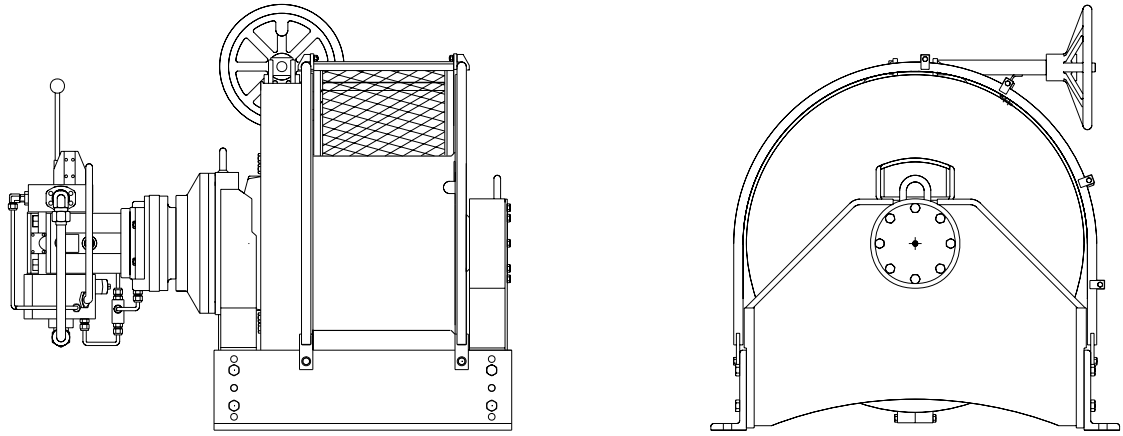
force 5™ WINCHES

MAN RIDER® MODEL FH10 MANUAL SUPPLEMENT*



(Dwg. MHP1864)

*** This supplement should be used in conjunction with the Model FH10 Winch Parts, Operation and Maintenance Manual Form MHD56167.**

These instructions apply only to Ingersoll-Rand winches that are identified for personnel-lifting by a permanent nameplate attached to the winch at the factory.

READ THIS MANUAL BEFORE USING THESE PRODUCTS. This manual contains important safety, installation, and maintenance information. Make this manual available to all persons responsible for the installation, operation and maintenance of these products.

Always operate, inspect and maintain this winch in accordance with American National Standards Institute Safety Code (ASME B30.7) and all other applicable safety codes and regulations.

Form MHD56212
Edition 1
November 1999
71365225

INGERSOLL-RAND
MATERIAL HANDLING

GENERAL

Ingersoll-Rand offers, in its winch product line, a limited number of models referred to as ***Man Rider***® which are designed and manufactured to standards and specifications based on the recommendations of various regulatory bodies for the purpose of lifting people.

Man Rider® winches are type-approved and/or certified to meet the requirements of the Offshore Oil Industry by one or more of the following regulatory bodies:

American Bureau of Shipping (ABS), **Lloyd's Register of Shipping** (LRS) or **Det Norske Veritas** (DNV) to comply with the UK Health and Safety Executive (HSE), UK Department of Energy (DEn), the Norwegian Maritime Directorate (NMD) or the Norwegian Petroleum Directorate (NPD).

In furnishing customers ***Man Rider***® winches, **Ingersoll-Rand** does not warrant the suitability of these winches for any particular use. It is the owner's and user's responsibility to determine the suitability of a ***Man Rider***® winch for a particular application. Further, it is the owner's and user's responsibility to check and satisfy all local, state, federal and country requirements pertaining to the lifting and lowering of persons.

• Many agencies require on winches additional redundant safety devices that Ingersoll-Rand does not furnish. Additional devices are often required to bring the system up to elevator code standards.

Man Rider® winches manufactured by **Ingersoll-Rand** to ABS, LRS and/or DNV requirements are furnished with limitations; approval for use in personnel-lifting applications automatically terminates for any of the following reasons:

1. Winch does not meet other applicable codes or standards.
2. Winch is not part of an approved system.
3. Winch is not properly maintained in an "as new" condition with all parts intact and properly adjusted.
4. Winch is used in applications not approved by codes and regulations, or is used in applications inconsistent with manufacturer's operation and maintenance manual.
5. Changes in any of the standards or regulations after **Ingersoll-Rand's** initial shipment of the product.
6. More than one winch is used to attach to a common load.

