

13TH AUGUST 1894, No. 2002 W., PUBLIC WORKS.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

General.
Account.

READ—the following paper :—

From the Director-General of Stores, to the Secretary to the Government of Madras, Public Works Department, dated India Office, Whitehall, S.W., 20th July 1894, No. 7474 S.

With reference to the indent for two oil engines for the Periyár Project transmitted with your letter, No. 653 W., dated 8th March 1894, I have the honour to forward, for your information, a copy of a report on the subject by the Consulting Engineer, dated 13th July 1894.

2. The tracings, photographs, &c., alluded to in the report were despatched to your address by parcel post on the 19th July 1894, and the engines have been shipped by the S.S. *Goorkha* which sailed on the 13th July 1894.

ENCLOSURE.

Copy report by Consulting Engineer, dated 13th July 1894.

Oil engines.

I send herewith two sets of tracings, Nos. H. 170/1 to 6, one set of photographs, spare packing list, instructions, &c., for the oil engines supplied under contract, No. 33/355, and, as the engines are now completed, I think it will be advisable to draw attention of the authorities in India to one or two matters in connection with them.

The engines were guaranteed by the makers to develop 8 brake horsepower, but on trial they each registered upwards of 10 brake horsepower, measured by the latest system adopted by the Royal Agricultural Society for testing such engines.

The makers tried one engine with an experimental boat and propeller they keep for the purpose. This boat has fairly shaped lines, is 38 feet long $\times$ 7' 6" beam, and draws 3 feet of water. The engines drove this boat at an average speed of 7 knots or 8.05 miles per hour. The object of this trial was to adjust the propeller as far as possible so as to give the correct number of revolutions per minute, namely, 300.

During the brake horsepower and boat trials, one or two points were observed, a knowledge of which may be of assistance to those working the engines for the first time.

(1) Some little skill is required to start the engine at first; the tubes and vaporizer *must* be hot and the fly wheel turned *sharply*. The exhaust valves must be screwed down before starting and released quickly, directly the engine gets away.

(2) The lamp must be carefully adjusted to give a continuous flame direct on to the ignition tubes, which must be kept red hot, and the lamp, vaporizer and tubes protected from the wind and kept as hot as possible. The pressure in the lamp reservoir must be maintained by the hand pump.

(3) Care must be taken to prevent any water getting into the small overhead oil supply tank, as this is often a source of trouble if undetected.

(4) The air valves marked K on drawing No. 1 require careful adjustment. They admit hot air from the exhaust box to the vaporizer. The quantity of air required to make the ignition complete varies with the quality of oil used, and by opening these valves a little at a time and watching the performance of the engine, the correct amount can be ascertained and the valves set in position by means of the lock nut.

(5) The crank pit must be supplied as directed with special gas engine oil sent out for the purpose, as common oil carbonizes and sticks to the piston and cylinder walls. The feed spindle and exhaust valve springs must be kept constantly oiled.

(6) As shown on the drawings, the oil circulating pump raises the oil from the main tank into the overhead feed tank, and an overflow pipe from the overhead tank takes the surplus oil back to the main tank. The pump should be adjusted to keep the overhead tanks always full. The circulating pump for water is for cooling the cylinders and covers when at work and the requisite seacock and piping have been supplied with the engines.

(7) When working, the engines should be kept running continuously at their proper speed, whether the propellor is moving or not. The propellor is controlled by the friction gearing and when uncoupled (by placing the reversing lever in mid gear) racing of the engine must be kept in check by the foot brake.

No drawing of the barge in which it is intended to fit these engines was sent home, so the ferrotype of a sample barge originally forwarded by Messrs. Vosper to India and sent home with the indent has been taken as a guide, and the length of the stern tube, connections and pipes made accordingly.

As the application of oil engines for many purposes in India is worth consideration, I shall be glad if you will ask the authorities in India to send home a report on the working of these engines, giving the size and draught of boats driven by them, the consumption of oil and cost of working.

ORDER—dated 13th August 1894, No. 2002 W., Public Works.

Communicated to the Superintendent of Works, Periyár Project, in continuation of G.O., No. 1946 W., dated 6th August 1894.

2. Attention is called to the request contained in the concluding paragraph of Consulting Engineer's report, the information required in which should be carefully recorded and the results communicated after a sufficient trial of the oil engines.

(True Extract.)

Under Secy. to Govt., P.W.D.

To the Superintendent of Works, Periyár Project,
with tracings and photographs.
„ Superintending Engineer, V Circle.

GENERAL.
ACCOUNT.

Gobt. of {1894} Madras.
PUBLIC WORKS.

Dated August, 13th.

Recd.

Encl.

G.O., 13th Aug. 1894, No. 2002 W.

AUGUST.

Periyar Project

Letter from the Director-General of Stores forwarding copy of a report by the Consulting Engineer, India Office, on the oil engines supplied to the —, communicated to the Superintendent of Works with remarks.

S. 7474.

COPY REPORT BY CONSULTING ENGINEER, DATED
13th JULY 1894.

