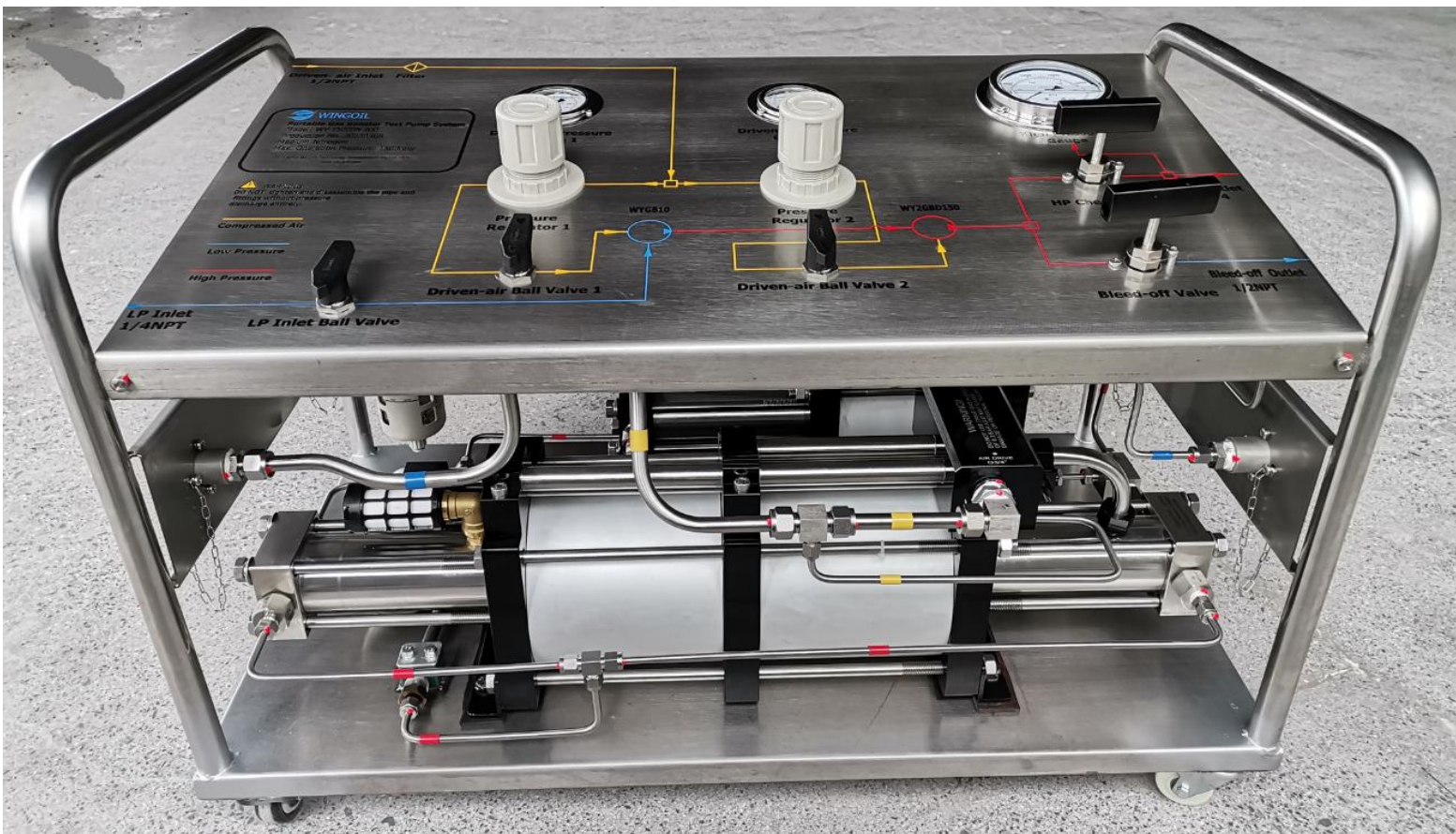


# WY-15000N-BJ0 Portable Gas Booster System Operation Manual



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# 1. Introduction

WY-15000N-BJ0 Portable Gas Booster System is a kind of pressure test equipment developed and produced by Wingoil to meet the injection of different media such as Nitrogen and CO<sub>2</sub> media. It has a compact structure, The overall no-load design weight is about 82kg. The equipped pumps, valves and pipelines are made of stainless steel, which can withstand the harsh working conditions of high temperature and high pressure. The equipment uses compressed air as the power source, with low energy consumption. This equipment is suitable for Nitrogen and pressure test of various pressure vessels, pipelines and valves.

WY-15000N-BJ0 is customized according to the requirements of customers. It is mainly used for the pressurization equipment of Nitrogen pressurization. The theoretical maximum service pressure of the equipment is 15000psi.

