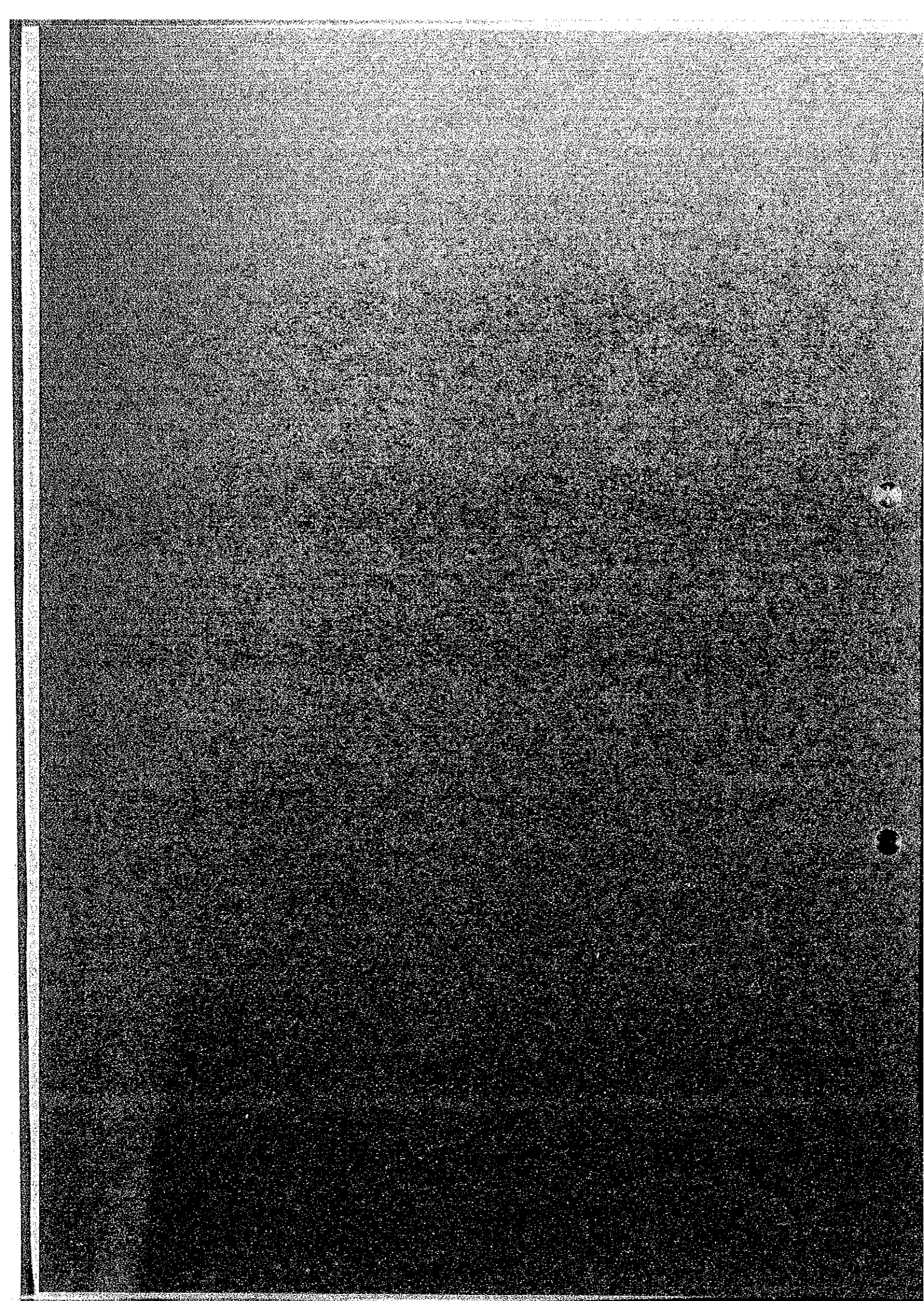


APPENDIX-I

NAMES OF EXPERTS AND COUNTERPARTS



APPENDIX-I

NAMES OF EXPERTS AND COUNTERPARTS

A. Experts

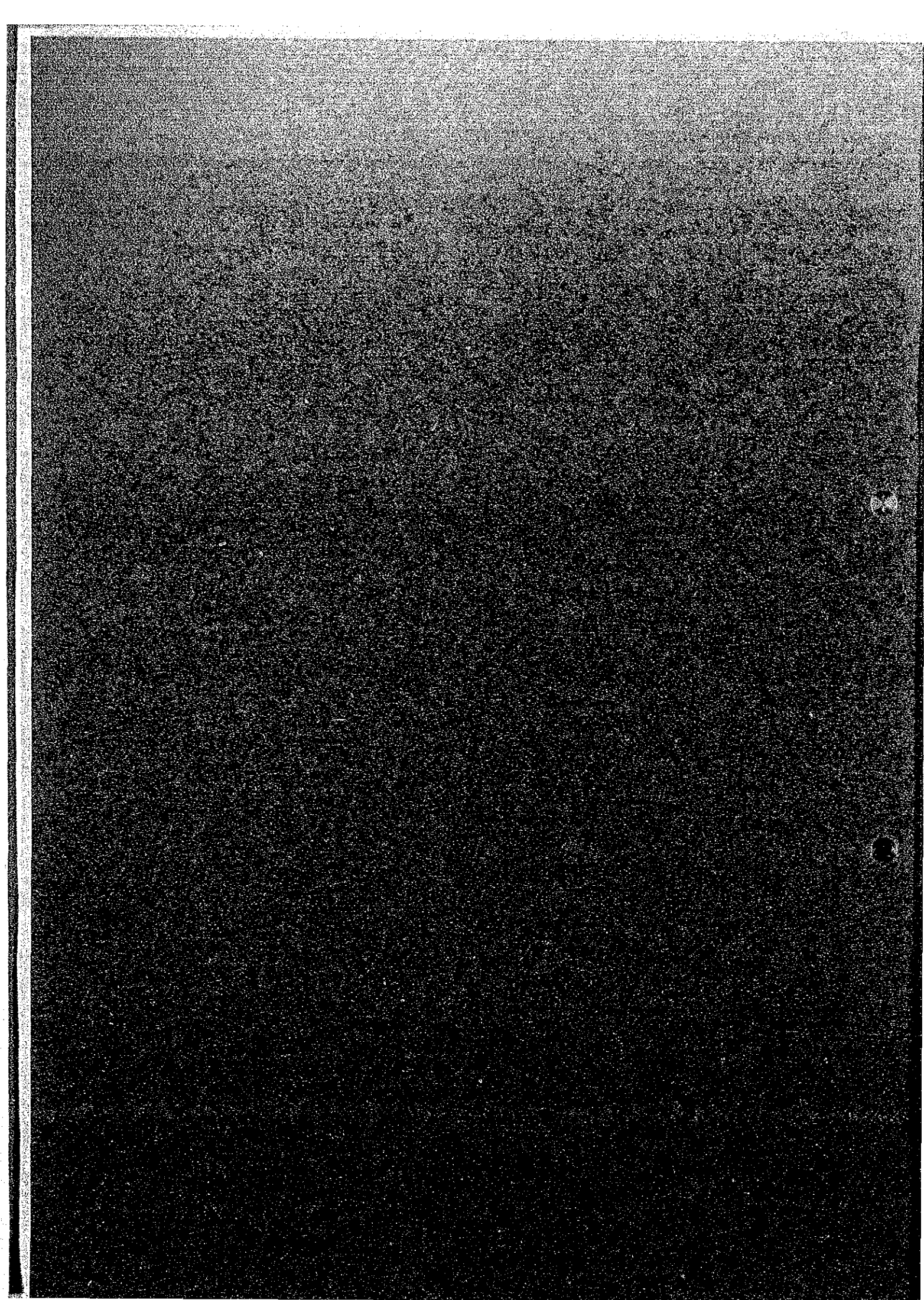
- | | |
|-----------------|--------------------------|
| 1. S. Ichikawa | Team leader |
| 2. T. Oguma | Hydraulic turbine expert |
| 3. K. Uetani | Electrical expert |
| 4. T. Kugenuma | Generator expert |
| 5. G. Miyashita | Electrical expert |
| 6. A. Kodaka | Mechanical expert |
| 7. W. Nakatani | Welding expert |
| 8. J. Kinoshita | Diver |
| 9. Y. Yokowo | Diver |
| 10. M. Furuya | Diver |