The air valves marked K on drawing No. 1 require careful adjustment. They admit hot air from the exhaust box to the vaporizer. The quantity of air required to make the mixture complete, and the quality of the fuel used, and the performance of the engine, are all affected by the adjustment of these valves. I send herewith two sets of tracings Nos. H. 170/1 to one set of photographs, spare packing list, instructions, etc., for the oil engines supplied under Contract, No. 33/355, and as the engines are now completed, I think it will be advisable to draw attention of the Authorities in India to one or two matters in connection with them.

The engines were guaranteed by the makers to develop 8 Brake horse power, but on trial they each registered upwards of 10 brake horse power, measured by the latest system adopted by the Royal Agricultural Society for testing such engines.

The makers tried one engine with an experimental boat and propeller they keep for the purpose. This boat has fairly shaped lines, is 38 feet long x 7' 6" beam, and draws 3 feet of water. The engines drove this boat at an average speed of 7 knots or 8.05 miles per hour. The object of this trial was to adjust the propeller as far as possible so as to give the correct number of revolutions per minute namely 300.

During the brake horsepower and boat trials, one or two points were observed a knowledge of which may be of assistance to those working the engines for the first time.

1. Some little skill is required to start the engine at first; the tubes and vaporizer must be hot, and the fly wheel turned sharply. The exhaust valves must be screwed down before starting and released quickly, directly the engine gets away.

2. The lamp must be carefully adjusted to give a continuous flame direct on to the ignition tubes, which must be kept red hot, and the lamp, vaporizer and tubes protected from the wind and kept as hot as possible. The pressure in the lamp reservoir must be maintained by the hand pump.

3. Care must be taken to prevent any water getting into the small overhead oil supply tank, as this is often

GENERAL.
ACCOUNT.

Govt. of {1894}

PUBLIC WORKS

Dated August, 13th.

Recd.

G.O., 13th Aug

Letter
Stores for
Consulting
oil engine
to the
remarks

often a source of trouble if undetected.

4. The air valves marked K on drawing No. 1 require careful adjustment. They admit hot air from the exhaust box to the vaporizer. The quantity of air required to make the ignition complete, varies with the quality of oil used, and by opening these valves a little at a time, and watching the performance of the engine, the correct amount can be ascertained, and the valves set in position by means of the lock nut.

5. The crank pit must be supplied as directed with special gas engine oil sent out for the purpose, as common oil carbonizes and sticks to the piston and cylinder walls. The feed spindle and exhaust valve springs must be kept constantly oiled.

6. As shown on the drawings, the oil circulating pump raises the oil from the main tank into the overhead feed tank, and an overflow pipe from the overhead tank takes the surplus oil back to the main tank. The pump should be adjusted to keep the overhead tanks always full.

The circulating pump for water, is for cooling the cylinders and covers when at work and the requisite seacock and piping have been supplied with the engines.

7. When working, the engines should be kept running continuously at their proper speed, whether the propeller is moving or not. The propeller is controlled by the friction gearing and when uncoupled (by placing the reversing lever in mid gear) racing of the engine must be kept in check by the foot brake.

No drawing of the barge in which it is intended to fit these engines was sent home so the ferrotype of a sample barge originally forwarded by Messrs Vosper to India, and sent home with the indent, has been taken as a guide, and the length of the stern tube, connections and pipes, made accordingly.

As the application of oil engines for many purposes in India is worth consideration I shall be glad if you will ask the authorities in India to send home a report on the working of these engines, giving the size and draught of boats driven by them, the consumption of oil and cost of working.

450
Dupli

On 6026/54
20th July 1894

DUPLICATE

STATES

With reference to an indent for two oil engines for the Periyar Project, transmitted with your letter No. 653 W dated 8th March 1894, I have the honour to forward for your information, a copy of a report on the subject by the Consulting Engineer, dated 13th July 1894. The tracings, photographs, &c., alluded to in the report, were despatched to your address by parcel post, on the 19th July 1894, and the engines have been shipped by the S.S. "Goorkha", which sailed on the 13th July 1894. I have the honour to be, Sir, Your obedient servant,
E. G. BURLS
Director General of Stores.

original

It is requested that in any further communication on this subject the under-mentioned letter and number may be quoted, and the reply addressed to

The Director General of Stores,
India Office,
Whitehall,
London, S.W.

S. 7474.

1 P
India Office,

Whitehall, S.W.

20th July 1894.

Sir,

With reference to the indent for two oil engines for the Periyar Project, transmitted with your letter No. 653 W dated 8th March 1894, I have the honour to forward for your information, a copy of a report on the subject by the Consulting Engineer, dated 13th July 1894.

The tracings, photographs, &c., alluded to in the report, were despatched to your address by parcel post, on the 19th July 1894, and the engines have been shipped by the S.S. "Goorkha", which sailed on the 13th July 1894.

I have the honour to be, Sir,
Your obedient servant,

E. G. BURLS

Director General of Stores.

