



**UP6 15, UP6 20, UP6 25, UP6 30  
60Hz**

## **OPTIONS MANUAL**

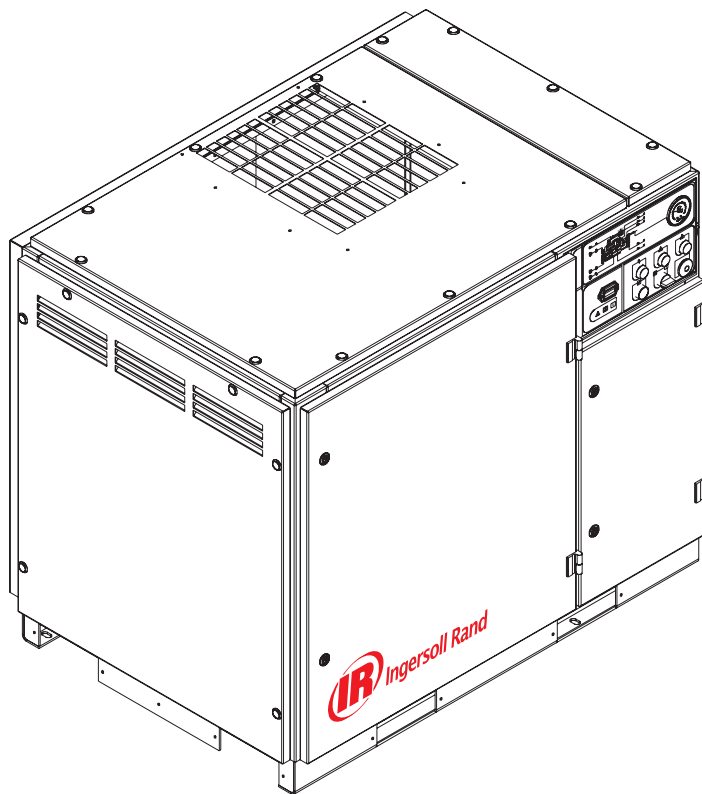
**Intellisys Option**

**Dryer Option**

**High Dust Option**

**Outdoor Module Option**

**PORO Option**



**This manual contains  
important safety information  
and must be made available  
to personnel who operate and  
maintain this machine.**

**C.C.N. : 80445174  
REV : B  
DATE : JANUARY 2009**



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## ABBREVIATIONS & SYMBOLS

<b>####</b>	Contact Ingersoll Rand for serial number
<b>-&gt;####</b>	Up to Serial No.
<b>####-&gt;</b>	From Serial No.
<b>*</b>	Not illustrated
<b>†</b>	Option
<b>NR</b>	Not required
<b>AR</b>	As required
<b>SM</b>	Sitemaster/Sitepack
<b>HA</b>	High ambient machine
<b>WC</b>	Watercooled machine
<b>AC</b>	Aircooled machine
<b>ERS</b>	Energy recovery system
<b>T.E.F.C.</b>	Totally enclosed fan cooled motor (IP55)
<b>O.D.P.</b>	Open drip proof (motor)

**This manual is provided to cover instructions and technical data for additional options to the standard UP compressor range. It is provided as a SUPPLEMENT to the standard operators and parts manuals and should NOT be used for the operation of the complete machine.**

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This manual contains instructions and technical data to cover routine operation and scheduled maintenance tasks by operation and maintenance staff. Major overhauls are outside the scope of this manual and should be referred to an authorized Ingersoll Rand service department.

All components, accessories, pipes and connectors added to the compressed air system should be:

- . of good quality, procured from a reputable manufacturer and, wherever possible, be of a type approved by Ingersoll Rand.
- . clearly rated for a pressure at least equal to the machine maximum allowable working pressure.
- . compatible with the compressor lubricant/coolant.
- . accompanied with instructions for safe installation, operation and maintenance.

*Details of approved equipment are available from Ingersoll Rand Service departments.*

The use of non-genuine spare repair parts other than those included within the Ingersoll Rand approved parts list may create hazardous conditions over which Ingersoll Rand has no control. Therefore Ingersoll Rand does not accept any liability for losses caused by equipment in which non-approved repair parts are installed. Standard warranty conditions may be affected.

Ingersoll Rand reserves the right to make changes and improvements to products without notice and without incurring any obligation to make such changes or add such improvements to products sold previously.

The intended uses of this machine are outlined below and examples of unapproved usage are also given, however Ingersoll Rand cannot anticipate every application or work situation that may arise.

### IF IN DOUBT CONSULT SUPERVISION.

This machine has been designed and supplied for use only in the following specified conditions and applications:

- . Compression of normal ambient air containing no known or detectable additional gases, vapors, or particles
- . Operation within the ambient temperature range specified in the *GENERAL INFORMATION* section of this manual.

**The use of the machine in any of the situation types listed in table 1:–**

- a) Is not approved by Ingersoll Rand,**
- b) May impair the safety of users and other persons, and**
- c) May prejudice any claims made against Ingersoll Rand.**

### TABLE 1

Use of the machine to produce compressed air for: a) direct human consumption b) indirect human consumption, without suitable filtration and purity checks.
Use of the machine outside the ambient temperature range specified in the <i>GENERAL INFORMATION SECTION</i> of this manual.
Use of the machine where there is any actual or foreseeable risk of hazardous levels of flammable gases or vapors.  <b>THIS MACHINE IS NOT INTENDED AND MUST NOT BE USED IN POTENTIALLY EXPLOSIVE ATMOSPHERES, INCLUDING SITUATIONS WHERE FLAMMABLE GASES OR VAPOURS MAY BE PRESENT.</b>
Use of the machine fitted with <i>non Ingersoll Rand approved components</i> .
Use of the machine with safety or control components missing or disabled.

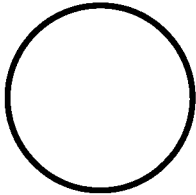
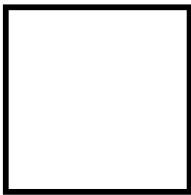


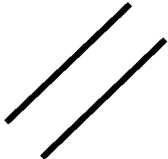




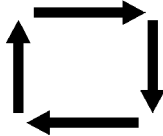
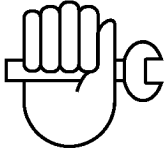



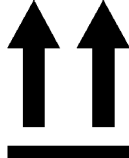



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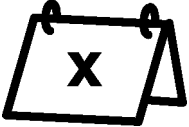
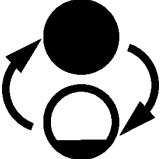
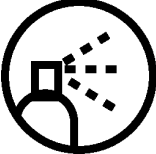

**ISO SYMBOLS**

**GRAPHIC FORM AND MEANING OF ISO SYMBOLS**

		
<b>Prohibition / Mandatory</b>	<b>Information / Instructions</b>	<b>Warning</b>
 <p>Use fork lift truck from this side only.</p>	 <p><b>RESET</b></p>	 <p>Do not use fork lift truck from this side.</p>
 <p>Emergency stop.</p>	 <p>On (power).</p>	 <p>Off (power).</p>
 <p><b>AUTOMATIC RESTART</b></p>	 <p><b>MAINTENANCE</b></p>	 <p><b>MAINTENANCE PROHIBITED</b></p>
 <p><b>FRAGILE</b></p>	 <p><b>KEEP DRY</b></p>	 <p><b>THIS WAY UP</b></p>
 <p><b>USE NO HOOKS</b></p>	 <p><b>NO SIDE CLAMPS</b></p>	 <p><b>HOURS</b></p>

# 4

## DECALS

 <p><b>POWER</b></p>	 <p><b>INSPECT</b></p>	 <p>Every X months, if sooner than required by operating hours</p>
 <p><b>CHANGE / REPLACE</b></p>	 <p><b>CLEAN</b></p>	 <p><b>MOISTURE</b></p>

## ANSI SYMBOLS

### GRAPHIC FORM AND MEANING OF ANSI SYMBOLS



#### DANGER



**INTAKE AIR.** Can contain carbon monoxide or other contaminants. Will cause serious injury or death. Ingersoll Rand air compressors are not designed, intended or approved for breathing air. Compressed air should not be used for breathing air applications unless treated in accordance with all applicable codes and regulations.



#### WARNING



**HAZARDOUS VOLTAGE.** Can cause serious injury or death. Disconnect power and bleed pressure from tank before servicing. Lockout/Tagout machine. Compressor must be connected to properly grounded circuit. See Grounding Instructions in manual. Do not operate compressor in wet conditions. Store indoors.



**RISK OF FIRE OR EXPLOSION.** Electrical arcing from compressor components can ignite flammable liquids and vapors which can result in serious injury. Never operate the compressor near flammable liquids or vapors. If used to spray flammable materials, keep compressor at least 20ft away from the spray area.



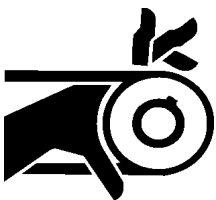
**HIGH PRESSURE AIR.** Rusted tanks can cause explosion and severe injury or death. Receiver under pressure. Operator should relieve tank pressure before performing maintenance. In addition to automatic drain, operate manual drain valve weekly. Manual drain valve located at bottom of the tank.



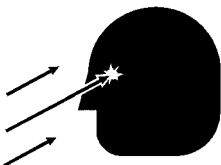
**MOVING PARTS.** Can cause serious injury. Do not operate with guards removed. Machine may start automatically. Disconnect power before servicing. Lockout/Tagout machine.



**HOT SURFACES.** Can cause serious injury. Do not touch. Allow to cool before servicing. Do not touch hot compressor or tubing.



**EXPOSED MOVING BELTS AND SHEAVES.**  
Can cause severe injury or death.  
Do not operate without guard in place. Disconnect power before servicing.  
Lockout/Tagout machine.



Air flow exhaust may contain flying debris.  
Safety protection should be worn at all times.

# 6 SAFETY

## **DANGER!**

Hazard that **WILL** cause **DEATH, SEVERE INJURY** or substantial property damage if ignored. Instructions must be followed precisely to avoid injury or death.

## **WARNING!**

Hazard that **CAN** cause **DEATH, SEVERE INJURY** or substantial property damage if ignored. Instructions which must be followed precisely to avoid injury or death.

## **CAUTIONS!**

Caution call attention to instructions which must be followed precisely to avoid damaging the product, process or its surroundings.

## **NOTES**

Notes are used for supplementary information.