B. Counterparts

- | | |
|---------------------------|------------------------|
| 1. Mr. Houmphon Bulyaphol | Chief of Nam Ngum P.S. |
| 2. Mr. Viraphone Viravong | Mechanical engineer |
| 3. Mr. Suan | Administrative officer |

APPENDIX-II

NOMENCLATURE OF PARTS AND COMPONENTS OF HYDRAULIC TURBINE



APPENDIX-II

NOMENCLATURE OF HYDRAULIC TURBINES

Reference drawing: No. HH 201-645

<u>Part No.</u>	<u>Nomenclature</u>
110-01	<p><u>Spiral Case</u> is a spiral-shaped passage which completely surrounds the turbine and which has a progressively decreasing area of flow toward the small end.</p> <p><u>Speed Ring</u> is an annular member with top and bottom flanges having stay vanes between them. They form a rigid connection for the top and bottom turbine structures.</p> <p><u>Stay Vanes</u> are stream-lined members connecting the top and bottom flanges of the speed ring.</p>
135-01	<p><u>Lower Protect Liner</u> is replaceable liner fastened to the bottom ring.</p>
215-01	<p><u>Wearing Ring and Facing Plate</u> are replaceable ring and plate fastened to head cover and to bottom ring forming small clearances to guide vanes.</p>
210-01	<p><u>Head Cover or Top Cover</u> is the member spanning the top of the runner and guide vanes. It supports the main bearing, the turbine shaft sealing box and upper spindle (stem) of the guide vanes.</p>
230-01	<p><u>Bottom Ring</u> is a stationery ring on a Francis turbine that surrounds part of the band, and supports lower spindle (stem) of the guide vanes.</p>
340-01	<p><u>Sealing Box</u> is a device which decreases leakage</p>

Part No.

Nomenclature

between the rotating and stationery members by providing a narrow path for the escape of water under pressure.

Packing Box is an annular chamber surrounding a rotating member, containing pliable sealing material and having a removable gland permitting the adjustment or replacement of the sealing material.

610-01

Guide Vanes are angularly adjustable stream-lined members, located immediately upstream of the runner intake, which control the rate of flow.

Guide Vane Spindle or Guide Vane Stem is the top or bottom extension of a guide vane that supports the vane in bearings.

410-01

Main Shaft is a member transmitting the power developed by the runner to the generator.

415-01

Shaft Sleeve is a cylindrical member surrounding the main shaft and is replaceable.

Flange Cover for Main Shaft is a protective cover over the coupling bolts and nuts.

510-01

Runner is the rotating element of the turbine which converts the energy of water into mechanical power.

520-01

Runner Cone is the conical extension below the crown on Francis runner that serves as a guide to the water as it leaves the runner.

160-01

Draft tube is a diverging discharge passage which, through deceleration of flow, is designed to re-

Part No.

Nomenclature

gain most of the kinetic energy remaining in the flow after discharge from the runner.

Air Admission Pipe is a pipe locating beneath the runner to break a vacuum that develops often when the turbine operates under a light load condition. The purpose of the pipe is to decrease a noise and vibration due to the vacuum.

Cooling Water Pipe is a part of the cooling system to feed water to cooling coil that is set in lubricating oil dam.

