



FIT BY BLUE

FLEXIBLE INDUSTRIAL TOOLS & TRANSPORT SOLUTIONS

Operating Manual

Product: Tankless D.C. Air Compressor (Alpha model) 12V & 24V (Cased)

1. Features of Tankless Air Compressors
2. Product Specifications (Standard Model)
3. Product Specifications (Alpha Model)
4. Structure of Tankless Air Compressors
5. Circuit diagram (Standard Model)
6. Circuit diagram (Alpha Model)
7. Installation of Tankless Air Compressors
8. Use of Tankless Air Compressors

1. Features of Tankless Air Compressors

Our Tankless Air Compressor is the best innovative product that has been tested for quality in Korea and produced considering low noise, high efficiency, and even environmental protection and safety in use through the process of being optimized to the working environment of the heavy equipment from the design stage. Moreover, it is the best product that not only improves the basic performance of the product, but also has the miniaturization of products and perfect durability, based on the “Bernoulli's Principle”, despite the fact that air tanks, which had been considered necessary to maintain constant air pressure during the optimal time, were boldly eliminated.

■ Product features

- ▷ It is easy to maintain the product with 「Oilless type」 .
- ▷ 「PTFE Piston Ring」 is used for strong durability.
- ▷ It has built-in 「Temperature Switch」 , preventing the motor from damages due to overheating.
- ▷ It is equipped with 「Cooling Fan」 so that it can completely protect the product from the heat generated by the motor and the compression zone.
- ▷ It is equipped with 「Purge Valve」 to eliminate the mechanical load at the time of restart.
- ▷ It is equipped with 「Safety Valve」 so that it can protect the product perfectly in emergency situations in which pressure is not controlled.
- ▷ It is equipped with 「Closed Pressure Switch 」 which is safe from vibration and external contamination.
- ▷ It ensures complete durability with 「Rig Test for 1,000 hours」 through lot-unit sampling.

■ Operating principles

- ▷ It works with a crank sliding mechanism as it is based on a reciprocating piston type operated by a motor.
- ▷ In the case of the rotational movement of crank shaft, the piston is converted into a reciprocating motion which compresses the volume inside the cylinder.
- ▷ The intake and exhaust valves are positioned at the top of the cylinder, and if the piston is pushed down, the valve plate opens to suck in air, and, on the contrary, if the piston is pushed up and the air is compressed, it works by sending air out through the exhaust line.
- ▷ There is a built-in temperature switch to stop the motor if the internal temperature of the motor exceeds 100°C due to abnormalities in components while the air compressor is being operated, and then when it cools naturally enough to keep the temperature inside the motor below 70°C, it automatically operates again.

2. Product Specifications (Standard Model)

■ Standard Model

Classification	DC12V	DC24V	Remarks
Operational voltage	DC 10~14V	DC 20~33V	
Rated voltage	DC 13,8V	DC 28,5V	
Rated output	150W	200W	
Rated current	25A Max.	18A Max.	
Rated revolution	2,000rpm ± 5%	2,600rpm ± 5%	
Waterproof class	IP65		IP6X & IPX5 (in accordance with the standard of IEC 60529 IP65)
Operating temperature range	-40°C ~ 85°C		
Charge pressure range	0~10 bar		
Static pressure range	10±0,5 bar		
Restart pressure	8,0±0,5 bar		
Balance maintenance pressure	2,5±0,5 bar	3,0±0,5 bar	
Product size(LxWxH)	400x140x210(mm)		
Product weight	About 12kg		
Noise	80dB(A) Max.		
EMC certification	EN13309 certification		

3. Product Specifications (Alpha Model)

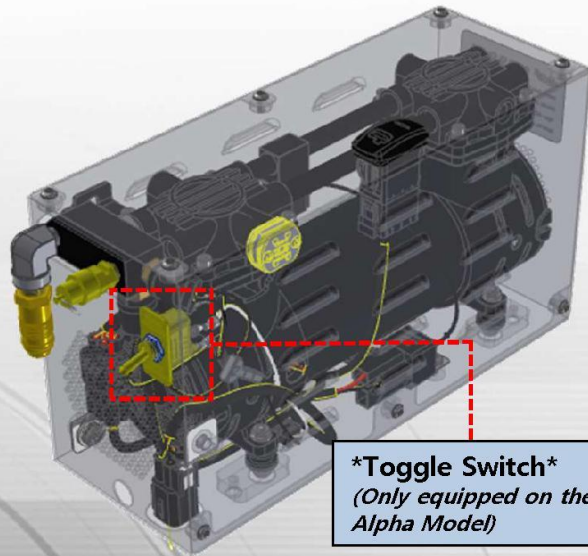
■ Alpha Model

Classification	DC12V (Alpha)	DC24V (Alpha)	Remarks
Operational voltage	DC 10~14V	DC 20~33V	
Rated voltage	DC 13,8V	DC 28,5V	
Rated output	150W	200W	
Rated current	32A Max.	23A Max.	
Rated revolution	2,000rpm ± 5%	2,600rpm ± 5%	
Waterproof class	IP65		IP6X & IPX5 (in accordance with the standard of IEC 60529 IP65)
Operating temperature range	-40°C ~ 85°C		
Charge pressure range	LOW : 0~10bar / HIGH : 0~13 bar		
Static pressure range	LOW : 10±0,5 bar / HIGH : 13±0,5 bar		
Restart pressure	LOW : 8±0,5 bar / HIGH : 10±0,5 bar		
Balance maintenance pressure	2,5±0,5 bar	3,0±0,5 bar	
Product size(LxWxH)	400x140x210(mm)		
Product weight	About 12kg		
Noise	80dB(A) Max.		
EMC certification	EN13309 certification		

