating.**
- **Never use the reel when damaged or abnormal sound/vibration occurs.**
- **Never alter the reel or its accessories.**
- **Never let go of or unfasten the hose from the fixed points when the hose is pulled out.**
  The hose will rewind suddenly, possibly causing personal injury.

⚠ CAUTION

- **Use within the rated values of maximum working pressure (1.5 MPa {15kgf/cm^2}).**
- **Never pull out the hose past the winding length.**
  Always leave 2 - 3 dead turns on the drum. (To the sign of red tape)
  Put sign (red tape) on the 2 - 3 dead turns when installing or replacing the hose.

Regarding periodic inspections (page 16):

⚠ WARNING

- **Periodically inspect the reel and replace any worn or damaged parts.**
  Carefully check the hose has no damage.
- **If a malfunction is found during a periodic inspection, never reuse the reel but repair immediately.**
- **Allow the hose to fully wind onto the drum to give the minimum winding tension before carrying out inspections.**
- **Fluid leakage hazard.**
  Stop supplying the fluid to the hose reel before carrying out any work.

⚠ CAUTION

- **Always put up instruction signs ("Equipment being inspected", "Do not open the valve", etc.) before carrying out periodic inspections or repair.**
- **Always use genuine parts for replacement.**
- **Test the fluid leakage on the hose and reel after the reel has been stored for a long time.**

Regarding with O-ring replacement (page 17):

⚠ WARNING

- **High pressured fluid on hose reel is very dangerous.**
  Shut off the fluid supply and set 0 pressure in the hose.
- **Allow the hose to fully wind onto the drum to give the minimum winding tension before carrying out replacement.**

⚠ CAUTION

- **Always put up instruction signs ("Equipment being inspected", "Do not open the valve", etc.) before carrying out O-ring replecement.**
- **After finishing O-ring replacement, carry out the fluid leakage test on joint and each connection part.**

Regarding spring replacement (page 19):

⚠ WARNING

- **High pressured fluid on hose reel is very dangerous.**
  Shut off the fluid supply, and set 0 pressure in the hose.
- **If the winding side hose is disconnected from mating equipment, the drum may suddenly rotate.**
  Allow the hose to fully wind onto the drum to give the minimum winding tension, and work with more than 2 people divided into the person who secure the drum and the person who disconnect the hose.
  Allow the disconnected hose to wind around the drum, and slowly turn the drum until the winding tension in the drum is released.
- **Never disassemble the reel until winding tension is released.**
  The spring will burst out and cause personal injury.
  Even if the spring seems to be broken, never disassemble before ensuring no winding tension remains by rotating the drum by hand.
- **Never disassemble the reel using any other disassembly procedure.**
  If disassembled incorrectly, the spring will burst out and cause personal injury.
- **Never remove the spring from the spring case.**
  If removed, the spring will expand explosively and cause personal injury.
- **Follow the instructions for handling and disposing of the spring.**

⚠ CAUTION

- **Always put up instruction signs ("Equipment being inspected", "Do not open the valve", etc.) before carrying out spring replecement.**

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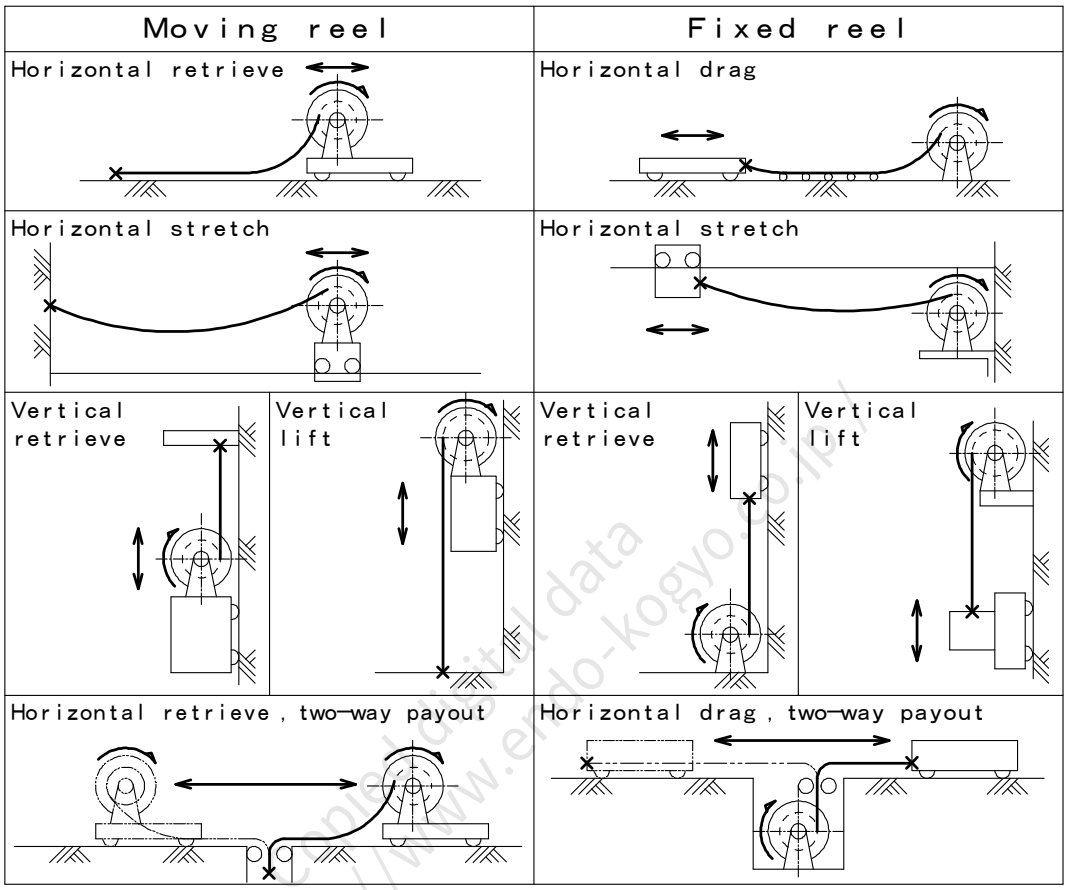
2. Terminology Definitions

The terminology used in this manual will be explained here.
If there is any terminology which is unclear or not included in this section, please contact our company.

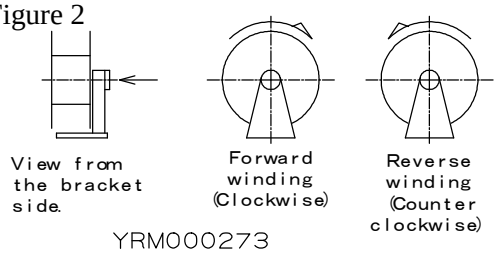
Winding methods: Figure 1



Forward winding: The winding direction when viewed from the bracket side is right (clockwise).

Reverse winding: The winding direction when viewed from the bracket side is left (counterclockwise).

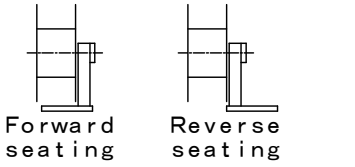
Figure 2



Forward seating: The installation plate (base plate) is located under the drum.

Reverse seating: The installation plate (base plate) is located on the opposite side of the drum.

Figure 3



Dead turn: The 2-3 turns of hose wrapped around the drum other than the used winding length.

Initial spring turn: The applied initial tension to the spring.
The initial tension is required for winding the hose on the drum.

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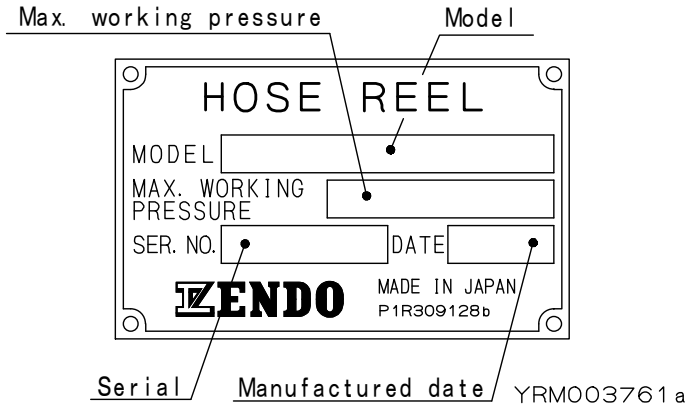
3. Product Description

3-1. Models and specifications

(1) Models

Please observe the name plate attached to the main body.
Refer to Figure 5 (page 7) for the attached location.

Figure 4



MODEL: The product model is shown.
Please check if this manual matches with the product.

MAX. WORKING PRESSURE:
Maximum working pressure is shown.

■Model description

HR	-	6	8	55	W	-	R
Series name		Drum size and width	Drum cover size	Spring type	Spring combination		Winding direction

Drum size and width (mm)

Code	4M	4	4A	5M	5	5A	6M	6	6A	7M	7	7A	7L	7LA
Size	280	280	280	360	360	360	440	440	440	550	550	550	570	570
Width	89	127	165	89	127	165	127	166	217	127	166	217	160	220

Drum cover size (mm)

Code	4	5	6	7	8	9
Size	440	510	630	750	870	1000

Spring type

Spring code	24	36	55	75	130	260
Number of springs	24×1	36×1	55×1	75×1	130×1	130×2
Total spring torque N・m {kgf・m}	23.5 {2.4}	35.3 {3.6}	53.9 {5.5}	73.5 {7.5}	127.0 {13.0}	254.0 {26.0}

Spring combination

Code	None	W	T	F
Number of sets	1	2	3	4

Winding direction

None	R
Forward winding	Reverse winding

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(2) Specifications

Table 1

Model	Maximum spring torque N・m {kgf・m}	Calculated maximum spring tension N{kgf}	Conection size {Rc}	Total number of spring turns	※ Spring structure	Reference Mass {kg}
HR-4524 HR-4524-R	23.5 {2.4}	166 {17.0}	Rc 3/4	13	L	27
HR-4524W HR-4524W-R	23.5 {2.4}	166 {17.0}	Rc 3/4	26	N	32
HR-4524T HR-4524T-R	23.5 {2.4}	166 {17.0}	Rc 3/4	39	N	38
HR-4624W HR-4624W-R	23.5 {2.4}	166 {17.0}	Rc 3/4	26	N	36
HR-4624T HR-4624T-R	23.5 {2.4}	166 {17.0}	Rc 3/4	39	N	41
HR-5736 HR-5736-R	35.3 {3.6}	196 {20.0}	Rc 1	13	L	46
HR-5736W HR-5736W-R	35.3 {3.6}	196 {20.0}	Rc 1	26	N	53
HR-5736T HR-5736T-R	35.3 {3.6}	196 {20.0}	Rc 1	39	N	60
HR-6855 HR-6855-R	53.9 {5.5}	245 {25.0}	Rc 1 1/4	12	L	66
HR-6855W HR-6855W-R	53.9 {5.5}	245 {25.0}	Rc 1 1/4	24	N	77
HR-6855T HR-6855T-R	53.9 {5.5}	245 {25.0}	Rc 1 1/4	36	N	88
HR-6975W HR-6975W-R	73.5 {7.5}	333 {34.0}	Rc 1 1/4	24	N	102
HR-6975T HR-6975T-R	73.5 {7.5}	333 {34.0}	Rc 1 1/4	36	N	117

NOTICE: The reference mass shown in the table does not include accessories such as guide rollers, turn table and ratchet mechanism.

※ The method for spring replacement is different depending on the spring structure. Refer to Chapter 13. "Spring Replacement" (page 19).

