About

OXYGEN CHARGING & DISTRIBUTION VEHICLE - UGSSO2

The Oxygen Charging & Distribution System is used as Oxygen charger for charging oxygen bottles of SU-30 MK-I aircraft. It consists of two major units-

1. Main Oxygen Charging vehicle - Main Oxygen Charging Vehicle (Tata Truck with special Canopy housing the Oxygen Storage SKID, Oxygen Gas Boosters SKID with two Oxygen gas boosters & Oxygen Distribution.
2. Compressor trolley - Engine Driven Towable Compressor Trolley to drive the Oxygen Boosters on the Main Oxygen Charging Vehicle.

UGSSO2 System Detail

UGSSO2 is OXYGEN CHARGING & DISTRIBUTION VEHICLE UGSSO2 is used as Oxygen charger for charging the Oxygen bottles of the aircraft. It consists of TWO MAJOR UNITS as follows:
1. Main Oxygen Charging Vehicle (Truck with special Canopy housing the Oxygen Storage, Oxygen Gas Boosters & Oxygen Distribution Panel).
2. Compressor Trolley.

Main Oxygen Charging Vehicle carries the special canopy. The canopy houses the following sub systems:

i. **High Pressure Oxygen Storage SKID** housing 4 CYLINDER BANKS, each having 3 High Pressure Oxygen Cylinders. Each cylinder is of 40 Liters and can have Oxygen at 350 Kg/cm2.

ii. **Oxygen Gas Boosting SKID** having Air Driven Oxygen Booster-I & Booster-II. The user may use One-Booster at a time and keep the other as a standby or may use both the Boosters together in case faster boosting operation is desired.

iii. **User Panel** (at the Back of the Canopy) housing Two PANELS. The user will operate these Panels while using UGSSO2
   - **a. Oxygen Booster/ Storage Station** (Left Side): This is used for Filling the high Pressure Oxygen Storage cylinders using external oxygen Bottles.
   - **b. Oxygen Distribution Station** (Right Side): This is used for charging the UNITS from the high pressure Oxygen Storage cylinders.

IV. **Electrical Control Panel**: The Panel has set of switches which need to be PUT ON/OFF before start of any operation on UGSSO2.

V. **CO2 Flooding System:** The CO2 Flooding system is installed inside the Canopy for firefighting in case of any FIRE.

VI. **Oxygen Purity Controller Panel**: The Oxygen Inlet (External Cylinder) gas purity is continuously monitored and displayed. In case the Oxygen purity goes below the SET level the Oxygen Gas Boosting operation shall stop with an alarm.

VII. **Internal boosting Panel:** The Oxygen Inlet Cylinder (storage bank cylinder) having stored pressure becomes the source of external cylinder from which the filling is to be made. In fact, this is an interesting feature being accommodated in the system to enhance the efficiency of the system. Independent isolation valve is mounted on the panel so as to make it available for filling to the next internal cylinder having inadequate pressure for charging the aircraft, to cope that up that requirement of high pressure through the internal boosting application.

VIII. **Oxygen Hose Storage Basket**: Oxygen hoses come with end covers and need to be always capped. Inside the Canopy, a Basket is provided to store the Oxygen hoses. Additional provision for keeping the Oxygen Hoses in a Tray welded around the Canopy is also provided for ease of carrying Oxygen Hoses.

IX. Oxygen Port Connection PANELS:

a. **Inlet Oxygen Cylinder & Drive Air Port Panel**: These Ports are provided with a Door. The user will connect the oxygen cylinder (external) to the designated Port and the Compressed Air Hose from the compressor. This Panel comes on the Right side of the User Panel.

b. **Oxygen Outlet Connection Ports Panel**: Four Ports are provided on this Panel for charging the Units. The user will connect the suitable port to the Unit with Oxygen hose for charging the UNIT. The Oxygen stored in the High Pressure oxygen Cylinders on the SKID inside the canopy shall be in use here. The FOUR PORTS on this PANEL (On the Right side of the User Panel) are as follows:

i. **1 to 5.5Kg/cm2.**
ii. **150 to 230Kg/cm2.**
iii. **230 to 350Kg/cm2.**
iv. **350Kg/cm2.**

Towable Compressor Trolley has the Compressed Air Hose housed in a Basket mounted on the Trolley. This is TOWED with the MAIN Oxygen Charging Vehicle from the BACK. Special provision is provided in the vehicle for this purpose.

To summarize, the Oxygen charging and the distribution system **UGSS-O2** is a self-propelled vehicle. The Air Driven Gas (Oxygen) boosters (I &II) boost the pressure of the oxygen (From external inlet cylinders) and store the oxygen at high pressure up to 350Kg/cm2 in the Oxygen cylinder SKID. Subsequently, this high pressure oxygen storage is used for charging aircraft cylinder with Oxygen at different pressures.

Two Oxygen Gas Boosters are provided. The user may operate both Gas Boosters together for FASTER Boosting operation. User may also opt to RUN only one Gas Booster at a time. The other Booster may be kept as Stand-By. The Stand-By shall allow the UGSS-O2 to remain operational while the Oxygen Gas Booster goes under routine repair/ seal change etc.

