TRIDENT

MANUAL

INSTALLATION OPERATION MAINTENANCE

Air Dryers for

Locomotives

Part No.: LD2000120, LD2000122, LD2000132, LD2000140

Contents

READ THIS MANUAL CAREFULLY
BEFORE INSTALLING OR OPERATING THE EQUIPMENT

These symbols warn you of any dangers and the measures to be taken to prevent them.

The most important points for the correct operation of your dryer are printed in bold type.

1. Introduction

Locodryer series is a heatless adsorption air dryer range made for Locomotive air treatment. Rigid and easy to maintain, the dryer is equipped with a pre-filter 0.01 microns at 99.7% filtering efficiency to protect the desiccant from the variety of compressed air pollutants and with after filters to avoid fine desiccant powders at the outlet.

1.1 Design

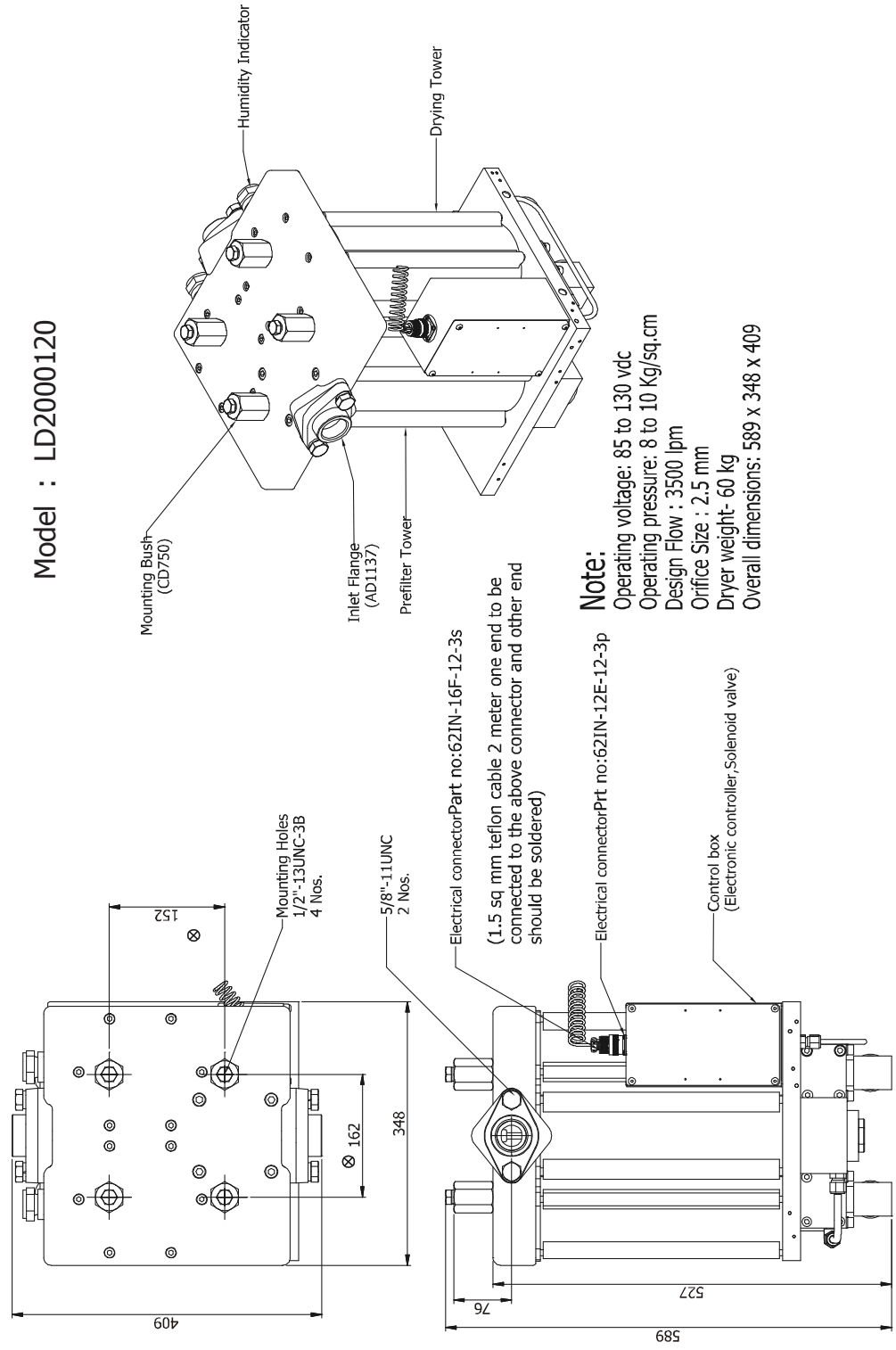
Locodryer series heatless regenerating adsorption dryers make it possible to eliminate any water vapour remaining in the compressed air at the outlet of the compressor. The dryers have been designed for various Inlet and Outlet conditions in order to obtain a dew point with specified air loss as per dryness requirement.

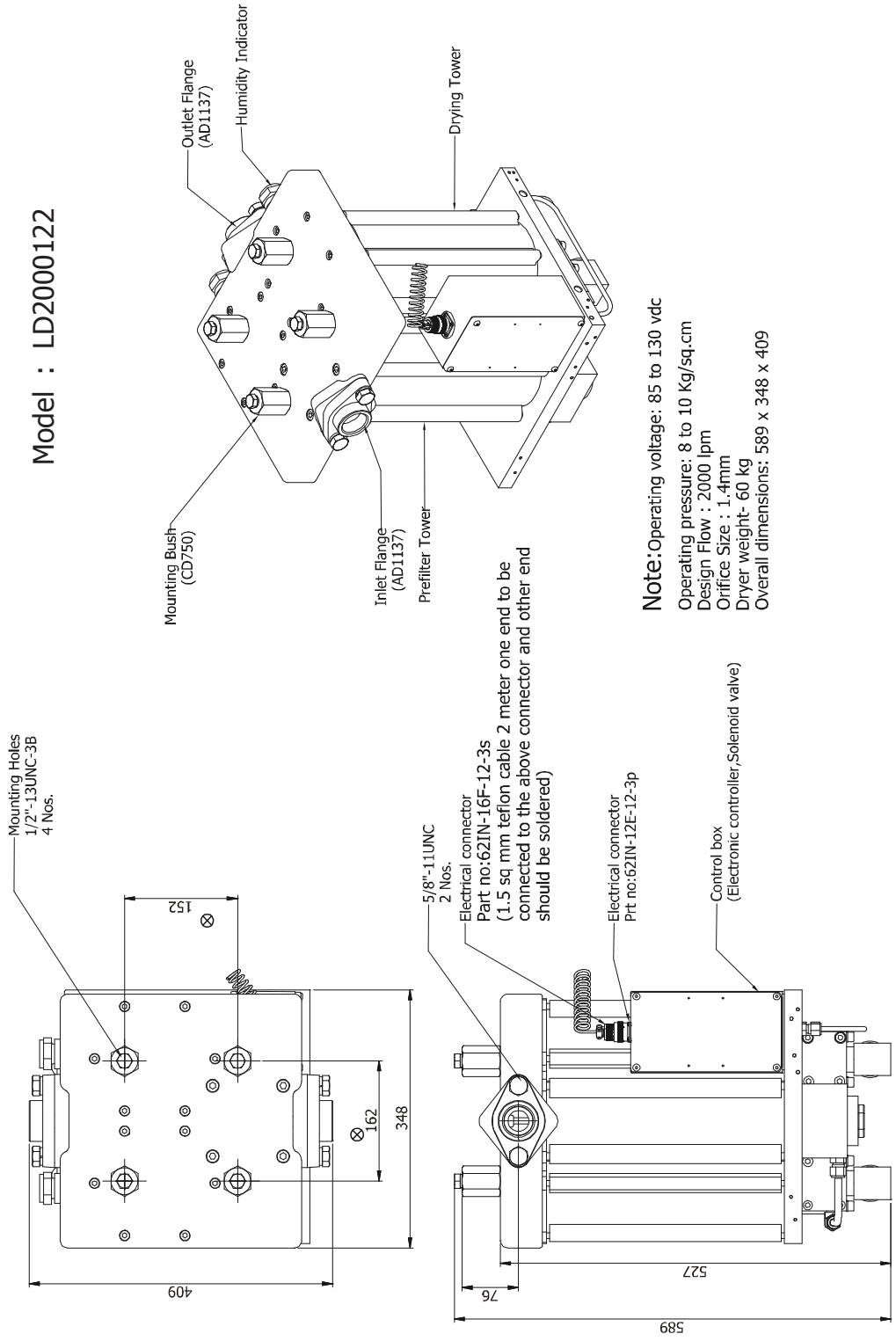
1.2 Specifications

Operational Data:

