

型号：

Model

MSA 沃克曼救援速差自控器



警告

用户必须经过培训方可使用本产品。除本手册外，请为用户安排与其工作相适的用户安全培训计划。这些说明必须在使用产品前提供给用户，且应妥善保管，以方便用户随时参阅。用户必须阅读、理解（或经他人说明）并遵守本产品以及为配合本产品使用所提供的其他产品随附之全部说明、标签、标记和警告。未遵守上述警告可能导致严重的伤害甚至死亡。

MSA Workman Retractable Type Fall Arrester with Emergency Rescuer (RTFA-R)



WARNING

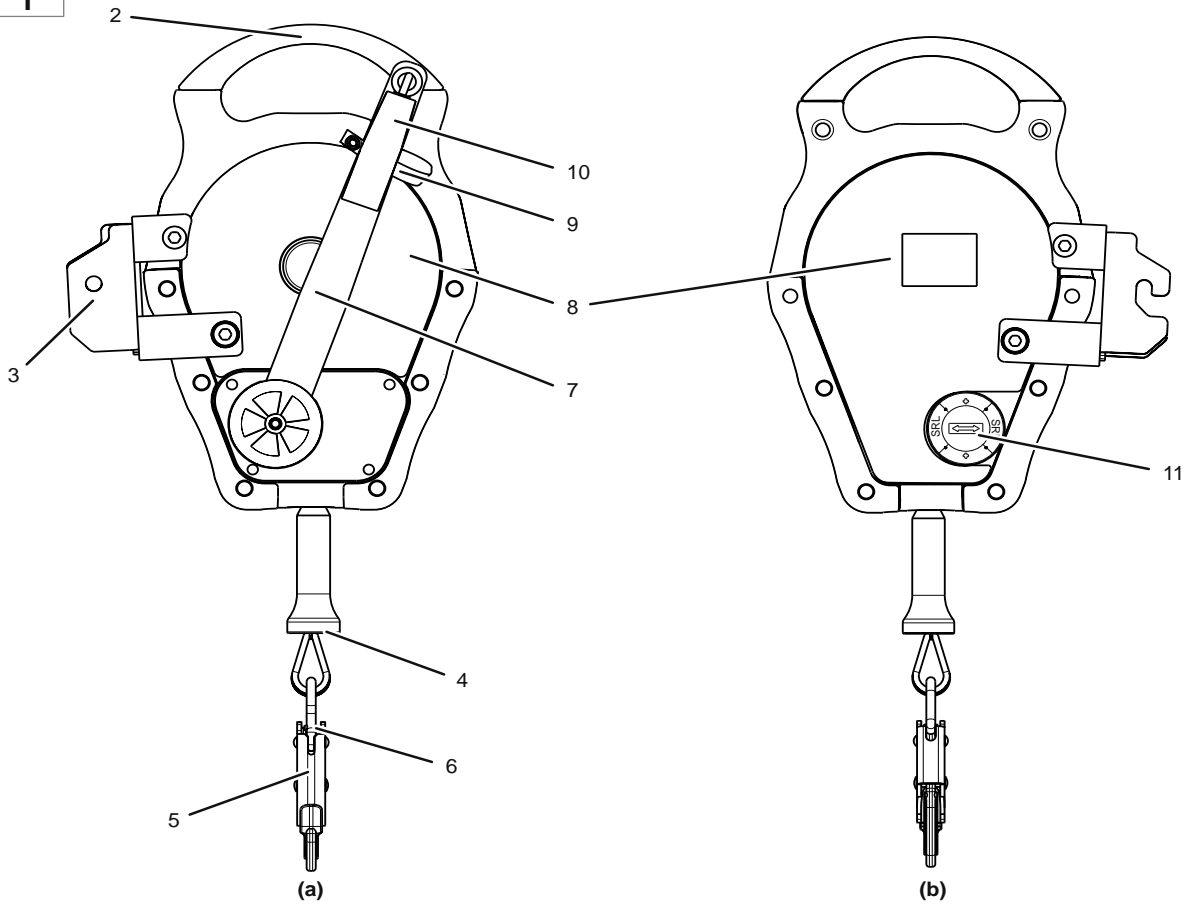
The user must be trained before using this product. Use this manual as part of a user safety training program that is appropriate for the user's occupation. These instructions must be provided to users before use of the product and retained for ready reference by the user. The user must read, understand (or have explained), and heed all instructions, labels, markings and warnings supplied with this product and with those products intended for use in association with it. FAILURE TO DO SO MAY RESULT IN SERIOUS INJURY OR DEATH.



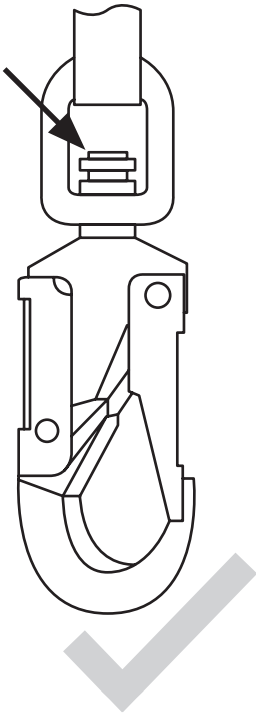
梅思安（中国）安全设备有限公司
地址：江苏省苏州市工业园区兴浦路瑞恩巷 8 号
电话：+86 0512 62898880
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售后热线：4006 090 888
公司网址：www.MSAsafety.com

