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Interim Report

PRELIMINARY OUTLINE OF ORGANIZATIONAL MAINTENANCE DUTIES AND TASKS FOR US/FRG MBT-70 (SECTION I, AUTOMOTIVE MAINTENANCE)

by

Ralph W. Graham
William C. Osborn

January 1968
Revised July 1968

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

As part of a project to develop training guidelines for a new Army tank (MBT-70) HumRRO was asked to provide task description data to be used as a basis for maintenance training analysis. This report is a preliminary collation of task description information pertaining to organizational-level automotive maintenance of that tank. The report was based on information available as of June 1968.

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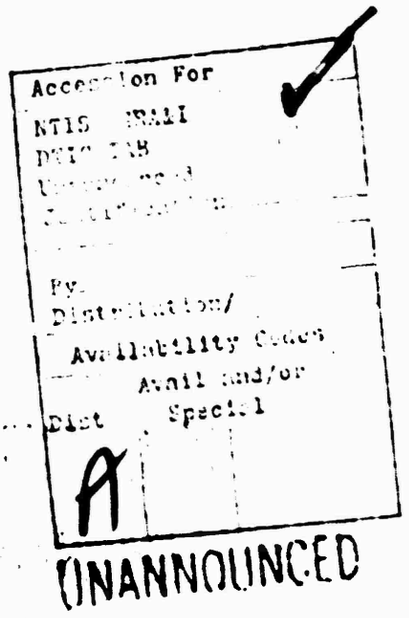
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INTRODUCTION

This report is a preliminary collation of task description information pertraining to organizational level, automotive maintenance of the US/FRG MBT-70. It is organized into equipment categories which contain the related tasks and duties. All identified tasks are listed at the front of the report, and the available task descriptions follow.

The report is based on presently available documentation and on interviews with contractor development personnel. The task descriptions represent the work-package information that was available to HumRRO Division No. 2 as of 30 June 1968.

The purpose of this work is to provide task description data to be used as a basis for a maintenance training analysis. Alth ugh the present report is not complete or entirely accurate, the data are sufficient to begin a training analysis. Also, the Technical Manuals now in preparation for the Engineering Tests will contain much of the information necessary to complete this report. Thus, to avoid a duplication of effort, completion of this report has been suspended until the Service Test requirements are firmed.



NOTE

Some of the task descriptions for removal and installation of a component are treated as a single "replacement" task. In these cases the removal procedure is given and installation is assumed to be the reverse procedure. Where an installation activity is not simply the reverse of the removal activity, the modification is given under Remarks.

SECTION I

EQUIPMENT CATEGORY 1 - POWER PACK

Duty 1.1:		Maintaining the Engine
✓ Task	1.1.1.	Replacing the Power Pack
✓	1.1.2.a	Testing the Power Pack
✓	1.1.2.b	Performing the Stall Test
✓	1.1.3.	Inspecting the Power Pack
Δ	1.1.4.	Adjusting the Engine
Δ	1.1.5.	Repairing the Engine
Δ✓	1.1.6.	Testing the Engine
Δ✓	1.1.7.	Adjusting the Engine Intake Valves
Δ✓	1.1.8.	Adjusting the Engine Exhaust Valves
	1.1.9.	Servicing the Engine Oil Filter
	1.1.10.	Replacing the Engine Oil Filter Element
	1.1.11.	Inspecting the Oil Filter Bypass Valve
✓	1.1.12.	Replacing the Oil Filter Bypass Valve
✓	1.1.13.	Adjusting the Emergency Throttle Control
✓	1.1.14.	Changing the Engine Oil
✓	1.1.15.	Cleaning the Engine
	1.1.16.	Inspecting Engine Breather Tubes
	1.1.17.	Replacing Engine Breather Tubes
	1.1.18.	Repairing Engine Breather Tubes
	1.1.19.	Inspecting Engine External Oil Lines
	1.1.20.	Replacing Engine External Oil Lines
Δ	1.1.21.	Repairing Engine External Oil Lines
	1.1.22.	Replacing Damaged Engine Mounts
Δ	1.1.23.	Separating Power Plant for Replacement of Engine or Transmission
✓	1.1.24.	Test Running the Power Pack
Δ	1.1.25.	Inspecting the Cylinder Assembly
	1.1.26.	Repairing Engine Oil Filter
	1.1.27.	Inspecting the Exhaust and Intake Manifold
	1.1.28.	Servicing the Power Pack
Duty 1.2:		Maintaining the Fuel and Air Intake System
✓ Task	1.2.1.	Troubleshooting the Fuel and Air Intake System
✓	1.2.2.	Inspecting the Fuel Injection Pump
Δ	1.2.3.	Testing the Fuel Injection Pump
Δ	1.2.4.	Replacing the Fuel Injection Pump
	1.2.5.	Inspecting the High Pressure Fuel Lines

✓ Tasks for which procedural descriptions are given.

Δ Tasks that are considered direct support maintenance responsibility, as indicated by Preliminary Maintenance Allocation Chart for the Main Battle Tank - 70, Maintenance Directorate, USATAC, Warren (Mich.), March 1968.

Δ	1.2.6.	Replacing the High Pressure Fuel Lines
Δ	1.2.7.	Repairing the High Pressure Fuel Lines
	1.2.8.	Inspecting the Fuel Lines (Hose and Fittings)
✓	1.2.9.	Replacing the Fuel Lines (Hose and Fittings)
✓	1.2.10.	Inspecting the Fuel Injector Nozzle
	1.2.11.	Replacing the Fuel Injector Nozzle
	1.2.12.	Inspecting the Engine Fuel Pump
Δ	1.2.13.	Testing the Engine Fuel Pump
Δ	1.2.14.	Adjusting the Engine Fuel Pump
✓	1.2.15.	Replacing the Engine Fuel Pump
Δ	1.2.16.	Repairing the Engine Fuel Pump
Δ✓	1.2.17.	Replacing Fuel Shut Off Solenoid
	1.2.18.	Inspecting the Fuel Valve
	1.2.19.	Replacing the Fuel Valve
	1.2.20.	Servicing Primary Fuel Filter Element
✓	1.2.21.	Replacing Primary Fuel Filter Element
✓	1.2.22.	Replacing Secondary Fuel Filter Element
	1.2.23.	Testing the Manifold Heater Ignition Coil
✓	1.2.24.	Replacing the Manifold Heater Ignition Coil
	1.2.25.	Inspecting Manifold Heater Lines and Fittings
	1.2.26.	Replacing Manifold Heater Lines and Fittings
	1.2.27.	Inspecting Manifold Heater Nozzle
✓	1.2.28.	Replacing Manifold Heater Nozzle
	1.2.29.	Inspecting Manifold Heater Ignition Plug
✓	1.2.30.	Replacing Manifold Heater Ignition Plug
	1.2.31.	Inspecting Acceleration and Throttle Control and Linkage
	1.2.32.	Servicing Acceleration and Throttle Control and Linkage
	1.2.33.	Adjusting Acceleration and Throttle Control and Linkage
	1.2.34.	Replacing Acceleration and Throttle Control and Linkage
Δ	1.2.35.	Repairing Acceleration and Throttle Control and Linkage
	1.2.36.	Inspecting the Turbochargers
Δ✓	1.2.37.	Replacing the Turbochargers
Δ	1.2.38.	Repairing the Turbochargers
	1.2.39.	Inspecting the Superchargers
✓	1.2.40.	Replacing the Superchargers
	1.2.41.	Repairing the Superchargers
	1.2.42.	Inspecting the Aftercoolers
✓	1.2.43.	Replacing the Aftercoolers
	1.2.44.	Repairing the Aftercoolers
✓	1.2.45.	Check Snorkels, Snorkel Actuation and Support Linkage
✓	1.2.46.	Check Hydraulic Cylinders and Air Cleaner - Turbocharger Duct for Damage

✓	1.2.47.	Replacing Snorkels on Mechanical Linkage
✓	1.2.48.	Replacing Hydraulic Lines or Cylinders
✓	1.2.49.	Replace Air Cleaner - Turbocharger Ducts
	1.2.50.	Replacing the Air Induction Selector Valve
Δ✓	1.2.51.	Replacing the Forward Fuel Tank
Δ✓	1.2.52.	Replacing the Right Rear Fuel Tank
Δ✓	1.2.53.	Replacing the Rear Left Fuel Tank
Δ	1.2.54.	Repairing the Fuel Tank
✓	1.2.55.	Replacing the Fuel Sensor or Transmitter and Gage
	1.2.56.	Inspecting the Fuel System Attaching Hardware, Mounts, Straps, Brackets and Clamps
	1.2.57.	Inspecting Electrical Wiring and Connections
Δ✓	1.2.58.	Replacing the Rear Fuel Tank Pump
Δ✓	1.2.59.	Replacing the Front Fuel Tank Pump
	1.2.60.	Testing the Fuel Tank Pump
	1.2.61.	Inspecting the Fuel Tank Pump
	1.2.62.	Replacing the Air Cleaner Motor
	1.2.63.	Replacing the Speedometer and Drive Components
	1.2.64.	Replacing the Tachometer and Drive Components

Duty 1.3: Maintaining the Engine Oil Cooler

Task	1.3.1.	Inspecting the Oil Cooler
	1.3.2.	Replacing the Oil Cooler
	1.3.3.	Inspecting the Oil Cooler Bypass Valve
✓	1.3.4.	Replacing the Oil Cooler Bypass Valve
	1.3.5.	Repairing the Oil Cooler Bypass Valve
Δ	1.3.6.	Testing the Oil Cooler
Δ	1.3.7.	Repairing the Oil Cooler
	1.3.8.	Replacing the Oil Cooler Lines and Connections

Duty 1.4: Maintaining the Exhaust System

Task	1.4.1.	Inspecting the Exhaust Manifolds
Δ✓	1.4.2.	Replacing the Exhaust Manifolds
	1.4.3.	Inspecting the Exhaust Pipes
✓	1.4.4.	Replacing the Exhaust Pipes
	1.4.5.	Inspecting the Fording Exhaust Valves
	1.4.6.	Replacing the Fording Exhaust Valves
	1.4.7.	Inspecting the Axial Connector
	1.4.8.	Replacing the Axial Connector
	1.4.9.	Repairing the Exhaust Pipe

Duty 1.5: Maintaining the Cooling System

Task	1.5.1.	Troubleshooting the Cooling System
	1.5.2.	Inspecting the Engine Shrouds
	1.5.3.	Replacing the Engine Shrouds
	1.5.4.	Inspecting the Engine Shroud Seal
	1.5.5.	Replacing the Engine Shroud Seal
	1.5.6.	Inspecting Fan Drive Assembly
✓	1.5.7.	Replacing Fan Drive Assembly
	1.5.8.	Inspecting Fan Clutch
	1.5.9.	Replacing Fan Clutch
	1.5.10.	Inspecting Fan Rotor
✓	1.5.11.	Replacing Fan Rotor
	1.5.12.	Inspecting Fan Drive Vertical Shaft Oil Seal
	1.5.13.	Replacing Fan Drive Vertical Shaft Oil Seal
	1.5.14.	Testing the Fan Clutch

Duty 1.6: Maintaining the Transmission and Final Drive

✓ Task	1.6.1.	Replacing Oil Filters
	1.6.2.	Testing Transmission Oil Pressure
	1.6.3.	Adjusting the Low and/or Reverse Gear Servo Bands
	1.6.4.	Replacing the Transmission Mounting Yokes (brackets)
	1.6.5.	Adjusting Steering Emergency Control
Δ	1.6.6.	Replacing Steering Emergency Control
✓	1.6.7.	Adjusting Shifting Emergency Control
Δ	1.6.8.	Replacing Shifting Emergency Control
✓	1.6.9.	Replacing the Final Drive
✓	1.6.10.	Disengaging the Final Drive
✓	1.6.11.	Replacing Damaged Transmission Mounts
✓	1.6.12.	Replacing Damaged Guide Rollers
✓	1.6.13.	Troubleshooting Drivers Emergency Controls
	1.6.14.	Servicing the Shifting Controls and Linkage
	1.6.15.	Testing the Transmission Electrical Controls
	1.6.16.	Adjusting the Transmission Electrical Controls
	1.6.17.	Inspecting the Transmission Torque Converter
	1.6.18.	Inspecting the Transmission
	1.6.19.	Testing the Transmission
	1.6.20.	Servicing the Transmission
	1.6.21.	Adjusting the Transmission
	1.6.22.	Inspecting the Transmission End Covers
	1.6.23.	Inspecting the Transmission Oil Filters
	1.6.24.	Servicing the Transmission Oil Filters

Duty 1.7: Maintaining the Transmission Oil Cooler

Task	1.7.1.	Inspecting the External Oil Cooler Lines
	1.7.2.	Replacing External Oil Cooler Lines
	1.7.3.	Inspecting Oil Cooler Bypass Valve
✓	1.7.4.	Replacing Oil Cooler Bypass Valve
	1.7.5.	Inspecting the Oil Cooler
	1.7.6.	Replacing the Oil Cooler
Δ	1.7.7.	Testing the Oil Cooler
	1.7.8.	Servicing the Oil Cooler
Δ	1.7.9.	Repairing the Oil Cooler

Duty 1.8: Maintaining the Accessory Drive

Task	1.8.1.	Inspecting the Accessory Drive
✓	1.8.2.	Replacing the Accessory Drive
✓	1.8.3.	Replacing the Accessory Drive Coupling
Δ	1.8.4.	Repairing Accessory Drive Coupling
✓	1.8.5.	Changing Oil in the Accessory Drive
	1.8.6.	Replacing the Oil Seals

Duty 1.9: Maintaining the Brake System

Task	1.9.1.	Replacing the Brake Shoes
✓	1.9.2.	Replacing the Brake Linings
	1.9.3.	Replacing Hydraulic Lines and Fittings
✓	1.9.4.	Replacing Emergency Controls and Linkage
Δ	1.9.5.	Replacing Emergency Lines and Fittings
✓	1.9.6.	Testing the Brake System for Leaks
✓	1.9.7.	Replacing the Emergency Cylinders
✓	1.9.8.	Replacing the Service Cylinders
✓	1.9.9.	Replacing the Release Springs
✓	1.9.10.	Replacing the Brake Anchors
✓	1.9.11.	Checking the Brakes w/Power Pack Removed
✓	1.9.12.	Charging the Brake Accumulator w/Nitrogen
Δ✓	1.9.13.	Replacing the Brake Assembly
✓	1.9.14.	Troubleshooting the Brake System
✓	1.9.15.	Bleeding the Brake System
Δ	1.9.16.	Inspecting the Brake Apply Valve
	1.9.17.	Servicing the Brake Apply Filter
	1.9.18.	Replacing the Brake Apply Filter
Δ	1.9.19.	Repairing the Brake Apply Filter
	1.9.20.	Testing the Hydraulic Brake Controls and Linkage
	1.9.21.	Adjusting the Hydraulic Brake Controls and Linkage
	1.9.22.	Repairing the Hydraulic Brake Controls and Linkage
	1.9.23.	Adjusting the Brakes

SECTION I

EQUIPMENT CATEGORY 2 - ELECTRICAL SYSTEM

Duty 2.1:		Troubleshooting Electrical System
Task	2.1.1.	Inspect the Hull Distribution Box
	2.1.2.	Inspect the Power Relay Box
	2.1.3.	Inspect the Hull Wiring Harness
	2.1.4.	Testing the Voltage Regulator
	2.1.5.	Testing the Alternator
	2.1.6.	Testing the Turret Junction Box
	2.1.7.	Inspect the Generator Control Box
	2.1.8.	Testing the Generator Control Box
Duty 2.2:		Maintaining the Starter System
✓ Task	2.2.1.	Troubleshooting the Starter Circuit
	2.2.2.	Inspecting the Starter Motor
✓	2.2.3.	Replacing the Starter Motor
Δ	2.2.4.	Repairing the Starter Motor
	2.2.5.	Testing the Starter Motor
	2.2.6.	Inspecting the Starter Relay
	2.2.7.	Testing the Starter Relay
✓	2.2.8.	Replacing the Starter Relay
✓	2.2.9.	Replacing the Neutral Shift Switch
✓	2.2.10.	Adjusting the Neutral Shift Switch
✓	2.2.11.	Replacing Electrical Lead from Starter Relay to Starter
✓	2.2.12.	Replacing Starter Solenoid Coil and Contact Lead
✓	2.2.13.	Replacing Starter Ground Lead
✓	2.2.14.	Replacing Starter Relay and Alternator Lead
Duty 2.3:		Maintaining the Battery and Generator System
✓ Task	2.3.1.	Replacing the Batteries
✓	2.3.2.	Replacing the Alternator and Right Angle Drive
	2.3.3.	Replacing the Regulator
	2.3.4.	Recharging the Batteries
	2.3.5.	Repairing the Battery Racks
	2.3.6.	Replacing the Battery Leads
	2.3.7.	Replacing the (Slave) Receptacle
✓	2.3.8.	Testing the Batteries
✓	2.3.9.	Replacing the Electrical Lead from Battery to Junction Box

✓	2.3.10.	Replacing the Engine and Alternator Lead
	2.3.11.	Testing the Battery Charger
	2.3.12.	Adjusting the Generator-Alternator Control Box
	2.3.13.	Replacing the Generator-Alternator Control Box
	2.3.14.	Inspecting the Generator-Alternator
	2.3.15.	Testing the Generator-Alternator
	2.3.16.	Replacing the Generator-Alternator

Duty 2.4: Maintaining the Lighting System

✓ Task	2.4.1.	Aligning the Headlights
	2.4.2.	Removing Dome Lights
	2.4.3.	Removing Power Supply Infrared
✓	2.4.4.	Replacing the Headlight Assembly
✓	2.4.5.	Replacing the Headlight Seal Beam Lamp Unit
✓	2.4.6.	Replacing the Taillight Assembly
✓	2.4.7.	Replacing the Right/Left Headlight Harness
	2.4.8.	Testing the Lights
	2.4.9.	Repairing the Lights

Duty 2.5: Maintaining the Electro Hydraulic Slip Ring

✓ Task	2.5.1.	Removing the Electro Hydraulic Slip Ring
✓	2.5.2.	Inspecting the Electro Hydraulic Slip Ring
	2.5.3.	Repairing Slip Ring Quick Release Mechanism

Duty 2.6: Maintaining the Junction Boxes and Chassis Wiring

Δ✓ Task	2.6.1.	Replacing the Hull Distribution Box
Δ✓	2.6.2.	Replacing the Power Relay Box
Δ✓	2.6.3.	Replacing the Sponson Power Box
Δ✓	2.6.4.	Replacing the Hull Distribution box to Engine Compartment Bulkhead Wiring Harness
Δ✓	2.6.5.	Replacing the Engine Compartment Right Main Wiring Harness
Δ✓	2.6.6.	Replacing the Flame Detector and Fuel Level Wiring Harness
Δ✓	2.6.7.	Replacing the Battery to Power Relay Box Wiring Harness
Δ✓	2.6.8.	Replacing the Transmission Control Box to Bulkhead Wiring Harness
Δ✓	2.6.9.	Replacing Hull Distribution Box to Transmission Electronic Box Wiring Harness
Δ✓	2.6.10.	Replacing the Slip Ring, Power Relay Box and Bilge Pump Wiring Harness