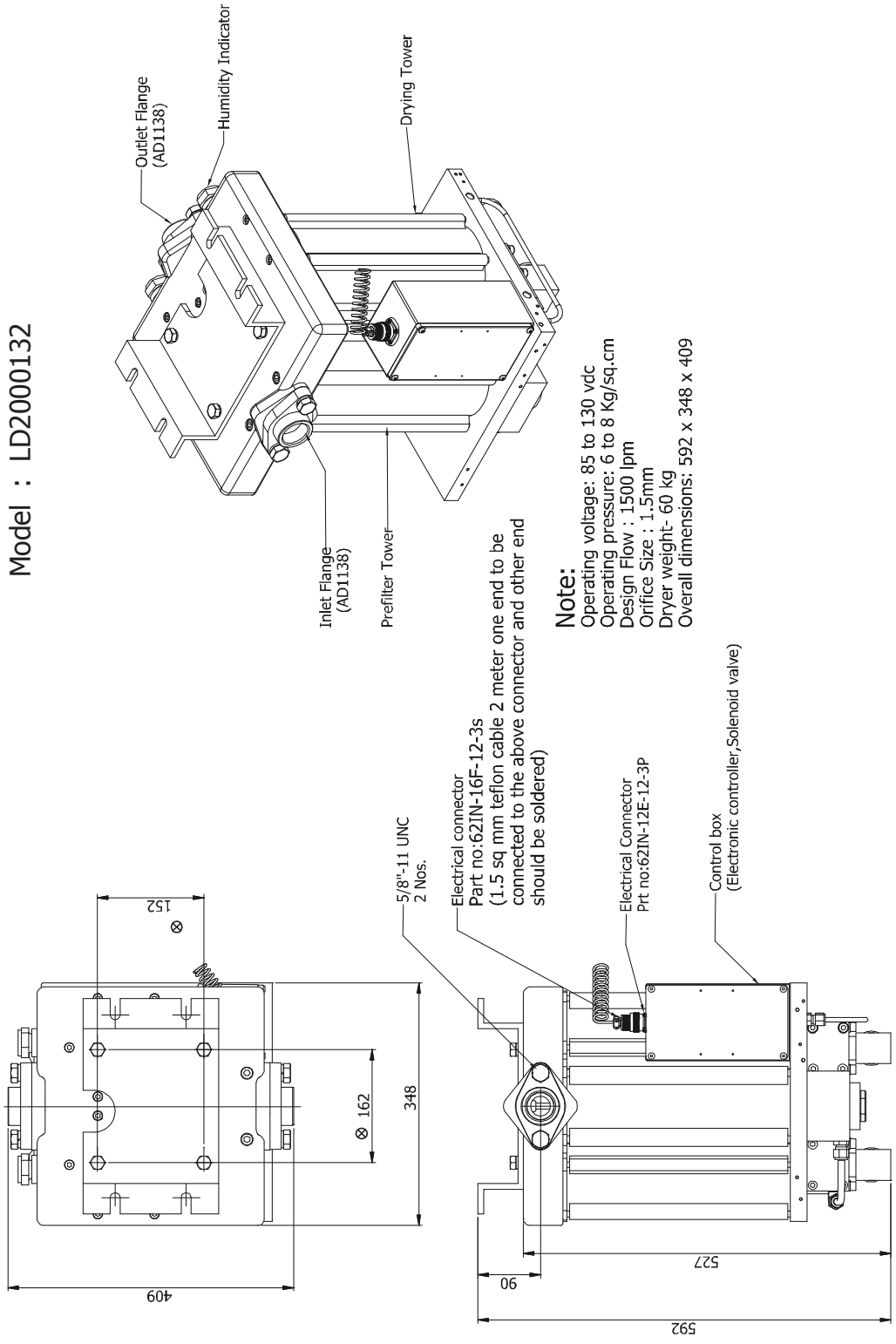
Inlet	:	Compressed Air
Inlet Temperature	:	0 to 60°C
Ambient temperature	:	0 to 70°C
Inlet Pressure	:	8 to 10 Kg/cm^2 for LD2000140, LD2000120, LD2000122
	:	6 to 8 Kg/cm^2 for LD2000132
Design Pressure	:	12.5 Kg/cm^2
Inlet Air Humidity	:	100% RH
Nominal Flow	:	3000 lpm for LD2000140
	:	2000 lpm for LD2000120
	:	1500 lpm for LD2000122
	:	1500 lpm for LD2000132
Maximum Flow	:	6000 lpm for LD2000140, LD2000120
	:	2000 lpm for LD2000122
	:	2107 lpm for LD2000132
Air Loss	:	20% for LD2000140, LD2000120, LD2000122
	:	15% for LD2000132
Prefilter rating	:	0.01 microns 99.97% efficiency
Afterfilter rating	:	0.01 microns 99.97% efficiency
Dew point depression	:	30 Deg C minimum at design capacity, 15 deg C minimum at max flow and temperature.
Pressure Drop	:	3% of Inlet pressure max.
Input Voltage	:	48 to 138 Volts DC
Over all Dimension	:	Please refer drawing
Weight of air dryer	:	65 Kgs Approx

