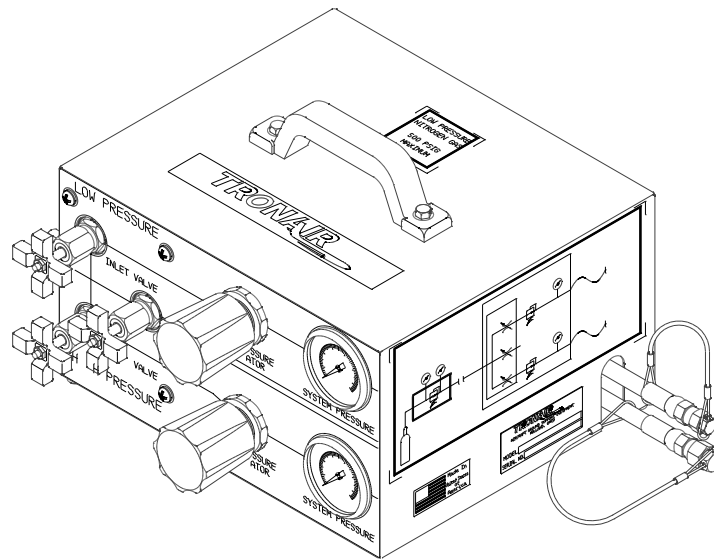




OPERATION & SERVICE MANUAL



**Model: 20-4501-7010
Oxygen Test Unit**

05/2023 – Rev. 01

**For Spare Parts, Operations & Service Manuals or Service Needs
Scan the QR code or visit [Tronair.com/aftermarket](https://www.tronair.com/aftermarket)**



REVISION	DATE	TEXT AFFECTED
OR	08/2000	Original release
01	05/2023	Major revision

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Figure 1 - General Component Locations

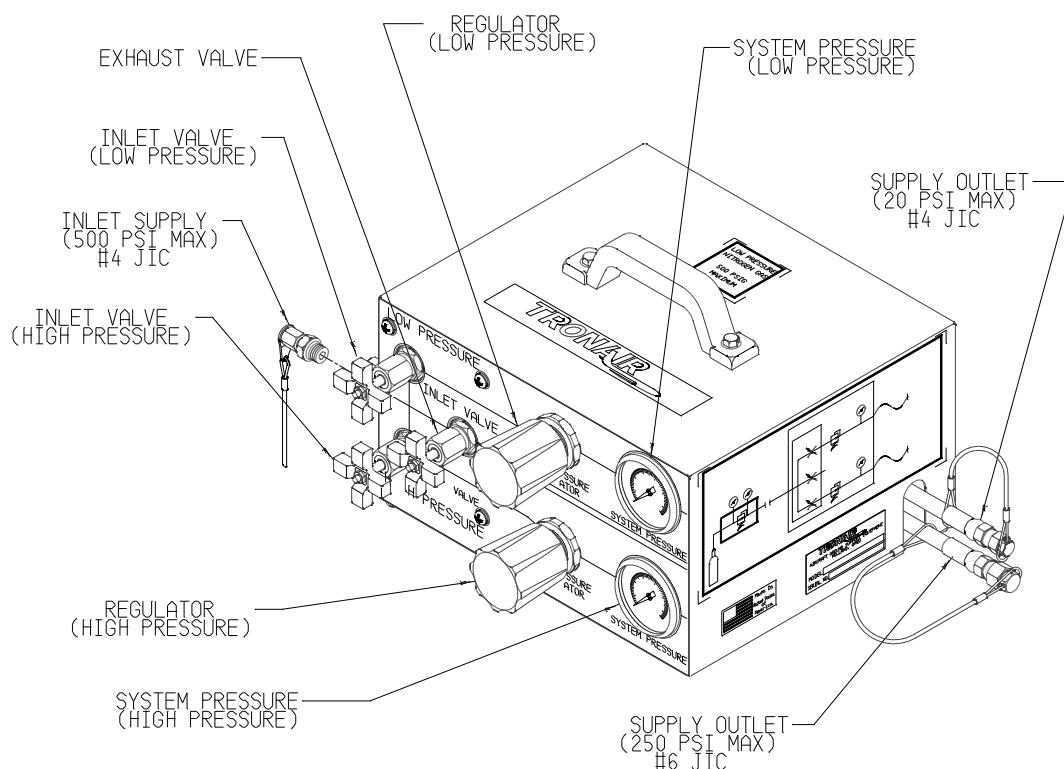
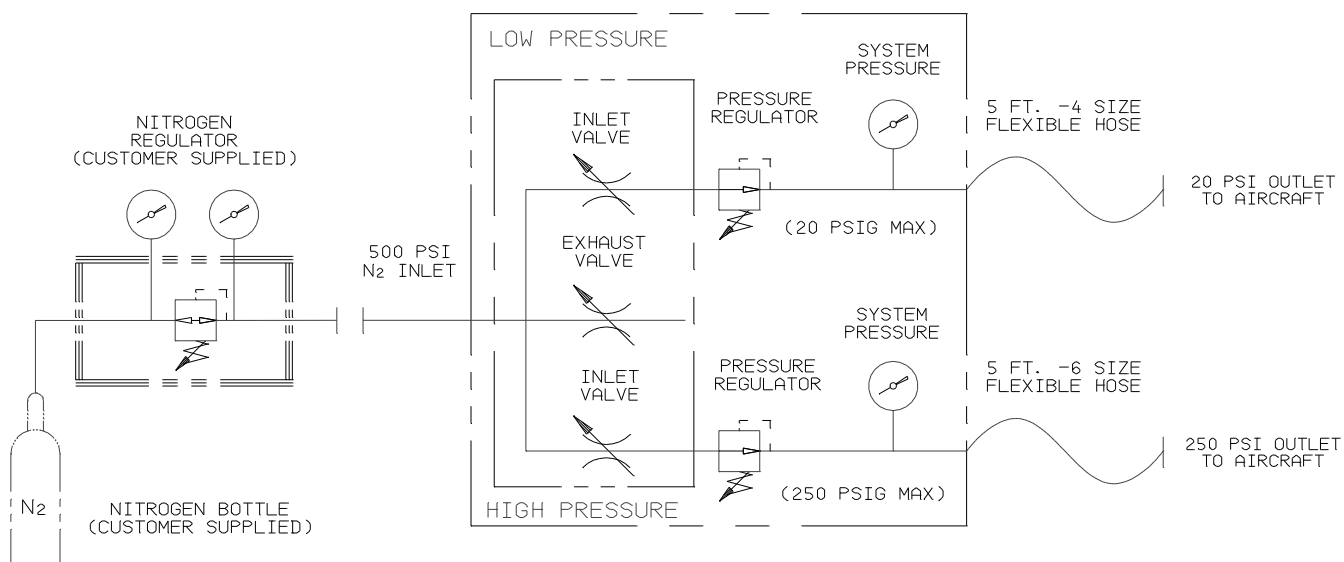


