Compressed Air Processing

Compressed air power, like any other power, costs money, and although air exists all around us, it cannot be used in industry until it has been compressed to a pressure considerably higher than atmospheric. This process of compression costs money - First, a capital outlay for compressors and other equipment; Second, the power and maintenance costs of operating this equipment. Therefore, like any other source of power, compressed air should not be wasted.

Dirty or contaminated air will foul the operating mechanism of air tools, reducing the tools operating efficiency and wasting air. In the same way, operation at a pressure either too high or too low is wasteful of air. Inadequate lubrication results in decreased efficiency of the air tool and wastes air. Not only is power being wasted if the air is improperly processed, but tool life is shortened, maintenance expenses increased, and production losses run unnecessarily high, due to tool failure and the resulting lost production time.

There is much to be gained, therefore, from an operating stand-point by installing the air lines in the correct manner, and by including suitable air line Filters, Pressure Regulators (or integral Filter-Regulators) and Lubricators.

The Norgren Range

Norgren offer the world's most comprehensive and respected range of compressed air processing equipment for general duty, instrumentation and other specialised requirements.

Most Norgren units are available in port sizes from ⅛" to 2" with a wide choice of filter elements and regulating and relief spring ranges for filters, regulators, filter-regulators and relief valves. Filters and filter-regulators have automatic or manual drains and regulators and filter-regulators are of relieving or non-relieving construction. There are two main types of lubricator listed in this catalogue: the Micro-Fog type for use with high speed tools or where there are lengthy complex piping systems and multiple points of application; the Oil-Fog type for general lubrication of air cylinders and valves, pneumatic tools and similar air operated devices. Models are available with standard pipe threads or to the Olympian design, which permits units to be quickly and simply plugged into yoke pieces permanently installed in the pipeline. The concept is fully described in Airline Systems, section **8.3**. Any combination of Norgren Filters, Regulators, Filter-Regulators and Lubricators can be assembled together to remove liquid and solid contaminants from the air stream, regulate main line air pressure to the required working level and to create an airborne oil or micro-fog for the proper lubrication of air tools, air cylinders and other air powered equipment automatically.

It will be noted that in addition to equipment for general applications we offer a comprehensive selection of specialised units including instrument filters and filter-regulators, precision controllers, high relief rate regulators, centralised lubrication systems, flowmeters, silencers, drip leg drains, and similar products.

We also catalogue several stainless steel units for use in arduous and corrosive environments that meet the recommendation set by NACE - the National Association of Corrosion Engineers - the recognised recommendation for resistance to sulphide stress cracking common in well-head and other corrosive environments.

Note:

Except where indicated all port threads are parallel to ISO 1179. They accept ISO 228 (BS 2779) parallel or ISO 7 (BS 21) taper connections.

Many units are fitted with transparent polycarbonate bowls. These are manufactured and tested to BS 6005.

Air Quality Classes

Norgren Martonair Oil Removal filters have been graded according to ISO 8573.1 "Compressed air for general use – Part 1: Contaminants and quality classes."

ISO 8573.1

ISO 8573.1 specifies the levels of filtration required to achieve various standards of air quality.

Specifying Air Quality

Air quality is specified according to levels of three contaminants: solids, water and oil.

The following table shows the quality class associated with each contaminant level.

Class	SOLID		WATER	OIL
	Particle Size (µm)	Concentration (mg/m^3)	Pressure Dew Point (°C) @ +21°C	Concentration (mg/m^3)
1	0,1	0,1	-70	0,01
2	1	1	-40	0,1
3	5	5	-20	1
4	15	8	+3	5
5	40	10	+7	25
6	–	–	+10	–
7	–	–	Not specified	–

Air quality is specified by stating the class number associated with each type of contaminant in a set order: solid, water, oil.

e.g. The Ultraire Oil Removing Filter F52 has Quality Class 1.7.1 with:

Particle filtration to 0,01 µm, < 0,1 mg/m^3 (Class 1)

Water pressure dew point unaffected (Class 7)

Oil Removal to 0,003 mg/m^3 (Class 1)

The Norgren Olympian 'Plug-In' System

Norgren were the originators of modular 'plug-in' systems for Air Service equipment and our Olympian System has been recognised internationally by several major Design Awards. The Olympian System is particularly suited for use by Original Equipment Manufacturers and offers several distinct advantages over the numerous systems marketed by other manufacturers. The main components in the system include a wide range of Filters, Pressure Regulators, Filter-Regulators, Air Line Lubricators, Relief Valves, Silencers, Flowmeters, Poppet Valves and Smooth Start Valves. Any of the above components may be assembled together as a 'Combination Unit' to meet exact requirements. See section **8.4**.