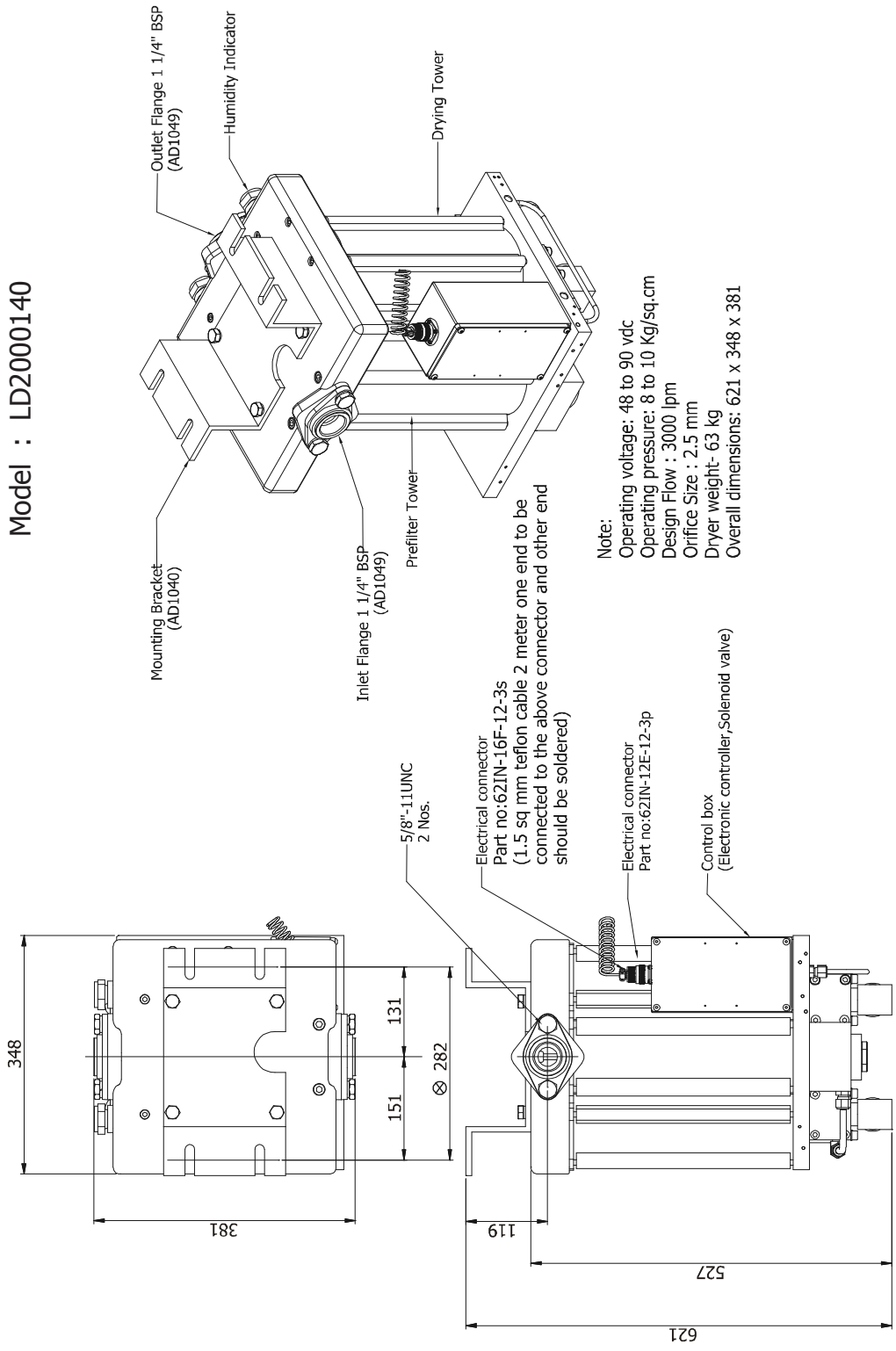
1.3 GA Drawing

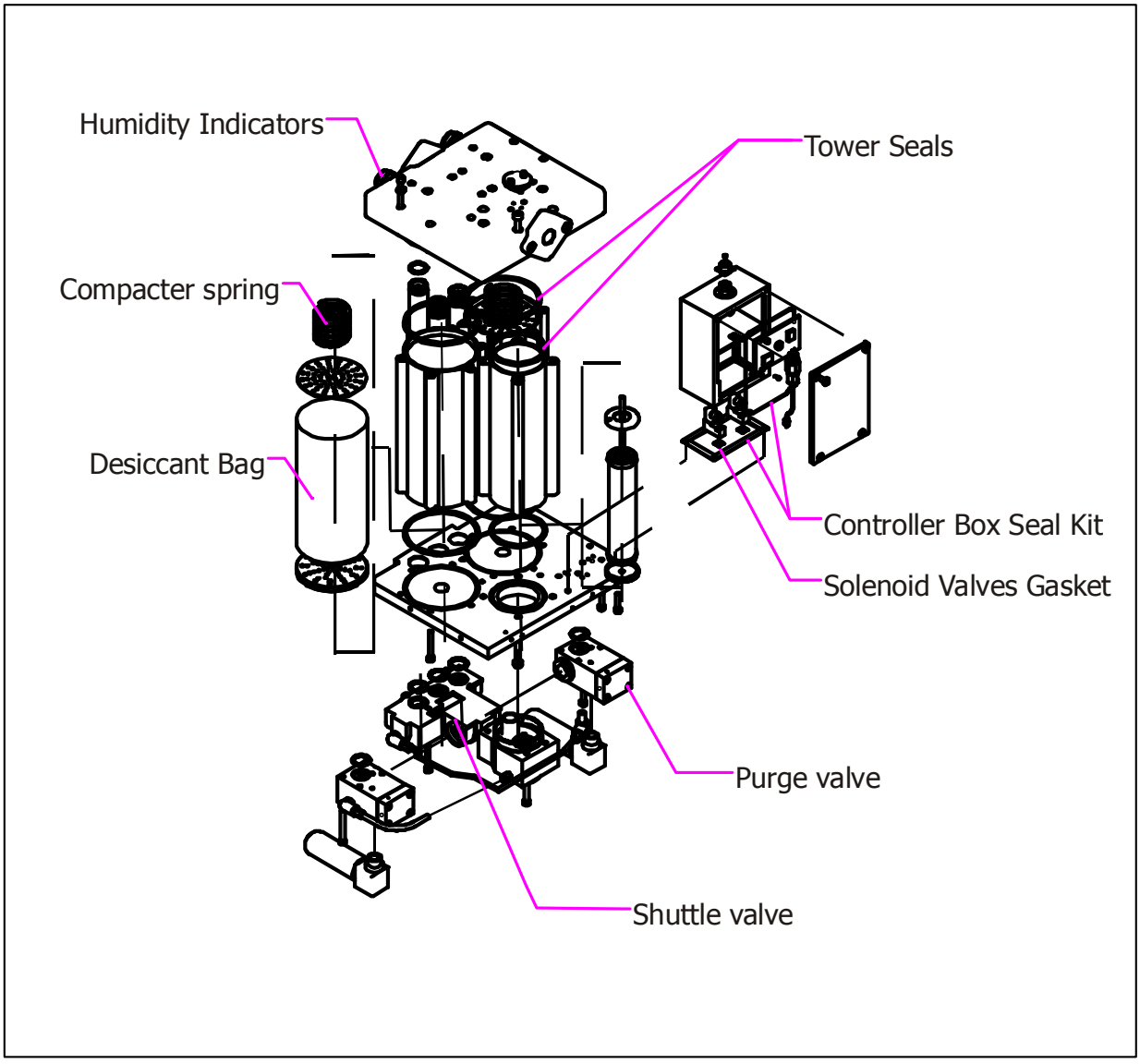


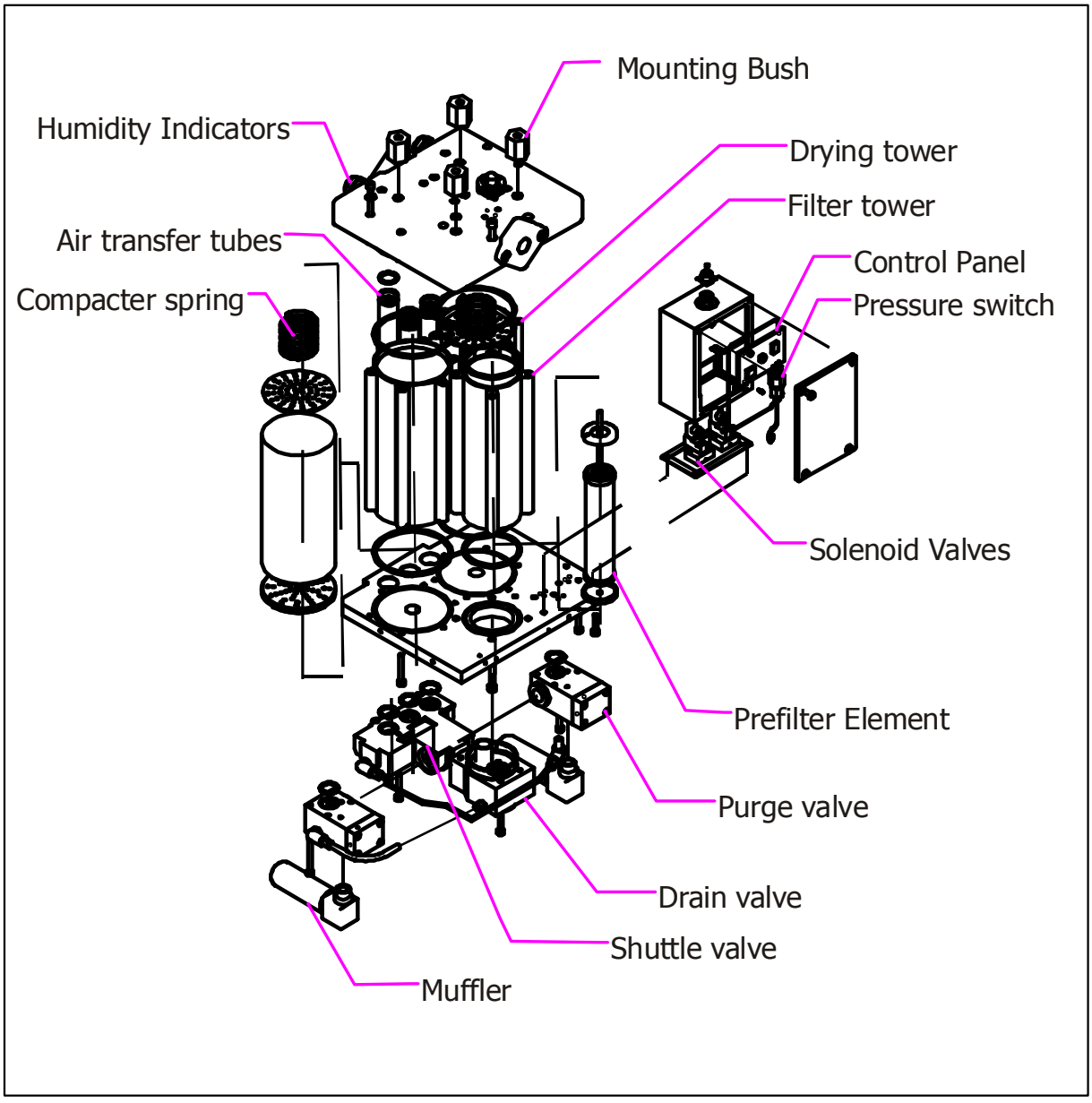

Model : LD2000122
Outlet Flange (AD1137)
Humidity Indicator
Drying Tower
Mounting Bush (CD750)
Inlet Flange (AD1137)
Prefilter Tower
Note:Operating voltage: 85 to 130 vdc
Operating pressure: 8 to 10 Kg/sq.cm
Design Flow : 2000 lpm
Orifice Size : 1.4mm
Dryer weight- 60 kg
Overall dimensions: 589 x 348 x 409
Mounting Holes 1/2"-13UNC-3B 4 Nos.
152
162
348
409
5/8"-11UNC 2 Nos.
Electrical connector Part no:62IN-16F-12-3s
(1.5 sq mm teflon cable 2 meter one end to be connected to the above connector and other end should be soldered)
Electrical connector Prt no:62IN-12E-12-3p
Control box (Electronic controller,Solenoid valve)
527
76
589

Model : LD2000132




Model : LD2000140
Outlet Flange 1 1/4" BSP (AD1049)
Humidity Indicator
Drying Tower
Mounting Bracket (AD1040)
Inlet Flange 1 1/4" BSP (AD1049)
Prefilter Tower
5/8"-11UNC 2 Nos.
Electrical connector Part no:62IN-16F-12-3s (1.5 sq mm teflon cable 2 meter one end to be connected to the above connector and other end should be soldered)
Electrical connector Part no:62IN-12E-12-3p
Control box (Electronic controller,Solenoid valve)
Note:
Operating voltage: 48 to 90 vdc
Operating pressure: 8 to 10 Kg/sq.cm
Design Flow : 3000 lpm
Orifice Size : 2.5 mm
Dryer weight- 63 kg
Overall dimensions: 621 x 348 x 381
348
131
151
⊗ 282
381
119
527
621




Mounting Bush
Humidity Indicators
Drying tower
Filter tower
Air transfer tubes
Control Panel
Compacter spring
Pressure switch
Solenoid Valves
Prefilter Element
Purge valve
Drain valve
Shuttle valve
Muffler

1.4 Description

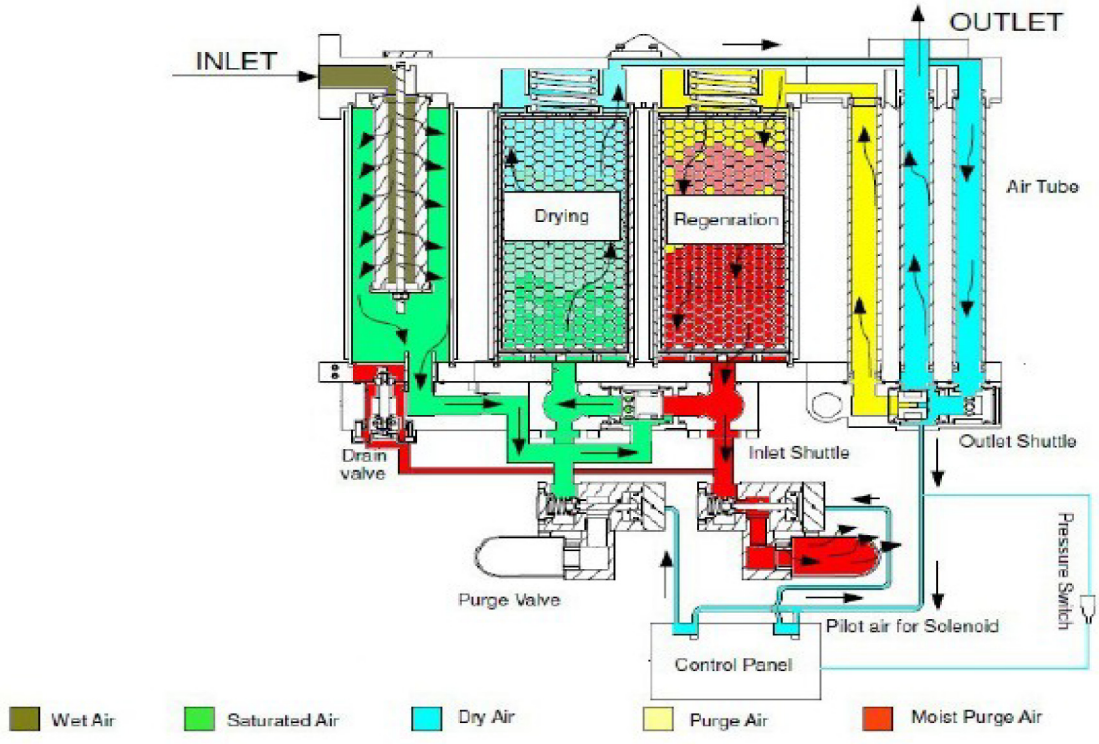
The dryer consists of:

- 2 Drying towers with compactor spring
- 1 Inlet and outlet shuttle valve assembly
- 2 Purge valves
- 2 Solenoid valves
- 1 Pressure switch
- 1 Electronic control panel
- 2 Humidity indicators
- 1 Filter tower with Pre filter and drain valve
- 3 Air transfer tubes
- 1 After filter
- 1 Mounting bracket for air dryer
- 1 Mounting bracket for after filter

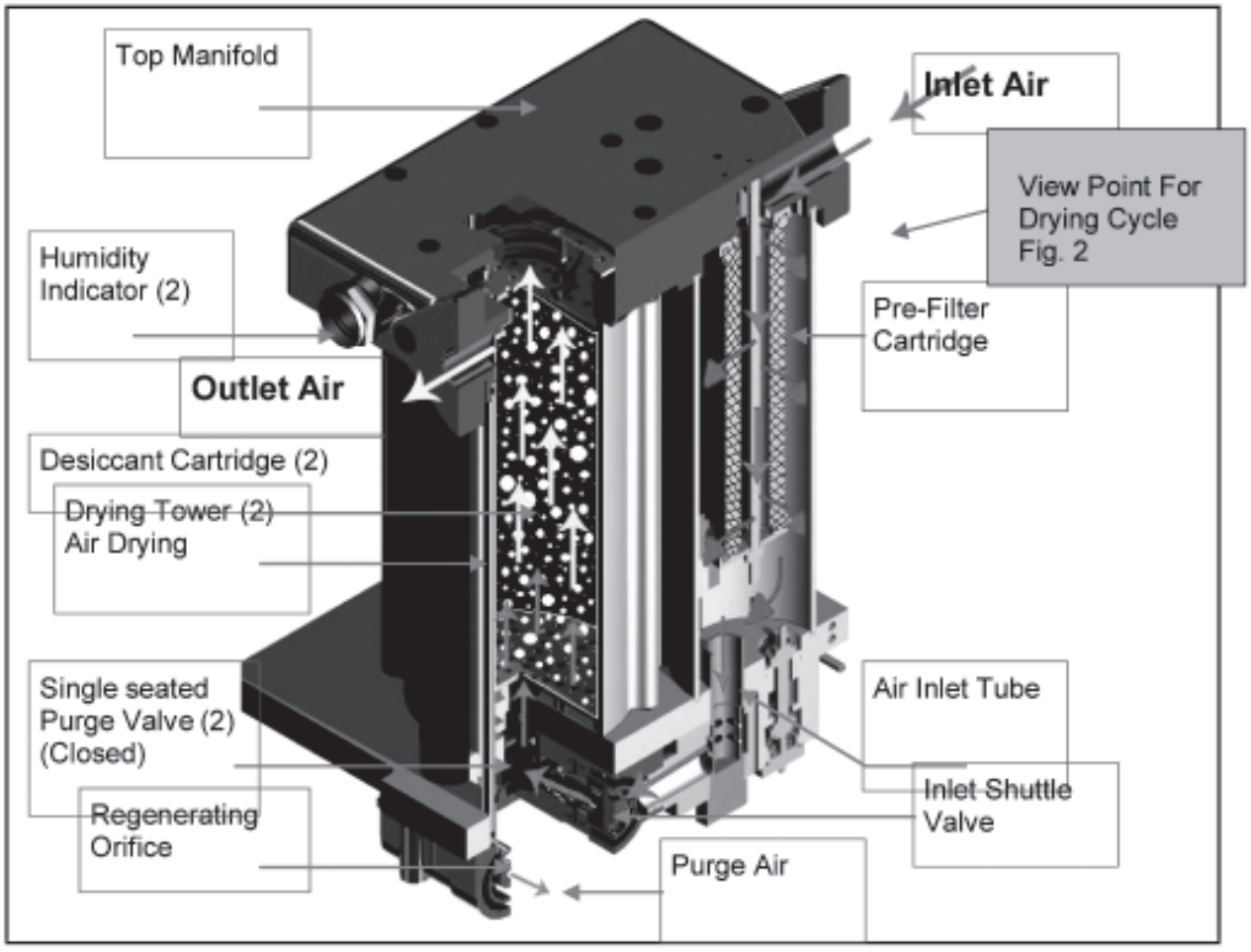
1.5 Adsorbent Material

The desiccant is of highly porous particles with surfaces, which are able to retain (adsorb) the water vapour present in the compressed air (drying phase) and releases it when the air is at atmospheric pressure during contact with dry air (regeneration phase). The desiccant used is activated alumina (Al2O3) 2 to 3mm.

