



**Rpt. 4e**

Date of writing report 24/4/63 Received London -- Port HANNOVER No. 136

Survey held at Hameln No. of visits in shop 6 First date 14/12/62 Last date 28/3/63

**FIRST ENTRY REPORT ON MAIN ENGINE REPAIR RING**

Name of Ship 053 7/2 63

Hull built at Elmshorn 63

Main engines made at Köln-Deutz 63

Reduction gearing made at Hameln 63

Type of engine with which gearing is to be used Deutz

The following particulars are to be given as fully and clearly as possible

Description of gearing, including reversing arrangements and

clutches, if any, and No. of sets (state if ball or roller bearings)

Single reduction:- Spur wheel geared, multiple dish clutch operated by oil pressure.

Reverse side:- Planet bevel geared and band brake operated by oil pressure.

Oil pump:- driven by gearing

Bearings:- Roller and ball

If single helical, what is the position of the gear thrust bearing?

Self aligning roller bearing on output shaft

Helix angle, primary                      secondary                     

Type of involute tooth form                      Approved maximum total S.H.P.                      at                      R.P.M. of main wheel                     

**PINIONS**

Maximum S.H.P. to be delivered to primary pinions ... 230

Revolutions per minute ... 1350 386

Diameter of pitch circle, inches/mm. ... 117.755 401.245

No. of teeth ... 20 70

Total width of face, parallel to axis, inches/mm. ... 84 80

Width of gap, inches/mm. ...                     

Diameter of shaft at bearings, inches/mm. ... 82 at top of cone for 65 85

No. of bearings ... separate coupling

Span of bearing centres, inches/mm. ...                     

Material, state nominal composition and heat treatment

Shaft forged C 45 C 45 C 45

gear wheels case hardened EC 80

Tensile strength, tons per sq. in./kg. per sq. mm. ...                     

**QUILL SHAFTS**

Diameter, inches/mm. ...                     

Material, state nominal composition ...                     

Tensile strength, tons per sq. in./kg. per sq. mm. ...                     

**FLEXIBLE COUPLINGS**

Type of coupling ... multiple dish clutch

Material, driving member... C 35

Tensile strength, tons per sq. in./kg. per sq. mm. ...                     

Material, driven member ... GG 22 (cast iron)

Tensile strength, tons per sq. in./kg. per sq. mm. ... min 22

Do couplings permit axial float of pinions? no Have primary pinions been dynamically balanced? no

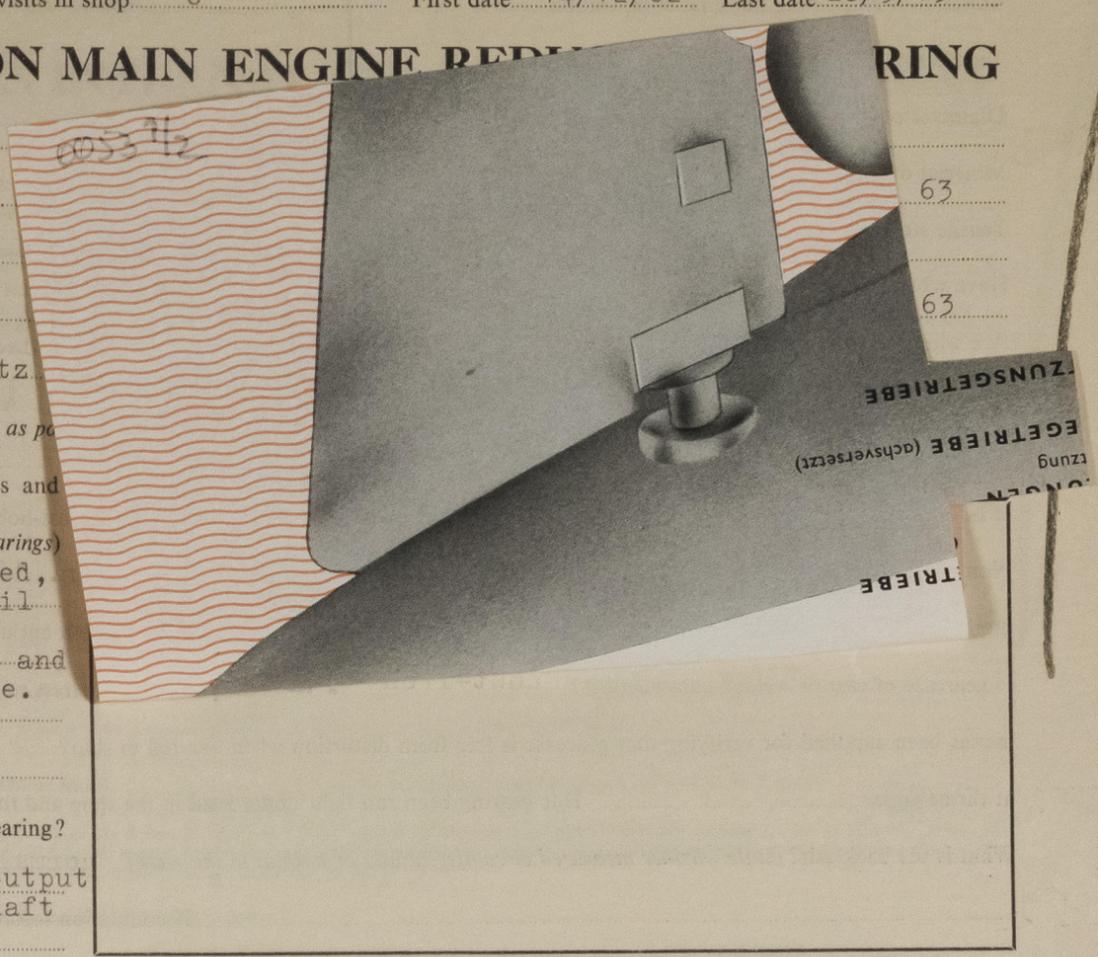
Have secondary pinions been dynamically or statically balanced? no

