Rpt. 4c

Date of writing report 26.6.1964 Received London ..... Port ..... No. 53

Survey held at ..... No. of visits ..... First date ..... Last date .....

FIRST ENTRY REPORT ON AUXILIARY INTERNAL COMBUSTION ENGINES

Name of Ship "GIORDANO BRUNO" *Owners* BLACK SEA STATE STEAMSHIP LINES USSR
(Or Contract No. if name unknown). *(Or Consignees)*
Ship Built at Genova-Sestri *by* Ansaldo, Cantieri Navali *when* ..... *Yard No.* 1595
Auxiliary Engines or Gas Turbines made at Milano *by* Alfa Romeo *when* 1963 *Eng. Nos.* 00507
Total No. of sets and description (including type name) 1 - 1627 Ind.

INTERNAL COMBUSTION RECIPROCATING ENGINES. *No. of cylinders per engine* 6 *Dia. of cylinders* 125 mm. *Stroke* 170 mm. *2 or 4 stroke cycle* 4 *Maximum approved BHP* BHP. 165 at 1800 *RPM* *Corresponding MIP* 8.5 Kg/cm2 *Maximum pressure* 75 Kg/cm2 *Fuel* Gas Oil *Are cylinders arranged in Vee or other special formation?* line *If so, No. of crankshafts per engine* - *Is engine of opposed piston type?* - *No. and type of mechanically driven scavenge pumps or blowers per engine* - *No. of exhaust gas driven blowers or superchargers per engine* - *Is welded construction used for: Bedplate?* - *Entablature?* - *Total internal volume of crankcase (if 20 cu. ft. or over)* less than 20 cu.ft. *and total area of crankcase explosion relief devices* - *Are flame guards or traps fitted?* No. *Cooling medium for: Cylinders* water *Pistons* oil *No. of attached pumps: F.W. cooling* 1 *S.W. cooling* - *Lubricating oil* 2 *How is engine started?* By hand inertia starter

SHAFTING. *Is a damper or detuner fitted?* damper *No. of main bearings* 7 *Are bearings of ball or roller type?* No. *Distance between inner edges of bearings in way of cranks* 137 mm. *Crankshaft:* ~~*Built, semi-built*~~, *solid.* *Material of crankshaft* 38 NCD4 steel *Approved minimum tensile strength* 95 Kg/cm2 *Dia. of pins* 85mm. *Journals* 94 mm. *Breadth of webs at mid throw* 200mm. *Axial thickness* 31mm. *If shrunk, radial thickness around eyeholes* - *Dia. of flywheel* 548mm. *Weight* 137Kg. *Are balance weights fitted?* - *Total weight* - *Rad. of gyration* 181.5mm. *Dia. of flywheel shaft* 130mm.
Has each engine been tested in shop? yes *How long at full power?* 4 hours *Was it tested with driven machinery attached?* No. *Was the governing tested and found satisfactory?* yes *Date of approval of torsional vibration characteristics (for engines of 150 BHP and over)* 22.5.1963
Date of approval of shafting 21.3.63 *Identification marks on shafting* LLOYD'S MI.GL.
Particulars of driven machinery centrifugal pump.

Port and No. of Certificate for Starting Air Receivers .....

AUXILIARY GAS TURBINES. *BHP per set* ..... *At* ..... *RPM of output shaft.* *Open or closed cycle?* .....
Arrangement of turbines. *HP drives* ..... *at* ..... *RPM* *HP gas inlet temp.* ..... *pressure* .....
(A small diagram should be attached showing gas cycle) *IP* ,, ... *at* ..... ,, *IP* ,, ,, ,, ... ,, ...
LP ,, ... *at* ..... ,, *LP* ,, ,, ,, ... ,, ...
No. of air compressors per set ..... *Centrifugal or axial flow type?* ..... *Material of turbine blades* .....
Material of compressor blades ..... *No. of air coolers per set* ..... *No. of heat exchangers per set* ..... *How are turbines started?* ..... *Are the turbines operated in conjunction with free piston gas generators?* .....
Total No. of free piston gas generators ..... *Dia. of working pistons* ..... *Dia. of compressor pistons* ..... *No. of double strokes per minute at full power* ..... *Gas delivery pressure* ..... *Gas delivery temperature* .....
Have the turbines and attached equipment been tested in shop? ..... *How long at full power?* ..... *Were they tested with driven machinery attached?* ..... *Particulars of gearing* .....
Date of approval of plans ..... *Identification marks* ..... *Particulars of driven machinery* .....

ELECTRIC GENERATORS. *Port and No. of Certificate for generators of 100 Kw. and over* .....
For generators under 100 Kw., has Makers' Certificate been obtained? ..... *Are Certificates attached?* .....

The foregoing description is correct and the particulars are as approved for torsional vibration characteristics (strike out words not applicable)

Alfa Romeo S.p.A., Milano
Manufacturer

Is this machinery duplicate of a previous case? yes *If so, which?* Report No.52 - Engine 00506 - Ansaldo's Yard No.1597

GENERAL REMARKS. *State if the machinery has been constructed under special survey in accordance with the Rules, approved plans and Secretary's letters. State quality of materials and workmanship. Where existing machinery is submitted for classification the circumstances should be explained as fully as possible.*

The above machinery was constructed under special survey, in accordance with the Rules and approved plans.
All the materials were submitted to the tests required by the Rules and found satisfactory.
Workmanship satisfactory throughout.

Survey Fee } see previous report No. 50
Expenses }
Date when a/c rendered .....

(Ing.G.LEVI)
Engineer Surveyor to Lloyd's Register

Declaration to be signed by Surveyor at fitting-out Port:— *The above described machinery has been fitted on board the* m.t. "GIORDANO BRUNO" Yard No.1595.
at GENOA SESTRI *in a proper manner and found satisfactory when tested on the (date)* 26/6/64 *under full working conditions.*

(S.DINNEN)
Engineer Surveyor to Lloyd's Register

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