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■Available fluid

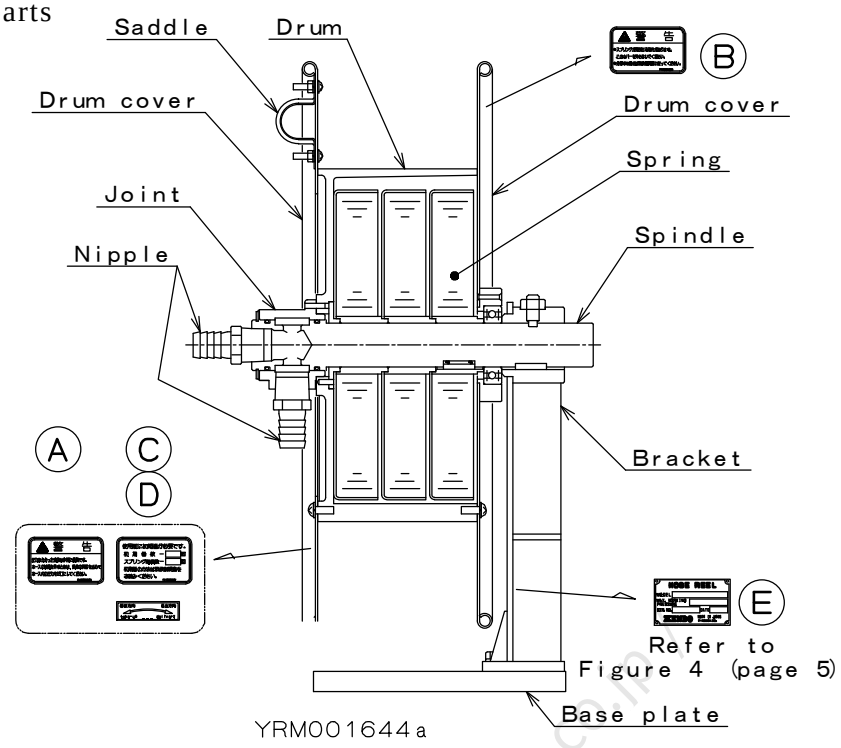
Fluid: Air, Water (less than 80ºC), Lubricating oil (Mineral type), Grease (Lithium type)
Maximum working pressure: 1.5MPa {15kgf/cm^2}

■Application

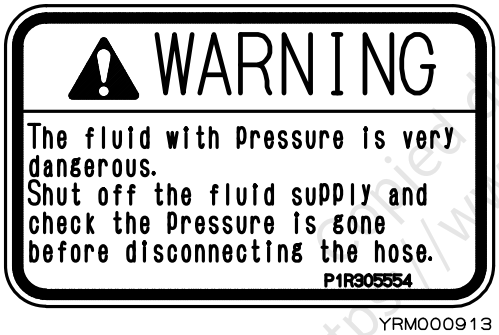
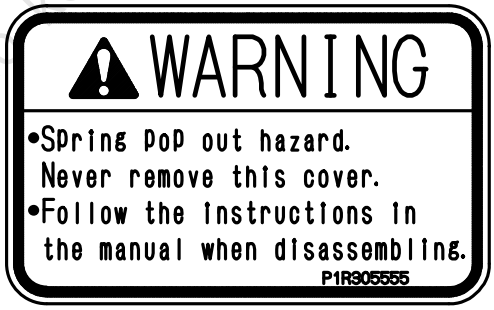
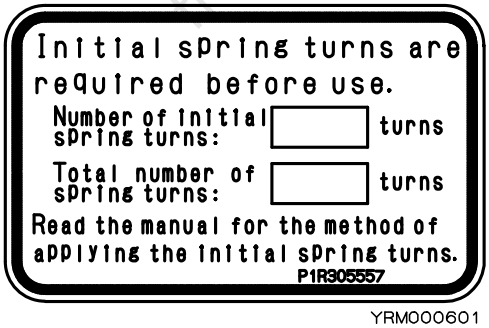
Application area : general outside conditions
Ambient temperature: -10ºC to +50ºC

3-2. Names of main parts

Figure 5



Regarding the accessories, refer to Chapter 9. "Special Accessories" (page 14).

(A) Warning label	(B) Warning label
 YRM000913 A warning is displayed regarding fluid pressure hazards.	 YRM000277 A warning is displayed regarding spring ejection hazards.
(C) Label	(D) Label
 YRM000601 The required number of initial spring turns is displayed.	 YRM000006 The winding direction is displayed.

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4. Installation

4-1. Checks before installation

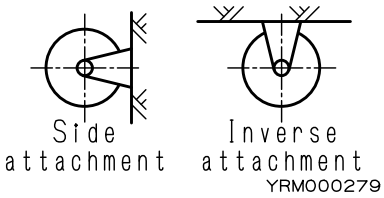
- Please check whether the items ordered were received.
  (Check the name plate.)
- Check there is no damage to the product caused during transportation.

4-2. Installation

⚠ WARNING

- **Take sufficient care not to knock or drop the reel when handling.**
  When lifting the reel, wrap the belt sling around the drum at least twice, and lift in stable conditions.
- **Never use the arm of the guide roller (special accessories) to lift the reel.**
- **For side attachment or inverse attachment, use bolts with a strength classification above 10.9.**

Figure 6



- Place the main body in the fixing location and anchor the bracket securely with 4 bolts.
- The bracket base plate can be changed as show in Figure 7.
  When shipping, all units have forward seating, hence if required, remove the hexagon head bolts and reassembly correctly.
  NOTE: In order to correctly wind the hose adjust the reel position as shown in Figure 8.
  Try to adjust so the center of the drum width lines up with the hose's fixed point on the mating equipment.
  The surface the hose lies on should be horizontal.

Figure 7

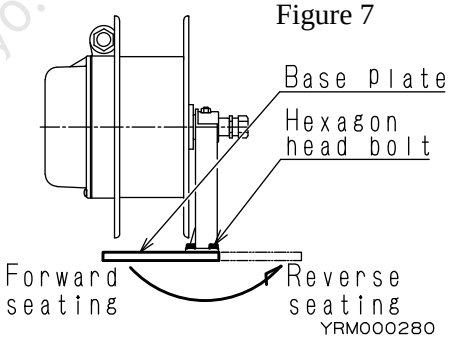
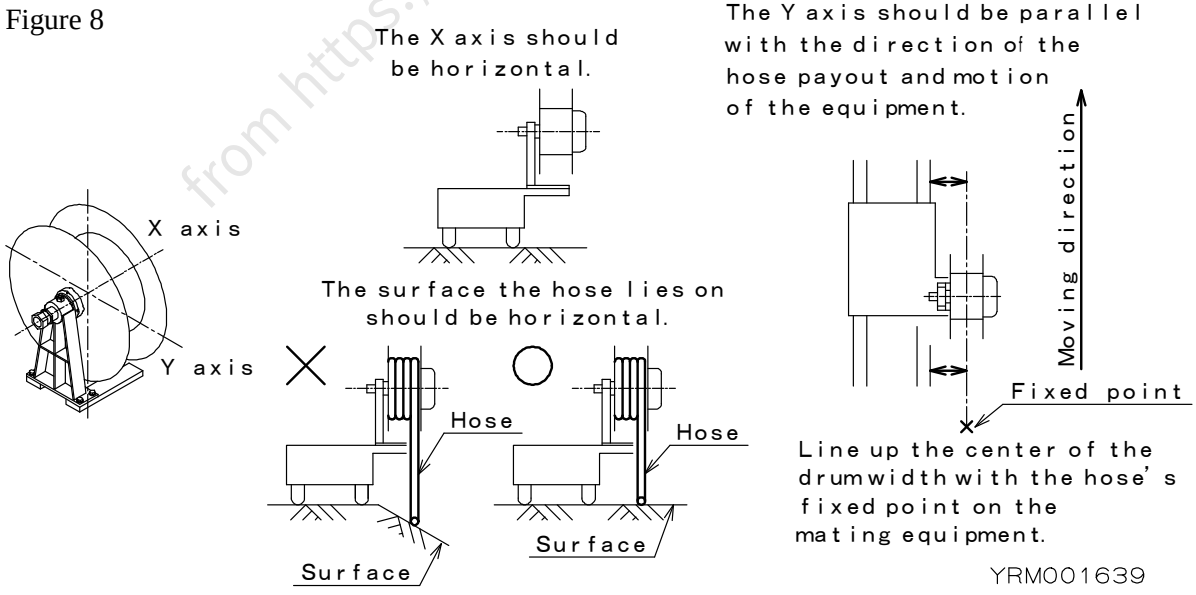


Figure 8



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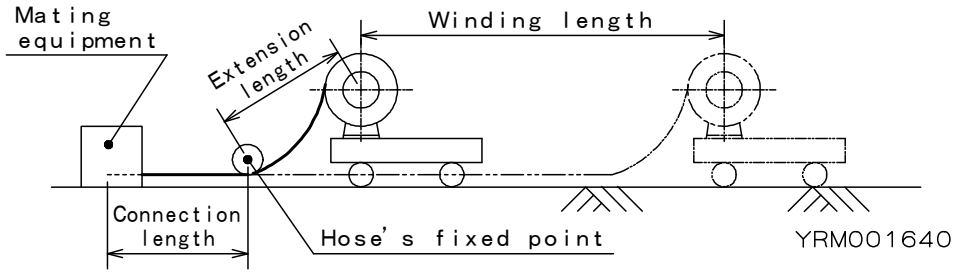
5. Hose Connection

5-1. Calculation of required hose length on winding side

Figure 9



Hose length on winding side = Winding length + Extension length + Connection length
+ Dead turn length + Connection length inside reel.

Winding length = The length wound onto the drum.

Extension length = The length from the hose's fixed point to the end of the winding, which is not wound onto the drum.

Connection length = The length required to connect the mating equipment to the hose's fixed point.

Dead turn length = The length of the 2-3 dead turns.

Required dead turn length = $\underline{(\text{Drum diameter} + \text{Hose diameter}) \times \pi}\times\underline{2 \sim 3}$

The length of 1 drum turn — Number of dead turns

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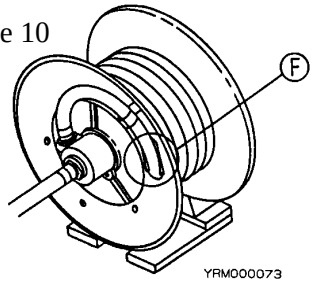
5-2. Hose connection

⚠ WARNING

- **Fluid leakage hazard.**
  Stop supplying the fluid to the hose reel before the work.

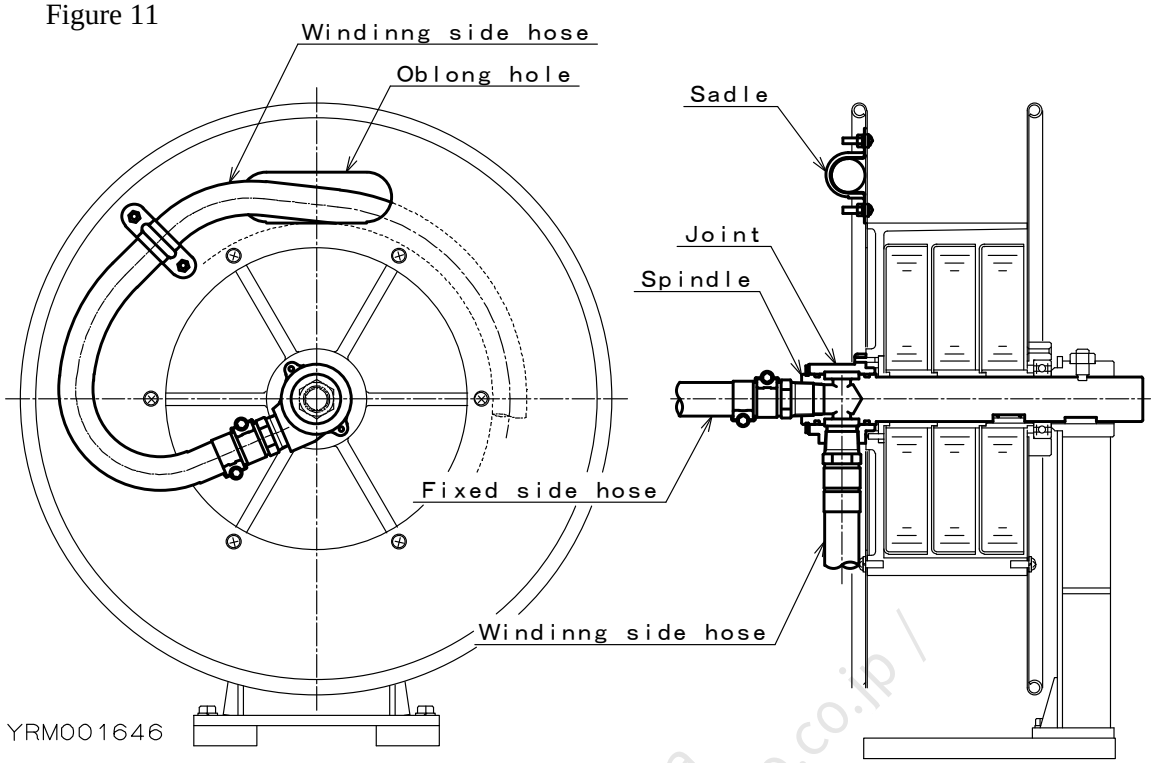
⚠ CAUTION

Figure 10



- **Do not install hose to drum over winding length plus dead turn (2-3 turns).**
  Make free space in drum, otherwise hose could spill out from drum cover.
  If hose spilled, it causes accidents as a hose cutting.
- **When used for vertical lift or horizontal stretch application, in order to prevent severing of the hose and then a fall in case of a spring breakage, protect the hose by wrapping rubber or the like around the hose portion which contacts with the oblong hole (F) in the drum cover (Refer to Figure 10).**
- **Connect hose securely to prevent the fluid leakage from connected part.**

Figure 11



■Winding side hose (Refer to Figure 11)

(1) Remove the saddle.