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Phone: +86 0512 62898880
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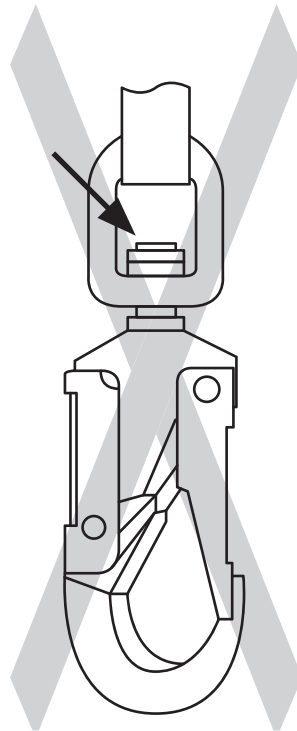
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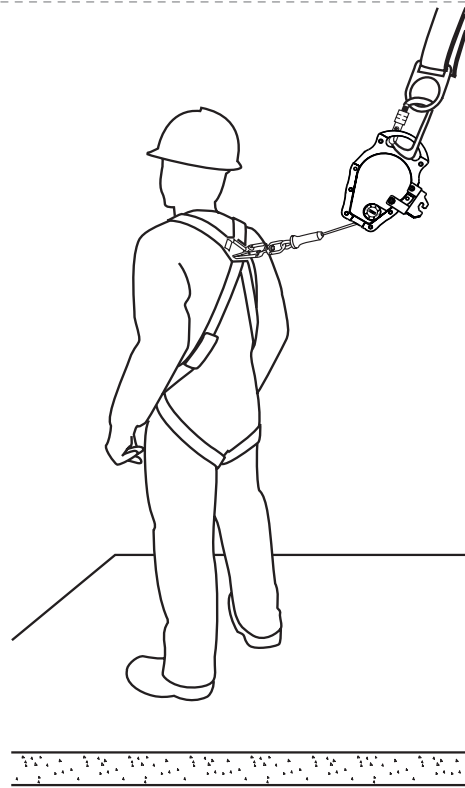
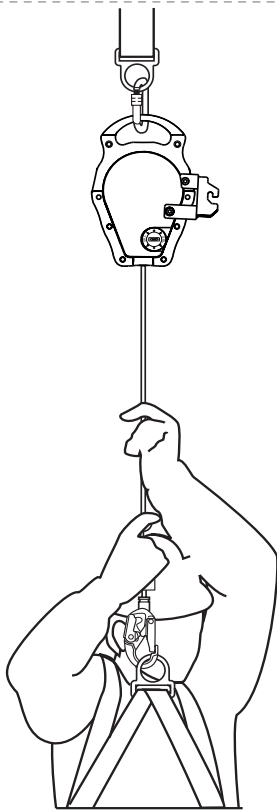
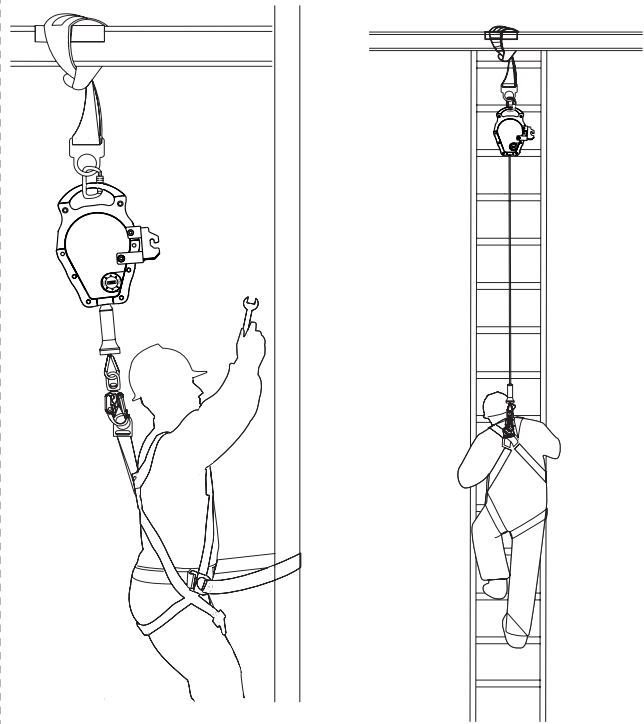
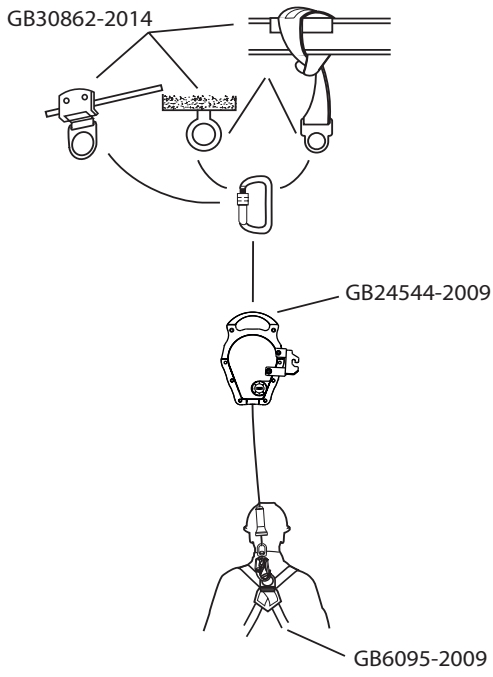
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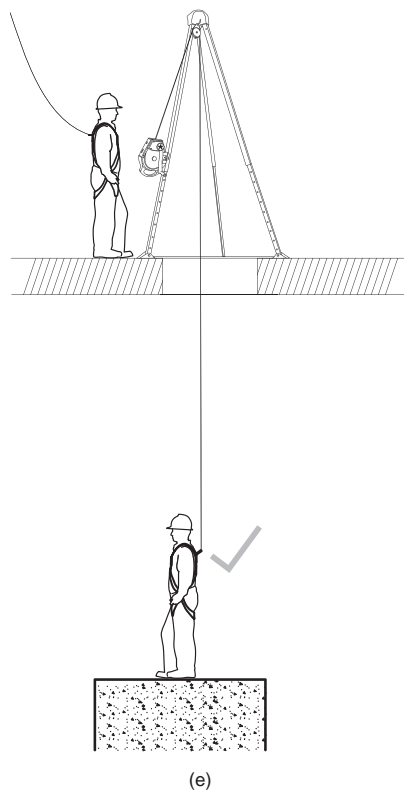
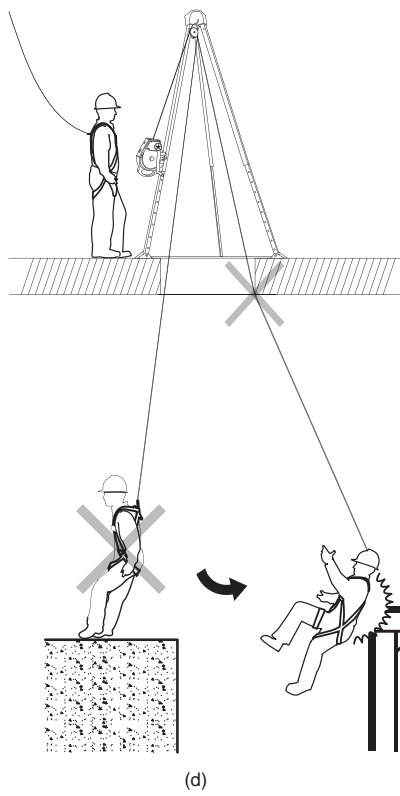
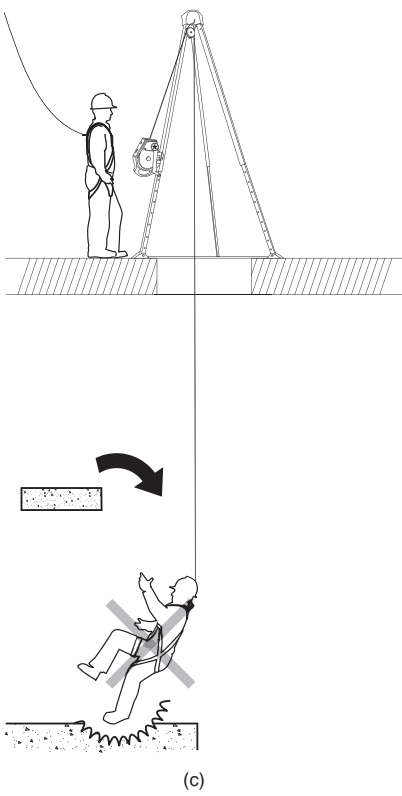
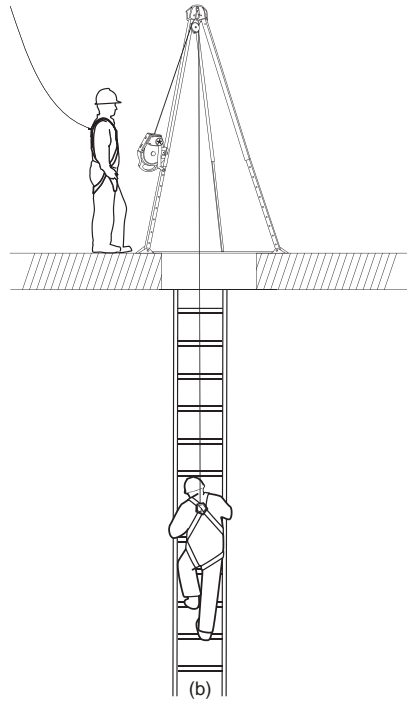
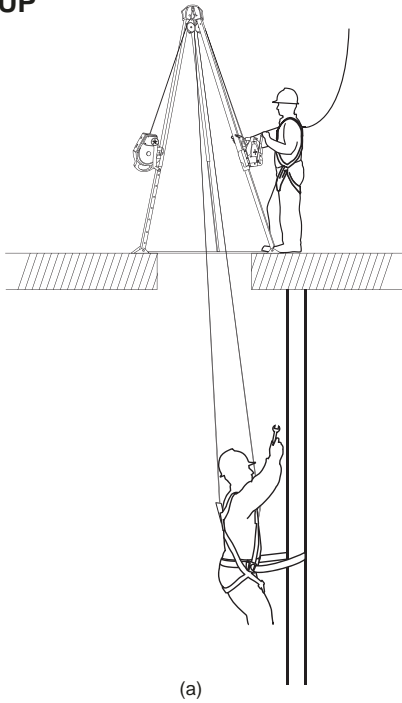
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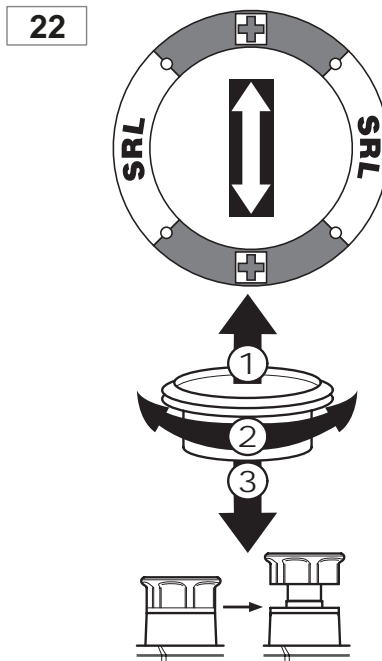
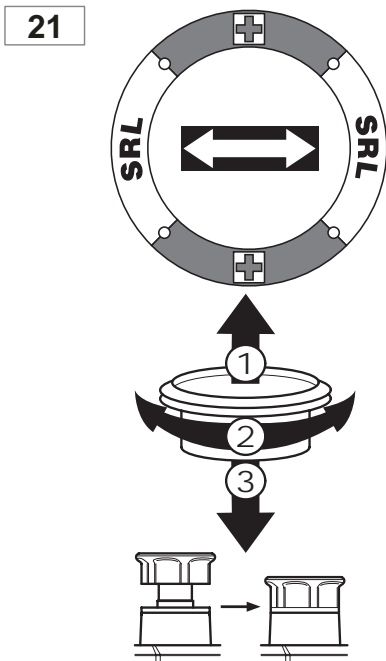
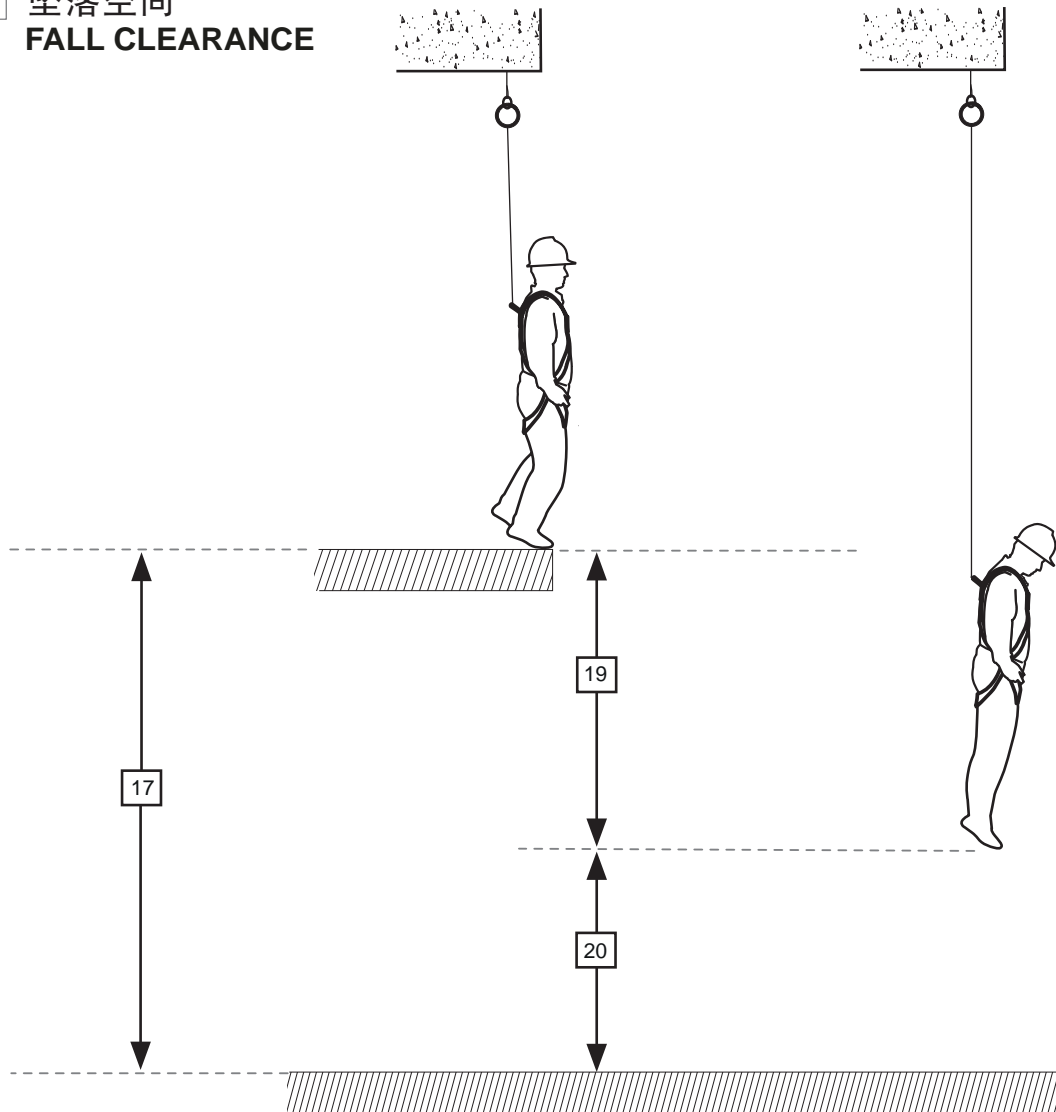
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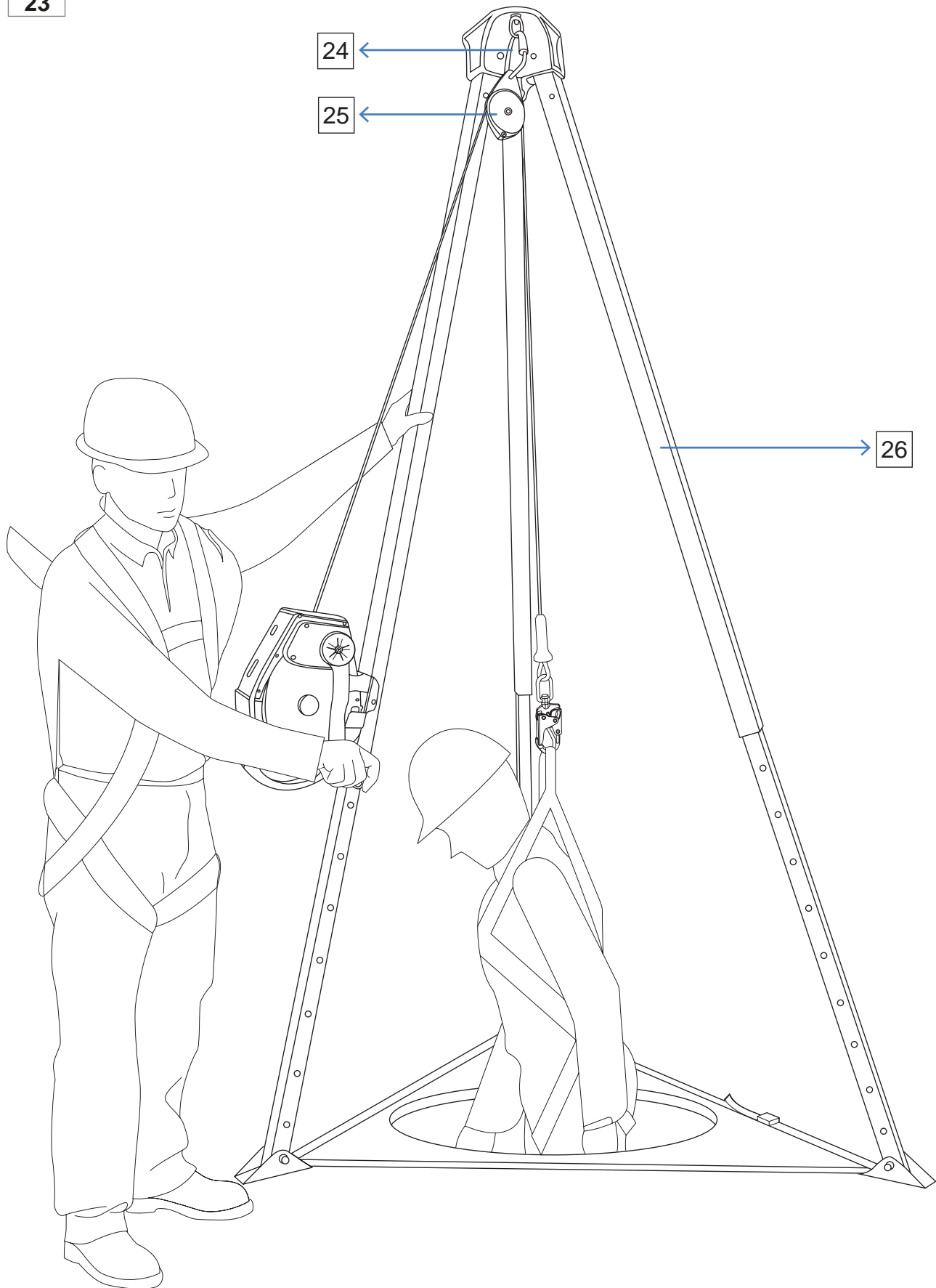