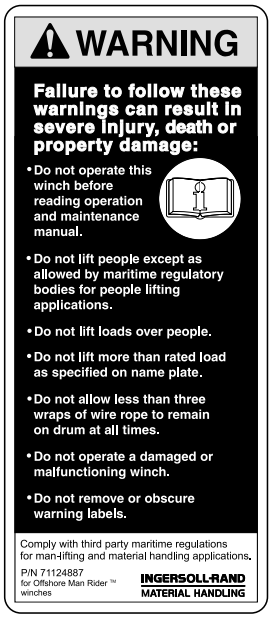
• Before using a *Man Rider*® winch, be sure to check all regulations: local, state, federal and country, that may apply to the use of a winch or winch system for lifting and lowering people.

7. The personnel platform shall be designed by a registered engineer competent in this area.

• Lifting personnel with this winch is STRICTLY LIMITED to off-shore marine applications specifically approved by maritime regulatory bodies. Suitable use is determined by regulatory bodies, not the manufacturer. DO NOT USE FOR personnel lifting applications not specifically approved by regulatory bodies.

Traceability

Load-bearing parts are documented to provide traceability. The documentation includes chemical and physical properties of the raw material, heat treating, hardening, tensile and charpy tests as required for the part. Units with M2 or M3 in the model code have traceable load-bearing components. Components with part numbers ending in CH are charpy parts for use under extreme cold conditions. Traceability requirements must be stated when reordering these parts for continued certification.



GUIDELINES

With reference to the ABS, LRS, DNV, HSE, DEn, NMD and NPD, **Ingersoll-Rand** has developed the following requirements for its ***Man Rider***® Winches. It is the responsibility of owners and operators to comply with rules and guidelines required by other local regulatory agencies.

DESCRIPTION	GUIDELINE
Wire rope to drum ratio	18:1
Wire rope design factor at ***Man Rider***® rating	Minimum of 8:1
Winch design factor at ***Man Rider***® rating	Minimum of 8:1
Throttle control	Spring return to neutral
Brakes (two)	One automatic brake required
	One manual or second automatic brake also required
Special ***Man Rider***® label	Required
Wire rope fleet angle	Not to exceed 1-1/2° (1-1/2 degrees)
Disengaging clutch	Not Allowed
Drum guard	Required
Overload protection	Optional, required to meet CE (Community Europe) directives
Travel limit switch	Optional (owner's responsibility)
Emergency lowering	Not required (Refer to "EMERGENCY LOWERING" section)
Design approval by regulatory or certifying authority	Required
Witness tests at time of manufacture	Required for some applications
Minimum clear drum flange	2.5 times wire rope diameter
Emergency stop device	Optional, required to meet CE (Community Europe) directives
Wire rope winding device	Owner's responsibility (Available from **Ingersoll-Rand**)
Data book	Provided on request
Type Approval Certificate	Included

INSPECTION AND TESTING

Records and Reports

An approved test and inspection record should be maintained for each winch, listing all points requiring test and inspection. These reports should be dated, signed by the person who performed the test or inspection, and kept on file where they are readily available to authorized personnel.

1. Winches that are used to raise, lower or suspend personnel platforms shall be inspected by a qualified person at the beginning of each shift and prior to hoisting employees on the personnel platform after the winch has been used for any material handling operation.
2. A test lift shall be made for each work location and at the beginning of each shift to ensure that all systems and controls are functioning properly.
3. The winch shall not be used for hoisting personnel if the test shows instability, erratic operation or causes permanent deformation of any component.
4. A visual inspection of the winch, personnel platform and rigging shall be conducted immediately after the test lift.

SPECIFICATIONS

Hydraulic System

Model FH10
Rated operating pressure is 2775 psig at 70 gpm.

Rated Performance

Model FH10
Man Rider® operating specifications.
FH10 Winch (18:1 wire rope to drum ratio)
Max. SWL (Safe Working Load) for lifting personnel with full drum 13,750 lb. (6237 kg).

Drum Wire Rope Storage Capacity * ft. (m)

Drum Length		Rope Diameter							
inches	**mm**	**3/4 inch**	**20 mm**	**7/8 inch**	**22 mm**	**1 inch**	**26 mm**	**1-1/8 inch**	**28 mm**
16	406	1446	372	966	292	734	219	550	170
20	508	1825	469	1222	369	930	278	698	216
24	610	2204	567	1477	446	1125	336	845	262
30	762	2773	714	1861	562	1419	425	1067	331
36	914	3342	860	2244	677	1712	512	1289	399
40	1016	3721	958	2500	755	1908	571	1437	445

*Based on U.K. DEn standards which require the top layer to be 2-1/2 times the wire rope diameter below the drum flange diameter using 1-1/8 in. (20 mm) dia. EIPS 6 X 19 IWRC with a minimum breaking strength of 26,600 lb. (12,091 kg).