(2) Pass the hose through the drum part from the drum side.

(3) Connect the hose to joint.

NOTE: For hose without fitting, use and tie the sliding band.
Remove nipple for hose with fitting.
Then use seal tape around the screw part of hose fitting.
(Refer to Figure 12)

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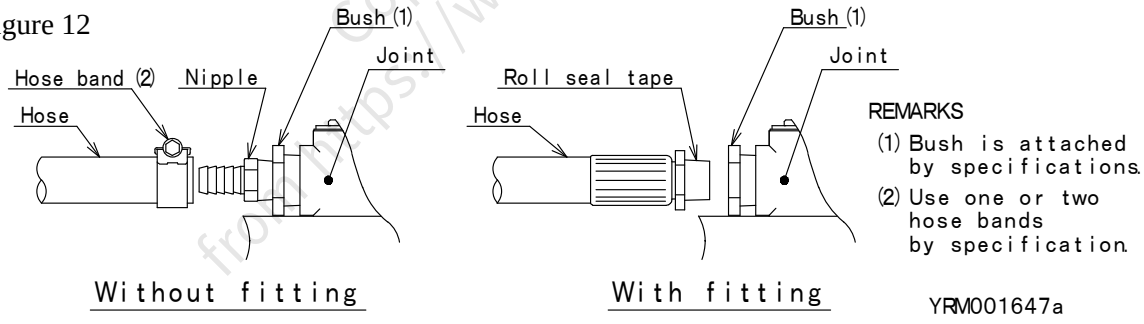
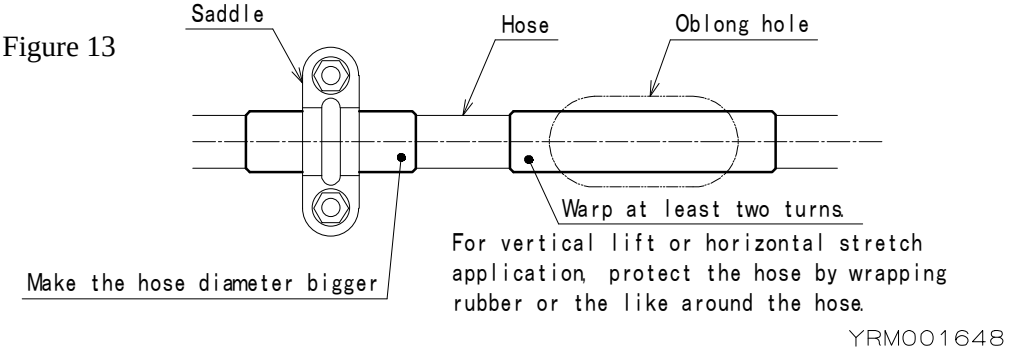
Figure 12



(4) Wrap thick tape around the hose portion which contacts with the oblong hole in the drum cover, and fix with the saddle.
If the hose cannot be secured by the saddle, make the hose diameter bigger by wrapping thick tape around the hose. (Refer to Figure 13)

Figure 13



■Fixed side hose (Refer to Figure 11 on page 10)

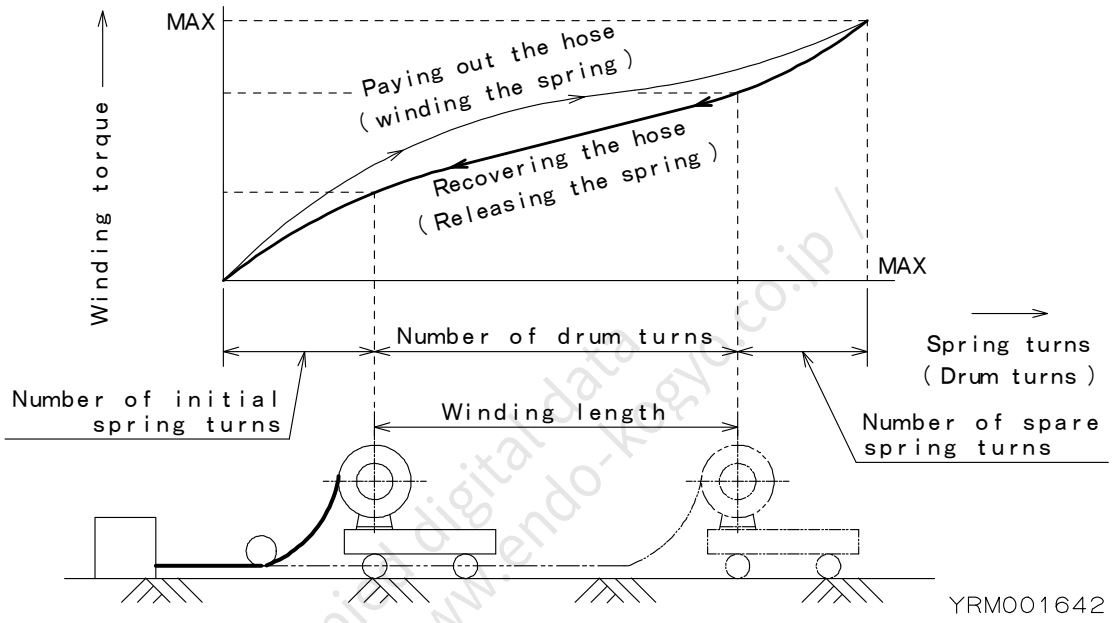
(1) Attach the hose to spindle.

NOTE: For hose without fitting, use and tie the sliding band.
Remove nipple for hose with fitting.
Then use seal tape around the screw part of hose fitting.
(Refer to Figure 12 on page 10)

6. Spring Tension Adjustment

6-1. Relationship between winding torque and drum turns

Figure 14



Number of initial spring turns	means the number of spring turns which provides the initial tension required for winding the hose onto the drum.
Number of spare spring turns	means the number of remaining spring turns when the hose is fully paid out. A shortage of spare spring turns shortens the spring life and causes spring breakage.

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6-2. Standard value of initial spring turns and calculation for upper limit of initial spring turns.

(1) Check the total number of spring turns using Table 1 (page 6).
(2) Rotate the drum by hand until the hose of the winding length is fully retracted, checking the number of drum turns.
(3) Check the standard value of initial spring turns and the number of spare spring turns using Table 2.

Table 2

Spring combination	Number of sets	Standard value of initial spring turns	Number of spare spring turns
None	1	1 to 3 times	1.5 or more
W	2	2 to 6 times	3 or more
T	3	3 to 9 times	4.5 or more
F	4	4 to 12 times	6 or more

Upper limit of initial spring turns = Total number of spring turns
- (Number of drum turns + Number of spare spring turns)

Example) Model **HR-6855W** for the case of 12 drum turns
According to Table 1, Total number of spring turns = 24.
According to Table 2, Standard value of initial spring turns = 2 - 6
Number of spare spring turns = 3 or more
Upper limit of initial spring turns = 24 - (12 + 3) = 9
Then the allowable number of initial spring turns = 2 - 9

6-3. Initial tension setting

⚠ WARNING

- **Never let go of the drum during any work.**
  When released, the drum suddenly rotates, possibly causing personal injury.
- **After setting the initial tension, hose connection requires more than 2 people to secure the drum and connect the hose.**

(1) Wind the whole hose around the drum before connecting to the mating equipment.
NOTE: Take care not to twist the hose around the drum.

(2) With the hose still wrapped around the drum, rotate the drum by hand in the payout direction the same number of turns as “standard value of initial spring turns” (Refer to Table 2).
This becomes "initial spring turn".

(3) Without letting the drum rotate, unwind the hose to the connection length plus the extension length and connect the hose to the mating equipment.
Check there are no twists in the hose before connection.

(4) Pull out the hose to the winding length, then let the hose wind around the drum.
Ensure the drum can recover the hose full length.

(5) If the drum stops during recovery, the initial spring tension is insufficient.
Disconnect the hose from the mating equipment and increase the number of initial spring turns in the same manner.
NOTE: Set the initial tension as small as possible and never exceed the upper limit of the initial spring turns.
Over - tensioning could cause a spring breakage.

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7. Measure against Uneven Winding

Uneven winding

means the hose is wound on mainly one side of the drum width.
The uneven winding will cause the hose to drop from the drum or recovery problems, resulting in damage to the hose.

7-1. Checks before adjustments

(1) Check the reel position is correct.
Refer to Section 4-2. "Installation" (page 8).
Adjust the X and Y axes of the reel.

(2) Check there are no twists in the winding side hose.
If the hose is twisted, disconnect the hose from the mating equipment and remove any twists.

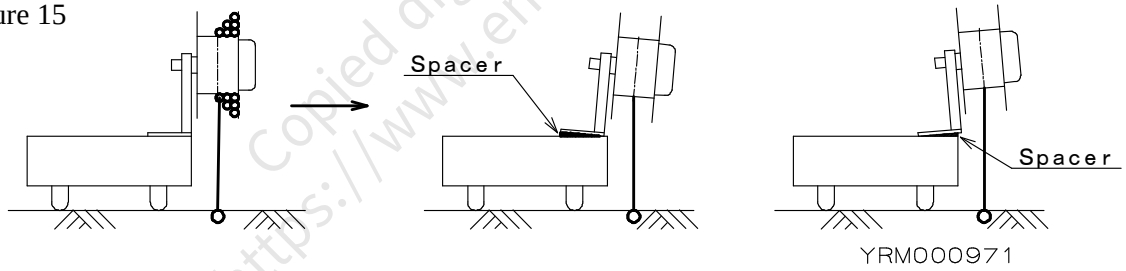
※ If uneven winding still exists after the above checks, adjust according to the next section.

7-2. Adjustments

(1) Initial tension modification.
Increase the number of initial spring turns one by one without exceeding the upper limit.
If there is no improvement, set the initial tension back to the first value.

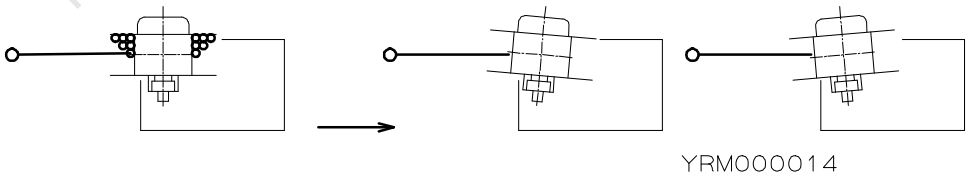
(2) X axis modification.
Tilt the X axis at a small angle by inserting a spacer under the bracket.

Figure 15



(3) Y axis modification
Tilt the Y axis at a small angle after adjusting the X axis.

Figure 16



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8. Safety Instructions on Use

⚠ WARNING

- **Never approach the moving parts during operation.**
  There is a danger of being caught up.
- **Before supplying different fluid into the hose, take maker's advise.**
  If there is no specification request on the type of fluid application, the product will be for air, water (less than 80°C), lubricating oil (Mineral type), grease (lithium type).
  If you are applying different kinds of fluid from standard fluid type,take maker's advise.
- **Shut off the fluid supply immediately in case of any trouble to avoid the problem escalating.**
- **Never use the reel when damaged or abnormal sound/vibration occurs.**
- **Never alter the reel or its accessories.**
- **Never let go of or unfasten the hose from the fixed points when the hose is pulled out.**
  The hose will rewind suddenly, possibly causing personal injury.

