Report Date: 30 Jun 2014

Summary Report for Individual Task
551-88L-2064
Maintain a Ventilation System
Status: Approved

Condition: Given an operational ventilation system aboard a vessel, at sea, at anchor or moored alongside a pier, day or night, under all sea and weather conditions, while wearing appropriate PPE, (i.e. hearing protection, Nitrile gloves, eye protection, etc.), with a lock out tag out kit, a marine rail tool box and a wet/dry vacuum.

Standard: The Soldier correctly maintains a ventilation system aboard an Army vessel, IAW the appropriate Technical Manual and local SOPs, without injury to self or others and without damage to equipment. The ventilation system was fully mission capable at task completion.

Special Condition: None

Safety Risk: Medium

MOPP 4:

Task Statements

Cue: None

DANGER

None

WARNING

None

CAUTION

None

Remarks: None

Notes: None

Performance Steps

1. Demonstrate basic knowledge of ventilation equipment maintenance.

a. Shipboard ventilation must serve not only to supply, circulate, and distribute fresh air but also to remove the used, contaminated, and overheated air from various spaces. If ventilation equipment fails to perform its functions properly, conditions may be created which will jeopardize the health or life of crew members. Therefore, individuals responsible for inspection and maintenance must be thoroughly familiar with the ventilation equipment. A shipboard ventilation system and its constituent parts cannot be isolated and separated from other component systems in a complete air conditioning system. For example, the air duct distribution system of a ship may be used for other systems in cooling, heating, and dehumidifying the ship's atmospheric air. In addition to ducts, a ventilation system may include the following:

(1) Weather openings.

(2) Screens.

(3) Filters.

(4) Fans.

(5) Gratings.

(6) Closures.

(7) Heaters.

(8) Cooling coils.

(9) Venturi tube.

(10) Dampers.

(11) Terminals.

b. If a ventilation system is to function effectively, all of its various units must be kept clean and in satisfactory operating condition. To maintain a ventilating system in the best condition applicable precautionary measures and prescribed maintenance procedures must be adhered to.

c. Such items as swabs, deck gear, and trash stowed in fan rooms or ventilation trunks not only restrict airflow but also increase dirt and odors taken inboard. Ventilation terminals must never be used for stowage. Wet clothing secured to ventilation terminals increases moisture content of the compartment air and restricts airflow. Stowage arrangements should be such that ventilation weather openings are never restricted.

d. Dirt accumulation in a ventilation system not only restricts the flow of air but also creates a serious fire hazard. In a clean duct the cooling effect of the metal tends to act as a flame arrester. However, an accumulation of foreign matter within a duct becomes a potential source of combustion. One method of reducing the amount of dirt and combustible matter which may be carried into a ventilation system is to wet down the areas near the air intakes before sweeping. Since a great volume of air passes through or over the elements of a ventilation system, dirt will collect in the various units in spite of precautionary measures. The greatest accumulation of dirt will be within trunks and ducts where it is not readily noticeable. Therefore, periodic inspections and a definite service procedure are necessary to keep the system clean.

2. Conduct maintenance on air filters, screens and gratings, (refer to Figure 551-88L-2064_01).

a. Inspect and clean or replace air filters.

(1) If filters are of the cleanable type, clean them with;

(a) Wet/dry vacuum.

(b) Fresh water.

(2) If filter is not of the cleanable type, replace the filter with a new one.

b. Check air supply and return screens/gratings for;

(1) Dust and dirt.

(a) Clean dust and dirt from the screen/gratings with wet/dry vacuum.

(b) If the screen/grating is excessively dirty and removable, remove it and clean with fresh water.

(c) Exterior weather openings should be cleaned with fresh water.

(2) Restrictions.

(a) Remove any debris in the screen/gratings restricting air flow.

(b) Remove any items in the vicinity of the screen or grating that could be drawn into it causing an air restriction.

