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Aero-Motive Company

A Woodhead Industries, Inc. Subsidiary

Important Safety Information

Please read this manual carefully and follow its instructions. Improper use or failure to follow these instructions could result in serious injury, death or property damage. Operators should be instructed in the safe and proper use and maintenance of this product. Keep this manual for future reference. All reference numbers are located on page 5.

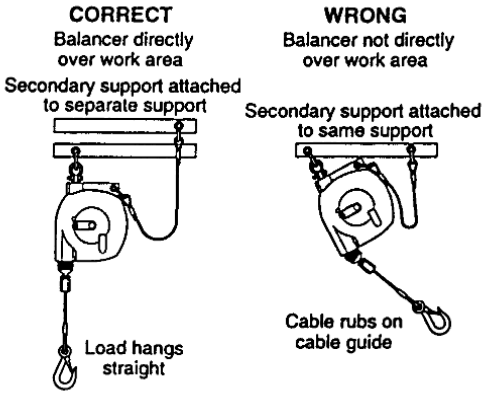
The following safety precautions call attention to potentially dangerous conditions.

DANGER:	Immediate hazards which WILL result in severe personal injury or death.

WARNING:	Hazards or unsafe practices which COULD result in severe personal injury or death.

CAUTION:	Hazards or unsafe practices which MAY result in minor personal injury or product or property damage.

I. Installation



A. Main Support

1. Install the main support device directly over work area. (See illustration)

WARNING:	To prevent personal injury, death or property damage, main support device must have break strength exceeding six times weight of load.

2. Attach balancer to main support, installed in step 1, with shackle (27) and shackle pin (26).
3. Secure shackle pin (26) with nut (28) and cotter pin (29).

CAUTION:	To avoid nut from turning on shackle pin, use new cotter pin when re-assembling.

B. Secondary Support

WARNING:	To prevent personal injury, death or property damage, install secondary support chain or cable.

NOTE: Aero-Motive offers a secondary support cable as an accessory item. (See item 45 (not shown) under Replacement Parts)

1. Attach a secondary support (45) to the clevis pin (3) between the housing holes on the side of the balancer housing.
2. Secure clevis pin (6) with washer (23) and cotter pin (24).

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⚠	**WARNING:**	To prevent personal injury, death or property damage, do not attach secondary support to same structure that supports balancer.

3. Attach the other end of the secondary support (45) to a separate support so that the balancer will drop no more than twelve inches if the main support fails.

II. Adjustment

A. Tool Attachment

1. Lift the complete tool (including any hose, cable, fittings and attachments) up to the tool clip (40).

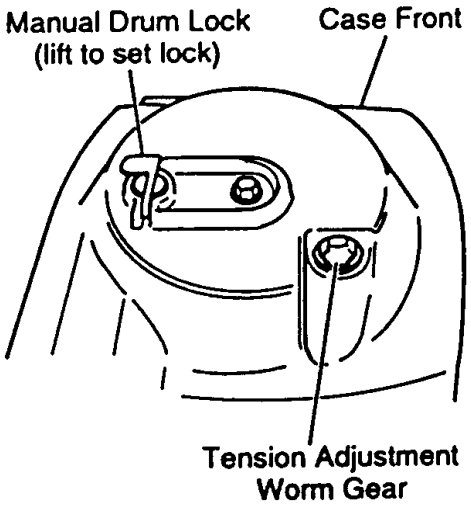
⚠	**CAUTION:**	Do not pull cable down to tool. Personal injury, product damage or property damage could occur when tool clip is released without tool attached.

NOTE: After the tool is attached, make sure the retaining latch on tool clip (40) has snapped back to the closed position.

B. Spring Tension Adjustment

Please observe the following before making any spring tension adjustments:

- The tool and all accessories are attached to the tool clip.
- The tool will lower if the weight of the tool exceeds the existing tension adjustment of the balancer mainspring.
- The autostop may prevent drum from rotating when unit is under-tensioned. (See Automatic Lock)
- Tension adjustment worm gear must be turned twenty times to equal one turn on the spring.