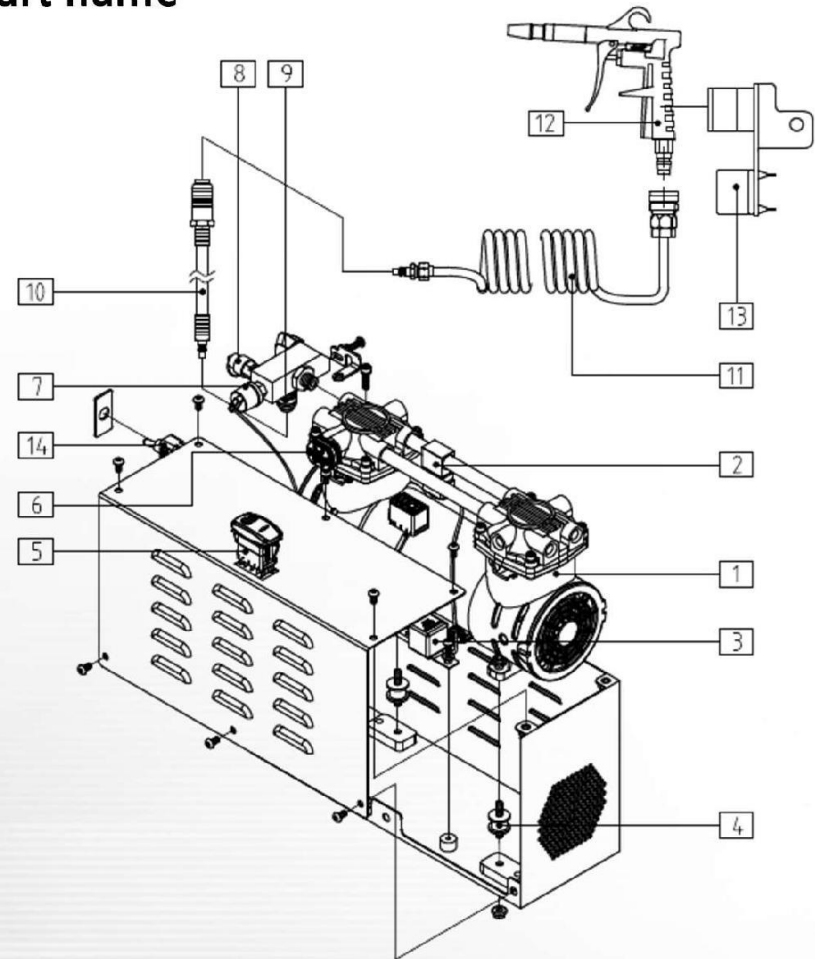
4. Structure of Tankless Air Compressors

■ Composition of the product and each part name

NO	PART NAME	NO	PART NAME
1	MOTOR	8	SAFETY VALVE
2	PURGE VALVE	9	QUICK COUPLER
3	RELAY	10	AIR HOSE
4	MOUNTING RUBBER	11	COIL HOSE
5	ON-OFF SWITCH	12	AIR GUN
6	FILTER	13	AIR GUN BRACKET
7	PRESSURE SWITCH	14	TOGGLE SWITCH