Figure 2 - Pneumatic Schematic



This product can not be modified without the written approval of Tronair, Inc. Any modifications done without written approval voids all warranties and releases Tronair, Inc., its suppliers, distributors, employees, or financial institutions from any liability from consequences that may occur. Only Tronair OEM replacement parts shall be used.

1.0 PRODUCT INFORMATION

1.1 DESCRIPTION

The Tronair Model 20-4501-7010 Oxygen Test Unit consists of oxygen cleaned components (per SAE Air-1176) but has been designed to provide the capability of taking clean nitrogen from a supply bottle and creating two regulated outputs.

The two regulated outputs consist of a 20 psi and a 250 psi circuit. They can be used to test any circuit rated at these pressures, compatible with clean nitrogen.



DANGER!

TO AVOID SERIOUS INJURY, LOSS OF LIMB OR DEATH:

1. **DO NOT** use with **OXYGEN** or gas other than clean Nitrogen.
2. **DO NOT** use on **LOW PRESSURE** aircraft components or systems such as tires, etc.
3. **DO NOT** exceed 500 psig Nitrogen pressure.
4. All components used in the system shall be clean, dry and free of all contamination per SAE SPEC. AIR 1176.
5. Servicing and/or maintenance of systems shall be done by trained and qualified personnel using approved procedures per SAE SPEC. ARP 1532.

1.2 MODEL & SERIAL NUMBER

Reference nameplate on unit

1.3 MANUFACTURER

TRONAIR, Inc.
1 Air Cargo Pkwy East
Swanton, Ohio 43558 USA

Telephone: (419) 866-6301 or 800-426-6301
Fax: (419) 867-0634
E-mail: sales@tronair.com

1.4 SPECIFICATIONS/FEATURES

Length	14-5/8 inches
Width	14-13/16 inches
Height	10-1/8 inches
Weight	30 pounds
Output Hoses	One 5 foot long with #4, 37° JIC female flare swivel both ends
	One 5 foot long with #6, 37 ° JIC female flare swivel both ends
Nitrogen Output Ratings	20 psig Maximum (Low Pressure Side)
	250 psig Maximum (High Pressure Side)
Nitrogen Input Rating	500 psig Maximum
Temperature Range	0° to 200°F (17.7° to 93.3° C)

All plumbing, fittings, and components are cleaned for oxygen use. The unit and hoses are cleaned, packaged and shipped separately to avoid any possible system contamination.

2.0 SAFETY INFORMATION

2.1 USAGE AND SAFETY INFORMATION

To insure safe operations please read the following statements and understand their meaning. Also refer to your equipment manufacturer's manual for other important safety information. This manual contains safety precautions which are explained below. Please read carefully.



WARNING!

Warning is used to indicate the presence of a hazard that can cause **severe personal injury, death, and/or substantial property damage** if the Warning Notice is ignored.



CAUTION!

Caution is used to indicate the presence of a hazard, which will or can cause **minor personal injury or property damage** if the Caution Notice is ignored.

2.2 SAFETY INSTRUCTIONS



CAUTION!

It is mandatory that this instruction manual be read and understood by all persons operating this oxygen test unit.

Information presented in this manual and on various labels, tags, and plates on the unit pertains to equipment design, installation, operation, maintenance and trouble shooting which should be read, understood, and followed for the safe and effective use of this equipment.

2.3 SAFETY PROCEDURES

The operation, maintenance, and trouble shooting of this Oxygen Test Unit requires practices and procedures which ensure personal operator safety and the safety of others. Therefore, this equipment is to be operated and maintained only by qualified persons in accordance with this manual and all applicable local codes.

Safety instructions specifically pertaining to this unit appear throughout this manual. See following explanations which identify levels of hazard(s):



WARNING!