SAFE OPERATING INSTRUCTIONS

Man Rider® Operating Instructions

• Failure to follow these instructions may result in termination of all applicable warranties. Ingersoll-Rand assumes no liability for any loss or damage resulting from operation of *Man Rider*® winches if these operating instructions are not followed.

1. Winch operator must maintain visual or audio contact with personnel being lifted or lowered at all times.
2. Personnel operating the winch or being transferred are to have sufficient instruction/training concerning that operation before any movement takes place.
3. The winch installation must be arranged to conform to the statutory regulations covering personnel handling.
4. Prior to any personnel movement, the winch shall be inspected to ensure safe operation.
5. The lifting apparatus (basket, etc.) shall be inspected and certified for personnel-lifting prior to use.
6. The winch shall not be overloaded.
7. Do not operate without testing. (Refer to “Inspection and Testing” procedures.)
8. Do not operate winch in a damaged condition.
9. Do not operate a winch that has not been properly maintained or equipped.
10. Do not attach winch to an unsafe foundation. Refer to “INSTALLATION” section in the Model FH10 Winch Operation and Maintenance Manual Form MHD56167.
11. Do not operate winch with any personnel near the line of force or where they are likely to come into contact with moving parts.
12. All signs and warning notices must be posted permanently on the winch.
13. Always maintain three or more wraps of wire rope on the drum.
14. Never leave a suspended load unattended.
15. Wire rope must be spooled off drum from the top, away from the operator.

General Operating Instructions

The following warnings and operating instructions have been adapted in part from American National (Safety) Standard ASME B30.7 and are intended to avoid unsafe operating practices which might lead to injury or property damage.

Ingersoll-Rand recognizes that most companies who use winches have a safety program in force at their facilities. In the event that some conflict exists between a rule set forth in this publication and a similar rule already set by an individual company, the more stringent of the two should take precedence.

Safe Operating Instructions are provided to make an operator aware of dangerous practices to avoid and are not necessarily limited to the following list. Refer to specific sections in the manual for additional safety information.

1. Only allow people trained in safety and operation of this product to operate and maintain this winch.
2. Only operate a winch if you are physically fit to do so.

3. When a **"DO NOT OPERATE"** sign is placed on the winch, or controls, do not operate the winch until the sign has been removed by designated personnel.
4. Before each shift, the operator should inspect the winch for wear and damage. Never use a winch that inspection indicates is worn or damaged.
5. Never lift a load greater than the rated capacity of the winch. See nameplate attached to winch or refer to "SPECIFICATIONS" section.
6. Keep hands, clothing, etc. clear of moving parts.
7. Never place your hand in the throat area of a hook or near wire rope spooling onto or off the winch drum.
8. Always rig loads properly and carefully.
9. Be certain the load is properly seated in the saddle of the hook. Do not support the load on the tip of the hook.
10. Do not "side pull" or "yard".
11. Always ensure that you, and all other people, are clear of the path of the load. Do not lift a load over people.
12. Ease the slack out of the wire rope when starting to lift or pull. Do not jerk the load.
13. Do not swing a suspended load.
14. Do not leave a suspended load unattended.
15. Never operate a winch with twisted, kinked or damaged wire rope.
16. Pay attention to the load at all times when operating the winch.
17. Never use the wire rope as a sling.
18. After use, or when in a non-operational mode, the winch should be secured against unauthorized and unwarranted use.

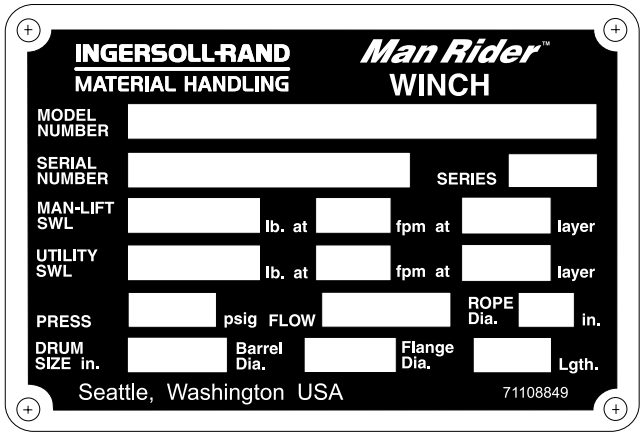
WINCH REPLACEMENT PARTS

Refer to appropriate parts section in the Model FH10 Winch Operation and Maintenance Manual Form MHD56167.