## **BREATHING AIR PRECAUTION**

Ingersoll Rand air compressors are not designed, intended or approved for breathing air. Compressed air should not be used for breathing air applications unless treated in accordance with all applicable codes and regulations.

## **General Information**

Ensure that the operator reads and *understands* the decals and consults the manuals before maintenance or operation.

Ensure that the Operation and Maintenance manual is not removed permanently from the machine.

Ensure that maintenance personnel are adequately trained, competent and have read the Maintenance Manuals.

Do not point air nozzles or sprayers toward anyone.

Compressed air and electricity can be dangerous. Before undertaking any work on the compressor, ensure that the electrical supply has been isolated and the compressor has been relieved of all pressure.

Wear eye protection when operating or servicing compressor.

All persons positioned near to operating machinery should be equipped with hearing protection and given instructions on its use in accordance with workplace safety legislation.

Make sure that all protective covers are in place and that the canopy/doors are closed during operation.

The specification of this machine is such that the machine is not suitable for use in flammable gas risk areas.

*Installation of this compressor must be in accordance with recognized electrical codes and any local Health and Safety Codes.*

The use of plastic bowls on line filters can be hazardous. Their safety can be affected by either synthetic lubricants, or the additives used in mineral oils. Ingersoll Rand recommends that only filters with metal bowls should be used on a pressurized system.

## **Compressed air**

Compressed air can be dangerous if incorrectly handled. Before doing any work on the unit, ensure that all pressure is vented from the system and that the machine cannot be started accidentally.

## **WARNING**

**Imposing a normal or emergency stop on the compressor will only relieve pressure upstream of the minimum pressure valve on top of the separator tank. If maintenance work is required downstream of this valve, ensure that all pressure is relieved at the process vent point external to the compressor**

Ensure that the machine is operating at the rated pressure and that the rated pressure is known to all relevant personnel.

All air pressure equipment installed in or connected to the machine must have safe working pressure ratings of at least the machine rated pressure.

If more than one compressor is connected to one common downstream plant, effective isolation valves must be fitted and controlled by work procedures, so that one machine cannot accidentally be pressurized / over pressurized by another.

Compressed air must not be used for a direct feed to any form of breathing apparatus or mask.

The discharged air contains a very small percentage of compressor lubricant and care should be taken to ensure that downstream equipment is compatible.

If the discharged air is to be ultimately released into a confined space, adequate ventilation must be provided.

When using compressed air always use appropriate personal protective equipment.

All pressure containing parts, especially flexible hoses and their couplings, must be regularly inspected, be free from defects and be replaced according to the Manual instructions.

Compressed air can be dangerous if incorrectly handled. Before doing any work on the unit, ensure that all pressure is vented from the system and that the machine cannot be started accidentally.

Avoid bodily contact with compressed air.

All safety valves located in the separator tank must be checked periodically for correct operation.

Do not over-pressurize the receiver tank or similar vessels beyond design limits.

Do not use a receiver tank or similar vessels that fail to meet the design requirements of the compressor. Contact your distributor for assistance.

Do not drill into, weld or otherwise alter the receiver tank or similar vessels.

## **Materials**

The following substances are used in the manufacture of this machine and *may* be hazardous to health if used incorrectly:

- preservative grease
- rust preventative
- compressor coolant

## **AVOID INGESTION, SKIN CONTACT AND INHALATION OF FUMES**

## **Transport**

When loading or transporting machines ensure that the specified lifting and tie down points are used.

Lifting equipment must be properly rated for the weight of the compressor.

Do not work on or walk under the compressor while it is suspended.



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**Electrical**

Keep all parts of the body and any hand-held tools or other conductive objects, away from exposed live parts of the compressor electrical system. Maintain dry footing, stand on insulating surfaces and do not contact any other portion of the compressor when making adjustments or repairs to exposed live parts of the compressor electrical system.

**WARNING**

**Any electrical connections or adjustments should only be made by a suitably qualified electrician**

Close and lock all access doors when the compressor is left unattended.

Do not use extinguishers intended for Class A or Class B fires on electrical fires. Use only extinguishers suitable for class *BC* or class *ABC* fires.

Attempt repairs only in clean, dry, well lighted and ventilated areas.

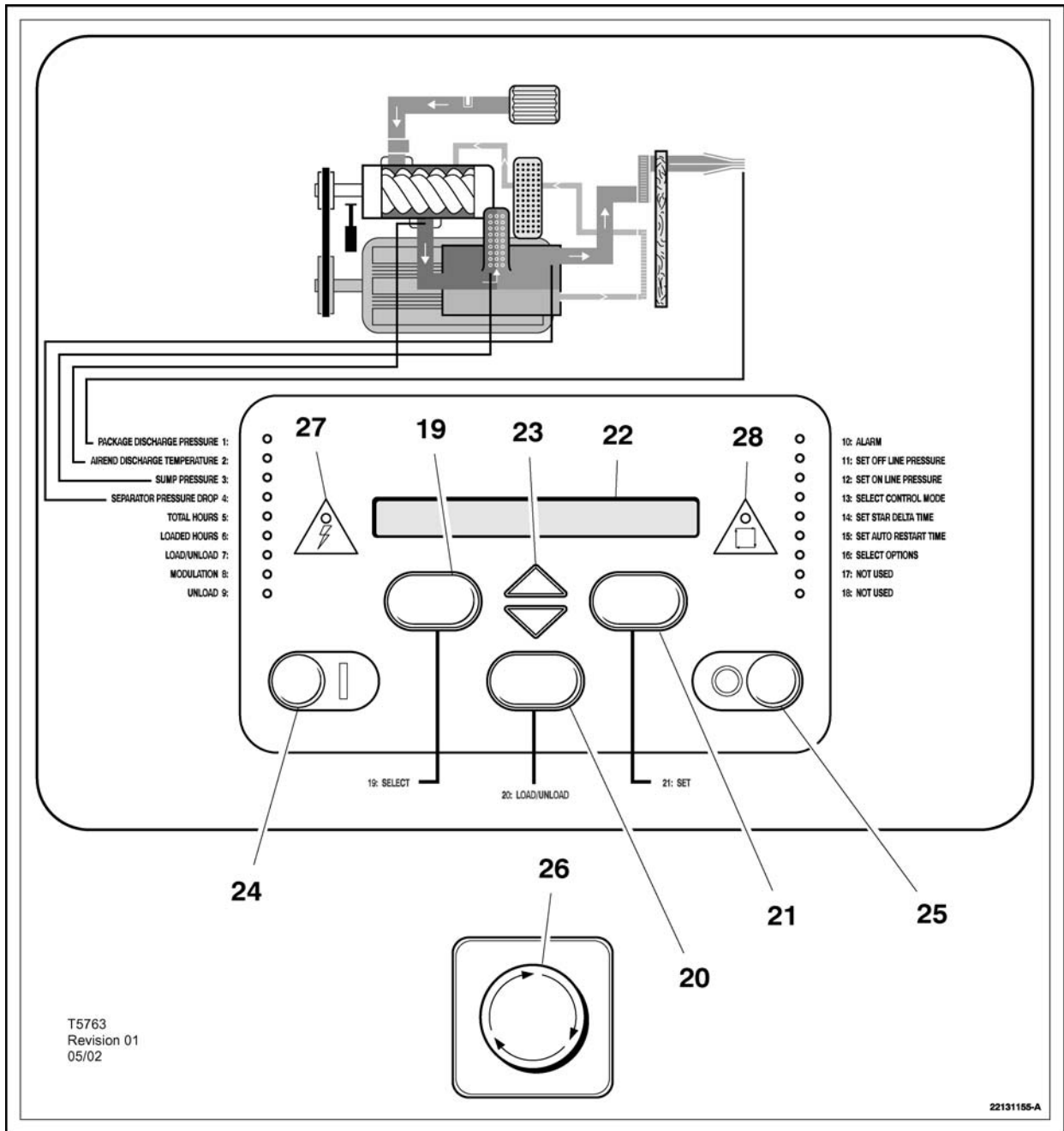
Connect the compressor only to electrical systems that are compatible with its electrical characteristics and that are within its rated capacity.

**Condensate disposal**

As waste water regulations vary by country and region it is the responsibility of the user to establish the limitations and regulations in their particular area. Ingersoll Rand and its associated distributors are happy to advise and assist in these matters.

For further information, consult Material Data  
80440043 MSDS, Ultra Coolant English  
80440068 MSDS, Ultra Coolant Spanish  
80440050 MSDS, Ultra Coolant Portuguese  
80442254 MSDS, Xtend Food Grade Coolant English

## INTELLISYS CONTROL AND INSTRUMENTATION

**PRIOR TO STARTING**

1. Check coolant level. Add if necessary.
2. Make sure main discharge valve is open.
3. Turn on electrical isolator. The power L.E.D. will illuminate and the display will indicate 'Ready to start'.

**WARNING**

Make sure that all protective covers are in place.

**STARTING**

Press 'Start' [24]. The compressor will start and then load automatically.

**POWER OUT RESTART (Optional)**

If this setting is set to ON, the compressor will automatically restart when power is returned to the compressor if it was operating when power was removed.

**POWER OUT RESTART TIME**

If the power out restart setting is set to ON, this is the number of seconds from the time power is restored until the compressor starts. The power out restart horn will sound during this time.

**NORMAL STOPPING**

1. Press 'Unloaded Stop'[25]. The compressor will unload then stop.
2. Turn off electrical isolator.

**EMERGENCY STOP**

1. Press 'Emergency stop button' [26] and the compressor will stop immediately.
2. Turn off electrical isolator.

**INSTRUMENT PANEL FUNCTION****1 PACKAGE DISCHARGE PRESSURE L.E.D.**

This will illuminate when the display indicates the package discharge pressure.

**2 AIREND DISCHARGE TEMPERATURE L.E.D.**

This will illuminate when the display indicates the airend discharge temperature.

**3 SUMP PRESSURE L.E.D.**

This will illuminate when the display indicates the sump pressure.

**4 SEPARATOR PRESSURE DROP L.E.D.**

This will illuminate when the display indicates the separator pressure drop.

**5 TOTAL HOURS L.E.D.**

This will illuminate when the display indicates the total compressor running hours.

**6 LOADED HOURS L.E.D.**

This will illuminate when the display indicates the total loaded compressor hours.

**7 LOAD/UNLOAD L.E.D.**

This will illuminate when the compressor is running *onload*.