⚠ CAUTION

- **Use within the rated value of maximum working pressure (1.5Mpa {15kgf/cm^2}).**
- **Never pull out the hose past the winding length.**
  Always leave 2-3 dead turns on the drum. (To the sign of red tape)
  Put sign (red tape) on the 2-3 dead turns when installing or replacing the hose.

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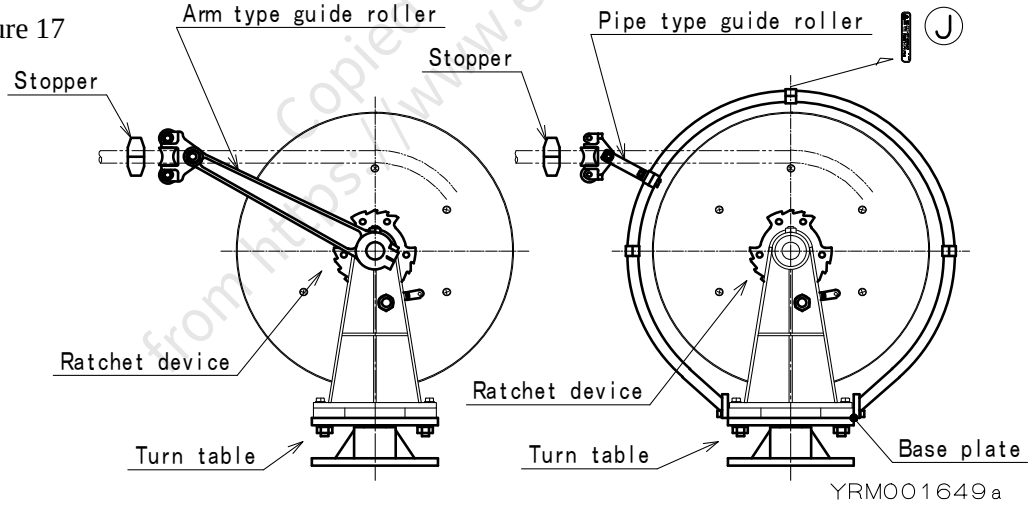
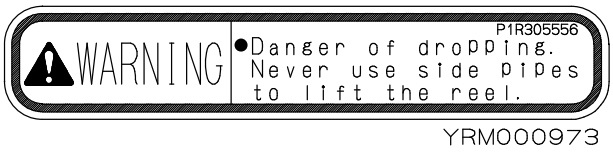
9. Special Accessories

Figure 17



(J) Warning label



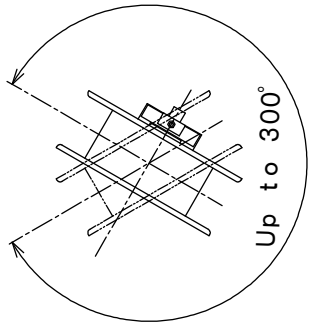
A warning not to use the guide roller to lift the reel is displayed.

⚠ WARNING

- **Never employ a swivel base or a standard turn table for side attachment or inverse attachment.**

(1) Turn table
This can swivel the reel up to 300° (Refer to Figure 18).
When turned, take care the fixed side hose is not put under excessive force or contacts the reel or surrounding objects.
An arm type guide roller or pipe type guide roller is required together with the turn table.
Please contact our company in case of side attachment, the specifications differ from the standard ones.

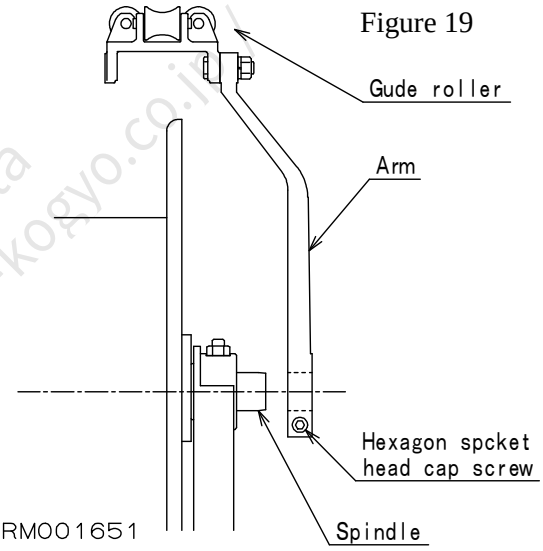
Figure 18



(2) Arm type guide roller (Refer to Figure 19)
This is required when the reeling direction angle varies during operation.
Attach the arm to the spindle and fix with the hexagon socket head cap screw.

(3) Pipe type guide roller
This is required when the reeling direction angle varies during operation.
For installation, attach the pipe ends to the sides of the base plate.
The pipes cannot be attached in case of reverse seating.

Figure 19



(4) Stopper (Attached to the hose)
This will stop the hose at the attached location during a winding operation when used with the arm type guide roller or pipe type guide roller.

(5) Ratchet device (Use for pulling the hose manually)
This is used when the winding operation stops and the hose is still paid out.
To stop the drum, pull out the hose slightly then let it return.
To release the drum, pull out the hose so as to rotate the drum by 1/2 turn.

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10. Periodic Inspections

⚠ WARNING

- **Periodically inspect the reel and replace any worn or damaged parts. Carefully check the hose has no damage.**
- **If a malfunction is found during a periodic inspection, never reuse the reel but repair immediately.**
- **Allow the hose to fully wind onto the drum to give the minimum winding tension before carrying out inspections.**

⚠ CAUTION

- **Always put up an instruction signs ("Equipment being inspected", "Do not open the valve", etc.) before carrying out periodic inspectionor repair.**
- **Always use genuine parts for replacement.**

■Inspect the reel at least every 6 months.
Make the inspection interval shorter when operating frequently or under hostile environments.

10-1. Visual inspections

- Is there any deformation or damage on the reel?
- Are any bolts or screws loose, missing or rusted?
- Are there any twists or damage on the hose?

10-2. Leakage inspection

- Is there any leakage from joint?
  Check the leakage when the reel is stopping and moving.
  The moving inspection for leakage is rotating the joint by pulling the hose reel.
  If the fluid is air, inspect with soap application.
  If the leakage has found, replace O-ring by referring Chapter 12. “O-ring replacement” (page 17).
- Check the leakage at connection parts.
  If the fluid is air, inspect with soap application.
  If the leakage is found at connection, redo the connection and make sure the connections are secured.

10-3. Storage

⚠ CAUTION

- **Test the fluid leakage on the hose and reel after the reel has been stored for a long time.**
  Refer to Section 10-2. "Leakage inspection".

Store the reel in an indoor dry location when not being used for a long time.

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11. Troubleshooting

Malfunction	Main causes	Solution
Unable to set the initial tension.	Direction of initial spring turn is incorrect.	Rotate in the hose paying out direction.
	The spring is broken.	Replace with a new spring.
The reel connect retrieve the hose.	The initial tension is insufficient.	Increase the initial spring turns.
	The spring is broken.	Replace with a new spring.
Fluid leakage.	Hose connection error.	Reconnect the hose.
	O-ring is wearing.	Replace wearing O-ring if the wearing O-ring is found by inspection after disassembling the hose reel.

12. O-ring replacement

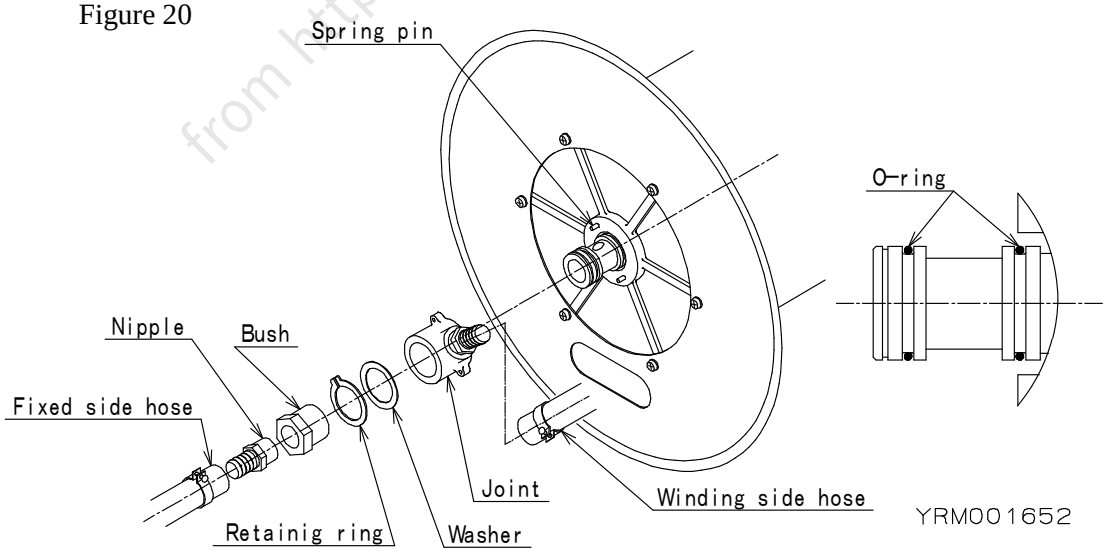
⚠ WARNING

- **High pressured fluid on hose reel is very dangerous. Shut off the fluid supply and set 0 pressure in the hose.**
- **Allow the hose to fully wind onto the drum to give the minimum winding tension before carrying out replacement.**

⚠ CAUTION

- **Always put up an instruction signs ("Equipment being inspected", "Do not open the valve", etc.) before carrying out O-ring replacement.**
- **After finishing O-ring replacement, carry out the fluid leakage test on joint and each connection part.**
  Refer to Section 10-2. "Leakage inspection" (page 16).

Figure 20



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■Refer to Figure 20 (page 17)

(1) Remove fixed side hose from spindle.
If it is impossible to remove the joint from spindle, remove the bushing too.
(The bush referred to here is a reducing bush between the spindle and the nipple.)

(2) Remove winding side hose from joint.

(3) Remove retaining ring and washer.

(4) Remove the joint from spindle.

(5) Take away two O-rings from joint.

(6) Clean up the spindle and O-ring.
Replace worn, cracked, damaged or deformed parts.

(7) Attach O-ring after lightly spreading the grease (IDEMITSU, DAPHNE EPONEX SR No.1 or equivalents) into the drain of O-ring.

(8) Also spread the grease inside of the joint (O-ring) and the spindle around part where the joint is connected.

(9) Attach the spindle onto the joint.
Align the mounting holes on the joint with the tapped holes for joint fixing on the drum, and tighten the machine screws there.
NOTE: Never attach the joint by force. O-ring might wear.

(10) Attach the retaining ring and washer to the spindle.

(11) Connect the fixed side and winding side hose.

(12) Carry out leakage inspection.
Refer to Section 10-2. "Leakage inspection" (Page 16).

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13. Spring Replacement

⚠ WARNING

- **High pressured fluid on hose reel is very dangerous.**
  Shut off the fluid supply, and set 0 pressure in the hose.
- **If the winding side hose is disconnected from mating equipment, the drum may suddenly rotate.**
  Allow the hose to fully wind onto the drum to give the minimum winding tension, and work with more than 2 people divided into the person who secure the drum and the person who disconnect the hose.
  Allow the disconnected hose to wind around the drum, and slowly turn the drum until the winding tension in the drum is released.
- **Never disassembly until the reel's winding tension is released.**
  The spring will burst out and cause personal injury.
  Even if the spring seems to be broken, never disassemble before ensuring no winding tension remains by rotating the drum by hand.
- **Never disassemble using any other disassembly procedure.**
  Follow the instructions for handling and disposing of the spring.

⚠ CAUTION

- **Always put up an instruction signs ("Equipment being inspected", "Do not open the valve", etc.) before carrying out spring replacement.**

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Before disassembly, check the winding direction (forward winding or reverse winding) and the spring structure (L - N) of the reel.
Confirm the model name indicated on the name plate, then refer to Section 3-1. "Models and specifications" (page 5).
Disassembly and reassembly procedures are different depending on the winding direction and spring structure.