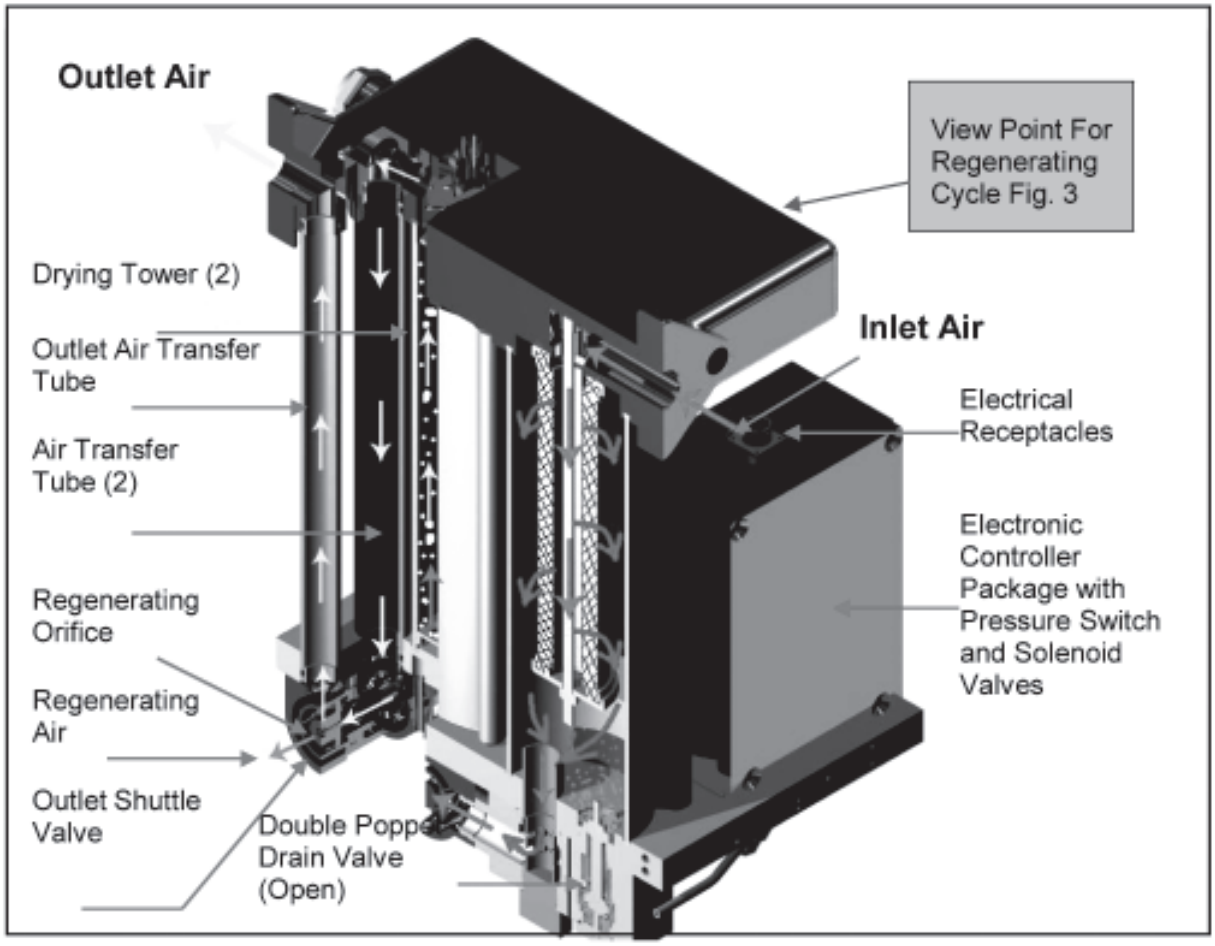
1.6 Operating Principle



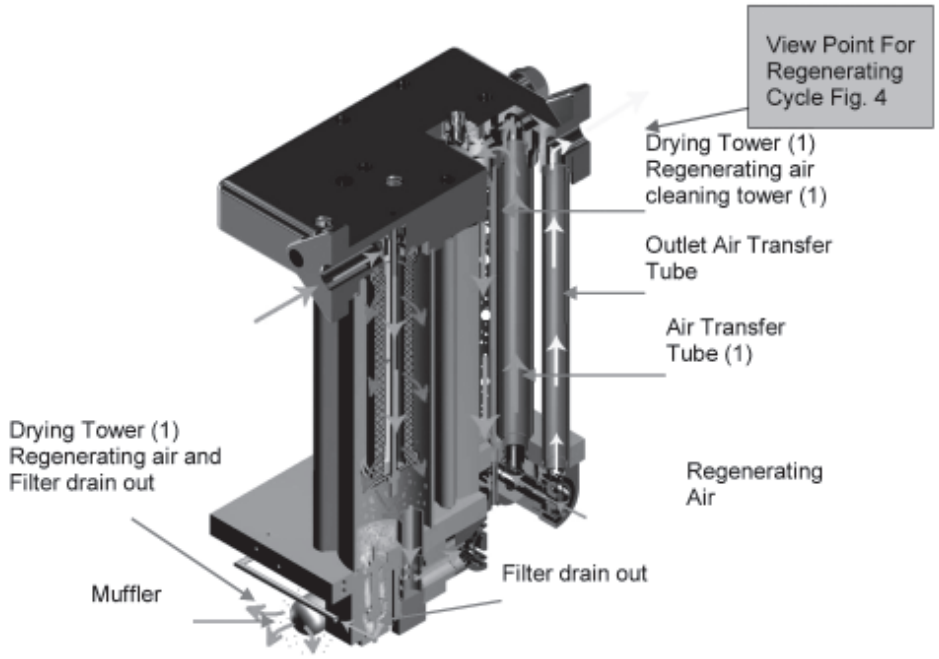
Drying cycle Fig. 1:



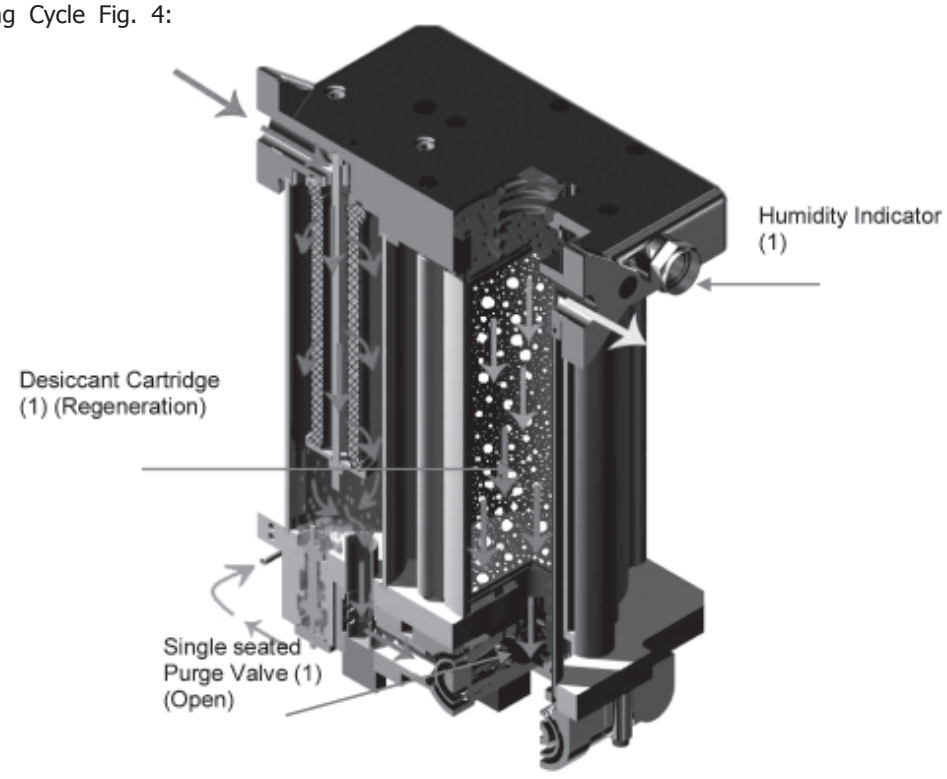
Drying Cycle Fig. 2:



Regenerating Cycle Fig.3:



Regenerating Cycle Fig. 4:



- Moist Air from the compressor enters into the Prefilter through the top manifold, water and oil coalesces here. The condensate is drained by Drain valve (double poppet valve through Tower1 purge valve).
- Then it passes through the Inlet Shuttle valve and Drying tower.
- In the drying tower, Alumina adsorbs the water vapour present in air and drops the dewpoint of the incoming air.
- Fine Alumina particles will be removed in the after filter provided separately.
- Clean air is let out through the outlet shuttle valve through air transfer tubes.
- The outlet shuttle is provided with a purge orifice, which will provide dry air loss for regeneration.
- The regenerating air passes through regenerating tower, which is in parallel to the drying tower.
- Two humidity indicators are provided to show the dryness of each tower.
- An electronic control module with Solenoid valve and pressure switch is provided to cycle air dryer and safe operation.

The two towers operate alternatively in the drying and regeneration phases. Regeneration in one tower results from the expansion to atmospheric pressure in the regeneration tower. Under given operating conditions (service pressure of 7-8 Kg/cm^2), 15% of the airflow is used for regeneration. The regeneration phase is shorter than the drying phase in order to allow the regenerated tower to return to service pressure before a new cycle starts.

1.7 Safety

Pressurized tanks may explode if used improperly. It is therefore essential to locate any equipment, which contains one or more of such tanks in such a way that the risks relating to incorrect use are reduced to the absolute minimum.

The person responsible for the staff who is going to install, operate and maintain the machines described in this manual must make sure that they have read and understood these instructions.

In particular we draw your attention to the safety procedures which are described in this manual and which must be scrupulously adhered to. Observing these measures will allow you to install, operate and maintain your dryer without risk.

Locodryer Series dryers are intended for the drying of compressed air. Under no circumstances should they be used to dry other gases before Trident has performed a preliminary study and provided special instructions.

