



# Set For Aero Engine Preservation



## Product Catalog

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## Strengths & Capabilities:

Neometrix Defence is a powerhouse of engineering brilliance, proudly serving every Indian Air Force station and partnering with the Indian Army, Navy, Railways, BARC, NPCIL, and ISRO. With a team of over 100 elite engineers and visionary founders from IIT Kanpur and IIT Delhi, we harness cutting-edge technology to set the gold standard in mechanical engineering.

### We Don't Just Meet Industry Demands – We Define Them!



- We have established our presence in all Air Force stations across India. With the Indian Air Force as our leading customer, we are dedicated to upholding the highest standards of excellence in the aerospace industry.
- Our extensive clientele extends beyond the defence industry, including projects with the Indian Army, Navy, Railways, BARC, NPCIL, ISRO, and more. In essence, we excel in all aspects of mechanical engineering!
- Our team comprises over 100 graduate engineers, supported by a cutting-edge manufacturing site equipped with state-of-the-art machinery, enabling us to meet the highest Engineering standards.
- The founders of our company are distinguished graduates from IIT Kanpur and IIT Delhi, bringing extensive expertise and a wealth of engineering knowledge to Neometrix Defence.

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## Introduction:

The A1524 Set for Aero Engine Preservation is engineered to deliver and regulate inhibiting fluid into aircraft engine fuel tanks, ensuring corrosion prevention and moisture control during storage or maintenance operations. Primarily designed for use by the Indian Air Force, this compact trolley-mounted rig interfaces directly with 28 V DC aircraft power and meets stringent military preservation standards. Its principal function is to pump a continuous flow of inhibiting oil—up to 800 L/hr at a working pressure of 3 kg/cm<sup>2</sup>—into the engine, displacing air and moisture from critical internal passages.

At its core, the system comprises a 24 L cylindrical aluminium reservoir, fitted with a manual level gauge and a 40 µm breather filter to ensure clean fluid delivery. A 0.35 kW DC motor, directly coupled via bell housing, drives the positive-displacement gear pump. Incoming oil is first strained through a 149 µm suction mesh and then fine-filtered to 10 µm with an electrical clogging indicator, guaranteeing particulate-free output to the engine through a 1" delivery hose.

Portability and ease of use are built into the design: the entire assembly rests on a wheeled frame with steerable castors, allowing single-operator deployment. An intuitive control panel houses the main switch, pressure gauge, and an adjustable control valve, enabling precise pressure regulation and quick hose coupling. Whether in a hangar bay or forward operating location, the A1524 rig offers reliable, maintenance-free operation for preserving aero engines under all service conditions.



## Safety Guidelines

### Do's

- Do ensure the system is placed on a level, stable surface before operation.
- Do verify oil level in the 24 L tank via the manual gauge prior to starting.
- Do check and clean the 149 µm suction strainer and 10 µm fine filter regularly to prevent clogging.
- Do use only the specified inhibiting fluid compatible with aero engines.
- Do secure all hose connections and clamps before energizing the pump.

### Don'ts

- Don't operate the rig without the breather filter and filler cap properly fitted.
- Don't exceed the recommended working pressure of 3 kg/cm<sup>2</sup>.
- Don't leave the system unattended while in pressurized operation.
- Don't attempt repairs on the motor or pump before isolating power and relieving pressure.

### Warnings

- High Pressure Hazard: Always depressurize the delivery line before disconnecting hoses or fittings—failure to do so may result in fluid injection injury.
- Electrical Shock Risk: Confirm 28 V DC aircraft power is de-energized before performing any electrical maintenance.
- Fire & Explosion: Keep the rig at least 1 m away from open flames or hot surfaces; vapors from inhibiting fluid can be flammable.
- Spill & Slip: Wipe up any spilled fluid immediately; floor contamination may cause slip hazards.
- Health Precautions: Wear protective gloves and goggles when handling the inhibiting oil; prolonged skin contact may cause irritation.

