Form t. 5a.

# REPORT ON BOILERS.

No. 14

Received at London Office -8 OCT 1927

Date of writing Report 28th Sept. 1927 When handed in at Local Office ..... 192 Port of LENINGRAD

No. in Book. Survey held at LENINGRAD Date, First Survey 27th April. Last Survey 25th Sept. 1927

(Number of Visits 40) Tons { Gross / Net

on the S/S "MICHAIL TOMSKY"

Register ..... Built at LENINGRAD By whom built BALTIC SHIPBUILDING YARD Yard No. 167 When built 1927

Engines made at LENINGRAD By whom made BALTIC SHIPBUILDING & ENG^G YARD Engine No. 167 When made 1927

Boilers made at LENINGRAD By whom made BALTIC SHIPBUILDING & ENG^G YARD Boiler No. 167 When made 1927

Nominal Horse Power 192 Owners SOVIET MERCANTILE FLEET Port belonging to LENINGRAD

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## MULTITUBULAR BOILERS—MAIN, ~~AUXILIARY, OR DONKEY~~.

Manufacturers of Steel IJORSKY STEEL WORKS, KOLPINO, RUSSIA (Letter for Record (S))

**Total Heating Surface of Boilers** 2 × 1377 ft / 128 Sq. Mt. EACH ✓ Is forced draught fitted YES ✓ Coal or Oil fired COAL ✓

**No. and Description of Boilers** TWO MARINE RETURN TUBE 2 SB ✓ **Working Pressure** 185 lb / 13 kg/cm² ✓

Tested by hydraulic pressure to 32 ft / 327.5 Lbs/□ Date of test 6-12-26 No. of Certificate 1002 ✓ Can each boiler be worked separately YES ✓

**Area of Firegrate in each Boiler** 3 Sq. Mt. ✓ No. and Description of safety valves to each boiler TWO SPRING LOADED ✓

Area of each set of valves per boiler { per Rule 5620 Sq M/m / as fitted 6640 Sq. M/m. ✓ Pressure to which they are adjusted 13 Kg/cm² ✓ Are they fitted with easing gear YES ✓

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler NONE ✓

Smallest distance between boilers ~~or uptakes~~ and bunkers ~~or woodwork~~ 450 M/m ✓ Is oil fuel carried in the double bottom under boilers No ✓

Smallest distance between shell of boiler and tank top plating 330 M/m ✓ Is the bottom of the boiler insulated No ✓

Largest internal dia. of boilers 3560 M/m ✓ Length 3097 M/m ✓ **Shell plates:** Material STEEL ✓ Tensile strength 44/51 Kg/mm² ✓

Thickness 26 M/m ✓ Are the shell plates welded or flanged No ✓ Description of riveting: circ. seams { end DOUBLE ✓ / inter. TREBLE ✓

long. seams T.R.D.B.S. ✓ Diameter of rivet holes in { circ. seams 29 M/m ✓ / long. seams 29 M/m ✓ Pitch of rivets { 73.58 M/m ✓ / 194 M/m ✓

Percentage of strength of circ. end seams { plate 60.7% / rivets 57% Percentage of strength of circ. intermediate seam { plate 60.7% / rivets 84.8%

Percentage of strength of longitudinal joint { plate 85% / rivets 100% / combined 93.3% Working pressure of shell by Rules 13.33 Kg/cm²

Thickness of butt straps { outer 20 M/m ✓ / inner 23 M/m ✓ **No. and Description of Furnaces in each Boiler** TWO 2 Cf. MORRISON ✓

Material STEEL ✓ Tensile strength 41/47 Kg/mm² ✓ Smallest outside diameter 1017 M/m ✓

Length of plain part { top / bottom ✓ Thickness of plates { crown / bottom 13.5 M/m ✓ Description of longitudinal joint WELD ✓

Dimensions of stiffening rings on furnace or c.c. bottom NONE ✓ Working pressure of furnace by Rules 13.5 Kg/cm² ✓