This is high pressure equipment, so there is risky if any wrong operations. Please read this manual carefully before using the equipment.

## 1.1 Safety Rule

- 1) Equipment operation should be in accordance with process by professional or trained staffs;
- 2) Do not causally apart or change every connector, especially high-pressure nipple and safety valve nipple;
- 3) Routine maintenance should be taken in a certain period time;
- 4) Driven air power must be cut off after using equipment, complete unloading.



### **Warning**

***Do NOT tighten pipeline and fittings under pressure***

***Only clean water can be the testing medium, please confirm us ahead if use other medium or mixed liquid.***

## **1.2 System piping color-coded instructions**



### **NOTICE**



Compressed Air



Low Pressure Medium



High Pressure Medium

## **1.3 After-Sales Service**

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## 2. Working Principle

### 2.1 Characteristics

- Low pressure compressed air is used as the booster power source, which is convenient, safe and environmental friendly.
- Equipment adopts portable structure, with light weight and convenient transportation and movement.
- Use low-pressure compressed air as driven power to keep convenience and safe.
- With the function of pressure self-locked to adjust output pressure keeps constant in case of overshoot under air-driven pressure setting constant.
- Pressure is displayed by double-scale vibration-proof pressure gauge.

### 2.2 Schematic Diagram

Referred as attachment 1

## 3. Instruction

### 3.1 Working Condition

Ambient temperature: 0~ +60°C

Power supply: No

Driven Air: 0-145 Psi

Medium: Nitrogen

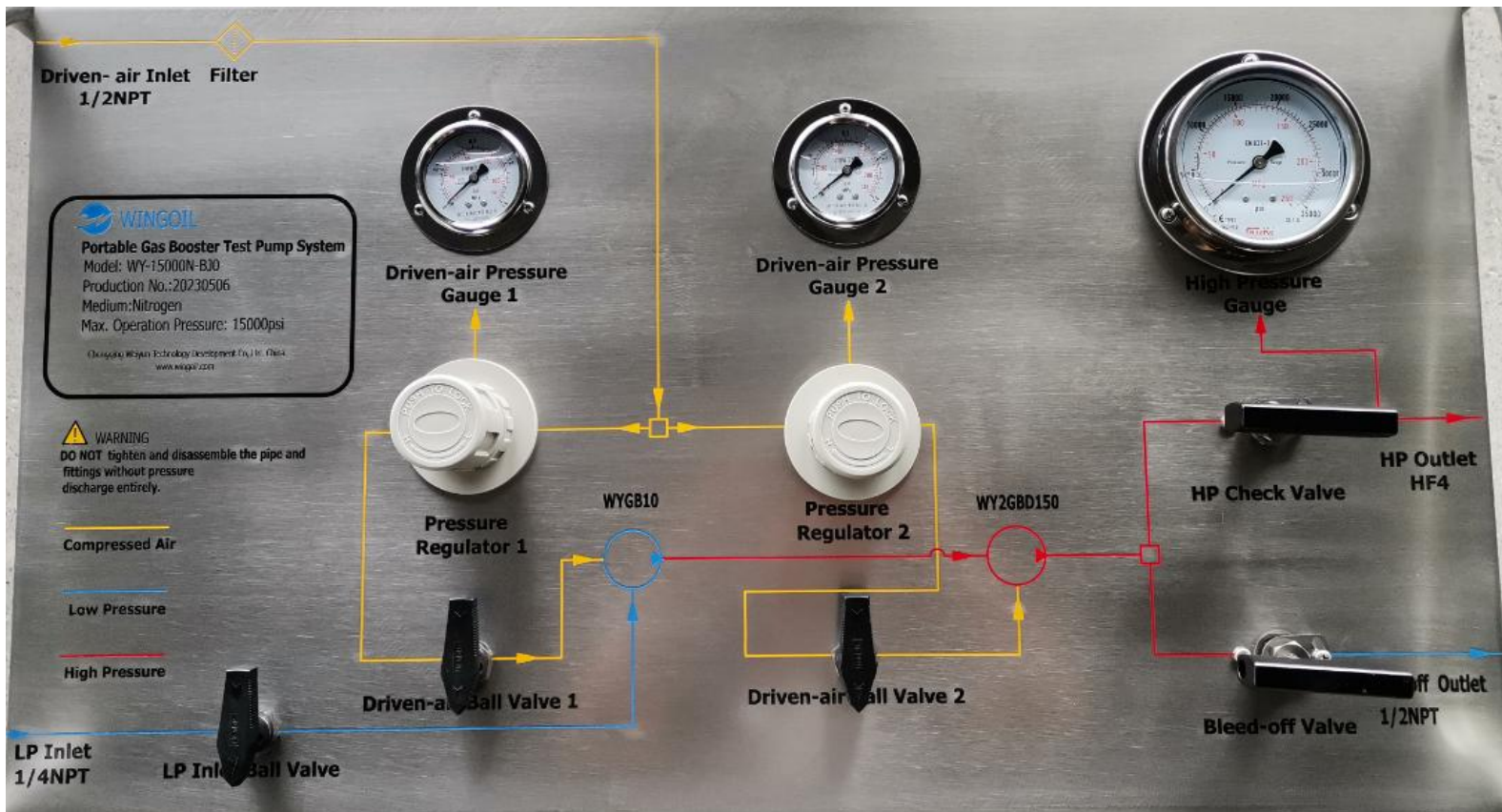
## 3.2 Technical Data

- 1) Testing Medium: Nitrogen
- 2) Max. Output pressure: 15000 Psi
- 3) Max. Flow: 297 LN/min@100psi inlet pressure
- 4) Driven-air Max. Operating pressure: 145 Psi
- 5) Connector:
  - Compressed air inlet: 3/8"NPT(F)
  - High-pressure outlet : HF4
  - LP inlet: 1/4"NPT(F)
- 6) Dimension: 900L×500W×600H mm
- 7) Valve rated pressure: 20000 Psi

**Note:** Connection and the operating panel flow chart are corresponding to the position indicated by the arrow.

### 3.3 Main Components

Function description: Portable Gas Booster System is consist of pressurized pump, pressure regulator, check valve, bleed-off valve and pressure gauge.



#### 3.3.1 Booster Pump

**Model 1: WYGB10**

Pressure ratio: 1:10

Max. Outlet pressure: 1,200 psi

Driven type: Compressed air driven

Control type: Manual

**Model 2: WY2GBD150**

Pressure ratio: 1:150

Max. Outlet pressure: 18,000 psi

Driven type: Compressed air driven

Control type: Manual