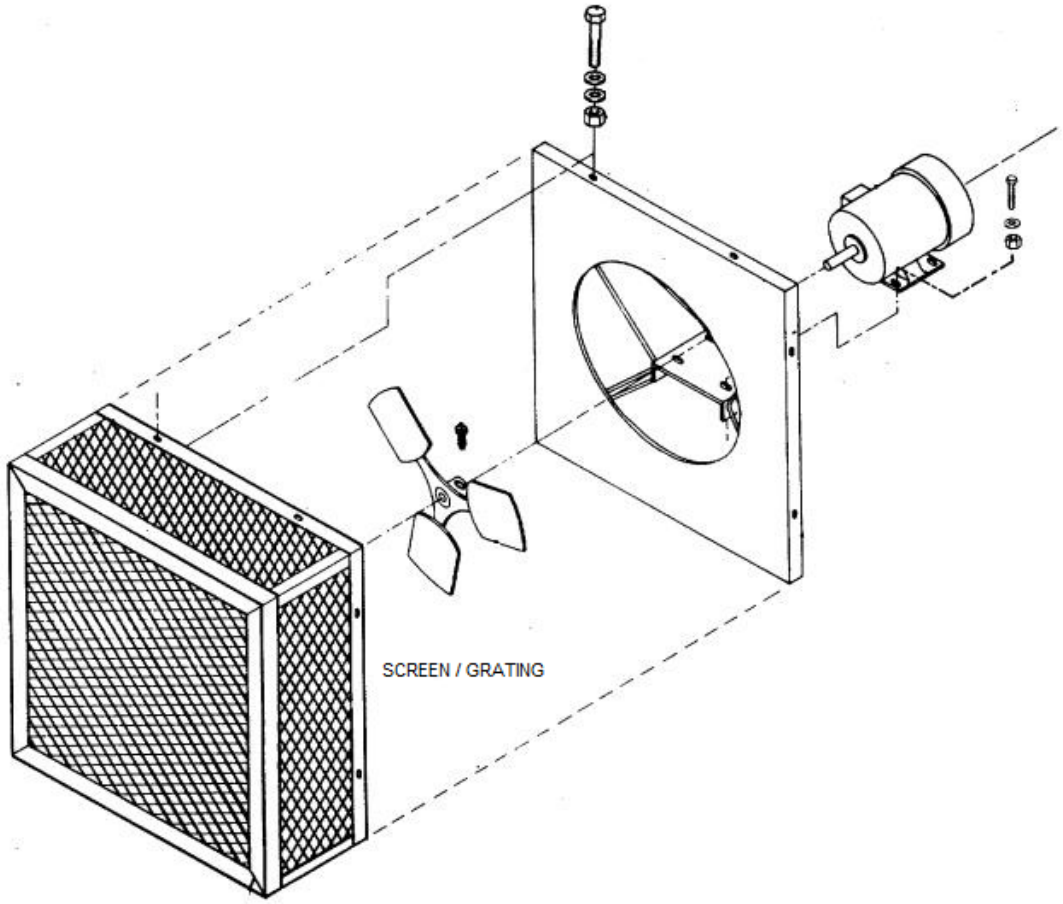

Figure 551-88L-2064_01
Screen/grating

3. Conduct maintenance on ventilation fans.

a. Conduct fan maintenance.

(1) Clean fan.

(a) Centrifugal fan, (refer to Figure 551-88L-2064_02).

_1_ Secure power, log out and tag out fan unit.

_2_ Clean the fan with a wet/dry vac.

_3_ Restore power and place fan in normal operation.

