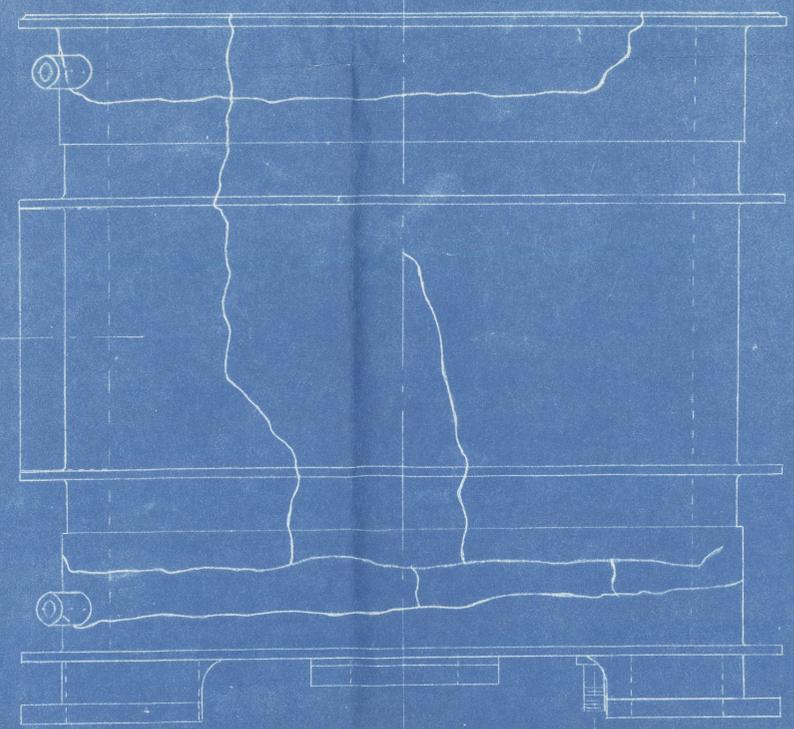
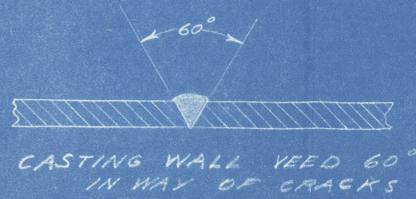
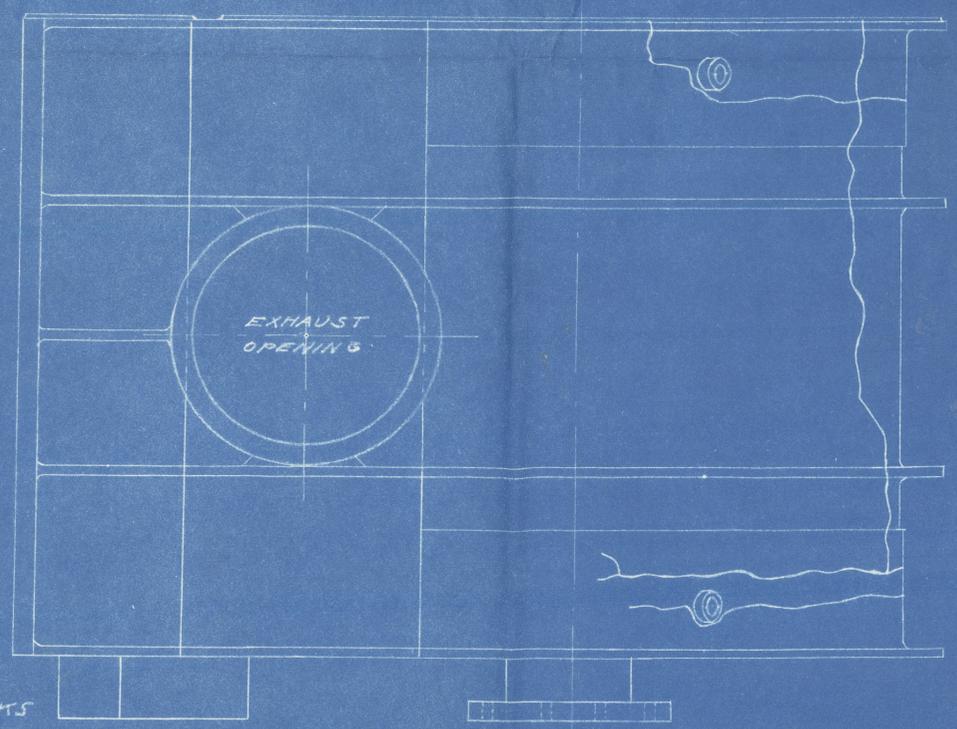


DIMENSIONS OF LINER & CASTING



END

DETAIL SHOWING LOCATION OF CRACKS IN CASTING



SIDE

BRAZING PROCEDURE

The broken sections of the Cylinder casting were assembled and held in place by a plate bolted to the top of the casting, in lieu of the Cylinder cover, and by two (2) steel straps fitted around the outside of the casting. The cracks were beveled to a 60 degree Vee, to insure full penetration of the weld.

The Cylinder casting was preheated for a period of seven (7) hours to approximately 900 degrees F. This was accomplished by installing a charcoal furnace inside of the Cylinder and encasing the casting with asbestos and sheet metal lagging to insure a uniform flow of heat. This preheating was maintained throughout the brazing procedure.

The brazing of the casting was accomplished in seventeen (17) continuous hours of welding by four acetylene welders working in alternate shifts. The exposed surfaces were covered with lagging, the furnace banked with charcoal, and the casting allowed to cool normally.

MATERIAL USED

The following material was consumed in the brazing of the casting:

- 235# Airco #20 Bronze Rods.
- 3# Airco Marvel Brazing Compound.
- 2600 Cu.Ft. of Oxygen.
- 2400 Cu.Ft. of Acetylene.

The Airco #20 bronze rods have a chemical composition of 60% Copper, 39.75% Zinc and 0.75% Tin. The melting temperature of the rods is 1625 degrees F, tensile strength 40,000 to 53,000 pounds per square inch, and hardness of 51 Rockwell "B" scale. The rods are recommended by the manufacturer for use on steel, cast iron, brass, and copper.

The "Airco Marvel Brazing Compound" flux is recommended by the manufacturer in conjunction with the #20 welding rod. The chemical composition of this flux is a secret formula of the manufacturer.

ACETYLENE WELDERS:

- A. L. Clothier: Engineering Supervisor, New Orleans District, Air Reduction Sales Company
- F. W. Simmons: Service-man, Air Reduction Sales Company
- C. F. Friedhoff: Waterman Steamship Corporation Repair Division
- W. G. Frederick: Waterman Steamship Corporation Repair Division

INSTALLATION OF LINER

The inside bore of the casting, and the outside diameter of the liner were machined to the dimensions indicated on the drawing, allowing 8/1000 clearance.

The casting was preheated with steam to a temperature of 125 degrees F. The liner at normal temperature of 78.1 degrees F. was coated with white lead and lowered into the casting.

The inside diameter, counterbores, and port openings were machined after the liner was shrunk in place.

Sweeps
Bal. 7882.
PP Amey
RETAIN

WATERMAN STEAMSHIP CORPORATION
REPAIR DIVISION
MOBILE, ALA.

REPAIRS TO ONE L. P. CYLINDER CASTING
FOR H.O.R. - 2800 H. P. ENGINE

Drawn by: L. B. Date: 10-17-42
Checked by: R.L.B.

DWG NO. 533