Δ✓ 2.6.11.	Replacing the Engine Power Wiring Harness
Δ✓ 2.6.12.	Replacing the F&H Relay Box to Valve Block Wiring Harness
Δ✓ 2.6.13.	Replacing the Hull Distribution Box to G.P.F.U. Wiring Harness
Δ✓ 2.6.14.	Replacing the Hull Distribution Box to Driver Control Amplifier and Inverter Wiring Harness
Δ✓ 2.6.15.	Replacing the Batteries to Electric Heater Wiring Harness
Δ✓ 2.6.16.	Replacing the Lead from the T.V. Electronics Box to the T.V. Camera
Δ✓ 2.6.17.	Replacing the Engine Disconnect to Starter Relay, Fuel Pump, Left Hand Ignition Unit, Engine Shroud, Throttle Actuator, Kickdown Switch, Exciter, D.C. Field, Alternator, Right Hand Ignition Unit, Fuel Pump Discharge Pressure Switch, Oil Temperature Switch and Oil Temperature Transmitter Wiring Harness
Δ✓ 2.6.18.	Replacing the Sponson Power Box to Starter Relay, Engine Starter and Alternator Wiring Harness
Δ✓ 2.6.19.	Replacing the Hull Distribution Box to F&H Relay Box and T.V. Electronic Box Wiring Harness
Δ✓ 2.6.20.	Replacing the Engine Compartment Bulkhead to Transmission Wiring Harness
Δ✓ 2.6.21.	Replacing the Hull Distribution Box to Hull Rate Gyro Wiring Harness
Δ✓ 2.6.22.	Replacing the Hull Distribution Box to Turret Slip Ring Wiring Harness
Δ✓ 2.6.23.	Replacing the Hull Distribution Box to Fire Extinguisher Bottles Wiring Harness
Δ✓ 2.6.24.	Replacing the Air Compressor to Sponson Power Box, Left and Right Air Cleaner Blower Wiring Harness
Δ✓ 2.6.25.	Replacing the Hull Distribution Box to Engine Bulkhead Wiring Harness
Δ✓ 2.6.26.	Replacing the Forward Bulkhead Connector to Fuel Booster Pump, Fuel Level Transmitter, Track Adjusting Solenoid, Right Headlight Assembly, and F&H Front Suspension Synchro Right Wiring Harness
Δ✓ 2.6.27.	Replacing the Hull Distribution Box to F&H Suspension, Environmental Control Unit and Left Driving Lights Wiring Harness
Δ✓ 2.6.28.	Replacing the Engine Bulkhead to Air Bleed Valve, Air Compressor Pressure Switch, F&H Synchro Left Rear, Engine Disconnect Left Fuel Booster Pump, Sponson Power Box and E.C.U. Condensor Compressor Wiring Harness

SECTION I

EQUIPMENT CATEGORY 3 - HULL AND SUSPENSION SYSTEM

Duty 3.1:		Maintaining Hydroneumatic Suspension Unit
✓ Task	3.1.1.	Replacing a Hydroneumatic Suspension Unit
✓	3.1.2.	Checking the Nitrogen Pressure in the Accumulator
✓	3.1.3.	Charging the Suspension Unit w/Gas
✓	3.1.4.	Releasing of Gas from the Accumulator
✓	3.1.5.	Adjusting the Pressurizing Valve in the Manifold
Duty 3.2:		Maintaining Controls and Displays
Task	3.2.1.	Inspecting the Hydraulic Control Console
Δ✓	3.2.2.	Replacing the Hydraulic Control Console
Δ	3.2.3.	Testing the Hydraulic Control Console
Δ	3.2.4.	Repairing the Hydraulic Control Console
Δ	3.2.5.	Replacing the Hydraulic Control Valves
Δ	3.2.6.	Repairing the Hydraulic Control Valves
Duty 3.3:		Maintaining Road Wheel Arm Assembly
✓ Task	3.3.1.	Replacing Road Wheel Arm Assembly
	3.3.2.	Installing Road Wheel Arm Assembly
Duty 3.4:		Maintaining Road Wheels and Hubs
✓ Task	3.4.1.	Testing Road Wheels and Hubs
✓	3.4.2.	Replacing Road Wheels and Hubs
✓	3.4.3.	Replacing Road Wheels
✓	3.4.4.	Replacing Road Wheel Hub Bearings
✓	3.4.5.	Inspecting the Road Wheels and Hub
✓	3.4.6.	Replacing Road Wheel Wear Ring
	3.4.7.	Adjusting Road Wheel Hub Assembly
	3.4.8.	Repairing Road Wheel Hub Assembly
Duty 3.5:		Maintaining the Compensating Idler Arm Assembly
✓ Task	3.5.1.	Replacing the Compensating Idler Arm Assembly
	3.5.2.	Adjusting the Compensating Idler Arm Assembly
Δ	3.5.3.	Repairing the Compensating Idler Arm Assembly
	3.5.4.	Inspecting for Damage Compensating Idler Arm Assembly
	3.5.5.	Replacing the Compensating Idler Arm Assembly Disk
Δ	3.5.6.	Repairing the Compensating Idler Arm Assembly Disk

Duty 3.6:		Maintaining Track Support Roller Assembly
Task	3.6.1.	Adjusting Track Support Roller Assembly
✓	3.6.2.	Replacing Bearing in Track Support Roller Assembly
✓	3.6.3.	Inspecting the Track Support Rollers
✓	3.6.4.	Replacing the Track Support Roller Wheels
Δ	3.6.5.	Repairing the Track Support Roller Assembly
	3.6.6.	Inspecting the Track Support Roller Spindle
	3.6.7.	Replacing the Track Support Roller Spindle
Δ	3.6.8.	Repairing the Track Support Roller Spindle
Duty 3.7:		Maintaining Sprockets and Hub Assembly
✓ Task	3.7.1.	Replacing the Sprockets and Hub Assembly
✓	3.7.2.	Inspecting for Wear Limit of Sprocket
Duty 3.8:		Maintaining Track Adjuster Assembly
Δ Task	3.8.1.	Inspect Track Adjuster Internal Hydraulic Controls and Connecting Lines
	3.8.2.	Inspect Track Adjuster (Steer) Switch
	3.8.3.	Inspect Control Box Assembly and Cables
	3.8.4.	Troubleshoot Track Adjuster System
	3.8.5.	Adjust Track Adjuster (Steer) Switch
Δ	3.8.6.	Repair Actuator Assembly
Δ	3.8.7.	Repair Bracket Assembly
Δ	3.8.8.	Repair Track Adjuster Switch Assembly
Δ	3.8.9.	Repair Hydraulic Control Assembly
	3.8.10.	Replace Actuator
	3.8.11.	Replace Bracket Assembly
	3.8.12.	Replace Yoke Assembly
Δ✓	3.8.13.	Replace Track Adjuster Switch Assembly
Δ✓	3.8.14.	Replace Hydraulic Control Assembly and Connecting Lines
✓	3.8.15.	Replacing Track Adjuster Assembly
Duty 3.9:		Maintaining Hull Assemblies
Task	3.9.1.	Replacing/Repairing Fenders
	3.9.2.	Repairing Escape Hatch
	3.9.3.	Repairing Intake Grilles
	3.9.4.	Repairing Exhaust Grilles
	3.9.5.	Repairing Access Doors
	3.9.6.	Repair Radiological Shielding
	3.9.7.	Repair Boxes, Brackets and Straps

	3.9.8.	Repair Damaged Stowage Boxes
	3.9.9.	Replace Missing or Unserviceable O.E.M.
	3.9.10.	Replace Tool Box Drain Plug, Seal, and Mounting Screws
	3.9.11.	Replace Tool Box Assembly
✓	3.9.12.	Replacing Radiological Shielding Panels
✓	3.9.13.	Inspecting Radiological Shielding
	3.9.14.	Replacing Towing Pintle
	3.9.15.	Repairing Gun Travel Lock
	3.9.16.	Replacing Door Seals, Covers and Plates

SECTION I

EQUIPMENT CATEGORY 4 - AUXILIARY EQUIPMENT

Duty 4.1: Maintaining the Environmental Control and Gas Particulate Filter System

Task	4.1.1.	Testing the Air Conditioner Gas Compressor
	4.1.2.	Servicing the Air Conditioner Condenser Coil
	4.1.3.	Servicing the Air Conditioner Evaporator Coil
	4.1.4.	Changing the Carbon Brushes of Air Blower
	4.1.5.	Checking Leaks of Hydraulic Lines and Fittings
✓	4.1.6.	Replacing the Gas Particulate Filter Unit
✓	4.1.7.	Replacing the Air Filter Element of the (G.P.F.U.)
Δ	4.1.8.	Replacing the Compressor - Condenser Unit (E.C.U.)
	4.1.9.	Replacing Air Conditioner Fan Guard
	4.1.10.	Replacing Air Conditioner Seals
	4.1.11.	Replacing Air Conditioner Panel Assemblies
	4.1.12.	Repairing Air Conditioner Panel Assemblies
	4.1.13.	Repairing the Air Conditioner Frame Assembly
	4.1.14.	Inspecting the Air Conditioner Evaporator Motor
	4.1.15.	Testing the Air Conditioner Evaporator Motor
	4.1.16.	Replacing the Air Conditioner Evaporator Motor
	4.1.17.	Inspecting Intake Housing and Fan G.P.F.U.
	4.1.18.	Testing Intake Housing and Fan G.P.F.U.
	4.1.19.	Replacing Intake Housing and Fan G.P.F.U.
	4.1.20.	Inspecting Filtering Console Housing G.P.F.U.
	4.1.21.	Replacing Gas Filter of G.P.F.U.
	4.1.22.	Inspecting Main Fan of G.P.F.U.
	4.1.23.	Testing Main Fan of G.P.F.U.
	4.1.24.	Replacing Main Fan of G.P.F.U.
	4.1.25.	Testing Air Supply Controls G.P.F.U.
	4.1.26.	Replacing Air Supply Controls G. P. F..U.
	4.1.27.	Inspecting Switch Box Assembly G.P.F.U.
	4.1.28.	Testing Switch Box Assembly G.P.F.U.
	4.1.29.	Replacing Switch Box Assembly G.P.F.U.
	4.1.30.	Testing Positive Pressure Indicator G.P.F.U.
	4.1.31.	Replacing Positive Pressure Indicator G.P.F.U.
	4.1.32.	Testing Deep Fording Valve G.P.F.U.

Duty 4.2: Maintaining the Fire Extinguisher System

✓ Task	4.2.1.	Troubleshooting Extinguisher Electrical System
✓	4.2.2.	Testing Extinguisher Bottle for Agent
✓	4.2.3.	Charging Extinguisher Bottle with Freon Agent and Nitrogen Pressure
	4.2.4.	Replacing Flame Sensors

	4.2.5.	Replacing Amplifier
	4.2.6.	Replacing Check Valves in Primary Discharge Line
	4.2.7.	Replacing Check Valves in Secondary Discharge Lines
✓	4.2.8.	Replacing Time Delay Valve
✓	4.2.9.	Replacing Extinguisher Control Heads
	4.2.10.	Adjusting Mechanical Controls and Linkages
	4.2.11.	Repairing Container and Valve Assemblies - Discharged or Damaged
	4.2.12.	Replacing Discharge Tubing
	4.2.13.	Servicing Control Lines and Fittings
	4.2.14.	Replacing Control Lines and Fittings

Duty 4.3: Maintaining the Bilge Pump System

✓ Task	4.3.1.	Troubleshooting the Bilge Pump
✓	4.3.2.	Replacing the Bilge Pump
	4.3.3.	Replacing the Bilge Pump Electrical Cable
	4.3.4.	Replacing the Bilge Pump Electrical Circuit Breaker
	4.3.5.	Replacing the Bilge Pump Electrical Wiring Harness
	4.3.6.	Replacing the Bilge Pump Electrical Indicator Light
	4.3.7.	Replacing the Bilge Pump Electrical Relay
	4.3.8.	Replacing the Bilge Pump Switch
✓	4.3.9.	Replacing the Bilge Pump Hose
✓	4.3.10.	Replacing the Check Valve

Duty 4.4: Maintaining the Communication System

Task	4.4.1.	Servicing the Radio Set (Basic Unit)
	4.4.2.	Testing the Radio Set (Basic Unit)
✓	4.4.3.	Removing the Radio/Transmitter
	4.4.4.	Removing the Mount Base MT
	4.4.5.	Removing the Antenna and Mast Base
	4.4.6.	Removing the Cable Assemblies
	4.4.7.	Removing the Radio/Intercom Control Box
	4.4.8.	Repairing the External Interphone Box
	4.4.9.	Testing Radio Interference Electronic Filter
	4.4.10.	Replacing Radio Interference Electronic Filter
	4.4.11.	Replacing Radio Interference Suppression

Duty 4.5: Maintaining the Winterization Kit

Δ Task	4.5.1.	Installing of the Winterization Kit
Δ	4.5.2.	Removing of the Winterization Kit
	4.5.3.	Replacing Winterization Kit Electrical Harness

	4.5.4.	Replacing the Battery Heater Hose Lines
	4.5.5.	Replacing the Thermostat
	4.5.6.	Replacing the Heater Fuel Pump
	4.5.7.	Replacing Exhaust Pipe/Deflector Assembly
Duty 4.6:		Maintaining the Basic Issue Items
Task	4.6.1.	Inspecting Firing Circuit Tester
	4.6.2.	Repairing Firing Circuit Tester
	4.6.3.	Inspecting Electronic Decontaminating Apparatus
	4.6.4.	Repairing Electronic Decontaminating Apparatus
	4.6.5.	Adjusting Electronic Cooking Stove (500 w)

PRELIMINARY OUTLINE OF ORGANIZATIONAL AUTOMOTIVE MAINTENANCE DUTIES AND TASKS FOR US/FRG MBT-70

Equipment Category 1 - Power Pack

Equipment Category 2 - Electrical System (Automotive)

Equipment Category 3 - Hull and Suspension System

Equipment Category 4 - Auxiliary Equipment

EQUIPMENT CATEGORY 1. POWER PACK

Duty 1.1.	Maintaining Engine
Duty 1.2.	Maintaining the Fuel and Air Intake System
Duty 1.3.	Maintaining the Engine Oil Cooler
Duty 1.4.	Maintaining the Exhaust System
Duty 1.5.	Maintaining the Cooling System
Duty 1.6.	Maintaining the Transmission and Final Drive
Duty 1.7.	Maintaining the Transmission Oil Cooler
Duty 1.8.	Maintaining the Accessory Drive
Duty 1.9.	Maintaining the Brake System

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Train

POSITION Organizational Mechanic

1.1. DUTY Maintaining Engine

TANK MBT-70

1.1.1. TASK Replacing the Power Pack

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Engine compartment doors	Open		
2.	Socket and ratchet	( ) Deck bolts	Loosen and remove		
3.	Wrecker or hoist	Deck plates	Remove		Position wrecker so deck can be laid on blocks at ground level
4.		Final drive couplings	Loosen and disconnect		
5.		Steering linkage	Loosen and disconnect		
6.		Engine throttle linkage	Loosen and disconnect		
7.		Fuel inlet and fuel return lines	Disconnect		
8.		Engine electrical control	Disconnect		
9.		Transmission electrical control	Disconnect		

1.1.1.

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
10.		Starter cables	Disconnect		
11.		Transmission emergency shift linkage	Disconnect		
12.		Transmission trunnion bolts	Loosen and disconnect		
13.		Accessory drive coupling	Loosen and disconnect		
14.	Engine and transmission sling	Eye hooks engine and transmission	Attach sling to eye hook		Lift by use of sling the transmission end should elevate 8° as it is raised
15.		Power pack	Lift		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack — POSITION Organizational Mechanic

1.1. DUTY Maintaining the Engine — TANK MBT-70

1.1.2a TASK Testing the Power Pack — DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
	Note: When running engine on ground mount, do not shift transmission into any gear. No power can be taken from a loose transmission.				
1.				Black smoke from exhaust	
2.		Air cleaners	Check for cleaness	Black smoke from exhaust	
3.		Manifold	Look for air leaks	Black smoke from exhaust	
4.		Injection pump	Inspect f or leak or excessive fuel supply to engine		
5.				White smoke from exhaust cylinder bank getting fuel but not firing	

1.1.2a

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
6.		Fan assemblies	Remove		See Task _____
7.		Main engine	Start and run for very short time		
8.		Hand (wet)	Feel for cold cylinder(s)		This may be due to defective injector nozzle
9.				Engine looses power under load	
10.		Primary fuel filter	Clean and/or replace		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

POSITION Organizational Mechanic

1.1. DUTY Maintaining the Engine

TANK MBT-70

1.1.2b TASK Performing the "Stall" Test

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
		The stall speed of 1950 - 2000 rpm indicates the engine and transmission are functioning properly.			
1.		All brakes	Lock in position		
2.		Engine	Start		
3.		Transmission	Place selector in 4th position		
4.		Engine rpm	Increase gradually to maximum speed		
5.		Engine rpm	Note maximum rpm		Do not hold at maximum speed more than 15 seconds

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

1.1. DUTY Maintaining the Engine

1.1.3. TASK Inspecting the Power Pack

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
		With power pack removed			
1.		Shield around turbocharger	Inspect for tightness		Protects transmission from excess heat
2.		Red buttons on oil filters	Inspect to assure in down position		If in up position lines are clogged
3.		Oil filler plug	Inspect for tightness of fit		
4.		Oil dipstick	Inspect for tightness of fit		
5.		(2) after coolers one each side	Inspect for leaks and cleanness		Air pressure may be used to clean loose dirt and dust
6.		Transmission and engine oil cooler	Inspect for leaks and cleanness		The two coolers are interchangeable

(continued)

1.1.3.

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
7.		Manifold heater system	Inspect the coil, spark plug and fuel injector		Lines should be clean and free from leaks
8.		Supercharger	Inspect for tightness and no leaks to after cooler		
9.		Access door to fly wheel housing	Inspect for tightness and free from oil leaks		
10.		Turbocharger	Spin wheel to see if bearings are worn		Air intake hose end should have a protective cover if engine is started
11.		Engine breather pipe into exhaust	Inspect for any leak signs		
12.		Fuel filters	Inspect for any leaks		
13.		Oil filters	Inspect for any leaks		
14.		Oil and fuel lines	Inspect for tightness and leaks		
15.		Shrouds	Inspect for damage or loose mounting		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

POSITION Organizational Mechanic

1.1. DUTY Maintaining the Engine

TANK MBT-70

1.1.6. TASK Testing the Engine

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
	Note: The	following indicators will give	a quick test of engine operation.		
1.		Fuel pressure from in-take pump	Test	Normal 5-7 P.S.I.	
2.		Starting motor	Engage and disengage	Should be smooth and without sticking	
3.		Engine	Start	Should start within 15 sec	Under normal conditions
4.		Engine (idling at 850 rpm)	Observe oil pressure	Gauge light should be off	Oil pressure 20 P.S.I. minimum
5.		Engine	Listen for unnatural noise		
6.		Engine	Run at 2500 rpm	Oil pressure guage should show 40-90 P.S.I	

1.1.6.

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
7.		Cooling fans	Feel for blast of air over each grille		
8.		Cooling fans	Feel for oil spray		No oil spray or dropplets from air blast
9.		Engine(idling at 850 rpm)	Listen for smooth idle		No miss or rocking action is evident
0.		Engine	Listen for smooth acceleration		Under both load and no load conditions

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

1.1. DUTY Maintaining the Engine

1.1.7. TASK Adjusting the Engine Intake Valves

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Top deck and coolers (2 oil, 2 after coolers)	Remove		See Task
2.		Intake and exhaust valve rocker covers	Remove		
3.	Special splined tool	Crankshaft	Rotate in normal rotation until 60° - 90° past initial valve closing		This will stop on base circle of cam lobe
4.	Screwdriver and wrench	Intake valve adjustment screw	Set zero valve lash, + 2-1/2 more turns		
5.	Note: (a)	If the hydraulic tappet is bled down, zero lash is obtained by feeling for the extended height of tappet spring.			
	(b)	No adjustment of valve timing can be made with the AVCR 1100-2 engine.			