Shut-Off valves, porting blocks, rear entry brackets and other integral accessories are also available, all of which add to the flexibility of this system. Cost saving benefits include the elimination of interconnecting unions and pipework therefore reducing the design and installation time of complex pipe runs.

The Olympian System enables quick and easy servicing, which is particularly important in production-line type industries where 'down time' must be kept to a minimum.

There are three separate Olympian Series:

Series 10 ported ⅛", ¼", ⅜"
Series 13 ported ¼", ⅜", ½" and ¾"
Series 15 ported ¾", 1", 1¼" and 1½"

Standard port threads are to ISO 1179. They also accept ISO 228 (BS 2779) parallel or ISO 7 (BS 21) taper connectors.

Principal Components

Redimounts - Single Unidaptor with selected unit installed ready for immediate assembly into a pipe system.
Unidaptors - Single, Double and Treble Unidaptors with selected end connectors fitted to provide the frame for the main component.
Basic Unit - Selected filter or other main component with unthreaded inlet and outlet ports.

To Remove A Unit

(i) Shut off the compressed air.
(ii) Remove the Pressure Gauge, if fitted (Series 13 only).
(iii) Unscrew the clamp ring. This forces the unit out of the Unidaptor.

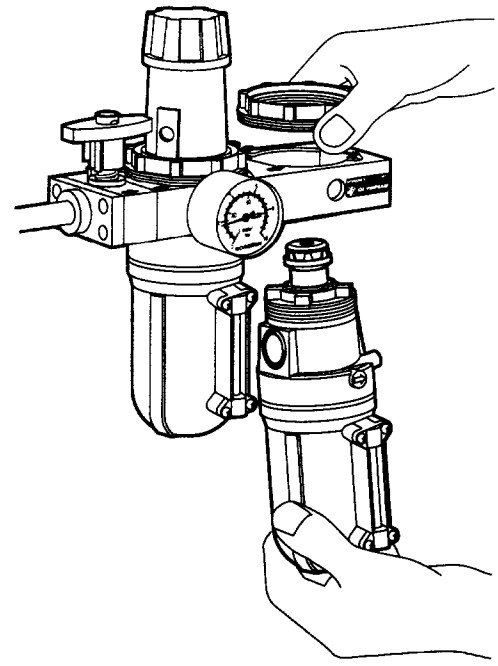
To Replace A Unit

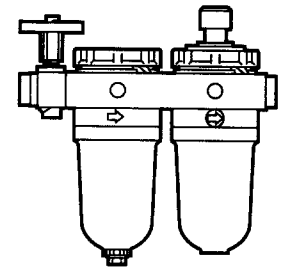
(i) Position the clamp ring under the yoke retaining lugs.
(ii) Check 'O' ring seals are in position. Check direction of flow.
(iii) Plug-in unit, screw up clamp ring hand tight.
(iv) Replace the Pressure Gauge, if fitted (Series 13 only).
(v) Turn on air supply.

Notes

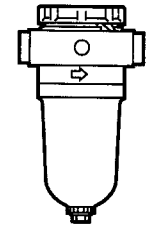
Always turn off air supply and vent downstream pressure before disassembling Olympian and other systems, and always ensure that sufficient clearance is left below the pipe centre line to allow the basic unit to be installed and removed easily. Pressure gauges must be unscrewed from Series 13 units before disassembly. Whilst an arrow indicates the direction of flow, an interference fit prevents the incorrect installation of Olympian basic units. Always check that the lightly greased 'O' ring seals are in position at the inlet and outlet ports before 'plugging in'. For alternative thread forms and special tubing connections please consult our Technical Service.

Note that it is necessary to punch through the web of Series 10 Unidaptors to make the auxiliary/gauge ports live.