**8 MODULATION L.E.D.**

This will illuminate when the compressor is running in *modulation* mode. (Note: capacity modulation will occur only if the appropriate regulation pneumatics are fitted to the compressor).

**9 UNLOAD L.E.D.**

This will illuminate when the compressor is running in *unload* mode.

**10 ALARM L.E.D.**

This will flash when a warning condition exists. The warning detected will be displayed and the compressor will continue to run. The warning can be reset by depressing *set* [21].

It will illuminate when an alarm condition has occurred. The compressor will shutdown immediately. The alarm can be reset by depressing *set* [21] twice within 3 seconds.

**OTHER L.E.D.s**

These will illuminate during the *set point routine* to indicate which function is being adjusted.

**11 L.E.D.**—Set off line pressure.

**12 L.E.D.**—Set on line pressure.

**13 L.E.D.**—Select control mode.

**14 L.E.D.**—Set star delta time.

**15 L.E.D.**—Set auto restart time.

**16 L.E.D.**—Select options.

**17 L.E.D.**—Not used.

**18 L.E.D.**—Not used.

**19 DISPLAY SELECT BUTTON**

Press to index through compressor operating conditions. The corresponding L.E.D. will illuminate adjacent to display.

This is used to select alternative status displays (after approximately 5 minutes, the display defaults to the package discharge pressure). Depressing this button in the *set point routine* will cause exit to *checking machine* for 2 seconds, then *ready to start*.

**20 LOAD/UNLOAD BUTTON**

These are used to manually switch the compressor between a loaded control mode (e.g. *on/off line*) and unloaded running.

See L.E.D.

**21 SET BUTTON**

Depressing this button when the compressor is stopped will enable entry into the *set point routine*. When in the *set point routine*, depressing this button will cause the controller to move on to the next set point setting, saving the new value if one has been entered.

A warning reset is obtained by depressing this button (while the machine is running). An alarm reset is obtained by depressing this button twice within 3 seconds (the alarm condition will remain if the indicated fault has not been rectified).

**22 LIQUID CRYSTAL DISPLAY**

This indicates the status of the compressor, set up parameters and warning/alarm messages. When the compressor is running, the display will normally show the package discharge pressure.

**23 ARROW KEYS**

These are used to index through warning and alarm messages. In the *set point routine*, these buttons are used to increase/decrease set point values and enable/disable some operation conditions.

The arrow keys are also used to select pressure bands 1 (▲) or 2 (▼) during normal operation of the compressor.

**24 START BUTTON**

This button when depressed will cause the compressor to start and load automatically, provided that the controller detects a demand for air. When pressed in the *display* mode, it will cause exit to *checking machine* for 2 seconds, then *ready to start*.

**25 UNLOADED STOP**

This button when depressed while the compressor is running, will unload the compressor (if not already unloaded) for 10 seconds and then stop. This is the normal method for stopping the compressor. If the compressor is already stopped, it will execute an L.E.D. check (all the L.E.D.s should illuminate) and display the controller software revision.

**26 EMERGENCY STOP**

This button when depressed will stop the compressor immediately and display an *emergency stop* alarm message.

**27 POWER L.E.D.**

This will illuminate when the 8V controller supply is available.

**28 AUTOMATIC RESTART L.E.D.**

This will illuminate when the machine has shutdown due to low air demand. The compressor will restart and load automatically as soon as the demand for air resumes.

**DISPLAY MESSAGES**

When the compressor is running normally, the display will indicate the package discharge pressure and illuminate the corresponding L.E.D. [1]. An arrow will also appear in the far right of the display indicating pressure band selection. Pressing *display select* [19] will change the display value and the corresponding L.E.D. will illuminate. The controller monitors all aspects of the compressor while running and will display warnings or in severe conditions execute an emergency stop and display alarm conditions.

**MACHINE CONTROL MODES****CAPACITY CONTROL**

The compressor is designed to work with two types of capacity control, to suit the individual plant requirements. These controls are:–  
A. On line – Off line. (Fitted as standard)  
B. On line – Off line, with Upper Range Modulation. (Optional extra)  
Either is available by selection at the control panel.

**ON LINE – OFF LINE CONTROL**

For applications that require a widely varying air demand, this mode of control will deliver air at full capacity or zero capacity with low receiver pressure.

This mode of operation is controlled by the pressure transducer responding to changes in plant air pressure. This sensor energizes the load solenoid valve which in turn operates the venting valve (blowdown) and the closing of the atmospheric vent opening in the air inlet valve.

The compressor then delivers full capacity air to the plant system. If the air pressure in this system rises to the upper set point of the pressure setting, the load solenoid valve is de-energized allowing the inlet valve to close. At the same time, the venting valve opens allowing the receiver pressure to drop.

The pressure setting has a range of 12 psi (0.83 bar) between its upper and lower set points. The upper set point is set at 3 psi (0.2 bar) above the compressor rated discharge pressure.

**UPPER RANGE MODULATION CONTROL (Optional Extra)**

For plants having a relatively high and constant air demand, Upper Range Modulation is the recommended mode of control.

Upper range modulation retains the features of On line – Off line control but provides the throttling of the inlet air flow as the line pressure rises to the upper set point of the *off-line* pressure setting.

By bleeding off a small amount from the regulator valve, which energises the Modulate Solenoid Valve, a reduction in the air signal to the pneumatic cylinder on the inlet valve allows the cylinder to 'trim' the inlet valve position as dictated by changing line pressure. Modulation begins when the compressor reaches about 94% of the rated line pressure and is factory set to modulate down to approximately 70% of rated capacity.

If the air demand decreases to a level below the 70% modulated output, the line pressure will increase slightly to the upper limit of the pressure setting, when the compressor then changes to the Off line control position and operates with the receiver vented.

**AUTOMATIC START/STOP**

For plants that have a widely varying plant air demand, larger air storage capacity, and/or want automatically available stand-by air capacity, Automatic Start–Stop Control Option is available.

During periods of low demand, if the line pressure rises to the off line air pressure set point of the Intellisys® , a timer is energized and begins to time out. The automatic restart time is adjustable in a 2–60 minute range. The timer will continue to operate as long as the plant line pressure remains above the on line set point of the Intellisys® . If the timer continues to operate for as long as its adjusted time setting, a contact in the Intellisys opens to de-energize the compressor starter coils. At the same time, a yellow Automatic Restart light on the Intellisys® panel is lit and the message AUTO RESTART will be displayed to indicate the compressor has shut down automatically and will restart automatically.

The automatic restart will take place when the line pressure drops to the online set point of the Intellisys® .

**To operate in the automatic start/stop mode, proceed with the following steps:**

1. Press the SET button until the message AUTO S/S OFF is displayed.
2. Push the up or down arrows to select the auto start/stop function (on or off). AUTO S/S OFF in the display indicates auto start/stop is disabled (off). AUTO S/S ON in the display indicates auto start/stop is enabled (on). Press the SET button to store function. The display will flash to acknowledge and then display AUTO S/S 10 MIN.
3. Press the up or down arrows to select the desired automatic restart time (2–60 min. range). The default value is 10 minutes. Press SET button to store the value. The display will flash to acknowledge. Press the DISPLAY SELECT button or wait 30 seconds for the controller to automatically exit the set routine. The display returns to READY TO START.
4. Start the compressor and adjust the isolation valve to allow the unit to slowly reach the offline pressure and unload. The compressor should run for a minimum of 10 min. and unloaded for the pre-set time and then shut down.
5. The compressor should restart automatically when the system air pressure drops below the online air pressure setting.

**CONTROLLER WARNING MESSAGES**

In the event of a warning, the controller will display a message and the *alarm L.E.D.* [10] will flash. The warning message will alternate with the normal display every 4 seconds, the compressor will continue to run but the fault should be rectified as soon as possible. The *arrow keys* [23] should be used to index the display for any additional warning messages. A warning message may be reset by depressing *set* [21] once.

**NOTE:**

The warning will recur if the fault has not been rectified. The following warning messages may be displayed:

**SEPARATOR ELEMENT**

The separator element is dirty or blocked and should be replaced.

**AIREND TEMPERATURE**

The airend temperature reaches 97% of the high airend temperature set point (i.e. 223°F (106°C)).

**CONTROLLER ALARMS**

In the event of an alarm, the controller will execute an emergency stop, the *alarm L.E.D. [10]* will illuminate and an alarm message will be displayed. The *arrow keys [23]* should be used to index the display for any additional alarm messages. An alarm is reset by depressing *set [21]* twice within a 3 second period after the fault has been rectified. The compressor will restart only when all alarm conditions have been rectified. The following alarm messages may be displayed (For fault correction see the Fault Finding section):

**STARTER FAULT**

The contactor sequence during start or stop is incorrect.

**AIREND TEMPERATURE**

The airend discharge temperature is above the high temperature set point.

**MOTOR OVERLOAD**

The motor overload contacts are open. The motor overload must be reset before the controller can be reset.

**REVERSE ROTATION**

No sump pressure is detected after the first 2 seconds of running. Isolate the machine and reverse the mains supply connections before resuming.

**OVER PRESSURE**

The line pressure is 15 psi (1 bar) greater than the rated discharge pressure.

**TEMPERATURE SENSOR 1**

The airend temperature sensor/ connecting cable has failed.

**TEMPERATURE SENSOR 2**

The separator tank temperature sensor/connecting cable has failed.

**PRESSURE SENSOR**

Indicates pressure transducer failure / connecting cable fault.

**FAILED CALIBRATION**

During calibration routine, a 10% of scale error has been detected. Ensure that the separator is completely blowdown and repeat calibration.

**CONTROL POWER LOSS**

The 48Vac signal is not present at the controller.

**REMOTE START FAILURE**

Momentary remote start has not disengaged before star-delta transition. This alarm is active only if the remote start/stop is enabled.

**REMOTE STOP FAILURE**

The momentary remote stop switch has not disengaged when the start signal is received. This alarm is active only if the remote start/stop is enabled.

**EMERGENCY STOP**

The emergency stop button is engaged.

**LOW SUMP PRESSURE**

The sump pressure drops below 15 psi (1 bar) during normal operation.

**FIELD OPTION/S**

Before installation and operation of this option, these instructions should be studied carefully to obtain a clear knowledge of the option and its application to the compressor.

**REMOTE START/STOP**

The Remote Start/Stop Option allows the operator to control the compressor from a remote mounted start/stop station. Terminal points are provided in connector J1 in the top of the Intellisys® controller; one a connection for a normally closed stop switch (terminals 3 and 4), and one for a normally open, momentary contact start switch (terminals 5 and 6). Refer to the compressor wiring schematic for specific connection points.