13-1. Disassembly of bracket

(Common method for all spring structures)

(1) Shut off the fluid supply by setting 0 pressure hose inside.
(2) Allow the hose to fully wind around the drum to give minimum winding tension, then dismantle the mating equipment side hose connection.
Allow the disconnected hose to wind around the drum, slowly turning the drum until the winding tension in the drum is released.
This work requires more than two people.
(3) Dismantle the fixed side hose, and remove the nipple which is attached to the spindle.
(4) Unwind the hose and remove from the drum, then remove the hose from the installation position.
(5) Place the reel on a work table with the joint side downward.
Never directly push down the spindle onto the table.
Therefore, place materials between joint and table.
Also, for preventing the reel to fall down, prepare and use the support material (Refer to Figure 22).
(6) Loosen the hexagon nut and remove the hexagon socket set screw (Refer to Figure 21).
Pull out the bracket from the spindle and remove the key from the spindle.

Figure 21

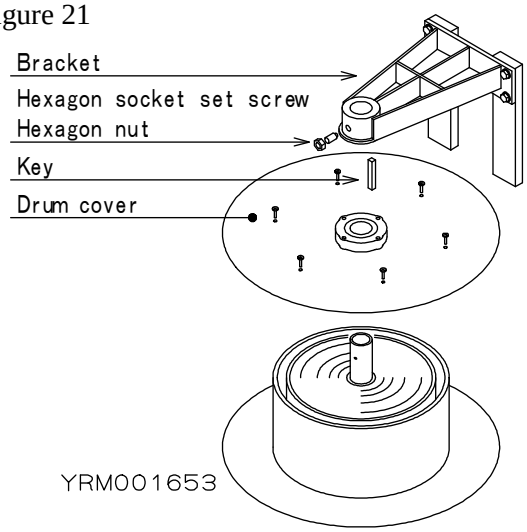
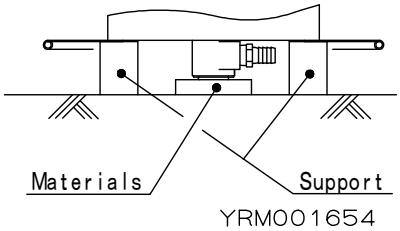


Figure 22



(7) Remove the drum cover from the drum (Refer to Figure 21 on page 19).

⚠ WARNING

- **Move the drum cover upward about 15mm and check the internal spring does not pop out, then remove the drum cover.**

(8) Follow the disassemble and reassembly procedures depending on the spring structure.

13-2. Disassembly and reassembly according to spring structure

⚠ WARNING

- **The spring is dangerous due to its tensional energy. If incorrectly handled, the spring will expand explosively and causing personal injury.**
- **Never remove the spring from the spring case. If it is removed from the spring case, the spring will expand explosively and causing personal injury.**
- **Never turn the spring case upside down. If turned upside down, the spring center will fall and the spring will burst out from the spring case, causing personal injury.**

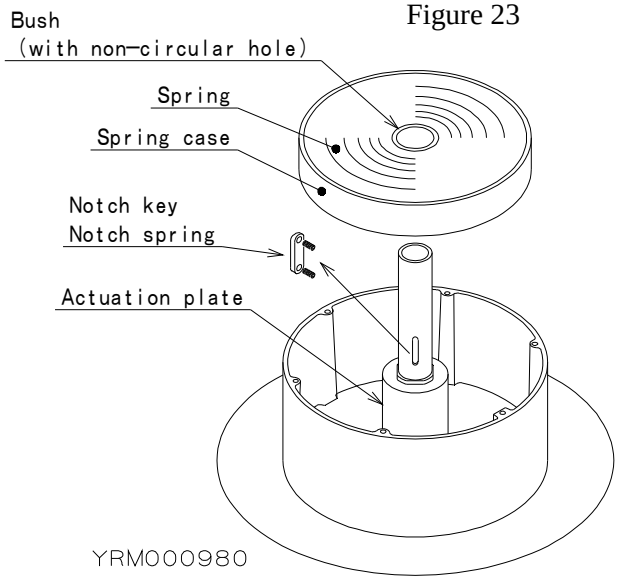
■ For spring structure L (1 spring)

⚠ WARNING

- **The spring have a weight of approximately 5 kg to 36 kg. Take care when handling the spring. For spring types 130 (refer to Section 3-1. "Model and specifications" on page 5), lifting work requires more than two people.**
- **The spring assembly work requires more than four people to pull the rope, lift the spring and hold the bush (the spring center) in order to prevent the spring from bursting out.**

(1) Remove the spring case and spring together from the drum.
If there is space between the drum and spring case, hold the spring case, with two hands and slowly remove from the drum.
If there is no space between the drum and spring case, grip the spring case with pliers and slowly pull out from the drum by hand.
Take care as the spring case is slippery from grease on the back of the spring case.
NOTE: When removing the spring case, the notch key and two notch springs (in case of spring type 130, three notch springs) will drop out from the spindle.Take care not to lose them.

Figure 23



(2) Remove the bush from the spring.
(3) Before reassembly, clean and inspect all the disassembled parts.
Replace worn, cracked, damaged or deformed parts.
(4) Lightly lubricate the bush attaching portion of the spindle and the inside surface of the bush with grease (IDEMITSU, DAPHNE EPONEX SR No.1 or equivalents).

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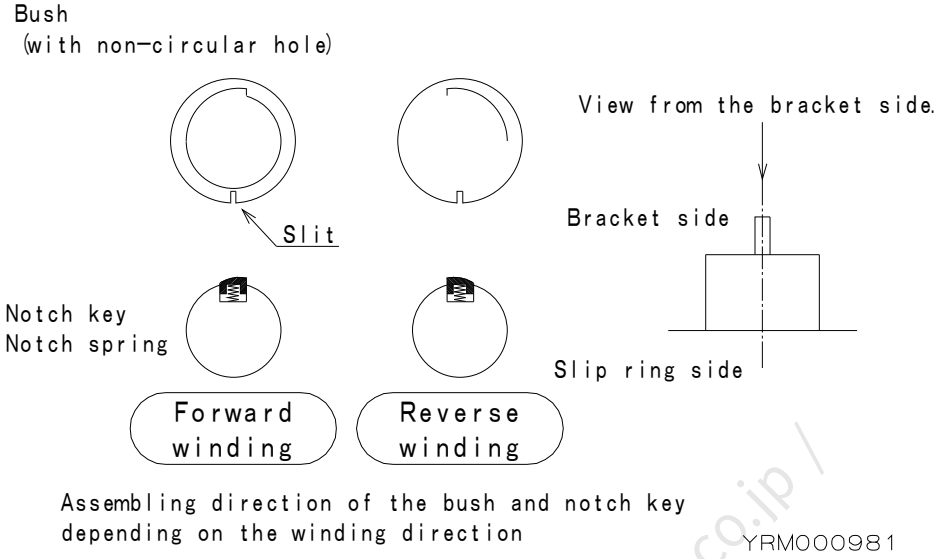
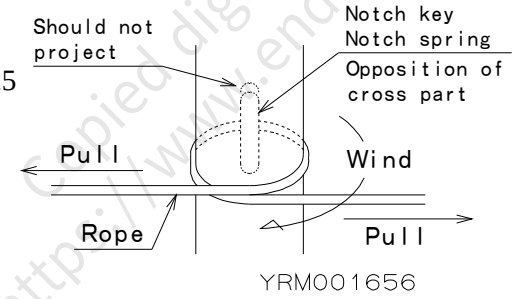
(5) Attach the bush to the spring.
The machined end of the bush should face upward.
(6) Place the notch key and notch springs into the slit of the spindle.
Take care as the assembling direction of the notch key depends on the winding direction of the reel.
Refer to Figure 24.

Figure 24



(7) Press the attached notch key in the slit with a soft and strong rope. Refer to Figure 25.
Also use a soft or slippery strong rope.
[Example: a nylon string for civil engineering, wire rope less than ϕ 2mm, plastic band (3mm width), wire (less than ϕ 1mm), etc.]

Figure 25



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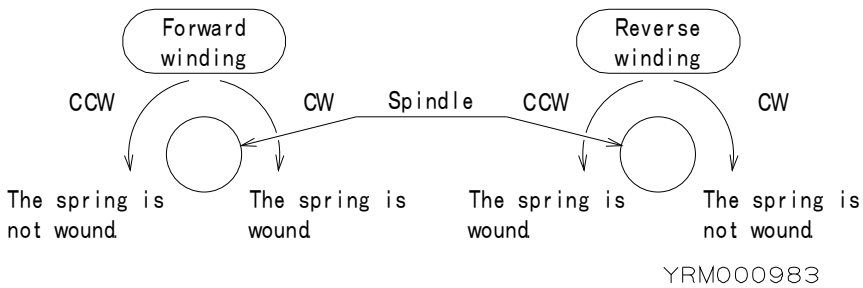
⚠ CAUTION

・ There is possibility to cut fingers or a hand on wire holding side.
In this step, use work gloves or leather gloves for the work.

(8) With holding the notch key with a rope, install spring(s) into the drum with holding the spindle.
In this point, never rope to get loose. Also take care of popping spring out from center of spring.
(9) In next step, hold up the spring case about 10mm and pull a rope. After pulling rope, fall spring down and rotate the spring case back and forth until the spring case fits.
(10) Check the spindle winds up the spring when rotating clockwise (for forward winding) or counterclockwise (for reverse winding).

Figure 26



(11) Lubricate the spring with grease (KYODO, ONELUBER MP No.2 or equivalents) with the specified volume shown in Table 3.
Spread grease all over the spring.

Table 3

Spring type	24	36	55	75	130
Grease volume {cm^3 (mL)}	25	40	45	50	70

(12) Follow the procedure given in Section 13-3. "Common reassembly method" (page 25).

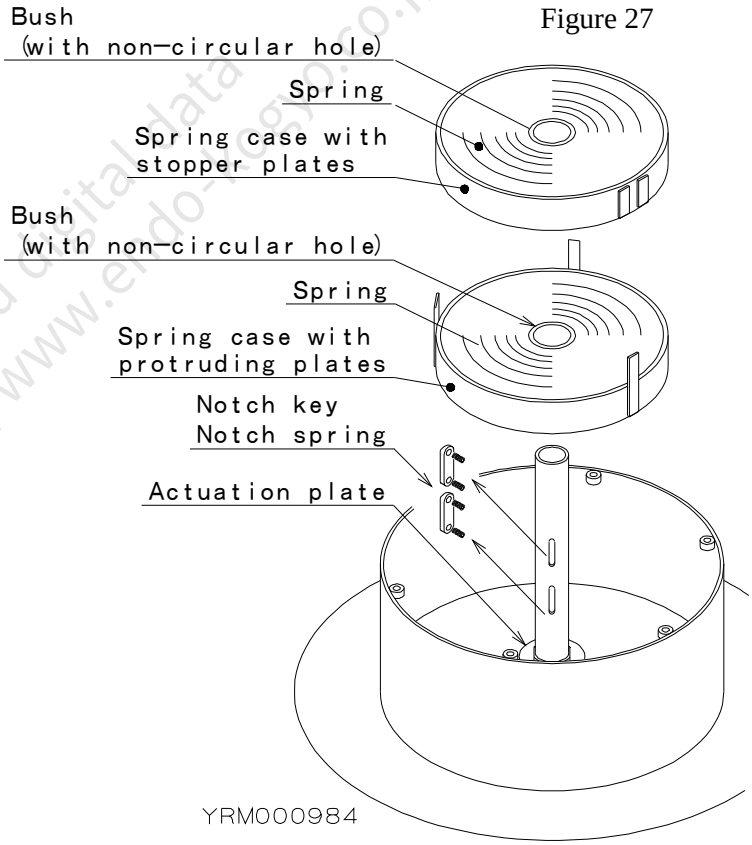
■ For spring structure M (260: 2 springs, double-torque)

⚠ WARNING

- **The spring have a weight of approximately 36 kg.**
  Take care when handling the spring.
  Lifting work requires more than two people.
- **The spring assembly work requires more than four people to pull the rope, lift the spring and hold the bush (the spring center) in order to prevent the spring from bursting out.**

(1) Remove each spring case and spring together from the drum.
If there is space between the drum and spring case, hold the spring case with two hands and slowly remove from the drum.
Take care as the spring cases are slippery with grease on the back of the spring case.
NOTE: When removing each spring, the notch key and three notch springs will drop out from the spindle. Take care not to lose them.

