

Summary Report for Individual Task
551-88L-2044
Maintain a Starting System
Status: Approved

Distribution Restriction: Approved for public release; distribution is unlimited.

Destruction Notice: None

Foreign Disclosure: FD5 - This product/publication has been reviewed by the product developers in coordination with the [installation/activity name] foreign disclosure authority. This product is releasable to students from all requesting foreign countries without restrictions.

Condition: Aboard a vessel; at sea or pier side; day or night; under all sea and weather conditions, wearing appropriate PPE, (i.e. hearing protection, Nitrile gloves, eye protection, etc.) and lock out tag out kit, given a starting system.

Standard: The Soldier correctly maintains the various components and types of a starting system IAW the appropriate Technical Manual and local SOPs.

Special Condition: None

Safety Risk: High

MOPP 4:

Task Statements

Cue: None

DANGER
None

WARNING
None

CAUTION
None

Remarks: None

Notes: None

Performance Steps

1. Maintain a starting system.

a. Starting motor and drives.

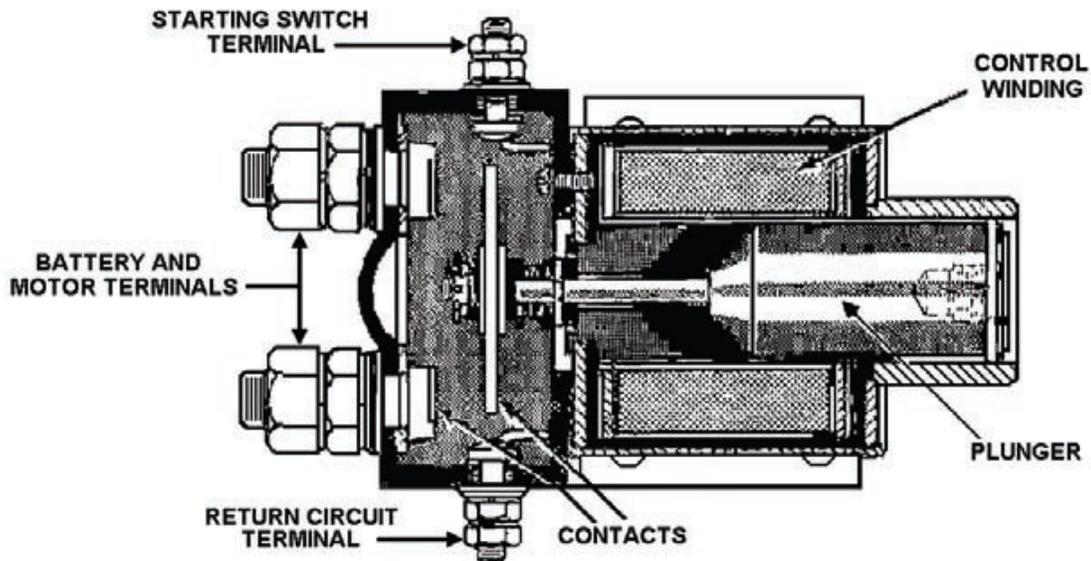
(1) To avoid overheating; never allow the starting motor to run for more than 30 seconds at a time.

(2) After 30 seconds, allow the motor to cool for 2 or 3 minutes before using again.

b. Bendix drive mechanisms.

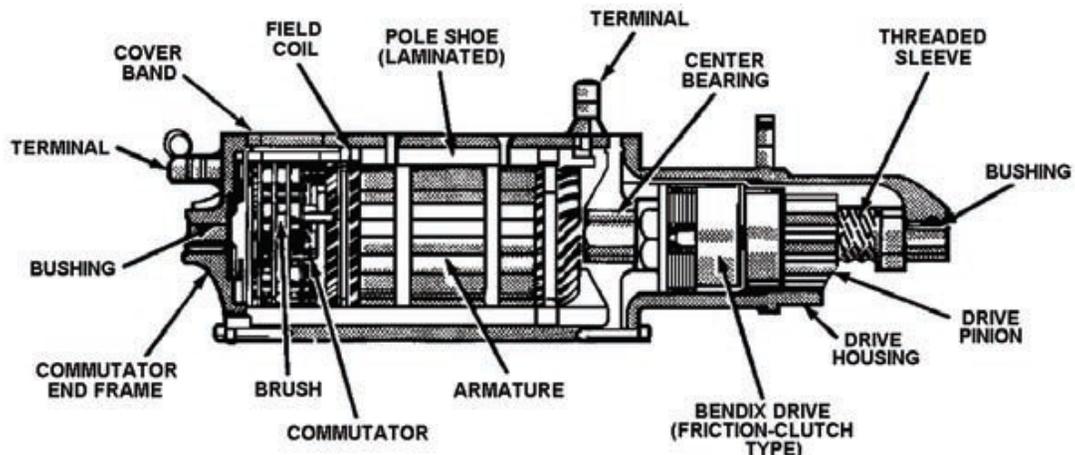
(1) If the pinion is to engage and disengage freely, the sleeve and the pinion threads must be free of grease and dirt.