**WHEELS**

Revolutions per minute ...                     

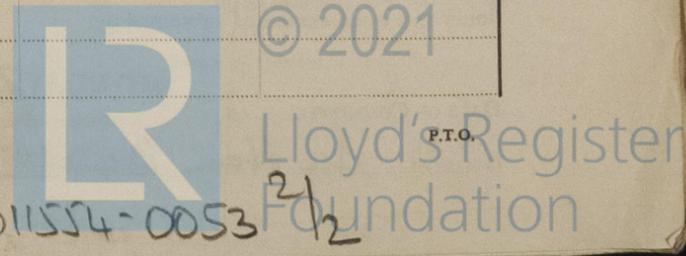
Diameter of pitch circle, inches/mm. ...                     

No. of teeth...                     



|  | Input                 | PRIMARY | Intermediate | SECONDARY | Output  |
|--|-----------------------|---------|--------------|-----------|---------|
|  | HP                    | MP      | LP           | MP        | LP      |
| Maximum S.H.P. to be delivered to primary pinions ...  | 230                   |         |              |           |         |
| Revolutions per minute ...                             | 1350                  |         |              |           | 386     |
| Diameter of pitch circle, inches/mm. ...               | 117.755               |         |              |           | 401.245 |
| No. of teeth ...                                       | 20                    |         |              |           | 70      |
| Total width of face, parallel to axis, inches/mm. ...  | 84                    |         |              |           | 80      |
| Width of gap, inches/mm. ...                           |                       |         |              |           |         |
| Diameter of shaft at bearings, inches/mm. ...          | 82 at top of cone for |         | 65           |           | 85      |
| No. of bearings ...                                    | separate coupling     |         |              |           |         |
| Span of bearing centres, inches/mm. ...                |                       |         |              |           |         |
| Material, state nominal composition and heat treatment |                       |         |              |           |         |
| <u>Shaft forged</u>                                    | C 45                  |         | C 45         |           | C 45    |
| <u>gear wheels case hardened</u>                       |                       |         | EC 80        |           |         |
| Tensile strength, tons per sq. in./kg. per sq. mm. ... |                       |         |              |           |         |

|  | PRIMARY |    |    | MAIN |
|--|---------|----|----|------|
|  | HP      | MP | LP |      |
| Revolutions per minute ...               |         |    |    |      |
| Diameter of pitch circle, inches/mm. ... |         |    |    |      |
| No. of teeth...                          |         |    |    |      |



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WHEELS (continued)

|  | PRIMARY |    |    | MAIN |
|--|---------|----|----|------|
|  | HP      | MP | LP |      |
| Material of rims, state nominal composition        |         |    |    |      |
| Tensile strength, tons per sq. in./kg. per sq. mm. |         |    |    |      |
| Diameter of shaft at bearings, inches/mm.          |         |    |    |      |
| Material of shaft                                  |         |    |    |      |
| Tensile strength, tons per sq. in./kg. per sq. mm. |         |    |    |      |