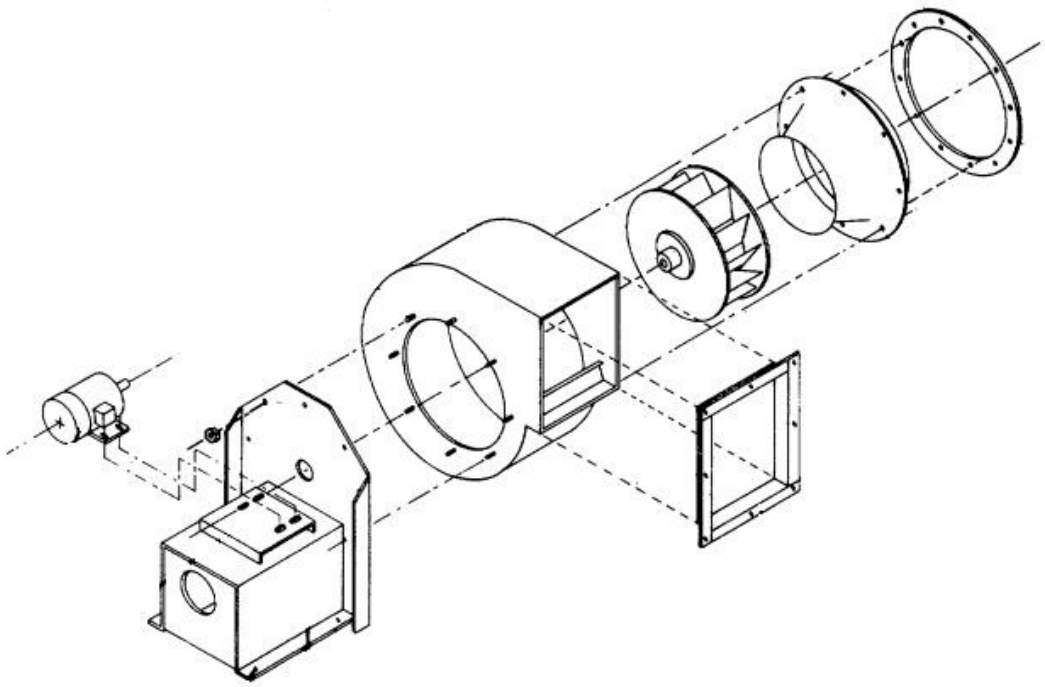

Figure 551-88L-2064_02
Centrifugal Fan

(b) Axial flow fan, (refer to Figure 551-88L-2064_03).

_1_ Secure power, log out and tag out fan unit.

_2_ Clean the fan with a wet/dry vac.

_3_ Restore power and place fan in normal operation.

