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- **Safety Precautions**

Pressurized air from the system may cause personnel injury or property damage if the unit is improperly operated or maintained. The operator should have carefully read and become familiar with the contents of this manual before installing, wiring, starting, operating, adjusting, and maintaining the system. The operator is expected to use common sense safety precautions, good workmanship practices and follow any related local safety precautions.

In Addition:

- Before starting any installation or maintenance procedures, disconnect all power to the package.
- All electrical procedures must be in compliance with all national, state, and local codes and requirements.
- A certified electrician should connect all wiring
- Refer to the electrical wiring diagram provided with the unit before starting any installation or maintenance work.
- Release all pressure from the package before removing, loosening, or servicing any covers, guards, fittings, connections, or other devices.
- Notify appropriate hospital personnel if repairs or maintenance will affect available compressed air levels.
- This is a high speed, rotating piece of machinery. Do not attempt to service any part while the machine is in operation.
- Do not operate without belt guards, shields, or screens in place.
- Make sure that all loose articles, packing material, and tools are clear of the package.
- Check all safety devices periodically for proper operation.
- Never operate a compressor without its relief valve in place. Damage to the compressor may occur.
- Electrical service must be the same as specified on the control panel nameplate or damage to the equipment may occur.
- Vibration during shipment and operation can loosen electrical terminals, fuse inserts, and mechanical connections. Tighten as necessary.
- Refer to the electrical diagram provided with the unit before starting any installation or performing any maintenance work.
- Do not operate on a voltage other than the voltage specified on the system nameplate.
- All customer wiring should be in compliance with the National Electrical Code and any other applicable state or local codes.

• General Information

System Configurations

The 63 Series comes in tank mounted configurations only. It can be configured as a simplex or duplex unit. The unit consist of a receiver, compressor, and integrated pre-wired control panel. Additional items can be added as options (aftercooler, desiccant or refrigerant dryer w/pre-filter and after-filter, tank drain, etc.). Some options are integrated and some are shipped loose and piped/wired by others.

Compressor Module

The 63 Series compressor is a continuous duty rated scroll type. The design is single stage and air-cooled, consisting of one fixed and one orbiting scroll sealed with PTFE tip seals between the scroll halves and rated for 120 psi discharge pressure. The scrolls are protected from dust or contamination with a two-part face seal. The drive and orbiting bearings are grease filled and require service only when the compressor is rebuilt (based on normal operating conditions). The 120psi or less version requires rebuild after 10,000 hours of service. There is a 145 psi discharge pressure version available for some models, but the rebuild hours are cut to 5000 hours. The scroll case is constructed of die cast aluminum. Maximum heat dissipation is achieved through an integral cooling fan and air ducting.

Compressor Drive and Motor

The 63 Series compressor is v-belt driven and protected by an OSHA approved totally enclosed belt guard. A slotted mounting base allows full adjustment for belt tensioning. The motor is a NEMA rated, open drip proof (ODP), 3600 rpm (2-pole), with a 1.15 service factor suitable for operation at 208-230 or 460V, 3 phase, 60Hz electrical service. Some versions are available with a single phase motor, but the motor capacitors are not covered under warranty due to failures related to power quality.

Discharge Piping

The 63 Series compressor is equipped with a pressure relief valve and check valve between the compressor and receiver. There is also a flex hose between the compressor and receiver. These parts are required to protect the compressor. The check valve limits the amount of air that will flow backwards through the compressor to less than 1 revolution of reverse rotation.

Isolation System and Dryer

The 63 Series compressor base model does not include an isolation system. The dryer is an add-on option. If the dryer is added, an aftercooler, pre-filter, and after-filter are also included. If a refrigerant dryer is chosen, it is shipped loose and piping and wiring are not included.

Control System

The 63 Series has a mounted and wired control system (NEMA 12 and UL508A Listed). For duplex systems, the control system provides automatic lead/lag sequencing (via an alternator) with provisions to run both compressors if required. All control panels include a full voltage motor starter with overload protection and a 120VAC control transformer. An On/Off switch and runtime hour meter is provided for each compressor.

Air Receiver

The 63 Series is tank mounted on either a horizontal or vertical receiver. The receiver is ASME Coded, National Board Certified, and rated for a minimum or 200 PSIG design pressure. The tank piping includes a pressure relief valve and manual drain valve.