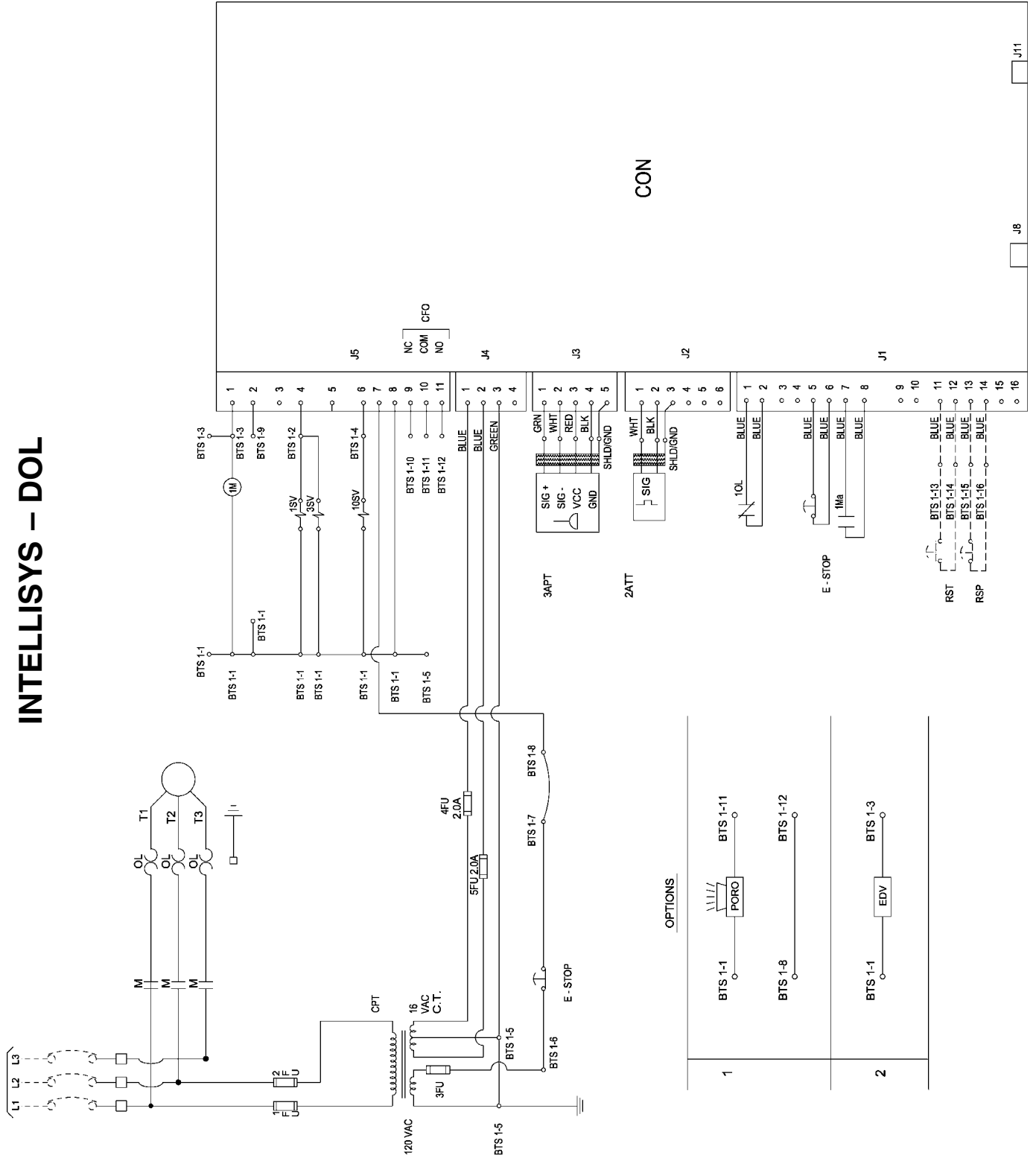
For safety, a selection is available in the Intellisys® set-points to disable the remote start and stop function. This allows the compressor to be fully controlled by the Intellisys® and not from the remote start/stop station.

If the remote start switch is momentarily closed, the Intellisys® starts the compressor. The remote stop switch is normally closed. If the remote stop switch opens, the compressor will unload and stop. The compressor cannot restart until the remote stop switch has been reset to a closed position. (EMERGENCY STOP will display on the Intellisys® if the stop switch is not closed).

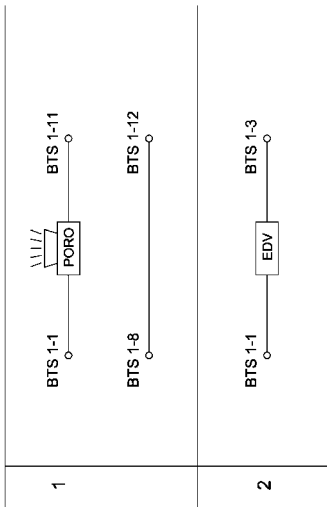
**To operate in the remote start/stop mode, proceed with the following steps:**

1. Press the SET button until the message REMOTE S/S OFF is displayed.
2. Push the up or down arrows to select the remote start/stop function (on or off). REMOTE S/S OFF in the display indicates remote start/stop is disabled (off). REMOTE S/S ON in the display indicates remote start/stop in enabled (on). Press the SET button to store the function. The display will flash to acknowledge. Press the DISPLAY SELECT button or wait 30 seconds for the controller to automatically exit the set routine. The display returns to READY TO START.
3. Start the compressor with the Start button on the Intellisys control panel. The compressor must be started locally first before the Remote Start/Stop buttons are activated by the Intellisys®.

INTELLISYS – DOL



OPTIONS



32343956  
Revision D

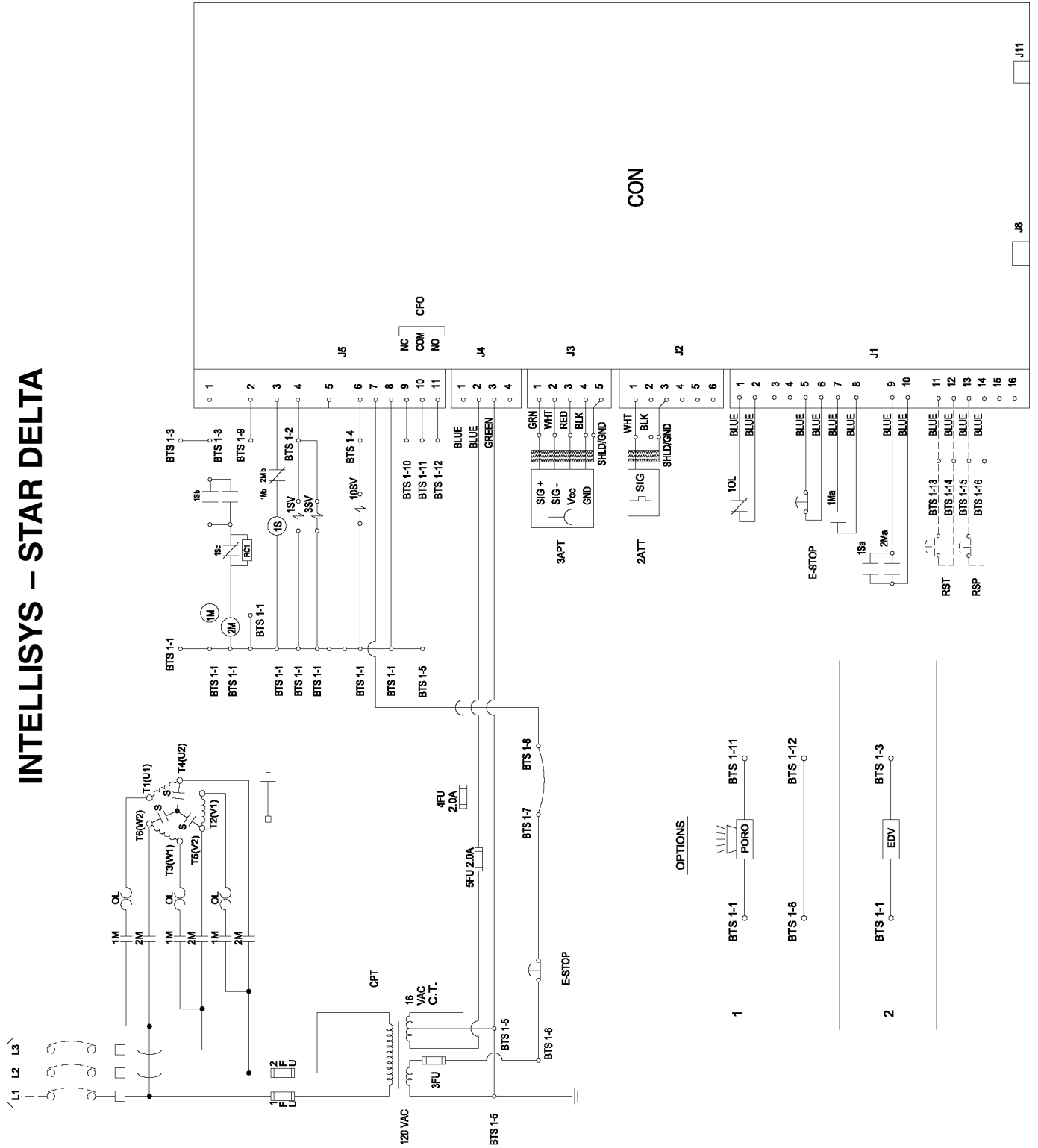
**KEY**

CON	Controller, INTELLISYS
CPT	Transformer, control
EDV	Valve, electric drain
E-STOP	Button, emergency stop
FU	Fuse
M	Contactactor (main)
1M	Coil, motor starter
OL	Overload, motor starter
1SV	Valve, solenoid (load) N.C
3SV	Valve, solenoid (blowdown) N.O
10SV	Valve, solenoid (line / sump) N.C
RST	Remote start (Optional)
RSP	Remote stop (Optional)
CFO	Common fault output
PORO	Power out restart (Optional)
2ATT	Temperature sensor
3APT	Pressure sensor

**NOTES**

1. Approved fused disconnect or circuit breaker per code requirements must be provided by customer.
2. Dashed lines represent wiring by customer.
3. Sizing of electrical components not supplied by Ingersoll Rand is the responsibility of the customer and should be done in accordance with the information on the compressor data plate and local electrical codes.
4. Unit will not restart automatically after power outage, except with additional PORO option.
5. Circuit shown in normal position de-energized.
6. All wiring to be in accordance with local codes.