JOB ELEMENTS

SECTION 1

1. EQUIPMENT CATEGORY: Power Pack

1.1. DUTY: Maintaining the Engine

1.1.8. TASK: Adjusting the Engine Exhaust Valves

POSITION: Organizational Mechanic

TANK: MBT-70

DATE:

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Top deck and 2 oil coolers and 2 after coolers	Remove		See Task ____
2.		Intake and exhaust valve rocker cover	Remove		
3.	Special splined tool	Crankshaft	Rotate in a normal rotation until 60°-90° past intake valve closing		This will stop on base circle of cam lobe
4.	Screwdriver and wrench	Exhaust valve adjustment screw	Set zero valve lash, + 2-1/2 more turns		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

POSITION Organizational Mechanic

1.1. DUTY Maintaining the Engine

TANK MBT-70

1.1.12. TASK Replacing the Engine Oil Filter Bypass Valve

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.	Adjustable wrench 1-1/8"	Oil filter bypass valve	Back out large nut		Valve is located on damper housing #1 right cylinder
2.		Oil filter bypass valve and spring	Remove		Save copper gasket

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

1.1. DUTY Maintaining the Engine

1.1.13. TASK Adjusting the Emergency Throttle Control

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Nuts on throttle cable	Loosen		
2.		Cable	Shorten or lengthen to adjust to proper speed		Throttle range for both idle and max governed speed
3.		Nuts on cable	Tighten		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack — POSITION Organizational Mechanic

1.1. DUTY Maintaining the Engine — TANK MBT-70

1.1.14. TASK Changing Oil - 1500 miles or 100 Hrs Which Ever Occurs First — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
		With engine out of tank			Drain oil with engine warm
1.	Wire cutters	Safety wire on oil drain plug	Cut		
2.	5/8" allen wrench	(2) oil pan drain plug	Loosen and remove		Let drain completely
3.		Drain plug oil filter housing	Loosen and remove		Let drain completely
4.		Top cover filter housing	Loosen and remove		
5.		Filter element and cover gasket	Remove and discard		
6.		New filter element	Install		
7.		Filter housing drain plug	Replace and tighten		
8.		Top cover with new gasket	Replace and tighten		
9.		(2) drain plugs and new copper gaskets	Replace and tighten		Lace plugs with lock wire to secure

1.1.14.

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
10.		15.5 gallons of oil	Add thru filler pipe (avoid spilling on coolers)		Refer to lub. chart for proper grade
11.		Engine	Start and warm up		
12.		Dipstick	Check		Fill to full mark if low

NOTE: If engine is in the vehicle proceed as above except; clean oil filter housing from above and do not remove bottom drain plug.

JOB ELEMENTS

SECTION 1

1. EQUIPMENT CATEGORY Power Pack

1. DUTY Maintaining the Engine

1.1.15. TASK Cleaning the Engine

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
	Note: (a) At various times the engine becomes caked with oil and dirt and it becomes necessary to clean the engine thoroughly.				
	(b) At times when the power pack is removed from the vehicle the following procedure could be used.				
1.		Openings of oil lines	Tape closed		
2.	Steam Cleaner	Engine and/or pack	Clean thoroughly		
3.	Wax or grease, cleaning solvent, air hose	Engine	Spray engine and oil coolers	Oil deposits in oil coolers	Use Fed. Spec. # P-S-661
4.	Mineral spirits, paint thinner, air hose	Engine	Spray engine and coolers	Preservative paints on engine	Use Fed. Spec. # TT-T-291

Task Elements					
No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
		Warning: (a) Avoid skin contact with cleaning solvent and paint thinner. (b) Do not breath the vapors. (c) Take adequate precautions to prevent fires. (d) Keep charged fire extinguishers ready for use.			

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY: Power Pack

1.1. DUTY: Maintaining the Engine

1.1.24. TASK: Test Running the Power Pack

POSITION: Organizational Mechanic

TANK: MBT-70

DATE:

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
		Preliminary Steps (1) Remove power pack from vehicle (2) Place on test stand			
1.		Power pack test and stall check kit	Obtain		
2.		Transmission adapter harness	Connect to transmission female receptacle and to transmission harness in vehicle		
3.		Fuel supply adapter hose	Connect to primary fuel filter and to fuel supply quick disconnect to vehicle		
4.		Engine controls and instruments adapter harness	Connect to engine controls and instrument harness on engine and in vehicle		
5.		Engine main power adapter harness	Connect to engine main power harness on engine and in vehicle		
6.		Fuel return adapter hose	Connect to fuel return line on engine and in vehicle		

1.1.24.

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
7.		Tachometer	Install on engine		
8.		Driver's controls	Use to test run power pack		Use in same manner as if power pack is installed in vehicle

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

POSITION Organizational Mechanic

1.2. DUTY Maintaining the Fuel and Air Intake System

TANK MBT-70

1.2.1. TASK Troubleshooting Fuel and Air Intake System

a Sub TASK Determining Cause of Insufficient Fuel Flow

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
				Engine cranks but will not start	
1.		Secondary fuel filters	Bleed air from secondary filter	Engine starts Engine does not start	Turn bleed plug CCW until a steady flow of fuel is obtained
2.		Fuel hoses, tubes or fittings	Check for leaks or loose fittings	Engine starts Engine does not start	
3.		Fuel hoses and tubes	Check for bent, dented or restricted hoses or tubes	Engine starts Engine does not start	
4.		Fuel system electrical circuit	Check and repair defective electrical circuit	Engine starts Engine does not start	

1.2.1.a

No.	Task Elements: Equipment worked with	Task Elements: Equipment worked on	Task Elements: Activity	Indication	Remarks
5.		Fuel tank pump	Check and replace defective fuel tank pump	Engine starts Engine does not start	See Task 1.2.58 or 1.2.59
6.		(2) 3 way fuel valve	Check and replace defective 3 way valve	Engine starts Engine does not start	See Task 1.2.19
7.		Fuel shut-off switch	If in the "on" position place to off position	Engine starts Engine does not start	
8.		Fuel shut-off switch	Replace defective fuel shut-off valve	Engine should start	

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

POSITION Organizational Mechanic

1.2. DUTY Maintaining the Fuel and Air Intake System

1.2.1 TASK Troubleshooting Fuel and Air Intake System

b Sub TASK Determining Cause of Inoperable Fuel Gauge

TANK MBT-70

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
				Fuel gauge does not register	
1.		Fuel electrical circuit	Check and repair defective or inoperative circuit	Gauge registers	
				Gauge does not register	
2.		Fuel level sensor	Replace defective fuel level sensor	Gauge registers	
				Gauge does not register	See Task 1.2.55
3.		Fuel gauge	Replace defective fuel gauge	Fuel gauge should register	

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

POSITION Organizational Mechanic

1.2. DUTY Maintaining the Fuel and Air Intake System

TANK MBT-70

1.2.1 TASK Troubleshooting Fuel and Air Intake System

c Sub TASK Determining Cause of 3 Way Fuel Valve Malfunction

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
				3 way fuel valve does not switch flow of fuel	
1.		Fuel electrical circuit	Check and repair defective or inoperative electrical circuit	3 way valve switches flow of fuel	
				3 way valve does not switch flow of fuel	
2.		3 way fuel valve	Replace defective 3 way fuel valve	3 way fuel valve should switch flow of fuel	See Task 1.2.19

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

POSITION Organizational Mechanic

1.2. DUTY Maintaining the Fuel and Air Intake System

1.2.1. TASK Troubleshooting Fuel and Air Intake System

d Sub TASK Determining Cause of Inoperable Snorkel

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
				Snorkel will not raise or lower	
1.		Master switch	Turn master switch to "drive" position	Snorkel raises	
				Snorkel does not raise	
2.		Fording switch	Check switch and replace a defective switch	Snorkel raises	
				Snorkel does not raise	
3.		Low or no hydraulic pressure	Check for leaks and fill system	Snorkel raises	
				Snorkel does not raise	
4.		Actuating cylinder	Check and replace defective cylinder	Snorkel raises	
				Snorkel does not raise	

1.2.1.d

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
5.		Actuating linkage	Repair or replace defective linkage	Snorkel raises Snorkel does not raise	
6.		Solenoid valve	Replace defective solenoid valve	Snorkel should raise	

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

POSITION Organizational Mechanic

1.2. DUTY Maintaining the Fuel and Air Intake System

TANK MBT-70

1.2.1. TASK Troubleshooting Fuel and Air Intake System

e Sub TASK Determining Cause of Inoperable Snorkel

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Snorkel support cylinder	Check and replace defective cylinder	Snorkel support fails to lock when snorkel is raised Snorkel support should lock when snorkel is raised	

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

1.2. DUTY Maintaining the Fuel and Air Intake System

1.2.1 TASK Troubleshooting the Fuel and Air Intake System

f Sub TASK Determining Cause of Inoperable Vacuum Cleaner

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
				Engine air cleaner vacuum inoperative	
1.		Master switch	Turn master switch to the "drive" position	Vacuum cleaner operates	
				Vacuum cleaner does not operate	
2.		Fording switch	Check and replace defective fording switch	Vacuum cleaner operates	
				Vacuum cleaner does not operate	
3.		Selector valve	Ensure selector valve changes position, if not, replace defective valve	Vacuum cleaner operates	
				Vacuum cleaner does not operate	

1.2.1.f

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
4.		Vacuum hose	Replace defective hose	Vacuum cleaner operates Vacuum cleaner does not operate	
5.		Dust blower	Check and replace defective blower	Air cleaner vacuum cleaner should operate	

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

POSITION Organizational Mechanic

1.2. DUTY Maintaining the Fuel and Air Intake System

TANK MBT-70

1.2.1. TASK Troubleshooting the Fuel and Air Intake System

g Sub TASK Determining Cause of Inoperable Selector Valve

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
				Selector valve fails to change position	
1.		Master switch	Turn master switch to "drive" position	Selector valve changes position	
				Selector valve does not change position	
2.		Fording switch	Check and replace defective fording switch	Selector valve changes position	
				Selector valve does not change position	
3.		Hydraulic pressure	Check for low or no hydraulic pressure and refill if needed	Selector valve changes position	
				Selector valve does not change position	

1.2.1.g

Task Elements					
No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
4.		Actuating cylinder	Check and replace defective actuating cylinder	Selector valve changes position Selector valve does not change position	
5.		Solenoid valve	Check and replace defective solenoid valve	Selector valve should change position	

JOB ELEMENTS

SECTION 1

1. EQUIPMENT CATEGORY Power Pack

POSITION Organizational Mechanic

1.2. DUTY Maintaining the Fuel and Air Intake System

TANK MBT-70

1.2.2. TASK Inspecting Fuel Injection Pump

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Pressure sensor	Remove (unscrew)		
2.		Hand pressure guage	Place in opening	Fuel pressure should be 90 P.S.I.G.	

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack — POSITION Organizational Mechanic

1.2. DUTY Maintaining the Fuel and Air Intake System — TANK MBT-70

1.2.9. TASK Replacing Fuel Lines, Hoses and Fittings — DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
	Note: The stainless steel fuel lines are all the same length (39 inches). No one line should be shortened by repair of a fitting.				
1.		(3) line fittings on injection pump	Loosen		
2.		(3) line fittings on nozzle	Loosen		
3.		Mounting clamp	Loosen		A set of 3 lines is removed as a harness
4.		Set of 3 lines	Remove		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

POSITION Organizational Mechanic

1.2. DUTY Maintaining the Fuel and Air Intake System

TANK MBT-70

1.2.10. TASK Inspecting Fuel Injector Nozzle

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Fuel injector nozzle	Remove		See Task _____
2.	Injector nozzle tester	Fuel injector nozzle	Attach nozzle to injector nozzle tester		
3.		Fuel injector nozzle	Check nozzle at 3600-3650 P.S.I.G.	Spray from nozzle should be finely atomized conical spray	

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack — POSITION Organizational Mechanic

1.2. DUTY Maintaining the Fuel and Air Intake System — TANK MBT-70

1.2.15.a TASK Replacing the Engine Fuel Pump — DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
	NOTE: All other possible causes of malfunctions should be investigated before removing the injection pump, fuel lines or nozzles. If necessary to remove, cap all openings immediately after making disconnections.				
1.		33 Bolts and lock washers	Loosen and remove from top shroud.		
2.		Shroud assembly	Lift off		
3.		3/4-16 slotted nut from each fan	Loosen and remove		
4.		(2) Cooling fan and hubs	Remove as a unit		Do not nick fan blades
5.		Compressed air	Use to remove dirt from vee of engine		
6.		All components of pump assembly	Clean thoroughly		
7.		Fuel lines at nozzle end	Disconnect		Cap to assure no dirt enters system,

1.2.15.a

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
					use tape if necessary
8.		Fuel lines at injection pump	Disconnect		
9.		Groups of (3) steel fuel lines	Remove as a harness		
10.		Injection pump control rod	Disconnect from governor lever		Do not remove lever from shaft
11.		Fuel inlet lines	Disconnect from flywheel end of engine		
12.		Fuel line at injecting pump	Disconnect		Cap or tape open holes
13.		(4) Bolts and washers of injection advance housing	Loosen and remove		
14.		(4) Bolts and washers from oil supply adapter at crank-case	Loosen and remove		

1.2.15.a

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
5.		Injection pump and oil supply adapter	Slide and lift assembly out of engine vee		Care should be taken in this action
6.		Openings-drain holes at top of crankcase and in drain adapter	Tape or plug carefully		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack — POSITION Organizational Mechanic

1.2. DUTY Maintaining the Fuel and Air Intake System — TANK MBT-70

1.2.15.b TASK Installing and Timing Engine Fuel Pump — DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
	NOTE: Before installing fuel injection pump, the engine and pump must be			(set-up) for pump	timing as follows:
1.		Cam shaft timing hole plug	Remove to expose timing mark		This is located on cam gear
2.	Use special splined tool	Cam shaft	Rotate in normal direction		Until marked tooth appears in hole
	NOTE: This positions #1 right cylinder on the compression stroke.				
3.		Mating surfaces of engine pump	Clean thoroughly		Pump normally will be wired ready for installing
4.		Injection pump	Place in engine vee and slide into pump drive coupling		

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
5.		Bolts	Fasten to advance unit housing		
6.		Injection pump drain adapter	Fasten to crankcase		
7.		(4) lock bolts	Install to pump drive coupling		Fasten only finger tight
8.		Timing hole plug of accessory case	Remove plug to expose marked ring gear tooth		Located at 0° on flywheel
9.	Special splined tool	Crankshaft	Rotate as required		This aligns the marked tooth with pointer in hole
	Note: Both the marked ring gear tooth and mark on the cam gear must be visable. If both marks can not be seen, the engine is improperly timed.				
10.	3/8" rod	Hole in pump drive coupling	Insert rod and move slowly from side to side		This works oil out of the advance mechanism

1.2.15.b

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Drive coupling	Rotate opposite normal rotation until against advance mechanism retard stop		
2.	Special splined tool	Engine crankshaft	Back rotate past 332°		
3.	Special splined tool	Engine crankshaft	Rotate in normal direction to 332° on flywheel		
4.		1/4" rod	Insert in hole of drive coupling		
5.		1/4" rod	Use rod by turning the coupling		This aligns timing mark on coupling with pointer in injection pump housing
	Note: Maintain tension on advance unit stop with 3/8" rod.				
16.		(4) lock bolts	Tighten		Torque _____lbs

1.2.15.b

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
17.	Special splined tool	Crankshaft	Rotate opposite normal direction about 90°		
18.	Special splined tool	Crankshaft	Rotate normal direction to check timing		Timing mark at coupling should be aligned with pointer in the injection pump housing

Note: The injection pump and engine are properly timed if:

(a) The accessory end timing plug pointer is aligned with the 332° mark on the ring gear.

(b) The injection pump housing pointer and the mark on the injection pump drive coupling are aligned.

(c) The timing mark on the cam gear is visable in the hole in the damper housing.

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack — POSITION Organizational Mechanic

1.2. DUTY Maintaining the Fuel and Air Intake System — TANK MBT-70

1.2.15.c TASK Replacing Components of Fuel System — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Timing hole plug	Replace		Located on top side of accessory case
2.		Cam shaft timing hole plug	Replace and tighten		
3.		Gasket and cover plate of injection advance housing access hole	Replace and secure with (4) bolts and washers		
4.		Fuel lines (harness)	Place in engine vee and connect to proper distributor head port		Caution: Do not bend lines
5.		Fuel lines (harness)	Connect to nozzles		
6.		(4) fuel line supports	Secure to the fan drive housing		

1.2.15.c

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
7.		Non-adjustable control rod	Connect to governor operating lever		
8.		Cooling fans	Install on the splined end of beveled shaft gear		
9.		(2) 3/4" 16 slotted engine nut	Secure each fan		Torque to 800-1000" lbs
10.		(2) cotter pins	Secure each nut		
11.		Top shroud assembly	Install and secure w/(33) bolts and washers		
12.		Cooling fan vane assemblies	Remove		
13.		Fan blades	Turn slowly to verify clearance of tip with fan housing		Minimum of 0.060 inch clearance
14.		Cooling fan vane assemblies	Install and secure each with 4 bolts and lock washers		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

1.2. DUTY Maintaining the Fuel and Air Intake System

1.2.17. TASK Replacing the Fuel Shutoff Solenoid

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
	Note: The shutoff solenoid is located in the fuel injection pump.				
1.		Inspection cover lockwire	Remove		
2.		(9) bolts	Loosen and remove		
3.		(2) nuts	Loosen and remove		
4.		Electrical connector	Unsolder		
5.		Solenoid	Remove		

JOB ELEMENTS

SECTION 1

1. EQUIPMENT CATEGORY Power Pack — POSITION Organizational Mechanic

1.2. DUTY Maintaining the Fuel and Air Intake System — TANK MBT-70

1.2.21. TASK Replacing Primary Fuel Filter — DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
	NOTE: (1)	The primary fuel filter is a cleanable element.			
	(2)	Drain fuel from filter housing - use can to catch fuel.			
1.	Use 1" wrench	(1) Fuel filter housing retaining bolt	Loosen and remove		Hold the housing as bolt is removed
2.		Filter housing and filter	Remove		
3.		Gasket	Remove from housing		
4.		Filter element	Lift out of housing		
5.		Filter element	Clean thoroughly with fuel		
6.		Filter housing	Clean with fuel and rags		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack — POSITION Organizational Mechanic

1.2. DUTY Maintaining the Fuel and Air Intake System — TANK MBT-70

1.2.22. TASK Replacing the Secondary Fuel Filters — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
	NOTE: (1)	The secondary fuel filters are replaceable type.			
	(2)	Loosen drain cock on each and use can to catch fuel as it drains from filters.			
	(3)	Bleed air from fuel system, remove pressure sensor, use 7/8" wrench.			
1.	Use 1" wrench	(1) Fuel filter housing retaining bolt each filter	Loosen and remove		Hold housing as bolt is removed
2.		Filter housing and filter	Remove		
3.		Gasket	Remove from housing		
4.		Filter element	Lift out of housing		Elements are disposed of - not reuseable
	NOTE: Repeat procedure for other filter.				

