USER INSTRUCTIONS MANUAL

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⚠ WARNING

ORIGINAL INSTRUCTIONS - UNCONTROLLED IF PRINTED
IMPORTANT: Make sure this user instructions manual is the latest version available.
Consult the Barry website at www.barry.ca to view document revisions,
important updates and other notices.

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Congratulations on your purchase of a Barry Quality Safety Product!

Our philosophy at Barry is to offer only best quality in products. We hope that you will be completely satisfied with this product and wish to thank you for choosing Barry. We invite you to send in your comments to help us to continue improving our products and services.

REVISION HISTORY

Revision	Sections affected	Changes	Date
0		Initial release	April 24, 2018
1	6.3, 6.5.5,	Insulating properties information added, dielectric testing procedure revised	May 15, 2018
2	1.1, 5, 6.5.5	Applications, operation and testing	Oct. 01, 2018
3	2.7, 5, 6, 7.2	Limitation added, operation and use warnings updated, inspection section updated, storage updated	Oct. 25, 2018
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5	2.6, 2.7, 4, 5, 5.1, 6.2.3, 8.1	Limitations updated, dielectric use warnings updated, shelf and service life updated	Oct. 12, 2021
6	1.1, 1.2, 2.1, 2.3, 2.7, 5, 5.1, 6.2, 6.2.4, 6.3.1, 6.4, 6.4.2, , 6.5.1, 6.5.2, 6.6, 7.1, 7.2, Inspection Form	Qualified person definition updated, critical use conditions revised, rope inspection updated, initial inspection procedure updated, pre-use and formal electrical testing updated, cleaning method revised, storage guidelines updated, inspection form updated	Nov. 30, 2022
7	2.3, 5.1, 6, 6.1.1, 6.2, 6.3, 6.4.1, 6.5, 6.5.1, 6.5.2, 7.1, 7.2, 8.1	Handling method revised, inspection recommendations revised, formal electrical testing revised.	Aug. 19, 2024

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WARNINGS AND IMPORTANT NOTICES

You will find on this page, and throughout this manual, many warnings and important notices that must be considered seriously when using this product.

DEFINITIONS:

⚠ WARNING

A WARNING note means that if the information is not thoroughly followed, there is a risk of serious injury or death to the user or surrounding people.

⚠ CAUTION

A CAUTION note means that if the information is not followed, there is a risk of injury and/or damage to the equipment.

This symbol indicates a subject that applies to work near or on electrical apparatus, such as energized electrical conductors (live line work). Extra caution must be taken when doing live line work.

⚠ CAUTION ***IMPORTANT: This manual is intended to meet the Manufacturer's Instructions as recommended by various standards, and should be used as part of an employee training program.***

⚠ CAUTION ***IMPORTANT: This manual contains information and instructions specific to Barry D.E.W. Line® products only. Make sure this manual is the latest version available. Consult the Barry website at www.barry.ca to view document revisions, important updates and other notices.***

⚠ CAUTION ***IMPORTANT: Barry has a policy of continuous improvement and reserves the right to update product or components without prior notice.***

⚠ CAUTION ***IMPORTANT: Products manufactured by Barry Cordage Ltd. are intended for use by professionals trained and experienced in the use, inspection, and maintenance of these products.***

⚠ WARNING ***WARNING: The user must read and understand the instructions in this manual before using this equipment. Manufacturer's instructions must be followed for the proper care and maintenance of this equipment. Alterations or misuse of this equipment, or failure to follow instructions, may result in serious injury or death. If you have questions on the use, care, or suitability of this equipment for your application, contact Barry Cordage Ltd.***

⚠ CAUTION ***IMPORTANT: This document does not replace a complete training necessary for the use of this product.***

⚠ CAUTION ***IMPORTANT: Before using this equipment, record the product identification information from the ID label in an inspection and maintenance log such as is found at the end of this document. Make sure this manual is readily available with the product. Refer to Barry website to obtain valid version to print.***

⚠ CAUTION ***IMPORTANT: It is the responsibility of the user to document and maintain a product use, inspection and maintenance logbook. Barry supplies inspection criteria and guidelines, forms and log sheets which may be used as an example. It is the responsibility of the user to adapt and design their own inspection and maintenance system.***

1. DESCRIPTION OF THE BARRY D.E.W. LINE® INSULATING ROPE TOOLS

1.1 APPLICATIONS:

Barry D.E.W. Line® insulating rope tools are designed for power and utility applications in energized fields as defined by:

- AS 5804.1-2010 High Voltage Live Working
- CAN/ULC-61328, Live Working – Guidelines for the Installation of Transmission Line Conductors and Earthwires – Stringing Equipment and Accessory Items
- CAN/ULC-61472, Live working – Minimum approach distances for a.c. systems in the voltage range of 72.5 kV to 800 kV – A Method of Calculation
- CAN/ULC-S801-14, Standard on Electric Utility Workplace Electrical Safety for Generation, Transmission and Distribution
- IEC 62192 Ed. 1.0, Live Working Insulating Ropes
- IEEE 516, Guide for Maintenance Methods on Energized Power Lines
- OSHA 1910.269, *Electric Power Generation, Transmission, and Distribution*

Applications include:

- Insulation ropes
- Live working rope
- Transmission and distribution line construction and maintenance
- Emergency system restoration
- Safety netting for stringing operations, crane, scaffolding, rider poles, tower masts, etc.
- Pulling, lifting and stringing work
- Winching
- Live line barehand work
- Tag, control and hand lines
- Throw lines for rope and line launchers
- Strain links for insulator changes
- Pole and arm changes
- Tree trimming and pruning and switch opening
- Ice rolling
- Trip testing trigger ropes
- Personnel evacuation & rescue
- Rope access
- Helicopter lifting and cargo longlines*
- Human external cargo (HEC) for helicopter operation*

*Refer to the most recent version of the Barry Helicopter Longline User Instructions Manual for additional information regarding the use of these products, available at www.barry.ca/longline.

