



NITROGEN GENERATION, CHARGING & DISTRIBUTION VEHICLE

PSA Nitrogen Generation

High-Pressure Storage & Boosting

Multi-Point Charging & Distribution

Vehicle-Mounted · Towable System

SYSTEM OVERVIEW

A self-contained, vehicle-mounted nitrogen generation and distribution platform engineered for defence and aviation ground support. The UGSSN2 generates high-purity nitrogen from atmospheric air via PSA separation, boosts and stores it at high pressure, then delivers it to multiple aircraft systems simultaneously — tyres, landing gear struts, hydraulic accumulators — from a single mobile platform. The output is traceable nitrogen delivery: not a cylinder-swap, but a continuous, on-demand supply chain independent of logistics.

KEY CAPABILITIES

A complete mobile nitrogen supply chain — generation, storage, boosting and multi-point distribution — mounted on a deployable vehicle platform for defence and aviation ground support.

ON-DEMAND GENERATION

PSA Nitrogen from Atmospheric Air

Pressure Swing Adsorption technology produces high-purity nitrogen continuously from ambient air — eliminating stored-cylinder dependency, the logistics chain that comes with it, and the safety risk of handling multiple high-pressure vessels on the flight line.

PRESSURE MANAGEMENT

High-Pressure Storage & Boosting Section

Nitrogen from the generator is compressed and stored at high pressure in a dedicated onboard manifold. A dedicated Storage & Boosting Section maintains system readiness — nitrogen is always available at operating pressure, with no ramp-up delay when an aircraft is on stand.

PRECISION DELIVERY

Multi-Point Supply & Distribution Panel

A purpose-built distribution panel carries dedicated pressure gauges and charging valves for every circuit. Multiple aircraft systems — tyres, struts, accumulators — can be charged simultaneously from a single operating position, with individual regulation and monitoring per outlet.

FIELD MOBILITY

Self-Propelled Vehicle with Towable Trailers

The complete system travels as a convoy — a self-propelled utility vehicle and purpose-built towable trailers — deployable to any hardstand or dispersal position without ground power or infrastructure. The compact vehicle base handles tight ramp and hangar environments.



UGSSN2 convoy configuration — nitrogen generation trailer and distribution vehicle at full deployment

Why on-demand generation changes ground support

Cylinder-based nitrogen servicing ties readiness to a re-supply schedule — and every cylinder on the flight line is a high-pressure hazard to manage. The UGSSN2 removes both constraints: it generates what it needs, when it needs it, from the air already present at the operating site.

TECHNICAL DETAILS

Typical configuration. Purity grade, storage pressure, booster capacity, and number of distribution points are adapted to the operational requirement.

≥95 %

Nitrogen purity (PSA output)

300 bar

High-pressure storage rating

4+

Simultaneous distribution points

2026

Machine series · M/C No. A2700-1/2024

NITROGEN SOURCE Pressure Swing Adsorption (PSA) from atmospheric air	PURITY LEVEL ≥ 95% N ₂ standard · higher-grade configurations available for specific aviation and munitions applications
AIR TREATMENT TRAIN Refrigeration dryer (SMC IDFA75E) · coalescing pre-filter · membrane / adsorption post-filter · particulate final filter	PSA MODULE Carbon molecular sieve beds · automatic valve cycling · product buffer vessel before booster inlet
STORAGE & BOOSTING High-pressure booster compressor · high-pressure nitrogen storage manifold · dedicated Storage & Boosting Section panel	DISTRIBUTION PANEL Storage & Boosting Section + Supply & Distribution Section · ≥12 dedicated pressure gauges · individual regulated outlets
CHARGING POINTS Multiple simultaneous aircraft charging stations · independent pressure regulation per outlet	VEHICLE BASE Self-propelled utility vehicle (Miller Auto Body) · tow vehicle + dedicated equipment trailers
TRAILER CHASSIS Tandem-axle low-bed trailers · stabilising outrigger legs · forged tow-eye hitch · LED work lights at distribution end	NITROGEN APPLICATIONS Aircraft tyre inflation · landing gear strut charging · hydraulic accumulator top-up · fuze system nitrogen purging
OPERATIONAL READINESS Road-transportable; deployable to flight line, dispersal and field positions without external power infrastructure	SAFETY High-pressure relief valves on storage and distribution circuits · individual circuit isolation valves · panel-mounted indicators



Nitrogen generation and storage trailer — side profile showing dual-section enclosure and tandem-axle chassis

HOW IT WORKS

SYSTEM ARCHITECTURE

The UGSSN2 operates as a three-stage nitrogen supply chain on a single deployable platform. Atmospheric air enters the generation module, is treated and separated into high-purity nitrogen, then boosted to storage pressure and held ready in the distribution trailer — from which it is delivered on demand to aircraft systems via individual regulated charging outlets.