Figure 27



(2) Remove the bush from the spring.
(3) Before reassembly, clean and inspect all the disassembled parts.
Replace worn, cracked, damaged or deformed parts.
(4) Lightly lubricate the bush attaching portion of the spindle and the inside surface of the bush with grease (IDEMITSU, DAPHNE EPONEX SR No.1 or equivalents).
(5) Attach the bush to the spring.
The project of bush should face bracket side (worker's side).
(6) Press the notch key and notch springs into the slit of the spindle.
Take care as the assembling direction of the notch key depends on the winding direction of the reel.
Refer to Figure 24 (Page 21).

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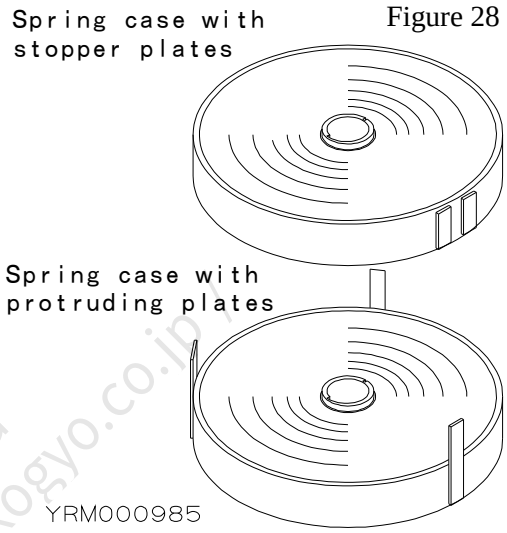
(7) Press the attached notch key in the slit with a soft or slippery rope. Refer to Figure 25 (page 21).
Also use a rope with soft and slippery strong.
[Example: a nylon string for civil engineering, wire rope less than ϕ 2mm, plastic band (3mm width), wire (less than ϕ 1mm), etc.]

⚠ CAUTION

・ There is possibility to cut fingers or a hand on wire holding side.
In this step, use work gloves or leather gloves for the work.

(8) With holding the notch key with a rope, install spring(s) into the drum with holding the spindle. In this point, never rope to get loose.
Also take care of popping springs out at center of spring.
(9) In next step, hold up the spring case about 10mm and pull a rope.
After pulling rope, fall spring down and rotate the spring case back and forth until the spring case fits.
(10) Check the spindle winds up the spring when rotating clockwise (for forward winding) or counterclockwise (for reverse winding).
Refer to Figure 26 (page 21)
(11) Lubricate the spring with grease (KYODO, ONELUBER MP No.2 or equivalents) withe 70cm^3 (ml).
Spread grease all over the spring.
(12) Place the notch key and notch springs into the upper slip of the spindle.
Take care as the assembling direction of the notch key depends on the winding direction of the reel.
Refer to Figure 24 (page 21).

Figure 28



(13) Press the attached notch key in the slit with a soft and a rope. Refer to Figure 25 (page 21).
Also use a rope with soft and slippery strong.
[Example: a nylon string for civil engineering, wire rope less than ϕ 2mm, plastic band (3mm width), wire (less than ϕ 1mm), etc.]

⚠ CAUTION

・ There is possibility to cut fingers or a hand on wire holding side.
In this step, use work gloves or leather gloves for the work.

(14) With holding notch key by a rope、place into the spring with spring case into drum spring with holding center of the spring to prevent poping out of the spring.
In this step, never let a rope to get loose.
(15) Then bring up the spring case about 10mm and pull out a rope.
(16) Check the spindle winds up the spring when rotating clockwise (for forward winding) or counterclockwise (for reverse winding). Refer to Figure 26 (page 21).
(17) Lubricate the spring with grease (KYODO, ONELUBER MP No.2 or equivalents) withe 70cm^3 (ml).
Spread grease all over the spring.
(18) Follow the procedure given in Section 13-3. "Common reassembly method" (page 25).

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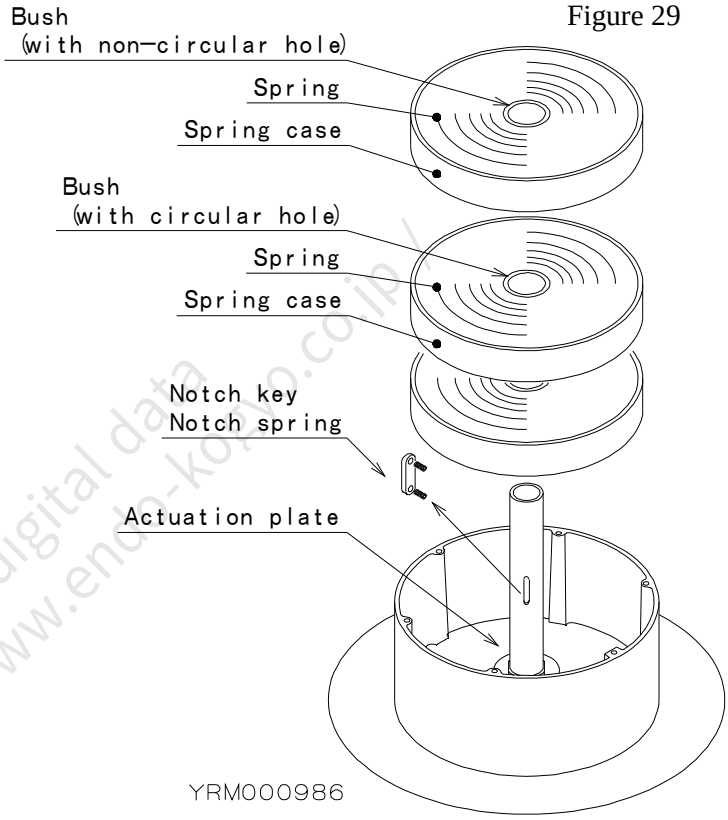
■ For spring structure N (2 or more springs, double-stroke)

⚠ WARNING

- **The spring have a weight of approximately 5 kg to 36 kg. Take care when handling the spring. For spring types 130 (refer to Section 3-1. "Model and specifications" on page 5), lifting work requires more than two people.**
- **The spring assembly work requires more than two people to pull the rope, lift the spring and hold the bush (the spring center) in order to prevent the spring from bursting out.**

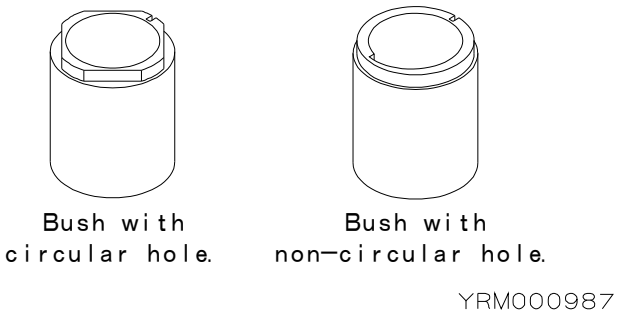
(1) Remove each spring case and spring together from the drum.
If there is space between the drum and spring case, hold the spring case with two hands and slowly remove from the drum.
If there is no space between the drum and spring case, grip the spring case with pliers and slowly pull out from the drum by hands.
Take care as the spring cases are slippery with grease on the back of the spring case.
NOTE: When removing the upper spring case, the notch key and two notch springs (in case of spring type 130, three notch springs) will drop out from the spindle.
Take care not to lose them.

Figure 29



(2) Remove the bush from each spring.
(3) Before reassembly, clean and inspect all the disassembled parts.
Replace worn, cracked, damaged or deformed parts.
(4) Lightly lubricate the bush attaching portion of the spindle and the inside surface of each bush with grease (IDEMITSU, DAPHNE EPONEX SR No.1 or equivalents).
(5) Attach the bushes to the springs.
The machined ends of the bushes should face upward.
(6) With holding the bush to fall spring out from the spring case, place the spring into the drum.
Rotate the spring case back and forth until the spring case fits into the actuation plate or the bush.

Figure 30



(7) Lubricate the spring with grease (KYODO, ONELUBER MP No.2 or equivalents) with the specified volume shown in Table 3 (page 22) .
Spread grease all over the spring.
(8) Install all spring case into drum by following the same manner as (6) to (7).

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(9) Place the notch key and notch springs into the slit of the spindle.
Take care as the assembling direction of the notch key depends on the winding direction of the reel.
Refer to Figure 24 (page 21).
(10) Press the attached notch key in the slit with a soft and a slippery rope.
Refer to Figure 25 (page 21).
Also use a rope with soft and slippery strong.
[Example: a nylon string for civil engineering, wire rope less than ϕ 2mm, plastic band (3mm width), wire (less than ϕ 1mm), etc.]

⚠ CAUTION

・ There is possibility to cut fingers or a hand on wire holding side.
In this step, use work gloves or leather gloves for the work.

(11) With holding notch key by a rope, place into the spring with spring case into drum spring with holding center of the spring to prevent popping out of the spring.
In this step, never let a rope to get loose.
(12) In next step, hold up the spring case about 10mm and pull a rope.
After pulling rope, fall spring down and rotate the spring case back and forth until the spring case fits.
(13) Check the spindle winds up the spring when rotating clockwise (for forward winding) or counterclockwise (for reverse winding).
Refer to Figure 26 (page 21).
(14) Lubricate the spring with grease (KYODO, ONELUBER MP No.2 or equivalents) with the specified volume shown in Table 3 (page 22).
Spread grease all over the spring.
(15) Follow the procedure given in Section 13-3. "common reassembly method".

13-3. Common reassembly method

(1) Check the top spring does not project out from the drum top, then attach the drum cover to the drum.
(2) Attach the key to the spindle.
Attach the bracket to the spindle so that the tapped hole of the bracket faces to the hole of the spindle, then tighten the hexagon socket set screw and fix with the hexagon nut.
(3) Rotate the drum in the payout direction by hand and check the drum has winding torque.
(4) Install the hose.
Refer to Chapter 5. "Hose Connection" (page 9).
(5) Adjust the spring tension.
Refer to Chapter 6. "Spring Tension Adjustment" (page 11).

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13-4. Spring disposal

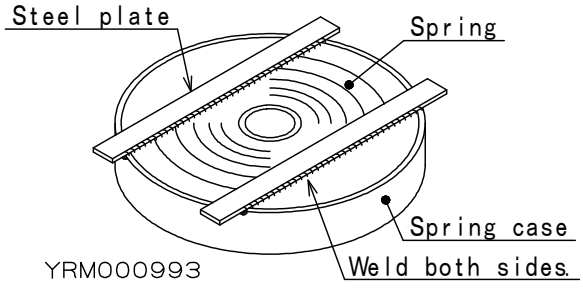
⚠ WARNING

・ The spring is dangerous due to remaining tension even if it is broken.
Weld steel plates to the spring in order to prevent the spring from expansion before disposal.
Never use gas welding, only use arc welding.

・ Weld steel plates to the spring in order to prevent the spring from expansion.
Use steel plates with enough length to cover the spring case, and weld along the whole length.
NOTE: Wipe off all grease from the spring surface to avoid grease combustion.

・ Give a warning to disposal companies that the spring will expand explosively if the welding is broken due to rough handling.

Figure 31



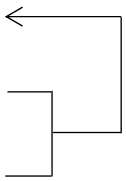
14. Parts list

■ When ordering part:

- State the MODEL, SER. NO. and DATE indicated on the name plate.
- State the part number and description.
- Parts without a part number cannot be supplied individually.
  Please purchase a set or complete unit.

■ How to read parts list

REF No.	Part No.	Description	Quantity			
			4524	4524W	・・・	4624T
—	LRP003830	Spring assembry	1	2		3
7	—	—Spring	1	2		3
8	—	—Spring case	1	2		3



The mark indicates the range of the set or the complete unit.