### 3.3.2 Driven-air Filter

Material: Rubber & Alloy

Model: EAF4000(Easun, China)

Max working pressure: 145PSI

Size: G1/2"

Driven-air filter provides clean compressed air and effectively filters moisture and dust not only in the compressed air, but also in the integrated auto drainage pipeline.



### 3.3.3 Driven-air Regulator

Material: Rubber & Alloy

Model: EAR4000(Easun, China)

Max working pressure: 145PSI

Size: G1/2(F)"

Usage: adjust air pressure of low pressure pump, based on the pressure to estimate maximum output pressure of the low-pressure pump,specific reference to 3.1.1



### 3.3.4 Driven Air Ball Valve

Model : BV-03OD (Rikun, china)

Material: 316 stainless steel

Maximum working pressure: 400 Psi

Usage: compressed air circuit for controlling the booster pump

#### ON/OFF Instruction



**Driven-air Ball Valve**

**ON**



**Driven Air Valve**

**OFF**



### 3.3.5 Driven-air Gauge

Model: BLD-YZ60/1.6      Material: 304 stainless steel

Max working pressure:230PSI      Diameter: 60mm

Accuracy grade:1.6%      Type:shock-proof

Connection: M14x1.5

Usage: observation of driven air after pressurization.



### 3.3.6 High Pressure Gauge

Model: YB100-ZT-250      Material: 304 stainless steel

Range: 0~250MPa/0~35000PSI+

Connection: HF4      Accuracy grade:1.6%

Usage: observation of medium pressure after pressurization.



### 3.3.7 High Pressure Check Valve

Material: 316 stainless steel      Model: HS20122

Maximum operating pressure: 20000 Psi

Usage: cut off the connection between the outlet of high pressure pump and the workpiece, but can not cut off the connection between outlet of low-pressure pump and the workpiece.



### 3.4 Operation



#### Warning

**Please stay away from high-pressure outlet when the equipment is running.**

**Turn on high pressure check valve while unloading pressure and stay away from discharge outlet.**

#### 3.4.1 Connect the external pipelines

Water inlet pipeline, the driven-air pipeline, high pressure pipeline and discharge pipeline. If the water impurities, you need to install a filter in front of the inlet. Single pump air consumption is  $1\text{m}^3 / \text{min}$ (Max.  $1.2\text{m}^3 / \text{min}$ , two pumps simultaneously gas consumption  $2\text{m}^3 / \text{min}$  to ensure adequate air compressor supply;

#### 3.4.2 Check valve status

##### 3.4.2.1 Pressure regulator:

A. Pull the button up



B. Then turn it counterclockwise,



Until the knob is loose

C. The pressure indicator should be 0.



### 3.4.2.2 Driven-air valve

A. Close the driven-air valve

(off)



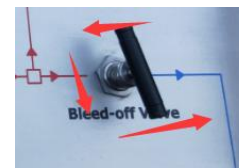
### 3.4.2.3 HP check valve

Rotate counterclockwise until it cannot be turned.



