

INSTRUCTION MANUAL

SPRING BALANCER

ELF - 15

ELF-22

ELF-30

ELF-40

ELF-50

ELF-60

ELF-70

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A WARNING

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

ENDO KOGYO CO.,LTD.

ENDO

BM - 10069

SAFETY ALERT SYMBOL AND ALERT SIGNS

Please read this manual carefully and follow this 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 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 instructions in operation or maintenance.

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ELF-15, 22, 30

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1. A Safety instructions

A

WARNING

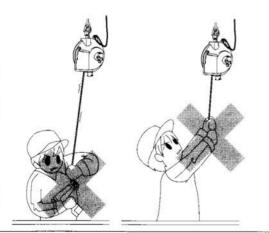
- •Incorrect use of the spring balancer could cause personal injury.
- Observe instructions in the manual and use the balancer correctly.
- Install the balancer correctly.
- Always attach a secondary support cable or chain.



Never stand under the suspended tool/device.



- Never remove tool/device while the wire rope is extended.
- Never pull the wire rope when unloaded.
 Never release the drum lock when unloaded.



 Never remove the spring from the spring case.



- •Never alter the balancer.
- Periodically inspect the balancer.

2. Description of product

2-1. Specifications

Model	Capacity range (kg)	Cable travel (m)	Mass (kg)
ELF-15	9.0~15.0	2.5	10.0
ELF-22	15.0~22.0	2.5	10.2
ELF-30	22.0~30.0	2.5	11.0
ELF-40	30.0~40.0	2.5	14.5
ELF-50	40.0~50.0	2.5	14.9
ELF-60	50.0~60.0	2.5	17.1
ELF-70	60.0~70.0	2.5	18.0

Working conditions Application area :Indoor and normal atmospheric conditions

Temperature range:-10℃ to +50℃

2-2. Main features

Fall prevention device

A mechanism to prevent the suspended tool/device from falling to the maximum cable travel in case of spring breakage.

When the spring breaks, the safety pin pops out from the spring case and collides with one of the pins, which are fixed on the casing, to stop the drum rotating.

This mechanism can not prevent the tool/device from falling at all when the spring breaks.

■Drum lock (See Chapter 4-2 "Drum lock operation")

A mechanism to lock the drum every 1/12 turns.

This mechanism is used when removing the suspended tool/device (See Chapter 4-3) or replacing the wire rope (See Chapter 7) or replacing the wire guide (See Chapter 9).

3. Installation

3-1. Balancer installation



WARNING

•Install the balancer correctly.

Incorrect installation could cause personal injury or damage to the balancer or other equipment.

Always attach a secondary support cable or chain.

It is required to protect worker(s) in case of failure of the top hook or the fitting.

1) Prepare a fitting that can support at least 10 time the maximum capacity of the balancer.

NOTE: The fitting must have no opening as shown in Fig. 1 to prevent the balancer from disengaging when it swings.

2) Attach the top hook of the balancer directly to the fitting.

Check the latch is closed.

NOTE: Take care the balancer does not hit surrounding objects. Make different mounting heights for each balancer to avoid collision.

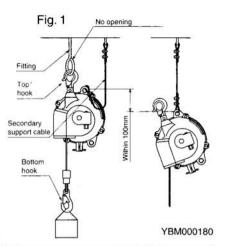
3) Check the top hook can swivel freely.

NOTE: Do not fasten the top hook to the balancer body.

4) Prepare a secondary support cable or chain that can support at least 10 time the maximum capacity of the balancer. 5) As shown in Fig. 1, attach an end of the secondary support cable or chain to balancer body, and attach the other end to a separate fitting which does not support the balancer.

NOTE: Leave some slack in the secondary support cable or chain to allow the balancer to rotate freely.

The slack must be a suitable length so that the balancer will stop within 100mm when falling in case of failure of the top hook or the fitting (See Fig. 1).



3-2. Tool/device attachment and spring tension adjustment



WARNING

Never pull the wire rope when unloaded.

If the wire rope is released when extended with no load, it will snap back and could cause personal injury.



CAUTION

If the spring tension is set over the maximum capacity, the balancer can not provide the specified cable travel and the spring life will be shortened.

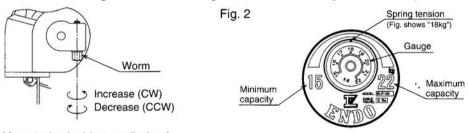
If the spring tension is set under the minimum capacity, the fall prevention device will operate and stop the suspended tool/device.