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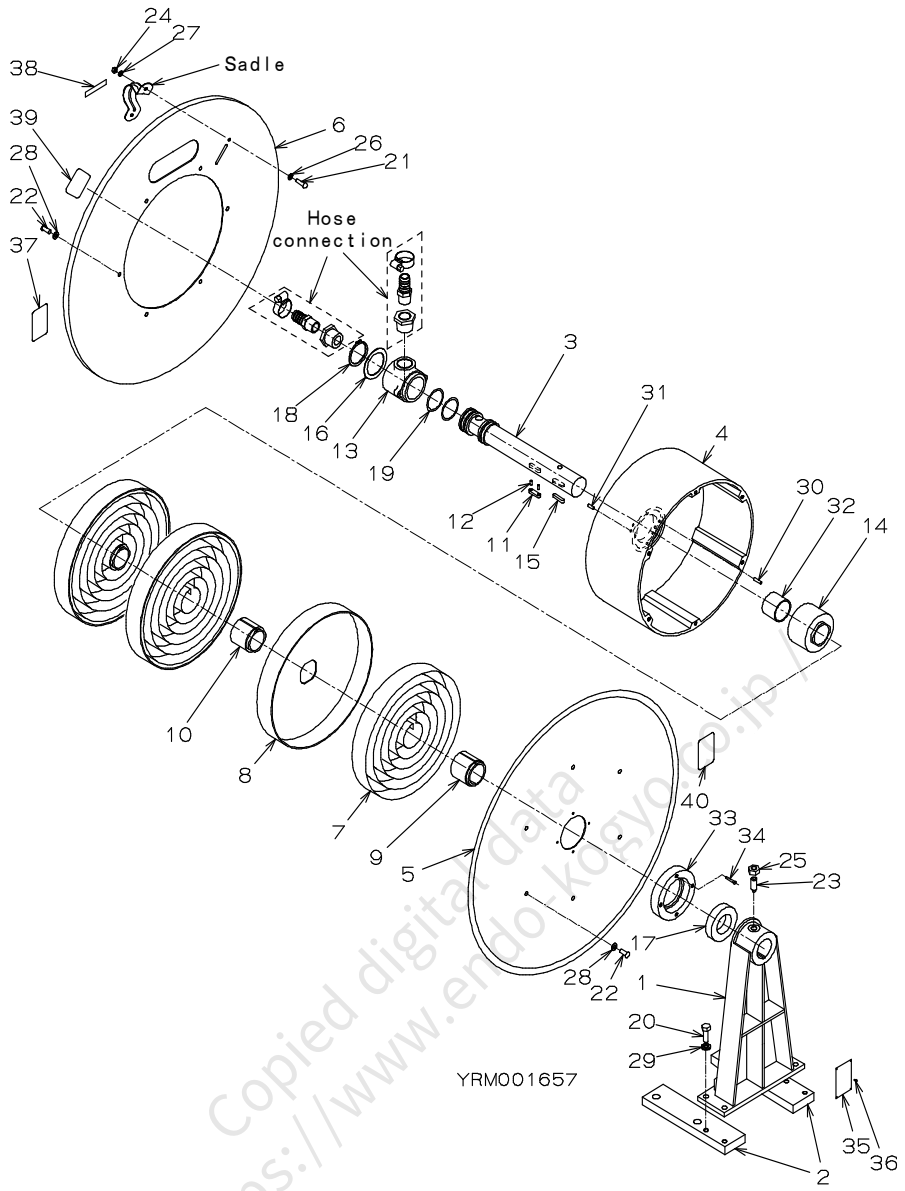
■ＨＲ－４５２４～４６２４Ｔ



REF No.	Part number	Description	Quantity				
			4524	4524W	4524T	4624W	4624T
—	LRP003847	Bracket assembly	1	1	1	—	—
—	LRP003848	Bracket assembly	—	—	—	1	1
1	LRP001160	—Bracket	1	1	1	—	—
1	LRP001162	—Bracket	—	—	—	1	1
2	P1R300517a	—Base plate	2	2	2	2	2
20	P1R404216	—Hex.head bolt	4	4	4	4	4
29	P1R404505	—Spring washer	4	4	4	4	4
3	P1R300299	Spindle	1	1	1	1	1
—	LRP003809	Drum assembly	1	1	1	1	1
4	—	Drum	1	1	1	1	1
30	KA42410412	—Spring pin	4	4	4	4	4
31	KA42410416	—Spring pin	2	2	2	2	2
—	LRP003817	Drum cover assembly	1	1	1	—	—
—	LRP003823	Drum cover assembly	—	—	—	1	1
—	LRP002013	—Drum cover assembly	1	1	1	—	—
—	LRP002024	—Drum cover assembly	—	—	—	1	1
5	—	——Drum cover	1	1	1	—	—
5	—	——Drum cover	—	—	—	1	1
33	—	——Bearing case	1	1	1	1	1
34	P1R400350	——Rivet	4	4	4	4	4
17	KA60103074	—Ball bearing	1	1	1	1	1

Parts without a part number cannot be supplied individually.

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■ＨＲ－４５２４～４６２４Ｔ

REF No.	Part number	Description	Quantity				
			4524	4524W	4524T	4624W	4624T
6	P1R200553	Drum cover	1	1	1	—	—
6	P1R200297	Drum cover	—	—	—	1	1
—	LRP003830	Spring assembly	1	2	3	2	3
7	—	—Spring assembly	1	2	3	2	3
8	—	—Spring case	1	2	3	2	3
9	P1R300465	Bush	1	1	1	1	1
10	P1R300479	Bush	—	1	2	1	2
—	LRP003836	Notch key assembly	1	1	1	1	1
11	—	—Notch key	1	1	1	1	1
12	P1R400112	—Notch spring	2	2	2	2	2
—	LRP003871	Joint assembly	1	1	1	1	1
13	—	—Joint	1	1	1	1	1
19	KA50300350	—O-Ring	2	2	2	2	2
—	LRP003852	Actuation plate assembly	1	—	—	—	—
—	LRP003853	Actuation plate assembly	—	1	—	1	—
14	—	—Actuation plate	1	—	—	—	—
14	—	—Actuation plate	—	1	—	1	—
32	P1R400357	—Dry bearing	1	1	—	1	—
14	P1R300438	Actuation plate	—	—	1	—	1
15	P1R400347	Key	1	1	1	1	1
16	P1R400121	Washer	1	1	1	1	1
18	KA40110040	Retaining ring	1	1	1	1	1
21	KA10130520	Machine screw	2	2	2	2	2
22	KA10130616	Machine screw	12	12	12	12	12
23	KA16331025	Set screw	1	1	1	1	1
24	KA20130500	Hex. Nut	2	2	2	2	2
25	KA20131000	Hex. Nut	1	1	1	1	1
26	KA30230500	Pin	2	2	2	2	2
27	KA31130500	Spring washer	2	2	2	2	2
28	P1R404504	Spring washer	12	12	12	12	12
35	P1R301512	Nameplate	1	1	1	1	1
36	KA14549804	Drive screw	4	4	4	4	4
37	P1R305037	Label	1	1	1	1	1
38	P1R401833	Label	1	1	1	1	1
39	P1R305035	Warning label	1	1	1	1	1
40	P1R304994	Warning label	1	1	1	1	1

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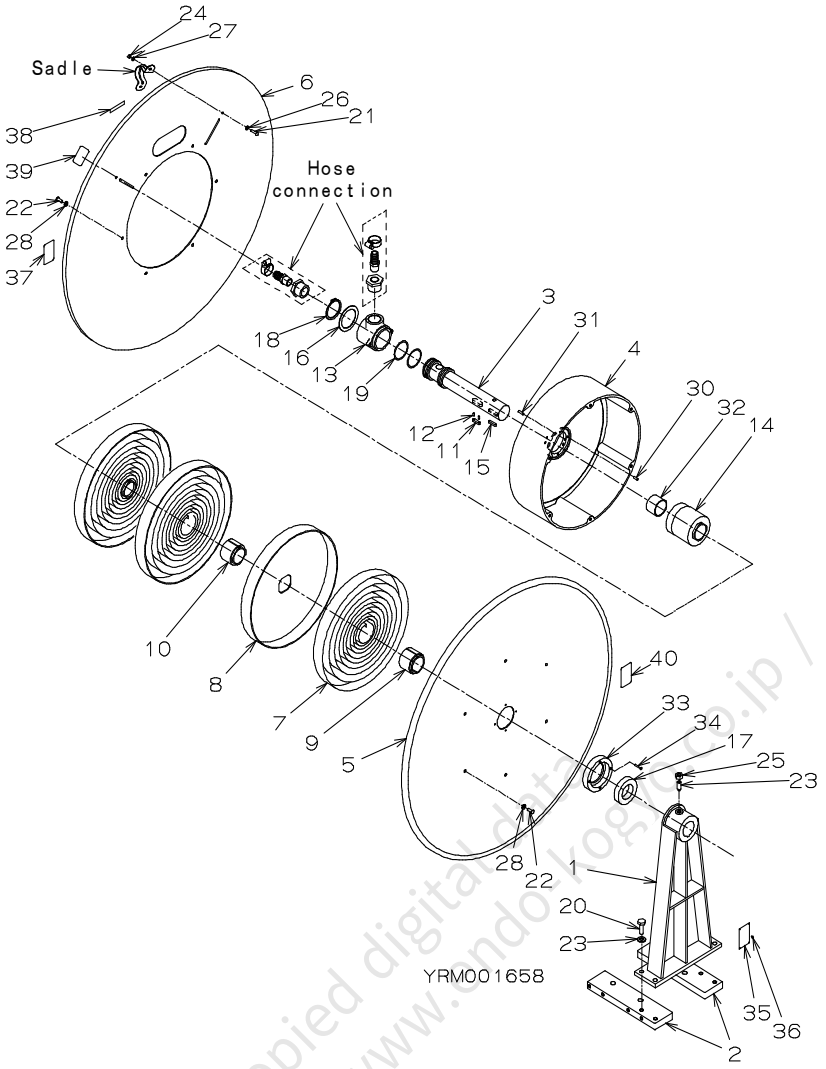
■ＨＲ－４５２４－Ｒ～４６２４Ｔ－Ｒ (Reverse winding type reel)

REF No.	Part number	Description	Quantity				
			4524-R	4524W-R	4524T-R	4624W-R	4624T-R
-	LRP003958	Drum assembly	1	1	1	1	1
4	—	—Drum	1	1	1	1	1
30	KA42410412	—Spring pin	4	4	4	4	4
31	KA42410416	—Spring pin	2	2	2	2	2
6	P1R200554	Drum cover	1	1	1	—	—
6	P1R200298	Drum cover	—	—	—	1	1
—	LRP003963	Spring assembly	1	2	3	2	3
7	—	—Spring	1	2	3	2	3
8	—	—Spring case	1	2	3	2	3
9	P1R300466	Bush	1	1	1	1	1
—	LRP003971	Joint assembly	1	1	1	1	1
13	—	—Joint	1	1	1	1	1
19	KA50300350	—O-ring	2	2	2	2	2
38	P1R401834	Label	1	1	1	1	1

Parts without a part number cannot be supplied individually

■ＨＲ－５７３６～５７３６Ｔ



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REF No.	Part number	Description	Quantity		
			5736	5736W	5736T
—	LRP003849	Bracket assembly	1	1	1
1	LRP001170	—Bracket	1	1	1
2	P1R304412a	—Base plate	2	2	2
20	P1R404217	—Hex. Bolt	4	4	4
29	P1R404506	—Spring	4	4	4
3	P1R300300	Spindle	1	1	1
—	LRP003810	Drum assembly	1	1	1
4	—	—Drum	1	1	1
30	KA42410512	—Spring pin	4	4	4
31	KA42410516	—Spring pin	2	2	2
—	LRP003824	Drum cover assembly	1	1	1
—	LRP002025	—Drum cover assembly	1	1	1
5	—	——Drum cover	1	1	1
33	—	——Bearing case	1	1	1
34	P1R400350	——Rivet	4	4	4
17	KA60103084	—Ball bearing	1	1	1
6	P1R200301	Drum cover	1	1	1
—	LRP003831	Spring assembly	1	2	3
7	—	—Spring	1	2	3
8	—	—Spring case	1	2	3
9	P1R300467	Bush	1	1	1
10	P1R300480	Bush	—	1	2

Parts without a part number cannot be supplied individually

■ＨＲ－５７３６～５７３６Ｔ

REF No.	Part number	Description	Quantity		
			5736	5736W	5736T
—	LRP003837	Notch key assembly	1	1	1
11	—	—Notch key	1	1	1
12	P1R400025	—Notch spring	2	2	2
—	LRP003872	Joint assembly	1	1	1
13	—	—Joint	1	1	1
19	KA50300450	—O-ring	2	2	2
—	LRP003854	Actuation plate assembly	1	—	—
—	LRP003856	Actuation plate assembly	—	1	—
14	—	—Actuation plate	1	—	—
14	—	—Actuation plate	—	1	—
32	P1R400358	—Dry bearing	1	1	—
14	P1R300442	Actuation plate	—	—	1
15	P1R400240	Key	1	1	1
16	P1R400075	Washer	1	1	1
18	KA40110050	Retaining ring	1	1	1
21	KA10130520	Machine screw	2	2	2
22	KA10130616	Machine screw	12	12	12
23	KA16331025	Hex. head bolt	1	1	1
24	KA20130500	Hex. nut	2	2	2
25	KA20131000	Hex. nut	1	1	1
26	KA30230500	Pin	2	2	2
27	KA31130500	Spring washer	2	2	2
28	P1R404504	Spring washer	12	12	12
35	P1R301512	Nameplate	1	1	1
36	KA14549804	Drive screw	4	4	4
37	P1R305037	Label	1	1	1
38	P1R401833	Label	1	1	1
39	P1R305035	Warning label	1	1	1
40	P1R304994	Warning label	1	1	1