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

1.2. DUTY Maintaining the Fuel and Air Intake System

1.2.24. TASK Removing the Manifold Heater Ignition Coil

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
1.		(2) electrical connections	Disconnect		
2.	1/2" socket	(2) bolts	Loosen and remove		
3.		Ignition coil	Remove		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

1.2. DUTY Maintaining the Fuel and Air Intake System

1.2.28. TASK Replacing Manifold Heater Nozzle

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Fuel lines	Remove		
2.	1" end wrench	Nozzle	Remove from manifold pad		
3.		Nozzle	Reconnect to fuel pump		
4.		Fuel pump	Energize		Observe conical fuel spray for good automization
5.	1" end wrench	Nozzle	Replace in pad		
6.		Fuel lines	Reconnect		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack — POSITION Organizational Mechanic

1.2. DUTY Maintaining the Fuel and Air Intake System — TANK MBT-70

1.2.30. TASK Replacing Manifold Heater Ignition Plug — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Ignition plug lead	Loosen and remove		
2.		Ignition plug and gasket	Loosen and remove		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

1.2. DUTY Maintaining the Fuel and Air Intake System

1.2.37. TASK Replacing the Turbocharger

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Engine shroud top inspection plate	Remove		
2.		Aftercooler and connections	Remove		
3.		Turbo to vehicle hose	Remove		
4.		Turbo to super charger hose	Remove		
5.		Oil feed line	Remove		
6.		Exhaust stack	Remove		
7.		Turbo to air cleaner hose	Remove		
8.	9/16" and 5/8" wrench and sockets	(8) bolts	Loosen and remove		
9.		Turbocharger	Lift out and remove		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack — POSITION Organizational Mechanic

1.2. DUTY Maintaining the Fuel and Air Intake System — TANK MBT-70

1.2.40. TASK Replacing the Supercharger — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Turbo connector ducts	Loosen		Loosen enough to allow raising turbo bracket assembly 3/8"
2.		Turbo bracket	Loosen		
3.		Supercharger intake ducts and retaining nuts	Remove		
4.		Supercharger exhaust ducts and retaining nuts	Remove		
5.		Turbo assembly	Raise 3/4"		
6.		Supercharger	Remove from studs		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

1.2. DUTY Maintaining the Fuel and Air Intake System

1.2.43. TASK Replacing the Aftercooler

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Aftercooler air intake bracket	Loosen and remove		
2.		Air outlet bracket	Loosen and remove		
3.		(4) bolts	Loosen and remove		Support aftercooler to prevent falling
4.		Aftercooler	Lift up and out		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack — POSITION Organizational Mechanic

1.2. DUTY Maintaining the Fuel and Air Intake System — TANK MBT-70

1.2.45. TASK Checking the Snorkel Actuator and Support Linkage — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Hydraulic cylinder plunger	Check for leak of fluid		
2.		Hydraulic cylinder fluid lines	Check for leaks		
3.		Clevis and pins	Check for snug fitting. Verify presence of cotter pin.		
4.		Actuator lever	Check for looseness		Actuator lever should be free to move without any side play
5.		Lever lock, dowel pin and plate	Check for tight fitting of plate lock		
6.		Actuator rod	Check for looseness and proper adjustment		
7.		Actuator rod clives pins	Check for snug fitting. Verify presence of cotter pin.		

1.2.45

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
8.		All moving parts of the actuator	Operate the system		Check the system for smooth operation. There should not be any jumping or jerking motion.

JOB ELEMENTS

SECTION I

1 EQUIPMENT CATEGORY Power Pack — POSITION Organizational Mechanic

1.2. DUTY Maintaining the Fuel and Air Intake System — TANK MBT-70

1.2.46. TASK Checking Hydraulic Cylinders, Air Cleaners and Turbocharger Duct for Damage — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Hydraulic cylinder	Check for leakage of cylinder, hose and connections		
2.		(2) coupling V-bands	Check for tightness of bands		
3.		Flexible duct assembly	Check for cleanness and verify that there are no leaks or puncture holes		
4.		Air cleaners	Check for cleaness and leaks in air chamber. Check the filters for clogging.		Make certain air system is air tight In sandy or dusty environment this check should be twice as often

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

POSITION Organizational Mechanic

1.2. DUTY Maintaining the Fuel and Air Intake System

TANK MBT-70

1.2.47. TASK Replacing the Snorkels

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
	PRELIMINARY STEPS:	(1) Raise snorkels and support them in an upright position. (2) Stop engine. (3) Disconnect support linkage from snorkel. (4) Remove snorkel door. (5) Remove engine air cleaner housing attaching parts.			
1.		(3) bracket bearing bolts and tab washers	Loosen and remove		
2.		Bearing bracket and bearing	Remove from hull		
3.		Mount bracket bolts, pin dowel and split lock washer	Remove from mount bracket		
4.		Mount bracket and bearing with pen and felt	Remove from snorkel		
5.		Bearing, pin and felt packing	Remove from snorkel		This bearing is on opposite side from mount bracket
6.		Snorkel	Lift out and up from hull		This is procedure for one snorkel, repeat for second

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Auxiliary Equipment

POSITION Organizational Mechanic

1.2. DUTY Maintaining the Submergence Kit

TANK MBT-70

1.2.48.1 TASK Replacing the Snorkel Hydraulic Cylinder

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
	PRELIMINARY STEPS: (1) Raise snorkels to upright position to provide access to actuating linkage. (2) Stop engine. (3) Support snorkel in upright position before disconnecting actuating linkage.				
1.		(2) hydraulic line elbows and gaskets	Remove from hydraulic cylinder		One at each end
2.		(2) cotter pins and flat washers	Remove from clevis pins		One at each end of cylinder
3.		(2) clevis pins and (1) bearing	Remove from clevis		
4.		Adjusting clevis nut	Loosen from clevis		
5.		Hydraulic cylinder	Lift out and remove clevis		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

POSITION Organizational Mechanic

1.2. DUTY Maintaining the Fuel and Air Intake System

TANK MBT-70

1.2.49. TASK Replacing Air Cleaner-Turbocharger Duct

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
	PRELIMINARY STEPS: (1) Place master switch to off position. (2) Remove inlet grilles.				
1.		(2) V-band couplings	Loosen nut and remove from duct		One on each end of duct
2.		Turbocharger duct and (2) seal packings	Remove from air cleaner and turbocharger		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack — POSITION Organizational Mechanic

1.2. DUTY Maintaining the Fuel and Air Intake System — TANK MBT-70

1.2.51.a TASK Replacing the Forward Fuel Tank — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Turret access opening	Rotate turret to align the access with fuel cell door		Located to the right of gunner
2.		Battery set	Remove		See Task _____
3.	Wrench	(26) bolts	Remove from access door		
4.		"T" handles	Insert in access door and lift door		
5.	Wrench	Bolts	Remove from fuel transfer hole		
6.	Wrench	Bolts	Remove from flange		
7.	Wrench	Bolts	Remove from vent hole flange		
8.	Wrench	Bolts	Remove from filler flange		
9.	Wrench	Bolts	Remove from drain flange		
10.		Fuel cell	Detach from hull hangers		
11.		Fuel cell	Remove from vehicle		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

POSITION Organizational Mechanic

1.2. DUTY Maintaining the Fuel and Air Intake System

TANK MBT-70

1.2.51.b TASK Replacing the Forward Fuel Tank

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
		Preliminary Steps: (1) Drain front fuel tank (2) Remove fuel tank cover plate (3) Remove front fuel level sensor			
1.		(14) Fuel filter bolts	Loosen and remove		
2.		Fuel filter and gasket	Lift out		
3.		(2) Bolts below filter gasket	Loosen and remove		
4.		(30) Mount bolts and washers	Loosen and remove		
5.		(4) Nylon cords	Remove		
6.		(16) Mounting Brackets	Remove		
7.		Fuel tank	Remove through access opening		Fold tank into small fold so as to remove through access

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack — POSITION Organizational Mechanic

1.2. DUTY Maintaining the Fuel and Air Intake System — TANK MBT-70

1.2.52. TASK Replacing Rear Right Fuel Tank — DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
		Preliminary Steps: (1) Drain rear right fuel tank (2) Remove power pack.			
1.		Cross over tube and clamp	Disconnect from fuel tank		
2.		(2) Hose assembly	Remove each from an elbow group		
3.		Filler tube and clamp	Disconnect from fuel tank		
4.		(3) Support bolts, washers and ground lead	Loosen and remove from cushion support		
5.		Support and cushion	Remove		
6.		Hose clamp and hose assembly	Loosen and remove		
7.		(3) female electrical connections	Disconnect		
8.		(2) Bolts and lock washers	Loosen and remove from hull floor mounts.		
9.		Rear right fuel tank	Lift out and remove		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack — POSITION Organizational Mechanic

1.2. DUTY Maintaining the Fuel and Air Intake System — TANK MBT-70

1.2.53. TASK Replacing the Rear Left Fuel Tank — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
		Preliminary Steps: (1) Drain rear left fuel and sump tank (2) Remove Power Pack			
1.		(2) female electrical connections	Remove from (2) fuel level sensor		
2.		(5) hose assemblies	Remove each from an elbow group		
3.		Female electrical connection	Remove from flame detector		
4.		(3) Bolts, washers and ground lead	Loosen and remove from the cushion support		
5.		Support cushion	Remove		
6.		Cross over tube and clamp	Disconnect from the fuel tank		
7.		Female electrical connection	Disconnect from fuel pump hand hold cover.		
8.		(2) Bolts and lock washers	Loosen and remove from hull floor mounts		
9.		Rear left fuel tank	Lift out and remove		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

1.2. - DUTY Maintaining the Fuel and Air Intake System

1.2.55. TASK Replacing Rear Fuel Level Sensors.

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Female electrical connection	Disconnect		
2.		(6) mount bolts	Loosen and remove		
3.		Fuel level sensor with gasket	Lift up and out		Fuel level sensors for rear fuel tanks and sump tank are identical

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack — POSITION Organizational Mechanic

1.2. DUTY Maintaining the Fuel and Air Intake System — TANK MBT-70

1.2.58. TASK Replacing the Rear Fuel Tank Pump — DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
		NOTE: Preliminary steps, (1) Drain fuel tank (2) Remove power plant.			
1.		Female electrical connection	Disconnect		
2.		(12) mount bolts	Loosen and remove		
3.		Cover plate	Lift off		
4.		Male plug	Remove from cover		
5.		Cover plate gasket	Remove		
6.		(2) Bracket nuts, bolts and washers	Loosen and remove		
7.		(2) Hose clamps and hose	Loosen and remove		
8.		Fuel tank pump	Remove from fuel tank		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

1.2. DUTY Maintaining the Fuel and Air Intake System

1.2.59. TASK Replacing the Front Fuel Tank Pump

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
	Note:	Preliminary steps, (1) Drain front fuel tank (2) Rotate turret to aline access opening at right of gunners seat with forward fuel tank access door. (3) Remove battery set.			
1.		(26) access door bolts	Loosen and remove		
2.		Access door	Remove		
3.		Male electrical connection	Disconnect		
4.		(3) Cover plate mount bolts and washers	Loosen and remove		
5.		Cover plate bolts and washers	Loosen and remove		When installing tighten bolts to 50-70 pounds inch.
6.		Fuel feed line	Disconnect from union on cover plate		
7.		Fuel return line	Disconnect from union on cover plate		

1.2.59.

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
8.		Cover plate	Lift out and remove		
9.		Female electrical connection	Disconnect from cover plate		
10.		(2) Clamp, nuts, bolts and washers	Loosen and remove		
11.		(2) Hose clamps and hose	Remove		
12.		Fuel tank pump	Remove from bracket.		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

POSITION Organizational Mechanic

1.3. DUTY Maintaining the Engine Oil Cooler

TANK MBT-70

1.3.4. TASK Replacing the Oil Cooler Bypass Valve

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Safety wire	Remove		
2.	Adjustable wrench	Oil cooler bypass valve	Loosen and remove		Save the copper gasket
	NOTE: When	installing new valve, use 148	F valve		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack — POSITION Organizational Mechanic

1.4. DUTY Maintaining the Exhaust System — TANK MBT-70

1.4.2. TASK Replacing the Exhaust Manifolds — DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
	NOTE: (a)	There are two exhaust manifold section for each engine bank. 3 cylinders.		One section for a	set of
	(b)	Engine shroud and fans are removed. See Task _____			
1.		(4) bolts	Loosen and remove from turbo or exhaust extension		
2.		(12) bolts (4 each of 3 cylinders)	Loosen and remove		
3.		Exhaust manifold section	Remove		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack — POSITION Organizational Mechanic

1.4. DUTY Maintaining the Exhaust System — TANK MBT-70

1.4.4. TASK Replacing the Exhaust Pipes — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
	NOTE: Remove roof and intake grilles and engine door access plate.				
1.		(2) Elbow V band clamps at turbochargers	Loosen.		
2.		Crank case vent line V band clamp	Loosen		
3.		(4) Mounting brackets and bolts	Loosen and remove		
4.		Exhaust pipes and elbows	Remove as a complete unit		
5.		(8) Heat shield bolts and washers	Loosen and remove		
6.		Front and rear heat shield	Remove		
7.		(2) V band clamps between elbows and exhaust pipe	Loosen and separate elbows from exhaust pipe		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

1.5. DUTY Maintaining the Cooling System

1.5.7. TASK Replacing the Fan Drive Assembly

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Engine Shroud	Remove		See Task
2.		Cotter pin and nut on shaft	Remove		
3.		Fan	Remove from shaft		
4.	1/2" wrench	Lockwire and (12) nuts	Loosen and remove		
5.	5/16" wrench	(24) bolts	Loosen and remove		
6.		Lifting eye bolt	Attach to shaft		
7.		Chain and hoist	Attach to eye bolt		
8.		Fan assembly	Lift up and remove		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack — POSITION Organizational Mechanic

1.5. DUTY Maintaining the Cooling System — TANK MBT-70

1.5.11. TASK Replacing Cooling Fan Rotor — DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
	Note: The fan clearance all around should have a clearance of 0.40" minimum.				
1.		Fan cover bolts	Loosen and remove		
2.		Fan cover	Remove		
3.	1-1/4" socket	Cotter pin and nut	Loosen and remove		
4.		Cooling fan	Lift off		This may require (2) men

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

POSITION Organizational Mechanic

1.6. DUTY Maintaining the Transmission

TANK MBT-70

1.6.1. TASK Replacing Transmission Oil Filters

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1		Rear access transmission grill	Open		
2.	Wrench	(5) bolts and plate of right filter unit	Loosen and remove		
3.	Wrench	(5) bolts and plate of left filter unit	Loosen and remove		
4.		Course and fine filter element of right unit	Remove to rear		The two elements are removed as one unit
5.		Course and fine filter element of left unit	Remove to rear		The two elements are removed as one unit
6.	Cleaning solvent	(4) filter elements	Clean thoroughly		

1.6.1.

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
7.		(2) course filter elements	Inspect for presence of metal parts		Presence of metal parts indicates excessive gear wear. See Task_____
		NOTE: On installation the course filter is to the rear in each unit.			

JOB ELEMENTS

SECTION 1

1. EQUIPMENT CATEGORY Power Pack

1.6. DUTY Maintaining the Transmission and Final Drive

1.6.7. TASK Adjusting the Shifting Emergency Control

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Transmission shift handle	Place in "TOW" start position	Emergency shift control is not synchronized	
2.		Nuts on shift rod	Adjust push pull control until shift handle and transmission shift control lever are synchronized.		
3.		Transmission shift handle	Verify adjustment for: forward, neutral and reverse position		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

1.6. DUTY Maintaining the Final Drives

1.6.9. TASK Replacing the Final Drive (Left or Right)

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
1.		Track	Disconnect		See Task
2.	14MM 27MM 30MM & 32MM	Sprocket hub bolts	Loosen and remove		Hoist should be used if available
3.	Final Drive	Sprocket hub	Lift off		
4.	Wrenches	Oil filter tube	Disconnect from final drive		
5.		Final drive	Disengage from transmission		
6.		(26) Attaching bolts	Loosen and remove		
7.		Final drive	Lift and remove		Use hoist and special equipment Replace and tighten to 350 ft lbs torque.

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

1.6. DUTY Maintaining the Transmission and Final Drive

1.6.10. TASK Disengaging the Final Drives

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		(2) 30mm caps center each hub	Loosen and remove		
2.	Special wrench	36mm tongue nut	Unlock by turning 2 complete turns counterclockwise		
3.		24mm tongue travel bushing	Turn counterclockwise approximately 33 complete turns		This retracts coupling sleeve and disengages final drive from transmission

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

1.6. DUTY Maintaining the Transmission and Final Drive

1.6.11. TASK Replacing Damaged Transmission Mounts

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		(4) trunnion cap bolts and flat washers	Loosen and remove from each mount		
2.		Trunnion cap	Lift up and out		
3.		(12) transmission mount assembly bolts and washers	Loosen and remove from assembly		
4.		Outer and inner ring assembly	Lift out and remove		
5.		Retaining segment	Remove from mount		Used on the left mount only
6.		(3) right rear gusset nuts, washers and bolts	Loosen and remove		
7.		(3) left rear gusset nuts, washers and bolts	Loosen and remove		
8.		Damaged mount or parts	Replace as needed		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack — POSITION Organizational Mechanic

1.6. DUTY Maintaining the Transmission and Final Drive — TANK MBT-70

1.6.12. TASK Replacing Damaged Guide Rollers — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
	NOTE: The power pack should be removed for ease of replacement.				
1.		(4) guide roller assembly bolts	Loosen and remove from transmission		In replacing torque to 58-61 lb. ft.
2.		Guide roller assembly	Lift off of transmission		
3.		Retaining ring and flat washer	Remove from roller assembly		
4.		Roller	Slide off of assembly mount		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

POSITION Organizational Mechanic

1.6. DUTY Maintaining the Transmission and Final Drive

TANK MBT-70

1.6.13 TASK Troubleshooting Drivers Emergency Controls

a Sub TASK Determining Cause Engine does not Respond when Throttle and Steering Control Handle is Activated

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
				Engine does not respond when throttle and steering control grip is activated	
1.		Shear pins	Check and replace sheared pins in throttle cable, mechanism, cross shaft or control handle	Engine responds Engine does not respond	
2.		Throttle cable	Check and replace defective throttle cable and mechanism	Engine responds Engine does not respond	
3.		Throttle and steering control handle	Check and repair or replace defective throttle and steering control handle	Engine responds Engine does not respond	
4.		Throttle control cable nuts	Adjust cable and tighten nuts at turret bulkhead	Engine should respond	

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

POSITION Organizational Mechanic

1.6. DUTY Maintaining the Transmission and Final Drive

TANK MBT-70

1.6.13. TASK Troubleshooting Drivers Emergency Controls

b Sub TASK Determining Cause Vehicle does not Steer or Steers Erratically when Steering Control Handle is Activated

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
				Vehicle does not steer or steers erratically when steering control handle is activated	
1.		Steering hydraulic system	Check for fluid and refill hydraulic system if low	Vehicle steers properly Vehicle does not steer properly	Fill and bleed system at "Fill and Bleed Block"
2.		Slave hydraulic cylinder	Check for internal leak and replace defective slave cylinder	Vehicle steers properly Vehicle does not steer properly	

1.6.13.b

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
3.		Transmission steer control lever	Check and replace key if necessary	Vehicle steers properly Vehicle does not steer properly	
4.		Transmission	Repair or replace malfunctioning transmission	Vehicle should steer properly	