- Before attaching, check the mass (weight) of the complete tool/device, including all accessories, is within the capacity range of the balancer.
- 2) While watching the gauge, preadjust the spring tension to the mass of the complete tool/device by turning the worm with a wrench etc. Turn clockwise for increasing the spring tension, turn counterclockwise for reducing.

The gauge shows the approximate spring tension (See Fig. 2).

- Lift the complete tool/device up to the bottom hook and attach it.
 Never pull the wire rope down to the tool/device.
- After attaching the complete tool/device, adjust the spring tension again and check tool/device is balanced.

NOTE: Over tensioning could cause damage to the balancer body or the wire rope.



3-3. Working stroke (cable travel) check



CAUTION

Extending the wire rope past the maximum cable travel could cause damage to the balancer.

- 1) Check the cable travel is long enough for the application.
- 2) If necessary, lower the mounting height of the balancer or insert a suitable fitting between the bottom hook and tool/device.

4. Use

4-1. Safety instructions on use



WARNING

- •Never remove tool/device from the bottom hook while the wire rope is extended.
- Never stand under the suspended tool/device.
- Never alter the balancer.

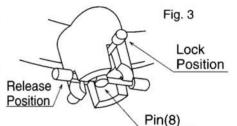


CAUTION

- Always use within the capacity range of the balancer.
- Always adjust the spring tension before using the balancer.
- •Do not extend the wire rope past the maximum cable travel.
- Do not pull the wire rope at an angle.

4-2. Drum lock operation

- 1) Pull Pin (8) Up and turn it clockwise to place in the lock position (See Fig. 3).
- Move the suspended tool/device upward or downward until Pin (8) enters the slot/hole in the drum and the drum becomes locked.
- 3) Move the tool/device again to check the drum is locked securely.
- 4) Remove the tool/device from the bottom hook.





WARNING

Never remove the suspended tool/device before checking the drum which is locked securely. If the drum is not locked securely, the drum lock could be released allowing the wire rope to snap back, possibly causing personal injury.

- 5) Before releasing the drum lock, attach a new tool/device if the old one has been removed. The new tool/device must have almost the same mass (weight) as the old one.
- Release the drum lock by pulling Pin (8) up.
 Turn Pin (8) counterclockwise and place it in the release position.



WARNING

- ●Never release the drum lock when the balancer is unloaded or the new tool/device has a different mass (weight) to the old one.
 - If released, the wire rope will snap back or the tool/device could drop down respectively, possibly causing personal injury.
- •Always release the drum lock after arranging the tension of spring and tool/device. This is important factor for safety.

4-3. Tool/device replacement

- Method 1-With drum lock actuated.
- 1) Lock the drum according to Chapter 4-2 "Drum lock operation". Remove the suspended tool/device.



WARNING

Move the tool/device upward and downward to check the drum is locked securely. Never remove the tool/device before checking this.

If the drum is not locked securely, the drum lock could be released allowing the wire rope to snap back, possibly causing personal injury.

- 2) Before attaching, check the mass (weight) of the new complete tool/device, including all accessories. is within the capacity range of the balancer.
- 3) While watching the gauge, preadjust the spring tension to the mass of the new complete tool/device by turning the worm with a wrench etc. Turn clockwise for increasing the spring tension, turn counterclockwise for reducing.
 - The gauge shows the approximate spring tension (See Fig. 2).
- 4) Attach the new complete tool/device to the bottom hook. Release the drum lock.



WARNING

- Never release the drum lock when the balancer is unloaded, or if the new tool/device has a different mass (weight) to the old one, before readjusting the spring tension.
 If released, the wire rope will snap back or the tool/device could drop down respectively, possibly causing personal injury.
- Always release the drum lock after arranging the tension of spring suspending a tool. This is important factor for safety.
- 5) After attaching the new complete tool/device and releasing the drum lock, adjust the spring tension again and check the tool/device is balanced.

NOTE: Over tensioning could cause damage to the balancer body or the wire rope.

■Method 2-Without drum lock actuated.



WARNING

Never remove the suspended tool/device while the wire rope is extended. If removed, the wire rope will snap back and could cause personal injury.