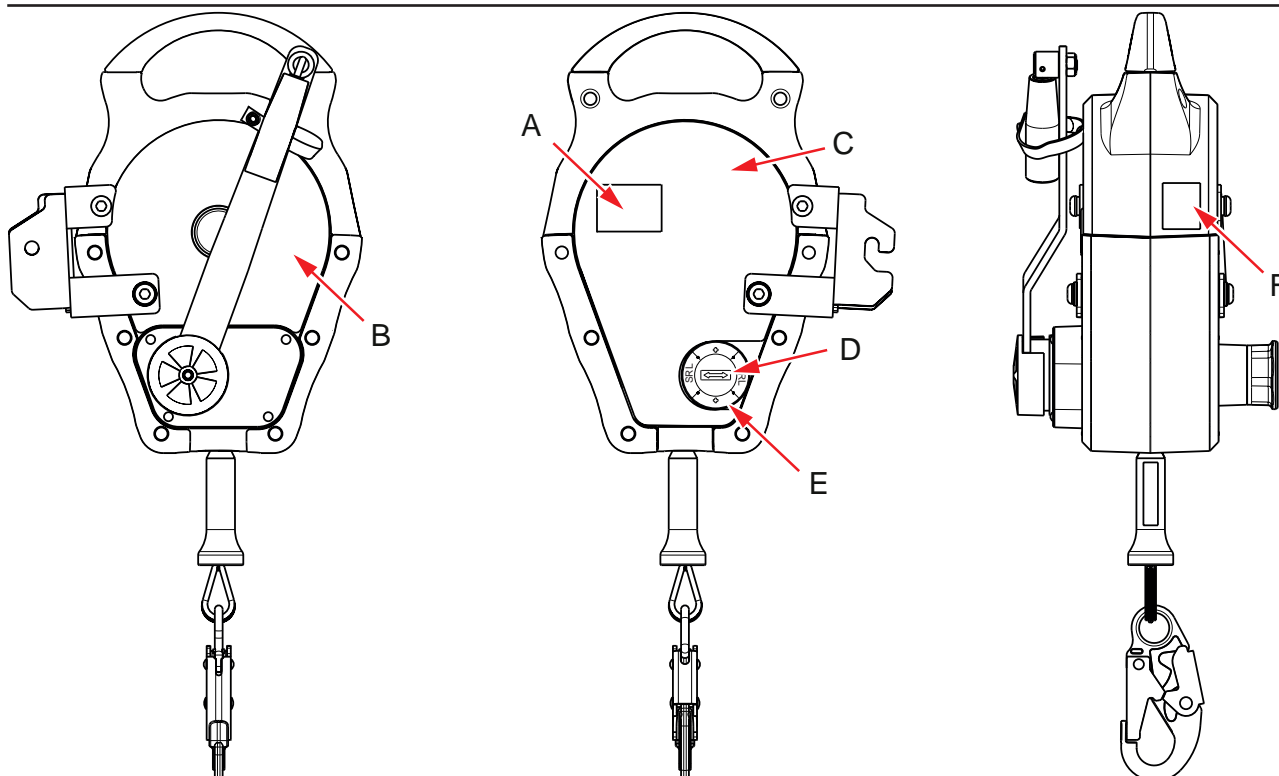
15 安装
SET UP



16 坠落空间
FALL CLEARANCE







A

沃克曼救援速差自控器
Workman Rescuer

料号 / Model P/N:

绳索材质 / Line Material:

绳索长度 / Line Length:

类别 / Class:

最大制动距离 / Max. Arrest Distance:

最大制动力 / Max. Arrest Force:

制造日期 / Date of Manufacture:

有效期 / Expiration Date:

序列号 / Serial Number:


符合标准 / Meet Standards:

1015 Rev.2 P/N:10159765

D



B




MSA
The Safety Company

INSPECTION:
User must inspect condition, proper operation, locking (fall arrest mode) and load indicator before each use. See figures to determine whether the load indicator is deployed. Separate competent person must formally inspect at least every twelve months. See user's manual for more details.