The desiccants used are not noxious. However, they may cause respiratory problems if they are inhaled in dust form. The use of a dust mask is sufficient to protect personnel. If dispersed in the environment, desiccants may represent a source of pollution the consequences of which are uncontrollable. By the end of its lifetime, the desiccant will have accumulated all the pollutants present in the compressed air. Use a non-polluting method of disposal.

2. Installation

Various risks (crushing, explosion, projection, noise...): personnel qualified in the installation of electro-pneumatic systems should perform the installation operations described in this chapter. Follow the procedure described below with care in order to prevent exposing personnel to danger.

2.1 Storage

If your dryer is to be stored for a long time before installation and use, please follow these instructions:

- If possible let the dryer in its original packing (In particular products fitted with marine packing with plastic film and desiccant)
- Check that air inlet and outlet are correctly blocked in order to protect the desiccant against humidity and dust.
- Check the machine is correctly protected from atmospheric dust or water.
- Check the store is frost protected
- Make sure to archive correctly the attached documents.

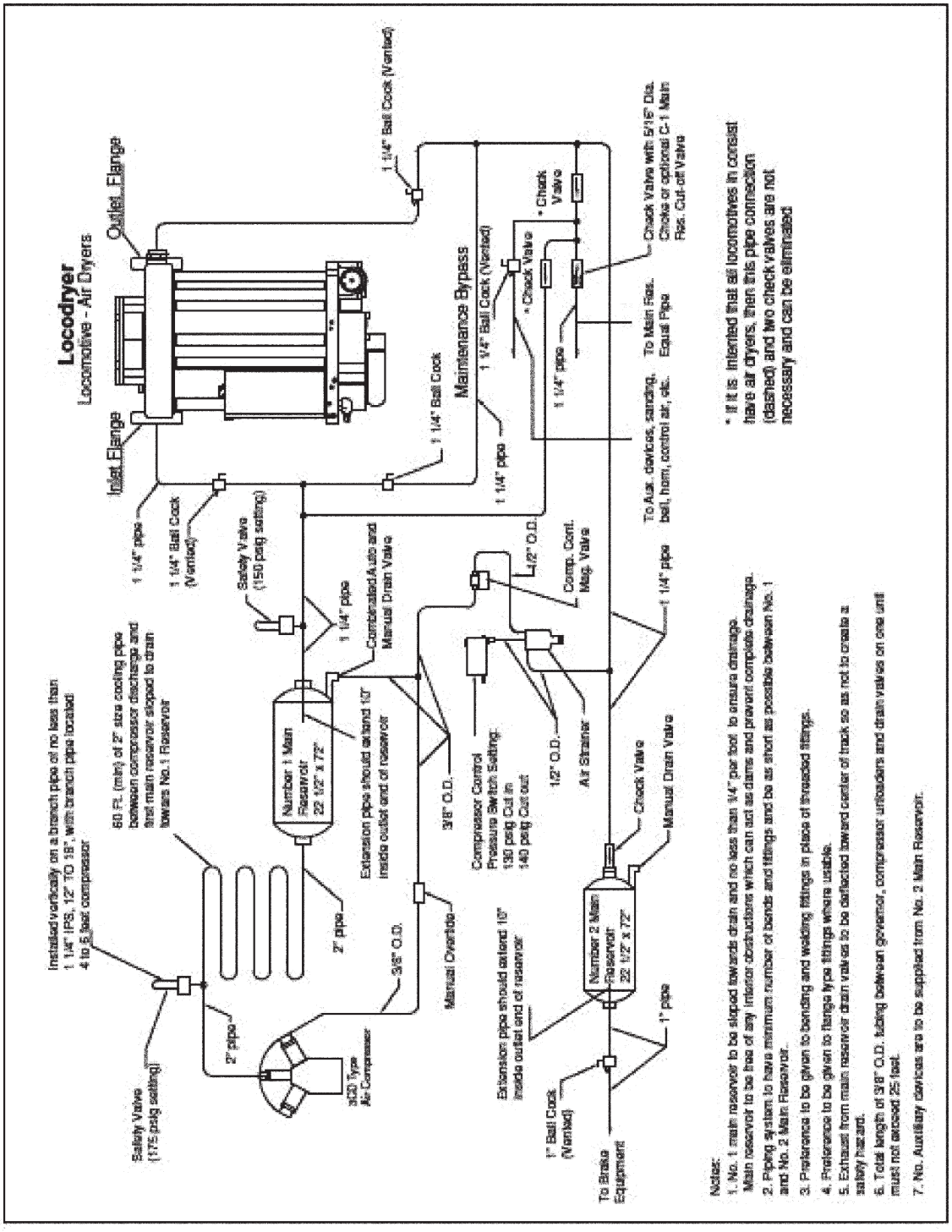


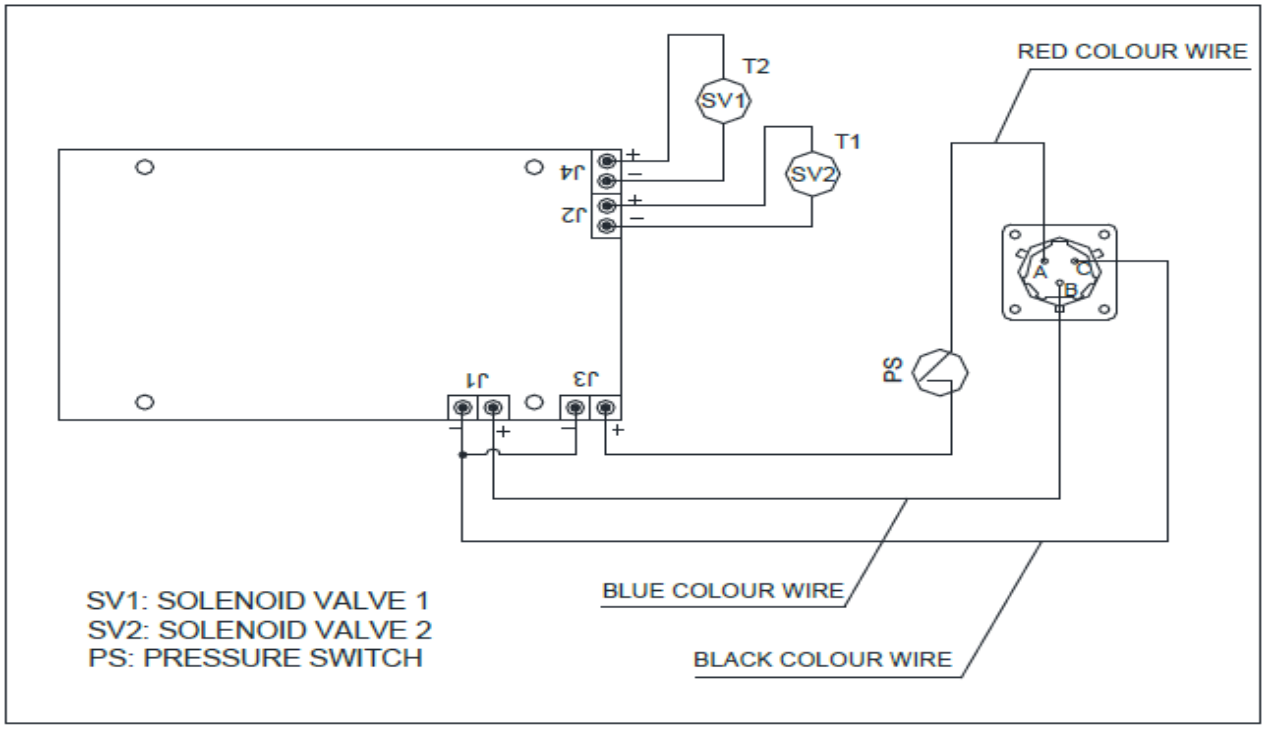
Fig. 5. Air Supply Piping Diagram – Locodryer Air dryer

2.2 Installation site and connections

Close all the air connection connected to the Air dryer Top Manifold Bracket before Installing the Dryer.

1. Check the Air Dryer Pipeline as per above drawing to ensure proper installation.
2. Mount the dryer with mounting bracket in the Locomotive.
3. Remove Inlet and Outlet dummy caps.
4. Place the Inlet and Outlet O-Rings in the grooves of the Inlet and Outlet ports of Air Dryer.
5. Attach and fix the Inlet and Outlet pipelines to the Air dryer Package.
6. Check that all the connections are properly connected and are airtight.
7. Remove the Controller connector protection cap above the controller.

Fig. 6. Electrical Wiring Diagram:



2.3 Electrical connections

Connect the electrical power connector to the controller connector. Ensure the voltage lies between 48 - 138 VDC.

Risk of electrical shock: When connecting the machine, cut off the power at the Connecting point.

2.4 Running the Installation

Various risks (explosion, projection, noise): Do not pressurize until the installation procedure has been completed.

1. Open slowly the Inlet Air connection connected to the Air Dryer.
2. Avoid any sudden variation in pressure as this may damage the dryer.
3. Open slowly the outlet Air connection connected to the Air Dryer.
4. Switch on the Dryer and check the function timing as per chart given in 3.2 operating cycle time.

3. Operation

3.1 Operator

Only a minimum level of experience in handling compressed air is necessary to operate a Series Locodryer dryer:

- Pressure in Kg/cm^2 unit
- Flow in lit/min (LPM) unit
- Dew point depression in deg C unit
- Components of a fluid network: compressor, valves, drains, taps, pressure gauges, filters, tanks.

3.2 Operating cycle time

- **Drying Cycle :** One tower goes on drying cycle for a period of 68 seconds while the other tower goes on Regeneration and Re-pressurizing cycle. During drying cycle, the activated alumina removes moisture from the compressed air present in the form of vapor.
- **Regeneration cycle :** occurs every 68 seconds. During this cycle, air is depressurized in the tower. Sudden depressurization brings the water molecules trapped in the desiccant pores to the surface. Dry air purged for a period of 49 seconds over the desiccant removes the water molecules.
- **Re-pressurizing cycle :** To prevent Dryer from pressure spike, Regenerated tower is pressurized before it starts to drying cycle for a period of 19 seconds.

Cycle time (Out of 68 seconds)	
Regeneration	Re-pressurization
49 seconds	19 seconds
Filter drain valves open for every 2 minutes 16 seconds	

FIRST CYCLE		SECOND CYCLE	
TOWER 1	TOWER 2	TOWER 1	TOWER 2
Drying	Regeneration	Regeneration	Drying
	Re-pressurization	Re-pressurization	

3.3 Initial charging/ Loading of compressor:

During this time the pressure switch is not ON. Since it is set at 4 bar(g), it connects the power to the dryer, when the air pressure reaches at 4 bar (g). After that the cycle will continues as mentioned in the para 3.2.

3.4 Unloading of compressor/ Memory feature:

When the compressor unloads, power to the line B disconnected. The controller puts the status of cycle in the memory and it stops working. When the compressor loads again, the controller takes the memory status of cycle and starts continuing the cycle from where it left.