Denotes practices which if not carefully followed, could result in SERIOUS personal injury or death, and/or minor personal injury and/or damage to this equipment.

3.0 TRAINING

3.1 TRAINING REQUIREMENTS

The employer of the operator is responsible for providing a training program sufficient for the safe operation of the unit.

3.2 TRAINING PROGRAM

The employer provided operator training program should cover safety procedures concerning use of the unit in and around the intended aircraft at the intended aircraft servicing location.

3.3 OPERATOR TRAINING

The operator training should provide the required training for safe operation of the unit.

NOTE: Maintenance and Trouble Shooting are to be performed by a skilled and trained technician.

4.0 ASSEMBLY

Unpacking: This Oxygen Test Unit has been thoroughly inspected and tested prior to packaging and shipment. After opening the shipping container and removal the unit from packaging, inspect it thoroughly for shipping damage.

Nitrogen equipment must be kept clean, dry and free from all contaminants at all times. It is imperative that all installation, inspection, maintenance, testing and servicing of oxygen system components be done by trained and qualified personnel using approved procedures.

1. Place the Oxygen Test Unit on a clean, level, flat surface.
2. Clean out Nitrogen Supply Gas Bottle Valve Outlet (customer supplied), along with the Nitrogen Regulator (customer supplied) and inspect for any indication of cross-threading or galling.
3. Generally, inspect unit and ensure the tightness of all fittings, nuts and bolts.

5.0 PREPARATION FOR OPERATION

1. Be sure all needle valves and regulators are backed off to minimum pressure settings.
2. Inspect all connections for contaminants before installation and tightening. Remove any foreign materials. Be sure all oxygen system components are clean per SAE specification AIR 1176.
3. Connect the output of the Nitrogen supply bottle pressure regulator (customer supplied) to the inlet supply connection of the Oxygen Test Unit. **See Figure 1.**
4. Decrease the Nitrogen supply bottle pressure regulator to the minimum pressure setting.
5. Thoroughly inspect unit to ensure the tightness of all nuts, bolts, and fittings.
6. Verify that no pressure has been supplied to oxygen test unit.
7. Remove #4 and #6 output hoses from storage area.; remove plugs and attach to required circuits on aircraft.
8. Verify the tightness of all fittings.

6.0 OPERATION**6.1 TESTING AIRCRAFT OXYGEN SYSTEM**

1. On the Oxygen Test Unit, close high and low pressure inlet valves; also close the exhaust valve. The regulators should be at their minimum pressure setting (counter-clockwise).
2. After Oxygen Test Unit has been properly connected and valves adjusted, fully open the Nitrogen supply bottle shutoff valve. Adjust the Nitrogen supply bottle pressure regulator to the required supply pressure (500 psi maximum).
3. Open Oxygen Test Unit low pressure inlet valve and increase low pressure regulator (clockwise) until system pressure gauge reads 20 psi. Close low pressure inlet valve.
4. Open Oxygen Test Unit high pressure inlet valve and increase high pressure regulator (clockwise) until system pressure gauge reads 250 psi. Close low pressure inlet valve.
5. Perform required tests.

NOTE: Tests can be done on individual circuits also.

6.2 DISCONNECTING TEST UNIT FROM AIRCRAFT

1. Close the Nitrogen supply bottle shutoff valve. This will stop inlet Nitrogen flow.
2. Decrease Nitrogen supply bottle pressure regulator to minimum pressure setting.
3. Open Oxygen Test Unit exhaust valve. This will bleed off the remaining pressure prior to the inlet valves.
4. Decrease both regulators to the minimum pressure setting.
5. Slowly open low pressure inlet valve to bleed off remaining pressure in circuit.
6. Slowly open high pressure inlet valve to bleed of remaining pressure in circuit.
7. Disconnect and recap output hoses along with inlet supply to prevent hose and system contamination.

7.0 MAINTENANCE

The Operation, Maintenance, and Troubleshooting of this Oxygen Test Unit require practices and procedures which ensure personal operator safety and the safety of others. Therefore, this equipment is to be operated and maintained only by qualified persons in accordance with this manual and all applicable local codes.

All maintenance performed on this Oxygen Test Unit shall be conducted in accordance with all applicable codes governing the Handling, Operation, Installation And Troubleshooting for Nitrogen operation. Maintenance is to only be done by qualified persons.

All maintenance personnel must be familiar with the Cautions and Warnings associated with Nitrogen and Nitrogen systems as outlined in Section 3.0 of this manual prior to performing any maintenance on the unit.

The gauges on this unit should be inspected and calibrated annually to ANSI 3-2-3 Grade B, to maintain and ensure accuracy.

7.1 STORAGE

Store the unit in a clean, dry area when not in use.

Be sure that all hoses are capped and the unit is covered with a lint free covering for the duration of unit storage to ensure complete oxygen system cleanliness for future aircraft system testing.

8.0 SAE AIRCRAFT OXYGEN SPECIFICATION INFORMATION

For more information concerning specific SAE Aircraft Oxygen Equipment Oxygen Equipment specifications, contact:

Society of Automotive Engineers
400 Commonwealth Drive
Warrendale, PA 15096-0001

9.0 PROVISION OF SPARES**9.1 SOURCE OF SPARE PARTS**

Spare parts may be obtained from the manufacturer:

TRONAIR, Inc.