- 1) Lift then remove the suspended tool/device when the wire rope is fully retracted.
- Attach a new tool/device according to Chapter 3-2 "Tool/device attachment and spring tension adjustment".

5. Troubleshooting



WARNING

- •If a malfunction occurs during operation, stop operation immediately and take the necessary steps to rectify the problem.
- •Never remove the suspended tool/device before identifying causes of the malfunction. If removed, the wire rope will snap back and could cause personal injury. Never take off a tool suspened to make the work safe.

5-1. Common malfunctions and their causes

Malfunction	Cause	Solution
Wire rope can not be pulled out or retracted.	●Drum lock is engaged.	●Release drum lock. See Chapter 4-2.
	● Fall prevention devisce is engaged because the spring tension is set under the maximum capacity.	●Release fall prevention device.See Chapter 5-2.
	•Wire rope has slipped off from the drum groove and is caught between drum and casing.	●Return wire rope to the drum groove. See Chapter 5-2.
	Spring has broken.	Replace spring.See Chapter 8.

Contact your dealer or us if a malfunction is not listed above occurs.

5-2. Solutions (Refer to the disassembly drawings on pages 23, 25, 27)



CAUTION

Careless repairs can cause personal injury or damage to the balancer. Therefore, be careful but thorough when making repairs.

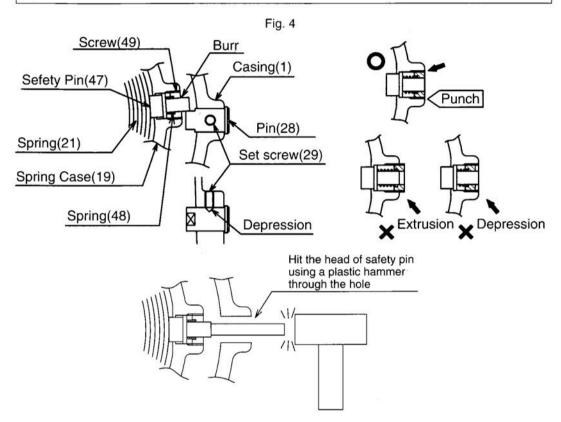
- ■When the fall prevention device has engaged because the spring tension is set under the minimum capacity (see Fig. 4)
- Move the suspended tool/device upward and downward by hand. The tool/device can be moved about 80 to 160 mm. If the tool/device rises after being lowered and then released, turn Worm(43) counterclockwise until the tool/device starts dropping down. If the tool/device drops down after being lifted and then released, turn Worm clockwise until the tool/device starts rising.
- 2) Loosen Set screws (29), and remove all Pins (28) while holding the tool/device by hand. **CAUTION**: For safety reasons, perform this work with two persons.
- 3) Lift then remove the tool/device from bottom Hook (33) when wire rope (31) is fully retracted into Drum (18). Check the mass (weight) of removed tool/device is within the capacity range of the balancer.
- 4) Attach a weight, which has been confirmeded that the weight is within the capacity range, to bottom Hook (33) and adjust the spring tension.
- 5) Move the tool/device upward or downward so that Safety pin (47) appears at the hole for pin (28).
- 6) Check Safety pin (47) does not project out from the surface of Screw (49). If protruding, lightly tap the top of Safety pin with a Bar having 5mm dia.
- 7) If Safety pin does not return, it has burrs or Spring (48) is broken. Remove Screw (49) after releasing Spring case (19) from Casing (1) according to chapter 8 "Spring replacement",1) B-8). Spring (48) pops out when Screw (49) is removed, therefore be careful not lose it.

- 8) Screw removement requires screw reassembly in the method that the surface of Screw becomes even with Spring case (19). For preventing Screw (49) from loosening, make punch marks at 2 points on the thread with a punch.
- 9) Make reassemble procedure according to chapter 8 "Spring replacement", 11) -15).



WARNING

If instllation of Safety pin (47) or pins (28) is incorrect or missed, the fall prevention device will not operate in case of spring breakage, causing personal injury or damage to equipment.