• INSTALLATION

Receiving Inspection

The 63 Series compressor should be carefully inspected upon delivery. Any damage by the carrier should be noted on the delivery receipt, especially if the system will not be immediately uncrated and installed. The system may remain in its shipping container(s) until ready for installation. If the system is to be stored prior to installation, it must be protected from the elements to prevent rust and deterioration.

DO NOT REMOVE the protective covers from the inlet and discharge connection ports of the unit until they are ready for connecting to the facilities pipeline distribution system.

Handling

WARNING!!!

USE APPROPRIATE LOAD RATED LIFTING EQUIPMENT AND OBSERVE SAFE LIFTING PROCEDURES DURING ALL MOVES

The 63 Series compressor package can be moved with either a forklift or dollies. Be sure that the orange spacers use to prevent the compressor/motor base from unnecessary movement while moving and/or mounting the unit are in place. Keep all packing in place during installation to minimize damage. Examine the route the unit must travel and note dimensions of doorways and low ceilings. If disassembly is required, carefully label all electrical connections that are removed for easier re-assembling at the final destination. Units should be placed to ensure easy access to perform maintenance and high visibility of indicators and gauges.

Location

The 63 Series compressor should be installed indoors in a clean, well-ventilated environment. Areas of excessive dust, dirt, or other air-borne particulate should be avoided. Secure the package to a flat, level surface capable of supporting the weight and forces of the unit. Make sure that the unit is securely bolted using all mounting holes provided. If a raised concrete pad is used, the base must not overhang at any location. A method to drain away moisture is necessary. The installation area should have an average ambient temperature of 70°F (21°C) with a minimum ambient temperature of 32°F (0°C) and a maximum of 104°F (40°C). **NOTE: At temperatures below 32°F, the bare compressor will not be adversely affected, but freezing of the condensate can occur which could affect operation.** Sound levels of 63-73 dbA are to be anticipated depending on the size of the package. Though the sound levels are not excessive, they should be considered when locating the system.

Space Requirements

The 63 Series compressor should be placed to ensure easy access to perform maintenance and high visibility of indicators and gauges. It is recommended that a minimum space of 24" be allowed on all sides of the compressor system for ventilation and maintenance. A minimum space of 36"-42" in front of the control cabinet is required by NEC Code. A vertical distance of 36" is required above the unit for ventilation and maintenance.

Discharge Piping

The 63 Series compressor discharge piping will be based of the length of the distribution piping in the facility. See the Exhaust and Intake Size Reference on the Pattons Medical website (Expert – Design) for a reference chart on facility piping.

• INSTALLATION

Wiring

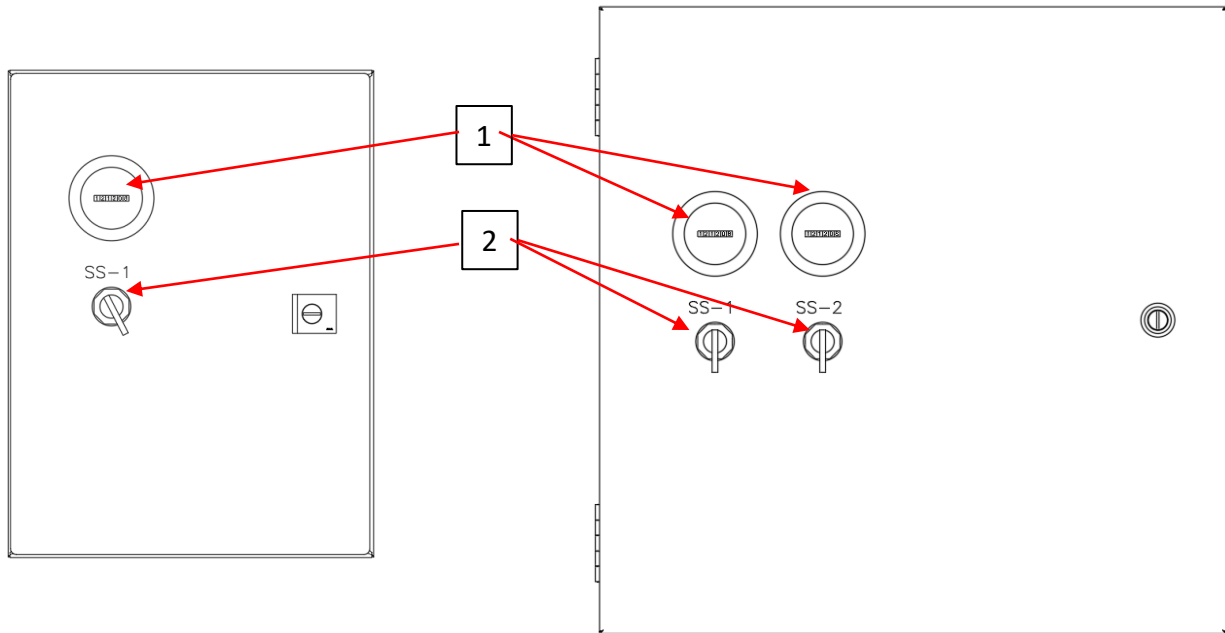
WARNING!!!: BE SURE TO DISCONNECT ALL ELECTRICAL POWER TO THE COMPRESSOR SYSTEM BEFORE PERFORMING ANY ELECTRICAL PROCEDURES