## System Overview

The A1524 Set for Aero Engine Preservation is a compact, trolley-mounted power pack designed to pump corrosion-inhibiting oil into aircraft engine fuel tanks, displacing moisture and air to safeguard internal components during storage or maintenance. Driven by a 28 V DC motor directly coupled through a bell housing, the rig delivers up to 800 L/hr at 3 kg/cm<sup>2</sup> of inhibiting fluid into the engine.

### Key features of the system include:

- 24 L Cylindrical Reservoir with manual level gauge and 40 µm filler breather to ensure clean fluid fill
- Pump & Motor Assembly: A 0.35 kW, 1 500 RPM DC motor drives an 11 cc/rev positive-displacement gear pump, delivering precise flow under pressure
- Filtration Stages:
  - 149 µm reusable stainless-steel suction strainer with check valve for back-drainage
  - 10 µm pressure-line filter fitted with an electrical clogging indicator.
- Control Panel with main switch, pressure gauge, and adjustable control valve for on-the-fly pressure regulation.
- Delivery Hose: 1" ID high-pressure hose for safe transfer to the engine.
- Mobility: Four steerable castors on a robust frame allow single-operator handling in hangar or field environments.





## Technical Specification

Parameter	Specification
Reservoir Capacity	24L
Working Pressure	3 kg/cm <sup>2</sup>
Maximum Flow Rate	800 L/hr
Motor	0.35 kW DC, 1 500 RPM
Pump Displacement	11 cc/rev positive-displacement gear pump
Suction Strainer	149 µm stainless-steel mesh with check valve
Pressure-Line Filter	10 µm element with electrical clog indicator
Breather Filter	40 µm filler breather
Delivery Hose	1" ID high-pressure rubber hose
Control Panel	Main switch, pressure gauge, control valve
Power Supply Interface	28 V DC aircraft power
Mobility	Wheeled frame with four steerable castors
Overall Dimensions (L×W×H)	600 × 450 × 800 mm
Dry Weight	~50 kg



## Major Components

### 1) Cylindrical Reservoir

- a) 24 L aluminium tank with manual level gauge and 40  $\mu\text{m}$  breather filter.

### 2) DC Motor & Gear Pump Assembly

- a) 0.35 kW DC motor directly coupled via bell housing to an 11 cc/rev positive-displacement pump.

### 3) Filtration Stages

- a) Suction Strainer: 149  $\mu\text{m}$  mesh with back-drain check valve.
- b) Pressure-Line Filter: 10  $\mu\text{m}$  element with electrical clog indicator.

### 4) Control Panel

- a) Includes main on/off switch, analog pressure gauge, and adjustable control valve for pressure regulation.

### 5) Delivery Hose & Fittings

- a) 1" ID high-pressure hose with quick-connect couplings rated for 3 kg/cm<sup>2</sup>.

### 6) Mobility Frame

- a) Powder-coated steel frame on four 100 mm swivel castors for easy positioning.

### 7) Ancillary Items

- a) Hose reel, mounting brackets, drip tray, and accessory storage hooks.

## Operating Procedure

### 1) Pre-start Checks

- a) Ensure the delivery hose is securely connected to the aero engine fuel tank.
- b) Verify that the reservoir contains at least 10 L of inhibiting oil as shown on the level gauge.
- c) Confirm all electrical connections ("+" to "+", "-" to "-") and hose clamps are tight.

### 2) Power On

- a) Switch on the MCB (circuit breaker) on the control panel.
- b) The 28 V DC motor and coupled gear pump will start simultaneously.



- 3) Fluid Transfer
  - a) The pump begins delivering oil at up to 800 L/hr into the engine tank
  - b) Monitor the delivery pressure on the gauge; adjust the control valve to maintain the recommended 3 kg/cm<sup>2</sup> working pressure.
- 4) Completion
  - a) Once sufficient oil has been injected, switch off the MCB.
  - b) Wait for the motor and pump to come to a complete stop
- 5) Shutdown & Stowage
  - a) Disconnect and cap the delivery hose.
  - b) Roll up the hose and electrical cable neatly on their respective reels.