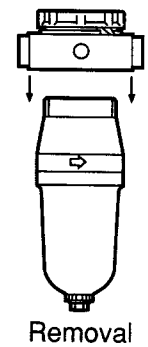




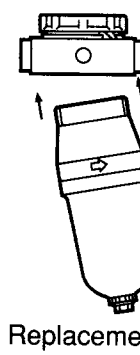
Vitalizer 'combination unit' in double yoke with shut-off valve



Redimount Unit

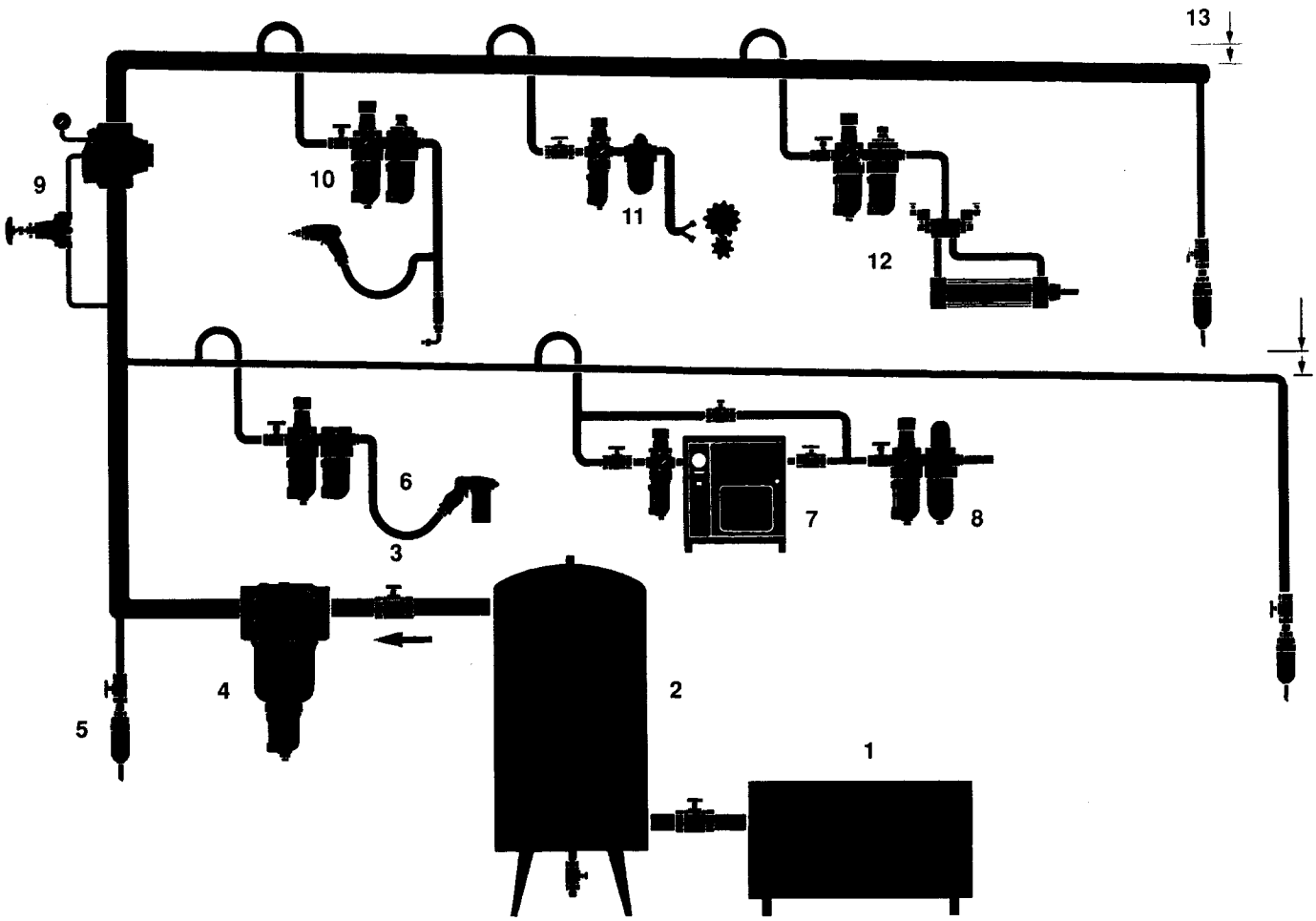


Removal



Replacement

Airline Installation



1. Compressor
2. Air Receiver
3. Shut-off Valve
4. Mains Air Filter
5. Drip Leg Drain
6. Air Processing Equipment for paint sprayer
7. Air Dryer
8. High Efficiency Filtration for ultra clean air applications
9. Pilot Operated Pressure Regulator
10. Air Processing Equipment for air tools
11. Air Processing Equipment for lubrication
12. Air Processing Equipment for valves and cylinders
13. Pitch with flow