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Technical Details

Sr.No.	ITEM DESCRIPTION	ITEM SPECIFICATIONS
1	Solenoid Valve, NC with Solenoid Coil & Socket Connector Cable	Air solenoid valve ; Valve function 3/2, closed, monostable Actuation type Electrical ; Width 68 mm ; Standard nominal flow rate 7500 l/min Pneumatic working port G3/4 ; Operating voltage Via solenoid coil; Operating pressure 0.2 MPa ... 0.8 MPa ; Operating pressure 2 bar ... 8 bar Structural design Plate seat ; Reset method Mechanical spring; Operating voltage 24 V DC
2	Air Pressure Regulator	WP 8 Kg/cm2 ,Flow 270 SCFM, with Gauge Port 1/4"FBSPP,3/4"FBSPP inlet and Outlet Port
3	Oxygen Pressure Gauge	Nominal Size 100mm, Scale: KG/CM2 & PSI ,Range : 0 to 16 Kg/cm2, Process Connection : 1/4"MNPTLocation of Socket: Lower Back Mounting Arrangement : 03 Hole Front Flange Movement: Stainless Steel, Case and bayonet Bezel : Stainless steel, Accuracy: 1.0% of FSV, with Calibration Certificate <OXYGEN Service>, calibrated to Read in Kgf/Cm2 and PSI both .
4	Air Line Pressure Switch	Working Pressure: 10 kgf/cm2,Range :0.6 to6kgf/cm2, set at 4 kgf/cm2, Media: Compressed Air
5	Ball Valve with Hand Lever	Design structure 2-way ball valve, Nominal pressure of process valve 30 bar Line installation Connection :1/2 BSP(F)
6	Check Valve	Product Code: H400HPSSL1/41/3PSIOC ; Body Material: Stainless Steel 316 ; Connection Type: Let-Lok® Tube Fitting; Connection Size: 1/4″ ; Max Pressure: 6000 psi (414 bar) ; CV: 0.67
7	Oxygen Sensor	Online monitoring system PURITY O2 ANALYSER with Alarm Output , WITH PRESSURE REGULATOR 20.0 AND ROTAMETER
8	Oxygen Pressure Switch	Working Pressure: 250 kgf/cm2, Range:25to250kgf/cm2, set at 32 kgf/cm2, with certificate to use with Oxygen service
9	Oxygen Gas Filter	SS-304Filter, 0.01 Micron, 350 Bar,1/4"NPT(F), compatible to use with Pure Oxygen Service
10	Pressure Switch	N.O ,increasing ,Oxygen Service ,Set at 350 Kg/cm2

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Application

UGSS-O2 is used as Oxygen charger for charging the Oxygen bottles of the SU-30MKI aircraft.

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Key Features

1. Main Oxygen Charging Vehicle (Tata Truck with special Canopy housing the Oxygen Storage SKID, Oxygen Gas Boosters SKID with two Oxygen gas boosters & Oxygen Distribution Panel).
2. Engine Driven Towable Compressor Trolley to drive the Oxygen Boosters on the Main Oxygen Charging Vehicle.
3. Internal Oxygen Boosting (Between Storage Oxygen Cylinders).
4. Oxygen Purity Panel to automatically stop Oxygen Booster in case Oxygen gas is not pure.

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Product Images

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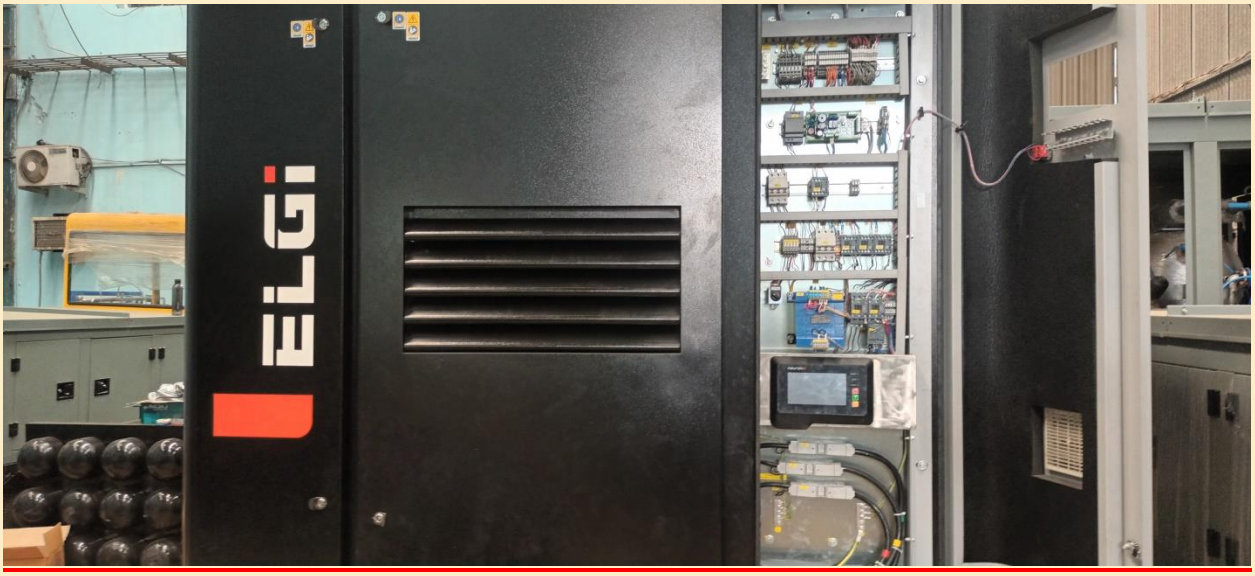

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