INTELLISYS – STAR DELTA



32343931  
Revision E

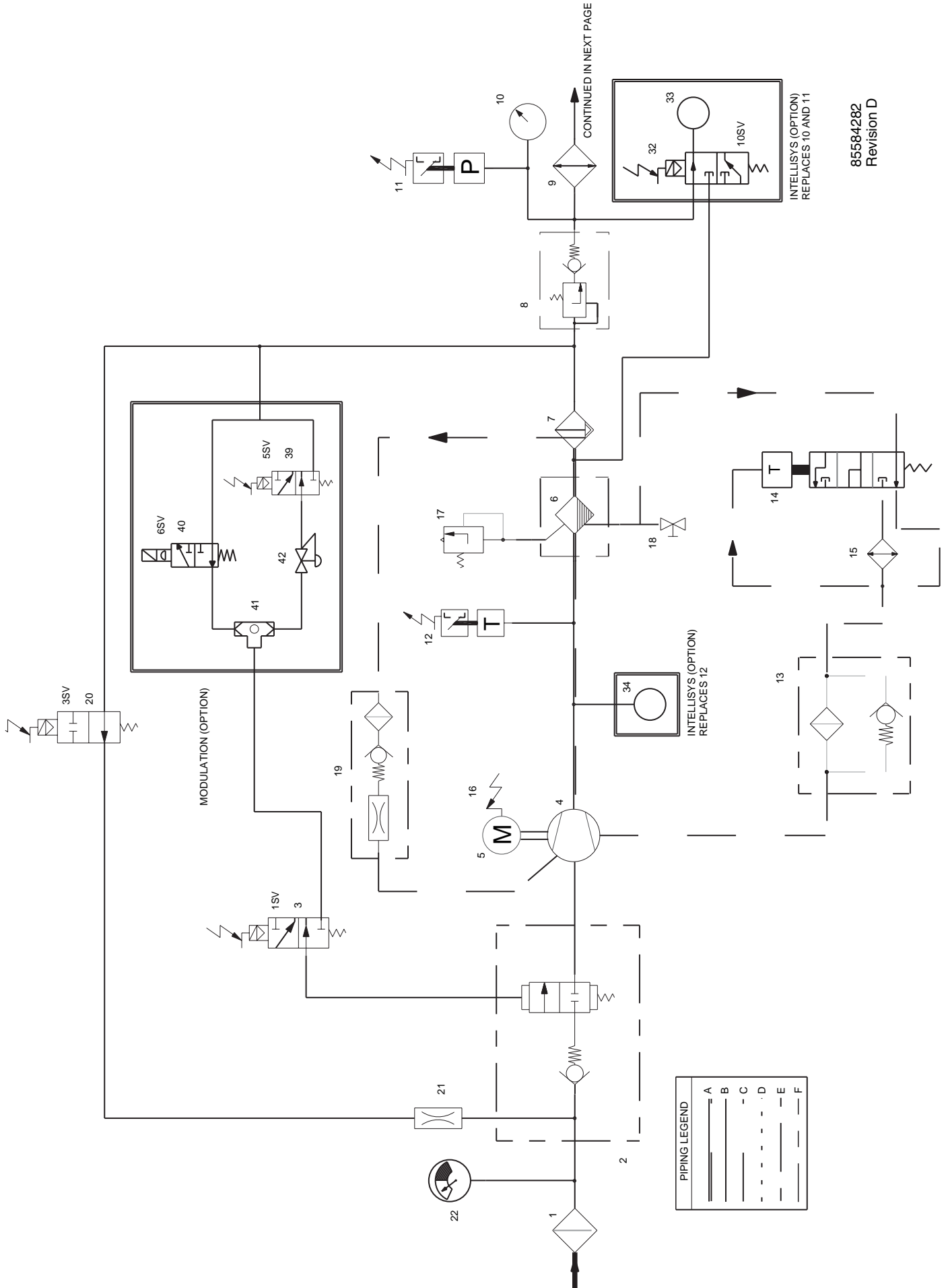


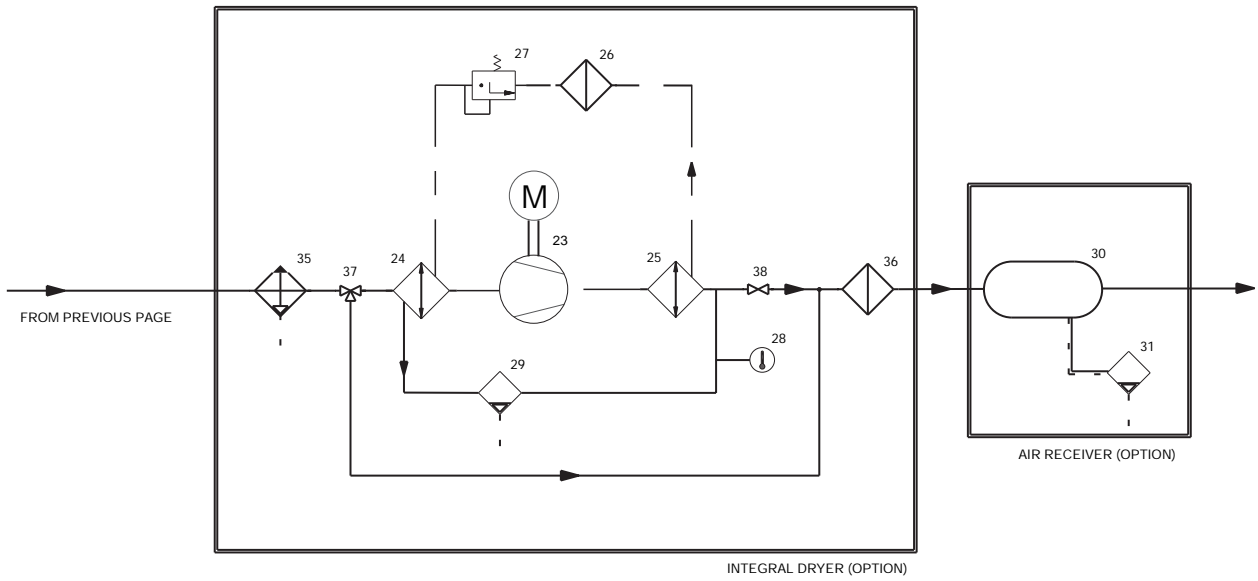
**KEY**

CON	Controller, INTELLISYS
CPT	Transformer, control
EDV	Valve, electric drain
E-STOP	Button, emergency stop
FU	Fuse
1M	Contactora (main)
2M	Contactora (delta)
OL	Overload, motor starter
1SV	Valve, solenoid (load) N.C
3SV	Valve, solenoid (blowdown) N.O
10SV	Valve, solenoid (line / sump) N.C
RST	Remote start (Optional)
RSP	Remote stop (Optional)
CFO	Common fault output
PORO	Power out restart (Optional)
2ATT	Temperature sensor
3APT	Pressure sensor
1S	Contactora (wye / star)

**NOTES**

1. Approved fused disconnect or circuit breaker per code requirements must be provided by customer.
2. Dashed lines represent wiring by customer.
3. Sizing of electrical components not supplied by Ingersoll Rand is the responsibility of the customer and should be done in accordance with the information on the compressor data plate and local electrical codes.
4. Unit will not restart automatically after power outage, except with additional PORO option.
5. Circuit shown in normal position de-energized.
6. All wiring to be in accordance with local codes.
7. Blue – 16 Volts AC