检查:
在每次使用前, 使用者必须检查设备状况、正确操作、锁定功能(防坠模式)和负载指示器。判断负载指示器是否打开, 详见下图。有资质的检查人员必须在每12个月内执行正式检查。详细内容见使用说明书。

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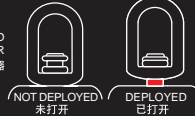


Raise first before lowering to unlock SRL
请在下降前先提升以解锁救援速差器


28



LOAD INDICATOR 负载指示器



NOT DEPLOYED 未打开 DEPLOYED 已打开



INSPECTION GRID 检查表

YEAR	1	2	3	4	5	6	7	8	9	10	11	12
一月	二月	三月	四月	五月	六月	七月	八月	九月	十月	十一月	十二月	
第一年												
第二年												
第三年												
第四年												
第五年												
第六年												
第七年												
第八年												
第九年												
第十年												
第十一年												
第十二年												

MARK GRID ON MONTH OF FIRST USE 首次使用在相应月份上打标记

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Product of China
中国制造

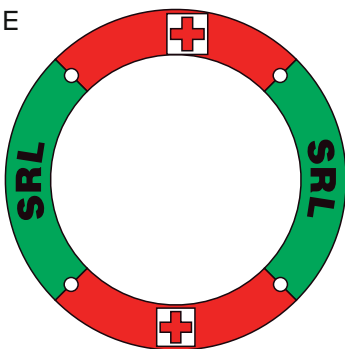
梅思安(中国)安全设备有限公司
地址: 中国江苏省苏州市工业园区
兴浦路瑞恩巷8号
邮编: 215126
网址: www.MSAsafety.com

DO NOT REMOVE LABELS
请勿撕去该标签

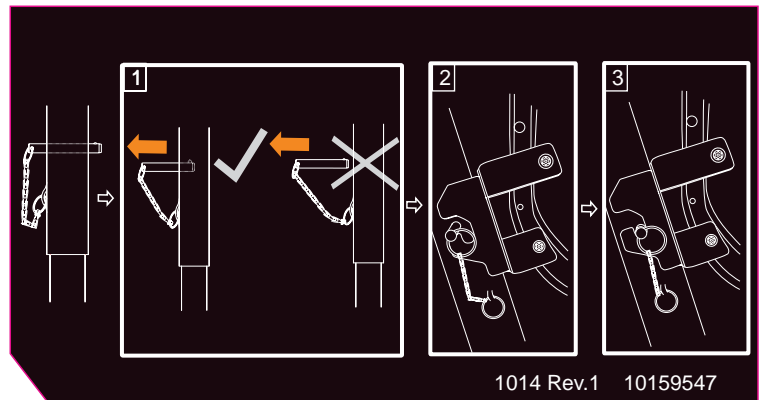
31

1015 Rev.1 10159559

E



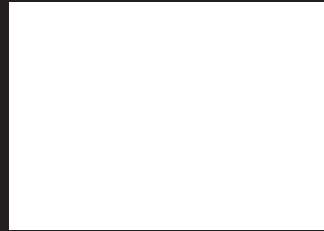
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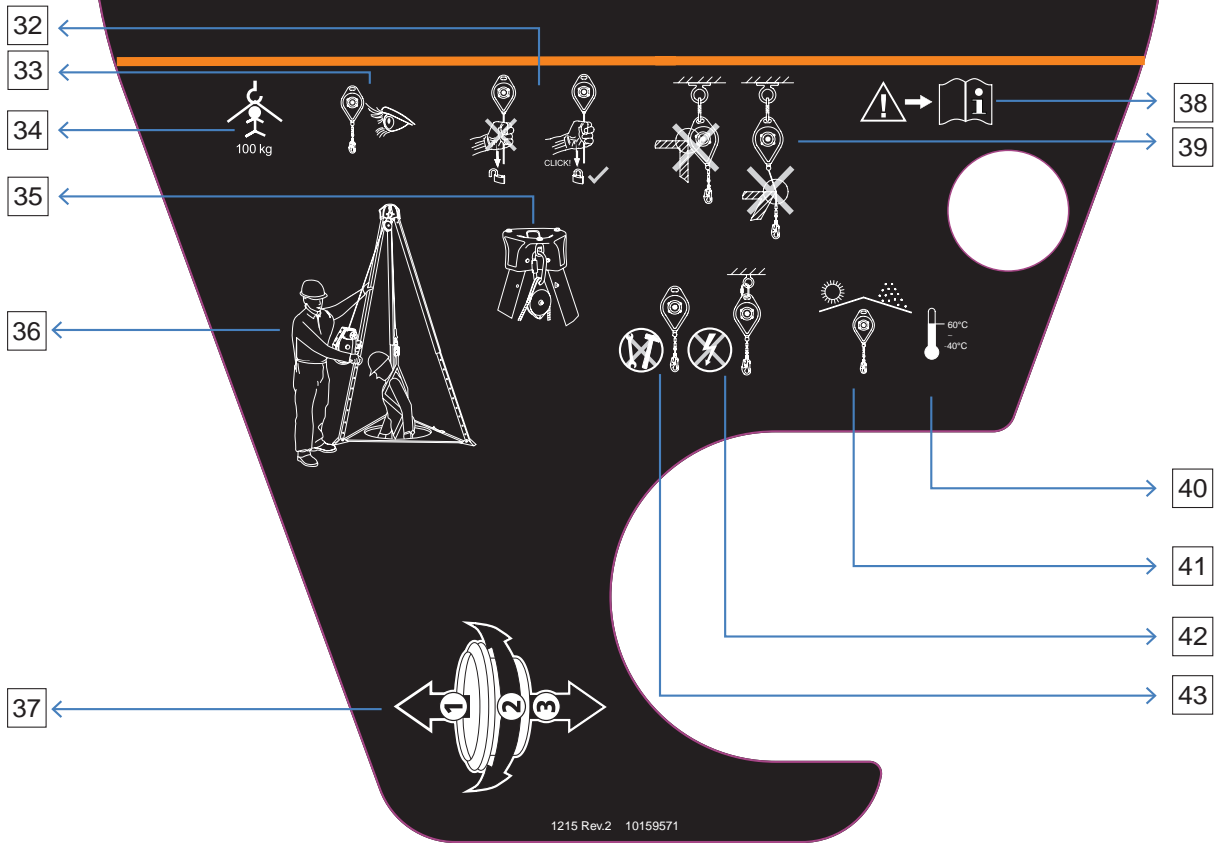
C



WORKMAN RESCUER
沃克曼救援速差自控器



Inspect before and after each use and remove from use if any damage, defect, or malfunction is found.
每次使用前后进行检查，如果发现任何损坏、缺陷或故障，请立即移除并停止使用。



1215 Rev.2 10159571

简体中文 (CN)

1. MSA 沃克曼救援速差自控器正面和背面视图
2. 提手和连接处
3. 三角架
4. 电子标签
5. 挂钩
6. 负载指示器
7. 摇臂
8. 外壳
9. 摇臂固定带
10. 折叠式摇柄
11. 快速启动救援机构转换开关
12. 指示器未打开
13. 指示器已打开
14. MSA 沃克曼救援速差自控器的使用
15. 安装
16. 坠落空间
17. 坠落空间
19. 制动距离
20. 安全余量
21. 防坠模式
22. 救援模式
23. MSA 沃克曼三角架和救援速差自控器
24. 连接锁
25. 滑轮
26. MSA 沃克曼三角架
27. 下降人员
28. 提升人员
29. 检查表
30. 扫描连接到 MSA 网站的 QR 代码
31. 请勿移除标签
32. 每次使用前确认锁止功能
33. 每次使用前请检查
34. 最大载人重量
35. 安装
36. 应用示范
37. 模式切换说明
38. 阅读手册
39. 避免锐利边缘
40. 最高温度和最低温度
41. 避免阳光直射，避免雨淋
42. 避免与电接触
43. 禁止现场维修

ENGLISH

1. MSA Workman Rescuer front and back view
2. Carrying Handle and Anchorage Connection Point
3. Tripod Mounting Bracket
4. RFID
5. Snaphook
6. Load Indicator
7. Crank Arm
8. Housing
9. Handle Holder
10. Foldable Holder
11. Switch for Quick Activating Retrieval Mechanism
12. Not deployed indicator
13. Deployed indicator
14. Using of the MSA Workman Rescuer
15. Set up
16. Fall Clearance
17. Fall Clearance
19. Arrest Distance
20. Safety Allowance
21. Fall Arrest Mode
22. Rescue Mode
23. MSA Workman Tripod and MSA Workman Rescuer
24. Carabiner
25. Pulley
26. MSA Workman Tripod
27. Lowering a personnel load
28. Raising a personnel load
29. Inspection grid
30. Scan QR code linking to MSA website
31. Don't remove labels
32. Ensure lock before each use
33. Inspect before each use
34. Personal Maximum Capacity
35. Installation
36. Application demonstration
37. Mode change instructions
38. Read manual
39. Avoid edges
40. Maximum and Minimum temperature
41. Avoid direct sunlight and rain
42. Avoid electricity
43. No field repairs allowed