1 Air Cargo Pkwy East

Swanton, Ohio 43558 USA

Telephone: (419) 866-6301 or 800-426-6301

Fax: (419) 867-0634

E-mail: sales@tronair.com

Website: www.tronair.com

For Spare Parts, Operations & Service Manuals or Service Needs:
Scan the QR code or visit Tronair.com/aftermarket

**9.2 RECOMMENDED SPARE PARTS LISTS**

Reference the following page(s) for Replacement Parts and Kits available.

10.0 IN SERVICE SUPPORT

Contact Tronair, Inc. for technical services and information. See Section 1.3 – Manufacturer.

11.0 GUARANTEES/LIMITATION OF LIABILITY

Tronair products are warranted to be free of manufacturing or material defects for a period of one year after shipment to the original customer. This is solely limited to the repair or replacement of defective components. This warranty does not cover the following items:

- a) Parts required for normal maintenance
- b) Parts covered by a component manufacturers warranty
- c) Replacement parts have a 90-day warranty from date of shipment

If you have a problem that may require service, contact Tronair immediately. Do not attempt to repair or disassemble a product without first contacting Tronair, any action may affect warranty coverage. When you contact Tronair be prepared to provide the following information:

- a) Product Model Number
- b) Product Serial Number
- c) Description of the problem

If warranty coverage is approved, either replacement parts will be sent or the product will have to be returned to Tronair for repairs. If the product is to be returned, a Return Material Authorization (RMA) number will be issued for reference purposes on any shipping documents. Failure to obtain a RMA in advance of returning an item will result in a service fee. A decision on the extent of warranty coverage on returned products is reserved pending inspection at Tronair. Any shipments to Tronair must be shipped freight prepaid. Freight costs on shipments to customers will be paid by Tronair on any warranty claims only. Any unauthorized modification of the Tronair products or use of the Tronair products in violation of cautions and warnings in any manual (including updates) or safety bulletins published or delivered by Tronair will immediately void any warranty, express or implied.

The obligations of Tronair expressly stated herein are in lieu of all other warranties or conditions expressed or implied. **Any unauthorized modification of the Tronair products or use of the Tronair products in violations of cautions and warnings in any manual (including updates) or safety bulletins published or delivered by Tronair will immediately void any warranty, express or implied and Tronair disclaims any and all liability for injury (WITHOUT LIMITATION and including DEATH), loss or damage arising from or relating to such misuse.**

12.0 APPENDICES

APPENDIX I Instrument Certification Notice

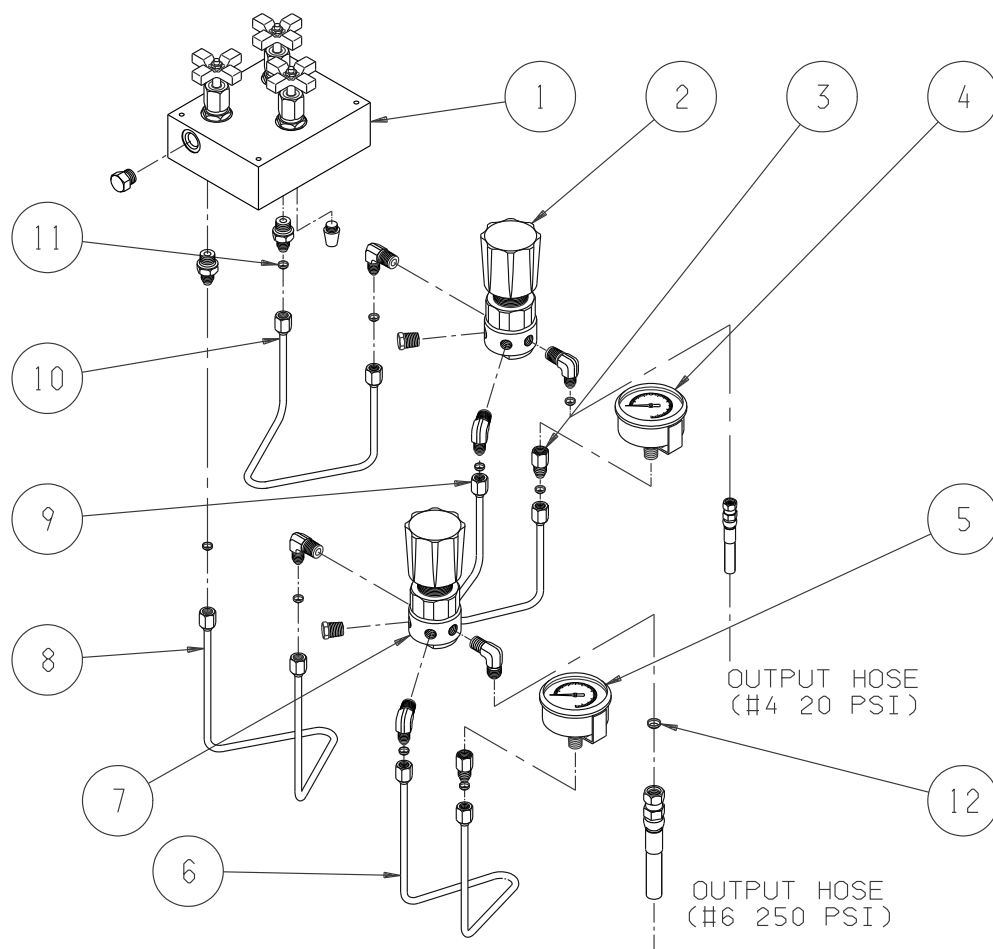
APPENDIX II Tescom Operation & Service Manual, Safety, Installation & Operation Precautions, Cleaning Notice

Additional Document(s):

Tronair Oxygen Cleaned Certification

Internal Components

When ordering replacement parts/kits, please specify model, serial number and color of your unit.