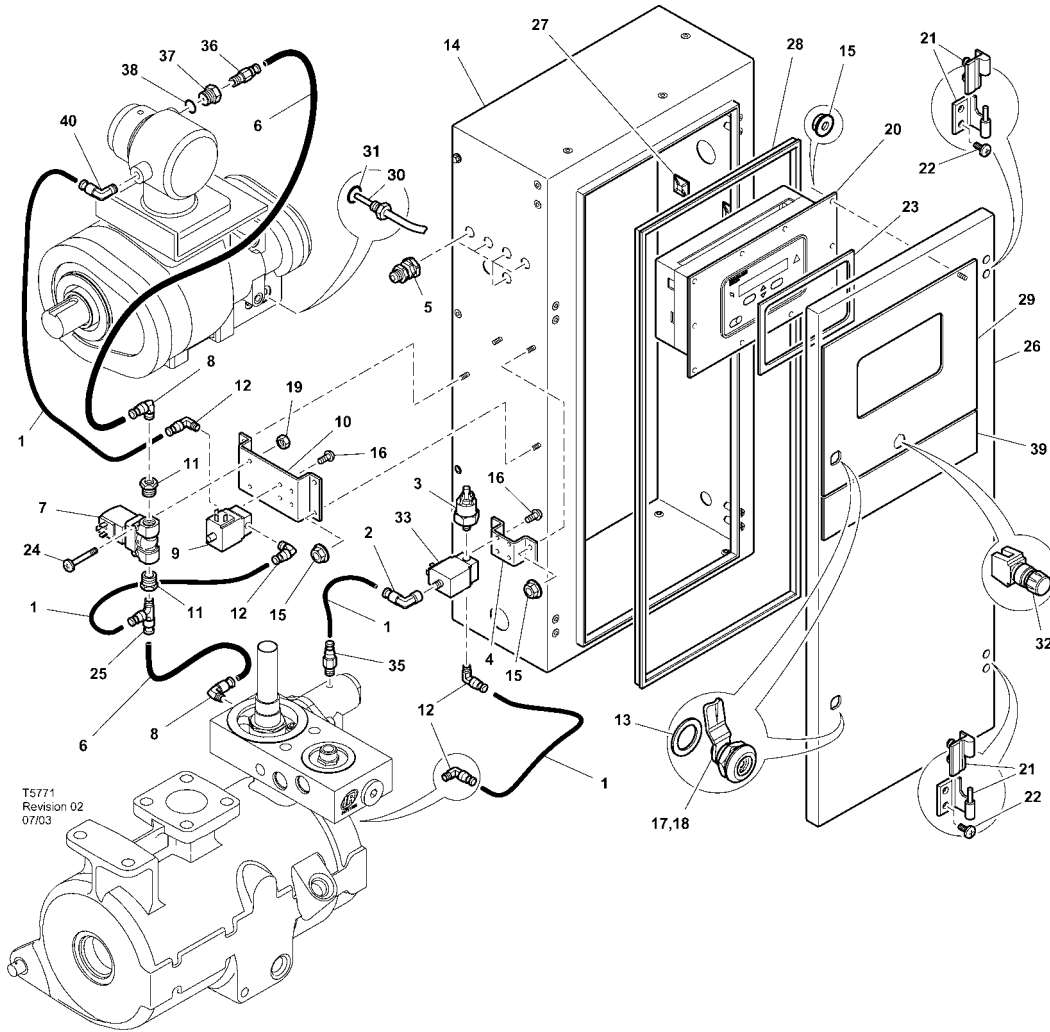


KEY

- |                                       |                                      |
|---------------------------------------|--------------------------------------|
| 1. Filter, air                        | 26. Filter, Refrigerant              |
| 2. Valve, inlet                       | 27. Expansion Valve                  |
| 3. Valve, solenoid (load)             | 28. Indicator, Dew Point             |
| 4. Airend assembly                    | 29. Condensate Drain Valve           |
| 5. Motor                              | 30. Receiver, Air                    |
| 6. Tank, separator, Coarse            | 31. Auto Drain Valve                 |
| 7. Separator, Fine                    | 32. Valve, Solenoid 10sv (Line/Sump) |
| 8. Valve, minimum pressure            | 33. Transducer, Pressure             |
| 9. Aftercooler                        | 34. Sensor, Temperature              |
| 10. Gauge, pressure                   | 35. Moisture Separator               |
| 11. Switch, discharge pressure        | 36. Filter, Air                      |
| 12. Switch, temperature               | 37. 3 Way Valve, Bypass              |
| 13. Filter, coolant                   | 38. Valve, Isolation                 |
| 14. Thermostat                        | 39. Valve, Solenoid 5sv (Modulation) |
| 15. Cooler                            | 40. Valve, Solenoid 6sv (Modulation) |
| 16. Relay, overload Motor             | 41. Valve, Shuttle                   |
| 17. Valve, safety                     | 42. Valve, Modulation                |
| 18. Valve, Drain                      | A Air/Coolant                        |
| 19. Screen, Scavenge                  | B Air                                |
| 20. Valve, Solenoid 3sv (Blowdown)    | C Coolant                            |
| 21. Orifice                           | D Condensate                         |
| 22. Indicator, Air Filter Restriction | E Component boundary                 |
| 23. Refrigerant Compressor            | F Refrigerant                        |
| 24. Evaporator                        | G Option                             |
| 25. Condenser                         |                                      |



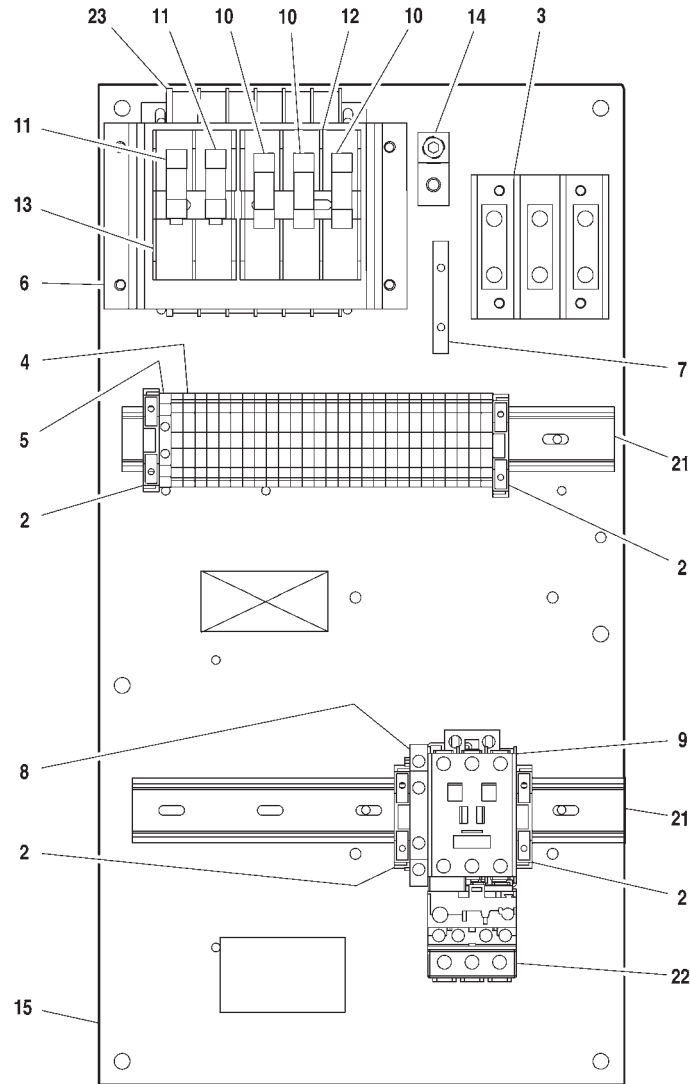
INTELLISYS PARTS – INSTRUMENTATION AND ELECTRICAL SYSTEM



T5771  
Revision 02  
07/03

Item	ccn	Qty.	Description	Item	ccn	Qty.	Description
1	39124813	AR	Tube (Nylon)	22	96743992	4	Screw
2	39155460	1	Elbow	23	39495874	1	Gasket
3	39853809	1	Transducer	24	96742754	2	Screw
4	22107833	1	Bracket	25	22055909	1	Tee
5	92877018	5	Gland, cable	26	22177190	1	Cabinet door
6	39124821	AR	Tube (Nylon)	27	39133467	3	Mount
7	54654652	1	Valve, solenoid (Blowdown)	28	22177315	1	Gasket, door
8	39155650	2	Elbow	29	22131155	1	Decal, controller
9	54774302	1	Valve, solenoid (Load)	30	22137848	1	Sensor, temperature
10	54755426	1	Bracket	31	39404157	1	'O' Ring
11	95944625	2	Bushing	32	22113344	1	Button, emergency stop
12	39155577	4	Elbow	33	22289797	1	Valve, solenoid (line/sump)
13	93492072	2	Seal	*34	39192000	4	Grommet
14	22177174	1	Cabinet	35	39156393	1	Connector
15	96737564	14	Nut	36	39156419	1	Connector
16	96743182	8	Screw	37	54774997	1	Bush
17	85584340	4	Latch	38	39404165	1	'O' Ring
*18	92829308	1	Key	39	22131148	1	Decal
19	96703756	2	Nut	40	39155478	1	Elbow
20	22128763	1	Controller, INTELLISYS				* Not illustrated
21	22091193	2	Hinge				

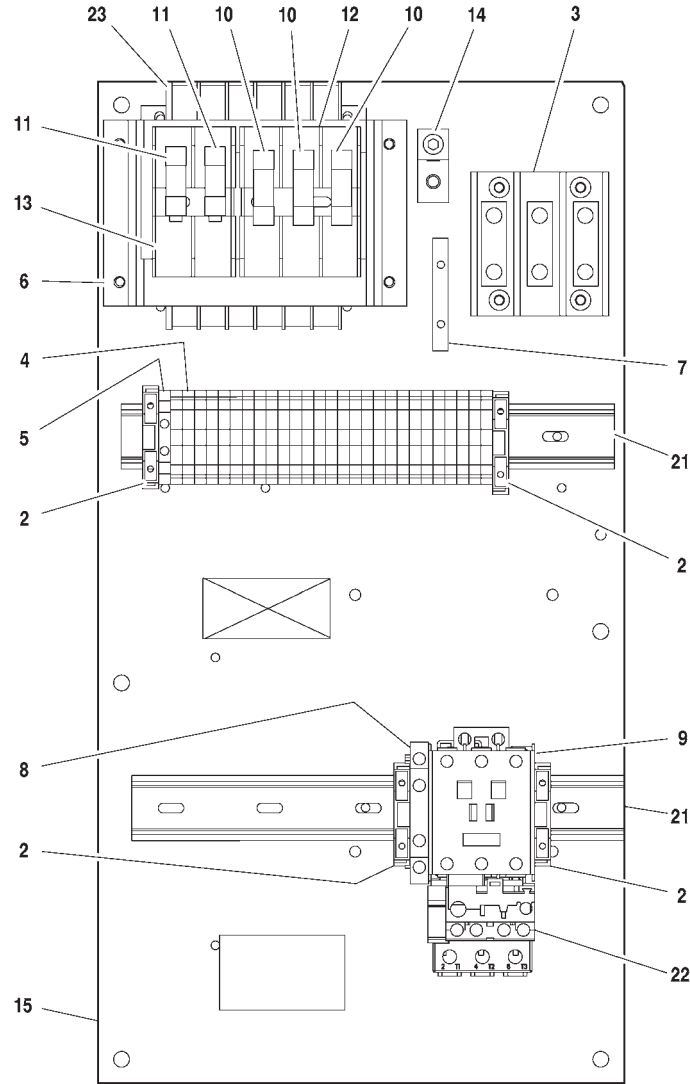
INTELLISYS PARTS – C37 FULL VOLTAGE – DOL 60Hz – 575V 15/30hp



32343964  
Revision C

Item	ccn	Qty.	Description	Item	ccn	Qty.	Description
1	–			14	32342123	1	Lug, power grounding
2	39252937	4	Block, end stop	15	22113351	1	Panel
3	39164520	1	Block, terminal	*16	39191648	1	Plug 11 position
4	39252903	27	Block, terminal	*17	39191655	1	Plug 16 position
5	39252911	1	Block, terminal ground	*18	39186101	1	Plug 4 position
6	22114623	1	Bracket	*19	39191630	1	Plug 5 position
7	32342115	1	Bus, grounding	*20	39186093	1	Plug 6 position
8	22132963	1	Contact, auxilliary	21	22056741	2	Rail
9	39251061	1	Contactor – C37	22	23053754	1	Relay, overload
10	22074033	3	Fuse 2.0A 125–250V	23	39491519	1	Transformer
11	32342099	2	Fuse 1.5A 600V				* Not illustrated
12	39479035	1	Fuse, holder				
13	39480504	1	Fuse, holder				