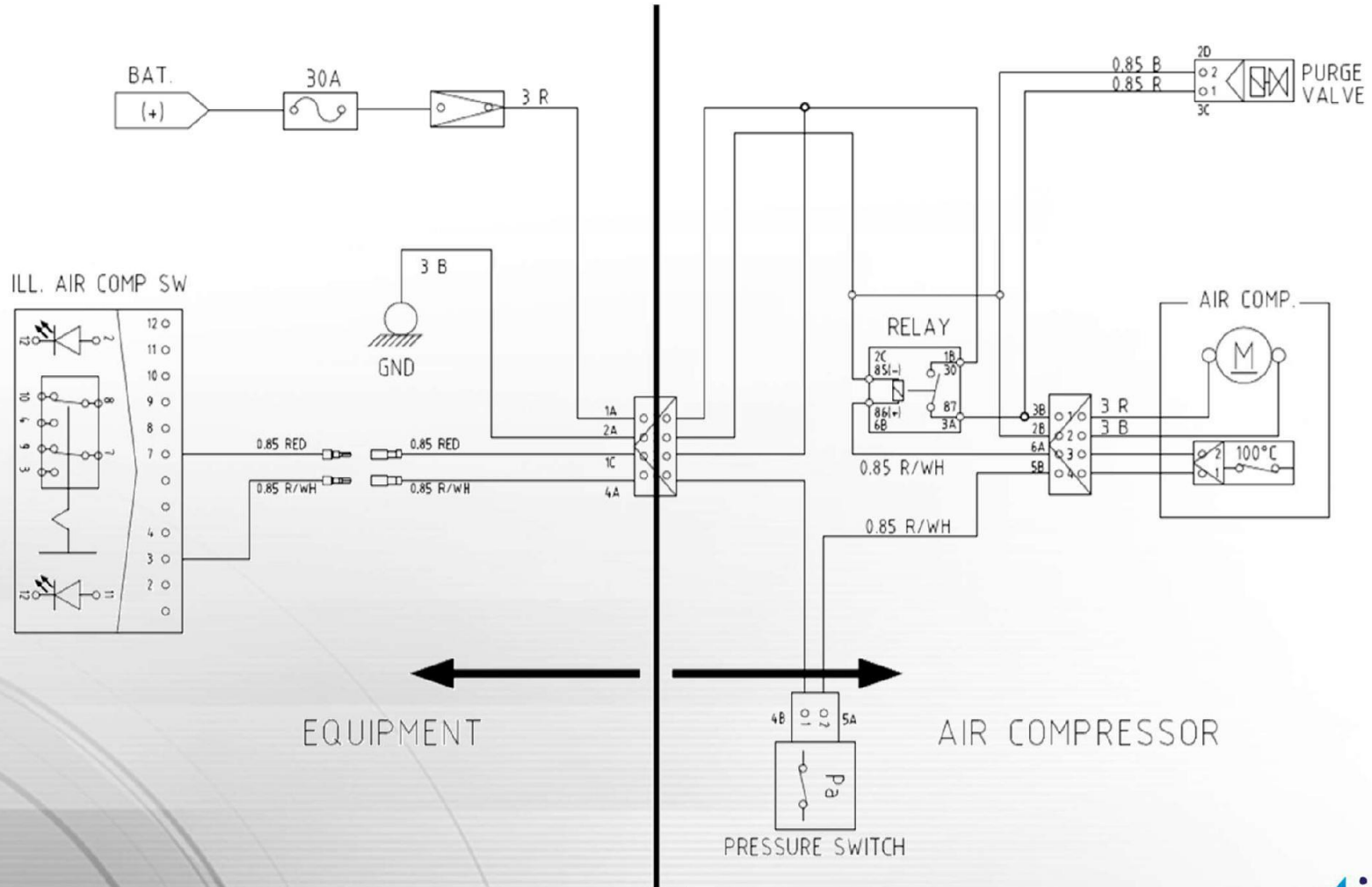


Toggle Switch
(Only equipped on the Alpha Model)



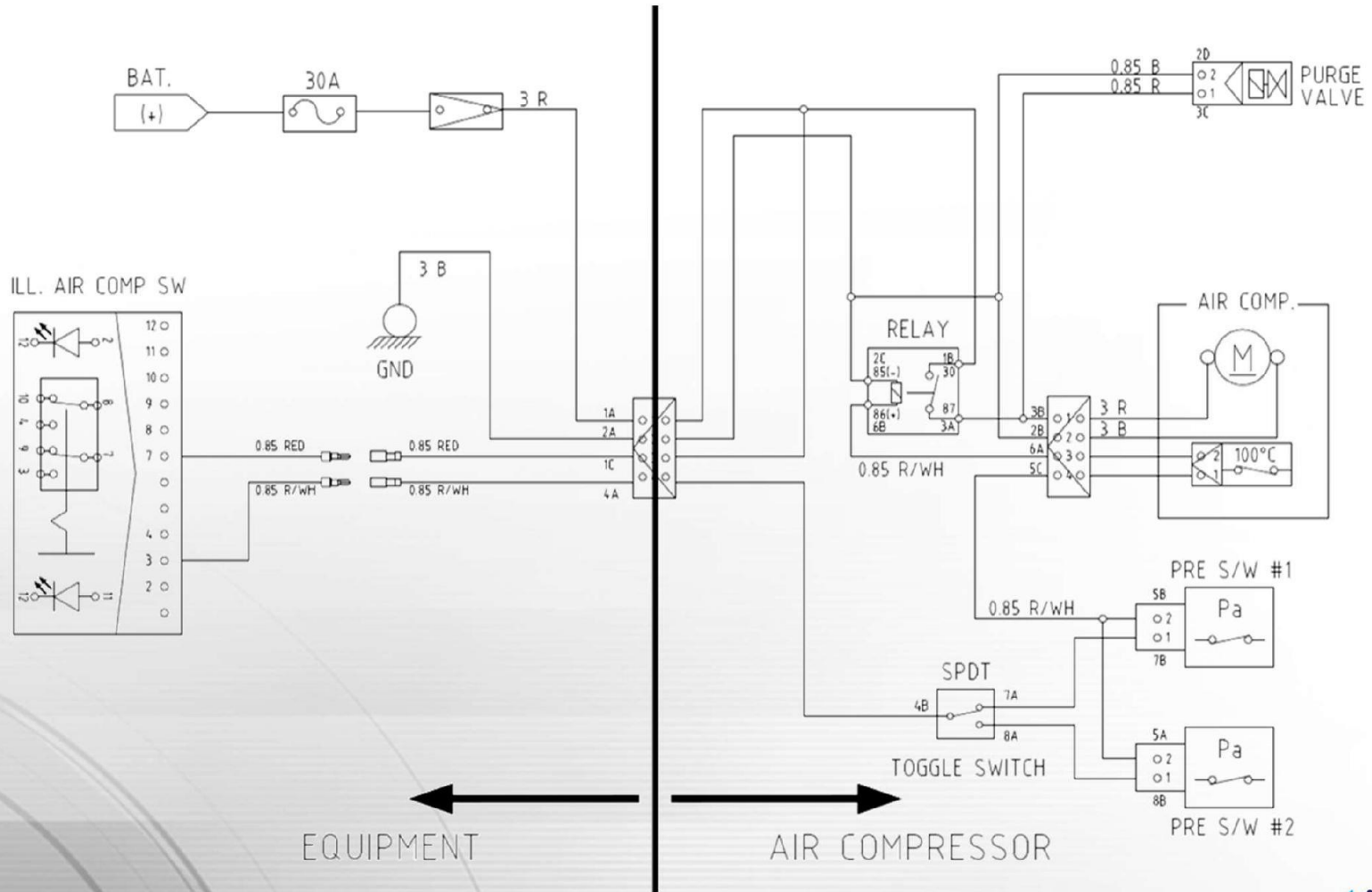
5. Circuit diagram (Standard Model)

■ Circuit diagram of the electrical system (Standard Model)