3.5 How to stop the dryer

Various risks (projection, explosion, noise): Whenever working on the dryer, it is essential to disconnect it from the network. Follow the procedure below:

1. Close the inlet and outlet air connection connected to Air Dryer package.
2. Leave the Dryer controller in switched on condition.
3. Ensure the tower-2 pressure comes down to 0 Kg/cm2 pressure.
4. Disconnect the controller power supply.

4. Maintenance

Adsorption dryers are robust, reliable machines. To ensure uninterrupted, problem-free operation, regularly perform the inspections below.

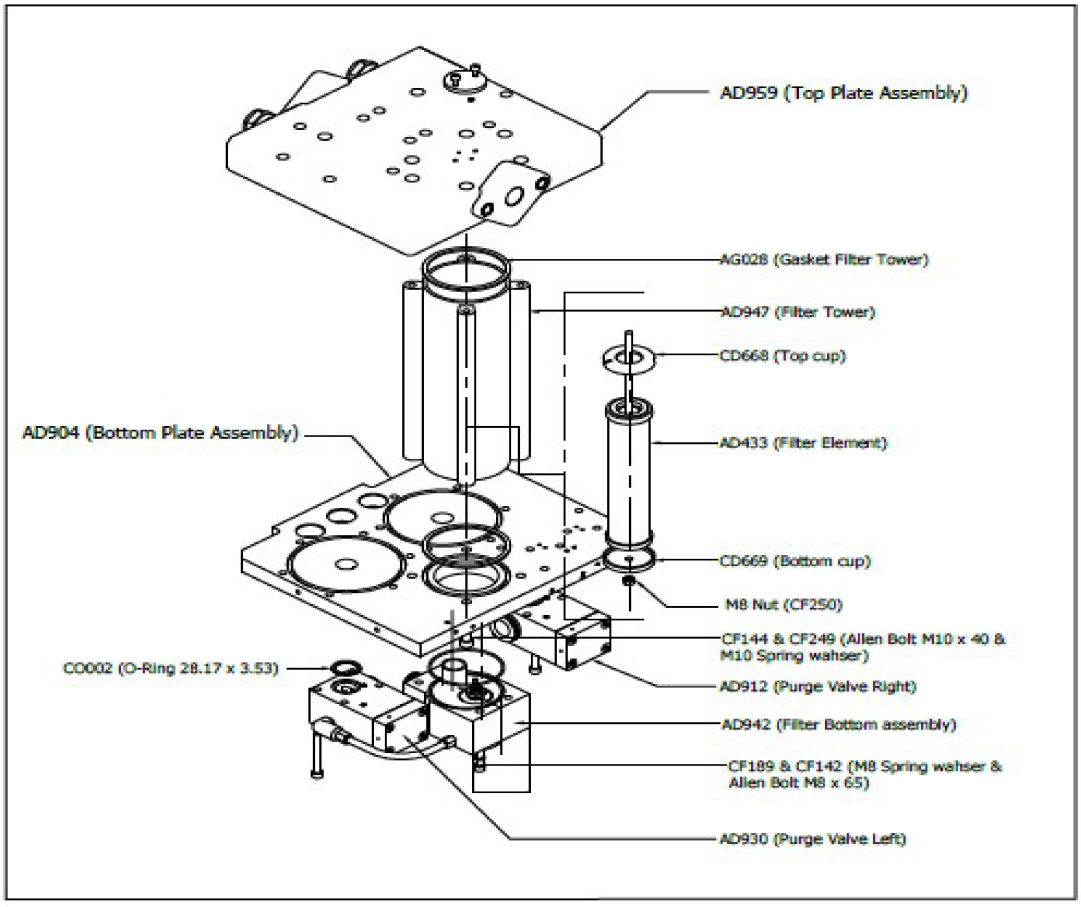
- Cycle functions normally.
- Double poppet drain valve functions proper.
- Regeneration is proper.
- Pressure drop across the dryer is as per Specification
- Repeat the Daily, Monthly, Quarterly and Yearly Inspections periodically as per Table 2
- Apply grease to the piston type Purge valves only

Table 2

Type of Inspection	Filter Element	Purge valve	Desiccant	O rings, Gaskets
Timings	—	D	—	—
Function	—	D	—	—
Choke	M	—	—	—
Replace	Y or R	—	4Y or R	4Y or R
Cleaning	—	4Y or R	—	—
Quality check	—	—	Y	—

D - Daily; M - Monthly; Q – ¼ Yearly; H – Half Yearly; Y – Yearly; 4Y – Four year; R – As required

Fig. 7. Prefilter Changing



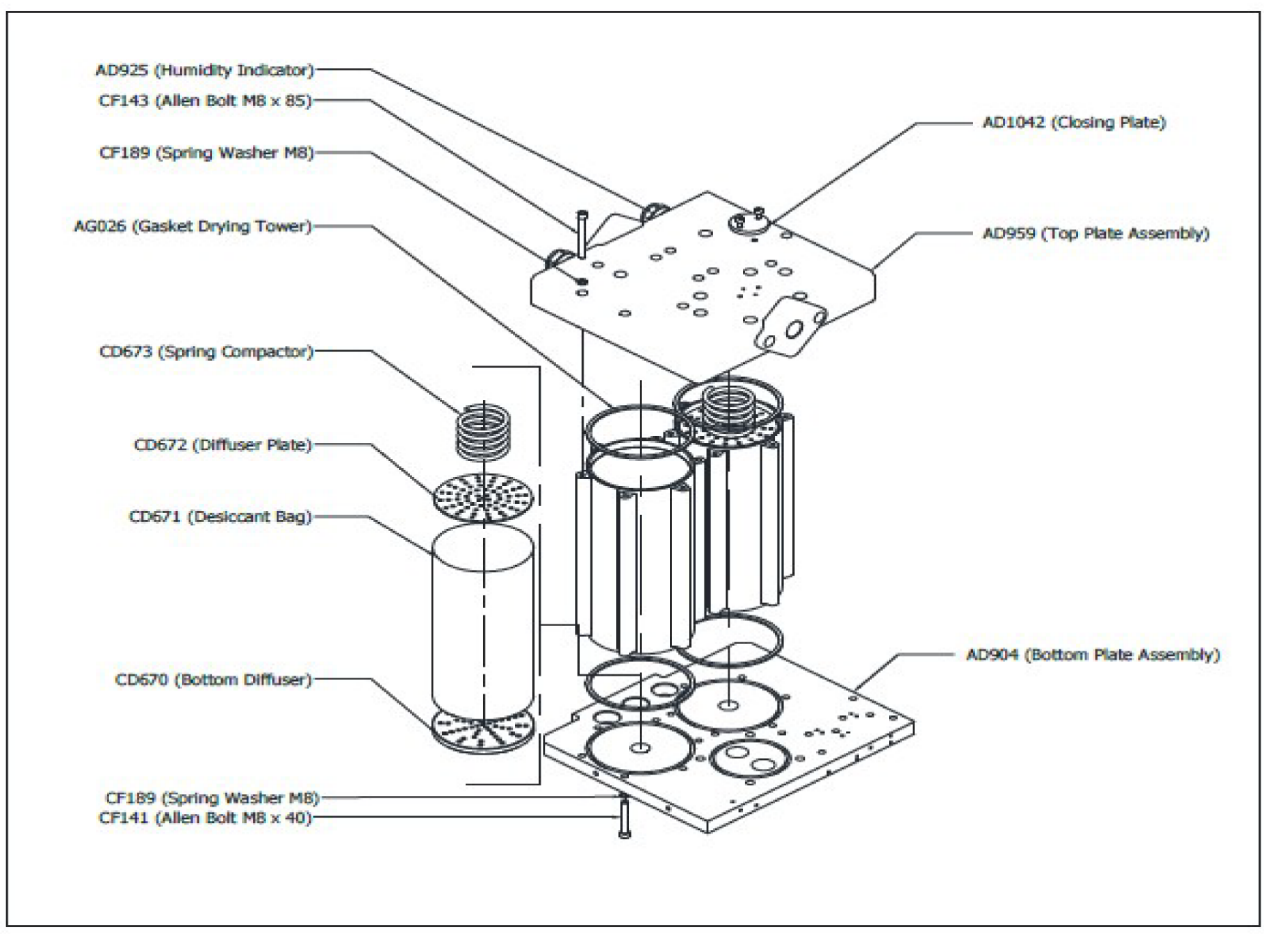
4.1 Changing the Pre-filter element

Various risks (projection, noise) : This operation should be performed by professionals of adsorption dryers. During the entire operation, the compressor and the dryer must be shut down. It is obligatory for all personnel who are in the presence of the desiccant to wear dust masks.

1. Refer fig. 6.
2. Stop the dryer.
3. Loosen the four bolts CF142 of Drain valve AD942
4. Loosen the connectors AD930 and remove the stainless steel piping.
5. Remove the drain valve from the bottom plate.
6. Allow the hand to enter into the filter tower through bottom plate bore.
7. Unscrew the filter bottom cap AD959
8. Remove the Filter element CD667 from the tie rod, which is fixed with Top manifold AD959.

9. Insert the Trident supplied new filter element CD667 in the top manifold tie rod assembly; tight the filter bottom cap in the tie rod till it tightens the inserted new filter element.
10. Ensure the inserted new filter element located properly on the top filter element cap CD668
11. Place the drain valve AD942 on the bottom plate
12. Tight the bolts CF142 and connectors AD930 with S.S piping.
13. Ensure the joints are leak proof.
14. Start the dryer.

Fig. 8. Desiccant Cartridge Changing



4.2 Changing the Desiccant

Various risks (projection, noise, ...) : This operation should be performed by professionals of adsorption dryers. During the entire operation, the compressor and the dryer must be shut down and ensured that is no pressure in the Air dryer package. It is obligatory for all personnel who are in the presence of the desiccant to wear dust masks.

1. Stop the Dryer.
2. Remove Inlet and Outlet connection of the air dryer package.
3. Remove the dryer from the mounting bracket and take it to the service place.
4. Remove the Top manifold AD959 by loosening the top Allen bolts CF143 of the drying tower and filter tower CF145.
5. Remove the compactor springs CD673.
6. Remove the top compactor discs CD672.
7. Remove the desiccant bag CD671 from both the towers.
8. Ensure to close air transfer tubes while changing the desiccant, entry of desiccant inside air transfer tube will create malfunctioning of shuttle valve.
9. Ensure there is no old desiccant in the tower.
10. Replace the Trident supplied new Desiccant bag CD671 in the two towers.
11. Close the desiccant bag top with compactor discs CD672
12. Place the compactor springs CD673 on the discs.
13. Replace the Gaskets AGO26, in the Top manifold grooves.
14. Replace the Air transfer tubes O-rings.
15. Locate and mount the Top manifold and tight the Allen bolts CF143, CF145 with 25Nm torque.
16. Ensure the Inlet and Outlet ports O-rings are placed in the Port grooves.
17. Mount the Dryer in the Mounting Bracket AD925
18. Connect the air inlet and outlet piping to the Air Dryer package.
19. Start the Dryer as per procedure recommended.

