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# SECTION 1 INTRODUCTION

## 1.1 General

This manual is written to support the experienced technician/operator during maintenance, repair and operation of the DYNACON, Inc. 22.5 kW (30 HP) MOOS Mooring Winch System manufactured for M.B.A.R.I.

# 1.2 System Description

The Winch System is a self-contained winch system which can be installed on ships of opportunity. The system is designed to deploy, tow and recover terminal equipment from the fantail of a ship. The system is electrically powered, hydraulically operated and is capable of operating in prolonged exposure to an adverse marine environment.

## 1.3 QUICK REFERENCE DATA

#### 1.3.1 Power

Primary
 460 VAC +/- 10%, 3 Phase, 60 Hz

Electric Motor
 Marathon, 22.5 kW (30 HP) @ 60 Hz, 460 VAC, 3

phase, 60 Hz + Magnetic Motor Starter

## 1.3.2 Hydraulic Fluid

Royal Purple Marine Hydraulic Oil, ISO-46

## 1.3.3 Mooring Winch Drum Features

- 1 bay to accommodate cable
- 1 bay to accommodate instrumentation package
- Cable pass thru from instrument bay to cable bay
- 4" Radial clearance between drum and frame members
- Lift points to be provided for lifting drum out of frame fully loaded with cable
- Countersunk bolt holes in flange to allow for installation of spacer plate for different cable diameters
- Drum core match drilled and tapped for Lebus Shells to be purchased later.

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1.3.4 Levelwind Conventional Electro-Active levelwind with

vertical guide rollers. Vertical height is

adjustable within minimum/maximum position.

1.3.5 HPU and Drivetrain

Winch Pump Sunstrand 90 Series 100cc Closed Loop

Levelwind Pump Rexroth A10V 28cc Open Loop

Heat Exchanger: Air/Oil With Hydraulic Motor Driven Cooling Fan.

Winch Motors (2) White 710 540 W86 51 ZAAAA

Levelwind Motor Charlynn 104-1002-006

1.3.6 System Ratings

Safe Working Load (SWL): 6,000 lbs Bare Drum

3,800 lbs Full Drum

Maximum Line Pull (1.25 x SWL)
 7,500 lbs Bare Drum

4,780 lbs Full Drum

Brake Holding Capacity
 10,000 lbs Bare Drum

6,375 lbs Full Drum

Note:

Bare Drum C/L Diameter 47.1 in.

Full Drum C/L Diameter 73.8 in

With 17,225 ft of 1.10 in. Cable Installed

Performance

Low Tension Mode: 3,000 lbs max at 200 fpm Bare Drum

1,900 lbs max at 300 fpm Full Drum

High Tension Mode: 6,000 lbs max at 100 fpm Bare Drum

3,800 lbs max at 150 fpm Full Drum

Cable Capacity: 17,225 ft (5,250m) of Ø1.10" (28mm)

Cable

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# 1.3.7 Dimensions

## 1.3.7.1 Winch

### Drum Size.

Core Diameter 1168 mm (46 In)
Flange Diameter 2184 mm (86 In)
Core Width 2140 mm (84 1/4 In) Main Bay
254 mm (10 in.) Instrumentation Bay

# Footprint Dimensions

 Baseframe Width
 3391 mm (133 1/2 ln)

 Baseframe Depth
 2400 mm (94 1/2 ln)

 Overall Height
 2781 mm (109 1/2 ln) Maximum

# 1.3.7.2 Levelwind Assembly

Maximum Height 2413 mm (109 ½ in) Depth 838 mm ( 33 in)

## 1.3.7.3 Power Unit

 Longth
 2032 mm (80 in)

 Width
 830 mm (32 11/16 in)

 Height
 1387 mm (54 5/8 in)

# 1.3.7.4 Complete Assembly

 Width
 3429 mm (135 in) Across Drum

 Depth
 4070 mm (160 ¼ in)

 Height
 2781 mm (109 ½ in) Maximum

# 1.3.8 Weight

Winch 6364 kgs. (14,000 lbs) Empty
Power Unit 1500 kgs. (3,300 lbs) Wet
Spare Drum 3597 kgs. (7960 lbs)

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1.3.9 Minimum Operating Temperature

0 Degrees C

# 1.3.10 System Color, Hoses, Fittings, and Fasteners

 Color DYNACON Blue, DYNACON paint specifications and materials to be used

- Stainless Steel hose ends, fittings, and Quick Disconnects
- Fasteners 13mm (1/2") or less to be stainless steel, greater than  $\frac{1}{2}$ " to be inorganic zinc coated

# 1.3.11 Customer Supplied Umbilical

Manufacturer:

JDR

Part or Model Number:

010 A 099 Rev 1B

Diameter:

28.0 mm (1.10 in)

Weight in Air:

.784 lbs/ft

Weight in water:

.140 lbs/ft

 Drum Spacers can be installed at a later date to accommodate specific cables.

## 1.3.12 Control Station

- Haul In/ Pay Out Joystick
- Emergency Stop
- Levelwind Override
- Power OK Indicator
- Low Tension/High Tension Switch and Indicator
- 10m (33 ft) Interconnect Cable
- Local Control Pedestal

## 1.3.13 Certifications

None

### 1.3.14 Other Features

- 1 Spare Drum.
- Suitable litting points for crane lift
- Road transportable without permits
- Winch to Deck Tiedowns in form of 1" diameter bolt holes on 24" centerlines
- Design to facilitate rapid drum swap.

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