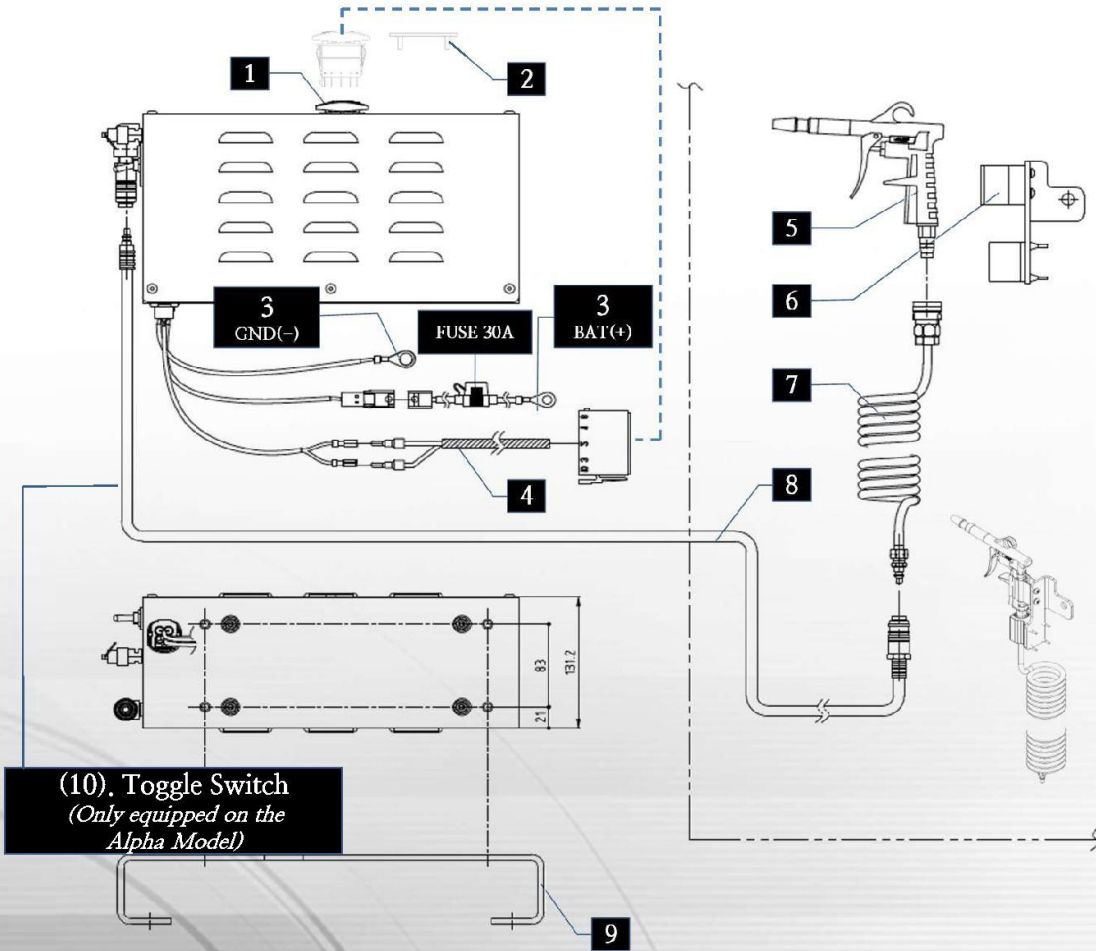
6. Circuit diagram (Alpha Model)

■ Circuit diagram of the electrical system (Alpha Model)



7. Installation of Tankless Air Compressors

■ Product installation method



1. Switch

▷It is a switch that turns the air compressor on and off.

It can be installed in the air compressor body or in the operator's cap of the equipment to be installed.

2. Switch cover

▷It is a cover to block foreign matters entering the hole to which the switch is installed when removing it from the air compressor body.

3. Main harness

▷It is a cable that supplies power to the product by connecting it to the power supply of the equipment to operate the air compressor.

▷The air compressor can be operated by connecting only GND and BATTERY(+) according to the numbering of the two lines.

▷GND :Connect it directly to the (-) terminal of the battery or loosen the existing bolts in the frame of the equipment.

(Ring terminal size : Ø10.5)

▷BAT(+):Connect it to the battery (+) terminal of the equipment or to the (+) terminal of the starting relay.

It is recommended to connect it to the (+) terminal of the starting relay to prevent discharge of the battery.

