

OIL ENGINE VESSEL "FORDONIAN"

This vessel was built with the view of being classed
100A1 Awning Deck "Canadian Lake Service".

She is fitted with Diesel Oil Engines. There are
no rules for the spare gear of such engines, and during
construction a list of gear was mutually agreed between the
Builders, the Owners and by this Office as being suitable for
the engines.

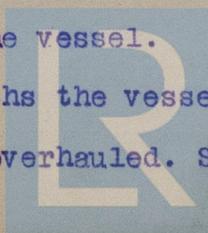
The vessel is fitted with a large donkey boiler which
is intended to be used at sea for working the steering engine,
the donkey pumps, an electric light engine and an auxiliary
air compressor.

After completion she sailed for Canada but put back
with machinery deranged. Part of the agreed spare gear had not
been placed on board but this had no bearing upon her having
to return. The main causes of the casualty were the disablement
of the main compressor which supplies the air for injecting the
fuel into the cylinders and difficulties with the bilge pumps.

When the main compressor was put out of action it was
found that the boiler would not supply sufficient steam to work
the auxiliary compressor to its full capacity and at the same
time to work the donkey pumps and to fulfil the other
requirements.

On the vessel's return the case was specially dealt
with by the Senior Engineer Surveyors of Glasgow and Greenock
who made a joint report and several recommendations including
the necessary overhaul and repairs to machinery, the supply
of a certain amount of spare gear for the compressors and an
extended trial of the machinery at sea including at least 4
hours trial with the main compressor out of action and the
auxiliary compressor only in use. These recommendations were
communicated to the Owners of the vessel.

During the winter months the vessel was laid up at
Greenock and the machinery was overhauled. Some, but not all



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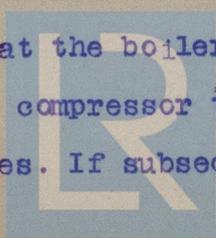
of the additional spare gear recommended was supplied and a full power trial at sea was afterwards carried out. This was attended by Messrs. Heck and Austin who reported that for a trial of 25 hours during which very bad weather was experienced the main engines worked satisfactorily when the main compressor was working. When however the main compressor was disconnected and the auxiliary compressor started the boiler would not supply sufficient steam to work it at full power and at the same time perform the other duties required. The Steam pressure fell from 100 lbs per square inch to 58 lbs per square inch, the air pressure from 47 to 37 atmospheres at which it became no longer possible to work the main engines continuously as the combustion of the oil became very imperfect.

As a result of the proved inability of the appliances, as fitted, to work the main engines without the main compressor the Surveyors recommended that the spare gear for the main compressor should be further supplemented so as to include a spare piece for every working part and also a spare cooling coil.

This supplementary list was recommended solely on account of the inability to continuously work the main engine without the main compressor.

The Builders now state that they have ascertained that some of the furnace fittings of the boiler were defective at the time of the trial and that subsequently these have been put right and a trial of the donkey boiler has been subsequently made when it was found to be capable of supplying full steam pressure when working the auxiliary compressor and also performing all its other duties.

Mr. Heck has been again consulted on the matter and confirms the statement in the report that the third list of spare gear was recommended by himself and Mr. Austin as the result of the trial shewing that the boiler would not supply steam enough for the auxiliary compressor to be used for the requirements of the main engines. If subsequent trials shew



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that the boiler can perform the necessary work it will not be necessary for the third lot of recommended spare gear to be supplied.

In any case however as the experience of the attempted voyage shews that so much depends upon the main compressor being kept in working condition, the Surveyors maintain their opinion that the second lot of spare gear which was recommended in November last, viz, that of certain parts of both compressors should be supplied as they do not consider it advisable for the vessel to proceed on any service, even on the short voyages incidental to Canadian Lake Service, without being supplied with these spare parts.

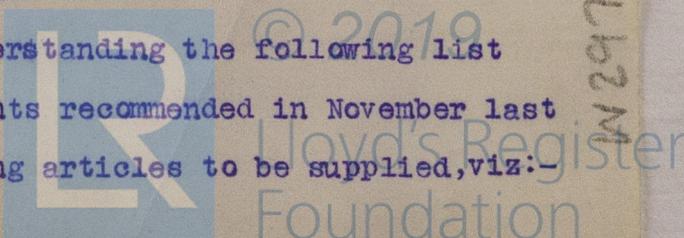
It is submitted that the Builders and Owners should both be informed that although the spare gear for the compressors recommended in November is additional to that which had been previously agreed upon as being sufficient the results obtained with the working of this vessels machinery has shewn that this extra spare gear is essential even for such short voyages as are usual in Canadian Lake Service.

In the case of new types of machinery such as is fitted in this instance it is necessary to be guided by the experience obtained from time to time and it is the experience gained in the "FORDONIAN" which has led to the modification of the requirements which had previously been deemed to be sufficient.

In light of the knowledge resulting from the recent trial it has been recommended that additional spare gear for the main compressors is necessary unless the Donkey boiler can be shewn to be of sufficient power while working the ordinary auxiliaries to enable the auxiliary compressor to maintain sufficient air pressure to keep the main engines at work continuously at reasonable speed.

To prevent any misunderstanding the following list is given. To meet the requirements recommended in November last there still remain the following articles to be supplied, viz:-

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1 piston of each size employed in each compressor
viz:- 1 high pressure, 1 intermediate pressure, and 1 low
pressure piston for each compressor.

1 set of crank pin brasses of each size fitted for
both compressors. These crank pin brasses are the brass straps
holding the two opposite connecting ^{rod} on to the crank pins. There are
two sizes of these brasses in each compressor, comprising 8
half brasses held together by bolts for each compressor.

If a trial is made of the Donkey Boiler satisfactor-
ily proving its capability, the above spare gear is all the
additional that will be required, but if no trial is made or
if the trial when made does not prove to be satisfactory there
should further be supplied one connecting rod for high pressure
and one connecting rod for low pressure for main compressor,
also one high pressure cooling coil for this compressor.

If the trial is arranged to be made of the Donkey
Boiler to demonstrate its power to properly perform the work
required from it when fully working the auxiliary compressor,
Mr. Heck and Mr. Austin will be instructed to attend the trial
and to report thereon to the Committee.

J.M.
L.H.A. 6.5.13.



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