JOB ELEMENTS

SECTION 1

1. EQUIPMENT CATEGORY Power Pack — POSITION Organizational Mechanic

1.6. DUTY Maintaining the Transmission and Final Drive — TANK MBT-70

1.6.13 TASK Troubleshooting Drivers Emergency Controls

c Sub TASK Determining Cause Transmission Does Not Drive in any Range Selected — DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
				Transmission does not drive in any range selected	
1.		Shift handle assembly	Place shift handle in all slots and note position of shift control lever on transmission. Adjust shift rod and push pull control unit if necessary.	Transmission drives in selected ranges	
				Transmission does not drive in selected ranges	
2.		Shift control nuts	Tighten shift control nuts at the turret bulkhead and adjust shift control components.	Transmission drives in selected range	
				Transmission does not drive in selected range	
3.		Transmission	Repair or replace malfunctioning transmission	Transmission should drive in all ranges	

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

POSITION Organizational Mechanic

1.6. DUTY Maintaining the Transmission and Final Drive

TANK MBT-70

1.6.13. TASK Troubleshooting Drivers Emergency Controls

d Sub TASK Determining Cause Shift Handle Assembly is Difficult to Activate

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
				Shift handle assembly is difficult to activate	
1.		Shift rod	Check for bent shift rod and straighten if necessary	Shift handle assembly operates smoothly	
				Shift handle assembly is difficult to activate	
2.		Shift handle tube and slide	Check for and remove burrs and dents on tube or slide	Shift handle assembly operates smoothly	
				Shift handle assembly is difficult to activate	

1.6.13.d

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
3.		Transmission	Check and repair or replace malfunctioning transmission	Shift handle assembly should operate smoothly	

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

1.7. DUTY Maintaining the Transmission Oil Cooler

1.7.4. TASK Replacing Oil Cooler Bypass Valve

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Safety wire	Remove		
2.	Adjustable wrench	Oil cooler bypass valve	Loosen and remove		
	NOTE: When installing new valve, use 185° F valve				

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack — POSITION Organizational Mechanic

1.8. DUTY Maintaining the Accessory Drive — TANK MBT-70

1.8.2. TASK Replacing the Accessory Drive — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Power plant	Remove		See Task
2.		Turret Hydraulic system	Remove		See Task
3.	Mark accessory drive housing mounting tabs and mounting bracket to assure proper alignment if original accessory drive and power plant are to be reinstalled.				
4.		(6) flange screws	Loosen and remove		
5.		Flange	Remove		
6.		Vent line connector	Loosen and disconnect		
7.		(4) mounting nuts and washers	Loosen and remove		
8.		Accessory drive group	Remove from mount		

JOB ELEMENTS

SECTION 1

1. EQUIPMENT CATEGORY Power Pack

1.8. DUTY Maintaining the Accessory Drive

1.8.3. TASK Replacing the Accessory Drive Coupling

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Retaining ring	Loosen and remove		
2.		(2) Bearing and sleeve group screws	Loosen and remove		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

1.8. DUTY Maintaining the Accessory Drive

1.8.5. TASK Changing Oil in Accessory Drive

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Oil rod gauge	Loosen and remove		
2.		Oil drain plug	Loosen and remove		Place container under drain to catch oil
3.		Oil drain plug	Replace and tighten		Install new gasket on drain plug
4.		Accessory drive	Refill with oil to mark on gauge		Use oil spec_____
5.		Oil rod gauge	Replace and tighten		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

1.9. DUTY Maintaining the Brake System

1.9.2.a TASK Replacing the Brake Linings (A Method)

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
1		Power pack	Remove from hull		See Task _____
2.		Hydraulic lines	Disconnect from brake housing		
3.		(12) Attaching screws	Loosen and remove		
4.		(2) Brake housings	Remove		
5.		Brake disc	Remove		
6.		(2) Brake linings	Remove from brake housings		
7.		(2) Brake linings	Remove from final drive		

JOB ELEMENTS

SECTION I

1 EQUIPMENT CATEGORY Power Pack

1.9. DUTY Maintaining the Brake System

1.9.2.b TASK Replacing the Brake Linings

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
		NOTE: With a new lining of 8mm - a 6mm wear allowance is maximum.			
1.		Lines to Brake Anchors	Disconnect		
2.		(5) Brake Anchors Retaining bolts	Loosen and remove		
3.		Brake Anchors	Remove		
4.		Brake Disk	Remove from anchor		The brake lining and disk are removable as a unit
		NOTE: (1) All eight linings should be exchanged at the same time. (2) When replacing the linings, the service brake cylinder and the resetting piston of the emergency brake cylinders must be pushed back to original position.			

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY: Power Pack

1.9. DUTY: Maintaining the Brake System

1.9.4. TASK: Replacing the Emergency Controls and Linkage

POSITION: Organizational Mechanic

TANK: MBT-70

DATE:

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Turret and drivers capsule	Rotate to forward or normal position		
2.		Hand operated control	Detach from hull		
3.		Flexible cable connected to valve	Loosen and disconnect		The end of this flexible cable is under turret basket

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

POSITION Organizational Mechanic

1.9. DUTY Maintaining the Brake System

TANK MBT-70

1.9.6. TASK Testing the Brake System for Leaks

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
		NOTE: After the installation of the brake cylinders and lines have been completed, a leakage test should be performed.			
1.		Hand Pump (under the turret basket)	Attach directly to connectors on bulkhead		This bypasses the entire vehicle hydraulic system
2.		Hand pump	Operate until 160 atm or 2300 P.S.I. has been reached		Let pressure stand for at least 10 minutes
3.		Brakes, Lines and fittings	Observe for leakage		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY: Power Pack

1.9. DUTY: Maintaining the Brake System

1.9.7. TASK: Replacing the Emergency Cylinders

POSITION: Organizational Mechanic

TANK: MBT-70

DATE:

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		(6) Fillister socket head screws and spring washers	Loosen and remove		There is one cylinder on each brake
2.		Emergency brake cylinder	Lift out and remove		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY: Power Pack

1.9. DUTY: Maintaining the Brake System

1.9.8. TASK: Replacing the Service Cylinders

POSITION: Organizational Mechanic

TANK: MBT-70

DATE:

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		(3) Fillister socket head screws and spring washers	Loosen and remove		There are two cylinders on each brake
2.		Service brake cylinder	Lift out and remove		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

1.9. DUTY Maintaining the Brake System

1.9.9. TASK Replacing the Release Pressure Springs

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Pressure spring pin	Push toward brake lining and hold		There are two of these on each brake anchor
2.		Retaining pin and ring	Remove from end of pressure spring pin		
3.		Pressure spring and pressure spring pin	Ease off on the spring and remove from the brake anchor		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

1.9. DUTY Maintaining the Brake System

1.9.10. TASK Replacing the Brake Anchors

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
1.		Hydraulic lines and vent lines	Disconnect from brake anchors		
2.		(6) fillister head socket screws and washers (each brake)	Loosen and remove from hull-welded flange		Note the number of shims. Save for reinstallation.
3.		Service brake cylinder line	Disconnect from between the two cylinders		
	PRELIMINARY STEPS PRIOR TO REINSTALLATION: (1) Assure that the piston in the service brake cylinders and the resetting piston in the parking (emergency) brake cylinders are (bottom out) in the initial position. (2) Install the line between the two service brake cylinders prior to mounting the brake anchors. (3) Insert the correct number of shims between the hull and brake anchor. The number should be so that brake shoe travel will be 1.0 to 2.5mm.				
					On installation torque bolts 355 ft. lbs.
4.		Brake lines	Perfo... leakage test		See Task 1.9.6.

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY: Power Pack

1.9. DUTY: Maintaining the Brake System

1.9.11. TASK: Checking the Brakes w/Power Pack Removed

POSITION: Organizational Mechanic

TANK: MBT-70

DATE:

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Brake Shoe	Check for free travel		Should be 1.0 - 2.5mm
2.		Brake Lining	Check wear of lining		Lining not less 2mm thick. See Task 1-9-2b
3.		Hydraulic Connections and cylinders	Check for leakage		
4.		Brake Disk	Check for smooth sliding on spline		

JOB ELEMENTS

SECTION 1

1 EQUIPMENT CATEGORY Power Pack — POSITION Organizational Mechanic

1.9. DUTY Maintaining the Brake System — TANK MBT-70

1.9.12. TASK Charging the Brake Accumulator w/Nitrogen Gas — DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
	NOTE: (1) Before operating the brake system the accumulator must be checked for correct charge pressure (1800 P.S.I.) (2) Before charging the brake system - set the master battery switch to off position.				
1.		Brake assembly accumulator	Connect with nitrogen charging and test device		Screw off the yellow cap on the gas charge valve and connect w/device
2.		Gas charging valve	Turn nut provided 1-2 turns left		
3.		Main vlave of nitrogen bottle	Open to allow gas to flow slowly thru gas cock		
4.		Pressure gage	Read pressure indicated		Should read 1800 P.S.I.
5.		Gas cock	Close temporarily and read pressure		

1. 9.12.

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
6.		Nitrogen bottle main valve	Close tightly		When correct pressure is obtained
7.		Accumulator valve	Close tightly by turning to right		
8.		Gas charging line	Remove		
9.		Yellow cap	Replace on valve		

JOB ELEMENTS

SECTION 1

1. EQUIPMENT CATEGORY Power Pack

1.9. DUTY Maintaining the Brake System

1.9.13. TASK Replacing the Brakes Assembly

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Power pack	Remove from hull		See Task
2.		Hydraulic lines	Disconnect		
3.		(12) Attaching bolts	Loosen and remove		
4.		Brakes	Remove		

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

1.9. DUTY Maintaining the Brake System

1.9.14.a. TASK Trouble Shooting the Brake System

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
				Loss of electric power to the brake apply system	This is caused by the valve being de-energized causing the emergency brake pressure line to vent to reservoir
1.		Emergency foot pedal	Remove from bracket on hull wall left of driver's station and secure on floor of driver's station		
2.		Emergency foot pedal	Remove security pin	Pedal rises due to pedal spring	This permits opening of pressure lines and releases the brakes
		NOTE: The turret must not be rotated when the foot pedal is secured in the driver's station.			

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY: Power Pack

1.9. DUTY: Maintaining the Brake System

1.9.14.b TASK: Trouble Shooting the Brake System

POSITION: Organizational Mechanic

TANK: MBT-70

DATE:

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
				Loss of the hydraulic pressure supply	
1.		Turret	Rotate clockwise 90° so as to reach the hand pump in floor of vehicle		
2.		Hand pump	Double stroke the hand pump 50-60 times		This will build pressure to release brakes and will acheive approx-imately 10 vehicle stops

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

1.9. DUTY Maintaining the Brake System

1.9.14.c TASK Trouble Shooting the Brake System

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
1.		Both the emergency foot pedal	and the hand pump must be used	Loss of both electrical and hydraulic power	See Task 1.9.14.a See Task 1.9.14.b

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY Power Pack

1.9. DUTY Maintaining the Brake System

1.9.15. TASK Bleeding the Brake System

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements.

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
					Prior to vehicle operation, the entire system must be vented or bled of air
1.		(2) bleed valves mounted on inside of rear wall of hull	Open		One on each side of hull by the brakes
2.		(2) bleed valves mounted on inside of rear wall of hull	Close		Do not close until the hydraulic fluid escaping shows a continuous flow without air bubbles

EQUIPMENT CATEGORY 2. ELECTRICAL SYSTEM

Duty 2.1. Troubleshooting the Electrical System
Duty 2.2. Maintaining the Starting System
Duty 2.3. Maintaining the Battery & Generator System
Duty 2.4. Maintaining the Lighting System
Duty 2.5. Maintaining the Electro Hydraulic Slip Ring
Duty 2.6. Maintaining the Junction Boxes & Chassis Wiring

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY: Electrical System

2.2. DUTY: Maintaining Starting System

2.2.1.a subTASK: Troubleshooting Starter Circuit Verification of Starter Circuit Failure

POSITION: Organizational Mechanic

TANK: MBT-70

DATE:

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.			Instructs driver to perform preliminary steps for engine operation.		
2.			Instructs driver to place transmission lever in N (Neutral) position.		
3.			Instructs driver to switch master switch to "ON" position.		
4.			Instructs driver to depress starter switch		Driver depresses starter switch intermittently until told to stop.
5.			Observes for following indications;		
				a) Master relay does not click	Troubleshoot master relay circuit
				b) Master relay clicks, but lights and gages do not	Troubleshoot master relay circuit

2.2.1.a

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
				c) Lights and gages operate but starter relay and starter solenoid do not click	Proceed to Subtask B.
				d) Starter relay or solenoid chatters.	Proceed to Subtask C.
				e) Starter relay clicks but starter solenoid does not operate	Proceed to Subtask D.
				f) Starter relay and starter solenoid click but engine does not crank	Proceed to Subtask E.

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System

POSITION Organizational Mechanic

2.2. DUTY Maintaining Starting System

TANK MBT-70

2.2.1.b subTASK Troubleshooting Starter Circuit
Lights and Gages Operable, Starter Relay & Solenoid Inoperable

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Connector on Master control panel.	Remove connector.		
2.	Test lamp or multimeter	Terminal in master control panel.	Connect test lamp from terminal to ground	a) Lamp does not light. b) Lamp lights.	Repair or replace master control panel ( ).
3.	Test lamp or multimeter.	Switch terminal of starter relay.	Connect test lamp from switch terminal to ground and instruct driver to depress starter switch	a) Lamp does not light b) Lamp lights.	Repair or replace No. 14 wire ( ).
4.	Test lamp or multimeter.	Ground terminal of starter relay.	Connect test lamp from ground terminal to ground and instruct driver to depress starter switch	a) Lamp does not light. b) Lamp lights.	Replace starter relay.
5.	Jumper wire.	Terminal 1 on starter relay and terminal B on generator.	Connect jumper wire across terminals and instruct driver to depress starter switch.	a) Engine cranks b) Engine does not crank.	Replace or adjust neutral shift switch (2.2.4 or 2.2.5).

2.2.1.b.

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
6.	Test lamp or multi-meter.	Wire from starter at neutral switch.	Connect test lamp from wire terminal to ground and instruct driver to depress starter switch	a) Lamp does not light. b) Lamp lights.	Repair or replace wire from starter relay to neutral switch ( ).
7.	Test lamp or multi-meter	Wire at generator.	Remove wire at generator, connect test lamp from wire to ground and instruct driver to depress starter switch.	a) Lamp lights. b) Lamp does not light.	Repair or replace generator ( ). Repair or replace wire from neutral switch to generator.

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System

2.2. DUTY Maintaining Starting System

2.2.1.c subTASK Troubleshooting Starter Circuit Intermittent Circuit at Starter Relay or Starter Solenoid

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
1.		Batteries.	Check for discharged batteries or defective connections.	a) Batteries or connections defective.	Recharge/replace batteries; or repair defective connection. ( )
				b) Batteries or connections O.K.	
2.	Voltmeter.	Starter solenoid hold-in-winding ground terminal.	Connect voltmeter from terminal to ground.	a) No voltage reading.	Replace starter assembly
				b) Voltage reading	Repair/replace starter solenoid ground terminal and wire.

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System

POSITION Organizational Mechanic

2.2. DUTY Maintaining Starting System

TANK MBT-70

2.2.1.d. subTASK Troubleshooting Starter Circuit
Starter Relay Operable, Starter Solenoid Inoperable

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.	Test lamp (multi-meter)	Heavy output terminal of starter relay.	Connect test lamp from terminal to ground and instruct driver to depress starter switch.	a) Lamp does not light. b) Lamp lights.	Replace starter relay.
2.	Test lamp (multi-meter)	Heavy input terminal of starter solenoid.	Connect test lamp from terminal to ground and instruct driver to depress starter switch.	a) Lamp lights. b) Lamp does not light.	Replace starter assembly.
3.		Cables from starter solenoid to starter relay.	Check cables for open circuit progressively to starter relay.		Repair/replace cables from starter solenoid to starter relay.

JOB ELEMENTS

SECTION 1

2. EQUIPMENT CATEGORY Electrical System

2.2. DUTY Maintaining Starting System

2.2.1.e. subTASK Troubleshooting Starter Circuit
Starter Relay & Solenoid Operable, Engine Not Cranking

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Warning and/or dome lights.	Depress starter switch and observe lights.	a) Lights dim excessively. b) Light do not dim.	Check to see if engine or starter is locked.
2.	Test lamp.	Heavy output terminal of starter solenoid.	Connect test lamp from terminal to ground and instruct driver to depress starter switch.	a) Lamp does not light. b) Lamp lights.	Replace starter solenoid. Repair or replace starter or ground

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY: Electrical System

2.2. DUTY: Maintaining the Starter System

2.2.3. TASK: Replacing the Starter

POSITION: Organizational Mechanic

TANK: MBT-70

DATE:

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Electrical connections	Loosen and remove from starter		
2.	15/16" socket and flex ratchet wrench (special tools)	(3) nuts on starter flange	Loosen and remove		
3.		Rear support clamp	Loosen and remove		Support starter to prevent dropping
4.		Starter motor	Lift out and up		

JOB ELEMENTS

SECTION 1

2. EQUIPMENT CATEGORY Electrical System

2.2. DUTY Maintaining Starting System

2.2.8. TASK Removing Starter Relay

POSITION Organi .tional Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
1.		Battery ground straps.	Remove ( ).		
2.	Wrench 7/16" and 3/4" end.	Three capscrews and lockwashers securing starter relay protective cover to mounting bracket.	Remove capscrews, washers and protective cover.		
3.	Screwdriver	Two screws and washers securing electrical leads to relay.	Loosen screws and washers and disconnect electrical leads.		
4.	Wrench	Two nuts and lockwashers securing bus-bars to relay terminals.	Remove nuts, lockwashers and bus-bars.		
5.	Wrench	Four bolts and lockwashers securing relay to mounting bracket.	Remove bolts, lockwashers and relay.		Support relay to prevent dropping.

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System

2.2. DUTY Maintaining Starting System

2.2.9. TASK Replacing Neutral Shift Switch

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.			Open rear grille doors and remove transmission shroud. ( ).		
2.		Master switch.	Switch to "OFF" position.		
3.		Two electrical connectors leading into switch.	Disconnect.		
4.		Two screws, lockwashers, and nuts securing switch to mounting bracket.	Remove screws, lockwashers, nuts and switch.		Replacement: Install male connectors on replacement switch leads. Adjust switch.

JOB ELEMENTS

SECTION 1

2. EQUIPMENT CATEGORY Electrical System

2.2. DUTY Maintaining Starting System

2.2.10 TASK Adjusting Neutral Shift Switch

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
1.		Transmission shift lever.	Place in N (neutral) position.		
2.	Wrench	Jam nut and adjustment screw on lever or neutral shift switch.	Loosen jam nut and adjust screw to actuate switch.	Switch is closed when contact is depressed.	
3.		Adjustment screw on lever.	Adjust screw on lever until distance from button to housing is approximately 1-1/16".		
4.	Wrench	Jam nut.	Tighten nut.		
5.		Master switch.	Switch to "ON" position.		
6.		Starter switch	Depress starter switch.	a) engine cranks or b) engine does not crank.	Repeat steps 1 through 6.

2.2.10.