- Refer to the electrical diagram provided with the unit before starting any installation or maintenance work.
- Do not operate compressor on a voltage other than the voltage specified on the compressor nameplate.
- All customer wiring should be in compliance with the National Electrical Code and any other applicable state or local codes.

CAUTION: All voltages including control voltage to an individual motor circuit will be disconnected from the compressor modules using the circuit breaker. Turning off the appropriate motor circuit breaker also disconnects motor power. Main power to the control panel can be disconnected using the Main Branch Circuit Protection supplied by others.

- Refer to the wiring diagram that came with the compressor system for pertinent wiring connections.
- Check the control voltage, phase, and amp ratings before starting the electrical installation and make sure the voltage supplied by the facility is the same.
- The wire size should be able to handle peak motor amp load of all operating units. Refer to the motor full load amperes and compressor system full load amps on the wiring diagram.
- Check all electrical connections within the air system that may have loosened during shipment.
- Only qualified electricians should make power connections to the control panel and any inter-connecting wiring.

- Control Panel



1. Hour meter – shows operation time of the compressor.
2. Switch
 1. Simplex: On/Off switch to run compressor based off pressure switch
 2. Duplex: HOA switch
 1. HAND – Operates off pressure switch 1
 2. AUTO – Operates based on Alternator for Lead/Lag compressor

- SYSTEM OPERATION

Pre-Start-up

The contractor should notify Pattons Medical at least two weeks prior to the start-up date to schedule an appointment for an authorized technician to review the installation prior to start-up.

CAUTION: Failure to install the unit properly and have an authorized technician from Pattons Medical start-up the system can void the manufacturers warranty.

WARNING: Have more than one person on hand during pre-start-up and start-up procedures to ensure safety and to facilitate certain checks.

- Pre-start-up and start-up procedures should be performed for a new installation or when major maintenance has been performed.
- The main power source to the control panel should be OFF for the duration of the visual inspection.
- Ensure that the equipment is installed on a solid level surface. Walk around the system to ensure that there is enough clearance on all sides to perform operational checks/actions and maintenance. The temperature of the area containing the compressor should be approximately 70°F with a minimum ambient temperature of 32°F and maximum 100°F.
- Check all piping system joints that might have come loose during shipment and installation to ensure they are tight.
- Check the air receiver, controls, and compressors for damage. Check dryer if installed.
- Check the drain valves on the receiver.

Initial Start-up

CAUTION: Complete the pre-start-up procedure before continuing with the initial start-up.

WARNING: To prevent electrical shock, ensure that ALL electrical power to the system is OFF, including the disconnect switches and H-O-A switches on the control panel. The facility's supply circuit breaker should also be locked out.

NOTE: DO NOT ADD OIL TO THE COMPRESSOR. The design of the scroll compressor is totally oil-less. It is not necessary to fill the crankcase(s) with oil.

WARNING: Ensure that all loose articles, packing material, and tools are clear of the system.

- Set the H-O-A (or OFF/ON) switch(es) to "O" (OFF).
- Check all voltages supplied to the system to ensure they are the required value and phases needed by the control panel.
- Open any valves between the compressor and the receiver.
- Close the final valve so the system can build pressure.
- Apply power to the system.
- Turn H-O-A (or OFF/ON) switch to ON position and check rotation.