⚠ WARNING ***WARNING: Before using any Barry D.E.W. Line® insulating rope equipment for any suggested application above, a thorough analysis of the intended use shall be made by a qualified person to determine if the equipment is appropriate. The above list of applications does not imply that any Barry D.E.W. Line® insulating rope equipment is suitable for any or all of these applications.***

⚠ WARNING ***WARNING: Unless the Barry D.E.W. Line® insulating rope tool has been inspected and tested, as per Section 6, it cannot be considered insulating. Do not use if inspection reveals an unsafe condition.***

⚠ CAUTION ***IMPORTANT: As per OSHA 1910.269, only qualified employees may work on or with exposed energized lines or parts of equipment, in installations of electric power generation, transmission, and distribution lines or equipment.***

A qualified person (employee) as defined in OSHA 1910.269 is a person who is knowledgeable in the construction and operation of the electric power generation, transmission, or distribution equipment involved, along with the associated hazards, and who is trained and competent in:

- The skills and techniques necessary to distinguish exposed live parts from other parts of electrical equipment

- The skills and techniques necessary to determine the nominal voltage of exposed live parts
- The minimum approach distances (...) corresponding to the voltages to which the qualified employee will be exposed and the skills and techniques necessary to maintain those distances
- The proper use of the special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools for working on or near exposed energized parts of electric equipment
- The recognition of electrical hazards to which the employee may be exposed and the skills and techniques necessary to control or avoid these hazards

Reference: https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.269

1.2 SPECIFICATIONS:

Highlights:

- Barry D.E.W. Line® insulating rope tools are designed, manufactured, tested and assembled products with exceptional insulating properties which can be cleaned and maintained
- Very low and stable leakage current throughout electrical test period under laboratory conditions
- Arc-Flash rated – Resistant to 40 cal/cm^2 (Category 4)
- Each Barry D.E.W. Line® insulating rope tool is subjected to strict in-house quality control measures and is individually serialized
- Possibility of annual testing and repair (contact Barry for details)

⚠ CAUTION ***IMPORTANT: The Barry D.E.W. Line® insulating rope tool should always be stored in a very low humidity environment to maintain its dielectric properties. Refer to Section 7.2 for details.***

Heat and chemical resistance:

Heat and Chemical Resistance of Barry D.E.W. Line® Insulating Rope Tools	
	Thermoplastic jacket
Melting point*	240°C (464°F)
Resistance to short-term heat*	105°C (221°F)
Arc-Flash resistance	40 cal/cm^2
UV resistance	Good
Resistance to abrasion	Excellent
Resistance to alkalis	Good
Resistance to acids	Good
Resistance to petroleum-based products	Excellent
Resistance to bleaches and solvents	Very Good

* Refer to Section 2.6 for service temperature limits of the Barry D.E.W. Line® insulating tools

Normative references: Barry D.E.W. Line® insulating rope tools meet or exceed the electrical requirements of the following standards as described below:

ASTM F1701-12, Standard Specification for Unused Rope with Special Electrical Properties:
- Passes all dry and wet electrical tests
- Reference: https://www.astm.org/Standards/F1701.htm

IEC 62192 Edition 1.0 2009-02, Live working – Insulating ropes
- Passes all dry and wet electrical tests
- Reference: https://webstore.iec.ch/publication/6579

Refer to international standards and applicable local, state and federal requirements for your specific ruling in your jurisdiction, and make sure that the use of a Barry D.E.W. Line® insulating rope tool meets those requirements.

2. LIMITATIONS

Consider the following application limitations before using these products:

2.1 WORKING LOAD LIMIT: Refer to the product ID label or the product data sheet for information on the working load limit, which should never be exceeded. It is up to the user to determine if the working load limit is appropriate for the intended use and conditions of the rope tool which may have deteriorated over time and as a result of use. Certain Barry D.E.W. Line® insulating rope tools do not have a pre-determined working load limit, in which case a qualified person must define an appropriate safety or design factor and working load limit after thorough analysis of the intended use.

Certain environmental conditions and dynamic loading situations may require the downgrading of the working load limit to take into consideration these factors of critical use conditions.

2.2 ANCHORAGE: When connecting to an anchorage point for lifting or rescue operations, the anchorage point must be designed, installed and used under the supervision of a qualified person.

2.3 CRITICAL USE CONDITIONS: Do not use a Barry D.E.W. Line® insulating rope tool in any of the following conditions:

- Loads are not accurately known
- Operators are poorly trained
- Operating procedures are not well defined
- Inspections are infrequent
- It was not manipulated with clean hands or clean gloves
- There is a chance of shock loads or accidental dynamic loadings
- It is used at high temperatures
- It may have been exposed to contaminants
- It has been in service for an unknown time period
- It is continually under tension or cyclic loading
- It may be subject to sharp bends, excessive wear or contaminated surfaces

2.4 ENVIRONMENTAL HAZARDS: Use of these products in areas with environmental hazards may require additional precautions to prevent injury to the user or damage to the equipment. Hazards may include, but are not limited to: heat, chemicals contamination, electrical fields, electrostatic discharges, moving machinery, corrosion, gases and sharp edges.

2.5 TRAINING: These products must be used by persons trained in their correct application and use (see Section 4).

2.6 SERVICE TEMPERATURE LIMITS: The Barry D.E.W. Line® insulating rope tools may be used in the temperature range between -40°C (-40°F) and +50°C (122°F). Carefully handle the Barry D.E.W. Line® insulating rope tools when temperature is lower than -20°C (-4°F), as thermoplastic jacket will become stiffer and less flexible.

2.7 TEMPERATURE AND HUMIDITY VARIATIONS: The Barry D.E.W. Line® insulating rope tools may be affected by temperature and humidity variations. Storage conditions should be dry with low humidity and be climate controlled. Adjust storage temperature to eliminate condensation or moisture build-up on these products at all times.

⚠ WARNING

WARNING: Ropes that are brought from cold to warm environments may form condensation on their surface as they reach ambient temperature. This transition state could be hazardous if live line work is performed before the ropes can dry fully. Make sure to do pre-use dielectric testing before using the rope tool again.

3. SYSTEM REQUIREMENTS

⚠ CAUTION ***IMPORTANT: Do not modify the original product by altering, adding or removing components, unless approved in writing by Barry.***

3.1 COMPATIBILITY OF COMPONENTS: Barry equipment is designed for use with Barry-approved components and subsystems only. Substitution or replacements made with non-approved components or subsystems may jeopardize compatibility of equipment and may affect the safety and reliability of the complete system. Contact Barry if you have any questions about compatibility.