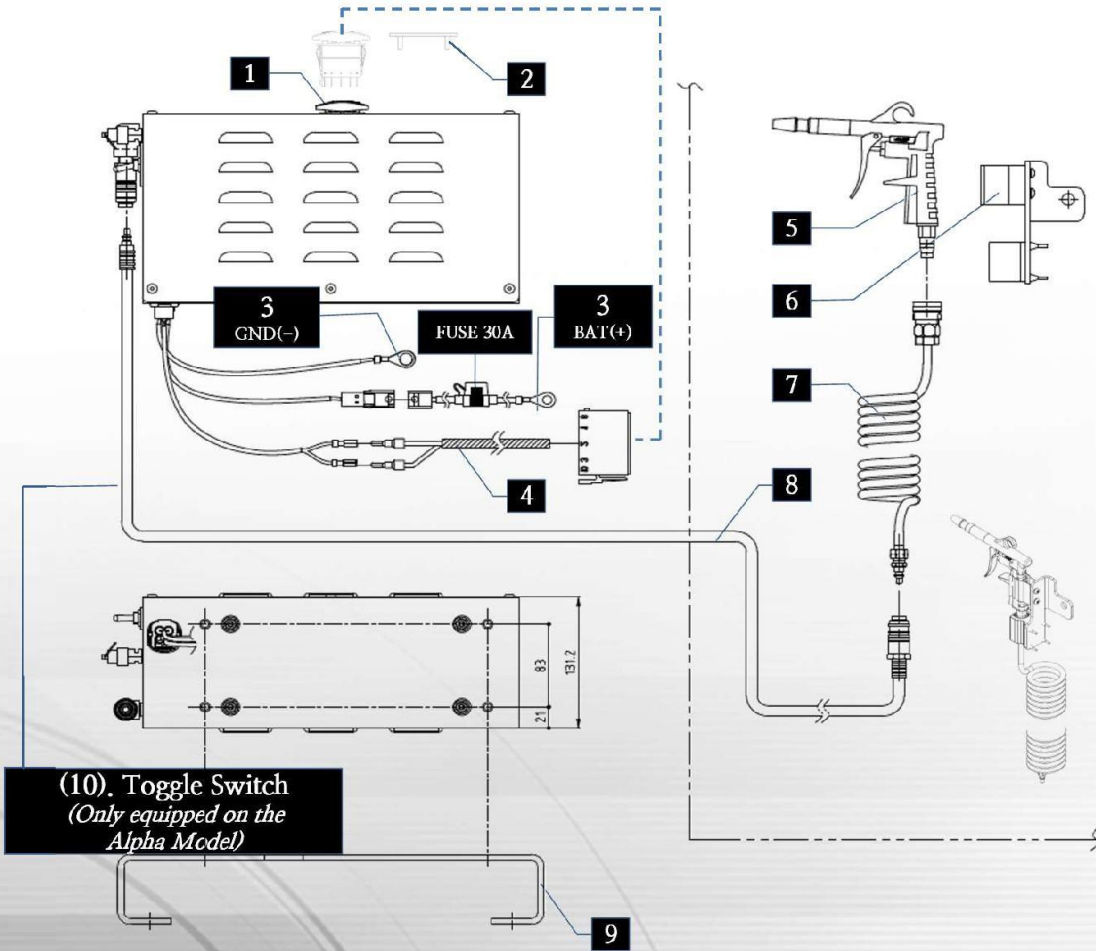
4. Switch joint harness

▷It is a cable used to install the switch of the air compressor in the operator's cap of the equipment.

▷If the length of the switch joint harness is insufficient for installation to the operator's cap because positions in which air compressors are installed are different for each equipment, prepare a separate cable to connect it.

▷In case of installing the switch of the air compressor in the operator's cap of the equipment, remove the switch on the body, then insert it into the Spare Switch Hole of the equipment, and then connect the switch joint harness.

■ Product installation method



5. Air gun

▷ It is an air gun only for tankless products. General air guns sold in the market can't be used because the balance maintenance pressure is lowered when it is connected.

6. Air gun bracket

▷ It is a device that keeps the air gun by putting it in the clip after fixing the bracket to the proper position in the equipment. (Ø13 HOLE)

7. Coil hose

▷ It is a 7.5meter hose that connects the air gun to an air compressor or a high-pressure hose.

8. High-pressure hose

▷ It is a hose that connects the coil hose of the air gun with the air compressor.

9. Bracket

▷ It is a bracket that secures the air compressor to the equipment by fixing the existing HOLE of the equipment with a bolt or by welding it.

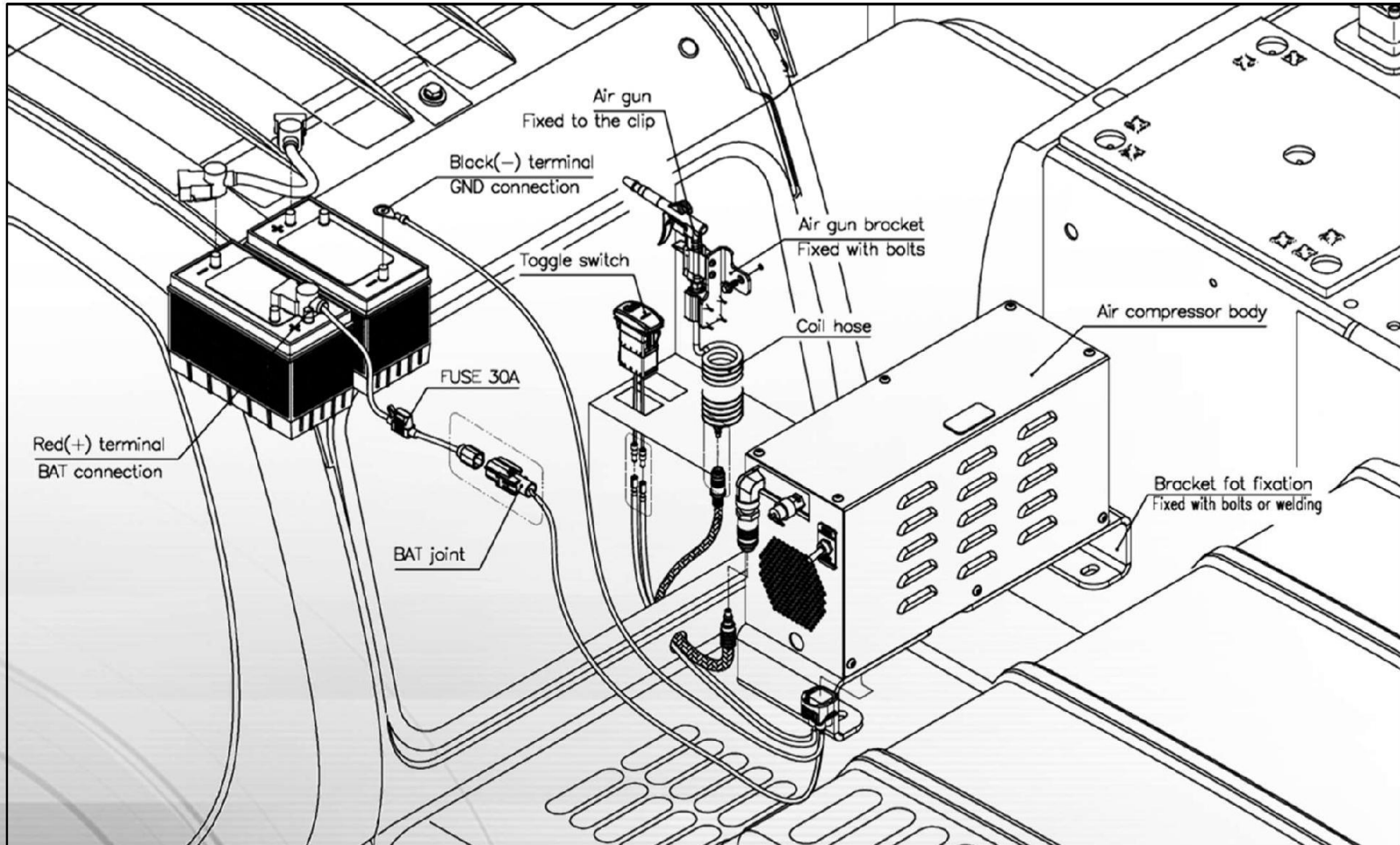
▷ Specification of a bolt to be mounted: M8×P1.25