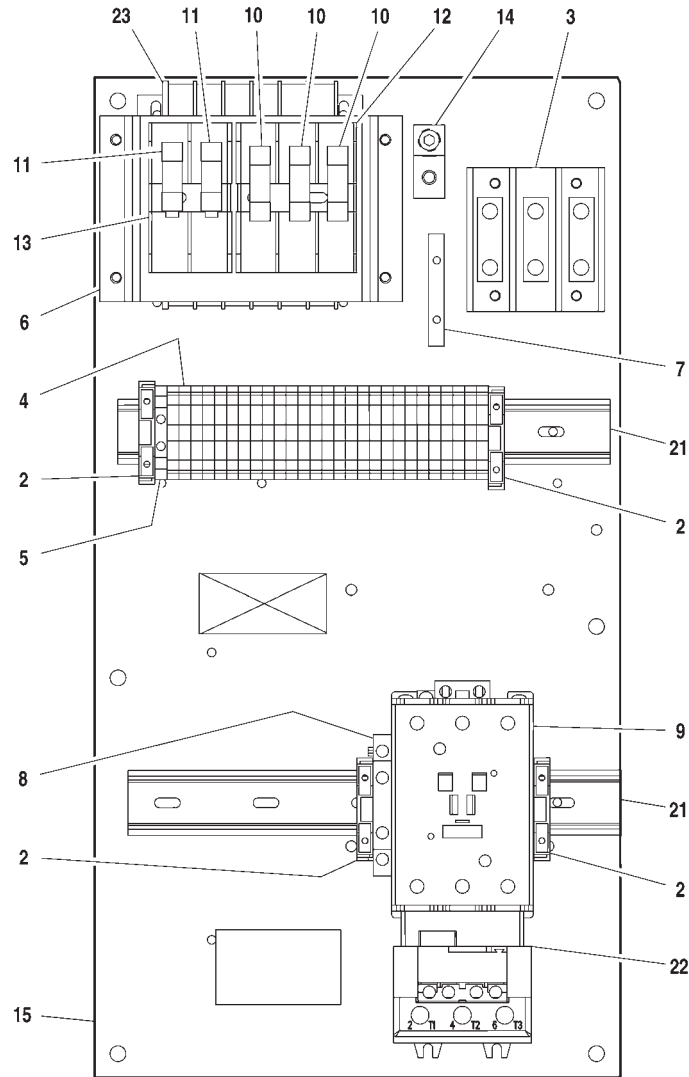
INTELLISYS PARTS – C43 FULL VOLTAGE – DOL 60Hz – 230/460V 15hp



22317648  
Revision A

Item	ccn	Qty.	Description	Item	ccn	Qty.	Description
1	-			14	32342123	1	Lug, power grounding
2	39252937	4	Block, end stop	15	22113351	1	Panel
3	39164520	1	Block, terminal	*16	39191648	1	Plug 11 position
4	39252903	27	Block, terminal	*17	39191655	1	Plug 16 position
5	39252911	1	Block, terminal ground	*18	39186101	1	Plug 4 position
6	22114623	1	Bracket	*19	39191630	1	Plug 5 position
7	32342115	1	Bus, grounding	*20	39186093	1	Plug 6 position
8	22132963	1	Contact, auxilliary	21	22056741	2	Rail
9	39250998	1	Contactor – C43	22	23053754	1	Relay, overload
10	22074033	3	Fuse 2.0A 125–250V	23	39491519	1	Transformer
11	32342099	2	Fuse 1.5A 600V				* Not illustrated
12	39479035	1	Fuse, holder				
13	39480504	1	Fuse, holder				

**INTELLISYS PARTS – C85 FULL VOLTAGE – DOL 60Hz – 200V 15–25hp / 230/460 20–30hp**

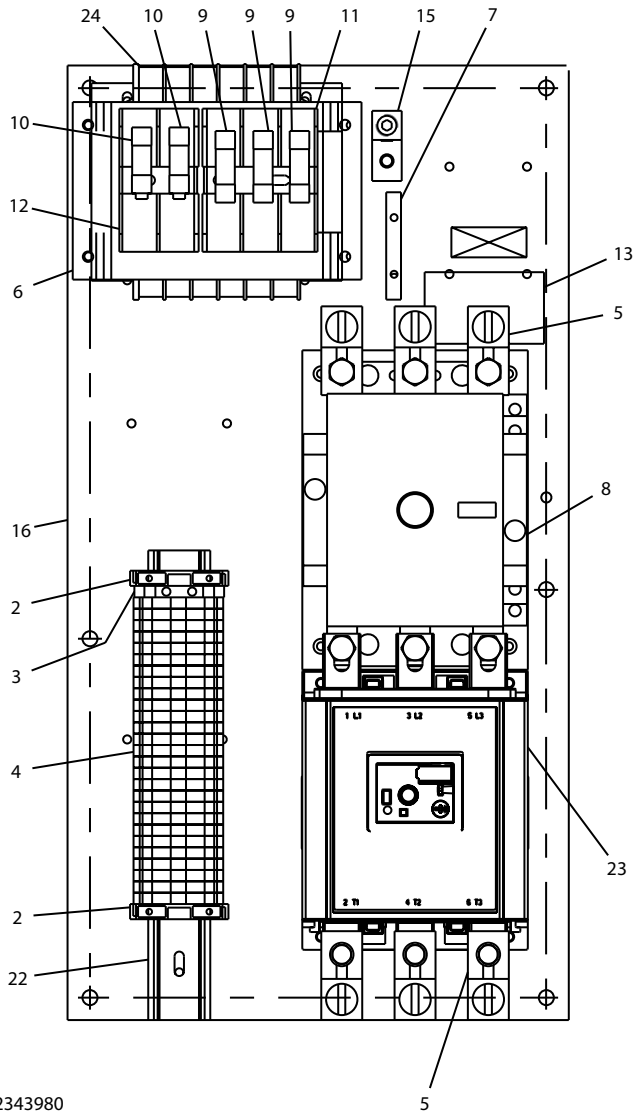


32343972  
Revision C

Item	ccn	Qty.	Description	Item	ccn	Qty.	Description
1	–			14	32342123	1	Lug, power grounding
2	39252937	4	Block, end stop	15	22113351	1	Panel
3	39164520	1	Block, terminal	*16	39191648	1	Plug 11 position
4	39252903	27	Block, terminal	*17	39191655	1	Plug 16 position
5	39252911	1	Block, terminal ground	*18	39186101	1	Plug 4 position
6	22114623	1	Bracket	*19	39191630	1	Plug 5 position
7	32342115	1	Bus, grounding	*20	39186093	1	Plug 6 position
8	22132963	1	Contact, auxilliary	21	22056741	2	Rail
9	39251020	1	Contactor – C85	22	23053770	1	Relay, overload
10	22074033	3	Fuse 2.0A 125–250V	23	39491519	1	Transformer
11	32342099	2	Fuse 1.5A 600V				* Not illustrated
12	39479035	1	Fuse, holder				
13	39480504	1	Fuse, holder				



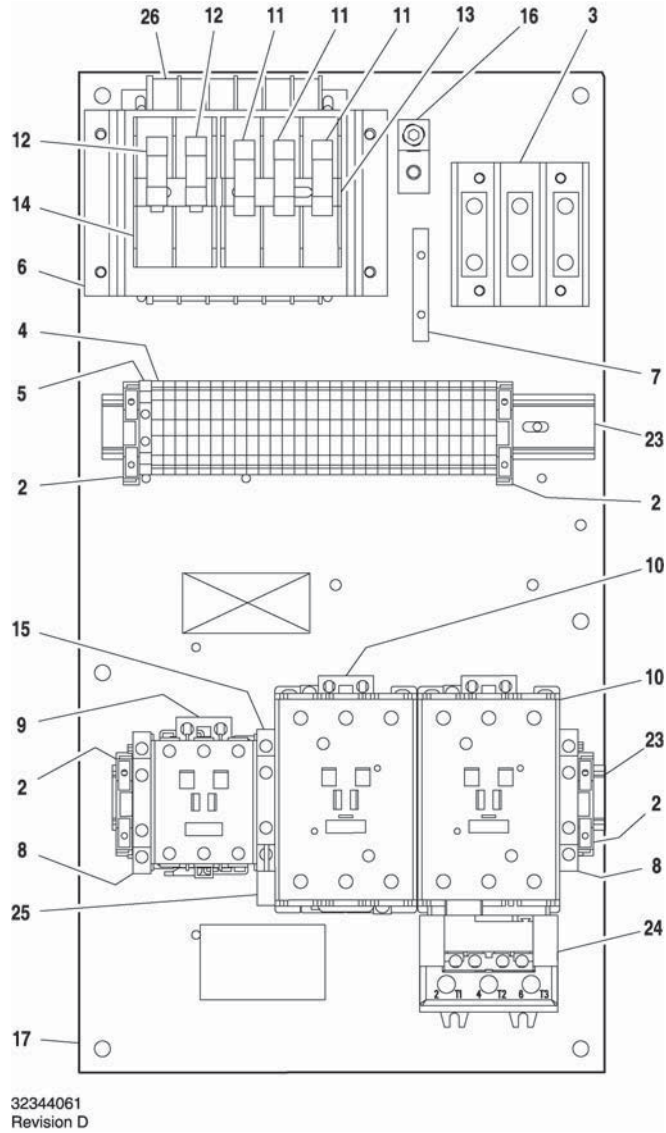
INTELLISYS PARTS – D110 FULL VOLTAGE – DOL 60Hz – 200V 30hp