3.2 COMPATIBILITY OF CONNECTORS: Connectors are considered to be compatible with connecting elements when they have been designed to work together in such a way that their size and shape do not cause their gate mechanism to inadvertently open or fail regardless of how they become oriented. Contact Barry if you have any questions about compatibility.

3.3 MAKING CONNECTIONS: Only use connectors that are suitable to each application. Ensure all connectors are compatible in size, shape, and strength. Do not use equipment that is not compatible. Ensure all connectors are fully closed and locked when applicable.

4. TRAINING

It is the responsibility of the buyer/user to make sure they are familiar with these products and are sufficiently trained in the correct care and use of this equipment. This product must only be used by qualified persons or by authorized persons under the supervision of qualified persons. The user must be aware of the operating characteristics, application limits, and the consequences of improper use of this equipment.

⚠ CAUTION ***IMPORTANT: Gaining an adequate apprenticeship in appropriate techniques and methods of safety is your own responsibility. Inspection training should be repeated on a periodic basis under the supervision of qualified persons.***

Contact Barry to obtain information on available training options.

5. OPERATION AND USE

Before each use of this equipment, carefully inspect it to assure that it is in serviceable condition. Refer to Section 6 for further inspection details. Do not use if inspection reveals an unsafe condition. The Barry D.E.W. Line® insulating rope should always be stored in a very low humidity environment (refer to Section 7.2 for details), carried in its transport bag or non-metallic clean container to the work location, and be taken directly from its bag or container or laid on a clean tarp to prevent contact with ground. After use, it should immediately be put back in its transport bag or container until it can be stored again as per storage guidelines in Section 7.2.

⚠ WARNING

WARNING: Do not alter or misuse this equipment. Consult with a qualified person when using this equipment in combination with components or subsystems other than those described in this manual. Use caution when using this equipment around moving machinery, electrical hazards, chemical hazards and sharp edges.

⚠ WARNING

WARNING: Performing live-line maintenance and operations in an energized environment may put workers and rescuers at risk if insulating ropes are faulty or if correct procedures are not followed. The dielectric properties of Barry D.E.W. Line® insulating rope tools are determined through testing under laboratory conditions using new materials. Because of the wide range of use, situational and environmental conditions and degree of risk, Barry cannot make any blanket recommendations for any particular use of these products.

Ultimately it is the responsibility of the users to determine through their own testing whether the mechanical and dielectric properties of these products meet their requirements for the intended use in the range of conditions and environments considered.

End users intending to use this product in energized environments or on electrical apparatus must determine minimum approach distances (MAD) and consider all risks and factors (i.e. switching surge factors, etc.) relating to the use of these products for any intended purposes.

Barry D.E.W. Line® insulating rope tools must not be used under rain, snow, fog or high humidity conditions for operations in energized environments. Should precipitations begin after live line work has started, then the work should be ceased immediately.

⚠ WARNING

WARNING: The minimum length of the insulating rope shall be greater or equal to minimum approach distance (MAD) based on the maximum system voltage (phase to phase or phase to ground) of the energized or the de-energized environment where the rope is utilized.
Contamination and moisture can reduce the insulating properties of the rope and/or terminations, and result in longer required tool length than the length based on MAD alone, i.e, switching surge mitigation may reduce your MAD significantly however the surface conditions of the insulating tool and environmental conditions may dictate a longer required leakage distance.

⚠ CAUTION

IMPORTANT: The Barry D.E.W. Line® insulating rope tools end terminations may be considered insulating if demonstrated by pre-use electrical testing (refer to Section 6.4.2). If terminations do not pass pre-use electrical testing, but the rope portion does, then users must maintain minimum approach distance (MAD) plus length of termination and/or allow enough insulating rope length between terminations for the intended use and take any additional actions adding to the electrical insulation as deemed appropriate (and tested as required) by a qualified person.

⚠ CAUTION

IMPORTANT: The dielectric and mechanical strength properties of Barry D.E.W. Line® insulating rope tools may vary and wear out or decrease with use: the more severe the usage, the greater the wear and strength loss. It is often not possible to detect wear on a rope by visible signs alone, therefore it is recommended that the end-user determine retirement criteria for ropes for their specific application and conditions of use.

Only qualified employees may work on electrical apparatus and shall wear all the required insulating and protective equipment in conformance with the applicable rules and regulations governing this type of work. Unless otherwise established, electric apparatus and equipment shall be considered and treated as energized and as an electrical hazard. The employer shall ensure that no employee approaches or takes any conductive object closer to exposed energized parts or energized fields than set forth in a plan which has established the minimum approach distances and required safety equipment and measures for such work and equipment involving the use of Barry products.

5.1 OPERATIONAL RISKS: Consider all factors that affect safety of the user at any time during use. The following list gives some important points to consider when planning:

- **Anchorage:** Select a compatible and appropriate anchorage point to attach the Barry D.E.W. Line® insulating rope tool, as approved by a qualified person.

- **Sharp edges:** Avoid working where the Barry D.E.W. Line® insulating rope tool, subsystem, or other system components will be in contact with, or abrade against unprotected sharp edges. Do not loop the rope around small diameter structural members. If working with this equipment near sharp edges or rough surfaces is unavoidable, protection against cutting must be provided by using an appropriate chafe protector or other means over the exposed sharp edge or rough surface (contact Barry for additional options).

- **Abrasion:** Take special care to protect the Barry D.E.W. Line® insulating rope tool from abrasion. Abrasion damage is a common cause of early rope retirement. This damage occurs most often if the rope, when under tension, comes into contact with rough or sharp edges, the inside edges of shackles, bollards, or any other potential hazard that might be found in the surrounding environment.

- **Heat and friction:** Avoid any excessive abrasion which may cause melting or grinding of the rope and avoid contact with any source of direct heat (motors, mufflers, welding equipment, grinders, etc.)

- **Torsion fatigue:** The repeated or excessive twisting of a rope will cause internal abrasion and premature wear and will decrease its strength. Always make sure that there is no twisting or torsion of the rope and use appropriate swivels as required.

- **Chemicals:** Although the materials of the Barry D.E.W. Line® insulating rope tools offer excellent chemical resistance, great care should be taken in order to minimize exposure. Protect the Barry D.E.W. Line® insulating rope tool from exposure to harsh chemicals. Do not allow it to come in contact with any compounds containing acids or alkalines, oxidizing agents or bleaching compounds. Be especially careful to avoid contact with battery acid and acid fumes.