10. Toggle switch

▷ It is a switch to select Low and High pressure mode. When the switch is set to low pressure, it can be used in standard model with maximum pressure of 10bar and maximum pressure of 13bar when set to high pressure.

▷ The toggle switch is only equipped on the Alpha Model.

■ Outline of the product installation

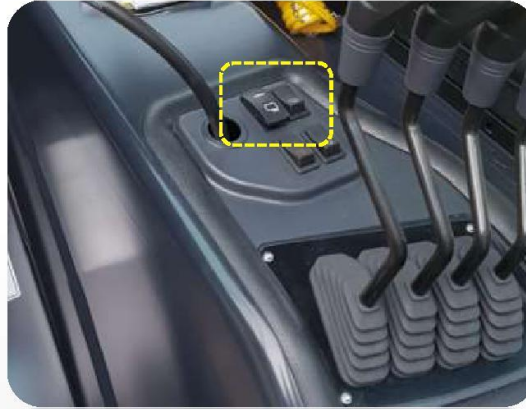


■ Illustration of installation for each part

Switch(embedded in the air compressor)



Switch(installed in the operator's cap)



Switch cover



Battery connection(BAT(+) terminal)



GND connection(equipment frame)



Air gun bracket



■ How to use *Standard Model & Alpha Model (At low-pressure mode)*

▷If you turn on the power switch of the air compressor, the pressure reaches 10bar within about 5 seconds,

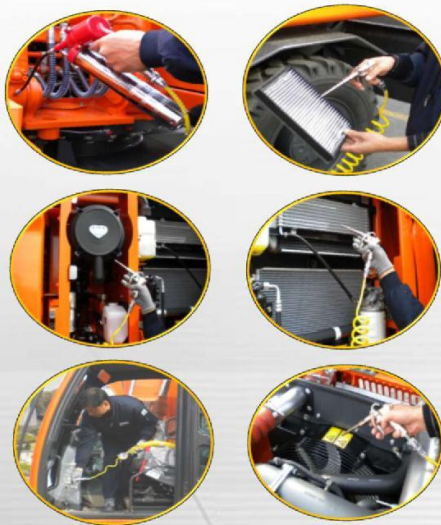
▷If you repeat pressing or loosening the trigger of the air gun at intervals of 1 to 2 seconds, a pressure of 7.5 to 9.5 bar is produced.

▷If you keep pressing the trigger of the air gun, 220Lpm of the compressed air is ejected from it at 3bar of the balance maintenance pressure.

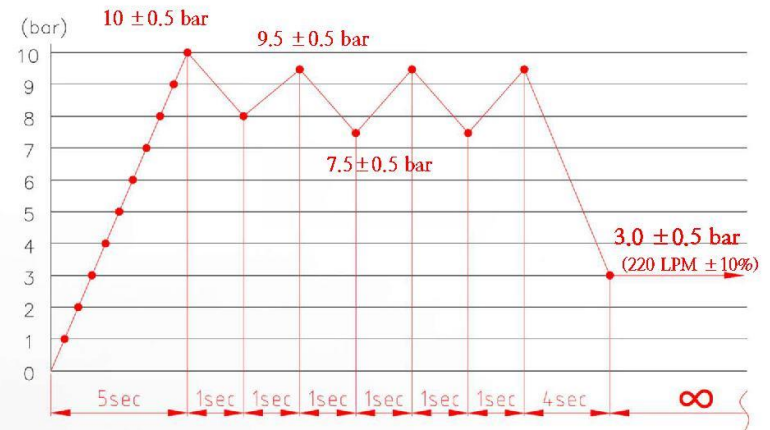
※ The balance maintenance pressure refers to the pressure of the air, maintained constantly, when pressing and then holding the trigger of the air gun after turning on a power switch of the compressor.

(Use cases)

1. Grease injection
2. Engine room cleaning
3. Operator's cab cleaning
4. Radiator cleaning
5. Air filter cleaning
6. Cooling fan cleaning
7. Supplementing the air pressure of tires
8. Using air hone



(Performance graph)



Air charging time	5 sec
Air usage time	Unlimited
Recharge time	None
Balance maintenance pressure(DC12V)	2.5±0.5 bar
Balance maintenance pressure(DC24V)	3.0±0.5 bar

※ Please use 「air guns for tankless only」 supplied by us because this product is not compatible with general air guns. The general air guns can't be used because it does not maintain sufficient pressure when it is used by being connected to this product.

