

VESSEL PARTICULARS (FORM C) LPG/C GAS SPIRIT

LAST UPDATE : 13/3/2018

Specifications of the vessel and the gas installation which are representations by the Owners.

(A) VESSEL'S CHARACTERISTICS

PREAMBLE

Name	:	GAS SPIRIT			
Owner	:	PETCHEM TRADING INC.			
Flag	:	MARSHALL ISLAND			
Build	:	HIGAKI SHIPBUILDING CO. LTD			
Date on Service	:	29 AUG. 2001			
Class	:	LR (100A1 Liquefied Gas Carrier, LPG in independent type C tanks, Ship type 2PG, Max. pressure 17.7 bar, Min. Temp ' 0' LMC)			
GRT International	:	3678	Suez	:	4101.75 T
			Panama	:	3678
NRT International	:	1104	Suez	:	3309.25
			Panama	:	3148
Is vessel build according to		USCG regulations?	:	YES	
		RINA regulations?	:	NA	
		Japanese regulation?	:	NA	
Has vessel received		USCG approval?	:	YES	
		RINA approval?	:	NA	

HULL

LOA	:	99.59	M
LBP	:	93.68	M
Breadth	:	17.5	M
Depth	:	7.5	M
Summer Draft	:	5.50	M corresponding to Summer DWT = 3408.63
Multiple Draft	:	NA	M corresponding to Multiple DWT = NA

Estimated draft with full cargo and full bunkers are as follows.

Product	Draft Fore' (m)	Draft Aft' (m)	Draft Mean (m)	Corresponding Deadweight (t)
Propane (98%)	4.40	5.59	5.00	2769.88
Butadiene (98%)	5.20	5.55	5.37	3267.11
VCM (98%)	5.15	5.83	5.49	3395.65

Propeller immersion :

At draft	At 5.00	m correspond.	75	:	%
At draft	At 5.25	m correspond.	85	:	%
At draft	At 5.50	m correspond.	90	:	%

COMMUNICATION EQUIPMENT

Call letter : V7JU4
Radio Station normally watched : YES
Radio MF/HF NBDP : YES , JRC CDJ – 1085/1980/JSS-800
Radio MF/HFTEL/DSC : YES , AS ABOVE
VHF : YES , JRC JHS -7
Satellite Communication
Inmarsat 'B' : Tel : 870 773257561
: Fax: 870 783231240
E mail : gasspirit@stealth.gr

MACHINERY

Main Engine x 1
Type and make : 2 – CYCLE DIESEL ENGINE 6UEC37LA, AKASAKA
Service power : MCR :3120 KW x 210 / min , CSR : 2808 KW
No of Cylinders : 6 Nos.
Cyl Bore x Stroke : 370 mm X 880 mm
Grade of fuel used : IFO 380 CST

Auxiliaries
Type and make (Electrical) : 4 CYCLE DIESEL ENGINE /6NY16L-UN/ YANMAR
440 V X 400 KVA
(Mechanical) : 355 KW at 1200 RPM
Grade of fuel used : MDO
No off : 02 SETS

Emergency Gen
Type : MODEL : NFD 150 K
No off : 01 SET

Bow Thruster
Type : Power: MODEL: KT 431B1 , POWER : 315 KW

Boiler
Type : VERTICAL WATER TUBE COMPOSITE TYPE /
6K-1428
Evaporation : 600/400 KG/h (OIL SIDE / EXH.GAS SIDE @ 90%
CSR
Max Design Pressure : 0.7 MPA (MAX)
Feed Water Temp : 60 – 70 C
No off : 01 SET

Exhaust Economiser
Type : NA
Evaporation : NA
No off : NA

Air Compressors (Main)
Type / Capacity : VERTICAL TWO STAGE WATER COOLED/
PRESSURE 2.45 MPA
No off : 02 SETS

Air Compressors (Emergency)
Type : KSC3N – V
No off : 01 SET

Fuel Oil Purifier
Type : MITSUBISHI SELFJECTOR TYPE, MODEL : SJ15F

	No off	02
	Capacity	1500 L/H
Lub Oil Purifier	Type	MITSUBISHI SELF JECTOR TYPE, MODEL : SJ15F
	No off	01
	Capacity	1700 L/H
Evaporator	Type	WM-10 M
	Capacity	10 T/D
Fresh Water Sterilizer	Type	USC – 500
	Capacity	500 L/H
Fresh Water Mineraliser	Type / Capacity	NA
Waste Oil Incinerator (IMO MEPC 76 (40))	Type	BGW – 20N
	Capacity	25 L/h , WASTE OIL
Oily Water Separator	Type	USC – 20
	Capacity	2.0 m3 / h
Sewage Treatment plant	Type	SBT – 25
	Capacity	25 PERSON / DAY
Hot Water Set (Calorifier unit)	No off	01 SET
Steering Gear	Type	MODEL : RV 21 – 013
	Duty Capacity	WORKING PRESSURE : 22 MPA
	Hydraulic pump unit	02 SETS