NOTE: DO NOT RUN THE COMPRESSOR BACKWARDS!

Rotation direction arrows are located on the belt guard (rotation is CCW, facing the compressor pulley). Correct rotation by switching motor leads at the starter.

- SYSTEM OPERATION

Initial Start-up (continued)

WARNING: REMOVE POWER BEFORE WORKING ON ANY ELECTRICAL CONNECTIONS

- Start each compressor by turning the H-O-A (or OFF/ON) switch to Auto (or ON) position. Allow each compressor module to operate for a short time (15-30 seconds) and check for any unusual noise or vibration.
- If everything appears normal, allow each compressor to run until pressure build in the air receiver. Maximum pressure is 115psi or 140psi (depending on configuration).
- Check for any leaks in the piping.
- If a desiccant dryer is installed, open the inlet isolation valve slowly and fill and confirm proper operation. It should purge on one side for 120 seconds, re-pressurize for 35 seconds, the purge the other side for 120 seconds, re-pressurize and repeat.
- If a regulator is installed, adjust to the desired pressure setting. The system discharge valve may have to be cracked to see the adjustment.
- Observe the system for normal operation.

Normal Start-up

- Main electrical power ON
- All valves except the final discharge valve open
- H-O-A (or OFF/ON) switch in Auto or ON position.
- All compressors run until pressure switch(es) open
- If mainline regulator is set, the facility connection can be opened at this time.

Normal Operation

- During normal operation, all H-O-A (or OFF/ON) switch(es) should be turned to the Auto/ON position so that the alternator/pressure switch(es) can effectively control the system. The pressure switch(es) monitor the pressure of the system and start/stop the compressor(s) as needed.
- On duplex compressors, the alternator changes the lead/lag compressor each cycle. If the 2nd compressor turns on, it will stay on until pressure switch 1 opens (so both turn off at the same time). For maintenance, one compressor can be operated in HAND while the other is being serviced.
- Any compressor in the HAND position will start and stop based on pressure switch 1.

- **SYSTEM OPERATION**

Desiccant Dryer (if applicable)

- Dryer is a fully automatic, heat-less type dryer that automatically alternates the compressed air flow through two towers where the gas' vaporous moisture content is adsorbed. One desiccant tower is always on-line in the drying cycle. The other tower is in a regeneration cycle where it uses the dry air from the online tower for removal of the previously adsorbed moisture content. Between cycles, the offline tower will repressurize slowly, then rotate functions.
- Pre-filter and after-filter are mounted and piped to the system.
- A aftercooler is installed on the system to pre-cool the air before it goes into the dryer.
- A timed drain is installed to remove moisture from the receiver.
- Main electrical power is always as long as the control transformer has power.
- There is no purge control, so dryer constantly runs purge cycles.

Refrigerant Dryer (if applicable)

- Dryer is completely separate from package.
- Power (120VAC) from an alternate source is required.
- A pre-filter is provided with the dryer.
- Piping from the compressor to the filter and dryer is by others (not provided by Pattons Medical).
- Electrical is by others (not provided by Pattons Medical)
- A aftercooler is installed on the system to pre-cool the air before it goes into the dryer.
- A timed drain is installed to remove moisture from the receiver. A aftercooler is installed on the system to pre-cool the air before it goes into the dryer.
- A timed drain is installed to remove moisture from the receiver.

Normal Shutdown

- H-O-A or OFF/ON switch is placed in the OFF position.
- Disconnect switch (provided by others) is placed in the OFF position.
- Final valve is CLOSED.
- Tank drain valve is OPENED until pressure reaches 0 psi. Then CLOSE.

Emergency Shutdown

The following condition may arise during operation.

- Motor Overload Shutdown – This will shut down the compressor in question and will not re-start until the reset button on the starter overload inside the control panel is reset.