- When the wire rope is caught between drum and casing.
- Release Wire rope (31) by jerking it strongly while the tool/device is suspended.
 NOTE: After jerking, check wire rope and replace if damaged.
- 2) If Wire rope can not be released by jerking, disassembly is required. Remove Retaining ring (44) from Worm (43).
- 3) Release all spring tension by turning Worm (43) counterclockwise, and remove Worm.
- 4) Remove the tool/device from bottom Hook (33), and remove the balancer from the fitting.
- 5) Loosen set Screws (29), and remove all Pins (28).
- 6) Remove Gauge (45).
- 7) Loosen Hex. head bolts (30), and remove Cover (26).
- Return Wire rope (31) to the groove of Drum (18).
 NOTE: Check Wire rope (31) and replace if damaged.
- 9) Install Cover (26) .
- 10) Install Worm (43), and attach Retaining ring (44).
- 11) Adjust the spring tension, and install Gauge (45) ,Pins (28) See Chapter 8 "Spring replacement", 11) -15).

6. Inspections



WARNING

Periodically inspect the balancer, and replace any worn or damaged parts.



CAUTION

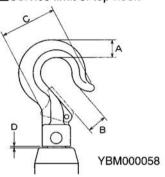
Always use genuine parts for replacement.

Inspect the balancer at least once a month. Correct and repair any problems which are detected.

Make the inspection interval shorter when operating frequently or under hostile environments.

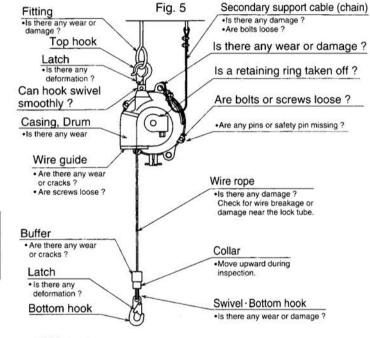
(See Fig. 5)

Service limit of top hook

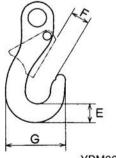


	Model	Limit dimension(mm)						
	Model	Α	В	С	D			
1	ELF-15~70	15.3	20.0	54.5	2.0			

Service limit of bottom hook

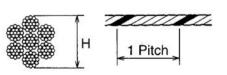


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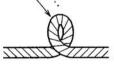


YBM000060

Service	limit	of	wire	rope



There must be no kinks.



YBM000059

Madal	Limit dimension(mm)				
Model	Е	F	G		
ELF-15~70	14.9	19.5	53.5		

Model	H dimens	ion(mm)	Allowable number of
Model	Standard	Limit	broken wires in 1 pitch
ELF-15~70	4.76	4.3	13

7. Wire rope replacement

- Lower the tool/device, extending Wire rope to the maximum cable travel.
- Position Plug (41) which is screwed on the drum, at the casing opening as shown in Fig.6, and engage the drum lock. See. Chapter 4-2 "Drum lock operation".
- Move the tool/device upward and downward to check Drum (18) is locked securely. Remove the tool/device from bottom Hook (33).



WARNING

Never remove the suspended tool/device before checking Drum (18) is locked securely.

If Drum (18) is not locked securely, the drum lock could be released allowing Wire rope (31) to snap back or Drum to rotate suddenly, possibly causing personal injury.

- 4) Remove the balancer from the fitting and place on the floor.
- 5) Remove Plug (41) and pull out an old wire rope from the drum. If the tip of wire rope stuck in drum, push the tip of wire rope into the drum using a driver or etc, and try again. (See Fig. 7)
- 6) Insert a new wire rope from the A-side into "Wire rope entrance hole B" and pass it through drum. If the Wire rope is caught in the drum and doesn't pass through the drum, press and twist the wire rope. this operation will make it easy to pass the wire rope trough the drum.

 If the tip of wire rope stuck in drum,
- Attach the end of wire rope to drum and fasten with plug (41).
- Install the balancer on the fitting. See Chapter 3-1 "Balancer installation".
- Attach the tool/device to bottom Hook, and release the drum lock.

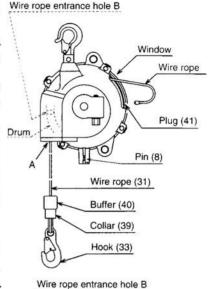
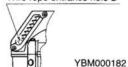
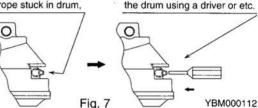


Fig. 6



Push the tip of wire rope into





WARNING

Never release the drum lock before attaching the tool/device.

If released, Wire rope will snap back and could cause personal injury.

8. Spring replacement



WARNING

- Never remove the spring from the spring case.