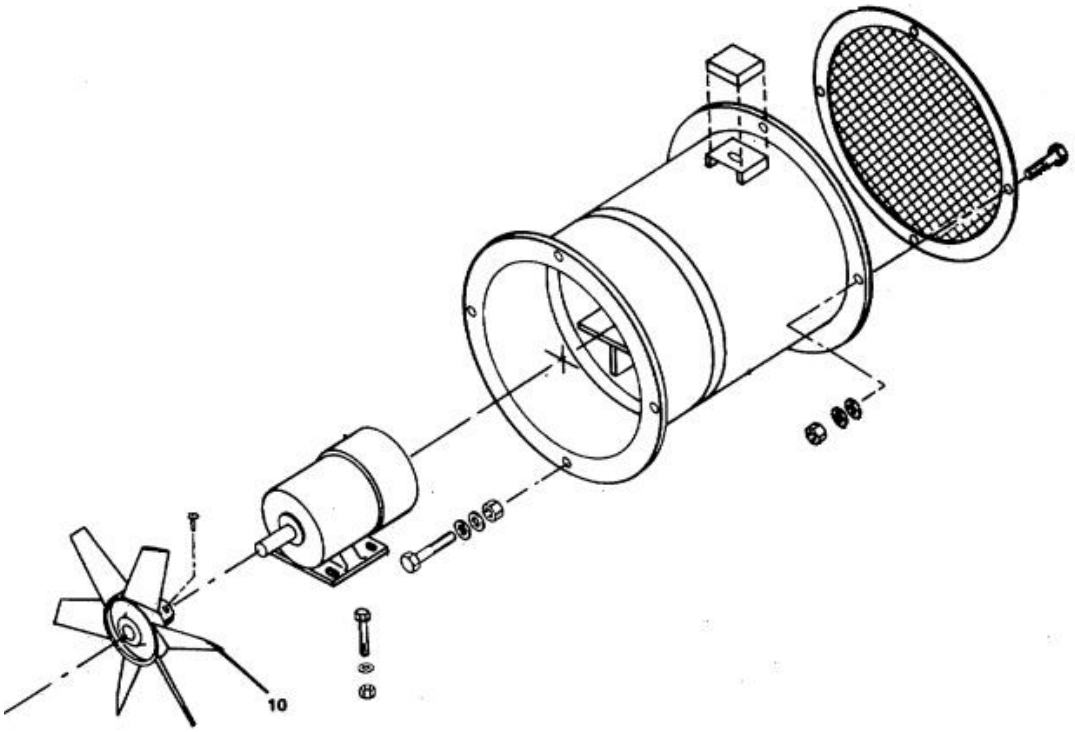

Figure 551-88L-2064_03
Direct Drive Axial Fan

(2) Lubricate fan wheel bearings, (refer to Figure 551-88L-2063_04).

(a) Lubricate the bearings only when scheduled or if they are noisy or running hot.

(b) Excessive grease and oil creates dirt and can damage bearings.

(c) Do NOT over-lubricate.

_1_ Wipe away any dirt on the fittings before greasing.

_2_ Apply two pumps of ball and roller bearing grease to the grease fittings.

_3_ Wipe away any excess grease from the fittings after greasing.