### 3.4.2.4 Bleed off valve

Rotate counterclockwise until it cannot be turned.



After checking the status of the above valves, you can carry out pressure test operation.

## 3.4.3 Pressure Test

### 3.4.3.1 Close the bleed off valve

Rotate clockwise until it cannot be turned.

### 3.4.3.2 Open Driven-air Valve

### 3.4.3.3 Set pressure regulator

Rotate the pressure regulator clockwise, and the pump will also start working, you will find the both pressure gauge indicators' value will gradually increase.



If the pressure reaches the value you want to set, press down the pressure regulator to lock the driven-air pressure value.



### 3.4.3.4 Close HP check valve(Pressure Hold)

After high pressure guage reaching the test pressure, Rotate the HP check valve clockwise until it cannot be turned to close HP check valve.

After completing the above operations, the machine starts to holding pressure



## 3.4.4 Pressure relief

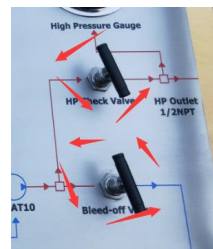


### 3.4.4.1 Close driven-air Valve



### 3.4.4.2 Open bleed off valve and HP check valve

High-pressure pressure indicator will be zero, indicating that the unloading is complete.



### 3.4.4.3 Remove the external pipeline

Remove the external pipeline and restore all valves to the initial state, and the pressure test operation is complete.

**3.4.5 After the pressure testing**, turn off slowly the high-pressure check valve and high pressure bleed-off valve. Discharge water to a certain location through the high pressure discharge outlet, till the display on gauge is ZERO;



NOTICE: open the valves slowly while discharging pressure, otherwise damage the low pressure pipe at the outlet of tank.

### **3.4.6 Disconnect the pipeline and clean the device after pressure testing**



*NOTICE: When disconnect the drive-air pipeline should turn off the outlet valve of gas tank or compressor, turn on the low-pressure pump driven valve, discharge the air remaining in the compressed air line until driven-air pressure gauge indicates to ZERO. Then remove the air pipeline. It is hazard to remove the air pipeline directly if there is indication on driven-air pressure gauge.*

## **4. Maintenance**



NOTICE: Cut off driven air before it's maintained.

### **4.1 Maintenance for Long-term Stop Usage**

For keep excellent operation it should take following steps:

- 1) Cut off driven air pipeline
- 2) Close all switches in control panel
- 3) All the outside connectors shall be sealed
- 4) Do as the form in Chapter 4.2.4 every two month to prevent sealing ring from aging.

## 4.2 Routine Maintenance



### **Warning**

Ensure Driven air is cut off and every pressure is unloading before its maintenance.

Maintenance should be taken by professional trainee.

### **4.2.1 Booster pump and high-pressure elements**

Adopted pressurized and high-pressure elements are both kinds of high accuracy which requires inspection and maintenance by professors. Please contact us if anything wrong.

### **4.2.2 Pressure Regulator**

Regulator is used for output pressure adjusting. to adjust the output pressure of the elements of the device, and its main role is to come from the air compressor (gas tank) of 0.8Mpa air pressure adjusted to fit the device from the pressure regulator corresponding mechanical pressure gauge,It can display time-driven air pressure. Use, pulls out regulator adjustment handle clockwise rotation regulator handle (H logo direction), increase drive air pressure can be achieved; counterclockwise rotation of the handle (L identifies directions), enabling the drive air pressure decreases, after adjustment is completed, press regulator handle, self-locking regulator.

### 4.2.3 Usage and maintenance of air filter

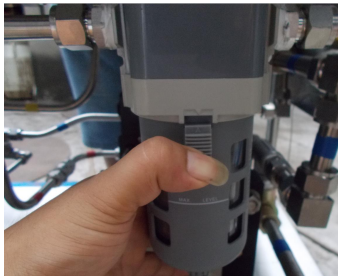
Air filters is used to filter the impurities and water in the driven-air.

It's should be installed at the compressor outlet of the filter.

This secondary filter blocks small impurities.If driven-air is not clean enough or used for a long term, the filter glass may have some water and impurities.

When the filter stops working, water inside the cup will be automatically discharged, but the impurities should be regularly cleaned as follows:

#### Auto Drainer



**Press this button → rotate to this location → remove the cup**

### 4.2.4 Parts Maintenance

Item	Maintenance period
Water inlet filter: Open the filter and get screens out to clean.	Once per month
Auto drainer: inspect storage condition	Once per month
Panel: clean dust	Twice per month
Pressure gauge: send to institutes for regularly inspection	Once per year

# Attachment 1

## Schematic diagram