 If removed the spring will expend explosively and asset.
- If removed, the spring will expand explosively and cause personal injury.
- Replace the spring assembly as a whole.

Referring to the disassembly drawing (on pages 23, 25 and 27), disassemble the balancer using the following procedure.

- 1) A.When the spring has broken
 - ●Single spring type: ELF-15, 22 and ELF-30
 Remove the tool/device from bottom Hook (33).



CAUTION

ELF-40, 50, 60 and ELF-70 employ two spring, therefore some spring tension remains in case of one spring breakage.

Be careful when disassembling.

Lock Drum according to Chapter 4–2 "Drum lock operation", and remove the tool/device from bottom Hook (33).

B.When the spring has not broken.

Lift then remove the tool/device from bottom Hook (33) after Wire rope (31) is fully retracted into Drum (18).

- 2) Remove the balancer from the fitting and place on the floor.
- 3) Remove Gauge (45) .
- 4) Remove Retaining ring (44) from Worm (43). Release all spring tension by turning Worm counterclockwise until Worm can almost be removed. If the drum lock is activated. Check there is no spring tension remaining, and then release the drum lock. CAUTION: Check the spring tension by pulling Wire rope (31).
- 5) Turn Worm (43) further and remove it.
- 6) Loosen Set Screws (29), and remove all Pins (28).
- 7) Remove Plug (41) and pull out an old Wire rope (31) from, Drum (18). If the tip of wire rope stuck in drum, push the tip of wire rope into the drum using a driver or etc, and try again. (see. Fig. 7)
- 8) Remove Cover (26), and remove Spring case (19), Drum (18), and Spindle (15) together from the Casing (1).
- 9) Remove Spindle (15).
- 10) Remove Hex, head bolts (24) and remove Spring case (19) from Drum (18) .



WARNING

Never remove Cover (23) from spring case (19) .

If removed, the internal spring could pop out and cause personal injury.

- 11) Reassemble in reverse order.
 - Pin (28) should be installed after adjusting the spring tension as instructed below.
- Wind the Spring by turning Worm (43) clockwise.

NOTE: While turning Worm, Wire rope (31) will be retracted into Drum (18). Pay attention Wire rope does not slip out from the drum groove. After Wire rope is fully retracted, turn Worm by the number of turns shown in Table 1.

Table 1

Model	Middle capacity	Worm turns up to middle capacity	Model	Middle capacity	Worm turns up to middle capacity
ELF 15	12kg	Approx. 140	ELF - 40	35kg	Approx. 120
ELF - 22	18kg	Approx. 120	ELF - 50	45kg	Approx. 110
ELF-30	26kg	Approx. 130	ELF-60	55kg	Approx. 135
3-50-11-11-11			ELF - 70	65kg	Approx. 120

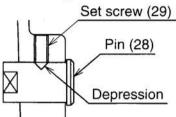
- 13) Attach a weight, which has been confirmed that the weight is within the capacity range, to bottom Hook (33) and adjust the spring tension.
- 14) Attach and adjust Gauge (45).
- 15) Attach Pins (28) to casing (1) (see Fig. 8) .
 Fasten depressions in Pins with Set screws (29) .



WARNING

If installation of Pins (28) is incorrect or missed, the fall prevention device will not operate in case of spring breakage, causing personal injury or damage to equipment.

Fig. 8



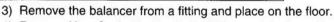
9. Wire guide replacement

- Pull out the wire rope to the position which wire guide (50), (51) replacement is available and lock drum with drum lock device (refer to Fig. 9)
 Refer to Chapter 4–2 "Drum lock operation".
- After confirming that drum lock is surely on work, moving a suspended tool up and down, take off a suspended tool.



WARNING

Never remove the suspended tool/device before checking Drum (18) is locked securely. If Drum (18) is not locked securely, the drum lock could be released allowing Wire rope (31) to snap back or Drum to rotate suddenly, possibly causing personal injury.



- 4) Remove Hex. Socket button bolts (53), are old wire guide (50), (51) from casing. Since a spacer (52) also separates at this time, please do not lose.
- 5) A spacer (52) is incorporated and attached to a new wire guide (50), (51) .

NOTE: Hex. Socket button bolts (53) are sealed against looseness.

Always replace old ones with new ones when they are removed.