简体中文 使用说明

1. 功能和应用：

沃克曼救援速差自控器符合 GB 24544-2009 标准。救援速差自控器是一种可收缩设备，设计用于人员防坠，也可用于在跌落发生时救援。在密闭的空间中，救援速差自控器可配合合适的 MSA 三脚架系统使用快速启动救援机构进行紧急疏散。救援速差自控器包括：一个挂钩；外壳；绳索（绳子）；三脚架；快速启动救援机构，和一个负载指示器（见图 1a 和 1b）。绳索材料可采用不锈钢缆绳或镀锌缆绳并且标记在产品标签 10159765（见图 A）。当其连接到全身式安全带的坠落制动配载点和一个恰当的锚点时，救援速差自控器是一套防坠系统的组成部分。请参阅安全带说明书查看经过认可的配载点。如果用户跌落，装置将自动在短距离内停止用户的下降，同时限制作用在用户身上的坠落制动力。救援速差自控器还为营救跌落用户提供一种紧急救援机构。

2. 培训：

购买救援速差自控器的客户负责确保产品用户熟悉相关使用说明，并安排安全检查员为其提供培训。用户应确保自己接受过该产品使用方面的充分培训，并确保对其运用方法了解透彻。

3. 救援计划：

用户必须制定救援计划并准备好用以实施救援计划的工具；救援计划必须将在所有可以预见的情况下迅速施以救援所需的设备和特殊培训考虑在内。救援过程中，应始终保持与被救人员间的直接或间接视觉接触或者以其他方式与之沟通。如果救援速差自控器用作救援系统的组成部分：将其固定在垂直位置或者连接到三脚架（见第 9.4 部分）；确保有足够的间隙操作手动曲柄；同时确保操作系统的救援人员有足够的空间和坠落保护。

4. 身体限制：

救援速差自控器仅供一名用户使用，且用户的重量（包括衣物、工具及其他携带物品）不得超过产品标签上标出的承重能力。如果用户有肌肉、骨骼问题或其他不良身体状况会降低其承受坠落制动冲击载荷或长期悬挂作业能力的，使用之前应咨询医生。孕妇和未成年人不得使用救援速差自控器。

5. 系统部件兼容性：

连接到此 MSA 救援速差自控器的所有组件（如：全身式安全带、滑轮、连接锁、挂钩等）必须相互兼容。MSA 救援速差自控器应与经 MSA 认证的部件和连接子系统配合使用。若将 MSA 救援速差自控器与未经 MSA 书面批准的其他厂商的产品一起使用，可能会对系统组件间的功能兼容性和整个系统的安全性、可靠性造成不利影响。相互连接的子系统必须适用于各类应用（如防坠、攀爬防护、救援与疏散）。请参阅制造商说明书提供的部件或连接子系统以确保产品的适用性，如有任何疑问或欲了解更多信息，请联系 MSA。

6. 锚点和锚点连接件：

个人防坠系统的锚点及其连接件必须至少能够承受各个方向施加（系统允许）的以下载荷：

a) 标准要求符合 GB 24544-2009 或 EN 795 或相当的 AS/NZS 1891.4

b) 5,000 lbs (22.2 kN) (未取得认证时)

当有超过一人的防坠系统连接到锚点时，上文 (a) 和 (b) 中阐述的锚点强度应乘以附加的防坠系统的数量

7. 系统使用计划：

△ 警告

严禁更改 MSA 救援速差自控器

只能用于防坠或救援一人。

严禁用于类似于谷物、沙子和液体等滑动物质崩塌导致的坠落制动。

请勿将救援速差自控器用做材料起重机。

误用可能导致死亡或严重受伤。

7.1 安装：

△ 警告

固定设备于锚点以防止设备坠落或者与坠落过程中或邻近的物体发生碰撞。摆动坠落会增加坠落距离，见图 15c，图 15d 固定设备时不要将绳索暴露在坠落发生过程中接触到尖锐边缘或磨损表面。未遵守上述警告可能导致严重的伤害甚至死亡。

对于垂直防坠应用，直接放置救援速差自控器在用户上方，见图 15。

8. 使用：

△ 警告

救援速差自控器经受过坠落防护后只能用于救援，请勿继续用于防坠落。救援用户后立即停止使用救援速差自控器，并标记为“不可用”。不要超出救援速差自控器的适用范围，例如从一定的高度跌落。误用可能导致死亡或严重受伤。

8.1 连接：

△ 警告

请勿凭感觉或声音验证挂钩的连接是否正确。应始终目视检查连接正确与否。确保在使用前闭合锁扣。

8.1.1 悬挂于锚点的救援速差自控器：

通过确认指示箭头指向“SRL”（见救援速差自控器上的说明和图 21）检查救援速差自控器是否设置为防坠模式。使用合适的连接件将救援速差自控器提手连接到适合的锚点。将挂钩连接到经认可的全身式安全带的防坠落配载点上。确保挂钩开口完全关闭并锁定。

8.2 围绕工作区域移动：

△ 注意

避免接触绳索和其他工人、物体和障碍物。
不要夹死、打结或站在绳索上。
不要让绳索松弛。
不允许绳索围绕身体或四肢。
不要通过连接其他绳索增加其长度。
请勿松开绳索并使其自由回收到外壳中。

小心移动以防止因为绳索张力或锁定失去平衡。当以一定的速度向锚点移动的时候不允许绳索松弛。以低于装置锁定速度的速度远离锚点。避免在任何方向快速或突然移动。

9 使用救援速差自控器进行救援：

当用户发生坠落的时候救援速差自控器可用作救援装置。切换到救援模式前，救援速差自控器用作坠落保护的标准救援速差自控器（参见图 22）。救援速差自控器在防坠和救援模式方面的额定负载为一人。参见救援速差自控器标签了解具体的额定负载。在救援模式升起一名 310 lb (140 kg) 人员的近似力为 24 lbs (107 N / 11 kgf)，降低 310 lb (140 kg) 人员的力为 22 lbs (98 N / 10 kgf)。此部分说明是解释在救援模式中使用救援速差自控器。救援模式中的救援速差自控器不能用于坠落保护。

9.1 将救援速差自控器设置为救援模式：

救援时，救援人员必须配备合适的坠落保护装置。如被救援的人员没有连接到救援速差自控器，则在救援速差自控器处于防坠模式时拉出绳索，并将挂钩连接到被救援人员安全带上相应的连接点上。一旦人员连接到救援速差自控器，则救援速差自控器可设置为救援模式。仔细按照下面的说明将救援速差自控器设置为救援模式。

a: 拉出下机壳的模式旋钮，旋转 90 度，让箭头指向释放旋钮。旋钮和衬套之间将出现一个间隙。

b: 检查旋钮是否锁定到位（旋钮不会旋转）并在曲柄上感觉到负载。

9.2 在救援期间提升和下降：

△ 警告

采用救援模式时始终保持绳索的张力。不允许绳索松弛。需要时拉绳缆。未遵守上述警告可能导致严重的伤害甚至死亡。

出现坠落时，尝试下降前首先至少提升一圈半以解锁轮毂。升起以解锁轮毂后，通过根据救援速差自控器上指示的恰当方向旋转曲柄提升或下降被救人员。救援期间，绳索不允许松弛。如出现松弛，则被救人员可能再次坠落。自锁装置在松开手柄时将锁定装置。参见救援速差自控器上的标签，查看救援人员负载到额定负载时旋转手柄所需的最大力量。被救人员到达安全位置并且从救援系统分开时要格外小心。被救人员处于安全时，救援人员必须将被救人员移动到旁边，然后将其下降到安全稳定的表面，以便提供医疗援助或运输被救人员。在此移动期间必须小心，以免救援人员坠落。如使用便携锚点支撑救援速差自控器（如三脚架，参见第 9.4 部分），则将人员移动到安全位置时要格外小心，以免打翻锚点。

△ 警告

红色标记表示绳索的末尾。看到时必须停止下降！在下降方向继续旋转手柄会让绳索反方向绕到轮毂上，并将伤害救援人员。

9.3 将救援模式重置为防坠模式：

仔细按照下面的指导将救援速差自控器重置为防坠模式：

- a: 去除连接到绳索的任何负载并固定绳索，以免它自动回收到装置。
 - b: 拉出下机壳上的模式旋钮，旋转 90 度，让箭头指向“SRL”，然后释放旋钮。如恰当就位，旋钮将靠着衬套。
 - c: 通过拉出绳索并观察其是否自动回收到设备，确认救援速差自控器处于防坠模式。
 - d: 放松绳索后，通过向下猛拉绳索并确保设备锁定对设备执行锁定测试。
- 始终让救援速差自控器处于防坠模式。

9.4 在三脚架上安装救援速差自控器：

- 第 1 步：向外拉支腿，然后锁定。
- 第 2 步：确保救援速差自控器处在救援模式，将绳索摇出大约 10 英尺（3 米）。将绳索放在滑轮上，然后使用连接锁将滑轮安装到三脚架上，见图 22。
- 第 3 步：将三脚架上升到所需高度。
- 第 4 步：确保三脚架支腿的定位束带牢固。
- 第 5 步：将救援速差自控器放到三脚架支腿前面。