The Secretary to Government,
Public Works Department,
Madras.

P. W. CURRENT No. 6026

Encls 1
Recd: 13.8.94

OL & D VIII
11/8/94

Enclosure

2 Sps.

S. 7474.

COPY REPORT BY CONSULTING ENGINEER, DATED
13th JULY 1894.

OIL ENGINES.

I send herewith two sets of tracings Nos. H.170/1 to 6 one set of photographs, spare packing list, instructions etc., for the oil engines supplied under Contract, No. 33/355, and as the engines are now completed, I think it will be advisable to draw attention of the Authorities in India to one or two matters in connection with them.

The engines were guaranteed by the makers to develop 8 Brake horse power, but on trial they each registered upwards of 10 brake horse power, measured by the latest system adopted by the Royal Agricultural Society for testing such engines.

The makers tried one engine with an experimental boat and propeller they keep for the purpose. This boat has fairly shaped lines, is 38 feet long x 7' 6" beam, and draws 3 feet of water. The engines drove this boat at an average speed of 7 knots or 8.05 miles per hour. The object of this trial was to adjust the propeller as far as possible so as to give the correct number of revolutions per minute namely 300.

During the brake horsepower and boat trials, one or two points were observed a knowledge of which may be of assistance to those working the engines for the first time.

1. Some little skill is required to start the engine at first; the tubes and vaporizer must be hot, and the fly wheel turned sharply. The exhaust valves must be screwed down before starting and released quickly, directly the engine gets away.
2. The lamp must be carefully adjusted to give a continuous flame direct on to the ignition tubes, which must be kept red hot, and the lamp, vaporizer and tubes protected from the wind and kept as hot as possible. The pressure in the lamp reservoir must be maintained by the hand pump.
3. Care must be taken to prevent any water getting into the small overhead oil supply tank, as this is

1. often

COPY REPORT BY CONSULTING ENGINEER, DATED
18th JULY 1904.

OIL ENGINES.

I send herewith two sets of tracings Nos. H.170/1 to 6, one set of photographs, spare packing list, instructions etc., for the oil engines supplied under contract, No. 88/355, and as the engines are now completed, I think it will be advisable to draw attention of the Authorities in India to one or two matters in connection with them. The engines were guaranteed by the makers to develop 8 Brake Horse Power, but on trial they soon registered upwards of 10 Brake Horse Power, measured by the latest system adopted by the Royal Agricultural Society for testing such engines.

The makers tried one engine with an experimental boat and propeller they kept for the purpose. This boat was fairly shaped lines, is 33 feet long x 7' 6" beam, and draws 3 feet of water. The engines drove this boat at an average speed of 7 knots or 8.05 miles per hour. The object of this trial was to adjust the propeller as far as possible so as to give the correct number of revolutions per minute namely 300.

During the trials the propeller and boat trials, one or two points were observed a knowledge of which may be of assistance to those working the engines for the first time.

1. Some little skill is required to start the engine at first; the tubes and vaporizer must be hot, and the fly wheel turned sharply. The exhaust valves must be screwed down before starting and released quickly, directly the engine gets away.

2. The lamp must be carefully adjusted to give a continuous flame direct on to the ignition tubes, which must be kept red hot, and the lamp, vaporizer and tubes protected from the wind and kept as hot as possible. The pressure in the lamp reservoir must be maintained by the hand pump.

3. Care must be taken to prevent any water getting into the small overhead oil tank, as this is often

PROG.

often a source of trouble if undetected.

4. The air valves marked K on drawing No. 1 require careful adjustment. They admit hot air from the exhaust box to the vaporizer. The quantity of air required to make the ignition complete, varies with the quality of oil used, and by opening these valves a little at a time, and watching the performance of the engine, the correct amount can be ascertained, and the valves set in position by means of the lock nut.

5. The crank pit must be supplied as directed with special gas engine oil sent out for the purpose, as common oil carbonizes and sticks to the piston and cylinder walls. The feed spindle and exhaust valve springs must be kept constantly oiled.

6. As shown on the drawings, the oil circulating pump raises the oil from the main tank into the overhead feed tank, and an overflow pipe from the overhead tank takes the surplus oil back to the main tank. The pump should be adjusted to keep the overhead tanks always full. The circulating pump for water, is for cooling the cylinders and covers when at work and the requisite seacock and piping have been supplied with the engines.

7. When working, the engines should be kept running continuously at their proper speed, whether the propeller is moving or not. The propeller is controlled by the friction gear (by placing the reversing lever in mid gear) racing of the engine must be kept in check by the foot brake.

8. No drawing of the barge in which it is intended to fit these engines was sent home so the ferrotype of a sample barge originally forwarded by Messrs Vosper to India, and sent home with the indent, has been taken as a guide, and the length of the stern tube, connections and pipes, made accordingly.

9. As the application of oil engines for many purposes in India is worth consideration I shall be glad if you will ask the authorities in India to send a report and draught on the working of these engines, giving the size and draught of boats driven by them, the consumption of oil and cost of working.