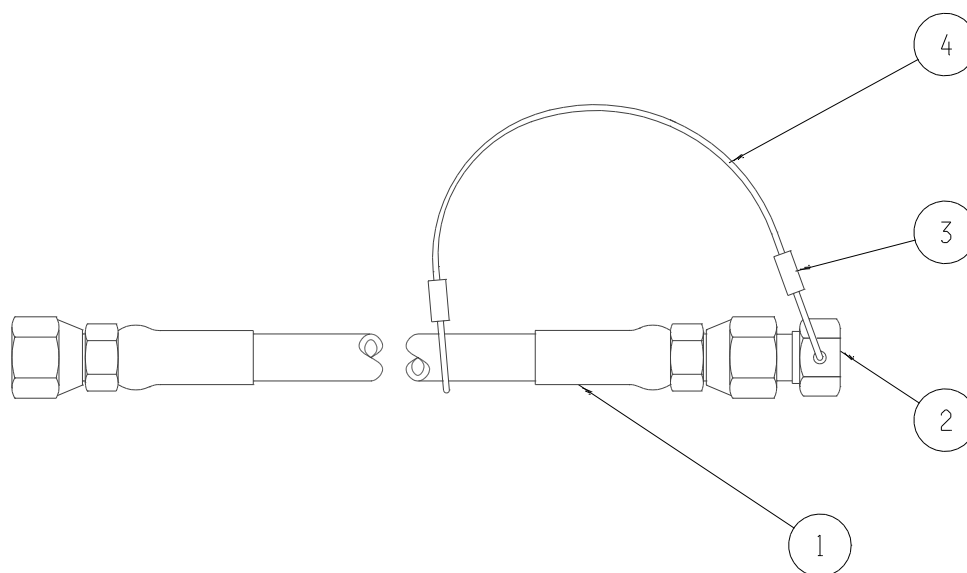


Item	Part Number	Description	Qty
1	Z-4016	Assembly, Pressure Manifold	1
2	Z-4017	Assembly, Regulator (0-50 psi)	1
3	N-2098-04-SS	Connector, Female, #4 JIC*1/4 NPT	2
4	HC-1804	Gauge, Pressure, 0-60 psi	1
5	HC-1805	Gauge, Pressure, 0-400 psi	1
6	HC-1808	Assembly, Tube	1
7	Z-4018	Assembly, Regulator (0-400 psi)	1
8	HC-1807	Assembly, Tube	1
9	HC-1876	Assembly, Tube	1
10	HC-1875	Assembly, Tube	1
11	HC-1951-04	Seal, Conical 37° Flare (- 4)	9
12	HC-1951-06	Seal, Conical 37° Flare (- 6)	1

These components will be supplied Oxygen Cleaned per SAE Spec. AIR 1176.

Output Hose

When ordering replacement parts/kits, please specify model, serial number and color of your unit.



Item	Part Number	Description	Qty
1	TF-1043-08*60.0	Assembly, Hose, #4	1
	TF-1043-16*60.0	Assembly, Hose #6	1
2	N-2099-03	Plug, Modified, #4	1
	N-2099-05	Plug, Modified, #6	1
3	H-1390	Ferrule	4
4	H-1389	Cable, Nylon Coated	2



APPENDIX I

Instrument Certification Notice



Instrument Certification Notice

The gauge Certificates of Calibration supplied for the gauge(s) on this unit contain the calibration data for the actual instrument calibrated, along with the calibration date of the **STANDARD** used to perform the calibration check.

The due date for re-calibration of the instrument should be based upon the date the instrument was placed in service in your facility. Re-calibration should be done on a periodic basis as dictated by the end user's quality system or other overriding requirements.

Note that Tronair, Inc. does not supply certificates of calibration on flow meters or pyrometers unless requested at the time of placed order. These instruments are considered reference indicators only and are not critical to the test(s) being performed on the aircraft.



APPENDIX II

Tescom
Operation & Service Manual
Safety, Installation & Operation Precautions Manual
Cleaning Notice

OPERATION AND SERVICE MANUAL

for

TESCOM
CORPORATION

Piston Sensed Pressure Reducing Regulators

General

Tescom's piston sensed pressure reducing regulators are specifically engineered for applications requiring dependable pressure regulation. These regulators are especially appropriate for installations where high system pressures (up to 20,000 psi) must be reduced to levels suitable for actuating low pressure (0 to 20,000 psi) instruments and related equipment.

Pressure Activation Methods

Tescom uses three basic types of activation methods. The activation method provides the means by which the operator can set the force that determines the outlet pressure of a regulator.

Control Knob: Delivery pressure is increased by turning the control knob. The control knob applies a load through a spring to the piston.

Dome Load: Delivery pressure is increased by applying pressurized gas or liquid to the dome of a regulator at a pressure equal to the outlet pressure desired. This dome pressure is normally provided by a second regulator called the pilot regulator.