**End plates in steam space:** Material STEEL ✓ Tensile strength 41/47 Kg/mm² ✓ Thickness 25 & 21 M/m ✓ Pitch of stays 375 × 360 M/m ✓

How are stays secured FRONT DOUBLE NUTS, BACK DOUBLE NUTS & RIVETED WASHERS ✓ Working pressure by Rules 14.9 Kg/cm² & 13.2 Kg/cm² ✓

**Tube plates:** Material { front STEEL / back STEEL ✓ Tensile strength { 41/47 Kg/mm² / 41/47 Kg/mm² ✓ Thickness { 25 M/m ✓ / 21 M/m ✓

Mean pitch of stay tubes in nests 208 M/m Pitch across wide water spaces 350 M/m ✓ ~~Working~~ pressure { front 13.25 Kg/cm² / back 26.8 Kg/cm² ✓

**Girders to combustion chamber tops:** Material STEEL ✓ Tensile strength 44/51 Kg/mm² ✓ Depth and thickness of girder at centre 200 M/m × 13 M/m DOUBLE ✓ Length as per Rule 664 M/m ✓ Distance apart 200 M/m ✓ No. and pitch of stays in each 2 @ 210 M/m ✓ Working pressure by Rules 14.4 Kg/cm² ✓

**Combustion chamber plates:** Material STEEL ✓ Tensile strength 41/47 Kg/mm² ✓ Thickness: Sides 15 M/m ✓ Back 15 M/m ✓ Top 15 M/m ✓ Bottom 18 M/m ✓

Pitch of stays to ditto: Sides 200 × 210 M/m ✓ Back 200 × 200 M/m ✓ Top 200 × 210 M/m ✓ Are stays fitted with nuts or riveted over NUTS FITTED ✓

Working pressure by Rules 13 Kg/cm² **Front plate at bottom:** Material STEEL ✓ Tensile strength 41/47 Kg/mm² ✓

Thickness 22 M/m ✓ **Lower back plate:** Material STEEL ✓ Tensile strength 41/47 Kg/mm² ✓ Thickness 22 M/m ✓

Pitch of stays at wide water space 350 M/m ✓ Are stays fitted with nuts or riveted over NUTS FITTED ✓

Working Pressure 15.6 Kg/cm² **Main stays:** Material STEEL ✓ Tensile strength 44/51 Kg/mm² ✓

Diameter { At body of stay, / Over threads ✓ No. of threads per inch 6 ✓ Area supported by each stay 135000 & 121000 Sq M/m

Working pressure by Rules 13.1 Kg/cm² **Screw stays:** Material STEEL ✓ Tensile strength 41/47 Kg/mm² ✓

Diameter { At turned off part, / Over threads 1½" ✓ No. of threads per inch 9 ✓ Area supported by each stay 42000 Sq. M/m. ✓

[2m.12/24.—Copyable ink.]



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*Working pressure by Rules* 13 $^{kg}/_{cm^2}$ *Are the stays drilled at the outer ends* No ✓ *Margin stays: Diameter* {*At turned off part,* ✓ / *or Over threads* 1 3/4" ✓

*No. of threads per inch* 9 ✓ *Area supported by each stay* 58000 *Sq m/m* *Working pressure by Rules* 13·6 $^{kg}/_{cm^2}$

**Tubes:** *Material* STEEL ✓ *External diameter* {*Plain* 76 m/m ✓ / *Stay* 76 m/m ✓} *Thickness* {3.75 m/m ✓ / 5+7 m/m ✓} *No. of threads per inch* 9 ✓

*Pitch of tubes* 104 x 104 m/m ✓ *Working pressure by Rules* 13·5 $^{kg}/_{cm^2}$ **Manhole compensation:** *Size of opening in shell plate* 400 x 500 m/m ✓ *Section of compensating ring* 250 m/m x 28 m/m ✓ *No. of rivets and diameter of rivet holes* 38 @ 32 m/m DIA ✓