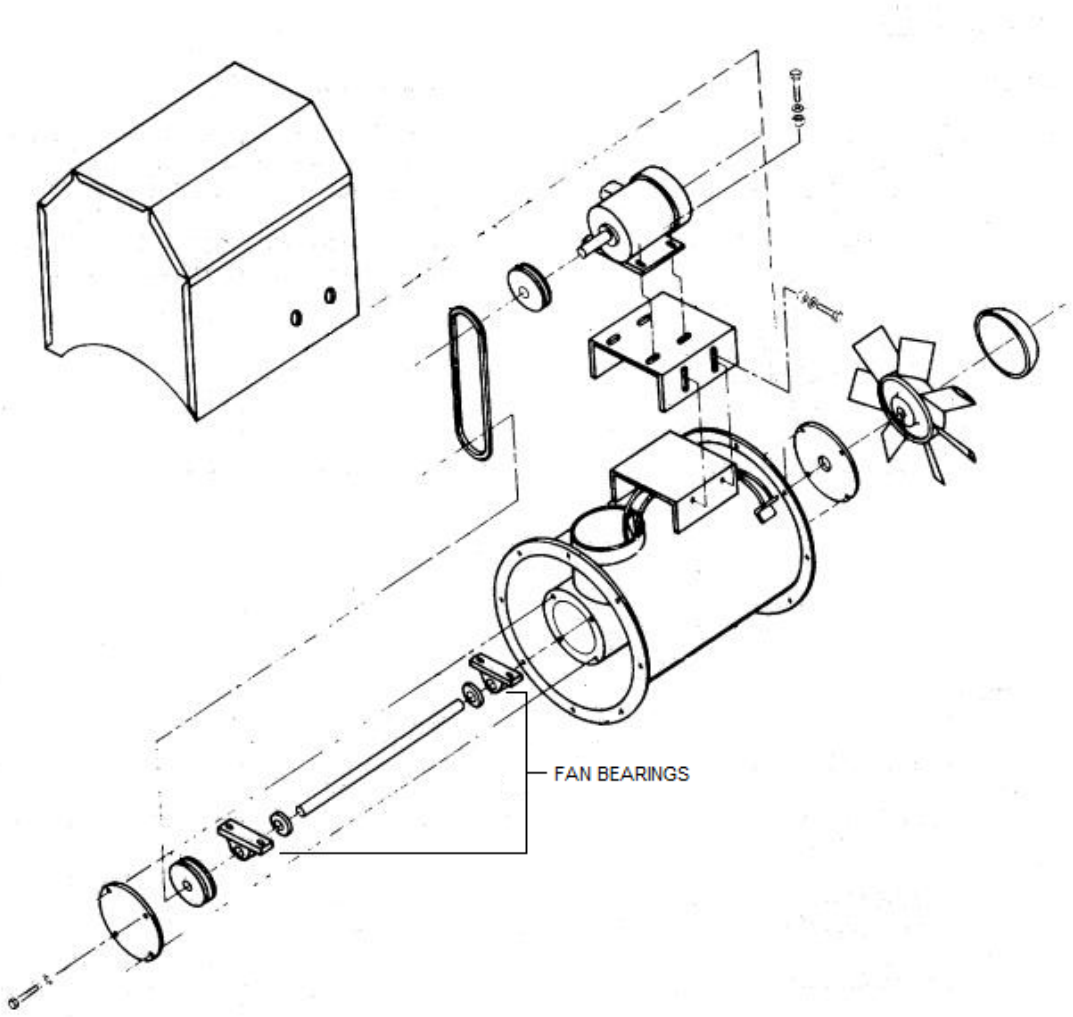

Figure 551-88L-2064_04
Belt Driven Axial Fan

(3) Check and tighten all bolts and setscrews.

(a) Check all fan and motor mounting bolts and tighten if necessary.

(b) Check setscrews on fan and pulleys, tighten if necessary.

(4) Check for proper V-belt tension, (refer to Figure 551-88L-2064_05).

(a) Proper tension is achieved when the belt may be deflected 1/2 inch at its midpoint when applying approximately 4 to 5 pounds of force to the belt.

(b) A new belt should be tensioned to approximately 3/8 inch deflection.

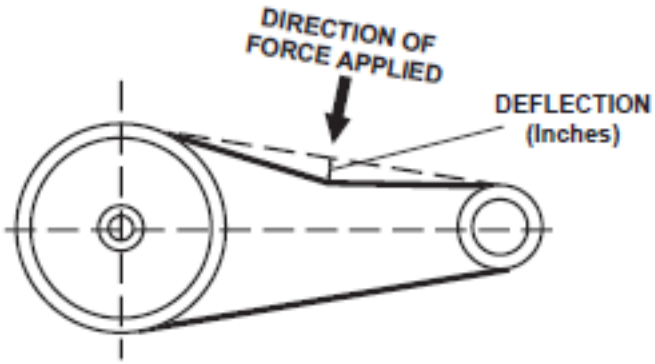

Figure 551-88L-2064_05
Belt Tension

b. Check fan motor.

(1) Check fan motor for cleanliness in accordance with TASK 551-88L-2056, Step 1.d.(1).

(2) If required, clean motor in accordance with TASK 551-88L-2056, Step 1.d.(1).

c. Lubricate fan motor.

(1) Check fan motor bearings in accordance with TASK 551-88L-2056, Step 2.

(2) If required, lubricate bearings in accordance with TASK 551-88L-2056, Step 2.

(Asterisks indicates a leader performance step.)

Evaluation Guidance: None

Evaluation Preparation: None

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. Demonstrated basic knowledge of ventilation equipment maintenance.			
2. Conducted maintenance on air filters, screens and gratings.			
a. Inspected and cleaned or replaced air filters.			
b. Checked air supply and return screens/gratings.			
3. Conducted maintenance on ventilation fans.			
a. Cleaned centrifugal fan.			
b. Cleaned axial fan.			
c. Lubricated fan wheel bearings.			
d. Checked and tightened all bolts and setscrews.			
e. Checked proper V-belt tension.			
f. Checked fan motor.			
g. Lubricated fan motor.			