参照标签 F，然后按下面的说明操作：

- 推动一个三脚架腿销，穿过腿的一半。注意，不要将其完全推出，否则三脚架将倒塌。
- 将救援速差自控器上的支架左侧的插槽定位到销子上。
- 向上滑动救援速差自控器，使支架上的插槽及孔完全贴合。
- 将三脚架腿销推回到完全啮合位置。
- 使用前将救援速差自控器重置到“SRL”模式。

现在可以使用沃克曼三脚架和沃克曼救援速差自控器了。

10 检查**△ 警告**

根据标签和说明书检查救援速差自控器。未遵守上述说明可能导致严重伤害甚至死亡。

△ 注意

检查绳索时始终要带手套；断股会造成伤害。

10.1 检查规范：每次使用沃克曼救援速差自控器前请进行检查。按顺序执行下列步骤。若对检查位置有任何疑问，请联系 MSA 或有资质的检查人员进行正规的检查。对于不符合下面任何步骤要求的任何装置，请立即停止使用：

- (1) 检查负载指示器，查看其是否打开。负载指示器在挂钩上，通过剪切销子使负载指示器打开。图 12 显示没有打开的指示器。图 13 显示已打开的指示器。如负载指示器已打开，则停止使用救援速差自控器。
- (2) 检查标签，检验其是否清晰可辨。检查合格人员检查表，确保合格人员在十二 (12) 个月内根据标签 B 中的说明执行过检查。
- (3) 通过将绳索全部拉出并以受控方式让其回收到外壳中，检查绳索的拉伸和回收情况。在拉伸或回收期间，绳索的伸缩必须流畅，没有颤动。绳索必须完全回收到外壳中。通过将绳索快速拉出外壳确认装置锁定。装置必须锁定，并在释放绳索张力前保持锁定。重复三次。
- (4) 检查是否存在结构损坏和腐蚀。检查外壳附件是否紧密；没有丢失或更改的零件；外壳、绳索或挂钩中没有裂纹、变形或深的切痕。
- (5) 对于绳索：检查挂钩的套圈和套管，并确认不存在裂纹、变形、腐蚀、磨损或夹伤绳索等情况。检查整条绳索，确认不存在打结、弯曲、扭曲、直径变化、腐蚀或断丝。
- (6) 检查所有金属零件是否出现损坏、变化和零件丢失的迹象。

- (7) 检查挂钩是否变形、断裂、出现裂纹、腐蚀、深坑、毛刺、尖锐的边缘、割痕、深洞、松动的零件和过热或受化学品影响的现象。检查功能：循环解锁、打开、关闭和锁定几次。弹簧扣必须能自动关闭，并能与门鼻紧密吻合。当作用力施加到开口时，器件的锁紧装置必须保持弹簧扣的尖头伸入门鼻内 1/8 英寸（3 毫米）。
- (8) 检查所有塑料零件是否有切痕、断裂、改变、过度磨损、丢失和松动的零件。检查是否有火烧、高温或化学侵蚀等痕迹。
- (9) 根据制造商提供的相关说明，检查整个系统中的每个组件和子系统。
- (10) 确保救援机制和相关组件按照操作说明（参见本手册的第 8 部分）正确工作。
- (11) 检查救援差速自控器在救援模式是否能正常工作：
- 固定装置并向绳索施加负载。
 - 根据装置上的说明将装置设置为救援模式。
 - 手柄在正确方向旋转时绳索应松开以下降人员。参见上机壳的标签了解正确的旋转方向。始终保持绳索的张力使绳索拉出。
 - 手柄在正确方向旋转时绳索应回收以升起人员。参见上机壳的标签了解正确的旋转方向。始终保持绳索的张力以恰当回收。
 - 根据装置上的说明恢复装置到防坠模式。

如在检查救援速差自控器后对其安装使用状况有任何疑问，则立即停止使用救援速差自控器，安全非常重要，并且在得到接受安全检查员书面确认前不要再使用。

10.2 正式检查：

MSA 对机械结构产品的年度工厂重新认证不作规定。MSA 建议在以下间隔或根据当地法规的具体要求进行重新认证。MSA 要求安全检查员根据下面的图表检查。

使用类型	应用实例	使用条件	要求的安全检查员检查频率	推荐的工厂授权重新认证频率
偶尔到轻度	救援和狭窄空间，工厂维护	良好的存放条件，或偶尔室外使用，室温，清洁的环境	每年一次	至少每 2-5 年一次
中度到重度	运输，居民建筑，公用设施，仓库	不错的存放条件，室内和长期室外使用，各种温度，清洁或有灰尘的环境	每半年到每年一次	至少每 1-2 年一次
严重到连续	商业建筑，石油和天然气，采矿	糟糕的存放条件，长期或连续室外使用，各种温度，肮脏的环境	每季度到每半年一次	至少每年一次

警告

全身式安全带是唯一一种可用于防坠系统的身体固定装置。MSA 救援速差自控器只能连接到带有标签“A”的如安全带后侧 D 形环和前侧 D 形环的坠落制动配载点。这些连接点也可用于连接救援系统。请勿使用臀部 D 形环进行防坠。安全带的臀部 D 形环只能用于连接一套工作定位系统，严禁用于防坠系统或攀爬系统。每次使用前，必须对救援速差自控器进行全面检查，确认其处于可使用状态。对救援速差自控器进行全方位检查，查验是否存在严重磨损、元件丢失或破损、腐蚀或者其他损坏现象。检查标签是否缺失或字迹模糊；是否有任何组件功能异常、安装不当或改动。如在检查过程中发现不安全因素，则需得到安全检查员的书面确认后方可使用 MSA 救援速差自控器。请参阅检查规则。请勿更改或尝试修理 MSA 救援速差自控器。只有 MSA 或取得 MSA 书面授权的相关方才能修理 MSA 救援速差自控器。系统使用不应超出其限制范围，亦不得将其用于原设计目的以外的任何用途。挂钩和连接锁不得连在一起。切勿将绳索打结。请勿将两个挂钩连接到一个 D 形环上。请勿凭感觉或声音验证挂钩的连接是否正确。应始终目视检查连接正确与否。确保在使用前闭合锁扣。防止外壳凹陷或变形。请勿使设备从高处掉落。应妥善放置。使用时，请保护绳索，不要使其碰到尖角和锐利的边缘。防止绕线松垮以及拉得过紧，造成绳索扭结。请勿使异物进入外壳。请勿使绳索勾住或挤压过度。在物体可能坠落或干扰此设备的操作或正常工作的位置请勿使用。如果您对本产品的安全状况存在疑虑，为保证安全，请勿使用该设备。用户必须保留记录。请参阅标签了解绳索的材料。在救援操作后，必须由合格人员检查产品。当连接该产品时，在使用者正上方位置选择一个锚点以尽量减少摇摆式坠落发生（见图 15d）。避免用在任何强度不确定的锚点。必须将坠落的可能性和坠落距离降低到最小。必须在用户脚下提供所需最小空间的考量（见图 16），以免碰撞架构或地面。推荐的最小空间为 3 米。如产品用于防坠或受到冲击，则必须立即停止使用并标记“不可用”。如负载指示器已打开（见图 1 a），则停止使用装置。不用做防坠保护时，请勿将产品绳索留在外面。不要将绳索暴露在尖锐边缘、磨蚀表面、火花、火源或超过 60 °C 的环境中。安装或取下产品时，限制人员暴露于坠落危险。可能需要一套独立的防坠系统。如果产品在原目标国家之外的地方再次出售，为了使用者安全起见，经销商务必提供产品使用地的国家语言编写的说明书及用于使用、保养、定期检查及维修的其他相关资料。如不遵守这些警告或使用不当，可能会造成严重的人身伤害或死亡。

维护和存储

请严格遵守本节介绍的清洁说明，以防止对救援速差自控器所用材料造成不利影响。定期用干净、微湿而非潮湿的布擦拭救援速差自控器的灰尘或污垢，以防止造成污染、妨碍操作或降低标签的可读性。要去除油或油脂，请使用柔性洗涤剂。请勿使用化学品、研磨剂、磨蚀剂或压力式清洁机。严禁将救援速差自控器浸没在水或其他液体中。灰尘、涂漆或其他杂质过多会影响救援速差自控器的正常使用，严重时可能还会降低绳索的安全性。有关产品状况和清洁的问题，请联系 MSA。某些环境可能需要对救援速差自控器消毒。请联系 MSA 帮助确定特定应用的恰当消毒程序。将损坏或需要维护的设备标记为“不可用”，并停止使用。维修和维护（清洁除外）必须由 MSA 授权服务中心执行。挂钩和连接锁的移动零件可能需要使用低流速渗透油定期润滑。请务必遵照润滑剂制造商的说明使用。请勿润滑过度。用干净的干布将多余的油脂擦掉。运输产品时应包装好，以防止其出现切口、受潮、受到化学品及其蒸汽污染、遭遇极端温度和紫外线照射。在运输期间保护线路喷嘴以防止损坏。可能时固定救援速差自控器外壳和挂钩以防移动。救援速差自控器应存放在阴凉、干燥、清洁的地方，同时避免阳光直射。避免存放在高温、潮湿、阳光直射、多油和存在化学品（或蒸汽）或者其他有腐蚀性元素的环境中。严禁将救援速差自控器长时间放在混凝土或灰尘地面上，因为石硫合剂和灰尘可能造成腐蚀。存放救援速差自控器时将绳索完全回收。损坏或需要维护的设备不应与可用设备储存在同一区域内。在储存之前，应对严重脏污、潮湿或受污染的设备进行适当维护（例如干燥和清洁）。在使用已存放了很长时间的设备之前，应该由具备资质的合格人员进行正式检查。

△ 注意

存储救援速差自控器时必须将绳索完全回缩并将橡胶缓冲块置于管嘴中，以防止绳索永久弯曲。

ENGLISH
INSTRUCTIONS FOR USE

1. Function and Application:

The Workman Retractable Type Fall Arrester with Emergency Rescuer (RTFA-R) is compliant to GB 24544-2009. The RTFA-R is a retractable device designed to be used by personnel for fall arrest and can also be used for retrieval if a fall occurs. The RTFA-R can be used with an appropriate MSA tripod system in confined space applications with a quick-activating retrieval mechanism for emergency evacuation. The RTFA-R consists of: a snaphook; housing; lanyard (line); tripod mounting bracket; quick activating retrieval mechanism, and a load indicator (See figure 1a and figure 1b). The line material can be stainless steel cable or galvanized steel cable and it is marked on the product label PN 10159765 (see figure A). The RTFA-R is part of a fall arrest system when attached to the fall arrest attachment of a full body harness and an appropriate anchorage. See harness instructions for approved attachment points. If a user falls, the device will automatically stop the user's descent in a short distance while limiting the fall arrest force on the user's body. RTFA-R units also provide an emergency rescue mechanism for retrieval of a user who experienced a fall.