For ***Man Rider***® winches, item number 88 Nameplate, part number 71106967 is replaced by a ***Man Rider***® Nameplate part number 71108849.

• The user and owner are cautioned to be sure to check all appropriate and applicable regulations regarding the lifting or handling of people before putting this winch to such use.

Refer all communications to the nearest **Ingersoll-Rand** Material Handling Office or Distributor.



The nameplate is located on the winch outboard upright. Nameplate may be shown smaller than actual size.

OPERATION

It is recommended that the user and owner check all appropriate and applicable regulations before placing this product into use.

The four most important aspects of winch operation are:
1. Follow all safety instructions when operating the winch.
2. Only allow people trained in safety and the operation of the winch to operate this equipment.
3. Subject each winch to a regular inspection and maintenance procedure.
4. Be aware of the winch capacity and weight of load at all times.

• To avoid damage to the rigging, the structure supporting the rigging and the winch, do not "two-block"* the end of the wire rope.

* "Two blocking" occurs when the winch wire rope is multi-reeved using two separate sheave blocks which are allowed to come into contact with each other during winch operation. When this occurs extreme forces are exerted on the wire rope and sheave blocks which may result in equipment and/or rigging failure.

Operators must be physically competent. Operators must have no health condition which might affect their ability to act. They must have good hearing, vision and depth perception. The winch operator must be carefully instructed in his duties and must understand the operation of the winch, including a study of the manufacturer's literature. The operator must thoroughly understand proper methods of hitching loads and must have a good attitude regarding safety. It is the operator's responsibility to refuse to operate the winch under unsafe conditions.

1. Lifting and lowering speeds shall be operator-controlled and be as slow as practical. **Ingersoll-Rand** recommends that they do not exceed 100 feet (30 m) per minute. Any applicable codes and standards should be followed.
2. Personnel shall keep all parts of the body inside the platform during raising, lowering and positioning.
3. If the personnel platform is not landed on a solid surface, it shall be tied to the structure before personnel get off or on.
4. Tag lines shall be used where practical.
5. The winch operator shall remain at the controls at all times when handling peronnel.
6. Handling of personnel shall be discontinued upon indication of any impending danger.

• Maintain at least 3 wraps of wire rope on the drum at all times.

7. The platform shall be raised 1 ft (30 cm) and inspected to ensure that it is secure and properly balanced before personnel are allowed to occupy the platform. Before elevating or lowering personnel, the following conditions shall exist:
   a. Hoist ropes shall be free of kinks.
   b. Multiple part lines shall not be twisted around each other.
   c. The primary point of wire rope attachment shall be centered over the platform so that the platform will not tilt when lifted, but remain level.
   d. If there is a slack wire rope condition, the hoisting mechanisms shall be inspected to ensure all wire ropes are properly seated on drums and in sheaves, before resuming winch operation.
8. When personnel are suspended, a signal man must be provided unless voice communication equipment is utilized. Signals must be visible or audible to operator at all times.
9. Personnel occupying the lifting platform shall wear a body belt with lanyard appropriately attached to the load block or to a structural member of the required strength within the platform.
10. Bridles and associated hardware for the personnel platform shall not be used for any other service.
11. Warning or limiting devices shall be installed to prevent "two-blocking," unless audible communication has been provided and one of the persons being lifted has been specifically assigned the task of warning of the approach of a "two-block" condition.

Training

Program

The employer shall provide and implement a training program for all supervisors and employees engaged in the operation of raising, lowering or suspending personnel platforms from a winch load line so that they are familiar with the requirements of the hoisting system and are able to recognize the associated hazards and take appropriate measures. Records of training programs shall be maintained.

Planning Meeting

A meeting attended by the winch operator, signal man, persons to be lifted and the person in charge of the task to be performed shall be held to plan and review the procedures to be followed, including procedures for entering and leaving the personnel platform, the points at which personnel will enter and leave the platform, the use of safety equipment, signals and the lift chart information.

• This meeting shall be held prior to the beginning of personnel-hoisting operations at each new work location and thereafter for any new employees assigned to the operation.