⚠ WARNING

WARNING: Oils and greases can contaminate the surface of Barry D.E.W. Line® insulating rope tools and greatly reduce their dielectric (insulating) properties. These insulating rope products should always be handled with clean hands or clean gloves as to reduce contamination with skin secretions or other substances.

- **Avoid stepping or passing over your rope:** Besides the possibility of cutting the rope, stepping or passing over a Barry D.E.W. Line® insulating rope tool could grind dirt or other contaminants into the rope and reduce its dielectric and mechanical properties.

- **Performing operations near energized apparatus:** Extreme care must be taken when operating a Barry D.E.W. Line® insulating rope tool near energized apparatus and equipment to prevent flashover/electrical arc. In such work situations, use a clean and dry Barry D.E.W. Line® insulating rope tool which has been visually inspected and electrically tested by a qualified person prior to use. For qualified workers, use energized work methods, Minimum Approach Distance (MAD) industry references and appropriate personal protective equipment (PPE). All non-qualified workers should stay at least 50 feet (15 meters) from all energized apparatus. Refer to a qualified person to validate work method in these situations. Contact Barry to discuss your specific requirements.

WARNING: In accordance with industry best practice, all work near electrical apparatus and equipment should be considered energized at all times. Several forms of accidental energization can occur unpredictably through such events as lightning, static discharge, induction, generator feedback, equipment failure, dropped conductors into energized crossings, switching errors, etc.

- **Accidental dynamic loading:** Whenever a load is picked-up, stopped, moved or swung, there is an increased force due to the acceleration or dynamics of the movement. The more rapidly or suddenly such actions occur, the greater the forces.

  The Barry D.E.W. Line® insulating rope tools are not designed to absorb the energy of an accidental dynamic loading. Accidental dynamic loading may occur when, in extreme cases, the forces sustained by the rope may be two, three or even more times the static load. Care must be taken to avoid this. Loads should be handled slowly and smoothly to minimize the dynamic load. If an accidental dynamic loading does occur, retire the product from service!

  Users should also be aware that dynamic effects are greater on low elongation ropes and that dynamic effects are more significant on short ropes as opposed to longer ones.

- **Personal protective equipment:** Personnel using the Barry D.E.W. Line® insulating rope tools should always be wearing clean gloves as well as other required personal protective equipment (safety glasses, helmet, protective clothing, etc.) specific to the task as determined by a qualified person.

- **Knots:** A knot in a rope may reduce its break strength by 50%, depending on knot type and its execution. If using knots on a Barry D.E.W. Line® insulating rope tool that is designated as being knottable, reduce break strength value by 50% when determining the working load limit. Refer to specific product data sheets or ID labels for information on break strength. If a knot was made in a Barry D.E.W. Line® insulating rope tool and it is subsequently loaded, then a proper inspection must be made by a qualified person after use to determine that the knot has not damaged the rope and can be kept in service. Refer to Section 6 for inspection details.

WARNING: Not all Barry D.E.W. Line® insulating rope tools can be knotted. Refer to specific product technical data sheets or consult with Barry for more information.

- **Sharp bends:** As sharp bends in the rope can reduce the strength or damage the jacket of Barry D.E.W. Line® insulating rope tools, always use a properly sized thimble in eyes formed with the rope, or attach to a properly sized object or structure, i.e. at least 3 times the diameter of the rope but preferably 5 times the diameter of the rope.

- **Capstan and pulleys:** Prior to using Barry D.E.W. Line® insulating rope in capstan, sheaves or pulleys, an analysis by a qualified person should be made to verify compatibility in size, bending radius and materials. Capstan and pulley material surface finish should be cleaned prior to use, be smooth and non-abrasive to the Barry D.E.W. Line® insulating rope and made of a material that will not contaminate the Barry D.E.W. Line® insulating rope surface.

6. INSPECTION

⚠ WARNING ***WARNING: Improper care and use of Barry D.E.W. Line® insulating rope tools can result in serious injury or death. Never use these products for any other than their intended purpose.***

This document may only be used by persons who are competent in the inspection of synthetic rope equipment in accordance with the Barry recommendations found herein this manual, which is provided with each Barry D.E.W. Line® insulating rope tool and is also available on the Barry website.

If the user notices any other fault that isn't stated in this manual and that he/she feels might compromise the mechanical and/or dielectric integrity of the Barry D.E.W. Line® insulating rope tool, then its use should be discontinued, and Barry should be contacted for further instructions.

6.1 INSPECTION FREQUENCY: It is important to continually monitor the condition of your Barry D.E.W. Line® insulating rope tool by doing regular inspections.

There are three types of recommended inspections:

- **Initial inspection** performed on a new Barry D.E.W. Line® insulating rope tool prior to using it for the first time.
- **Pre-use inspection** performed before each use of the Barry D.E.W. Line® insulating rope tool.
- **Formal inspection** performed at least once per year (or more frequently if deemed necessary due to intensive use, unknown use conditions, etc.).

6.1.1 INSPECTION SUMMARY:

Inspection requirements		
Initial	**Pre-use**	**Formal**
Visual – tactile (Section 6.3)	Visual – tactile (Section 6.4)	Visual – tactile (Section 6.5)
	Electrical testing (Section 6.4.2)	Electrical testing (Section 6.5.2)

⚠ WARNING ***WARNING: Users should have clean hands or wear clean gloves when manipulating Barry D.E.W. Line® insulating rope tools as to not contaminate the rope.***

6.2 INSPECTION CRITERIA: Inspections should be performed in a clean and well-lit place. The visual and tactile inspection should be done on the entire length and surface of each Barry D.E.W. Line® insulating rope tool that is to be inspected.

It is expected that a Barry D.E.W. Line® insulating rope tool will be left in normal service if no significant damage is identified. However, if any defect or contamination is found which can adversely affect the insulating qualities or mechanical integrity of the Barry D.E.W. Line® insulating rope tool during or after inspection, it shall be removed from service, examined, repaired (if possible) exclusively by Barry, and tested before it can be returned to service. A Barry D.E.W. Line® insulating rope tool that cannot be repaired or which fails the testing criteria shall be removed from service.