*Outer row rivet pitch at ends* 203 m/m ✓ *Depth of flange if manhole* COMP. PLATE *flanged* 90 m/m ✓ **Steam Dome:** *Material* ✓

*Tensile strength* ✓ *Thickness of shell* ✓ *Description of longitudinal joint* ✓

*Diameter of rivet holes* ✓ *Pitch of rivets* ✓ *Percentage of strength of joint* {*Plate* / *Rivets* ✓}

*Internal diameter* ✓ *Working pressure by Rules* ✓ *Thickness of crown* ✓ *No. and diameter of stays* ✓ *Inner radius of crown* ✓ *Working pressure by Rules* ✓

*How connected to shell* ✓ *Size of doubling plate under dome* ✓ *Diameter of rivet holes and pitch of rivets in outer row in dome connection to shell* ✓.

**Type of Superheater** SMOKE TUBE TYPE ✓ *Manufacturers of* {*Tubes* SOUTHERN STEEL TRUST, RUSSIA. / *Steel castings* BOLSHEVIK STEEL WORKS, LENINGRAD.

*Number of elements* 32 *Material of tubes* S/D STEEL ✓ *Internal diameter and thickness of tubes* 16 x 3 m/m ✓

*Material of headers* CAST STEEL ✓ *Tensile strength* 41/55 $^{kg}/_{m\,m^2}$ ✓ *Thickness* BODY 20 m/m PIPE 15 m/m *Can the superheater be shut off and the boiler be worked separately* YES ✓ *Is a safety valve fitted to every part of the superheater which can be shut off from the boiler* YES ✓

*Area of each safety valve* 314 *Sq m/m* ✓ *Are the safety valves fitted with easing gear* YES ✓ *Working pressure as per Rules* 13·5 $^{kg}/_{cm^2}$ *Pressure to which the safety valves are adjusted* 13·3 $^{kg}/_{cm}$ ✓ *Hydraulic test pressure: tubes* 39 $^{kg}/_{cm^2}$ ✓, *castings* 39 $^{kg}/_{cm^2}$ ✓ *and after assembly in place* 26 $^{kg}/_{cm^2}$ ✓ *Are drain cocks or valves fitted to free the superheater from water where necessary* YES ✓.

*Have all the requirements of Sections* 14 *to* 23 *inclusive for boilers been complied with* YES.

*The foregoing is a correct description,*

B. Topoguet *Manufacturer.*

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*Dates of Survey while building*

*During progress of work in shops* - - 1926 2/4. 13+17/5. 3, 7, 14, 17/6. 15/16, 23, 27, 30/6 — 4, 5, 10, 11, 20, 24, 27, 30/8. 6, 7, 10, 13, 14, 15/9. — 15, 18 25/10. 8, 11, 15, 17, 25, 29/11. 6/12

*During erection on board vessel* - - - 6/7/27 22/7/27, 8/8/27, 24/9/27.

*Are the approved plans of boiler ~~and superheater~~ forwarded herewith* YES ✓.

(If not state date of approval.) SUPERHEATER APPROVED 7/5/26

*Total No. of visits* 40

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**GENERAL REMARKS** (*State quality of workmanship, opinions as to class, &c.*)

These boilers have been constructed under special survey in accordance with the rules and approved plans. The materials and workmanship are sound and good. The boilers have now been fitted on board the above vessel in a satisfactory manner, examined under steam and safety valves adjusted to 13 $^{kg}/_{cm^2}$. They are in our opinion eligible to be included with the machinery for record of ✠ L.M.C. 9·27.

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| Survey Fee ... ... | £ : : | When applied for, | 192 |
| Travelling Expenses (if any) | £ : : | When received, | 192 |

For H.R. Howells + self
H McCririck.
*Engineer Surveyor to Lloyd's Register of Shipping.*

*Committee's Minute* FRI. 14 OCT 1927

*Assigned* see minute on attached Rpt. Leningrad 12 013