Supporting Reference(s):

Step Number	Reference ID	Reference Name	Required	Primary
	TC 55-509	MARINE ENGINEMAN's HANDBOOK	No	No
	TM 55-1905-223-24-7	UNIT, INTERMEDIATE DIRECT SUPPORT AND INTERMEDIATE GENERAL SUPPORT MAINTENANCE INSTRUCTIONS WASTE HEAT EVAPORATOR FOR LANDING CRAFT UTILITY (LCU) (NSN 1905-01-154-1191)	No	No
	TM 55-1915-208-24&P	UNIT INTERMEDIATE DIRECT SUPPORT AND INTERMEDIATE GENERAL SUPPORT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) FOR ENVIRONMENTAL CONTROL SYSTEM P/N LM2-WC30-65, 39BA-050, 42CG, 42VF,	No	No
	TM 55-1915-254-10-1	OPERATOR'S MANUAL FOR LOGISTICS SUPPORT VESSEL (LSV-7 & -8)	No	No
	TM 55-1925-224-24&P	UNIT, INTERMEDIATE DIRECT SUPPORT AND INTERMEDIATE GENERAL SUPPORT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) FOR ENVIRONMENTAL CONTROL SUBSYSTEM FOR LARGE TUG (LT) (NSN 1925-01-24	No	No

Environment: Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to FM 3-34.5 Environmental Considerations and GTA 05-08-002 ENVIRONMENTAL-RELATED RISK ASSESSMENT.

Safety: In a training environment, leaders must perform a risk assessment in accordance with ATP 5-19, Risk Management. Leaders will complete the current Deliberate Risk Assessment Worksheet in accordance with the TRADOC Safety Officer during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW FM 3-11.4, Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection, FM 3-11.5, Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination.

Prerequisite Individual Tasks : None

Supporting Individual Tasks :

Task Number	Title	Proponent	Status
551-88L-3070	Troubleshoot a Ventilation System	551 - Transportation (Individual)	Approved
551-88L-2060	Maintain a Heating System	551 - Transportation (Individual)	Approved
551-88L-2059	Maintain an Air Conditioning System	551 - Transportation (Individual)	Approved
551-88L-3066	Troubleshoot an Air Conditioning System	551 - Transportation (Individual)	Approved
551-88L-1039	Demonstrate Basic Knowledge of a Ventilation System	551 - Transportation (Individual)	Analysis
551-88L-3067	Troubleshoot a Heating System	551 - Transportation (Individual)	Approved
551-88L-2056	Maintain an Electric Motor	551 - Transportation (Individual)	Approved

Supported Individual Tasks :

Task Number	Title	Proponent	Status

551-881-9049	Direct the Maintenance of an Air Conditioning System	551 - Transportation (Individual)	Approved
551-88L-3066	Troubleshoot an Air Conditioning System	551 - Transportation (Individual)	Approved
551-88L-1039	Demonstrate Basic Knowledge of a Ventilation System	551 - Transportation (Individual)	Approved
551-88L-2059	Maintain an Air Conditioning System	551 - Transportation (Individual)	Approved
551-88L-3070	Troubleshoot a Ventilation System	551 - Transportation (Individual)	Approved
551-881-8082	Conduct Field Maintenance on an Air Conditioning System	551 - Transportation (Individual)	Approved
551-88L-1039	Demonstrate Basic Knowledge of a Ventilation System	551 - Transportation (Individual)	Analysis
551-88L-2060	Maintain a Heating System	551 - Transportation (Individual)	Approved
551-88L-3067	Troubleshoot a Heating System	551 - Transportation (Individual)	Approved

Supported Collective Tasks : None

ICTL Data :

ICTL Title	Personnel Type	MOS Data
88L30 Watercraft Engineer	Enlisted	MOS: 88L, Skill Level: SL3, Duty Pos: TFR, LIC: EN
88L40 Watercraft Engineer	Enlisted	MOS: 88L, Skill Level: SL4, Duty Pos: TGB, LIC: EN, SQI: O
88L20 Watercraft Engineer	Enlisted	MOS: 88L, Skill Level: SL2, Duty Pos: TFS, LIC: EN