Special care and precautions should be taken to prevent contamination and/or exposure to moisture of Barry D.E.W. Line® insulating rope tools. For example, during use it is recommended to use a tarp or some equivalent method to prevent contact with the ground, soiled surfaces or any source of humidity. Barry D.E.W. Line® insulating rope tools must be stored in a clean and very low humidity environment when not in use, as per storage guidelines in Section 7.2.

Loss of insulating properties can be the result of surface conductivity (from contamination or loss of gloss), internal conductivity (from moisture ingress or internal structural changes) or a combination of both.

The Barry D.E.W. Line® insulating rope tool should look glossy and have a smooth and uniform surface. Water sprayed on the rope should form beads rather than streaks. The hydrophobic properties of the Barry D.E.W. Line® insulating rope tool may be restored by following cleaning procedures in Section 7.

Water sprayed on the rope surface should form beads:

6.2.1 IDENTIFICATION LABEL INSPECTION: The identification label must be permanently attached to the Barry D.E.W. Line® insulating rope tool and be fully legible.

6.2.2 TERMINATION INSPECTION: Terminations at each end of the Barry D.E.W. Line® insulating rope tool must be carefully inspected.

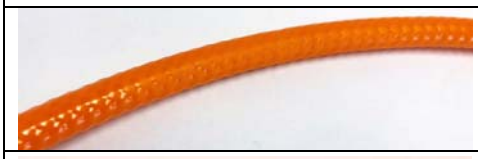
If applicable:

- the eyes should not have opened and allow the thimbles to be easily removable
- inspect the stitching and make sure the sewing thread is not broken or frayed
- inspect the protective materials of the terminations and make sure it is not cracked or broken
- inspect the molded terminations for cracks, cuts, burns, discoloration and changes in texture
- inspect the metal socket terminations for corrosion, deformation cracks and sharp edges

6.2.3 HARDWARE INSPECTION: All hardware components used in conjunction with Barry D.E.W. Line® insulating rope tools should be inspected. Hardware components should not show any damage, deformation, unusual wear, sharp edges or corrosion.

Permanently-fixed hardware components that are damaged must be replaced, if possible, or the Barry D.E.W. Line® insulating rope tool must be retired from service.

6.2.4 ROPE INSPECTION: Every portion of the rope should be inspected visually and manually for defects or damages. The following list is not exhaustive and does not exclude the possibility of other types of degradation and/or manufacturing defects.

	**CONTAMINANTS OR MOISTURE:** Rope surface should be exempt of contaminants such as grease, oil, salt, calcium, frost, ice, water, moisture, etc., which may not be apparent to the unaided eye. Refer to cleaning instructions (Section 7) to remove contaminant.
	**EXCESSIVE ABRASION:** If the rope is showing excessive external abrasion or exposed core fibers, it must be removed from service. Light external abrasion is acceptable if the glossy finish can be restored by silicone wipes.
	**MELTING OR GLAZING:** Rope showing melting or glazing caused by excessive heat, which can be the result of intensive abrasion, must either be repaired or retired from service.
	**DISCOLORATION:** A change in the color of the rope surface may be caused by exposure to chemicals or heat. Determine the source and if the Barry D.E.W. Line® insulating rope tool has been in contact with damaging chemicals, remove it from service.
	**LOSS OF GLOSSY FINISH:** If external rope surface is no longer glossy, it must be restored (refer to Section 7) or removed from service.
	**COMPRESSIONS OR DIAMETER INCONSISTENCY:** If the rope exhibits signs of compression, it must be inspected for damages in the jacket. Remove from service if a cut is observed, or if a localized inconsistency or reduction of diameter, flat areas, lumps or bumps are felt by manual inspection.
	**CUT, CRACKED OR BUNCHED JACKET:** External jacket must not show any cuts on its surface, even if the internal core fibers are not visible, as this may be an entry point for humidity. If the external jacket is bunched in a location, this is a sign that the rope was subjected to excessive wear under tension or misuse. Remove from service if any cut, crack or bunching is observed on the jacket. Inquire with Barry if a repair can be made.

6.3 INITIAL INSPECTION: Every Barry D.E.W. Line® insulating rope tool, prior to being put in service, must be inspected to make sure it is complete and has not been damaged during transit.

6.3.1 INITIAL INSPECTION PROCEDURE:

- **A.** Make sure that the Barry D.E.W. Line® insulating rope tool is complete as ordered.
- **B.** Do a visual inspection of the complete Barry D.E.W. Line® insulating rope tool while removing it from its bag or container to make sure it has no apparent damages. Make sure that handling is done with clean hands or clean gloves when manipulating the Barry D.E.W. Line® insulating rope tool.
- **C.** Check the product ID tag and make sure it matches the info on the provided Certificate of Compliance when applicable.
- **D.** Immediately store the Barry D.E.W. Line® insulating rope tool in a very low humidity storage room, as per storage guidelines in Section 7.2. **If any moisture-depleting medium or desiccant is used near a Barry D.E.W. Line® insulating rope tool, do not rely solely on its condition to determine whether the Barry D.E.W. Line® insulating rope tool is in condition to be used, but rather perform a pre-use dielectric test as per Section 6.4.2.**
- **E.** Complete the provided (or your own) inspection logbook with the product part number, serial number, date of manufacture, date of purchase and date of first use.
- **F.** Validate that the copy of the user instructions manual provided with your Barry D.E.W. Line® insulating rope tool is the latest revision (consult the Barry website at www.barry.ca) and keep it with the product.

⚠ CAUTION

IMPORTANT: Certain Barry D.E.W. Line® products such as ENS-R-series rescue kits, are shipped from Barry with sub-assemblies in a vacuum-sealed plastic bag so they can be readily-deployed if and when needed for rescues. These sub-assemblies should be kept in their vacuum-sealed bags during storage. If their bag is no longer vacuum-sealed, contact Barry for further instructions.

6.4 PRE-USE INSPECTION: The pre-use visual and tactile inspection must be performed before each use of every Barry D.E.W. Line® insulating rope tool by the user as long as this person is trained and qualified to identify damages according to this manual.

Use is defined as from the moment a Barry D.E.W. Line® insulating rope tool is taken out of its low humidity storage or sealed bag until the time when it is put back in its transport bag or container before being put back in low humidity storage. If these recommendations are not applicable due to the nature of the work being done, then the user may refer to a qualified person to establish their own pre-use inspection frequency.

Visual and tactile inspection is a good indicator of rope condition and should always be done prior to use. Look for signs of damage such as scratches, cuts, abrasions, melting, etc. (refer to Section 6.2).