During this meeting it is recommended that a comprehensive plan to cover emergency procedures be worked out prior to exercising the ***Man Rider***® capabilities of this winch.

EMERGENCY LOWERING

The following information is provided to allow for emergency lowering of the basket when hydraulic operating power is lost to the winch. These procedures should only be used if no other method of safely lowering personnel is available.

Winch Brake Configuration

Man Rider® hydraulic winches are supplied with a manual drum brake and a disc brake.
The manual drum brake can be used to regulate the speed of descent of the basket when one of the options listed below is used. When system operating hydraulic pressure is lost, the hydraulic winch disc brake is engaged.

Emergency Lowering Precautions

1. Emergency lowering operations must be performed by a minimum of two personnel trained in the operation of the winch.
2. Communication must be established between personnel in the basket and winch operator. Operator should be able to visually monitor the basket through its full range of travel.

Hydraulic Winches

The winch should be isolated from the supply hydraulic system during emergency lowering operations.

Emergency Lowering Procedure

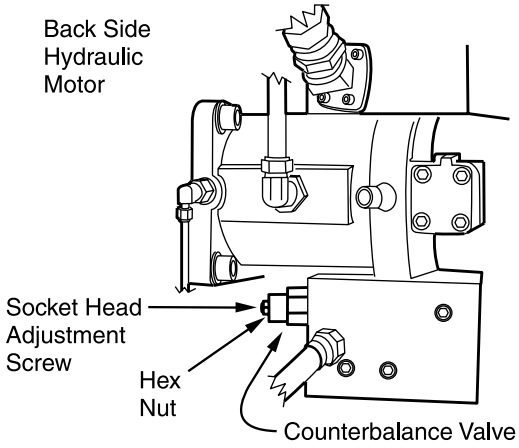
The following options can be used for lowering the ***Man Rider***® basket in an emergency.

1. Have one operator stationed at the manual drum brake to slowly release the brake and regulate basket lowering speed when the hydraulic disc brake is released.

Hydraulic Winches

1. Slowly loosen either end fitting on the 3/8 inch brake line.
2. Attach a manually operated hydraulic hand pump to the 3/8 inch brake line. Manually pressurize brake to 290-350 psi (2000-2400 kPa/20-24 bar). Do NOT exceed 1,000 psi (6900 kPa/69 bar) oil pressure.

3. Locate the hex nut and socket head adjustment screw on the counterbalance cartridge valve. Slowly turn socket head adjustment screw clockwise until load begins to lower. Carefully monitor load, turning adjustment screw counterclockwise to decrease the rate of descent.



(Dwg. MHP2044)

• Turning adjustment screw clockwise as load is being lowered will increase rate of descent.

4. If basket fails to lower, refer to ‘Alternative Measures’.

Alternative Measures

If the hydraulic brake release methods listed above do not allow the basket to lower, there may not be enough weight in the basket to overcome the natural mechanical resistance of the winch gearbox and motor.

1. If the motor will not backdrive, attach a line from another winch to the basket support and pull down the ***Man Rider***® basket.

• The line used to pull down the basket should be attached in such a manner as to NOT damage or deform the basket or cause basket to tip.

2. Alternatively, send additional weight to personnel in the basket using another line. This weight must be carefully and evenly distributed in the ***Man Rider***® basket. Ensure that this extra weight does NOT exceed the capacity of the basket or cause the basket to tilt.

• This weight should be sent in small, easily handled bundles and only enough to cause basket to lower. When lowering basket in this manner the brake(s) can be used to control lowering by releasing hydraulic pressure or applying the band brake.

Ingersoll-Rand has available kits for emergency lowering. Contact technical sales for further information.

United States Office Locations

Technical Support

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2724 Sixth Avenue South
Seattle, WA 98124-0046
Phone: (206) 624-0466
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Order Status

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P.O. Box 618
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Fax: (615) 672-0801

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Rochester Hills, MI 48309
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King of Prussia, PA 19406
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International Office Locations

Offices and distributors in principal cities throughout the world. Contact the nearest **Ingersoll-Rand** office for the name and address of the distributor in your country or write/fax to:

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Distribution Center
P.O. Box 618
510 Hester Drive
White House, TN 37188 USA
Phone: (615) 672-0321
Fax: (615) 672-0801

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51 Worcester Road
Rexdale, Ontario
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Order Desk
Fax: (416) 213-4506

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