5. Recommended Spares List

1. Recommended Spare Parts List For Air Dryer of M/S Trident Pneumatics

(A) (Kit for Air Dryer LD2000140 fitted on Diesel Locos including WDP4 & WDG4)

Parts to be renewed in M-12 schedule (AS657)

Sl No	Item	Trident part No	Quantity
1	Filter Element	AD433	1
2	Filter Top Cup	CD668	1
3	Filter Bottom Cup	CD669	1
4	Spare Kit Filter Bottom	AS443	1
5	Spare Kit Valve Double Poppet	AS444	1

Parts to be renewed in M-48 schedule (AS660A)

Sl No	Item	Trident part No	Quantity
1	Filter Element	AD433	1
2	Filter Top Cup	CD668	1
3	Filter Bottom Cup	CD669	1
4	Spare Kit Filter Bottom	AS443	1
5	Spare Kit Valve Double Poppet	AS444	1
6	Spare Kit Valve Shuttle	AS445	1
7	Spare Kit Valve Purge	AS446	2
8	Bag Cartridge desiccant	CD671	2
9	Spring Compactor	CD673	2
10	Spare Kit Seals Tower	AS447	1
11	Sub Assy Humidity Indicator	AD925	2
12	Gasket Pad Amisco Solenoid Valve	AS079A	2
13	Seal Kit Controller Box	AS709	1

Parts to be renewed in electrical spare kits Loco Dryer (AS659)

Sl No	Item	Trident part No	Quantity
1	Controller loco Dryer	AD1224	1
2	Solenoid Valve	AS079	2
3	Pressure Switch	CE484	1

B) (Kit for Air Dryer LD2000120 fitted on Electric Locos except 3 phase - WAG-9, WAP-7 & WAP-5 Locos.)

Parts to be renewed in AOH Schedule (AS882)

Sl No	Item	Trident part No.	Quantity
1	Filter Element	AD433	1
2	Filter Top Cup	CD668	1
3	Filter Bottom Cup	CD669	1
4	Spare Kit Filter Bottom	AS443	1
5	Spare Kit Valve Double Poppet	AS444	1
6	Filter Element M250Y	AC077	1

Parts to be renewed in IOH schedule (AS881)

Sl No	Item	Trident part No	Quantity
1	Filter Element	AD433	1
2	Filter Top Cup	CD668	1
3	Filter Bottom Cup	CD669	1
4	Spare Kit Filter Bottom	AS443	1
5	Spare Kit Valve Double Poppet	AS444	1
6	Filter Element M250Y	AC077	1
7	Spare Kit Valve Shuttle	AS445	1
8	Spare Kit Valve Purge	AS446	2
9	Bag Cartridge desiccant	CD671	2
10	Spring Compactor	CD673	2
11	Spare Kit Seals Tower	AS447	1
12	Sub Assy Humidity Indicator	AD925	2
13	Gasket Pad Amisco Solenoid Valve	AS079A	2
14	Seal Kit Controller Box	AS709	1

Parts to be renewed in electrical spare kits Loco Dryer (AS659)

Sl No	Item	Trident Part No	Quantity
1	Controller loco Dryer	AD1224	1
2	Solenoid Valve	AS079	2
3	Pressure Switch	CE484	1

(C) (Kit for Air Dryer LD2000122 fitted on Electrical Locos including – WAG-7 & WAP-4)

Parts to be renewed in AOH Schedule (AS882)

Sl No	Item	Trident Part No	Quantity
1	Filter Element	AD433	1
2	Filter Top Cup	CD668	1
3	Filter Bottom Cup	CD669	1
4	Spare Kit Filter Bottom	AS443	1
5	Spare Kit Valve Double Poppet	AS444	1
6	Filter Element M250Y	AC077	1

Parts to be renewed in IOH Schedule (AS705A)

Sl No	Item	Trident Part No	Quantity
1	Filter Element	AD433	1
2	Filter Top Cup	CD668	1
3	Filter Bottom Cup	CD669	1
4	Spare Kit Filter Bottom	AS443	1
5	Spare Kit Valve Double Poppet	AS444	1
6	Filter Element M250Y	AC077	1
7	Spare Kit Valve Shuttle	AS706	1
8	Spare Kit Valve Purge	AS446	2
9	Bag Cartridge desiccant	CD671	2
10	Spring Compactor	CD673	2
11	Spare Kit Seals Tower	AS447	1
12	Sub Assy Humidity Indicator	AD925	2
13	Gasket Pad Amisco Solenoid Valve	AS079A	2
14	Seal Kit Controller Box	AS709	1

Parts to be renewed in electrical spare kits Loco Dryer (AS659)

Sl No	Item	Trident Part No	Quantity
1	Controller loco Dryer	AD1224	1
2	Solenoid Valve	AS079	2
3	Pressure Switch	CE484	1

(D) (Kit for Air Dryer LD2000132 fitted on EMU, DEMU & MEMU)

Parts to be renewed in POH /Eighteen Monthly Schedule (AS882)

Sl No	Item	Trident Part No	Quantity
1	Filter Element	AD433	1
2	Filter Top Cup	CD668	1
3	Filter Bottom Cup	CD669	1
4	Spare Kit Filter Bottom	AS443	1
5	Spare Kit Valve Double Poppet	AS444	1
6	Filter Element M250Y	AC077	1

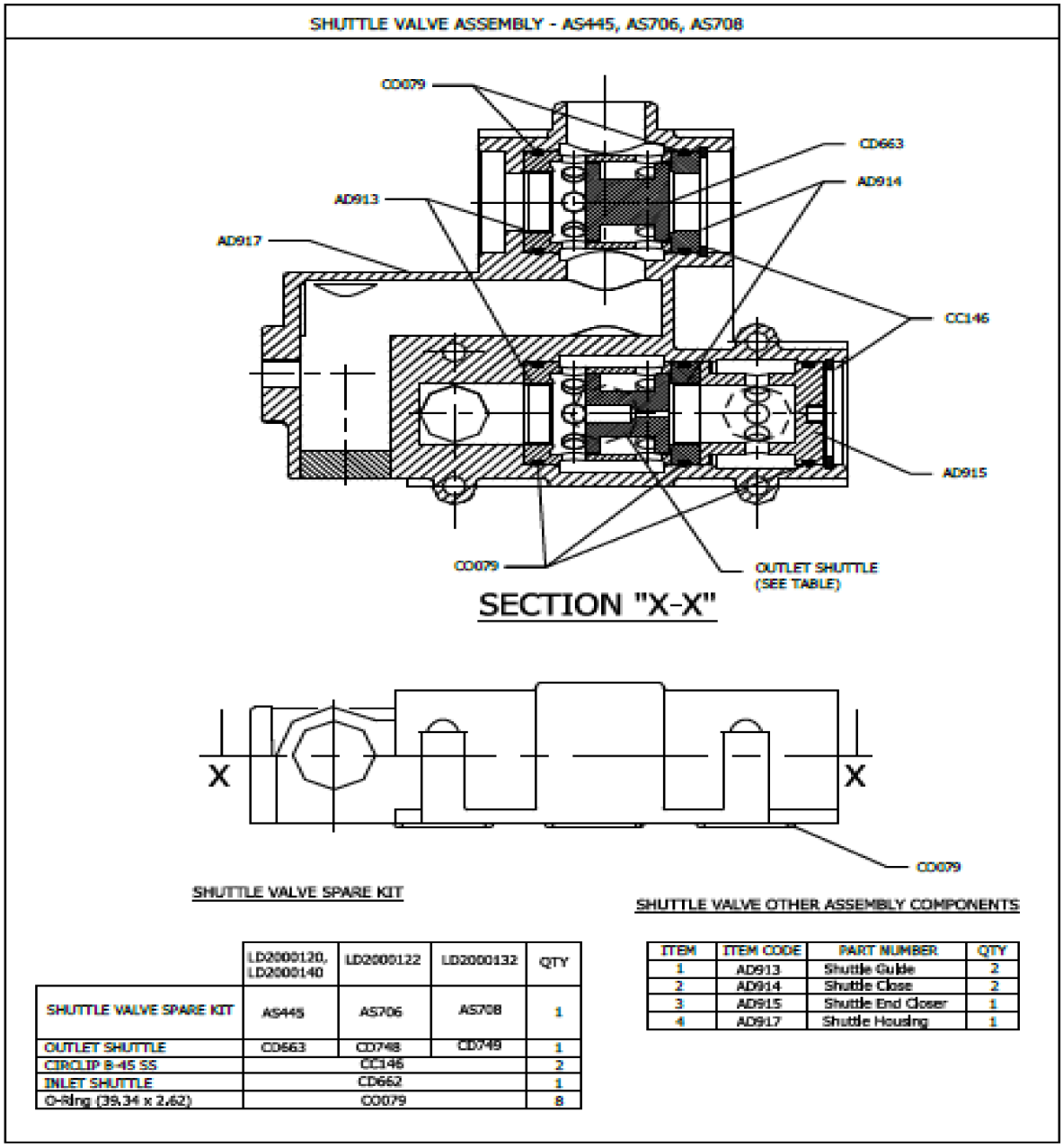
Parts to be renewed in Every Alternate POH schedule (AS707A)

Sl No	Item	Trident Part No	Quantity
1	Filter Element	AD433	1
2	Filter Top Cup	CD668	1
3	Filter Bottom Cup	CD669	1
4	Spare Kit Filter Bottom	AS443	1
5	Spare Kit Valve Double Poppet	AS444	1
6	Filter Element M250Y	AC077	1
7	Spare Kit Valve Shuttle	AS708	1
8	Spare Kit Valve Purge	AS446	2
9	Bag Cartridge desiccant	CD671	2
10	Spring Compactor	CD673	2
11	Spare Kit Seals Tower	AS447	1
12	Sub Assy Humidity Indicator	AD925	2
13	Gasket Pad Amisco Solenoid Valve	AS079A	2
14	Seal Kit Controller Box	AS709	1

Parts to be renewed in electrical spare kits Loco Dryer (AS659)

Sl No	Item	Trident Part No	Quantity
1	Controller loco Dryer	AD1224	1
2	Solenoid Valve	AS079	2
3	Pressure Switch	CE484	1