Speed

Up to and Beaufort Scale 4 Douglas Sea state 3

About 13.0 KTS Laden/Ballast

CONSUMPTION/DAY

At Sea

Main Engine	HFO	About 11.5 MT/Day	Laden/Ballast
Auxiliary Engine	MGO	About 1.2 MT/Day	
In Port	MGO	About 0.8 MT/Day	Idle
	MGO	About 3.0 MT/Day	Discharging
	MGO	About 0.8 MT/Day Additional	Using N2 Generator

Permanent bunker capacity (100%)

HFO	:	534.68 M3
Diesel	:	124.34 M3
Fresh Water	:	118 MT

3.7 Hydrostatic Test Pressure : **27.0 bar g (2.66 MPag)**

4. LOADING RATE (TONS/HOUR) – For Full Cargo Parcels

Ex-atmospheric storage with gas : 1 tank : **450 m3 / h**

Return : 2 tanks : **790 m3/ h**

Remarks:

* Based on maximum velocity of 6.5 metres/sec except VCM, and 4.0 meters/sec for VCM in the liquid piping.

* If cargo temperature is less than 0 °C, shore heater to be used. If ship heater used, max rate is **250 m³** per hour.

* Loading by shore pump only, proper size gas return line to be connected

* Subject to both ship and shore tanks being under favourable conditions

5. CARGO PUMPS

5.1 Type : **DEEPWELL VERTICAL CENTRIFUGAL MULTI STAGE DESIGN**
Make : **TEIKOKU MACHINERY WORKS, LTD**
How many : **2**
Maximum specific gravity : **0.948**

5.2 Capacity (CMB/Hour) : **300 m/h X 110 m (0.647)**
250 m/h X 120 m (0.948)
Two speed or variable speed : **Single speed**
Rated kW (each) : **120 kw**
Working pressure maximum : **17.7 Bar g**

5.3 Location : **CARGO TANK TOP**
Removable : **YES**

5.4 Booster pumps : **NA**
Type : **NA**
Maker : **NA**

5.5 Capacity (CMB/Hour) : **NA**
Working pressure : **NA**

5.6 Location : **NA**

5.7 Time to discharge a full liquid cargo using all pumps against back pressure at pump
1 bar : **about 07 hours for LPG**
5 bars : **about 14 hours for LPG**
10 bars : **-----**

5.8 Nominal back pressure when working : **about 5 bar**
In series corresponding head : **N/A**
Maximum back pressure : **about 10 bar**
Nominal pressure at rail (propane) : **about 13 bar at 20 degree C of cargo temperature**

5.9 What amount of cargo remains in tanks after completion pumping before stripping:
- liquid : **No liquid remains in the tank**
- vapour : **about 20 ton per one tank for LPG**

6. STRIPPING

6.1 Stripping system, if any : **Nil**

6.2 Time required to remove all traces of liquid cargo as stated in 5.9 for:
- LPG : **NA**

7. CARGO COMPRESSORS

7.1 Type : **VERTICAL 01 STAGE WATER COOLED DOUBLE ACTING**
Make : **TANABE PNEUMATIC MACHINERY CO. LTD**
How many : **2**
Piston displacement : **460 m3/h**
Rated Kw : **75 KW**
Stroke : **177.8 mm**
Max discharge pressure : **20 Bar**
Pressure differential : **Normal 4.0 Bar / Maximum 7.0 Bar at single action**

No of Revolutions : **540 rpm**

7.2 Are compressors oil free : **YES**

7.3 Can they reliquify VCM without risk : **NO**

7.4 State time to bring full cargo of butane to atmospheric pressure from :

8. INERT GAS SYSTEM / NITROGEN PLANT

8.1 Does the vessel use inert gas? : **NO / N2 GENERATOR PLANT**
If so, state utilization and quantities : **Model: HPMB 6511 (MG GENERON)**

8.2 Can the vessel produce inert gas? : **NO/ N2**
If so, state type and composition of gas produce: :

Discharge Capacity : **185Nm3/hr**

8.3 Maximum production obtainable : **185Nm3/hr**

NOTE:- Above quantities obtained at engine room temperature **45° C**

8.4 State if there are storage facilities for inert gas onboard: **N/A**

- Size : **N/A**

- Pressure : **N/A**

8.5 State if any shore supply of nitrogen may be required: : **NO**

- for what purpose : **N/A**

- what quantities : **N/A**

9. GAS FREEING

9.1 State method used giving all details : **Nitrogen Plant / Fans**

9.2 State time required including stripping : **APPROX. 09 DAYS**

10. CHANGING GRADE

10.1 From completion discharge of cargo Propane, time required in hours and inert gas in CBM required to reach a tank and gas installation atmosphere of less than 100 ppm of Propane in Vapour phase.

Time required: ABOUT 66 HRS / N2 12300 m3 per tank.