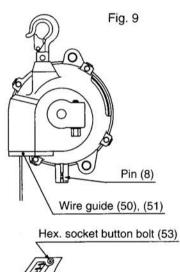
Tighten the hex. Socket bolts with torque of 2.8~3.0N·m {0.28~0.3kgf·m}.

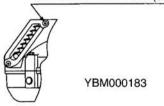
- 6) Mount the balancer on a fitting. Refer to Chapter 3-1 "Balancer Installation".
- 7) Attach the tool/device to bottom Hook, and release the drum lock.



WARNING

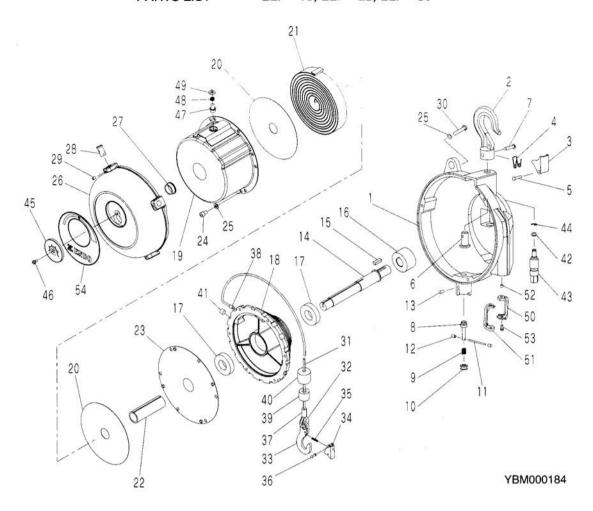
Never release the drum lock before attaching the tool/device. If released, Wire rope will snap back and could cause personal injury.





PARTS LIST

ELF-15, ELF-22, ELF-30



照合番号	部品番号	如日夕孙	個数	t∕ Qua	ntity	Description
Ref. No.	Part No.	部品名称	ELF-15	ELF-22	ELF-30	Description
-	LBP001364	ケース部1式	1	1	1	Casing assembly
1	P2B100155b	ーケース	1	1	1	-Casing
-	LBP000215	- フック1式	1	1	1	-Hook complete
2		ーーフック	1	1	1	Hook
	LBP000216	外レ止メ1式	1	1	1	Latch set
3		外レ止メ	1	1	1	Latch
4		スプリング	1	1	1	Spring
5	_	丸リベット	1	1	1	Rivet
6	_	ーーシャフト	. 1	1	1	Shaft
7		丸リベット	1	1	1	Rivet
-	LBP001366	- ドラムロック部1式	1	1	1	-Drum lock assembly
8	-	ピン	1	1	1	Pin
9	-	スプリング	1	1	1	Spring
10	_	ーーカラー	1	1	1	Collar
11		スプリングピン	1	1	1	Spring pin
12	P2B400359a	キャップ	2	2	2	Cap
13	P2B400041a	六角穴付止ネジ	1 1	1	1	Set screw
14	P2B300052	スピンドル	1		-	Spindle
14	P2B300053	スピンドル	-	1	1	Spindle
15	P2B400164	1+-	1	1	ĺ	Key
16	P2B300051	ウォームホイール	1	1	1	Worm wheel
17	KA60103040	ボールベアリング	2	2	2	Ball bearing
18	P2B100006	ドラム	1 1	1	1	Drum