To increase spring tension:

1. Turn the wormgear (37) in a clockwise direction (indicated by the "+" symbol on the case).
2. Repeat this process until desired tension is achieved.

NOTE: Do not over-tension balancer mainspring. This will reduce cable travel and spring life.

To reduce spring tension:

1. Turn the wormgear (37) in a counter-clockwise direction (indicated by the "-" symbol on the case).
2. Repeat this process until desired tension is achieved.

NOTE: If the drum locks up (cable will not pull out) when reducing spring tension, increase tension until the automatic lock disengages. (See Automatic Lock)

C. Cable Stop Adjustment

NOTE: Make all cable stop adjustments *after* the tool and accessories have been attached to the tool clip and *after* adjusting the spring tension. (See Spring Tension Adjustment)

1. Loosen hex on cable stop and dislodge lead inserts clamping cable.
2. Slide cable stop up or down on cable so that tool is positioned at desired working height.
3. Reinsert lead inserts into cable stop thimble.
4. Tighten loosened hardware to hold cable stop at set position.

NOTE: Moving the cable stop and bumper closer to the cable guide (38) will shorten the active travel of the cable. If additional cable is required, extension cable assemblies are offered as an accessory.

D. Automatic Lock

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- If tension is reduced to below the rated range, the automatic lock will engage and prevent the cable drum from turning. Increase the tension until the automatic lock disengages.
- If a spring should break, the automatic lock will engage to prevent the drum from rotating. The lock will disengage when a new spring assembly (14) is installed and tension is applied. (See Spring Replacement)

III. Service

A. Tool Replacement

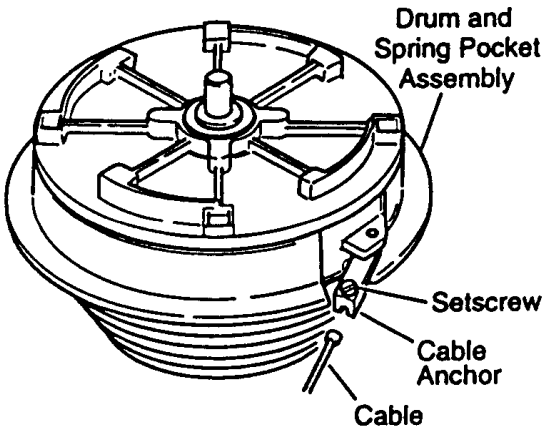
1. Pull tool down to convenient height and lock drum by lifting manual drum lock lever (31).

⚠	**WARNING:**	To prevent serious injury, death or property damage, do not release manual drum lock lever (31) without installing load on tool clip. Cable and tool clip will retract rapidly.

2. Install new tool and unlock drum by pulling manual drum lock lever (31) and folding it back to its original position.

B. Cable Replacement

1. Pull tool down to full payout, exposing cable anchor (41) in housing window.
2. Lock drum by lifting manual drum lock lever (31) allowing drum lock shaft (34) to engage drum.



⚠	**WARNING:**	To prevent serious injury, death or property damage, do not release drum lock lever (31) without installing load on tool clip. Cable and tool clip will retract rapidly.

3. Remove tool from tool clip.
4. Swing cable anchor (41) out into housing window.
5. Loosen setscrew (42) in cable anchor.
6. Remove cable by pulling it through cable guide (38).
7. Install new cable (40) by feeding it in through cable guide (38) and out housing window.
8. Insert swaged end on cable into cable anchor (41).
9. Tighten setscrew (42).
10. Pull down on cable (40) until cable anchor (41) swings back into position.
11. Install tool onto tool clip.
12. Unlock drum by pulling manual drum lock lever (31) and folding it back to its original position.

⚠	**CAUTION:**	To help prevent personal injury or property damage, do not adjust mainspring tension until tool and attachments are suspended from balancer.