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
7.		Transmission shift lever.	Place in R (reverse) position then return to P (park) position.		
8.		Starter switch.	Depress starter switch.	a) engine cranks or b) engine does not crank.	Repeat steps 1 through 8; or troubleshoot starting system

JOB ELEMENTS

SECTION I

1. EQUIPMENT CATEGORY: Electrical System — POSITION: Organizational Mechanic

2.2. DUTY: Maintaining the Starter System — TANK: MBT-70

2.2.11 TASK: Replacing the Electrical Lead from Starter Relay to Starter — DATE:

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Terminal	Disconnect from starter relay		
2.		Terminal	Disconnect from engine starter		
3.		Electrical lead	Remove from engine		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System

POSITION Organizational Mechanic

2.2. DUTY Maintaining the Starter System

TANK MBT-70

2.2.12. TASK Replacing the Starter Solenoid Coil and Contact Lead

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Terminal	Disconnect from starter solenoid coil		
2.		Terminal	Disconnect from starter solencid contact		
3.		Electrical lead	Remove from engine		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System

POSITION Organizational Mechanic

2.2. DUTY Maintaining the Starter System

TANK MBT-70

2.2.13. TASK Replacing the Starter Ground Lead

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Terminal	Disconnect from engine starter		
2.		Terminal	Disconnect from ground		
3.		Starter ground lead	Remove from engine		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System

POSITION Organizational Mechanic

2.2. DUTY Maintaining the Starter System

TANK MBT-70

2.2.14. TASK Replacing the Starter Relay and Alternator Lead

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Terminal	Disconnect from the starter relay		
2.		Terminal	Disconnect from the alternator		
3.		Lead	Remove from the engine		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System

2.3. DUTY Maintaining Battery and Generator System

2.3.1. TASK Replacing the Batteries

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Access door to batteries	Remove access door by gunners station.		
2.		Turret	Rotate so opening alines with batteries.		
3.		(2) bolts upper battery racks	Loosen and remove		
4.		Upper battery racks	Swing down		
5.		Negative (ground) cable	Remove from battery.		
6.		Positive cable	Remove from battery		Upon removing the positive cable wrap several layers of plastic friction tape to prevent arcing.
7.		Battery	Lift out and remove		Repeat for each battery

JOB ELEMENTS

SECTION 1

2. EQUIPMENT CATEGORY Electrical System

2.3. DUTY Maintaining the Battery and Generator System

2.3.2. TASK Replacing the Alternator and Right Angle Drive

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		(2) Cables w/bolted lug terminals	Loosen and disconnect		
2.		(2) Cables w/common plugs	Loosen and disconnect		
3.		Fan (at damper end)	Remove		
4.		Cap screw (access door)	Remove		
5.		(2) Nuts (inside door)	Remove		
6.		Secondary fuel filter and support bracket	Loosen and remove		
7.		Other lines and wiring	Disconnect or move if necessary		All lines must be capped or plugged
8.	Hoist	Lifting eye	Insert in lifting eye on side of alternator		Caution! unit weights approx. 175 lbs
9.		2 Lower mounting bolts	Loosen and remove		

2.3.2.

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
10.		(8) Right angle drive flange nuts	Loosen and remove		Caution: the drive shaft is clear of drive splines before lifting the alternator
	NOTE: In installation of new unit care must be used to properly place and seat the 5 "O" ring seals between damper housing and right angle drive.				

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System — POSITION Organizational Mechanic

2.3. DUTY Maintaining the Batteries & Generator System — TANK MBT-70

2.3.8. TASK Testing the Batteries (Specific Gravity) — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
		NOTE: (1) The state of charge in each battery is determined by the specific gravity of the electrolyte (acid) in the cells. (2) If the correct reading is below 1.225 - charge the batteries.			
1.	Hydrometer	Battery (each cell)	Insert hydrometer and determine the specific gravity		
2.		Temperature correction chart.	Correct reading of hydrometer to the temperature reading of 80°F		
		NOTE: Example for electrolyte temperature of 0° F the chart indicates 0° 032, this should be subtracted from hydrometer reading. Therefore the correct reading is: 1.280-0.032 = 1.248.			

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System

POSITION Organizational Mechanic

2.3. DUTY Maintaining the Barrery and Generator System

TANK MBT-70

2.3.9. TASK Replacing the Electrical Leads from Battery to Junction Block

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Terminal	Disconnect from the negative (-) post of battery #2		There are two of these electrical leads--only one may need replacing
2.		Terminal	Disconnect from the junction block		
3.		(1) electrical lead	Remove from vehicle		
4.		Terminal	Disconnect from the junction block		
5.		Terminal	Disconnect from the negative (-) post of battery #4		
6.		(1) electrical lead	Remove from vehicle		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System

POSITION Organizational Mechanic

2.3. DUTY Maintaining the Battery and Generator System

TANK MBT-70

2.3.10. TASK Replacing the Engine and Alternator Lead

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Terminal	Disconnect from the engine starter		
2.		Terminal	Disconnect from the alternator		

JOB ELEMENTS

SECTION 1

2 EQUIPMENT CATEGORY Electrical System

2.4. DUTY Maintaining the Lighting System

2.4.1. TASK Aligning the Headlights

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Vehicle	Park on level ground 25' from and facing a wall or screen		
2.		(4) Headlamp mounting nuts	Loosen to allow movement of head lamp		
3.		Horizontal line	Draw on wall or screen at same height as center of service light		
4.		Parallel line	Draw on wall 27-1/4" below 1st horizontal line item 3		
5.		Center of low beam light of service lamp	Aim at line item 4		Light beams to be aimed for vertical distance
6.		Center of low beam light of service lamp	Aim directly ahead and parallel		Light beams to be aimed for horizonta distance

2.4.1.

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
7.		(4) Headlamp mounting nuts	Tighten nuts with lights in position as in item 5		

JOB ELEMENTS

SECTION 1

2 EQUIPMENT CATEGORY Electrical System

2.4 DUTY Maintaining the Lighting System

2.4.4 TASK Replacing the Headlight Assembly

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
1.		Clamping nut	Loosen		
2.		Clamp	Loosen		
3.		Headlight assembly	Pull straight forward from mount		Avoid damage to the pins in connector
	NOTE: Installation in reverse sequence, use caution to avoid bending or breaking pins in connector.				

JOB ELEMENTS

SECTION 1

2 EQUIPMENT CATEGORY Electrical System

2.4. DUTY Maintaining the Lighting System

2.4.5. TASK Replacing the Headlight Seal Beam Lamp Units

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		(4) Headlight assembly captive screws	Loosen and remove		
2.		Cover Group	Remove		
3.		(2) Lamp units w/gaskets	Remove		
4.		Blackout incandescent lamp and reflector	Remove		
5.		Blackout marker incandescent lamp	Remove		
	NOTE: Before installing new lamp, wipe lamps and lens with clean, dry, lint free cloth.				

JOB ELEMENTS

SECTION 1

2 EQUIPMENT CATEGORY Electrical System

2.4. DUTY Maintaining the Lighting System

2.4.6. TASK Replacing the Tail Light Assembly

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
	NOTE: Master Switch to be in the off position				
1.		Female connector (3) washers and shell	Disconnect		
2.		Screw washer and clamp	Loosen and remove		
3.		(2) mounting bolts and washer	Loosen and remove		
4.		Tail light assembly w/mount bracket	Remove		

JOB ELEMENTS

SECTION 1

2 EQUIPMENT CATEGORY Electrical System

2.4. DUTY Maintaining the Lighting System

2.4.7. TASK Replacing the Right-Left Headlight Harness

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
	NOTE: Insure master switch is in the off position.				
1.		Headlight assembly	Remove		See Task 2.4.4
2.		Environmental control unit	Remove		See Task
3.		(8) Female connectors	Disconnect		
4.		(2) clamp screws	Loosen and remove		
5.		(2) clamps	Remove		
6.		(6) mount retainer screws and washers	Loosen and remove		These are outside of hull
7.		Mount retainer and mount	Remove by pulling forward		
8.		Gasket, insert and socket	Remove		
9.		Wiring harness	Remove		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System

2.5. DUTY Maintaining the Electrohydraulic Slip ring

2.5.1. TASK Removing the Electrohydraulic Slip Ring

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
1.		Cover (2 pieces)	Remove		
2.		Electrical connections	Loosen and disconnect		
3.		V-clamps, hydraulic connections.	Remove		
4.		Protective caps	Install on quick disconnects		
5.		(2) Ring pins (KLIK PINS)	Remove		
6.		Slip ring	Swing out of position		When installing in reverse procedure fill and bleed air from system.
7.		(1) Ring pin	Remove last pin		
8.		Slip ring	Remove for mount.		

JOB ELEMENTS

SECTION I

EQUIPMENT CATEGORY Electrical System

2.5. DUTY Maintaining the Electro Hydraulic Slip Ring

2.5.2. TASK Inspecting the Electro Hydraulic Slip Ring

POSITION Organizational Mechanic

TANK MBT-70

DATE

No.	Task Elements: Equipment worked with	Equipment worked on	Activity	Indication	Remarks
1.		Slip ring covers	Remove		Check hydraulic quick disconnect points for leaks
2.		Outer surface of desiccant	Clean and check color of desiccant		Replace if color has changed from blue to pink
3.		(3) Top quick release pin	Check to see if secured.		Replace worn or deformed pins
4.		Electrical connectors	Check for secure engagement		Tighten as required (hand right)

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System — POSITION Organizational Mechanic

2.6. DUTY Maintaining the Junction Boxes and Chassis Wiring — TANK MBT-70

2.6.1. TASK Replacing the Hull Distribution Box — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		(5) connector plugs	Disconnect from right of box		Tag or mark each plug for later identification
2.		(2) bracket bolts and flat washers	Loosen from hull		
3.		(5) connector plugs	Disconnect from left of box		Tag or mark each plug for later identification
4.		(2) mounting bolts	Loosen from hull		Hold box to prevent dropping
5.		Hull distribution box	Remove from mounting		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System — POSITION Organizational Mechanic

2.6. DUTY Maintaining the Junction Boxes and Chassis Wiring — TANK MBT-70

2.6.2. TASK Replacing the Power Relay Box — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		(4) connector plugs	Disconnect from relay box		Tag or mark each plug for identification.
2.		(2) bracket bolts and washers	Loosen and remove from top of bracket		
3.		(3) bracket bolts and washers	Loosen and remove from bottom of bracket		
4.		(1) bolt and washer	Loosen and remove from bottom of bracket		Hold bracket and relay box to prevent dropping
5.		Mounting bracket and power relay box	Remove from vehicle		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System

POSITION Organizational Mechanic

2.6. DUTY Maintaining the Junction Boxes and Chassis Wiring

TANK MBT-70

2.6.3. TASK Replacing the Sponson Power Box

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		(4) mounting bolts and lock washers	Loosen and remove from mount		
2.		(4) connector plugs	Disconnect from sponson power box		
3.		Sponson power box	Remove from mount		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System

POSITION Organizational Mechanic

2.6. DUTY Maintaining the Junction Boxes and Chassis Wiring

TANK MBT-70

2.6.4. TASK Replacing the Hull Distribution Box to Engine Compartment Bulkhead Wiring Harness

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Connector plug	Disconnect from hull distribution box		
2.		Connector plug	Disconnect from voltage regulator		
3.		Contact	Disconnect from hydraulic shut off valve solenoid		
4.		Connector plug and terminal	Disconnect from accumulator bleed valve solenoid		
5.		Connector plug	Disconnect from F&H brake pressure switch		
6.		Connector plug	Disconnect from the engine bulkhead		
7.		(2) connector plugs	Disconnect from the park brake valve solenoids		
8.		Connector plug	Disc ect from the servo service brake		

2.6.4.

Task Elements					
No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
9.		Connector plug	Disconnect from the retarder servo valve		
10.		Connector plug	Disconnect from the brake hydraulic shut-off valve solenoid		
11.		(2) terminals	Disconnect from groundings		
12.		Wiring clamps	Loosen from hull		
13.		Wiring harness	Remove from vehicle		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System — POSITION Organizational Mechanic

2.6. DUTY Maintaining the Junction Boxes and Chassis Wiring — TANK MBT-70

2.6.5. TASK Replacing the Engine Compartment Right Main Wiring Harness — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Connector plug	Disconnect from the engine bulkhead		
2.		Connector plug	Disconnect from the F&H right rear suspension synchro		
3.		Connector plug and terminal	Disconnect from the fuel selector feed valve		
4.		Connector plug and terminal	Disconnect from the fuel selector return valve		
5.		Connector plug	Disconnect from the snorkel rise and lock solenoid		
6.		Connector plug and terminal	Disconnect from the selector valve solenoid		
7.		Connector plug	Disconnect from communications control box		
8.		(2) insulator contacts	Disc ect from right taillight		

2.6.5.

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
9.		(3) insulator contacts	Disconnect from left taillight		
10.		Connector plug and terminal	Disconnect from the steer actuator		
11.		Connector plug and terminal	Disconnect from right fuel booster pump		
12.		Wiring clamps	Loosen from hull		
13.		Wiring harness	Remove from vehicle		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System — POSITION Organizational Mechanic

2.6. DUTY Maintaining the Junction Boxes and Chassis Wiring — TANK MBT-70

2.6.6. TASK Replacing the Flame Detector and Fuel Level Wiring Harness — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Connector plug	Disconnect from the engine bulkhead		
2.		Connector plug	Disconnect from the #1 flame detector		
3.		Connector plug	Disconnect from the right fuel level transmitter		
4.		Connector plug	Disconnect from the #2 flame detector		
5.		Connector plug	Disconnect from the #3 flame detector		
6.		Connector plug and terminal	Disconnect from the left fuel level transmitter		
7.		Connector plug and terminal	Disconnect from the fuel level switch		

2.6.6.

Task Elements					
No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
8.		Connector plug	Disconnect from the #4 flame detector		
9.		Connector and terminal	Disconnect from the #5 flame detector		
10.		Wiring clamps	Loosen from hull		
11.		Wiring harness	Remove from vehicle		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System — POSITION Organizational Mechanic

2.6. DUTY Maintaining the Junction Boxes and Chassis Wiring — TANK MBT-70

2.6.7. TASK Replacing the Battery to Power Relay Box Wiring Harness — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		(2) terminals	Disconnect from batteries #1 and 3		
2.		Connector plug	Disconnect from the power relay box (K3)		
3.		Wiring harness	Remove from vehicle		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System — POSITION Organizational Mechanic

2.6. DUTY Maintaining the Junction Boxes and Chassis Wiring — TANK MBT-70

2.6.8. TASK Replacing Transmission Control Box to Bulkhead Wiring Harness — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Connector plug	Disconnect from the engine bulkhead (K4)		
2.		Connector plug	Disconnect from the transmission electronic box		
3.		Wiring clamps	Loosen from hull		
4.		Wiring harness	Remove from vehicle		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY **Electrical System** POSITION Organizational Mechanic

2.6. DUTY **Maintaining the Junction Boxes and Chassis Wiring** TANK MBT-70

2.6.9. TASK **Replacing the Hull Distribution Box to Transmission Electronic Box Wiring Harness** DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		**Connector plug**	**Disconnect from the transmission electronic box**		
2.		**Connector plug**	**Disconnect from the hull distribution box (K4)**		
3.		**Wiring harness**	**Remove from vehicle**		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System

POSITION Organizational Mechanic

2.6. DUTY Maintaining the Junction Boxes and Chassis Wiring

TANK MBT-70

2.6.10. TASK Replacing the Slip Ring, Power Relay Box and Bilge Pump Wiring Harness

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Connector plug	Disconnect from the power relay box (K2)		
2.		(1) short terminal	Disconnect from the junction block		
3.		Connector plug	Disconnect from the slip ring (K1H)		
4.		Connector plug and terminal	Disconnect from the bilge pump		
5.		(3) long terminals	Disconnect from the junction block		
6.		Wiring clamps	Loosen from hull		
7.		Wiring harness	Remove from vehicle		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System — POSITION Organizational Mechanic

2.6. DUTY Maintaining the Junction Boxes and Chassis Wiring — TANK MBT-70

2.6.11. TASK Replacing the Engine Power Wiring Harness — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Connector plug	Disconnect from the sponson power box (K4)		
2.		(4) nuts	Loosen and disconnect from fittings		
3.		Wiring clamp	Loosen from hull		
4.		Wiring harness	Remove from vehicle		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System — POSITION Organizational Mechanic

2.6. DUTY Maintaining the Junction Boxes and Chassis Wiring — TANK MBT-70

2.6.12. TASK Replacing the F&H Relay Box to Valve Block Wiring Harness — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Connector plug	Disconnect from the F&H relay box		
2.		Connector plug	Disconnect from the valve block		
3.		Wiring clamps	Loosen from hull		
4.		Wiring harness	Remove from vehicle		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System — POSITION Organizational Mechanic

2.6. DUTY Maintaining the Junction Boxes and Chassis Wiring — TANK MBT-70

2.6.13. TASK Replacing the Hull Distribution Box to the G.P.F.U. Wiring Harness — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Connector plug and (2) terminals	Disconnect from the G.P.F.U. switch box		
2.		(2) connector plugs	Disconnect from the power relay box (K4)		Tag or mark each plug for identification
3.		Connector plug	Disconnect from hull distribution box		
4.		Wiring clamps	Loosen from hull		
5.		Wiring harness	Remove from vehicle		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System — POSITION Organizational Mechanic

2.6. DUTY Maintaining the Junction Boxes and Chassis Wiring — TANK MBT-70

2.6.14. TASK Replacing the Hull Distribution Box, Driving Control Amplifier and Inverter Wiring Harness — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Connector plug	Disconnect from the hull distribution box (K10)		
2.		Connector plug	Disconnect from the driving control amplifier		
3.		Connector plug	Disconnect from the inverter		
4.		Wiring harness	Remove from vehicle		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System — POSITION Organizational Mechanic

2.6. DUTY Maintaining the Junction Boxes and Chassis Wiring — TANK MBT-70

2.6.15. TASK Replacing the Batteries to Electric Heater Wiring Harness — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Connector plug	Disconnect from the electric heater		
2.		Terminal	Disconnect from positive (+) post of battery #1		
3.		Terminal	Disconnect from positive (+) post of battery #2		
4.		Terminal	Disconnect from positive (+) post of battery #3		
5.		Terminal	Disconnect from positive (+) post of battery #4		
6.		Wiring clamps	Loosen from hull		
7.		Wiring harness	Remove from vehicle		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System — POSITION Organizational Mechanic

2.6. DUTY Maintaining the Junction Boxes and Chassis Wiring — TANK MBT-70

2.6.16. TASK Replacing the Lead from the T.V. Electronic Box to the T.V. Camera — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Connector plug	Disconnect from the T.V. camera		
2.		Connector plug	Disconnect from the T.V. electronic box		
3.		Lead clamps	Remove from hull		
4.		Lead	Remove from vehicle		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System

POSITION Organizational Mechanic

2.6. DUTY Maintaining the Junction Boxes and Chassis Wiring

TANK MBT-70

2.6.17. TASK Replacing the Wiring Harness Engine Disconnect to Starter Relay, Fuel Pump, Left Ignition Unit, Engine Shroud, Throttle Actuator, Kickdown Switch, Exciter, D.C. Field, Alternator, Right Ignition Unit, Fuel Pump Discharge Pressure Switch, Oil Temperature Switch & Oil Temperature Transmitter Wiring Harness

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Connector plug	Disconnect from the engine disconnect		
2.		(2) terminals	Disconnect from the starter relay		
3.		Connector plug and terminal	Disconnect from fuel pump		
4.		Connector plug and terminal	Disconnect from the left ignition unit		
5.		Connector plug	Disconnect from engine shroud		
6.		Connector plug	Disconnect from the throttle actuator		
7.		Insulator contact	Disconnect from the kick-down switch		
8.		Connector plug	Disconnect from the D.C. field exciter		

2.6.17

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
9.		Connector plug	Disconnect from the alternator		
10.		Connector and terminal	Disconnect from the right ignition unit		
11.		Insulator contact	Disconnect from the fuel pump discharge pressure switch		
12.		Insulator contact	Disconnect from the oil temperature switch		
13.		Insulator contact	Disconnect from the oil temperature transmitter		
14.		Wiring clamps	Loosen from hull		
15.		Wiring harness	Remove from vehicle		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System — POSITION Organizational Mechanic