8. Use of Tankless Air Compressors

■ How to use *Alpha Model (At high-pressure mode)*

▷If you turn on the power switch of the air compressor, the pressure reaches 13bar within about 7 seconds,

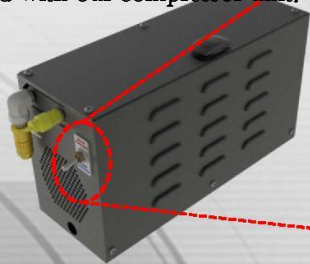
▷If you repeat pressing or loosening the trigger of the air gun at intervals of 1 to 2 seconds, a pressure of 8 to 10 bar is produced.

▷If you keep pressing the trigger of the air gun, 220Lpm of the compressed air is ejected from it at 3bar of the balance maintenance pressure.

※ The balance maintenance pressure refers to the pressure of the air, maintained constantly, when pressing and then holding the trigger of the air gun after turning on a power switch of the compressor.

※ Precautions when using at high pressure mode

The high pressure mode has a maximum pressure of 13bar (1.3Mpa) and is used when a stronger pressure is required when using the air gun which is supplied with our compressor unit. Strongly suggest NOT to use in high pressure mode by connecting it to an air tank or an air tool other than the air gun supplied with our compressor unit.



(Performance graph)



Air charging time	7 sec
Air usage time	Unlimited
Recharge time	None
Balance maintenance pressure(DC12V)	2.5±0.5 bar
Balance maintenance pressure(DC24V)	3.0±0.5 bar

※ Please use 「air guns for tankless only」 supplied by us because this product is not compatible with general air guns. The general air guns can't be used because it does not maintain sufficient pressure when it is used by being connected to this product.

■ Precautions and check points in using the product

- ▷ You should use it by connecting it to either DC13,8V or DC28,5V according to product specifications. If the supply voltage is 10% lower or higher than the rated voltage, the motor performance may be degraded. In particular, you should be careful in case that when it is used with a lower power supply, the torque shortage may occur, and the motor can be damaged from a fire because the piston is restrained by the pressure load, and the air compressors should be activated after the machine has been started.
- ▷ Be careful that the air filter of the compressor is not exposed to water or liquid for smooth air intake, and when the interval of inspection has arrived, you are required to check it.
- ▷ When the air compressor is waterlogged, you should not turn on the switch. This is because it may damage the electrical device or jeopardize its user's safety due to a short circuit.
- ▷ You should never spray the compressed air directly into people or animals or let them inhale it. Be sure that you use it only for allowed tasks.
- ▷ You should not modify this product for any purpose other than its intended use because it is a product designed for the use of cleaning and air tools by installing it in heavy equipment.
- ▷ For an air gun, a tankless air gun provided with the product should be used because general air guns sold in the market can't be used due to incompatibility with this product.
- ▷ Be sure to turn off the air compressor when not in use to avoid battery discharge and protect the product.
- ▷ Use the high pressure mode only when it is necessary, and we recommend using in low pressure mode(standard mode) as much as possible.

Strongly suggest NOT to use the unit in high pressure mode by connecting it to an air tank or an air tool, only use it with the air gun supplied with our compressor unit

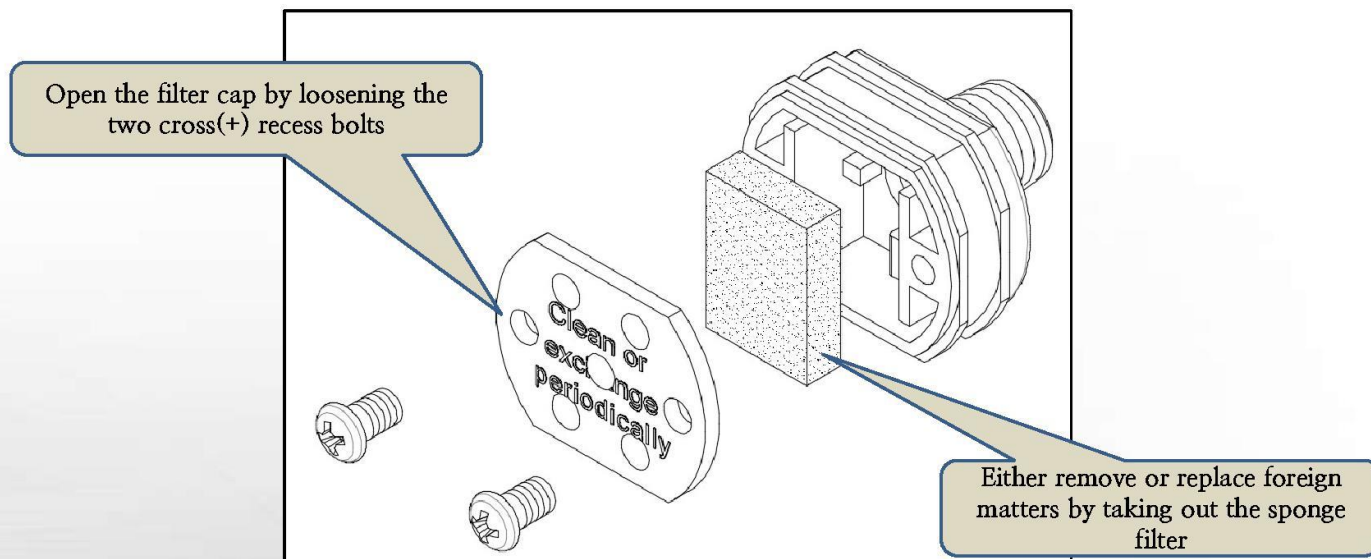
※ Precautions before inspection and repair of the air compressor

- ▷ Be sure to turn off the power supply and remove the remaining air pressure in the hose through the air gun before inspection. Otherwise, it may result in safety hazards.
- ▷ Clean and repair the air compressor regularly to ensure that it can always be kept clean.
- ▷ Never do any repairs or inspections when the power supply is not shut off.