Combination Spring and Dome: Delivery pressure is increased by applying a spring force as well as the introduction of pressurized gas or liquid.

Materials of Construction

Standard materials of construction contacting the fluid media can be any of the following:

Regulator Body: 300 Series SST, Brass, Hastelloy®, Monel®, Aluminum
Seats: Teflon®, PCTFE, Vespel®, Peek®, Soft Goods (O-rings & back-up Rings) Teflon®, BUNA-N, Viton A®

Trim: 300 Series SST, Brass, Hastelloy, Monel, Aluminum

The official material of construction and pressure activation method for your pressure reducing regulator depends on series number and modification ordered.

Operation (Control Knob Adjustment)

Controlled outlet pressure settings are obtained using Tescom pressure reducing regulators by adjusting the control knob. Rotating the knob clockwise raises the outlet pressure while a counterclockwise rotation, coupled with venting of the downstream side of the regulator plumbing, lowers the outlet pressure. Final adjustments should be made in the direction of increasing pressure to obtain the most accurate set point.

Tescom regulators will operate with any liquid or gaseous media compatible with the wetted materials. Some series/modifications come with an internal filter that only are designed to stop random contamination resulting from the installation of the regulator. An auxiliary upstream filter is recommended for use in all but the cleanest media. Gaseous media should be free of excessive moisture to prevent icing of the regulator at high flow rates.



A REGULATOR IS NOT INTENDED TO BE USED AS A SHUTOFF DEVICE. WHEN THE REGULATOR IS NOT IN USE, THE INLET SUPPLY SHOULD BE TURNED OFF. AS A SAFETY PRECAUTION, A PRESSURE RELIEF DEVICE SHOULD BE INSTALLED DOWNSTREAM OF THE REGULATOR.

Maintenance

The following procedures are provided to enable the customer to perform all normal maintenance and repair operations. These operations are more easily performed with the regulator removed from the line. However, in some cases repair may be accomplished without removal of the regulator body as long as the inlet and outlet pressure have been vented.

The following steps outline the disassembly of pressure reducing regulators for maintenance and repair. Up-to-date assembly drawings and bills of material are available from the factory.

1. Clamp the regulator in a vise by the flats on the bottom and/or side of the regulator body.
2. Turn control knob and/or spring adjustment mechanism counterclockwise to insure removal of all spring force on the diaphragm.

NOTE (Dome loaded regulators): All pressurized gas or liquid must be vented from dome before disassembly.

3. Remove upper portion of regulator (bonnet and/or dome). Some models require the mounting bracket to be removed first.

NOTE: Upper portion of regulator may also include spring button, load spring back-up plate, and piston sensor, etc. Review correct drawing to ensure that all parts have been disassembled.

NOTE: (Two-Stage Regulator) Tescom Model Series BB-5 is a two-stage regulator that has portions on both ends of the regulator body that must be removed. It is Tescom's recommendation that two-stage regulators be returned to the factory for repair.

Maintenance (continued)

4. The valve parts can now be removed from the regulator body by turning the seat retainer and/or back cap counterclockwise until it is free of the regulator body.



WARNING

TESCOM MODELS 26-1000 AND 44-1100 VALVE PARTS ARE HELD IN PLACE BY THE USE OF LEFT-HANDED THREADS.

NOTE: If necessary, valve seat may be removed from the seat retainer using a sharp instrument.

CAUTION: When removing valve parts from a regulator that has a back cap, care must be taken to insure the main valve stem remains vertical. If the main valve stem is not removed correctly, parts may remain in the regulator.

5. To disassemble main valve assembly and/or valve, clamp valve in smoothed jaw vice or hold with pliers. Clamping should be done on flats.

CAUTION: Care must be used to not damage valve. A special fixture may be ordered from the factory to aid in the disassembly of the main valve assembly found in Tescom Regulator Models 26-1000 and 44-1100.

NOTE: Several of Tescom's regulators are supplied with internal filters. They will be located either in the inlet port or in the main valve area of the regulator. In each case, they should be removed and replaced before reassembly.

Reassembly

The regulator is reassembled in the reverse order of disassembly, observing the following precautions. Please reference the Bill of Material and assembly drawing for the correct location of replacement parts and correct torque specifications.

Reassembly (continued)

1. Inspect all parts and replace those worn or damaged with Tescom replacement parts.
2. All parts should be cleaned to the cleanliness level required for safe operation with the media and system they will be used in. All parts in the flow stream must be free of particles which could prevent proper seating of the main valve.
3. Apply a thin uniform coating of fluorocarbon grease to any or all of the following parts: indentation of spring bottom, threaded portion of adjusting screen, entire threaded area of the bonnet, all O-rings, all threaded parts internal to regulator.

NOTE: Do NOT apply fluorocarbon grease to any of the inlet or outlet connections.

4. Valve seats must be installed with the chamfered side towards the main valve.
5. Standard Regulator with Control Knobs - The body and bonnet are best joined by holding the bonnet assembly open end up and dropping all required items into place one at a time. The last item to be placed in the body of most all of Tescom regulators is the piston sensor. Place all O-rings and back-up rings that are external to the piston sensor in the body before placing the sensor in place. O-rings should always be installed before back-up rings. The bonnet and body may now be attached. This is best done by holding the body in one hand and the bonnet in the other. Tilt the body at a 45° angle and then attach the bonnet by screwing it into the body firmly, hand tight. Regulator should then be placed in vise and bonnet retorqued to correct specifications. See print.

