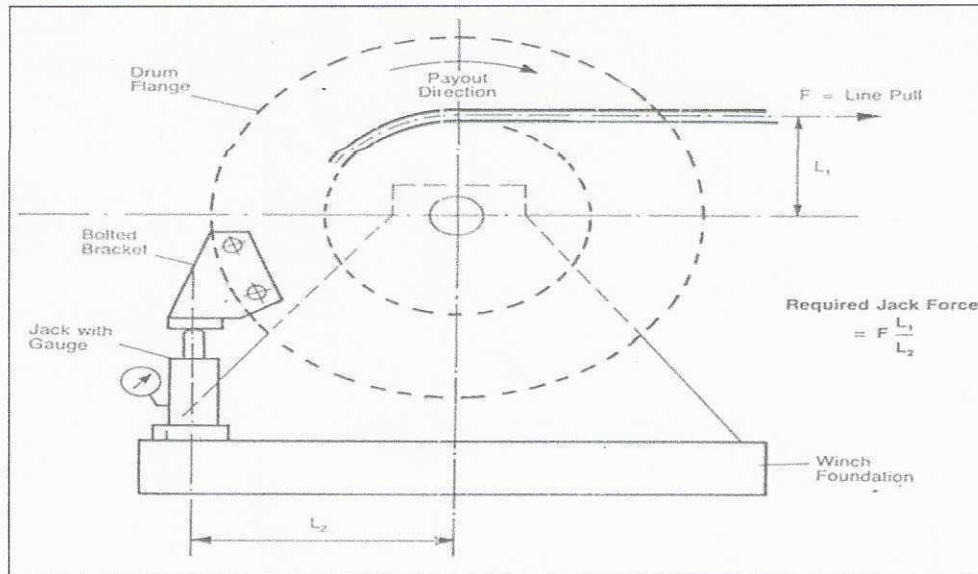


VESSEL: **NAVIOS PHOENIX**

DATE: **26 JAN. 2026**



Jack's piston Diameter (cm) d= **9**
Jack's piston Area (cm²) A= **63.617**

Winch ID #	Split type Y or N	D1 Drum DIA (cm)	Ship Design MBL (kg)	Rope		F1 (60% of SDMBL) (kg)	L1 (cm)	L2 (cm)	F2 (kg)	RF (kg/cm ²)	RF (bar)	RF (TRUE)
				D2 DIA (cm)	MBL (MT)							
1	N	45.70	72000	6.80	75	43200.0	39.850	111.00	15509.189	244	239	235
2	N	45.70	72000	6.80	75	43200.0	39.850	111.00	15509.189	244	239	235
3	N	45.70	72000	6.80	75	43200.0	39.850	111.00	15509.189	244	239	235
4	N	45.70	72000	6.80	75	43200.0	39.850	111.00	15509.189	244	239	235
5	N	45.70	72000	6.80	75	43200.0	39.850	111.00	15509.189	244	239	235
6	N	45.70	72000	6.80	75	43200.0	39.850	111.00	15509.189	244	239	235
7	N	45.70	72000	6.80	75	43200.0	39.850	111.00	15509.189	244	239	235
8	N	45.70	72000	6.80	75	43200.0	39.850	111.00	15509.189	244	239	235
9	N	45.70	72000	6.80	75	43200.0	39.850	111.00	15509.189	244	239	235
10	N	45.70	72000	6.80	75	43200.0	39.850	111.00	15509.189	244	239	235
11	N	45.70	72000	6.80	75	43200.0	39.850	111.00	15509.189	244	239	235
12	N	45.70	72000	6.80	75	43200.0	39.850	111.00	15509.189	244	239	235
13	N	45.70	72000	6.80	75	43200.0	39.850	111.00	15509.189	244	239	235
14	N	45.70	72000	6.80	75	43200.0	39.850	111.00	15509.189	244	239	235
15	N	45.70	72000	6.80	75	43200.0	39.850	111.00	15509.189	244	239	235
16	N	45.70	72000	6.80	75	43200.0	39.850	111.00	15509.189	244	239	235
						0.0	0.000		#DIV/0!	#DIV/0!	#DIV/0!	
						0.0	0.000		#DIV/0!	#DIV/0!	#DIV/0!	
						0.0	0.000		#DIV/0!	#DIV/0!	#DIV/0!	
						0.0	0.000		#DIV/0!	#DIV/0!	#DIV/0!	