照合番号	部品番号	\$7 FL 64 \$4.	個数	(Qua	ntity	D
Ref. No.	Part No.	部品名称	ELF-15	ELF-22	ELF-30	Description
-	LBP000607	スプリング部1式	1		_	Spring assembly
_	LBP000608	スプリング部1式	-	ī	-	Spring assembly
	LBP000609	スプリング部1式	_	-	1	Spring assembly
19		ーフプリングケーフ	1	ľ	1	-Spring case
20		- スプリングケース - プレート	2	2	2	-Plate
21		- スプリング			- 4	Coring
21		- 47927	1		-	-Spring
21		ースプリング		1		-Spring
21		- スプリング - ブッシュ	-	-	1	-Spring
22	_	ーフッシュ	1	1	1	-Bushing
	LBP000225	- 安全ピン1式	1	1	1	Safety pin set
47		安全ピン	1	1	1	–Safety pin
48	<u>-</u>	ーースプリング	1	1	1	Safety pin Spring
49	_	スクリュー	1	1	1	Screw
23	_	ーカバー	1	1	-1	-Cover
24	KA00910610	六角穴付ボルト	6	6	6	Cap screw
25	KA31120600	バネ座金	10	10	10	Spring washer
_	LBP001367	カバー部1式	1	_		Cover assembly
-	LBP001368	カバー部1式		- 1	1	Cover assembly
	LBP001308	- カバー1式	1	_		-Cover complete
_	LBP001371	- カバー1式	-	1	1	-Cover complete
	LDF001372	ーーカバー	1	1		Cover
26		///		-	1	
27		ーーブッシュ	1		-	Bushing
27		ブッシュ		1	1	Bushing
28	P2B400045	-ピン	4	4	4	-Pin
29	P2B400042a	- 六角穴付止ネジ	4	4	4	-Set screw
30	KA00120642	六角ボルト	4	4	4	Hex. head bolt
_	LBP000223a	ワイヤロープ1式	1	1	1	Wire rope assembly
31	_	- ワイヤロープ	1	1	1	-Wire rope
32	-	ーシンプル	1	1	1	-Thimble
_	LBP000008	-フック1式	1	Î	1	-Hook complete
33		フック	Î	1	1	Hook
	LBP000224	外レ止メ1式	1	1	î	Latch set
34	LDI 000224	外レ止メ	1	1	1	Latch
35	<u>-</u>	スプリング	+-1	1	1	Spring
		丸リベット	1 1	1	1	Rivet
36		ニーー丸りベット	++-	1	1	
37	-	-ロック管	+1	1	1	-Lock tube
38		-ロック管	1	1	1	-Lock tube
39	P2B400151a	ーカラー	1	1	1	-Collar
40	P2B400148	-緩衝ゴム	1	1	1	-Buffer
41	P2B400179	プラグ	1	1.	1	Plug
42	P2B400163	ワッシャ	1	1	1	Washer
43	P2B300063b	ウォーム	1	1	1	Worm
44	KA40310060	E形止メ輪	1	1	1	Retaining ring
45	P2B300066a	ゲージ	Î		-	Gauge
45	P2B300067	ゲージ		1	-	Gauge
45	P2B300068	ゲージ ゲージ		_	1	Gauge
46	P2B400407a	スクリュー	1	1	i	Screw
-10	LBP001375	ワイヤガイド1式	1	1	1	Wire guide set
50	LDF 00 13/3	- ワイヤガイド	1	1 1	1	-Wire guide
		- フィイルイト		1		- write guide
51	D0D404050	- ワイヤガイド	1 1	1	1	-Wire guide
52	P2B401352	-スペーサ	2	2	2	-Spacer
53	P2B401213b	- 六角穴付ボタンボルト	2	2	2	 Hex.socket button bolt
54	P2B300989	ネームプレート	1	-		Name plate
54	P2B300990	ネームプレート		1		Name plate
	P2B300991	ネームプレート			1	Name plate
54						
	1 23000001					2

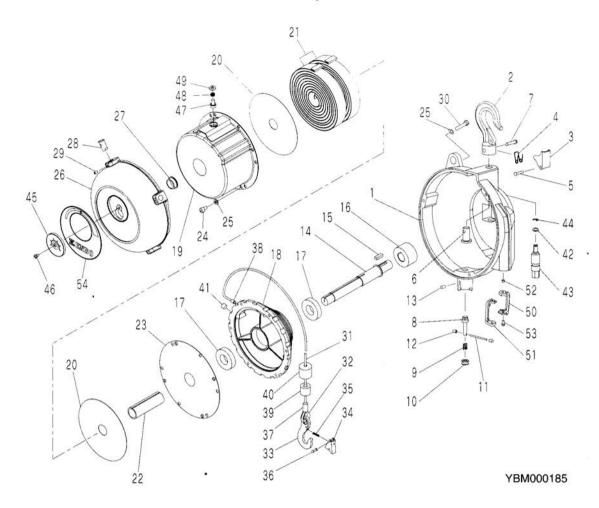
NOTE) When placing an order, clearly specity the product model, part number and description.

Parts without a part number cannot be supplied individually.

Please purchase a set or complete unit.