Reassembly (continued)

6. Dome/Spring Combination and Dome Loaded Regulators are more easily reassembled by holding regulator firmly in vise and reinstalling dome.
7. Self-Venting Regulator - If your regulator has an adjustable relief valve mechanism, it is set on final assembly at the factory and usually will not require further adjustment. If adjustment becomes necessary, use the following procedure after regulator has been installed:

Step 1. Remove hole plug.

Step 2. Using control knob, apply 10 to 15 psi on downstream side.

Step 3. Turn in vent adjusting screw (located under hole plug) until media can be heard escaping through relief valve.

Step 4. Back off screw until media flow stops, usually 1/2 turn. Replace hole plug.

8. Reinstalling wire mesh inlet filter - Insert filter into primary inlet port. It must then be expanded to fit correctly. This can be accomplished by inserting a metal tool the same size as the port and then lightly tapping it with a hammer.



AFTER REGULATOR HAS BEEN REASSEMBLED, IT SHOULD BE CONNECTED TO A PRESSURE WARNING SOURCE WITH MEDIA COMPATIBLE WITH THE USE OF THE REGULATOR AND PRESSURIZED TO CHECK FOR INTERNAL AND EXTERNAL LEAKAGE AND OPERATING CHARACTERISTICS.

Monel® is a registered trademark of Huntington Alloys, Inc.
Hastelloy® is a registered trademark of Haynes International, Inc.
Teflon®, Viton-A® and Vespe® are registered trademarks of Du Pont.

PRODUCT WARRANTY

Tescom Corporation ("Tescom") warrants to the initial purchaser ("Initial Purchaser", as defined below) of products manufactured and sold by its Industrial Controls Division ("ICD") and Electronic Controls Division ("ECD") that such products are free from defects in materials and workmanship under normal use and service for a period of 180 days from the date of initial purchase or one year from the date of delivery of the products, whichever comes first ("Warranty Period"). This warranty applies only to the Initial Purchaser, that is someone who purchases products for initial use directly from Tescom, its affiliates or authorized distributors or representatives. This warranty is not transferable to subsequent purchasers or users of the products.

During the Warranty Period, Tescom will, in its sole discretion, repair or replace, free of charge at its factory in Minnesota, any product or part thereof that is found by Tescom, after reasonable notification by the Initial Purchaser, to have been defective in materials or workmanship. The Initial Purchaser must pay all shipping costs for warranty service and is responsible for risk of loss or damage of products during shipment. Tescom does not warrant, and will not pay for, any repairs or replacement made during the Warranty Period by anyone other than personnel authorized by Tescom, ICD or ECD to make such repairs or replacement.

THE ABOVE WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES. TESCOM, ICD AND ECD MAKE NO OTHER EXPRESS OR IMPLIED WARRANTY, AND IN PARTICULAR AND WITHOUT LIMITATION MAKE NO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. The Initial Purchaser's only remedy under this warranty is repair or replacement of the products during the Warranty Period. This warranty does not apply to any product which has been damaged by accident, abuse, misuse, modification or lack of proper maintenance. NEITHER TESCOM, ICD NOR ECD WILL BE LIABLE FOR ANY CONSEQUENTIAL, SPECIAL, INCIDENTAL OR INDIRECT DAMAGES, INCLUDING WITHOUT LIMITATION, LOST PROFITS.

TESCOM

C O R P O R A T I O N

INDUSTRIAL CONTROLS DIVISION

ELECTRONIC CONTROLS DIVISION

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Safety, Installation, & Operation Precautions

TESCOM
C O R P O R A T I O N

INDUSTRIAL CONTROLS DIVISION

DO NOT ATTEMPT TO SELECT, INSTALL, USE, OR MAINTAIN THIS REGULATOR, VALVE, OR ACCESSORY UNTIL YOU HAVE READ AND FULLY UNDERSTAND THESE INSTRUCTIONS.

BE SURE THIS INFORMATION REACHES THE OPERATOR AND STAYS WITH THE PRODUCT AFTER INSTALLATION.

DO NOT PERMIT UNTRAINED PERSONS TO INSTALL, USE, OR MAINTAIN THIS REGULATOR, VALVE, OR ACCESSORY.



IMPROPER SELECTION, IMPROPER INSTALLATION, IMPROPER MAINTENANCE, MISUSE, OR ABUSE OF REGULATORS, VALVES, OR RELATED ACCESSORIES CAN CAUSE DEATH, SERIOUS INJURY, AND/OR PROPERTY DAMAGE.