2.6. DUTY Maintaining the Junction Boxes and Chassis Wiring — TANK MBT-70

2.6.18. TASK Replacing the Sponson Power Box to Starter Relay, Engine Starter and Alternator Wiring Harness — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Connector plug	Disconnect from the sponson power box (K3)		
2.		(2) terminals	Disconnect from the starter relay		
3.		(2) terminals	Disconnect from the engine starter		
4.		(2) terminals	Disconnect from the alternator		
5.		Wiring clamps	Loosen from engine		
6.		Wiring harness	Remove from engine		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System — POSITION Organizational Mechanic

2.6. DUTY Maintaining the Junction Box and Chassis Wiring — TANK MBT-70

2.6.19. TASK Replacing the Hull Distribution Box to F&H Relay Box and T.V. Electronic Box Wiring Harness — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Connector plug	Disconnect from the hull distribution box (K7)		
2.		Connector plug	Disconnect from the slip ring (K4H)		
3.		Connector plug	Disconnect from the T.V. electronic box		
4.		Connector plug and terminal	Disconnect from the F&H relay box (K1)		
5.		Wiring clamps	Loosen from hull		
6.		Wiring harness	Remove from vehicle		

JOB ELEMENTS

- SECTION I

2. EQUIPMENT CATEGORY Electrical System

2.6. DUTY Maintaining the Junction Boxes and Chassis Wiring

2.6.20. TASK Replacing the Engine Compartment Bulkhead to Transmission Wiring Harness

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
1.		Connector plug	Disconnect from the engine bulkhead (K4)		
2.		Connector plug	Disconnect from the transmission		
3.		Wiring clamps	Loosen from hull		
4.		Wiring harness	Remove from vehicle		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY **Electrical System**

POSITION Organizational Mechanic

2.6 DUTY **Maintaining the Junction Boxes and Chassis Wiring**

TANK MBT-70

2.6.21. TASK **Replacing the Hull Distribution Box to Hull Rate Gyro Wiring Harness**

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Connector plug and terminal	Disconnect from the hull rate gyro		
2.		Connector plug	Disconnect from the hull distribution box (K8)		
3.		Connector plug	Disconnect from the slip ring (K2H)		
4.		Wiring clamps	Loosen from hull		
5.		Wiring harness	Remove from vehicle		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System — POSITION Organizational Mechanic

2.6. DUTY Maintaining the Junction Boxes and Chassis Wiring — TANK MBT-70

2.6.22 TASK Replacing the Hull Distribution Box to Turret Slip Ring Wiring Harness — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Connector plug	Disconnect from the hull distribution box (K6)		
2.		Connector plug	Disconnect from the turret slip ring (K3H)		
3.		Wiring clamps	Loosen from hull		
4.		Wiring harness	Remove from vehicle		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System — POSITION Organizational Mechanic

2.6. DUTY Maintaining the Junction Boxes and Chassis Wiring — TANK MBT-70

2.6.23. TASK Replacing the Hull Distribution Box to Fire Extinguisher Bottles Wiring Harness — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Connector plug	Disconnect from the hull distribution box (K3)		
2.		(2) insulator contact and terminal	Disconnect from the pull handles		
3.		Connector plug	Disconnect from extinguisher #4		
4.		Connector plug	Disconnect from extinguisher #3		
5.		Connector plug	Disconnect from the engine compartment bulkhead (K3)		
6.		Connector plug	Disconnect from extinguisher #2		
7.		Connector plug	Disconnect from extinguisher #1		

2.6.23.

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
8.		Wiring clamps	Loosen from hull		
9.		Wiring harness	Remove from vehicle		

JOB ELEMENTS

SECTION 1

2. EQUIPMENT CATEGORY Electrical System — POSITION Organizational Mechanic

2.6. DUTY Maintaining the Junction Boxes and Chassis Wiring — TANK MBT-70

2.6.24 TASK Replacing the Air Compressor to Sponson Power Box, Left and Right Air Cleaner Blower Wiring Harness — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Connector plug	Disconnect from air compressor		
2.		Connector plug	Disconnect from right air cleaner blower motor		
3.		Connector plug	Disconnect from left air cleaner blower motor		
4.		Connector plug	Disconnect from sponson power box (K2)		
5.		Wiring clamps	Loosen from hull		
6.		Wiring harness	Remove from vehicle		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System

2.6. DUTY Maintaining the Junction Boxes and Chassis Wiring

2.6.25. TASK Replacing the Hull Distribution Box to Engine Bulkhead Wiring Harness

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Connector plug	Disconnect from the hull distribution box (K2)		
2.		Connector plug	Disconnect from the engine bulkhead (K2)		
3.		Wiring clamps	Loosen from hull		
4.		Wiring harness	Remove from vehicle		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System

2.6. DUTY Maintaining the Junction Boxes and Chassis Wiring

POSITION Organizational Mechanic

2.6.26. TASK Replacing the Forward Bulkhead Connector to Fuel Booster Pump, Fuel Level Transmitter, Track Adjusting Solenoid, Right Headlight Assembly, and F&H Front Suspension Synchro-Right Wiring Harness

TANK MBT-70

DATE

No.	Task Elements				
	Equipment				
	worked with	worked on	Activity	Indication	Remarks
1.		Connector plug	Disconnect from forward bulkhead		
2.		Connector plug and terminal	Disconnect from the track adjusting solenoid		
3.		Connector plug	Disconnect from the (F&H) right front suspension synchro		
4.		(8) Insulator contacts	Disconnect from the right headlight assembly		
5.		Connector plug	Disconnect from the fuel level transmitter		
6.		Connector plug and terminal	Disconnect from the fuel booster pump		
7.		Wiring clamps	Loosen from hull		
8.		Wiring harness	Remove from vehicle		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System — POSITION Organizational Mechanic

2.6. DUTY Maintaining the Junction Boxes and Chassis Wiring — TANK MBT-70

2.6.27. TASK Replacing the Hull Distribution Box to F&H Suspension, Environmental Control Unit and Left Driving Lights Wiring Harness — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Connector plug and terminal	Disconnect from the track adjuster solenoid		
2.		Connector plug	Disconnect from the limit switch		
3.		Connector plug	Disconnect from the forward bulkhead		
4.		Connector plug	Disconnect from the F&H relay box (K2)		
5.		(2) connector plugs	Disconnect from the pressure switch		
6.		Connector plug	Disconnect from the ?		
7.		(8) insulator contacts	Disconnect from the left driving lights		
8.		Connector plug	Disconnect from the environmental control unit		

2.6.27.

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
9.		Wiring clamps	Loosen from hull		
10.		Wiring harness	Remove from vehicle		

JOB ELEMENTS

SECTION I

2. EQUIPMENT CATEGORY Electrical System

POSITION Organizational Mechanic

2.6. DUTY Maintaining the Junction Boxes and Chassis Wiring

TANK MBT-70

2.6.28 TASK Replacing the Engine Bulkhead to Air Bleed Valve, Air Compressor Pressure Switch, F&H Syncro-Left Rear, Engine Disconnect, Left Fuel Booster Pump, Sponson Power Box and E.C.U. Condensor Compressor Wiring Harness

DATE

No.	Task Elements				
	Equipment				
	worked with	worked on	Activity	Indication	Remarks
1.		Connector plug and terminal	Disconnect from the air bleed valve		
2.		Connector plug and terminal	Disconnect from the air compressor pressure switch		
3.		Connector plug	Disconnect from the F&H left rear synchro		
4.		Connector plug	Disconnect from the engine disconnect		
5.		Connector plug and terminal	Disconnect from the left fuel booster pump		
6.		Connector plug	Disconnect from the sponson power box		
7.		Connector plug and terminal	Disconnect from the E.C.U. condensor compressor		

2.6.28.

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
8.		Connector plug	Disconnect from the engine bulkhead (K1)		
9.		Wiring clamps	Loosen from hull		
10.		Wiring harness	Remove from vehicle		

EQUIPMENT CATEGORY 3. HULL AND SUSPENSION SYSTEM

Duty 3.1. Maintaining Hydropneumatic Suspension Unit
Duty 3.2. Maintaining Control and Display
Duty 3.3. Maintaining Road Wheel Arm Assembly
Duty 3.4. Maintaining Road Wheels and Hubs
Duty 3.5. Maintaining the Compensating Idler Arm Assembly
Duty 3.6. Maintaining the Track Support Roller Assembly
Duty 3.7. Maintaining Sprockets and Hub Assembly
Duty 3.8. Maintaining Track Adjuster Assembly
Duty 3.9. Maintaining Hull Assemblies

JOB ELEMENTS

SECTION I

EQUIPMENT

3. CATEGORY Hull and Suspension System

3.1. DUTY Maintaining Hydroneumatic Unit

3.1.1. TASK Replacing a Hydroneumatic Unit (F & H)

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
		Preliminary Steps: (1) Lower Tank onto blocks (2) Disconnect track (3) Remove road wheels if desired (4) Close hydraulic line			
1.		(8) Oil line mounting bolts	Loosen and remove		
2.		(8) Hull Suspension Unit bolts	Loosen and remove		
3.	Special Lifting Arm if available	Suspension Unit	Lift out and remove		Hoist or fork lift, 2 men required.
		NOTE: (1) The cross over oil line will remain fastened to hull; plug the oil line connections. (2) Suspension units 1 and 6 on each side should be removed far enough from hull to enable the loosening of the electrical connection in the hull for the height sensor.			

JOB ELEMENTS

SECTION I

3. EQUIPMENT CATEGORY Hull and Suspension System

3.1. DUTY Maintaining Hydroneumatic Unit

3.1.2 TASK Checking the Nitrogen Pressure

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Charging Plug Dirt Cap	Loosen and remove		
2.		Special Test Gauge	Attach to charging plug of cylinder		
3.		Special Test Gauge	Rotate hex knob on bottom clockwise		This activates cylinder valve
4.		Special Test Gauge	Take reading on gauge dial		Normal reading should be 200 atm or 2940 P.S.I.
5.		Special Test Gauge	Rotate hex knob on bottom counter clockwise		This will withdraw plunger and cylinder valve closes
6.		Special Test Gauge	Loosen release valve of gauge		
7.		Special Test Gauge	Loosen from cylinder charging plug		
8.		Charging Plug dirt cap	Replace on plug		

JOB ELEMENTS

SECTION 1

3 EQUIPMENT CATEGORY Hull and Suspension System

POSITION Organizational Mechanic

3.1. DUTY Maintaining Hydropneumatic Unit

TANK MBT-70

3.1.3. TASK Charging the Suspension Unit W/Gas (F & H)

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
1.		(2) Charging plug dirt caps	Loosen and remove		Both cylinders on unit to be charged Testing unit, see Task 3.1.2 for
2.		Charging lines	Attach to charge plugs		
3.		Cylinders and nitrogen source	Charge to 200 atm or 2940 P.S.I.		A multiplier is needed if pressure source is low
4.		Charging lines	Loosen and remove		
5.		Charging plug dirt caps	Replace on plugs		

JOB ELEMENTS

SECTION 1

3. EQUIPMENT CATEGORY Hull and Suspension System

3.1. DUTY Maintaining Hydroneumatic Suspension Unit

3.1.4. TASK Releasing Gas From the Accumulator

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
		NOTE: Rotate the turret to	position for access to the accumulator		
1.	Gas release screw (SW14)	Accumulator check valve	Screw the release screw into the check valve and let the gas flow out.		

JOB ELEMENTS

SECTION I

3. EQUIPMENT CATEGORY Hull and Suspension System

POSITION Organizational Mechanic

3.1. DUTY Maintaining the Hydroneumatic Unit

TANK MBT-70

3.1.5. TASK Adjusting the Pressurizing Valve in the Manifold

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		(2) Manifold locking plate on unit. -	Loosen and remove		
2.		Adjusting screw	Adjust by turning		This adjustment is set by manufacturer and will only be changed on rare occasions.

JOB ELEMENTS

SECTION I

3. EQUIPMENT CATEGORY Hull and Suspension System

3.2. DUTY Maintaining Controls and Displays

3.2.2. TASK Replacing the Control Unit

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Electrical connection	Loosen and remove		
2.		(3) Control unit bolts	Loosen and remove		
3.		Control unit	Remove from mount		

JOB ELEMENTS

SECTION I

3. EQUIPMENT CATEGORY Hull and Suspension System

3.3. DUTY Maintaining the Road Wheel Arm Assembly

3.3.1. TASK Replacing the Road Wheel Arm Assembly

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
					Remove road wheel and hubs
1.	Wrench	Self locking nut	Loosen and remove		
2.		Flat washer	Remove		
3.		Dowel pin	Remove		
4.	Block and pry	Arm assembly	Block up to take weight off of mount		
5.	Arm assembly puller	Arm assembly	Remove from mount		

JOB ELEMENTS

SECTION 1

3. EQUIPMENT CATEGORY: Hull and Suspension System

3.4. DUTY: Maintaining the Road Wheel Hub

3.4.1. a TASK: Testing the Road Wheel Hub

POSITION: Organizational Mechanic

TANK: MBT-70

DATE:

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.	Support blocks	Vehicle	Lower vehicle onto block		
2.		Road wheel and road wheel arm	Lift and support above center track guides		
3.	Crow bar	Road wheel hub	Place between road wheels and under hub and work in and out	Hub is loose on spindle	Remove or tighten
4.	Crow bar	Road wheel hub	Place between road wheels and under hub and work in and out	Hub rotates without binding	Hub is properly adjusted.

JOB ELEMENTS

SECTION I

3. EQUIPMENT CATEGORY: Hull and Suspension System

3.4. DUTY: Maintaining the Road Wheel Hub

3.4.1.b TASK: Testing the Road Wheel Hub

POSITION: Organizational Mechanic

TANK: MBT-70

DATE:

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.	Support blocks	Vehicle	Lower vehicle onto block		
2.		Road wheel and road wheel arm	Lift and support above center track guides.		
3.	Dial indicator if available	Road Wheel hub	Remove hub cap and place dial indicator on hub		This will give an accurate reading of loose hub or worn bearings

JOB ELEMENTS

SECTION 1

3. EQUIPMENT CATEGORY: Hull Suspension System

3.4. DUTY: Maintaining the Road Wheel Hub

3.4.2. TASK: Replacing the Road Wheel Hub

POSITION: Organizational Mechanic

TANK: MBT-70

DATE:

No.	Task Elements				
	Equipment		Activity	Indication	Remarks
	worked with	worked on			
		NOTE: (1) Support road wheel arm so the road wheels clear the track center guide. (2) Remove 2 road wheels			
1.		Hub, cap screws and washers	Remove by turning in clockwise direction		Install by reverse proceedure.
2.		Static grounding Spring and gasket	Remove and Discard old gasket		Use new gasket on installation
3.		Nut - lock and lock ring	Remove and discard old lock		
4.	Wrench - and 3/4" drive	Adjusting nut	Remove		
5.		Outer bearing, cone and hub assembly	Remove by moving hub in and out to dislodge from spindle		

JOB ELEMENTS

SECTION I

3. EQUIPMENT CATEGORY Hull and Suspension System

3.4. DUTY Maintaining the Road Wheel and Hubs

3.4.3. TASK Replacing the Road Wheels

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		(4) 18" blocks of wood.	Place under each corner of vehicle and lower vehicle		Approx. 15 sec required until zero pressure is achieved.
2.		Road wheel arm	Jack up until road wheels are clear of track center guides		
3.		(10) Road wheel nuts and washers	Loosen and remove		In replacement torque to 525-550 ft/lbs.
4.		Road wheel	Remove one at a time.		

JOB ELEMENTS

SECTION I

3. EQUIPMENT CATEGORY Hull Suspension System

3.4. DUTY Maintaining the Road Wheel Hub

3.4.4. TASK Replacing the Bearings

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.	Wrench	Hub nut and pin	Loosen and remove		Road wheels removed
2.		Outer bearing cone	Remove		
3.		Bearing cup and insert	Remove		
4.		Cap screws (8)	Loosen and remove		
5.		Seal assembly	Remove and discard old Seal		
6.		Inner Bearing cone	Remove		
7.		Bearing Cup and insert	Remove		

JOB ELEMENTS

SECTION I

3. EQUIPMENT CATEGORY: Hull and Suspension System

3.4. DUTY: Maintaining the Road Wheels and Hubs

3.4.5. TASK: Inspecting the Road Wheels and Hubs

POSITION: Organizational Mechanic

TANK: MBT-70

DATE:

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Hub bearings	Feel for excessive heat build-up immediately after operation		Hub is too hot if you cannot hold the hand on it - approx. 30-45 sec.
2.		Road wheels	Observe for misalignment.		This indicates bearing worn or is loose
3.		Main road wheel seal	Observe for excessive oil loss from hub		
4.		Road wheel tires	Observe for a chunked tire of 6" in length by 2" width		If chunked more than once - it is considered excessive
5.		Wear rings	Observe for excessive wear rings		Wear ring chunked out when worn through the aluminum face in section of 4" in length or more.

JOB ELEMENTS

SECTION I

3. EQUIPMENT CATEGORY Hull and Suspension System

3.4. DUTY Maintaining the Road Wheel and Hubs

3.4.6. TASK Replacing the Road Wheel Wear Ring

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
		NOTE: (1) Support road wheel arm so the road wheels are above the track center guides. (2) Remove the desired road wheels.			
1.		Road wheel	Remove 10 bolts and washers from wear ring		
2.		Wear ring	Remove from road wheel		May need to pry off.

JOB ELEMENTS

SECTION I

3. EQUIPMENT CATEGORY: Hull and Suspension System

3.5. DUTY: Maintaining Compensating Idler Arm

3.5.1. TASK: Replacing Compensating Idler Arm Assembly (F & H)

POSITION: Organizational Mechanic

TANK: MBT-70

DATE:

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
		Preliminary Steps: (1)	Lower tank onto blocks		
		(2)	Disconnect the track		
1.		Track Adjuster	Loosen 4 bolts and remove		
2.		(6) Hull mounting bolts	Loosen and remove		
3.	Hoist	Compensating Idler Arm	Pull out and remove from hull recess		Hoist and 2 men are required

JOB ELEMENTS

SECTION 1

3 EQUIPMENT CATEGORY Hull and Suspension System

POSITION Organizational Mechanic

3.6. DUTY Maintaining Track Support Roller Assembly

TANK MBT-70

3.6.2. TASK Replacing Bearing in Track Support Roller Assembly

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Support roller wheels	Remove		See Task
2.		Lubricant	Drain from hub		
3.		(4) Hub cap bolts and washers	Loosen and remove		
4.		Hub cap "O" ring	Remove		
5.		Cotter pin, castellated nut and keyed washer	Loosen and remove		
6.		Hub	Remove		
7.		Outboard bearing cone inboard bearing cone	Remove from spindle and hub		This can be done by hand
	NOTE: When installing new bearings - torque the bearing retaining nut (castellated nut) to 90-110 ft lbs - and then back off retaining nut to 5-10 ft lbs.				

JOB ELEMENTS

SECTION I

3. EQUIPMENT CATEGORY Hull and Suspension System

3.6. DUTY Maintaining the Track Support Roller Assembly

3.6.3. TASK Inspecting the Track Support Rollers

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Hub bearings	Feel for excessive heat build-up immediately after operation.		Hub is too hot if you can not hold hand on it approx. 30-40 sec.
2.		Track support roller	Observe for misalignment		This indicates bearing is worn or is loose
3.		Track support roller seal	Observe for excessive oil loss from hub.		
4.		Support roller tires.	Observe for chunked tire of 3" by 2"		If chunked replace support roller wheel
5.		Track guide wear surface (The flanged portion of the wear ring.)	Observe for excessive wear		If surface is worn through in one place wheel should be replaced.