(2) The Bendix drive should be lubricated as part of routine maintenance in accordance with instructions in the manufacturer's technical manual (TM).



Solenoid Switch

Figure 551-88L-2044_01



A Starting Motor With Bendix Drive

Figure 551-88L-2044_02

c. Generator maintenance.

(1) The most important factor in maintenance is to keep the equipment clean and free of oil, water, dirt, and other foreign particles.

(2) It is also important to keep insulation clean.

(3) Four methods of cleaning generators are by wiping, by using compressed air, by suction, and with solvent.

(a) In using compressed air, remember it should always be clean and free of moisture.

(b) Cleaning electrical equipment with solvent should be avoided whenever possible.

(c) However, its use is necessary at times to remove gummy or greasy substances.

CAUTION

Solvents containing gasoline or benzine must not be used in any circumstances. The use of alcohol will injure most types of insulating varnishes. Inhibited methylchloroform (trichloroethylene) is one of the principally approved solvents for cleaning electrical equipment. However, it should be used only in a well ventilated space.

(4) Brushes should be checked frequently to ensure that they are in good condition and free to move in their holders.

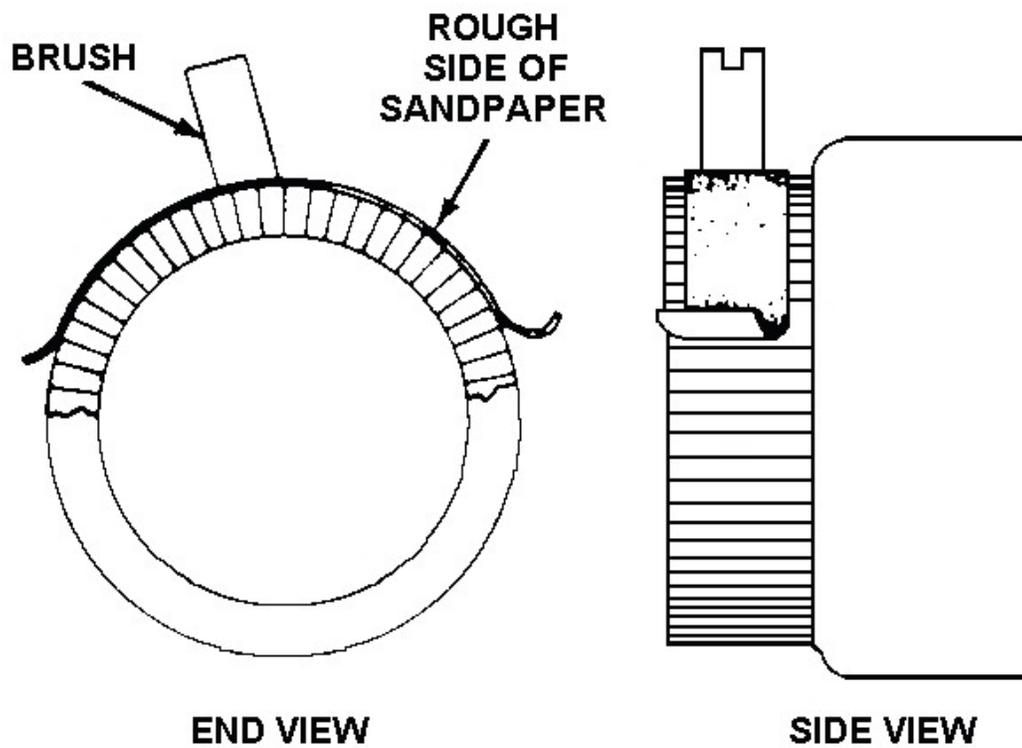
(a) The brushes should be renewed when they are worn to half the original length.

(b) Brushes can be accurately seated against the commutator by inserting a strip of number 1 sandpaper, approximately the width of the commutator with the rough side up, between the commutator and the brushes.

1 With the sandpaper held firmly against the commutator and the brushes held in place by normal spring tension, the sandpaper is pulled in the direction of normal rotation of the commutator.