2. Training:

It is the responsibility of the purchaser of RTFA-R to assure that they are made familiar with these User Instructions and trained by a competent person. Ensure that you have been adequately trained in the use of this product equipment and make sure that you fully understand how it works.

3. Rescue plan:

The user must have a rescue plan and the means at hand to implement it. The plan must take into account equipment and special training necessary to effect prompt rescue under all foreseeable conditions. There should be direct or indirect visual contact or some other means of communication with the rescuee at all times during the rescue process. When the RTFA-R is used as part of the rescue system: anchor it in a vertical position or attach it to a tripod (see section 9.4); assure there is enough clearance to operate the hand crank; and assure there is enough room and fall protection for the rescuer who would operate the system.

4. Physical Limitations:

The RTFA-R is designed for one user whose weight, including clothing, tools, and other user-borne objects is less than the capacity shown on product label. Users with muscular, skeletal, medical conditions, or other physical condition that could reduce the ability to withstand fall-arrest shock loads or prolonged suspension should consult a physician before using. Pregnant women and minors must never use the RTFA-R.

5. Compatibility of system parts:

All components (e.g. full body harness, pulley, carabiner, snap hook, etc.) connected to this MSA RTFA-R MUST be compatible. The MSA RTFA-R is designed to be used with MSA approved components and connecting subsystems. Use of an MSA RTFA-R with products made by others that are not approved in writing by MSA may adversely affect the functional compatibility between system parts and the safety and reliability of the complete system. Connecting subsystems must be suitable for use in the application (e.g. fall arrest, climbing protection, rescue, or evacuation). Refer to the manufacturer's instructions supplied with the component or connecting subsystem to determine suitability. Contact MSA with any questions or for further information.

6. Anchorages and anchorage connector:

Personal fall arrest system anchorages and connectors must be capable of supporting a static load, applied in each direction permitted by the system, of at least:

- a) Standard requirement in accordance with GB 24544-2009 or EN 795 or equivalent AS/NZS 1891.4
- b) 5,000 lbs (22.2 kN) when uncertified

When more than one personal fall arrest system is attached to an anchorage, the anchorage strengths set forth in (a) and (b) above shall be multiplied by the number of personal fall arrest systems attached.

7. Planning the use of systems:

⚠ Warning

Never alter an MSA RTFA-R
 Use only for the fall arrest or rescue of one person.
 Do not use to arrest falls due to the collapse of sliding masses, e.g. grain, sand, and liquids.
 Do not use an RTFA-R as a materials hoist.
 Misuse can result in death or serious injury.

7.1 Set-Up:

⚠ Warning

Anchor the device to prevent swing falls and impact with objects in or adjacent to the fall path. Swing falls can increase the fall distance, see figure 15c, figure 15d.
 Anchor the device such that the line will not be exposed to sharp edges or abrasive surfaces during a fall arrest.
 Failure to do so may result in serious injury or death.

Set up the RTFA-R directly above the user for vertical fall arrest applications, see figure 15.

8. Use:

⚠ Warning

Do not use an RTFA-R that was subjected to a fall arrest other than to rescue the user. Immediately remove RTFA-R from service after rescuing the user and tag as "UNUSABLE." Do not use a RTFA-R that was subjected to abuse, such as being dropped from a significant height. Misuse can result in death or serious injury.

8.1 Connection:

⚠ Warning

Do not rely on feel or sound to verify proper snaphook engagement. Always check visually for proper engagement. Ensure that gate and keeper are closed before use.

8.1.1 Anchorage mounted RTFA:

Verify the RTFA-R is set to fall arrest mode by confirming the indicator arrow points to "SRL" (see instructions on RTFA-R and see figure 21). Connect the RTFA-R carry handle to a suitable anchorage with the appropriate connecting hardware. Connect the snaphook to the fall arrest attachment point of an approved full body harness. Be sure the snaphook's gate is completely closed and locked.

8.2 Moving around the work area:

⚠ Warning

Keep line clear of other workers, objects, and obstructions.
 Do not clamp off, knot, or stand on line.
 Do not permit line slack.
 Do not allow the line to pass around the body or limbs.
 Do not lengthen line by connecting to another line.
 Do not release the line and allow it to freely retract back into the housing.

Move around carefully to prevent loss of balance from line tension or locking. Move toward the anchorage at a rate that will not allow line slack. Move away from the anchorage at a rate that is less than the device locking velocity. Avoid quick or sudden movement in any direction.

9 Using the RTFA-R for rescue:

The RTFA-R may be used as a rescue device for a user that has experienced a fall. RTFA-Rs are used as a standard RTFA for fall protection until switched to rescue mode (See figure 22). The capacity of an RTFA-R in fall arrest and rescue modes is one person. See the RTFA-Rs labels for specific weight capacity. The approximate force to raise a 310 lb (140 kg) person in rescue mode is 24 lbs (107 N / 11 kgf) and to lower a 310 lb (140 kg) person is 22 lbs (98 N / 10 kgf). This section of the instructions explains the use of the RTFA-R in rescue mode. An RTFA-R in rescue mode cannot be used for fall arrest.

9.1 Setting the RTFA-R to rescue mode:

The rescue personnel must be equipped with the proper fall protection when applicable. If the individual being rescued is not connected to the RTFA-R, then pay out line while the RTFA-R is in fall arrest mode and connect the snaphook to the appropriate attachment point of the individual being rescued. Once the individual is connected to the RTFA-R, then the RTFA-R can be set to rescue mode. Carefully follow the instructions below to set the RTFA-R into rescue mode.

- a: Pull the mode knob out on lower housing, rotate 90 degrees such that the arrow points to, then release knob. There will be a gap between knob and bushing.
- b: Verify knob is locked in position (knob will not rotate) and load is felt on crank handle.

9.2 Raising and lowering during rescue:

Warning

Always maintain tension on line when using in rescue mode. Do not allow slack line. Pull on line if necessary. Failure to do so can result in serious injury or death.

In the event of a fall, lift first at least one half turn to unlock drum before attempting to lower. After raising to unlock the drum, then raise or lower the individual being rescued by turning the crank in the appropriate direction as indicated on the RTFA-R. Do not allow slack in the line during rescue. If slack develops, then the individual being rescued could fall a second time. Auto braking will lock the unit when the handle is released. See the labels on the RTFA-R for the maximum force required to rotate the handle when the rescuer is loaded to capacity. Use extreme care when the individual being rescued reaches a safe location and is being disconnected from the rescue system. With the individual being rescued at a safe level, the rescuer(s) must move the individual laterally, and then lower the individual onto to a safe and stable surface where medical assistance can be administered or the individual can be transported. Caution must be used during this move so that the rescuer(s) does not fall. If a portable anchorage is being used to support the RTFA-R (e.g. a tripod, see section 9.4), then use great care to avoid toppling the anchorage while moving the individual to the safety location.

Warning

The red mark represents the end of the line. Once visible, you must stop lowering! Further rotation of the handle in the lowering direction will cause the cable to wrap back around the drum in the opposite direction and will damage the rescuer.

9.3 Resetting the rescue mode to fall arrest mode:

Carefully follow the directions below to reset the RTFA-R into fall arrest mode:

- a: Remove any load attached to the line and secure the cable so that it can not freewheel back into the unit.
- b: Pull the mode knob out on the lower housing, rotate 90 degrees such that the arrow points to "SRL", then release the knob. The knob will be against the bushing if properly seated.
- c: Confirm the RTFA-R is in fall arrest mode by paying out line and observing that it automatically retracts back into the unit.
- d: After paying out the line, perform a lock test on the unit by pulling down sharply on the cable and ensure the unit locks.

Always leave the RTFA-R in fall arrest mode.

9.4 Installing the RTFA-R on a tripod:

Step 1: Pull legs outward, then lock.

Step 2: Ensure the RTFA-R is in rescue mode, wind out about 10ft (3m) of line. Place cable on pulley and use carabiner to mount pulley onto tripod, see figure 23.

Step 3: Raise tripod to desired height.

Step 4: Make sure retention strap at the tripod feet is tight.

Step 5: Place the RTFA-R to the front of the tripod leg.

See label F, and follow below instructions:

- Push one tripod leg pin halfway through the leg. Caution, do not push it all the way through as the tripod will collapse.
- Position RTFA-R with integral bracket onto the pin using the slot on the left side.
- Slide the RTFA-R up, fully engaging the slot and hole on the integral bracket.
- Push the tripod leg pin back into full engagement.
- Reset the RTFA-R to “SRL” mode before use.