10.2 Can this operation be carried out at sea? : **YES**

10.3 Can the ship measure the number of ppm in vapour phase? : **NO**

10.4 Has vessel deck tank for changing grade/cooling operations? : **NO**

10.5 Deck tanks : **NIL**
Capacity : **N/A**
Purpose : **N/A**

11. **COOLING BEFORE LOADING** : **N/A**

12. CARGO HEATER

12.1 Type : **SHELL & TUBE**
12.2 Inside Diameter **650 mm**
12.3 Overall length **6000 mm**
12.4 Cargo flow rate **200 m3/ h (Propane)**
12.5 Min Inlet Temp **-48 deg. C**
12.6 Min Outlet Temp **0 deg. C**
12.7 Required Sea water Capacity **420 m3/ h with 16 deg C**
12.8 Design Pressure **20.0 Bar**
12.9 Hydrostatic Test Pressure **30.0 Bar**
12.10 Tightness Test Pressure **20.0 Bar**

12.0 State discharging rate for propane to be brought from atmospheric pressure: **300 m3/h basis pump**
Loading rate for Propane – **48 ° C / 0° C: about 200 m3/hr : (as per manual)**

13. CARGO VAPORIZER

In case vapour gas is needed to feed compressors, can vessel produce its own if no shore available:

No

14. **REFRIGERATING APPARATUS** : **NA**

14.1 Is it independent of cargo? : **NA**
Is so, state cooling agents : **NA**

14.2 What minimum temperature can be maintained : **NA**

14.3 What time required at sea to lower by 1°C the full cargo of : **NA**

15. MEASURING APPARATUS

What gauges on board? **Float type level gauge with HHL & HL alarm switch**

Type : **SP- 3511 S , intrinsically safe type**

Location : **At each cargo tank dome**

16. SAMPLES

16.1 State how tank atmosphere samples can be taken and where from?

From slip tubes at tank dome.

- Standard of fitting? : **NO**
- 16.2 Same question for cargo : **BY SAMPLING LINE , WITH STANDARD FITTING**
- 16.3 Are sample bottles available on board? : **NO**

17. CARGO LINES

- 17.1 Is ship fitted with a port and starboard cargo manifold? : **Yes**
- 17.2 Position of cargo manifold
- distance from stern (AP) (S / P) : **52.6 M**
 - distance form stem (FP) (S / P) : **47.0 M**
 - height above deck : **1.30 m for Liquid manifold**
 - distance from ship's rail : **2.45 M**
 - underside keel to manifold : **8.80 M**
- 17.3 Liquid line
- flange-size : **8 inch.**
 - type : **300 ANSI 300 lb**
- Gas line
- flange-size : **5 inch.**
 - type : **150 ANSI 300 lb**

17.4 What reducers on board? :

LIQUID REDUCER			
1	8" ANSI 300lb X 6" ANSI 300lb	pc	1
2	8" ANSI 300lb X 5" ANSI 300lb	pc	1
3	8" ANSI 300lb X 4" ANSI 300lb	pc	1
4	8" ANSI 300lb X 3" ANSI 150lb	pc	1
5	8" ANSI 300lb X 8" ANSI 150lb	pc	1
6	8" ANSI 300lb X 6" ANSI 150lb	pc	1
7	8" ANSI 300lb X 8" JIS 20k	pc	1
8	8" ANSI 300lb X 6" JIS 20k	pc	1
9	8" ANSI 300lb X 4" JIS 20k	pc	1
VAPOUR REDUCER			
1	5" ANSI 300lb X 8" ANSI 300lb	pc	1
2	5" ANSI 300lb X 6" ANSI 300lb	pc	1
3	5" ANSI 300lb X 4" ANSI 300lb	pc	1
4	5" ANSI 300lb X 3" ANSI 300lb	pc	1
5	5" ANSI 300lb X 2" ANSI 150lb	pc	1
6	5" ANSI 300lb X 5" ANSI 150lb	pc	1
7	5" ANSI 300lb X 3" ANSI 150lb	pc	1
8	5" ANSI 300lb X 3" JIS 20k	pc	1
9	5" ANSI 300lb X 4" JIS 10k	pc	1
10	5" ANSI 300lb X 3" JIS 10k	pc	1

17.5 Is ship fitted with stern discharge? : **No**
 - Liquid line - diameter : **N/A**
 - flange – size : **N/A**
 - type : **N/A**

18. HOSES

Are serviceable hoses available on board? : **None**

18.1 Length : **NA**
 Diameter : **NA**
 Flange-size : **NA**
 Type : **NA**
 Bending radius : **NA**

18.2 Minimum temperature acceptable : **NA**
 Maximum pressure acceptable : **NA**

18.3 For what products are hoses suitable? : **NA**

19. DERRICKS

- Hose cranes : **01**
 - Where situated : **CENTRE BETWEEN 1 & 2 CARGO TKS.**
 - Lifting capacity : **3.5 MT**
 - Working radius : **3.6 – 13.0 m**

20. SPECIAL FACILITIES

20.1 How many grades can be segregated? : **NO SEGREGATION POSSIBLE**

20.2 How many cooled? : **N/A**

20.3 Can vessel sail with slack cargo tanks? : **Yes**