2 When the sandpaper is returned for another pull, the brushes must be lifted.

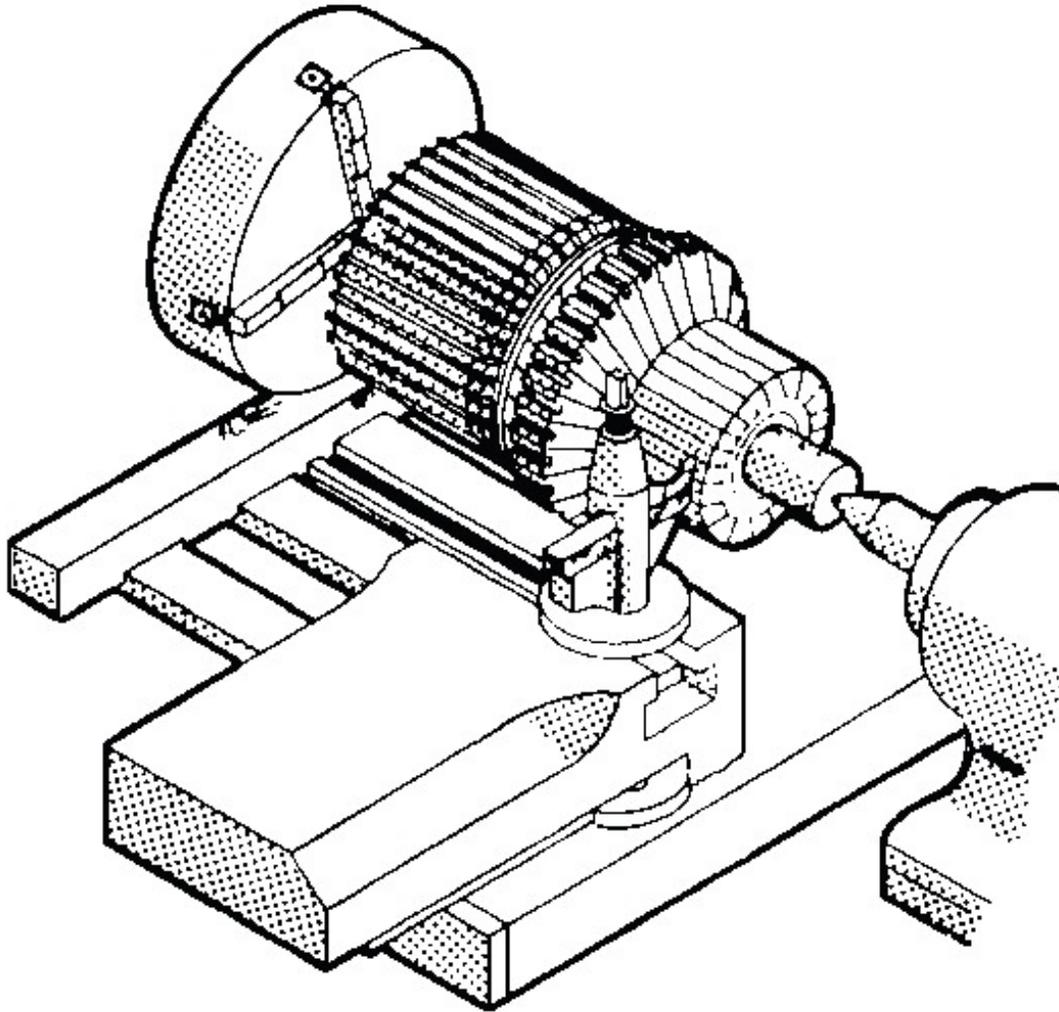
3 The brushes should be finished with a finer grade of sandpaper, and all dust particles should be removed after the sanding Figure 551-88L-2044_03.



Method of Sanding Brushes
Figure 551-88L-2044_03

(5) One of the most effective ways to clean a commutator is to apply a canvas wiper while the commutator is being turned.

(6) If the commutator is worn or grooved excessively, it can be trued by turning it on a lathe Figure 551-88L-2044_04.



Truing Commutator by Turning
Figure 551-88L-2044_04

2. Maintain components of a starting system.

a. Keep batteries clean and dry.

b. Perform PMCS (Preventive Maintenance Checks and Service) on batteries IAW the appropriate Technical Manual and local SOPs.

c. Maintain proper reservoir levels in a hydraulic starting system.

(1) Check the hydraulic fluid level in the header tank.

(2) Add hydraulic oil as required.

(3) Check hydraulic operating pressure.

d. Maintain the correct range (250-600 psi) service air pressure in an air start system.

(1) Check the starting air receiver pressure.

(2) Check that the ships service air receiver pressure gauge reads 150 psi.

(3) Check the piping system.

(Asterisks indicates a leader performance step.)

Evaluation Guidance: None

Evaluation Preparation: None

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. Maintained a starting system.			
a. Starting motor and drives.			
b. Bendix drive mechanisms.			
c. Generator maintenance.			
2. Maintained components of a starting system.			
a. Performed PMCS (Preventive Maintenance Checks and Service) on batteries IAW the appropriate Technical Manual and local SOPs.			
b. Maintained proper reservoir levels in a hydraulic start system.			
(1) Checked header tank.			
(2) Checked hydraulic pressure.			
c. Maintained correct service air pressure in an air start system.			
(1) Checked the starting air receiver pressure.			
(2) Checked that the ships service air receiver pressure gauge reads 150 psi.			
(3) Checked the piping system.			

Supporting Reference(s):

Step Number	Reference ID	Reference Name	Required	Primary
	FM 55-509-1	Introduction to Marine Electricity	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 : None

Supported Individual Tasks :

Task Number	Title	Proponent	Status
551-88L-1028	Demonstrate Basic Knowledge of a Starting System	551 - Transportation (Individual)	Approved

551-88L-1028	Demonstrate Basic Knowledge of a Starting System	551 - Transportation (Individual)	Analysis
551-88L-2039	Conduct The Engine Room Watch	551 - Transportation (Individual)	Approved

Supported Collective Tasks : None

ICTL Data :

ICTL Title	Personnel Type	MOS Data
88L20 Watercraft Engineer	Enlisted	MOS: 88L, Skill Level: SL2, Duty Pos: TFS, LIC: EN
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