JOB ELEMENTS

SECTION I

3. EQUIPMENT CATEGORY Hull and Suspension System

3.6. DUTY Maintaining the Track Support Roller Assembly

3.6.4. TASK Replacing the Track Support Roller Wheels

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Track section over support roller	Loosen so that inside roller wheel can be removed		
2.		(4) Outside wheel attachment nuts	Loosen and remove		In replacement torque to 55-65 ft/lb.
3.		Outside wheel	Remove from hub		
4.		(4) Inside wheel attachment nuts	Loosen and remove		In replacement torque to 55-65 ft/lbs.
5.		Inside wheel	Remove from hub		

JOB ELEMENTS

SECTION I

3. EQUIPMENT CATEGORY Hull and Suspension System

3.7. DUTY Maintaining the Sprockets and Hub Assembly

3.7.1. TASK Replacing the Sprockets and Hub Assembly

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
		NOTE: Lower vehicle on blocks and break the track			
1.	Wrench ----M1	Sprocket hub bolts	Loosen and remove		
2.	Lift and sling	Sprocket hub	Lift and remove		Sproket hub weighs 250 lbs

JOB ELEMENTS

SECTION I

3. EQUIPMENT CATEGORY Hull and Suspension System

POSITION Organizational Mechanic

3.7. DUTY Maintaining Sprockets and Hub Assembly

TANK MBT-70

3.7.2. TASK Inspecting for Wear Limit of Sprockets

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.	Sprocket wear gauge	(2) Sprocket teeth approximately 90° apart	Measure tooth surface--on both teeth during inspection		Turn sprocket when engage tooth surface shows 3 - 4 mm wear
2.	Sprocket wear gauge	(2) Sprocket teeth approximately 90° apart	Measure tooth surface--on both teeth during inspection		Replace sprocket when both tooth sides shows 5 - 6 mm wear Some sprockets may have a drilled hole to indicate the wear limit.

JOB ELEMENTS

SECTION I

3. EQUIPMENT CATEGORY Hull and Suspension System

POSITION Organizational Mechanic

3.8. DUTY Maintaining Track Adjuster Assembly

TANK MBT-70

3.8.13. TASK Replace the Track Adjuster (Steer) Switch Assembly

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Cable clamp and screw	Loosen and remove		
2.		Male plug	Disconnect		
3.		Mounting screws and washers	Loosen and remove		
4.		Track adjuster (steer) switch assembly	Remove		
	(When installing tighten mounting screws to 35 - 40 ft lbs., and adjust switch)				

JOB ELEMENTS

SECTION I

3. EQUIPMENT CATEGORY Hull and Suspension System

3.8. DUTY Maintaining Track Adjuster Assembly

3.8.14. TASK Replace the Hydraulic Control Assembly and Connecting Lines

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Male (electrical) plug	Remove		
2.		Female (electrical) plug	Remove		
3.		Mounting nut and washer			
4.		Bolts	Loosen and remove		
5.		Track adjuster control box	Remove		

JOB ELEMENTS

SECTION I

3. EQUIPMENT CATEGORY Hull and Suspension System

3.8. DUTY Maintaining Track Adjuster Assembly

3.8.15. TASK Replacing Track Adjuster Assembly

POSITION Organizational Mechanic

TANK MBT-70

DATE

No.	Task Elements: Equipment worked with	Equipment worked on	Activity	Indication	Remarks
		PRELIMINARY STEPS: (1) Lower vehicle to maximum position (2) Turn engine off (3) Disconnect track (4) Bleed track adjuster at bleed plug			
1.		Lock wire	Remove		Disconnect track adjuster at hull mount end first
2.		Bracket cap	Loosen and remove		
3.		Preformed packing	Remove		
4.		Coupling nut	Remove		
5.		Screws	Remove		
6.		Cotter pin	Remove		
7.		Nut and flat washers	Remove		
8.		Track adjuster assembly	Remove		
		(When installing attach track adjuster assembly to the compensating idler arm first)			

JOB ELEMENTS

SECTION I

3. EQUIPMENT CATEGORY Hull and Suspension System — POSITION Organizational Mechanic

3.9. DUTY Maintaining Hull Assemblies — TANK MBT-70

3.9.12. TASK Replacing Radiological Shielding Panels — DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
	NOTE: (1) The shielding mounted on rear of bulk head of the crew compartment must be removed at times to gain access for removal of some engine components. (2) Shielding panels must be removed in sequence, working from left to right as panels are interlocked.				
1.		(6) ammo strap cap screws and lock washers	Loosen and remove		There are 6 screws and 2 strap assemblies for each shielding panel
2.		(2) ammo strap assembly	Remove		
3.		Shielding panel	Remove		Repeat steps 1-2-3 for each panel

JOB ELEMENTS

SECTION I

3. EQUIPMENT CATEGORY: Hull and Suspension System

3.9. DUTY: Maintaining Hull Assemblies

3.9.13. TASK: Inspecting Radiological Shielding

POSITION: Organizational Mechanic

TANK: MBT-70

DATE:

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Epoxy surface beneath turret basket	Inspect for fractures or missing sections		
2.		Driver's shielding panel	Inspect for fractures or broken chunks		
3.		Front and rear hull basket shielding panels	Inspect for fractures or missing sections		

EQUIPMENT CATEGORY 4. AUXILIARY EQUIPMENT

Duty 4.1.	Maintaining Environmental Control (ECU) & Gas Particulate Filter System (CPFU)
Duty 4.2.	Maintaining the Fire Extinguisher System
Duty 4.3.	Maintaining the Bilge Pump System
Duty 4.4.	Maintaining the Communication System
Duty 4.5.	Maintaining the Winterization Kit
Duty 4.6.	Maintaining the Basic Issue Items

JOB ELEMENTS

SECTION 1

4. EQUIPMENT CATEGORY Auxiliary Equipment

4.1. DUTY Maintaining the ECU and GPFU

4.1.6. TASK Replacing the GPFU

POSITION Organizational Mechanic

TANK MBT-70

DATE

No.	Task Elements				
	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Locking devices on the support	Loosen		
2.		Air intake and exhaust valve	Remove		
3.		Air ducts on valve side	Loosen		
4.		Electrical connections	Disconnect		
5.		Turret	Traverse to position for removal of unit		
6.		GPFU	Remove		

JOB ELEMENTS

SECTION I

4. EQUIPMENT CATEGORY Auxiliary Equipment — POSITION Organizational Mechanic

4.1. DUTY Maintaining the ECU and G.P.F.U. — TANK MBT-70

4.1.7. TASK Replacing the Air Filters Elements of G.P.F.U. — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Top knob of sliding arm	Unscrew and open door		
2.		Black knobs and locking latches	Loosen and open second door		
3.		Filter element	Unscrew and remove		

JOB ELEMENTS

SECTION I

4. EQUIPMENT CATEGORY Auxiliary Equipment

4.2 DUTY Maintaining the Fire Extinguisher System

POSITION Organizational Mechanic

4.2.1 TASK Troubleshooting Fire Extinguisher Electrical Systems Testing Detector & Amplifier Circuits (Two-man Task)

TANK MBT-70

DATE

No.	Task Elements: Equipment worked with	Equipment worked on	Activity	Indication	Remarks
1.			Rotate turret to line up turret access door with ? distribution box.		
2.	Voltmeter extinguisher electrical test kit.		Connect voltmeter to amplifier (Between amplifier and extinguishers)		
3.	T-Light, extinguisher-electrical test kit.		Extend T-light through ? to engine compartment and flash red light on sensor bulb, then flash blue light.		
4.			Voltmeter should read 28V when red light is flashed, read zero volts when blue light is flashed.		
5.			Repeat for each of five sensors.		

JOB ELEMENTS

SECTION I

4. EQUIPMENT CATEGORY Auxiliary Equipment

4.2. DUTY Maintaining the Fire Extinguisher System

4.2.2. TASK Testing Extinguisher Bottle For Agent

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Extinguisher bottle	Rotate turret to line up turret access door with extinguisher bottle.		
2.			Install safety (cotier) pin in head of bottle to prevent manual tripping.		
3.			Disconnect manual trip line from bottle head.		
4. m	Allen screw		Disconnect electrical firing connection from coil in bottle neck		
5.			Install safety cap (or otherwise short-out) on electrical coil on neck of bottle to prevent electrical tripping.		
6.			Disconnect pressure relief line		
7.			Disconnect bottle from main discharge manifold		

4.2.2.

Task Elements					
No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
8.			Release flip clamps (2) retaining bottle to bulkhead, and remov bottle.		
9.			Place bottle on scales and read weight (12.8 lbs.)		
10.			If bottle does not weigh minimum of _____ lbs. recharge.		
11.			Connect pneumatic pressure gage to charging valve at base of bottle and read nitrogen pressure (600 psi)		
12.			If nitrogen pressure is below _____psi, recharge.		

JOB ELEMENTS

SECTION I

EQUIPMENT CATEGORY Auxiliary Equipment

POSITION Organizational Mechanic

4.2. DUTY Maintaining The Fire Extinguisher System

TANK MBT-70

4.2.3. TASK Charging The Extinguisher Bottle With Freon Agent and Nitrogen Gas

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
1.		Charging assembly (hydrogen storage bottle, hydrogen shipping container, and freon storage bottle)	Connect charging assembly to charging valve at base of bottle		
2.			With charging assembly control valve in _____ position, pressurize hydrogen shipping container to 300 psi from hydrogen storage bottle		
3.			Switch charging assembly control valve to _____ position and charge extinguisher bottle with 7 lbs of freon.		
4.			Switch control valve to _____ position and charge extinguisher bottle with 600 psi of hydrogen		
5.			Switch control valve to _____ position and disconnect assembly from charging valve on extinguisher bottle.		

JOB ELEMENTS

SECTION I

4. EQUIPMENT CATEGORY Auxiliary Equipment

4.2. DUTY Maintaining The Fire Extinguisher System

4.2.8. TASK Replacing the Fire Extinguisher Time Delay Valve

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Line connecting nuts	Disconnect		
2.		Nut on tee head bolt	Loosen and remove strap		
3.		Time delay valve	Remove from bracket		
4.		Bushings and connections	Remove from valve		

JOB ELEMENTS

SECTION I

4. EQUIPMENT CATEGORY Auxiliary Equipment

4.2. DUTY Maintaining the Fire Extinguisher System

4.2.9. TASK Replacing Fire Extinguisher Control Heads

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Connecting head control line	Remove from control head #2		
2.		Control head #1 Control head #2	Loosen by unscrewing from cylinder safety valve		

JOB ELEMENTS

SECTION I

EQUIPMENT
4. CATEGORY Auxiliary Equipment

4.3. DUTY Maintaining The Bilge Pump System

4.3.1. TASK Troubleshooting Bilge Pump System

POSITION Organizational Mechanic

TANK MBT-70

DATE

No.	Task Elements				
	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Bilge pump switch	Place to ON position	Lamp illuminates	
				Lamp does not illuminate	Replace bulb
2.		Bilge pump outlet	Check for pump operation	Water being pumped out	
				No water being pumped out	Unplug outlet pipe
3.		Bilge pump lever	Place in each of the positions	Water being pumped out.	

JOB ELEMENTS

SECTION I

4. EQUIPMENT CATEGORY Auxiliary Equipment

4.3. DUTY Maintaining the Bilge Pump System

4.3.2. TASK Replacing the Bilge Pump

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Fire extinguisher bottle	Remove		
2.		Wiring connection	Disconnect at pump		
3.		Hose clamp	Loosen and remove		
4.		Hose and check valve	Loosen and remove		
5.	Wrench	(4) Nuts and lock washers	Loosen and remove		
6.		Bilge pump	Remove from mount		

JOB ELEMENTS

SECTION I

4. EQUIPMENT CATEGORY Auxiliary Equipment — POSITION Organizational Mechanic

4.3. DUTY Maintaining the Fire Extinguisher System — TANK MBT-70

4.3.1. TASK Troubleshooting Fire Extinguisher Electrical Systems Testing Detector & Amplifier Circuits (Two-man Task) — DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.			Rotate turret to line up turret access door with ? distribution box.		
2.	Voltmeter extinguisher electrical test kit.		Connect voltmeter to amplifier (Between amplifier and extinguishers)		
3.	T-Light, extinguisher-electrical test kit.		Extend T-light through ? to engine compartment and flash red light on sensor bulb, then flash blue light.		
4.			Voltmeter should read 28V when red light is flashed, read zero volts when blue light is flashed.		
5.			Repeat for each of five sensors.		

JOB ELEMENTS

SECTION I

4. EQUIPMENT CATEGORY Auxiliary Equipment

4.3. DUTY Maintaining the Fire Extinguisher System

4.3.2. TASK Testing Extinguisher Bottle For Agent

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Extinguisher bottle	Rotate turret to line up turret access door with extinguisher bottle.		
2.			Install safety (cotier) pin in head of bottle to prevent manual tripping.		
3.			Disconnect manual trip line from bottle head.		
4. m	Allen screw		Disconnect electrica. firing connection from coil in bottle neck		
5.			Install safety cap (or otherwise short-out) on electrical coil on neck of bottle to prevent electrical tripping.		
6.			Disconnect pressure relief line		
7.			Disconnect bottle from main discharge manifold		

4.3.2.

Task Elements					
No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
8.			Release flip clamps (2) retaining bottle to bulkhead, and remov bottle.		
9.			Place bottle on scales and read weight (12.8 lbs.)		
10.			If bottle does not weigh minimum of _____ lbs. recharge.		
11.			Connect pneumatic pressure gage to charging valve at base of bottle and read nitrogen pressure (600 psi)		
12.			If nitrogen pressure is below _____psi, recharge.		

JOB ELEMENTS

SECTION 1

4. EQUIPMENT CATEGORY Auxiliary Equipment

POSITION Organizational Mechanic

4.3. DUTY Maintaining The Fire Extinguisher System

TANK MBT-70

4.3.3. TASK Charging The Extinguisher Bottle With Freon Agent and Nitrogen Gas

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
1.		Charging assembly (hydrogen storage bottle, hydrogen shipping container, and freon storage bottle)	Connect charging assembly to charging valve at base of bottle		
2.			With charging assembly control valve in _____ position, pressurize hydrogen shipping container to 300 psi from hydrogen storage bottle		
3.			Switch charging assembly control valve to _____ position and charge extinguisher bottle with 7 lbs of freon.		
4.			Switch control valve to _____ position and charge extinguisher bottle with 600 psi of hydrogen		
5.			Switch control valve to _____ position and disconnect assembly from charging valve on extinguisher bottle.		

JOB ELEMENTS

SECTION I

4. EQUIPMENT CATEGORY Auxiliary Equipment

POSITION Organizational Mechanic

4.3. DUTY Maintaining The Fire Extinguisher System

TANK MBT-70

4.3.8. TASK Replacing the Fire Extinguisher Time Delay Valve

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Line connecting nuts	Disconnect		
2.		Nut on tee head bolt	Loosen and remove strap		
3.		Time delay valve	Remove from bracket		
4.		Bushings and connections	Remove from valve		

JOB ELEMENTS

SECTION I

4. EQUIPMENT CATEGORY Auxiliary Equipment

POSITION Organizational Mechanic

4.3. DUTY Maintaining the Fire Extinguisher System

TANK MBT-70

4.3.9. TASK Replacing Fire Extinguisher Control Heads

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Connecting head control line	Remove from control head #2		
2.		Control head #1 Control head #2	Loosen by unscrewing from cylinder safety valve		

JOB ELEMENTS

SECTION I

4. EQUIPMENT CATEGORY Auxiliary Equipment

POSITION Organizational Mechanic

4.3. DUTY Maintaining the Bilge Pump System

TANK MBT-70

4.3.9. TASK Replacing the Bilge Pump Hose

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
	PRELIMINARY STEPS: (1) Disconnect the electrical connector at pump. (2) Remove fire extinguisher bottles. (3) Remove radiological shielding.				
1.		(2) hose clamps	Loosen and slide off of hose and tube		One clamp on each end.
2.		Bilge pump hose	Remove from pump		

JOB ELEMENTS

SECTION I

4. EQUIPMENT CATEGORY: Auxiliary Equipment

4.3. DUTY: Maintaining the Bilge Pump System

4.3.10. TASK: Replacing the Check Valve

POSITION: Organizational Mechanic

TANK: MBT-70

DATE:

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
	PRELIMINARY STEP: Perform Task 4.3.9.				
1.		Check valve and ring	Loosen and remove from tube and fitting		
2.		Check valve	Remove		

JOB ELEMENTS

SECTION 1

4. EQUIPMENT CATEGORY: Auxiliary Equipment

4.4. DUTY: Maintaining The Communication System

4.4.3. TASK: Removing the Radio/Transmitter

POSITION: Organizational Mechanic

TANK: MBT-70

DATE:

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
					Assure master battery and the radio ON/OFF switch are OFF
1.		Recoil guard in front of radio	Remove and lay on turret floor		
2.		Metal bands on the antenna lead wire	Twist to left to loosen and remove		
3.		Receiver/transmit control cable on radio	Turn small handle to left to loosen and disconnect		
4.		Receiver/transmit control cable	Screw back into mount to secure		
5.		Cable from power in receptacle	Unscrew to disconnect from radio/transmitter		
6.		(3) Locking levers underneath radio	Unlock by flipping to the left		
7.		Radio/transmitter	Lift set from mounting		

JOB ELEMENTS

SECTION I

4. EQUIPMENT CATEGORY Auxiliary Equipment

4.4. DUTY Maintaining The Bilge Pump System

4.4.1. TASK Troubleshooting Bilge Pump System

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Bilge pump switch	Place to ON position	Lamp illuminates	
				Lamp does not illuminate	Replace bulb
2.		Bilge pump outlet	Check for pump operation	Water being pumped out	
				No water being pumped out	Unplug outlet pipe
3.		Bilge pump lever	Place in each of the positions	Water being pumped out.	

JOB ELEMENTS

SECTION I

4. EQUIPMENT CATEGORY Auxiliary Equipment

4.4. DUTY Maintaining the Bilge Pump System

4.4.2. TASK Replacing the Bilge Pump

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment		Activity	Indication	Remarks
	worked with	worked on			
1.		Fire extinguisher bottle	Remove		
2.		Wiring connection	Disconnect at pump		
3.		Hose clamp	Loosen and remove		
4.		Hose and check valve	Loosen and remove		
5.	Wrench	(4) Nuts and lock washers	Loosen and remove		
6.		Bilge pump	Remove from mount		

JOB ELEMENTS

SECTION I

4. EQUIPMENT CATEGORY Auxiliary Equipment

4.5. DUTY Maintaining The Communication System

4.5.3. TASK Removing the Radio/Transmitter

POSITION Organizational Mechanic

TANK MBT-70

DATE

Task Elements

No.	Equipment worked with	Equipment worked on	Activity	Indication	Remarks
					Assure master battery and the radio ON/OFF switch are OFF
1.		Recoil guard in front of radio	Remove and lay on turret floor		
2.		Metal bands on the antenna lead wire	Twist to left to loosen and remove		
3.		Receiver/transmit control cable on radio	Turn small handle to left to loosen and disconnect		
4.		Receiver/transmit control cable	Screw back into mount to secure		
5.		Cable from power in receptacle	Unscrew to disconnect from radio/transmitter		
6.		(3) Locking levers underneath radio	Unlock by flipping to the left		
7.		Radio/transmitter	Lift set from mounting		