CORRESPONDENCE

SIR,

" Machinery Installations in H.M. Ships "

Commander Hollamby's article " Machinery Installations in H.M. Ships " in your October, 1950, issue is of very great interest. His final conclusion : " The end of steam plants for ships requiring less than 15,000 S.H.P. is at hand " stirred me to conclude that the ground between the evidence presented and this conclusion probably contains material of equally great interest for another such article.

Our local conditions here bring out three differences between craft and ships. The frigates (Loch and Bay) and patrol craft (Japanese and U.S. built diesels) may stay out on patrol for six weeks.

(*a*) Their ability to go for ten days at a range of power on half their fuel capacity spaces out their visits to the tanker conveniently.

(*b*) Their domestic load with a seawater temperature of 26-40°F. must be considerable and they have to make all their fresh water.

(*c*) No special maintenance facilities have been set up locally nor has a depot ship been brought out here.

From the encouraging figures given I should guess that in the case of the lightweight diesel and the complex gas turbine their light weight has been achieved through a combination of

(1) novel ideas,

(2) the detailed examination of every part of a design for a particular power by a first class team over at least two years, with a second essay on

several of the components, with no fixed date to start production for service, and

(3) enabled to make use of the best production facilities, including fine machine tools of our aero engine firms.

Similarly I should guess that the advanced steam design is a first appreciation, with a fixed date to begin production for service allowing no second thoughts and, while permitted to use a few vital components requiring special techniques and fine machine tools, is tied in the main to the existing production equipment of our marine and auxiliary builders and even possibly to such standards as $\frac{5}{8}$ in (five-eighths inch) bolts in forced lubrication and other low pressure systems.

The phrase " is at hand " covers, I take it, a period of a year or two during which for the lightweight diesel and complex gas turbine

(*p*) the machine tools required will be provided,

(*q*) their coupling to ship's shafts running at much lower revolutions will be worked out in detail, and

(*r*) the problems of using heavier fuels in each will be successfully overcome enabling the lighter fractions to be left for the services which must have them.

During this period the steam folk will surely have a similar team busy appreciating how best to use a similar money outlay on machine tools to quarry away from a set of say 6,000-7,000 horse power per shaft the excess weight now carried around. Surely, too, such a step by step programme is needed if only to prevent a bottleneck in machine tools should a building programme have to be undertaken suddenly and unexpectedly.

I suggest that there is in these points alone material for another article of general and deep interest and hope your contributors will provide it.

(*Sgd.*) J. H. JOUGHIN,
Commander (*E*) R.N.

SIR,

" Machinery Installations in H.M. Ships "

I have received a copy of Commander (E) Joughin's comments on my article in the October, 1950, issue and feel pleased to see some reaction from the steam world.

His reference to novel ideas, detailed examination of design and aero engine practice for all craft below 15,000 H.P. indicates that he has misunderstood the article as that type of machinery was suggested as suitable only for the S.G.B., a craft similar to an M.T.B. which always has had aircraft type engines in the past.

So far as the general conclusions were concerned, the standard present day diesel of a weight rating about 20 lb/H.P. such as A.S.Rs., English Electric, Mirlees Paxman, etc., is considered as the type of engine suitable for ships or craft other than the M.T.B. type. The curves of installation weights included this type of diesel which indicated that although hopeless for an S.G.B. type craft, would eventually on installation weight overtake the steam plant when long endurances were required.

A 15,000 H.P. ship is a tricky problem at present, when long endurance is an overriding factor. One 15,000 H.P. steam plant could meet this requirement (after industry has been educated ?) but 2 shafts are always preferable from

damage control considerations and flexibility for maintenance. On the other hand, 8 diesels of the type suitable for naval service would be required. In my opinion there should never be more than 4, viz., 2 per shaft. The answer may eventually be a combination of gas turbines for main propulsion, domestic boilers and diesels for Ships' Services.

Reference, Commander Joughin's paragraph which includes (*p*), (*q*) and (*r*) and the phrase " is at hand," I think you will find that all new construction below 15,000 H.P. is I.C.E., in other words, the phrase could read " here " but not with the type of machinery misunderstood by Commander Joughin as applicable to all ships and craft.

(*Sgd.*) A. E. HOLLAMBY,
Commander (*E*) R.N.

SIR,

The article " The M is a Capital " written by Commander Hewitt in the October number of the *Journal* raises an unlimited number of jobs that don't need an E.R.A. or Mechanician.

Quite recently, reduced manning complements were under trial in the Home Fleet and in a Light Fleet Carrier it was most necessary to allocate jobs to Leading Stoker Mechanics and Specially Selected Stoker Mechanics, which previously had only been undertaken by E.R.A.s or Mechanicians. In practically each case the job was balanced by its degree of accuracy and the capabilities of the L.S.M. or S.M. selected for the job. In most cases the Stoker Mechanic was capable, extremely keen to earn his title of a mechanic but lacked the experience. He was most anxious to take the responsibility and prove that he could be a mechanic ; he was also particularly keen to do maintenance work instead of donkey work in the bilges.

In all instances he required a little advice on how to handle such things as tough awkward nuts and bolts and how to make a flange clean and above all cleanliness of the work in hand. Having learned such points as these and coupled with a little instruction, the average L.S.M. or Specially Selected Stoker Mechanic could be relied upon to do most of the following list of jobs :—

Fire-main joints and corrosion pieces.

Small low pressure water valves and pipe joints in cooling water systems and re-packing associated glands.

Cleaning and jointing petrol nozzles and filters.

Opening up engine sumps and strainers, cleaning and after inspection—closing up with new joints.

Preparing gear cases for lifting and replacing on completion of inspection or refit.

Removing, testing and replacing diesel engine injectors.

Cleaning weed traps.

Charging Domestic Automatic Refrigerators and renewing or adjusting belts.

Taking poker gauge readings of bearings and thrust clearances of auxiliary machinery. (A suspect reading is easily and quickly re-checked if the operator doesn't know what it should be.)

In the Workshops, straightforward milling, drilling and turning for standard jobs.

Testing watertight doors and hatches and refitting associated clips.

As a general rule it was not thought advisable to employ L.S.M.s or S.M.s on maintenance work associated with steam, petrol or H.P. air lines, but a great percentage of the dismantling and re-assembly could be attempted under supervision, thereby having the supervisory E.R.A. in charge of several jobs on the line in lieu of just one.

It is of course very true that most of these ratings are required for watch-keeping and domestic duties at sea, but every available opportunity in harbour should be taken to give the keenest L.S.M.s and S.M.s an opportunity to show their skill and workmanship, thereby earmarking them for maintenance work when the time comes to refit or to make up teams for working in watches on breakdowns.

It is considered that the practical instruction given at the Mechanical Training Course coupled with the sea experience of maintenance requirements and particularly with the help and tolerance from Engineer Officers, E.R.A.s and Mechanicians the average keen L.S.M. and S.M. can most certainly augment the effective strength of the Maintenance force.

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