FORMULA OF CALCULATIONS	
d :	Jack piston diameter
D1 :	Winch drum diameter
D2 :	Mooring line diameter
L1 :	Split Drums [(D2/2) + (D/2)] or Conventional Drums [D2/2 + (2,5 x D)]
L2 :	Distance between Jack center and winch center
P :	Hydraulic pressure on jack
F1 :	Line pull or line tension (60% x Ship Design MBL)
F2 :	Force required to be applied by Jack [(F1 X L1)/L2]
'A :	d ² π / 4
RF :	Hydraulic Jack Pressure [F2/S]
R _{FTRUE} :	Actual Rendering Force where the Winch Break Adjusted

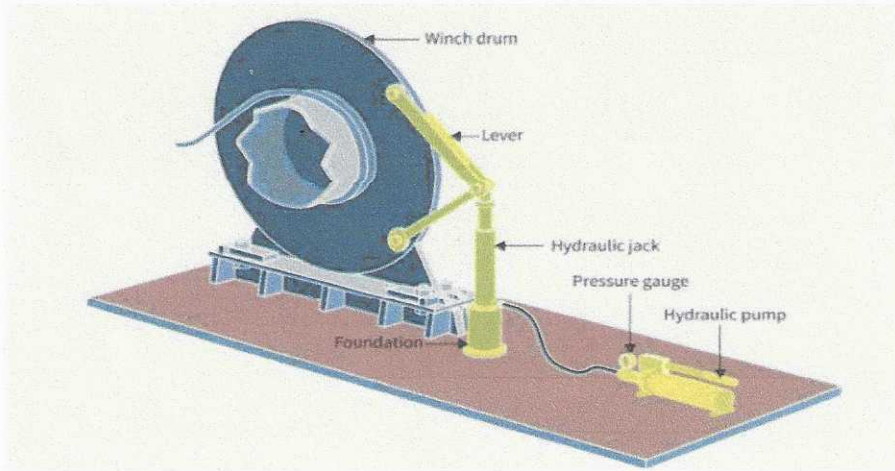


Fig 2: Mooring Winch Brake Test Set Up

Guidelines:

1) Follow the instructions as described in ship's MSMP (incl.LMP) Par.4.2.6 and Ops Circular 02/2023 for a proper testing procedure. The winch test procedure should include:

- I) Preparing the winch for testing.
- II) Setting up the test gear and applying the test load.
- III) A curve or table relating hydraulic jack test pressure to line pull.
- IV) Hydraulic jack pressure at which the brake is calculated to render.
- V) Setting of the winch brakes including the values for torque wrench or pressure gauge fitted for setting up the brakes.
- VI) Recording the test results and ensuring markings on the drum are correct and visible.

2) In the event of mooring loads increasing due to environmental or other factors, the mooring brake must be set to render at 60% of the ship design MBL to avoid the mooring line breaking and, ultimately, damage to the fittings and hull structure.

3) **The main purpose of brake testing is to verify that the brake will render at a lower load than the ship design MBL.** Brakes should be set at 60% of the ship design MBL.

Each winch brake should be tested:

- I) Before the ship's delivery
- II) Annually
- III) After completion of any modification
- IV) After completion of any major repair
- V) Where there is evidence of premature brake slippage or related malfunctions.

4) Ensure that the pressure gauge attached to the hydraulic jack is calibrated prior the winch brake testing.

	YES	NO
GAUGE CALIBRATED	YES	

Colour Codes:

- 1) Cells in blue to be filled by the user
- 2) All the rest cells in yellow return calculated values without user's intervention.

PERFORMED BY:

NAME/RANK/SIGNATURE

C/E REXALDY P. HERNADEZ

ACKNOWLEDGED BY:

MASTER'S SIGNATURE

Capt. Jayson R. Dela Torre