- TROUBLE SHOOTING

| Problem | Possible Causes | Solution |
|-----------------------------------|---|---|
| Failure to Start | Main Power Disconnected Power Failure Main fuse blown Control fuse blown Tripped overload | Turn on main power Restore power Replace fuse Replace fuse Reset and check for system overload |
| Power Failure | Main fuse blown Control fuse blown | Replace fuse Replace fuse |
| Compressor shuts off unexpectedly | Overload tripped Pressure setting out of adjustment | Reset and check for system overload Check pressure switch settings |
| Motor Overload | Low Voltage Defective/failed motor Defective/failed compressor Pressure setting too high Failed check valve | Check for proper supply voltage Replace motor – Contact Pattons Medical Replace Compressor – Contact Pattons Medical Adjust pressure switch(es) Replace check valve |
| Low Discharge Pressure | System piping leaks Belts slipping Intake filter clogged | Repair leaks Adjust belt tension Replace filter |
| Compressor cycles too often | System undersized Incorrect pressure setting System piping leaks Water in receiver | Contact Pattons Medical Adjust pressure setting or replace pressure switch Repair leaks Drain air receiver |
| Compressor will not shut off | Pressure switch setting out of adjustment or failed | Adjust or replace pressure switch |
| Excessive Belt Wear | Belt tension Belt alignment | Adjust tension Re-align compressor & motor sheaves |
| Abnormal noise | Mounting bolts loose Belt tension | Tighten bolts Adjust belt tension |

- MAINTENANCE

Maintenance Schedule:

- **WARNING: BEFORE STARTING ANY MAINTENANCE PROCEDURES, DISCONNECT ALL POWER TO THE PACKAGE**
- Release all pressure from the package before removing, loosening, or servicing any covers, guards, fittings, connections, or other devices.
- Never perform any maintenance functions while the unit is in operation.

| Item | Frequency | Action |
|-----------------------------------|---|--|
| Check Condensate in receiver | Daily | Open manual drain valve or check auto drain |
| Check operation of safety valve | Weekly | Manually release pressure |
| Check inlet air filter(s) | Monthly | Inspect and clean or replace |
| Beck nuts, bolts, fittings, etc. | Monthly | Inspect and tighten if necessary |
| Check belt tension | Monthly | Inspect and tighten or replace (6lbs. Force gives ¼" deflection) |
| Replace compressor tip seals* | 10,000 hours for 120psi 5,000 hours for 140psi | Contact Pattons Medical Customer Service Department |
| Replace pre-filter & after-filter | Yearly | Replace filter elements |
| Replace dryer desiccant | 18 months (12,000 hours) | Replace |

* Once this service is performed, the compressor pump is no longer under warranty. The compressor pump warranty is 2 years or 10,000 hours, whichever occurs first.

- MAINTENANCE

Replacement Parts:

| Item | 2hp | 3hp | 5hp | 7.5hp |
|-----------------------------|-----------|------------|------------------|------------------|
| Inlet Filter | 09-11-054 | 09-11-054 | 09-11-054 Qty: 2 | 09-11-054 Qty: 2 |
| Tip Seal Kit | 51-01-001 | 51-01-001 | 51-01-002-001 | 51-01-002-001 |
| Belts | 11-01-020 | 11-01-020 | 11-01-020 Qty: 2 | 11-01-102 Qty: 2 |
| Pre-Filter* | 09-13-100 | 09-13-100 | 09-13-100 | 09-13-100 |
| After-Filter* | 09-14-100 | 09-14-100 | 09-14-100 | 09-14-100 |
| 12k Hour Dryer Service Kit* | 40-09-000 | 40-09-002 | 40-09-003 | 40-09-004 |
| 24k Hour Dryer Service Kit* | 40-09-025 | 40-09-0227 | 40-09-028 | 40-09-029 |

- Duplex unit require double the inlet filter, tip seal kits, and belts listed above.
- Duplex dryers (if installed) do not match information above. Contact factory.
- If no quantity is listed, then 1 is required.
- * Confirm dryer size and provide when ordering; confirm replacement element shown on filter.
- * If 145psi, then dryer sizes will also be different.