Material of rims, state nominal composition ...  
 Tensile strength, tons per sq. in./kg. per sq. mm. ...  
 Diameter of shaft at bearings, inches/mm. ...  
 Material of shaft ...  
 Tensile strength, tons per sq. in./kg. per sq. mm. ...  
 Have wheels been statically balanced? yes Are wheel bodies of cast or welded construction? no, forged  
 Are wheel bodies connected to the shafts by bolts? no Material of wheel bodies ---  
 Are rims shrunk on, or bolted to bodies, or attached by welding? no, solid Are radial or axial dowels fitted? ---  
 If shrunk, has the shrinkage allowance been checked and found as approved? --- How were the teeth cut? ---  
 If hobbed, name and serial no. of hobbing machine Walzautomat URS 1 What post-hobbing process was applied? grinding  
 Name and serial no. of machine used for finishing process Type UR 1000 Nr. 10 189 If teeth are surface hardened, state method case hardened Were teeth cut under conditions of temperature control? yes  
 Is gearcase of cast or welded construction? cast-iron If welded, has it been stress relieved? --- Have trammels or other means been supplied for verifying that gearcase is free from distortion when secured in ship? --- Diameter of shaft at thrust collar --- Has gearing been run light/under load in the shop and the tooth contact found satisfactory? yes  
 What is the backlash? (state whether measured circumferentially or normal to the teeth) normal to teeth 0.28 and 0.20 mm  
 If undulation records were taken, state maximum height from crest to trough and wave length, pinions ---  
 wheels ---  
 Maximum adjacent pitch error normal to teeth, if measured, pinions ---  
 wheels --- Date of approval of plans 5/11/62 and 11/1/63  
 If gearing is a duplicate of a previous case, state name of ship Messrs. Kremer & Sohn, Schiffswerft, of Elmshorn, Yard No. 1100 and 1101  
 The foregoing description of reduction gearing is correct.

**EISENWERKE REINTJES GMBH**  
*[Signature]*  
 Manufacturer

GENERAL REMARKS

State if the gearing has been constructed under special survey in accordance with the Rules, approved plans and Secretary's letters. State quality of materials and workmanship. This report should be forwarded to the Head Office with the First Entry report on the machinery. When gearing is made at a Port other than the Port of installation, the Surveyors at the former should send this report to the Surveyors at the Port of installation as soon as possible after completion of the gearing. The latter should complete the Declaration below and send the report to the Head Office with their First Entry report on the machinery.

These main reversible reduction gears have been constructed under special survey in accordance with the requirements of the Rules, approved plans and Secretary letters. The material used was tested and the workmanship satisfactory. The gears would be eligible for the notation + LMC (with date) when the whole machinery has been satisfactory fitted on board and tried under full working condition.

Survey fee .....  
 Expenses .....  
 Date when a/c rendered .....

*A. Buschelt*  
 Engineer Surveyor to Lloyd's Register of Shipping

IDENTIFICATION MARKS Gearing No. 30544 No. 30545  
 LLOYD'S HNO ✓ LLOYD'S HNO ✓  
 HB 25/3/63 HB 28/3/63  
 PRIMARY PINIONS  
 Input shafts:  
 PRIMARY QUILL SHAFTS 657 ✓ LLOYD'S KLN 1927 HL 6.11.62 KN  
 Coupling cover: 659 ✓ LLOYD'S KLN 1927 HL 22.11.62 FK  
 SECONDARY PINIONS Intermediate shafts: 656 ✓ LLOYD'S KLN 1927 HL 6.11.62 KN  
 Output shafts: 654 ✓ LLOYD'S KLN 1927 HL 6.11.62 FK  
 SECONDARY QUILL SHAFTS  
 Coupling flange prop. side: 957 LLOYD'S HNO E50 FK 13.12.62 ✓  
 FLEXIBLE COUPLINGS  
 Bevel gear wheels: 43156 T 14169, 226, 146513 BV LLOYD'S DSF HS 29.11.62  
 PRIMARY WHEEL RIMS  
 Spur wheels: 227 ✓ 43 187 T 14 168 SW 668 OK LLOYD'S DSF 29.11.62 HS  
 PRIMARY WHEEL SHAFTS 228 ✓ 43 187 T 14 168 SW 668 OK LLOYD'S DSF 29.11.62 HS  
 MAIN WHEEL RIM 40 847 MAIN WHEEL SHAFT 40 847

DECLARATION TO BE COMPLETED AND SIGNED BY THE SURVEYOR AT THE PORT OF INSTALLATION

The above reduction gearing has been fitted on board the ..... at .....  
 in a proper manner and found satisfactory when tested on the (date) ..... under full-power working conditions for .....  
 hours and when examined subsequently.

DATE OF COMMITTEE MONDAY 27 APR 1964  
 DECISION See Ham 13425