6.4.1 PRE-USE INSPECTION PROCEDURE:

- **A.** Make sure to have enough room to manipulate the product while keeping it clean and off the floor/ground, as it should be thoroughly inspected both visually and manually over its entire length. Inspect the complete product and accessories as per inspection criteria (refer to Section 6.2).
- **B.** If the inspection is satisfactory, and none of the retirement criteria (refer to Section 6.6) are observed, then the Barry D.E.W. Line® insulating rope tool may be inspected and tested for its dielectric properties accordingly to Section 6.4.2. Immediately store the Barry D.E.W. Line® insulating rope tool back in its bag or container after inspection procedure.
  If the inspection is unsatisfactory, the Barry D.E.W. Line® insulating rope tool should not be put in service. It should be tagged accordingly, and either be inspected formally (refer to Section 6.5), sent to Barry for repair/refurbishing or destroyed if it appears to the inspector that it is beyond repair or meets the retirement criteria (refer to Section 6.6). A note in the logbook should be made accordingly. In the case of loss or destruction, please notify Barry with the serial number identification so that Barry can update its logbook of manufactured products accordingly.

6.4.2 PRE-USE ELECTRICAL TESTING: If the Barry D.E.W. Line® insulating rope tool is to be used on electrical apparatus or near energized electrical fields, a dry electrical test should be performed by qualified persons on each Barry D.E.W. Line® insulating rope tool prior to such use.

⚠ WARNING ***WARNING: Wet tests (including wetting tank submersion, humidity chamber conditioning and water spraying, either with distilled or conductive water) should never be performed on Barry D.E.W. Line® insulating rope tools during pre-use testing, i.e. prior to use in an energized environment.***

Barry D.E.W. Line® insulating rope tools can be tested in the field with the use of portable testers. The user's qualified person shall ensure that the portable test equipment will provide suitable testing. Some hot stick portable testers (testers with the highest possible output voltage stress should be used) have proven to be effective at verifying changes to the Barry D.E.W. Line® insulating rope tool's dielectric properties and to detect presence of moisture both on the outer surface and the inside. Any concern raised during testing should be noted and investigated further before the Barry D.E.W. Line® insulating rope tool can be put in service.

The acceptable current leakage value should be determined by the user's qualified person depending on the application for the Barry D.E.W. Line® insulating rope tool. The following method may be helpful to establish a benchmark value to compare field-test results:

- **A.** After the initial inspection of each brand new Barry D.E.W. Line® insulating rope tool, and a minimum of 3 days in very low humidity storage as Section 7.2, perform a test with the same portable tester that will be used for field tests. The test should be performed on the entire length and on all sides of the Barry D.E.W. Line® insulating rope tool.
- **B.** Document the observed results for future reference when doing pre-use dielectric testing with the same portable tester. Benchmark value can be entered in Section C of Formal Inspection Form at the end of this manual.
- **C.** The allowable variation from benchmark test value must be determined by a qualified person. Contact Barry for assistance if required.

⚠ CAUTION ***IMPORTANT: The rope diameter of the Barry D.E.W. Line® insulating rope tool will affect the result of the electrical tests, i.e. that larger diameter ropes may present slightly higher leakage current than smaller diameter ropes. If required, contact Barry for guidance on reference results for a specific Barry D.E.W. Line® insulating rope tool model.***

6.5 FORMAL INSPECTION: It is recommended that every Barry D.E.W. Line® insulating rope tool and its documentation be inspected annually by a qualified person (other than the user or person who performs the pre-use inspections). Certain jurisdictions require testing at 6 months or other intervals, and the user may determine another interval depending on usage made, environment of use, etc. Additional inspection or testing criteria may be required in order to meet internal policies.

6.5.1 FORMAL INSPECTION PROCEDURE:

A. During formal inspections, the inspector should have all the significant information pertaining to the Barry D.E.W. Line® insulating rope tool being inspected, such as:
- The manufacturer's product recommendations
- Knowledge of whether a recall has been made on the product

B. Make sure to have enough room to manipulate the product while keeping it clean and off the floor/ground, as it should be thoroughly inspected both visually and manually over its entire length. Inspect the complete product and accessories as per inspection criteria (Section 6.2).

C. If the inspection is satisfactory, and none of the retirement criteria (refer to Section 6.6) are observed, then the Barry D.E.W. Line® insulating rope tool may be inspected and tested for its dielectric properties accordingly to Section 6.5.2. Immediately store the Barry D.E.W. Line® insulating rope tool back in a very low humidity storage room, as per storage guidelines in Section 7.2, after inspection procedure.
If the inspection is unsatisfactory, the Barry D.E.W. Line® insulating rope tool should not be put in service. It should be tagged accordingly, sent to Barry for repair/refurbishing or destroyed if it appears to the inspector that it is beyond repair or meets the retirement criteria (refer to Section 6.2). A note in the logbook should be made accordingly. In the case of loss or destruction, please notify Barry with the serial number identification so that Barry can update its logbook of manufactured products accordingly.

D. Complete the inspection form and inspection log sheet provided at the end of this manual (or use your own inspection logbook that minimally contains the inspection requirements found in this manual).

6.5.2. FORMAL ELECTRICAL TESTING: It is recommended that every Barry D.E.W. Line® insulating rope tools have its electrical properties tested at least once per year after being put in service, by qualified persons and in accordance with an acceptable testing method as determined by qualified authorities. Any concern raised during testing should be noted and investigated further before the Barry D.E.W. Line® insulating rope tool can be put back in service. Intensive and severe usage of the products, local jurisdiction, policy, etc. may require testing at more frequent intervals which are to be determined by a qualified person.

An acceptable method may consist of using a hot stick portable tester to verify that the complete length of the Barry D.E.W. Line® insulating rope tool continues to test within the benchmark parameters as determined in section 6.4.2.

Another acceptable formal electrical test method involves the use of a horizontal test rack as described in IEC 60855-1 or IEEE 516-2009, typically used for testing hot sticks. This allows testing the Barry D.E.W. Line® insulating rope tool on its complete length, whether dry or wet (only using distilled water, sprayed so that water will form droplets on the rope's surface and start dripping). Make sure the Barry D.E.W. Line® insulating rope tool is thoroughly dried before being put back in service or storage. Leakage current thresholds may vary between different Barry D.E.W. Line® insulating rope tools as well as depending on test set-up and environmental conditions. Contact Barry if assistance is needed.