Possible consequences include but are not limited to:

- High velocity fluid (gas or liquid) discharge
- Parts ejected at high speed
- Contact with fluids that may be hot, cold, toxic, or otherwise injurious
- Explosion or burning of the fluid
- Lines/hoses whipping dangerously
- Damage or destruction to other components or equipment in the system



WARNING SAFETY PRECAUTIONS:

1. Inspect the regulator, valve, and accessories before each use.
2. Never connect regulators, valves, or accessories to a supply source having a pressure greater than the maximum rated pressure of the regulator, valve, or accessory.
3. Refer to product label (modification specific) for maximum inlet pressures. If this rated pressure cannot be found, contact your local Tescom representative for the rated pressure prior to installation and use. Verify the designed pressure rating of all equipment (e.g., supply lines, fittings, connections, filters, valves, gauges, etc.) in your system. All must be capable of handling the supply and operating pressure.
4. Clearly establish flow direction of the fluid before installation of regulators, valves, and accessories. It is the responsibility of the user to install the equipment in the correct direction.
5. Do not tighten fittings, gages, or components in pressurized systems.
6. Never turn regulator or valve body. Instead hold regulator or valve body and turn fitting nut.
7. If a regulator or valve leaks or malfunctions, take it out of service immediately.
8. Do not modify equipment or add attachments not approved by the manufacturer.
9. Apply pressure to the system gradually, avoiding a sudden surge of fluid or pressure shock to the equipment in the system.



WARNING

SAFETY PRECAUTIONS (Continued):

10. Regulators are not shut-off devices. Install a pressure relief device downstream of the regulator to protect the process equipment from operating pressure increases. Shut off the supply pressure when the regulator is not in use.
11. Periodic inspection and scheduled maintenance of your equipment is required for continued safe operation.
12. The frequency of servicing is the responsibility of the user based on the application.
13. Never allow problems or lack of maintenance to go unreported.
14. Read and follow precautions on compressed gas cylinder labels.
15. It is important that you analyze all aspects of your application and review all available information concerning the product or system. Obtain, read, and understand the Material Safety Data Sheet (MSDS) for each fluid used in your system.
16. Oxygen service requires special expertise and knowledge of system design and material compatibility in order to minimize the potential for death, serious injury, and/or property damage.
17. Never use materials for regulators, valves, or accessories that are not compatible with the fluids being used.
18. Users must test under normal operating conditions to determine suitability of materials in an application.
19. Vent fluids to a safe environment, and in an area away from employees. Be sure that venting and disposal methods are in accordance with Federal, State, and Local requirements. Locate and



WARNING

SAFETY PRECAUTIONS (Continued):

- construct vent lines to prevent condensation or gas accumulation. Make sure the vent outlet is not obstructed by rain, snow, ice, vegetation, insects, birds, etc. Do not interconnect vent lines; use separate lines if more than one vent is needed.
20. Do not locate regulators, valves, or accessories using flammable fluids near open flames or any other source of ignition.
21. Some fluids when burning do not exhibit a visible flame. Use extreme caution when inspecting and/or servicing systems using flammable fluids to avoid death or serious injury to employees. Provide a device to warn employees of these dangerous conditions.
22. Many gases can cause suffocation. Make certain the area is well ventilated. Provide a device to warn employees of lack of oxygen.
23. Never use oil or grease on these regulators, valves, or accessories. Oil and grease are easily ignited and may combine violently with some fluids under pressure.
24. Have emergency equipment in the area if toxic or flammable fluids are used.
25. Upstream filters are recommended for use with all fluids.
26. Do not bleed system by loosening fittings.
27. Prevent icing of the equipment by removing excess moisture from the gas.
28. Always use proper thread lubricants and sealants on tapered pipe threads.

INSTALLATION

Inspect the regulator, valve, and accessories for physical damage and contamination. Do not connect the regulator, valve, or accessory if you detect oil, grease, or damaged parts. If the regulator, valve, or accessory is damaged, contact your local Tescom representative to have the regulator cleaned or repaired.



WARNING

Make sure that the components and materials used in the fluid handling system are compatible with the fluid and have the proper pressure rating.

REPAIR SERVICE

If a regulator or valve leaks or malfunctions, take it out of service immediately. You must have instructions before doing any maintenance. Do not make any repairs you do not understand. Have qualified personnel make repairs. Return any equipment in need of service to your equipment supplier for evaluation and prompt service. Equipment is restored to the original factory performance specifications, if repairable. There are flat fee repair charges for each standard model. The original equipment warranty applies after a complete overhaul.



WARNING

Safe Component Selection

1. Consider the total system design when selecting a component to ensure safe, trouble-free performance.
2. The user is responsible for assuring all safety and warning requirements of the application are met through his/her own analysis and testing.



WARNING

Safe Component Selection (continued)

3. Tescom may suggest material for use with specific media upon request. Suggestions are based on technical compatibility resources through associations and manufacturers. Tescom does NOT guarantee materials to be compatible with specific media -- THIS IS THE RESPONSIBILITY OF THE USER!
4. Component function, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system user.



WARNING

Do not modify equipment or add attachments not approved by the manufacturer.

ASSEMBLY/INSTALLATION DRAWINGS & BILLS OF MATERIAL Drawings and parts lists for your product may be obtained by calling the number below. Tescom will provide these by fax or mail. Your local Tescom representative can provide additional assistance.

**Call (800) 447 - 1250
for assembly/installation drawings &
bills of material. Be sure to have your
complete model number ready.**

TESCOM

C O R P O R A T I O N

INDUSTRIAL CONTROLS DIVISION

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Elk River, MN 55330

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CAUTION

CLEANING NOTICE

This equipment has been cleaned to a high commercial standard. When installing, care must be taken to prevent unit from becoming contaminated with particles in excess of 50 micron size. Such contamination may cause malfunctioning of the unit.

---Open in a clean area.

---Install in a properly cleaned system.