Fig. 9. Shuttle Valve Sectional View



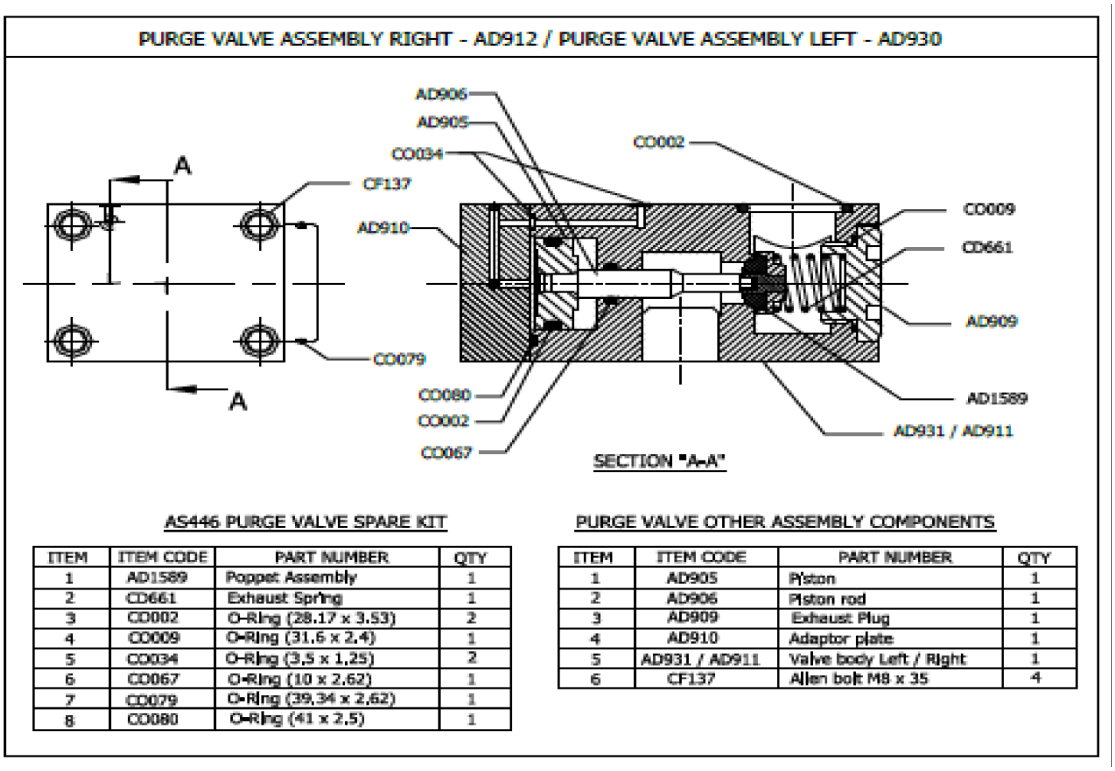
SHUTTLE VALVE SPARE KIT

	LD2000120, LD2000140	LD2000122	LD2000132	QTY
SHUTTLE VALVE SPARE KIT	AS445	AS706	AS708	1
OUTLET SHUTTLE	CD663	CD748	CD749	1
CIRCLIP B-45 SS	CC146			2
INLET SHUTTLE	CD662			1
O-Ring (39.34 x 2.62)	CD079			8

SHUTTLE VALVE OTHER ASSEMBLY COMPONENTS

ITEM	ITEM CODE	PART NUMBER	QTY
1	AD913	Shuttle Guide	2
2	AD914	Shuttle Close	2
3	AD915	Shuttle End Closer	1
4	AD917	Shuttle Housing	1

Fig. 10. Purge Valve Sectional View



AS446 PURGE VALVE SPARE KIT

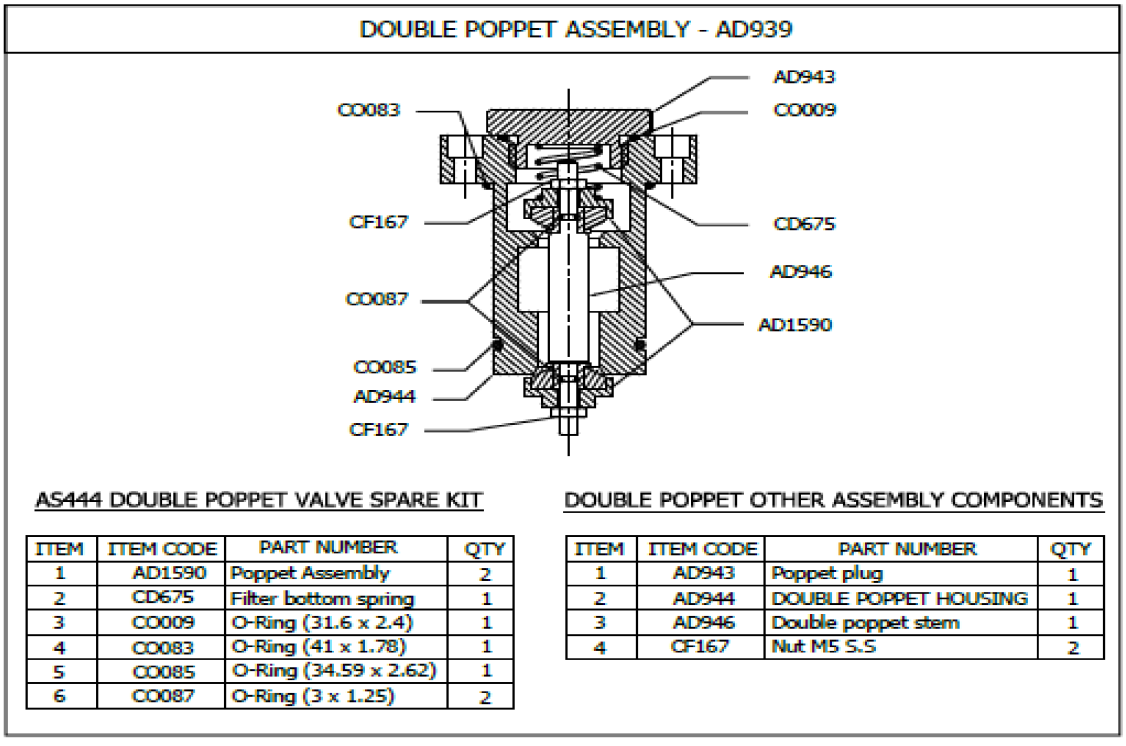
ITEM	ITEM CODE	PART NUMBER	QTY
1	AD1589	Poppet Assembly	1
2	CD661	Exhaust Spring	1
3	CO002	O-Ring (28.17 x 3.53)	2
4	CO009	O-Ring (31.6 x 2.4)	1
5	CO034	O-Ring (3,5 x 1,25)	2
6	CO067	O-Ring (10 x 2.62)	1
7	CO079	O-Ring (39,34 x 2,62)	1
8	CO080	O-Ring (41 x 2,5)	1

PURGE VALVE OTHER ASSEMBLY COMPONENTS

ITEM	ITEM CODE	PART NUMBER	QTY
1	AD905	Piston	1
2	AD906	Piston rod	1
3	AD909	Exhaust Plug	1
4	AD910	Adaptor plate	1
5	AD931 / AD911	Valve body Left / Right	1
6	CF137	Allen bolt M8 x 35	4

Fig. 11. Drain Valve Assembly Sectional View

Fig. 12. Double Poppet Assembly Sectional View



AS444 DOUBLE POPPET VALVE SPARE KIT

ITEM	ITEM CODE	PART NUMBER	QTY
1	AD1590	Poppet Assembly	2
2	CD675	Filter bottom spring	1
3	CO009	O-Ring (31.6 x 2.4)	1
4	CO083	O-Ring (41 x 1.78)	1
5	CO085	O-Ring (34.59 x 2.62)	1
6	CO087	O-Ring (3 x 1.25)	2

DOUBLE POPPET OTHER ASSEMBLY COMPONENTS

ITEM	ITEM CODE	PART NUMBER	QTY
1	AD943	Poppet plug	1
2	AD944	DOUBLE POPPET HOUSING	1
3	AD946	Double poppet stem	1
4	CF167	Nut M5 S.S	2

Fig. 13. Humidity Indicator Sectional View - AD925

6. Trouble Shooting Instructions

Only qualified persons in electro-pneumatic systems installation should perform the repair operations described in this section.

Problem	Cause	Solution
1 No purging of drying Towers	• PCB problem	• Change Controller PCB
	• Orifice block	• Remove the shuttle and clean the orifice
2 Very high Purge Loss during Regeneration		
2.1 Tower 1	• Dust or particles in the shuttle guides	• Clean the Shuttle guides
	• Plunger and Spring of solenoid valve may be damaged	• Clean the damaged parts
	• Solenoid valve orifice may be partially choked	• Clean the Solenoid valve orifice
	• Piston stuck in Purge valve Tower 1	• Service valve or replace
	• Tower 1 Purge valve Poppet damaged	• Check and replace the poppet
	• Double poppet valve poppet damaged	• Check and replace the poppet
2.2 Tower 2	• Dust or particles in the shuttle guides	• Clean the Shuttle guides
	• Plunger and Spring of solenoid valve may be damaged	• Clean the damaged parts
	• Piston stuck in Purge valve Tower 2	• Service valve or replace
	• Solenoid valve Orifice may be choked	• Clean the choked orifice
	• Tower 2 Purge valve Poppet damaged	• Check and replace the poppet
3 Moisture at the outlet	• Inlet air oil level may be more than 20 ppm or filter element life may be gone	• Replace filter element or check the inlet air oil content
	• Cycle may not be changing	• Change Controller
	• Purge may not take place during regeneration	• Service the valves
	• Bottom or top shuttle face damaged	• Change the shuttle

	Problem	Cause	Solution
4	Humidity Indicator is white	• In/Out Dummy cap may be removed during storage of dryer. • Allowing the air to pass through the dryer without giving power supply	• Keep the dryer In/Out closed condition. During storage keep dryer in original packing. • The indicator color turns blue automatically when the dryer is running.
5	Higher Differential Pressure across the dryer	• Pre-filter element may be choked • Drying Tower or Filter tower Gasket leaks	• Check and replace the pre-filter element • Check and Replace the Gaskets

7. Test Specification

Only qualified persons in electro-pneumatic systems testing should perform the Testing of Air dryer described in this section.

After Locodryer has been assembled, but before it is returned to service, it must pass a series of tests as listed below

1. Test the dryer for a nominal flow of 1500 lpm at 7 -8 kg/cm^2.
2. Check for leakage in the Dryer.
3. Check the operation of controller at various voltages ranging from 48 to 138 V D.C.
4. Check the controller memory feature
5. Measure the pressure drop across the dryer.
6. Measure the regeneration and repressurisation cycle time.
7. Measure the purge loss.
8. Measure the dew point depression.

Also, refer Trident functional Qualification test Plan TPPL/IR/FQT/01.

After installing a New or Serviced Trident Locodryer in the locomotive, a stationary test must be made to be sure that the Air Dryer has no leakages and functions properly in the total air brake arrangement.

Consult Trident Pneumatics Representatives, if additional information is required.

8. Commissioning report

Dryer Model	Customer (Full Address)
Serial No.	
Commissioning date	
Result of Commissioning	Successful / Pending

Condition while unpacking.

Comments / Remarks if any

Installation:

a. Installation at	Before MR1 and MR2 receiver
b. Inlet Air Temperature	Normal / High
c. Side clearance provided	Yes / No
d. Power Grounded	DC
e. Air Flow Outlet	Normal / Faulty
f. Change over sequence	Normal / Faulty

Tower 1 and 2 Drying	Yes / No
Depressurizing	Yes / No
Regeneration	Yes / No
Air loss	Normal/ faulty
Humidity Indicator	Normal/ faulty
Differential pressure Indicator	Normal/ faulty

Comments

Signature & Name of Installing Engineer

Customer Signature & Seal

Signature of Regional Engineer

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Other Range of Products

Compressed Air Condensate Automatic Drain Valves	 CTD	 LDV	 EDV-X
Filters	 Cleansweep	 VXD-2	 Air Filters
Compressed Air Dryers	 Dryspell Plus	 Coldspell	
Custom Solution Products	 DP Series	 DH Series	 DB Series
Medical Air & Gas Products	 Medical Breathing Dryer	 Nitrogen Generator	 Onsite Oxygen Plant

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