C. Spring Assembly Replacement

1. Remove balancer from service.
2. Remove *all* spring tension from balancer by turning wormgear (37) counter-clockwise.
3. Remove four screws (1 & 2) in cover, one screw (39) in cable guide, and rear case (4).
4. Remove four screws (13) and remove mainspring assembly (14).

⚠	**WARNING:**	To prevent serious injury, death or property damage, never remove spring from drum and spring assembly. Replacement springs are sealed for safety.

NOTE: Auto stop (18) must be held out to release mainspring assembly (14).

5. Install replacement mainspring (7) in drum (11) by aligning auto-stop windows.
6. Reassemble screws and rear case in reverse order.

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NOTE: Cable must be fully wound onto drum before attaching rear case.

D. Parts Replacement

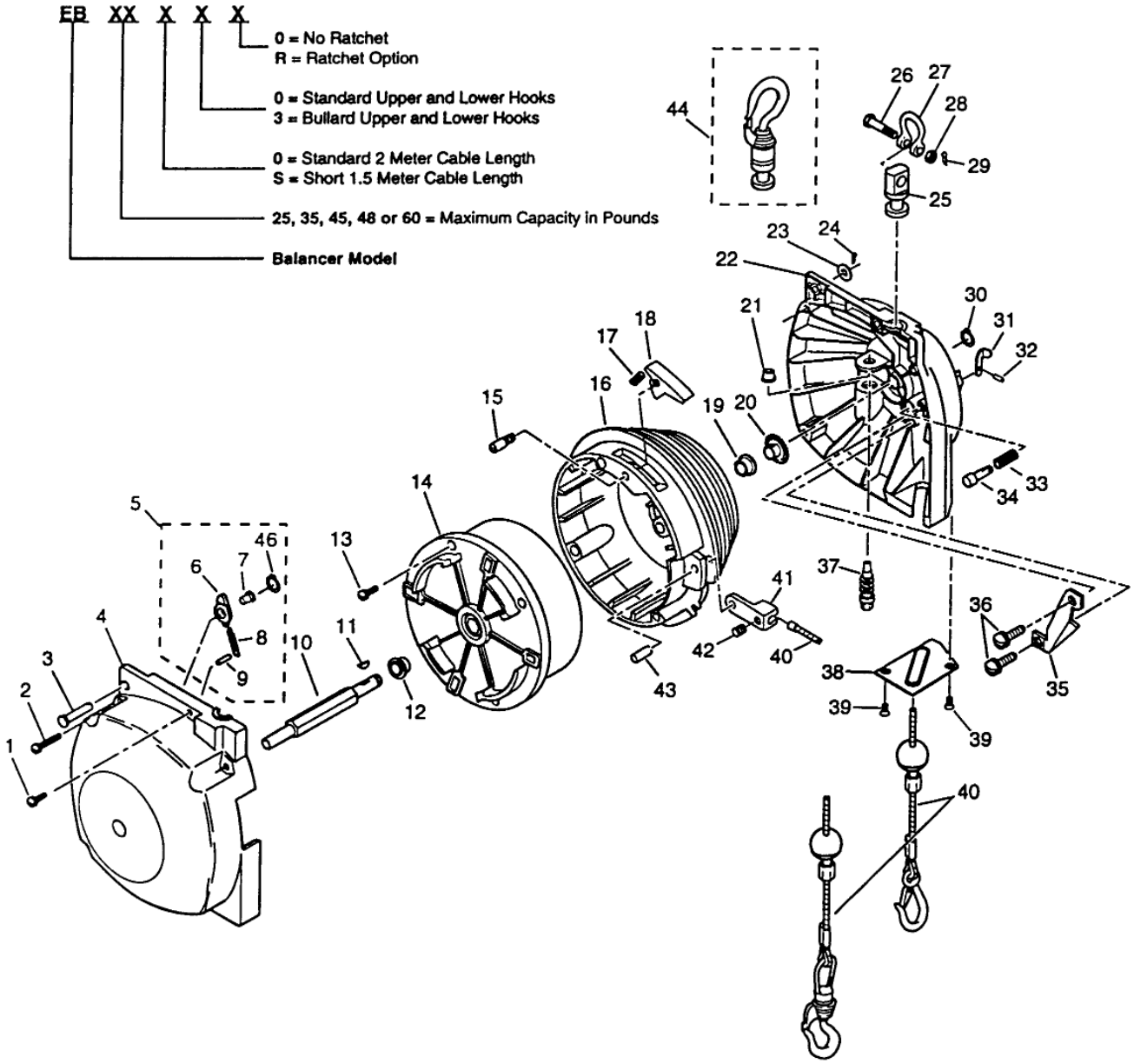
All parts shown on parts list are replaceable in the field without special tools.