⚠ WARNING ***WARNING: Wetting tank submersion or humidity chamber conditioning, either with distilled or conductive water, should never be performed on Barry D.E.W. Line® insulating rope tools during formal electrical testing, as this could contaminate the product.***

All electrical testing of Barry D.E.W. Line® insulating rope tools must be recorded in their log book or tracking management system.

6.6 RETIREMENT CRITERIA:

When to retire your Barry D.E.W. Line® insulating rope tool: The following is a list of general guidelines that can assist you in deciding when to retire a Barry D.E.W. Line® insulating rope tool.

- **Age:** Barry D.E.W. Line® insulating rope tool has exceeded its shelf and/or service life limits (refer to Section 8.1).
- **Overuse:** Barry D.E.W. Line® insulating rope tool is simply "worn out" from use.
- **Contamination:** The Barry D.E.W. Line® insulating rope tool has been contaminated and cannot be properly cleaned by approved cleaning methods.
- **Abrasion:** Rope is showing excessive external abrasion or exposed rope fibers.
- **Melting or glazing:** Caused by heat sources or intensive abrasion.
- **Discoloration:** Change in color due to chemicals or heat exposure.
- **Loss of glossy finish:** External rope surface glossiness cannot be restored by approved maintenance methods.
- **Diameter inconsistency:** Visible change in rope diameter, localized diameter reduction, flat area, lumps and bumps in rope.
- **Cut, cracked or bunched rope jacket:** Any cut, crack or bunching on the rope jacket surface.
- **Termination defect:** Termination of Barry D.E.W. Line® insulating rope tool shows defects which cannot be repaired.
- **Dynamic loading:** Barry D.E.W. Line® insulating rope tool has been subjected to accidental dynamic loading.
- **Failed electrical testing:** Barry D.E.W. Line® insulating rope tool no longer passes the acceptance level of dry and wet electrical testing.
- **Overloading:** Barry D.E.W. Line® insulating rope tool has been subjected to the kind of overload for which it was not designed, i.e. beyond its working load limit.
- **Loss of confidence:** Barry D.E.W. Line® insulating rope tool was not used under the supervision of a qualified person, or used by persons who you suspect may not have taken proper care of it or was not properly maintained and stored.
- **Modifications:** Barry D.E.W. Line® insulating rope tool was modified or altered without the written consent of Barry.
- **Identification:** Information on the age and break strength/working load limit of the Barry D.E.W. Line® insulating rope tool is no longer present or legible.

IMPORTANT: Barry D.E.W. Line® insulating rope tools are not as valuable as human life. If for any reason you do not feel comfortable using your Barry D.E.W. Line® insulating rope tool, retire it from service immediately.

7. MAINTENANCE AND STORAGE

7.1 CLEANING: It is recommended to wipe Barry D.E.W. Line® insulating rope tools with a clean silicone impregnated hot stick wiping cloth or silicone hot stick wipe before use. The rope can be visually inspected during this process. Do not use cloths that have been washed in harsh solvents as some residues on the cloth can remain on the rope surface and adversely affect the Barry D.E.W. Line® insulating rope tool. Never wipe a dirty or contaminated Barry D.E.W. Line® insulating rope tool with silicone impregnated hot stick wiping cloth or silicone hot stick wipes as this may only temporarily conceal the contaminant underneath the silicone film.

If the Barry D.E.W. Line® insulating rope tool is not clean or is contaminated, proceed with the following cleaning method. If it cannot be cleaned or treated to a point where the surface is glossy with good hydrophobic characteristics, it must be properly identified, removed from service or sent back to Barry for inspection and testing.

7.1.1 CLEANING METHOD: The cleaning method for Barry D.E.W Line® products consists of three steps which use standard FRP tool cleaning products and accessories. Handling should be done with clean hands or clean gloves.

WARNING: Do not use soap detergents in either liquid or in powdered form as they may leave a conductive residue and will destroy the surface gloss on the rope surface. Do not use any solvent-based cleaners, acetone or isopropyl alcohol on Barry D.E.W. Line® insulating rope tools.

Step 1: Moisten a lint-free towel with hot stick cleaner-solvent (or use wipes pre-impregnated with cleaner-solvent for hot sticks), wrap around the complete surface of the rope and wipe in order to remove all dirt and dust from the surface.

Step 2: If required, scrub lightly the complete surface of the rope with a 3M Scotch Brite® No-Scratch Scour Pad (or equivalent) with hot stick cleaner-solvent to remove all grease and surface contamination.

Step 3: When the rope is dry, use silicone hot stick wipes on the complete surface of the rope.

7.2 STORAGE: Prior to first use and between uses, all Barry D.E.W. Line® insulating rope tools must be kept in a clean and climate-controlled storage room with very low humidity conditions, such as heated dry rooms for hot sticks. During storage, the tool must be kept out of its transport bag (or minimally the bag/container should be left open) to allow air flow on all surfaces. Never leave in its transport bag or container a Barry D.E.W. Line® insulating rope tool that was exposed to humidity.

IMPORTANT: Certain Barry D.E.W. Line® products such as ENS-R-series rescue kits, are shipped from Barry with sub-assemblies in a vacuum-sealed plastic bag so they can be readily-deployed if and when needed for rescues. These sub-assemblies should be kept in their vacuum-sealed bags during storage. If their bag is longer vacuum-sealed, contact Barry for further instructions.

The Barry D.E.W. Line® insulating rope tools must never be stored if soiled with any contaminants such as grease, oil, salt, calcium, frost, ice, water, moisture, etc. Refer to cleaning instructions (Section 7.1) to remove contaminant.

When storing the Barry D.E.W. Line® insulating rope tool, make sure that it is not compressed or exposed to damage from sharp or heavy objects, batteries, chemical and acid fumes, as well as UV rays. Thoroughly inspect the Barry D.E.W. Line® insulating rope tool after extended storage.

Barry D.E.W. Line® insulating rope tools may be put in their transport bag or container for transit to a work site but should not be left in their transport bag or container longer than needed for a job.

7.3 REPAIRS: Repairs and other servicing procedures must only be completed by Barry. Do not attempt to disassemble any part of the Barry D.E.W. Line® insulating rope tools.