Any information, service, or spare parts request should include the machine serial number and model number and be directed to

Pattons Medical
 4610 Entrance Drive, Suite H
 Charlotte, NC 28273
 704-529-5442 Parts (x10248 or x10310)
 Medical.service@pattonsmedical.com

- MAINTENANCE

Intake Air Filter Inspection/Replacement:

1. Turn off the compressor being serviced.
2. Remove the element(s)
3. Attach new element(s)
4. Turn on compressor

V-Belt Adjustment

1. Remove Belt guard
2. Loosen the four bolts securing the motor
3. Slide the motor away from the pump until the proper tension and alignment is obtained. To check for correct alignment, place a straight edge on the faces of the two sheaves. Proper alignment is obtained when all the gaps between the straight edge and the sheaves are minimized and less than 1/16".
4. Check the belt tension again and make sure the tension is 6 lbs. force gives ¼" deflection.
5. Tighten all four bolts on the motor.
6. Replace the bult guard before operating the machine.
7. V-belts should be checked every 6 months and replaced as needed or after 8,000 hours.
8. When changing v-belt, check and clean grooves and check for wear on sheaves.

Pressure Switch Adjustment:

Note: Different pressure switches are used, so this may not match your pressure switch

- The cut-out pressure refers to the discharge air pressure at which the unit will stop.
- The cut-in pressure refers to the discharge air pressure a which the compressor will start.

WARNING: IT IS STRICTLY PROHIBITED TO RE-ADJUST DISCHARGE AIR PRESSURE TO MORE THAN THE SPECIFIED MAXIMUM PRESSURE (120 PSIG); NEGLECTING IT MAY CAUSE HIGH DISCHARGE TEMPERATURE, MAIN MOTOR OVERLOAD SHUTDOWN, OR SERIOUS COMPRESSOR BREAKDOWN. HIGHER TEMPERATURES ALSO DAMAGE DESICCANT (IF APPLICABLE).

CAUTION: Generally, a narrower differential requires a larger volume receiver to reduce rapid cycling. A minimum of 10psi differential is recommended. A narrower margin requires a larger volume receiver.

Dryers:

For dryer information, service, and parts, refer to the specific dryer manual. Contact Patton Medical with you dryer information and we can provide the manual.

• Warranty

Patton's Medical Systems Warranty

Patton's Medical warrants that all systems to be free of defects in material and workmanship under normal use for a period of twenty-four months from start-up, not to exceed thirty months from date of shipment. This warranty covers all necessary parts used in repair as well as all reasonable labor expense. Normal consumable parts required for routine scheduled maintenance (such as filters) are not covered under this warranty.

This warranty does not apply to products that are damaged by external causes, or are improperly warehoused, used, installed, serviced, misapplied or maintained by the customer. The sole liability for **Patton's Medical** under this warranty is limited to repairing, replacing, or crediting, at its election, any such products provided that:

- **Patton's Medical** is notified promptly within the warranty period above of any warranty claim.
- The examination of such items by an authorized representative of **Patton's Medical** will disclose to their reasonable satisfaction that claimed products defect has not been caused by misuse, neglect, improper handling, installation, repair, alteration, or accidents.
- **Patton's Medical** requires that systems above 5 Hp simplex be commissioned by an authorized **Patton's Medical** distributor and requires a start-up report to be filed within 30 days of equipment start-up. Failure to submit a start-up report to **Patton's Medical** will void the warranty.
- **Replacement Parts** including pumps and motors carry a limited warranty based upon manufacturer specific terms. **Parts** carry a 90 day warranty unless the manufacturer's stated warranty is different. Labor for these warranties is not included or implied and is at the sole discretion of Patton's Medical.
- **Retrofit Control Panels** carry a 12 month warranty from date of shipment.
- Simplex units 5Hp and below as well as retrofit dryer packages do not include factory assisted start-up in their base price unless specifically noted otherwise.
- Extended warranty is offered and will be noted in the quote.

Product modification performed by the customer without prior written approval by **Patton's Medical** will invalidate the above warranty.

This warranty is given in lieu of all other warranties, expressed or implied, including implied warranties of fitness for a particular purpose and merchantability. In no event shall Patton's Medical be liable for damages in excess of the value of the defective product or part, nor shall Patton's Medical be liable for any indirect, special or consequential damages, loss of profits of any kind, or for loss of use of the products.

Patton's Medical shall not be liable to the customer for any claims, loss of damage of any kind whatsoever arising from the nonperformance of **Patton's Medical** of any part of this agreement occasioned by acts of God, fire, war, labor difficulties, governmental regulations, or action of government. **Patton's Medical** shall not be liable to the customer for any other cause, whether of a similar or dissimilar nature beyond its reasonable control.



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