Nitrogen generation module interior — refrigeration dryer, PSA separation beds, buffer vessels and filter train

Stage 1 — Air Treatment & Generation

- Atmospheric air drawn into the system via intake filter.
- Refrigeration dryer (IDFA75E) removes moisture — protecting PSA bed life and product purity.
- Multi-stage coalescing and particulate filters remove oil aerosol and submicron debris before the PSA inlet.
- PSA carbon molecular sieve beds cycle under pressure to separate nitrogen from oxygen; product nitrogen exits to buffer vessel at ≥95% purity.

Stage 2 — High-Pressure Storage & Boosting

- Product nitrogen transferred from the buffer vessel to the booster compressor inlet.
- Booster compressor raises pressure to high-pressure storage level.
- High-pressure nitrogen stored in the onboard manifold — system remains charged and ready.
- Storage & Boosting Section gauges display storage manifold pressure and booster inlet/outlet conditions at all times.

Stage 3 — Distribution & Aircraft Charging

- Supply & Distribution Section panel receives from the storage manifold via regulated circuits.
- Individual outlet valves and pressure gauges for each charging hose — tyre, strut, accumulator and fuze circuits separately metered.
- Multiple aircraft can be charged simultaneously from a single operator position.
- Isolation valves allow any circuit to be taken offline without interrupting the remaining distribution network.

A single operator, one vehicle, and no supply cylinder — the UGSSN2 turns nitrogen servicing from a logistics event into a line-maintenance task.

APPLICATIONS

Defence · Aviation · Forward Operations

The UGSSN2 is designed for any environment where nitrogen demand is continuous, resupply is constrained, and operational readiness cannot wait for a cylinder delivery. From fighter ramps to field dispersal positions, it delivers a self-contained nitrogen supply chain at the point of use.

01

Fighter & Trainer Aircraft

Tyre inflation, main and nose landing gear strut charging, hydraulic accumulator top-up between sorties — all from a single standing position.

02

Transport & Rotary Wing

High-volume nitrogen demand across multiple heavy-lift and rotary-wing platforms serviced sequentially or simultaneously from the distribution panel.

03

Ammunition & Fuze Systems

Dry, high-purity nitrogen for fuze system purging and inert-atmosphere requirements where contamination or moisture in the supply gas is a safety-critical exclusion.

04

Field & Dispersal Operations

Deployable without fixed infrastructure — the complete system travels to forward operating bases, dispersal strips, and temporary flight lines where fixed nitrogen supply does not exist.



Storage & Boosting / Supply & Distribution panel — open configuration showing full instrumentation array (M/C No. A2700-1/2024)

What the delivered system includes

- ✓ Onboard nitrogen generation — no external cylinder supply required
- ✓ Supply & Distribution Section — multiple simultaneously regulated outlets
- ✓ Self-propelled tow vehicle with low-bed tandem-axle trailers
- ✓ Operation manual and field maintenance documentation
- ✓ Storage & Boosting Section with dedicated pressure gauges
- ✓ Refrigeration dryer + multi-stage filtration protecting PSA bed life
- ✓ Full hydraulic and pneumatic circuit diagrams
- ✓ Machine identification plate (M/C No. A2700-1/2024 reference series)

ORDERING & SUPPORT



UGSSN2 tow vehicle — self-propelled utility base with equipment cabinets, canopy, and LED work lighting

INCLUDED WITH EVERY SYSTEM

Full pneumatic & electrical circuit diagrams · Operation manual and field maintenance guide · Quick-connect charging hose set · Spare filter element kit

Commission your UGSSN2 with Neometrix Defence.

Custom purity grades, storage pressure, distribution point count and vehicle configuration — built to your operational requirement.

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