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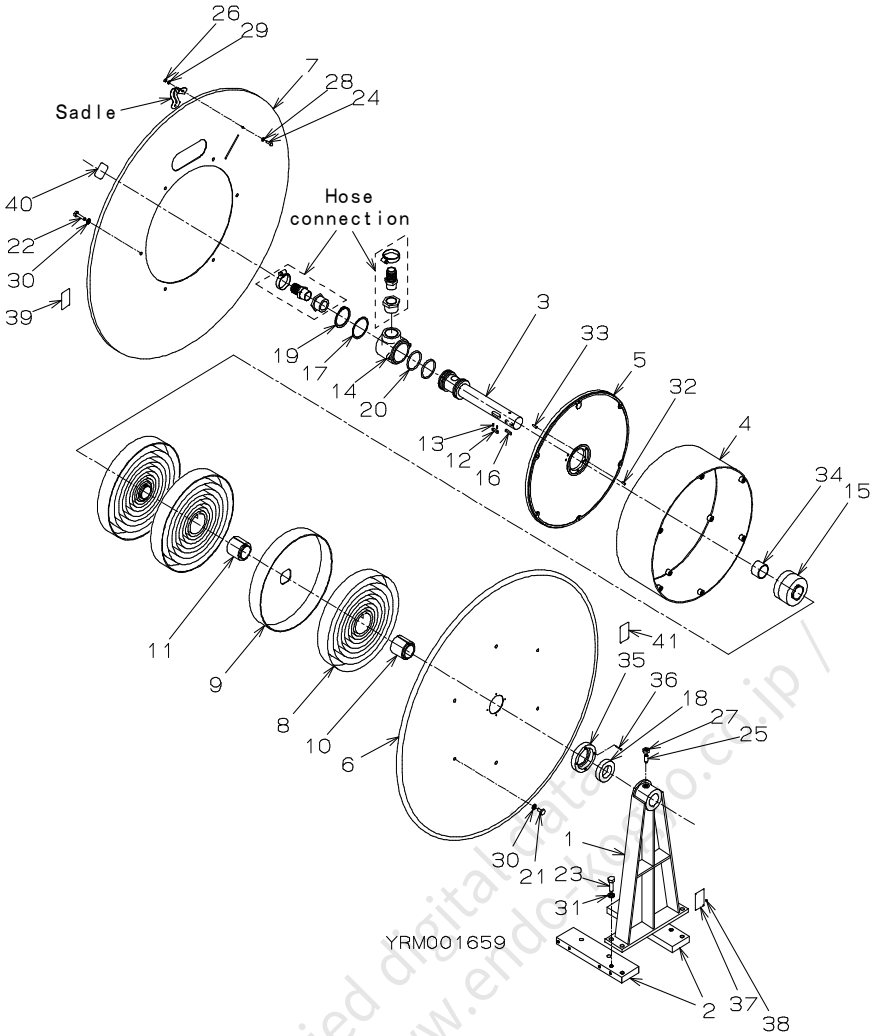
■ＨＲ－５７３６－Ｒ～５７３６Ｔ－Ｒ (Reverse winding type reel)

REF No.	Part number	Description	Quantity		
			5736-R	5736W-R	5736T-R
—	LRP003959	Drum assembly	1	1	1
4	—	—Drum	1	1	1
30	KA42410512	—Spring pin	4	4	4
31	KA42410516	—Spring pin	2	2	2
6	P1R200302	Drum Cover	1	1	1
—	LRP003964	Spring assembly	1	2	3
7	—	—Spring	1	2	3
8	—	—Spring case	1	2	3
9	P1R300468	Bush	1	1	1
—	LRP003972	Joint assembly	1	1	1
13	—	—Joint	1	1	1
19	KA50300450	—O-ring	2	2	2
38	P1R401834	Label	1	1	1

Parts without a part number cannot be supplied individually.

■ＨＲ－６８５５～６９７５Ｔ



REF No.	Part number	Description	Quantity				
			6855	6855W	6855T	6975W	6975T
—	LRP003850	Bracket assembly	1	1	1	—	—
—	LRP003851	Bracket assembly	—	—	—	1	1
1	LRP001171	—Bracket	1	1	1	—	—
1	LRP001181	—Bracket	—	—	—	1	1
2	P1R304545	—Base plate	2	2	2	—	—
2	P1R304546	—Base plate	—	—	—	2	2
23	P1R404218	—Hex. Head bolt	4	4	4	4	4
31	P1R404507	—Spring washer	4	4	4	4	4
3	P1R300301	Spindle	1	1	1	—	—
3	P1R300303	Spindle	—	—	—	1	1
4	P1R300584	Drum	1	1	1	1	1
—	LRP003868	Drum plate assembly	1	1	1	1	1
5	—	—Drum plate	1	1	1	1	1
32	KA42410512	—Spring pin	6	6	6	6	6
33	KA42410516	—Spring pin	2	2	2	2	2

Parts without a part number cannot be supplied individually

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■ＨＲ－６８５５～６９７５Ｔ

REF No.	Part number	Description	Quantity				
			6855	6855W	6855T	6975W	6975T
—	LRP003825	Drum cover assembly	1	1	1	—	—
—	LRP003826	Drum cover assembly	—	—	—	1	1
—	LRP002027	—Drum cover set	1	1	1	—	—
—	LRP002028	—Drum cover set	—	—	—	1	1
6	—	——Drum cover	1	1	1	—	—
6	—	——Drum cover	—	—	—	1	1
35	—	——Bearing case	1	1	1	—	—
35	—	——Bearing case	—	—	—	1	1
36	P1R400351	——Rivet	4	4	4	4	4
18	KA60103084	—Ball bearing	1	1	1	—	—
18	KA60103104	—Ball bearing	—	—	—	1	1
7	P1R200563	Drum cover	1	1	1	—	—
7	P1R200305	Drum cover	—	—	—	1	1
—	LRP003832	Spring assembly	1	2	3	—	—
—	LRP003834	Spring assembly	—	—	—	2	3
8	—	—Spring	1	2	3	—	—
8	—	—Spring	—	—	—	2	3
9	—	—Spring case	1	2	3	—	—
9	—	—Spring case	—	—	—	2	3
10	P1R300469	Bush	1	1	1	—	—
10	P1R300221	Bush	—	—	—	1	1
11	P1R300481	Bush	—	1	2	—	—
11	P1R300214	Bush	—	—	—	1	2
—	LRP003837	Notch key assembly	1	1	1	—	—
—	LRP003838	Notch key assembly	—	—	—	1	1
12	—	—Notch key	1	1	1	—	—
12	—	—Notch key	—	—	—	1	1
13	P1R400025	—Notch spring	2	2	2	2	2
—	LRP003873	Joint assembly	1	1	1	1	1
14	—	—Joint	1	1	1	1	1
20	KA50300550	—O-ring	2	2	2	2	2
—	LRP003859	Actuation plate assembly	1	—	—	—	—
—	LRP003860	Actuation plate assembly	—	1	—	—	—
—	LRP003861a	Actuation plate assembly	—	—	—	1	—
15	—	—Actuation plate	1	—	—	—	—
15	—	—Actuation plate	—	1	—	—	—
15	—	—Actuation plate	—	—	—	1	—
34	P1R400358	—Bush	1	1	—	—	—
34	P1R400359	—Bush	—	—	—	1	—
15	P1R300529	Actuation plate	—	—	1	—	—
15	P1R300192	Actuation plate	—	—	—	—	1
16	P1R400240	Key	1	1	1	—	—
16	P1R400241	Key	—	—	—	1	1
17	P1R400267	Washer	1	1	1	1	1
19	KA40110060	Retaining ring	1	1	1	1	1
21	KA00130816	Hex. Head bolt	6	6	6	6	6
22	KA00130835	Hex. Head bolt	6	6	6	6	6
24	KA10130520	Machine screw	2	2	2	2	2
25	KA16331025	Hex. Socket set screw	1	1	1	—	—
25	KA16331230	Hex. Socket set screw	—	—	—	1	1
26	KA20130500	Hex. nut	2	2	2	2	2
27	KA20131000	Hex. nut	1	1	1	—	—
27	KA20131200	Hex. nut	—	—	—	1	1
28	KA30230500	Pin	2	2	2	2	2
29	KA31130500	Spring washer	2	2	2	2	2
30	P1R404504	Spring washer	12	12	12	12	12
37	P1R301512	Nameplate	1	1	1	1	1

Parts without a part number cannot be supplied individually.

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■ＨＲ－６８５５～６９７５Ｔ

REF No.	Part number	Description	Quantity				
			6855	6855W	6855T	6975W	6975T
38	KA14549804	Drive screw	4	4	4	4	4
39	P1R305037	Label	1	1	1	1	1
40	P1R401833	Label	1	1	1	1	1
41	P1R305035	Warning label	1	1	1	1	1
42	P1R304994	Warning label	1	1	1	1	1

■ＨＲ－６８５５－Ｒ～６９７５Ｔ－Ｒ (Reverse winding type reel)

REF No.	Part number	Description	Quantity				
			6855-R	6855W-R	6855T-R	6975W-R	6975T-R
－	LRP003974	Drum plate assembly	1	1	1	1	1
5	ー	－Drum plate assembly	1	1	1	1	1
32	KA42410512	－Drum plate assembly	6	6	6	6	6
33	KA42410516	－Spring pin	2	2	2	2	2
7	P1R200564	Drum cover	1	1	1	－	－
7	P1R200306	Drum cover	－	－	－	1	1
－	LRP003965	Spring assembly	1	2	3	－	－
－	LRP003967	Spring assembly	－	－	－	2	3
8	ー	－Spirng	1	2	3	－	－
8	ー	－Spring	－	－	－	2	3
9	ー	－Spring case	1	2	3	－	－
9	ー	－Spirng case	－	－	－	2	3
10	P1R300470	Bush	1	1	1	－	－
10	P1R300220	Bush	－	－	－	1	1
－	LRP003973	Joint assembly	1	1	1	1	1
14	ー	－Joint	1	1	1	1	1
20	KA50300550	－O-ring	2	2	2	2	2
40	P1R401834	Label	1	1	1	1	1

Parts without a part number cannot be supplied individually.

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■Accessories

Part number	Description	Applicable model	Applicable hose size (inc)
LRP003444	Hose fitting	HR-4524～4624T	３／８
LRP003445	Hose fitting		１／２
LRP003446	Hose fitting		５／８
LRP003447	Hose fitting		３／４
LRP003448	Hose fitting	HR-5736～5736T	１／２
LRP003449	Hose fitting		５／８
LRP003450	Hose fitting		３／４
LRP003451	Hose fitting		１
LRP003452	Hose fitting	HR-6855～6975T	５／８
LRP003453	Hose fitting		３／４
LRP003454	Hose fitting		１
LRP003455	Hose fitting		１・１／４

Part number	Description	Standard	Applicable hose diameter(mm)
P1R405146	Saddle	１９ (Steel)	φ１６．１～φ１９．０
P1R405147	Saddle	１６ (Steel)	φ１９．１～φ２２．０
P1R405148	Saddle	２５ (Steel)	φ２２．１～φ２５．０
P1R405149	Saddle	２２ (Steel)	φ２５．１～φ２７．０
KA90213100	Saddle	３１ (Steel)	φ２７．１～φ３１．０
KA90212800	Saddle	２８ (Steel)	φ３１．１～φ３４．０
KA90213900	Saddle	３９ (Steel)	φ３４．１～φ３９．０
KA90213600	Saddle	３６ (Steel)	φ３９．１～φ４２．０
KA90214200	Saddle	４２ (Steel)	φ４２．１～φ４８．０

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事業所情報につきましては、
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