## Maintenance Instruction

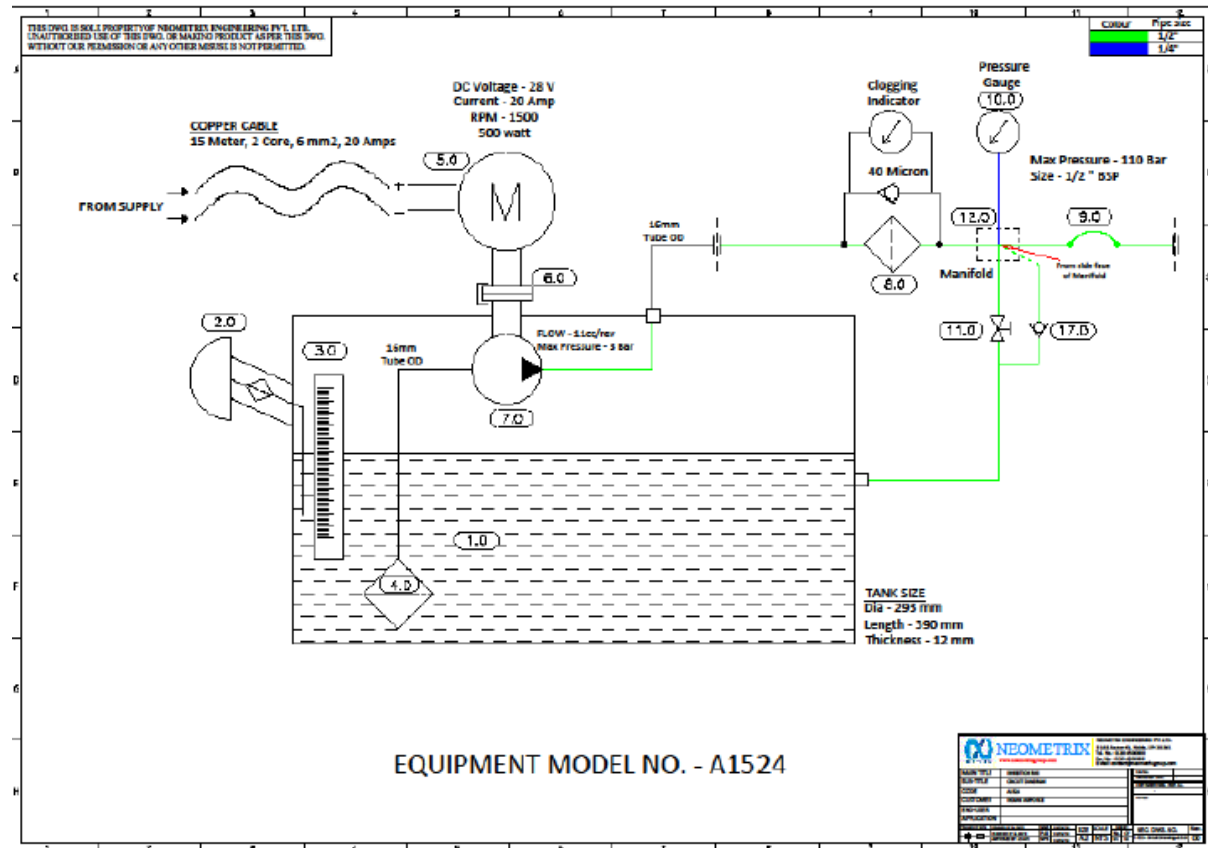
### Daily Checks

- 1) Oil Level: Ensure tank oil remains above the lowest marking on the level scale.
- 2) Fasteners & Fittings: Verify that all nuts, screws, pipe connectors, hose clamps, and covers are properly tightened.
- 3) Filters & Strainers: Inspect the 149 µm suction strainer and 10 µm pressure-line filter; clean or replace if clogged.
- 4) Electrical Connections: Confirm that power leads (“+” and “-”) are correctly connected and cable insulation is intact.
- 5) Hose & Breather: Check delivery hose for wear or damage and ensure the 40 µm breather is fitted securely.



## Attachments

- Hydraulic Circuit Diagram



- GA Drawing