The pressure switch may still be operating, even if the air compressor has stopped, and if the pressure remaining in the hose drops below the set pressure(8bar), the motor may suddenly start operating, which can cause unexpected accidents.





■ Air filter inspection and replacement period

Item to be checked	250 hours	500 hours	Remarks
Air filter	Inspection	Replacement	



※ In the case of using the compressed air of the air compressor with a filter removed when removing foreign matters of the air filter, be sure to finish the work in a clean place and within a short time. If it is used for a long time without an air filter in a dusty place, please note that contaminants can cause any damage to the inside of the piston ring or liner.

■ Diagnosing of failure of major parts

Part name and picture	Normal operating range	Significant to suspected failure
<p>Pressure switch</p> 	<p>▶ Contact : NORMAL CLOSE</p> <ul style="list-style-type: none"> - At Low Pressure: 10bar open / 8bar close - At High Pressure : 13bar open / 10bar close 	<ul style="list-style-type: none"> ▷ Possible malfunction suspected if it continues to operate even at 10.5bar/13.5bar or higher. ▷ Possible malfunction suspected if it does not restart under 7.5bar/9.5bar.
<p>safety relief valve</p> 	<p>▶ Operated above 13.5bar</p> <ul style="list-style-type: none"> - Prevents overpressure when the compressor is continuously operated due to a failure of the pressure switch or rely. 	<ul style="list-style-type: none"> ▷ Possible malfunction suspected if operating below 13.5bar.
<p>Solenoid coil (Purge Valve)</p> 	<p>▶ It reduces the pressure load at restart by removing the residual pressure between the compression chamber and the check valve when the compressor does not operate.</p> <ul style="list-style-type: none"> - When the compressor stops, it sounds pi~ig. 	<ul style="list-style-type: none"> ▷ When the compressor is not charged and noise from leakage is observed, the failure is suspected. ▷ It is normal when it opens when the motor stops and closes when the motor runs.
<p>Check valve</p> 	<p>▶ It prevents the back flow of the compressed air.</p>	<ul style="list-style-type: none"> ▷ If the compressor is not charged to 10bar when it runs, the failure is suspected. <ul style="list-style-type: none"> - Check the internal check valve, spring, and the existence of foreign matters after disassembling it.

■ The causes of the product's fault symptoms during its use and the corrective measures

Fault symptoms	Detailed symptoms	Causes and corrective measures
The air compressor does not work,	1. It does not work intermittently. 2. It does not work at all, 3. It does not work after the first time it has been activated.	1-1 Unstable GND contacting point → Remove paint on the ground plane or change the grounded part 1-2. Intermittent operation due to switch failure → Replace the switch 2-1. Fuse burning due to surge failure → Replace the fuse 2-2. It does not work for each section due to fusing failure → Replace the motor 2-3. Unstable GND(Remove paint on the ground plane or change the grounded part) 2-4. Check (+) and (-) connections of the switch 2-5 Relay fusion→ Replace the relay 2-6. FUSE short circuit → Replace the FUSE 2-7. Defective contacting point of the motor temperature switch → Replace the MOTOR 3-1. Check the connection status between the compressor coupler and the hose plug(unstable fastening or falling out) → Reconnect the hose and coil hose
It makes the buzzing sound in the motor or works slowly,	1. It works poorly while continuing to work and stop.	1-1. Connect the DC24V product to DC12V → Connect it to the voltage for the product specifications 1-2. Fusing failure → Replace the motor
Severe vibration occurs when the air compressor is operated,	1. Noise and vibration due to interference 2. Noise and vibration due to loosening of the tightened part 3. Noise and vibration due to abrasion and detachment of mounting rubber	1-1. Noise occurred due to interference between the motor and the housing case → Adjust the interference 2-1. Bracket and compressor fastening bolts loosened → Tighten the loosened part 2-2. Unstably fixed intake air filter case → Tighten the loosened part 3-1. Replace the mounting rubber



■ The causes of the product's fault symptoms during its use and the corrective measures

Fault symptoms	Detailed symptoms	Causes and corrective measures
The air compressor continues to operate.	1. It does not stop.	1-1. Relay fusion → Replace the relay 1-2. Foreign matters in check valve → Remove the foreign matters and then replace it 1-3. Air gun trigger leakage → Fill oil to the air gun trigger and replace the trigger 1-4. Safety valve leakage → Replace the safety valve 1-5. Restart from time to time due to air line leakage → After checking the leaked part, adjust and replace it. 1-6. Purge valve leakage → Remove the foreign matters and then replace it 1-7. Defective pressure switch contacting point → Replace the pressure switch
The pressure of the compressed air discharged from the air gun is low.	1. It continues to work with low compressed air pressure. 2. Low pressure	1-1. Check the compressor and air line leakage → Adjust and replace the leaked part 1-2. Leakage due to old air hone hose → Replace the air hone hose 1-3. Worn piston ring and the intake and exhaust of the valve plate open up → Repair or replace it 2-1. Not air guns only for tankless but ones generally sold in the market are used, → Use them only for tankless 2-2. Intake filter blocked → Replace and clean the intake filter.



Thank you!