8. LIFETIME

8.1 SHELF AND SERVICE LIFE: The following best practice recommendations for Barry D.E.W. Line® insulating rope tools apply only on the condition that regular inspections prior to each use do not reveal an anomaly. The actual lifetime depends on the intensity and the frequency of use as well as the environment. An exceptional circumstance might limit the product lifetime to a single use. A qualified person should determine if a Barry D.E.W. Line® insulating rope tool that was not formally inspected with documented results at least once per year can remain in service. **Service life begins when the Barry D.E.W. Line® insulating rope tool is used for the first time. Log book must be updated with date of first use. In the absence of this written information, manufacturing date must be considered as date of first use.**

	Max. shelf life	Max. service life	Max. combined life (shelf and service)
Barry D.E.W. Line® insulating rope tools	7 years after manufacturing date	5 years	7 years

For shelf and service life specific to the Barry D.E.W. Line® Dielectric Helicopter Longline, refer to the Barry Helicopter Longlines user instructions manual available at www.barry.ca/longline.

9. INCIDENT/FAILURE REPORTING

In the unfortunate situation that a Barry D.E.W. Line® insulating rope tool is involved in an incident or a failure, please notify Barry immediately so that prompt corrective measures can be taken by Barry. Product Safety Alerts are posted on the www.barry.ca website.

10. WARRANTY

Products made by Barry are warranted against factory defects in workmanship and materials for a period of one (1) year from date of shipment. Upon notice in writing, Barry will promptly repair or replace all defective items. Barry reserves the right to elect to have the defective item returned to its plant for inspection before making a repair or replacement. The cost of transport to deliver the product to and from Barry shall be covered by the Buyer. Warranty does not cover product damages resulting from abuse, damage in transit, normal wear and tear or other damages beyond the control of Barry. The warranty applies only to original Buyer, is the only one applicable to products made by Barry and/or under the Barry label or trademark, and is in lieu of all other warranties expressed or implied. For products made by other manufacturers and sold by Barry, only the original manufacturer's warranty shall apply.

THE FOREGOING IS BARRY'S SOLE WARRANTY, ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR PURPOSE AND MERCHANTABILITY, ARE EXCLUDED AND DISCLAIMED TO THE FULL EXTENT PERMITTED BY LAW. IN NO EVENT SHALL THE BUYER BE ENTITLED TO MORE THAN THE PRICE OF THE PURCHASED GOODS AT THAT TIME AS FINAL PENALTY AND DAMAGE. IN NO EVENT, WHETHER AS A RESULT OF CONTRACT, TORT, STRICT LIABILITY OR OTHERWISE, SHALL BARRY BE LIABLE FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES, INCLUDING BUT NOT LIMITED TO, LOSS OF USE, PROFIT OR REVENUE.

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FORMAL INSPECTION FORM
FOR BARRY D.E.W. LINE® INSULATING ROPE TOOLS

Model #: _____
Serial #: _____
Length: _____
WLL: _____

User identity (company)
Name: _____
Address: _____

Age and Service Life Information

Date of manufacture:	Date of purchase:	Date of first use (put in service):

Part A - Information Check

	Yes	No	Comment
Do you have the latest product documentation (User instructions manual)?			
Was there a recall on this product?			

Part B - Visual and Tactile Inspection

Refer to Section 6.2 INSPECTION CRITERIA of the User Instructions Manual

Part to inspect	Verify	Pass	Fail	Comment
Identification label	Permanently attached and fully legible			
Rope	Contaminants or moisture, excessive abrasion, melting, glazing, discoloration, loss of glossy finish, compressions, cuts/cracks/bunching			
Terminations	Eyes tight on thimble, stitching condition, protective material, molded termination or socket condition			
Hardware	Damages, sharp edges, corrosion, incorrect shape, cracks, nicks, gouges, chemical damages			

Part C – Electrical Testing

Refer to Section 6.4.2 PRE-USE ELECTRICAL TESTING of the User Instructions Manual

Benchmark value with portable tester		Tester model / Serial #	

Refer to Section 6.5.2 FORMAL ELECTRICAL TESTING of the User Instructions Manual

Electrical test	Test method and criteria	Pass	Fail	Comment
Dry electrical test				
Wet electrical test				

Part D - Inspection Conclusion

Refer to Section 6.6 RETIREMENT CRITERIA of the User Instructions Manual

Criteria	Verify	Pass	Fail	Criteria	Verify	Pass	Fail
Age	Shelf and/or service life limit			Rope jacket	Cuts, cracks, bunches in jacket		
Overuse	Worn out from use			Termination defect	Defect not repairable		
Contamination	Contaminated and cannot clean			Dynamic loading	Accidental dynamic loading		
Abrasion	Excessive abrasion or exposed fibers			Failed electrical test	Acceptance levels of dry and wet electrical tests not met		
Melting /Glazing	Caused by heat or abrasion			Overloading	Loading beyond WLL		
Discoloration	Color change because of chemicals or heat			Loss of confidence	Not properly taken care of		
Loss of glossy finish	Glossiness cannot be restored			Modifications	Modified by other than Barry		
Diameter inconsist.	Change in diameter of rope			Identification	Age and WLL not legible		
Verdict:	The product **is fit** to remain in service				The product **is unfit** to remain in service		

Part E - Inspector Identification

Name: _____ Signature: _____

Company: _____ Title: _____

Date of inspection: **Date of next inspection:**

Barry

INSPECTION LOG SHEET
FOR BARRY D.E.W. LINE® INSULATING ROPE TOOLS

Model #: ____________________

Serial #: ____________________

Length: ____________________

WLL: ____________________

User identity (company)

Name: ____________________

Address: ____________________

____

Formal Inspection and maintenance log

Note: Each log entry should have a corresponding inspection form

Inspection Date	Inspection Items Noted	Corrective Action	Maintenance Performed
Approved By:	Verdict: **Fit** ☐ **Unfit** ☐		
Approved By:	Verdict: **Fit** ☐ **Unfit** ☐		
Approved By:	Verdict: **Fit** ☐ **Unfit** ☐		
Approved By:	Verdict: **Fit** ☐ **Unfit** ☐		
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Approved By:	Verdict: **Fit** ☐ **Unfit** ☐		
Approved By:	Verdict: **Fit** ☐ **Unfit** ☐		