NOTE: When ordering replacement parts, always include the balancer model number and serial number. Always insist upon genuine Aero-Motive replacement parts.

E. Maintenance Inspection

The balancer is designed to require little maintenance. Periodically check cable (40), tool clip (40), and shackle (25-29 or 44) for wear. Replace all worn parts immediately. The balancer is lubricated at the factory; no additional lubrication is required.

IV. Replacement Parts



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Reference Number	Part Number	Qty.	Description
1	C03500253	1	M6 x 16 Pan head screw
2	C03500258	3	M6 x 30 Pan head screw
3	01235P0008	1	Clevis pin
4	M04350012	1	Case rear
5	xxxxxxxxx	1	Ratchet option. (See Reference Number 46 below)
6	M08710006	1	Ratchet lever
7	M23560034	1	Ratchet shaft
8	M15120003	1	Extension spring
9	C00400201	1	Groove pin
10	M26830003	1	Mainshaft
11	00751P0022	1	Woodruff key
12	00376P0005	1	Bearing
13	C03500253	4	M6 x 16 Pan head
14	H41220111	1	Spring assembly (EB25 Red)
	H41220112	1	Spring assembly (EB35 White)
	H41220113	1	Spring assembly (EB45 & 48 Blue)
	H41220114	1	Spring assembly (EB60 Orange)
15	M25360212	1	Auto-stop shaft
16	M04840002	1	Drum
17	C60400128	1	Compression spring
18	M04600001	1	Auto-stop
19	00376P0005	1	Bearing
20	1109800001	1	Mainshaft gear
21	1106000000	1	Bearing
22	M04350011	1	Case front
23	00126P0050	1	Washer
24	00228P0011	1	Cotter pin
25	H16510016	1	Shackle shaft assembly
26	M28850024	1	Hex-head cap screw – drilled
27	01240P0007	1	Shackle body
28	00151P0070	1	Hex nut
29	00228P0012	1	Cotter pin
30	00576P0030	1	Retaining ring
31	3129400000	1	Lever, manual drum lock
32	00229P0010	1	Roll pin
33	3164300000	1	Spring, manual drum lock
34	3129500000	1	Shaft, manual drum lock
35	M65720002	1	Guide plate
36	C03500231	2	M5 x 12 Pan head
37	M16300006	1	Worm gear
38	M67310002	1	Cable guide
39	C03500251	2	M6 x 12 Pan head
40	H13120015	1	Cable assembly, standard 2.0 m
	H13120020	1	Cable assembly, short 1.5 m
	H13120016	1	Cable assembly, Bullard 2.0 m
	H13120021	1	Cable assembly, Bullard short 1.5 m
41	M70780009	1	Cable anchor
42	00053P0201	1	#10-24 Setscrew
43	C00400100	1	Groove pin
44	H16510013	1	Upper Bullard hook assembly w/Bullard cable assembly option
45	4963900000	1	Safety chain (not shown)
46	00580P0080	1	Snap ring for ratchet option (See Reference Number 5 above)

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