The Workman Tripod and Workman Rescuer are now ready to use.

10 Inspection:

⚠ Warning

Inspect the RTFA-R as instructed on the labels and in this manual. Failure to follow the instructions can result in serious injury or death.

⚠ Caution

Always wear gloves when inspecting cable units; broken strands can cause injury.

10.1 Inspection guideline:

Inspect the Workman RTFA-R before each use. Perform the following steps in order. If in doubt about any inspection point, consult MSA or a competent person qualified to perform formal inspection. Immediately remove from service any device that does not comply with the requirements of any step below:

- (1) Inspect load indicator to verify it is not deployed. The load indicator is located on the snaphook. Load indicators deploy by shearing a pin. Figure 12 shows the not deployed indicator. Figure 13 shows the deployed indicator. Remove an RTFA-R from service if the load indicator has deployed.
- (2) Inspect labels to verify that they are present and legible. Check the competent person inspection grid to be sure a competent person has performed an inspection within twelve (12) months as outlined in label B.
- (3) Inspect line extraction and retraction by pulling out the full length of line and letting it retract back into the housing in a controlled manner. The line operation must be smooth without jerking during extraction or stalling during retraction. The line must retract completely into the housing. Confirm device locks by quickly pulling line out of the housing. The device must lock and remain locked until line tension is relaxed. Repeat three times.
- (4) Inspect for structural damage and corrosion. Verify that the housing attachments are tight; that there are no missing or altered parts; that there are no cracks, deformations, or deep cuts in the housing, line, or snaphook.
- (5) For cable lines: Inspect the ferrules and thimble at the snaphook and verify there is no evidence of cracks, distortion, corrosion, wear, or biting into the line. Inspect the entire length of line and verify there are no kinks, bends, bird caging, changes in diameter, corrosion, or broken wires.
- (6) Inspect all metallic parts for evidence of damage, alteration and missing parts.
- (7) Inspect snaphook for deformation, fractures, cracks, corrosion, deep pitting, burrs, sharp edges, cuts, deep nicks, loose parts, and evidence of excessive heat or chemical exposure. Check function: unlock, open, close, and lock several times. Gate must automatically close and snugly seat against nose. The locking mechanism must retain the gate tip within 1/8 inch (3 mm) of the nose when firm pressure is applied to the gate.
- (8) Inspect all plastic parts for cuts, breaks, alteration, excessive wear, missing and loose parts. Inspect for evidence of burns, excessive heat or chemical attack.
- (9) Inspect each component and subsystem of the complete system in accordance with the associated manufacturer’s instructions.
- (10) Ensure that the retrieval mechanism and associated components are working properly according to the operation instructions (see section 8 of this manual).

- (11) Verify RTFA-R operates properly in rescue mode:
 - a) Secure the unit and apply a load to the line.
 - b) Set the unit to rescue mode as outlined in the instructions on the unit
 - c) Line should pay out when the handle is rotated in the direction to lower an individual. See label on upper housing for proper rotation direction. Always keep tension on line for proper pay out.
 - d) Line should retract when the handle is rotated in the direction to raise an individual. See label on upper housing for proper rotation direction. Always keep tension on line for proper retraction.
 - e) Return the unit to fall arrest mode as outlined in the instructions on the unit.

If, after inspecting the RTFA-R, there is any doubt about its condition for safe use, then it is essential for safety that the RTFA-R be immediately removed from service and not used again until confirmed in writing by a competent person that it is acceptable to do so.

10.2 Formal inspection:

MSA does not require annual factory recertification on mechanicals. MSA recommends recertification at the following intervals or according to specific requirements from local regulations. MSA requires inspection by a competent person according to the chart below.

Type of Use	Application Examples	Condition of Use	REQUIRED Competent Person	RECOMMENDED Factory Authorized Recertification Frequency
Infrequent to Light	Rescue & confined space, Factory maintenance	Good storage conditions, or infrequent outdoor use, room temperature, clean environment	Annually	At least every 2-5 years
Moderate to Heavy	Transportation, Residential construction, Utilities, Warehouse	Fair storage conditions, indoor and extended outdoor use, all temperatures, clean or dusty environment	Semi-annually to annually	At least every 1-2 years
Severe to Continuous	Commercial construction, Oil & Gas, Mining	Harsh storage conditions, prolonged or continuous outdoor use, all temperatures, dirty environment	Quarterly to semi-annually	At least annually

WARNING

A full body harness is the only acceptable body holding device that can be used in a fall arrest system. The MSA RTFA-R, **MUST ONLY** be connected to the harness back D-ring or front D-ring only with the fall arrest attachment tag "A". These points can also be used for connecting a rescue system. Never use the hip D-ring for fall arrest. The hip D-ring of a harness **MUST ONLY** be used for connecting a work positioning system (EN358) and **NEVER** a fall arrest system or climbing system. The RTFA-R **MUST** be fully inspected before each use to verify that it is in serviceable condition. Examine RTFA-R thoroughly for severe wear, missing or broken elements, corrosion, or other damage. Examine if label is missing or illegible; if there is evidence of improper function, improper fit, or alteration of any component. Do not use MSA RTFA-R until confirmed in writing by a competent person if inspection reveals an unsafe condition. See inspection guidelines. **DO NOT** modify or attempt repairs on the MSA RTFA-R. Only MSA or parties with written authorization from MSA may repair an MSA RTFA-R. The system shall not be used outside its limitations, or for any purpose other than that for which it is tended. Snaphooks and carabiners must not connect to each other. Do not tie knots in a lanyard. Do not connect two snaphooks to one D-ring. Do not rely on feel or sound to verify proper snaphook engagement. Always check visually for proper engagement. Ensure that gate and keeper are closed before use. Prevent denting or deformation

of the housing. Never drop the unit from any height. Always set it down carefully. When in use, protect the line from contacting sharp corners and edges. Prevent loops from forming in a slack line and being pulled tight, causing line kinking. Do not allow foreign matter to enter the housing. Do not permit the line to snag or be crushed. Do not use where objects may fall or otherwise interfere with the operation or ability of this device to function properly. It is essential for safety that the equipment is withdrawn from use immediately if any doubt arise about its condition for safe use. A record must be kept by the user. Refer to labels for the material of the retractable lanyard. After a rescue operation the product must be inspected by a competent person. When attaching the product, choose an anchor point directly ABOVE the user's position to minimize swing falls (see figure 15d). Avoid any point on which strength is doubtful. Potential for falls and fall distance MUST be minimized. Consideration MUST be given to the necessary minimum clearance (see figure 16) below the feet of the user to prevent a collision with the structure or the ground. The minimum recommended clearance is 3 m. If the product has been subjected to fall arrest or impact forces, it MUST be immediately removed from use and tagged "UNUSABLE". Remove unit from service if the load indicator (see figure 1 a) is deployed. Do not leave a product's line extended when it's not being used for fall protection. Do not expose the line to sharp edges, abrasive surfaces, sparks, flame, or heat above 60 ° C. When installing or removing the product, limit exposure to fall hazards. A separate independent fall arrest system may be required. It is essential for the safety of the user that if the product is re-sold outside the original country of destination the reseller shall provide instructions and additional relevant information for use, for maintenance, for periodic examination and for repair in the language of the country in which the product is to be used. Failure to follow these warnings or misuse can cause serious personal injuries or death.

MAINTENANCE AND STORAGE

Strictly adhere to the cleaning instructions in this section to prevent adverse effects on the materials used in the RTFA-R. Clean the RTFA-R periodically with a clean damp (not wet) cloth to remove dirt or contamination which may cause corrosion, hamper operation, or diminish readability of the labels. To remove oil or grease, use a mild laundry detergent. Do not use chemicals, harsh detergents, abrasives, or pressure washers. Never immerse the RTFA-R in water or other liquid. Excessive accumulation of dirt, paint or other foreign matter may prevent proper function of the RTFA-R, and, in severe cases, weaken the line. Contact MSA with questions concerning product conditions and cleaning. Some environments may require the RTFA-R be disinfected. Contact MSA for aid in determining the proper disinfection procedure for the specific application. Tag damaged equipment or equipment needing maintenance as "UNUSABLE" and remove from service. Repair and maintenance (other than cleaning) must be performed by an MSA authorized service center. Moving parts of snaphooks and carabiners may require periodic lubrication with low viscosity penetrating oil. Follow lubricant manufacturer's instructions. Do not over-lubricate. Wipe excess with a clean, dry cloth. Transport the product in a package to protect it from cuts, moisture, chemicals and their vapours, extreme temperatures, and ultraviolet rays. Protect the line at the nozzle during transportation to prevent damage. Secure the RTFA-R housing and snaphook from movement when possible. Store the RTFA-R in a cool, dry and clean place out of direct sunlight. Avoid areas where heat, moisture, light, oil, and chemicals or their vapors or other degrading elements may be present. Never allow RTFA-R to rest for lengthy periods of time on concrete or ash floors as lime sulfur and ash can cause corrosion. Store the RTFA-R with line fully retracted. Equipment which is damaged or in need of maintenance should not be stored in the same area as usable equipment. Heavily soiled, wet, or otherwise contaminated equipment should be properly maintained (e.g. dried and cleaned) prior to storage. Prior to using equipment which has been stored for long periods of time, a Formal Inspection should be performed by a competent person.

⚠ Caution

Only store the RTFA with the cable fully retracted and with the rubber cable bumper seated into the nozzle to protect the cable against permanent bends