PARTS LIST

ELF-40, ELF-50



照合番号	部品番号	部品名称	個数/(Qu'antity	Description
Ref. No.	Part No.	司司司司司司司司司司司司司司司司司司司司司司司司司司司司司司司司司司司司司司司	ELF-40	ELF-50	Description
	LBP001365	ケース部1式	1	1	Casing assembly
1	P2B100156a	ーケース	1	1	-Casing
-	LBP000215	- フック1式	1	1	Hook complete
2	_	ーーフック	1	1	Hook
-	LBP000216	外レ止メ1式	1	1	Latch set
3	_	外レ止メ	1	1	Latch
4	_	ーーースプリング	1	1	Spring
5	_	丸リベット	1	1	Rivet
6	_	ーーシャフト	1	1	Shaft
7	<u> </u>	丸リベット	1	1	Rivet
-	LBP001366	- ドラムロック部1式	1	1	Drum lock assembly
8		ピン	1	1	Pin
9	_	スプリング	1	1	Spring
10	_	ーーカラー	1	1	Collar
11	-	スプリングピン	1	1	Spring pin
12	P2B400359a	キャップ	2	2	Cap
13	P2B400041a	六角穴付止ネジ	1	1	Set screw
14	P2B300287	スピンドル	1	1	Spindle
15	P2B400482	+-	1	1	Key
16	P2B300289	ウォームホイール	1	1	Worm wheel
17	KA60103050	ボールベアリング	2	2	Ball bearing
18	P2B100053	ドラム	1	1	Drum

照合番号	部品番号	個数 Quantity	個数 Quantity		Description
Ref. No.	Part No.	部品名称		ELF-50	Description
-	LBP000610	スプリング部1式	1	-	Spring assembly
	LBP000611	スプリング部1式		1	Spring assembly
19		- スプリングケース	1	1	-Spring case
20		ープレート	2 .	2	-Plate
21	-	ースプリング	2		-Spring
21	_	- スプリング		2	-Spring
22		ーブッシュ	1	ī	-Bushing
- 1	LBP000272	- 安全ピン1さ	1	i	-Safety pin set
47	_	安全ピン		Î.	Safety pin
48	_	スプリング	1	î	Spring
49		ーースクリュー	i	î	Screw
23		ーカバー	i	1	-Cover
24	KA00910610	六角穴付ボルト	6	6	Cap screw
25	KA31120600	バネ座金	10	10	Spring washer
	LBP001369	カバー部1式	10	1	Cover assembly
	LBP001373	- カバー1式	1	1	-Cover complete
26		ーーカバー	1 1	1	Cover
27		ーーブッシュ	1	1	Bushing
28	P2B400045	ーピン	4	4	Busning Pin
29	P2B400043	一六角穴付止ネジ			
30		六角ボルト	4	4	-Set screw
	KA00120644	ハ用ホルト	4	4	Hex. head bolt
31	LBP000223a	ワイヤロープ1式	1	1	Wire rope assembly
31		- ワイヤロープ	1	1	-Wire rope
32	73 -1 4	ーシンプル	1	1	-Thimble
-	LBP000008	- フック1式	1	1	-Hook complete
33		ーーフック	1	1	Hook
	LBP000224	外レ止メ1式	1	1	Latch set
34		外レ止メ	11	1	Latch
35		スプリング	1	1	Spring
36		丸リベット	1	1	Rivet
37	<u>-</u>	- ロック管	1	1	-Lock tube
38		- ロック管	1	1	-Lock tube
39	P2B400151a	ーカラー	1	1	-Collar
40	P2B400148	- 緩衝ゴム	1	1	-Buffer
41	P2B400179	プラグ	1 î	î	Plug
42	P2B400163	ワッシャ	î	1	Washer
43	P2B300063b	ウォーム	î	1	Worm
44	KA40310060	E形止メ輪	1	1	Retaining ring
45	P2B300280	ゲージ	1		Gauge
45	P2B300281	ゲージ	1	1	Gauge
46	P2B400407a	スクリュー	1	1	Screw
-	LBP001375	ワイヤガイド1式	1	1	
50		- ワイヤガイド	1 1	1	Wire guide set
51		- 71 T W 1 F	1	1	-Wire guide
51	DOD 401050	- ワイヤガイド	1	1	-Wire guide
52	P2B401352	- スペーサ	2	2 2	-Spacer
53	P2B401213b	- 六角穴付ボタンボルト	2		 Hex.socket button bolt
54	P2B300992	ネームプレート	1	- 1	Name plate
54	P2B301014	ネームプレート	-	1	Name plate
		1000			1,500

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