32343980  
Revision D

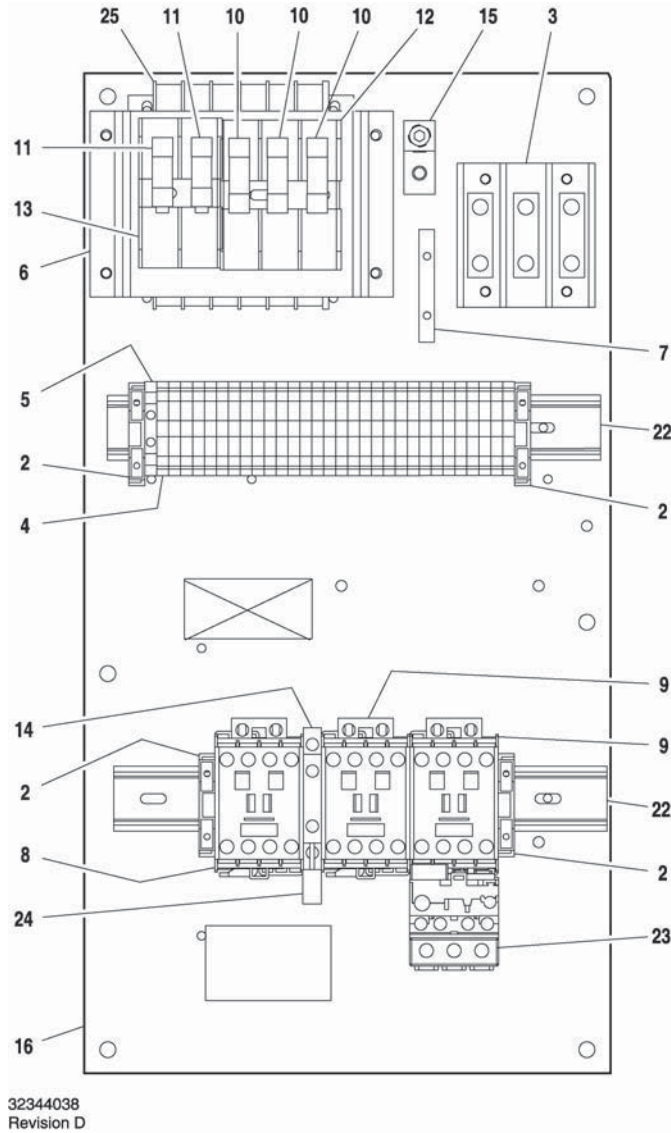
Item	ccn	Qty.	Description	Item	ccn	Qty.	Description
*1	22113344	1	Assembly, emergency stop push button	*14	39191648	1	Plug 11 position
2	39252937	2	Block, end stop	15	32342123	1	Lug, power grounding
3	39252937	1	Block, terminal ground	16	22050140	1	Panel 11 position
4	39252903	27	Block, terminal	*17	39191655	1	Plug 16 position
5	22630727	1	Kit, terminal	*18	39186101	1	Plug 4 position
6	22114623	1	Bracket	*19	39191630	1	Plug 5 position
7	32342115	1	Bus, grounding	*20	39186093	1	Plug 6 position
8	22264873	1	Contactor – D110	22	22056741	1	Rail
9	22074033	3	Fuse 2.0A 125–250V	23	39251095	1	Relay,overload
10	32342099	2	Fuse 1.5A 600V	24	39491519	1	Transformer
11	39479035	1	Fuse, holder				* Not illustrated
12	39480504	1	Fuse, holder				
13		1	Label				

INTELLISYS PARTS – C60/C43 STAR/DELTA – 60Hz – 200V 25/30hp, 220/230V – 30hp



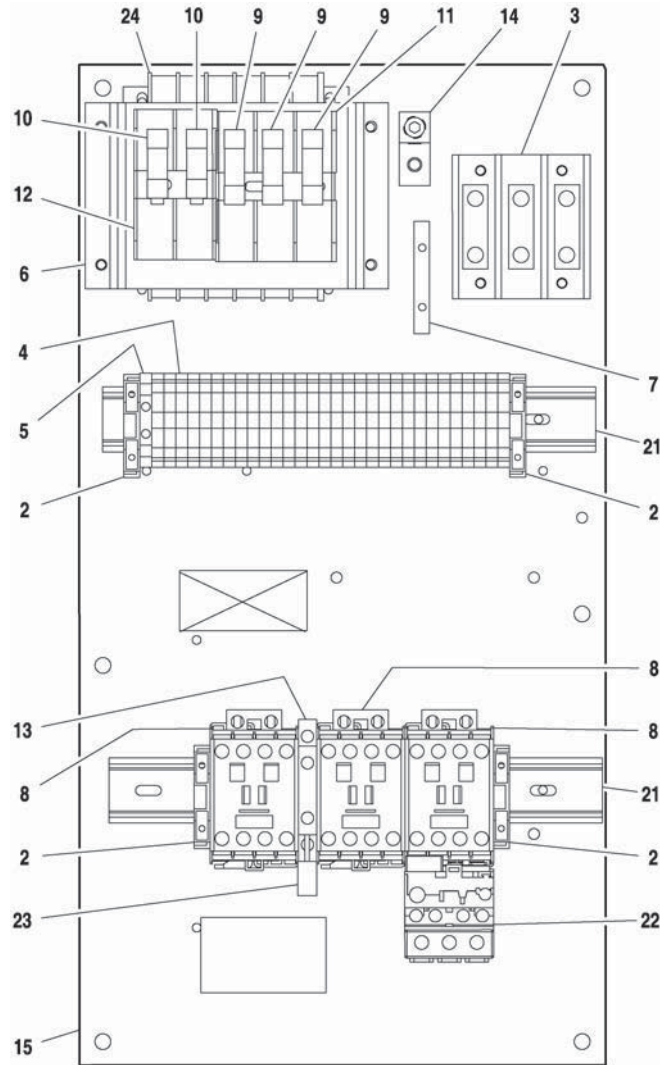
Item	ccn	Qty.	Description	Item	ccn	Qty.	Description
1	–			16	32342123	1	Lug, power grounding
2	39252937	4	Block, end stop	17	22113351	1	Panel
3	39164520	1	Block, terminal	*18	39191648	1	Plug 11 position
4	39252903	29	Block, terminal	*19	39191655	1	Plug 16 position
5	39252911	1	Block, terminal ground	*20	39186101	1	Plug 4 position
6	22114623	1	Bracket	*21	39191630	1	Plug 5 position
7	32342115	1	Bus, grounding	*22	39186093	1	Plug 6 position
8	22132963	2	Contact, auxilliary	23	22056741	2	Rail
9	39250998	1	Contacteur – C43	24	23053770	1	Relay, overload
10	39251004	2	Contacteur – C60	25	39203443	1	Suppressor
11	22074033	3	Fuse 2.0A 125–250V	26	39491519	1	Transformer
12	32342099	2	Fuse 1.5A 600V				* Not illustrated
13	39479035	1	Fuse, holder				
14	39480504	1	Fuse, holder				
15	39333257	1	Interlock				

INTELLISYS PARTS – C23/16 STAR/DELTA – 60Hz – 440/460V – 20/25hp, 575V – 25/30hp



Item	ccn	Qty.	Description	Item	ccn	Qty.	Description
1	–			15	32342123	1	Lug, power grounding
2	39252937	4	Block, end stop	16	22113351	1	Panel
3	39164520	1	Block, terminal	*17	39191648	1	Plug 11 position
4	39252903	30	Block, terminal	*18	39191655	1	Plug 16 position
5	39252911	1	Block, terminal ground	*19	39186101	1	Plug 4 position
6	22114623	1	Bracket	*20	39191630	1	Plug 5 position
7	32342115	1	Bus, grounding	*21	39186093	1	Plug 6 position
8	22074413	1	Contactora – C16	22	22056741	2	Rail
9	39252036	2	Contactora – C23	23	23053747	1	Relay, overload
10	22074033	3	Fuse 2.0A 125–250V	24	39203443	1	Suppressor
11	32342099	2	Fuse 1.5A 600V	25	39491519	1	Transformer
12	39479035	1	Fuse, holder				* Not illustrated
13	39480504	1	Fuse, holder				
14	39333257	1	Interlock				

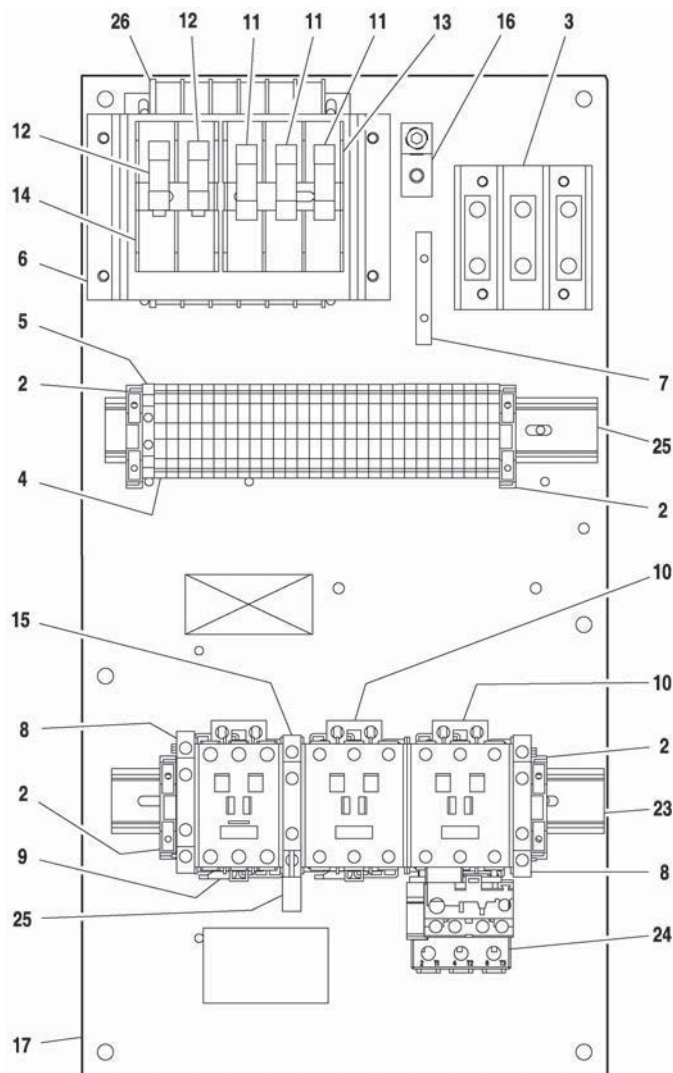
**INTELLISYS PARTS – C23/23 STAR/DELTA – 60Hz – 380V 20hp**



81290488  
Revision D

Item	ccn	Qty.	Description	Item	ccn	Qty.	Description
1	–			15	22113351	1	Panel
2	39252937	4	Block, end stop	*16	39191648	1	Plug 11 position
3	39164520	1	Block, terminal	*17	39191655	1	Plug 16 position
4	39252903	30	Block, terminal	*18	39186101	1	Plug 4 position
5	39252911	1	Block, terminal ground	*19	39191630	1	Plug 5 position
6	22114623	1	Bracket	*20	39186093	1	Plug 6 position
7	32342115	1	Bus, grounding	21	22056741	2	Rail
8	39252036	3	Contactor – C23	22	23053747	1	Relay, overload
9	22074033	3	Fuse 2.0A 125–250V	23	39203443	1	Suppressor
10	32342099	2	Fuse 1.5A 600V	24	39313143	1	Transformer
11	39479035	1	Fuse, holder				* Not illustrated
12	39480504	1	Fuse, holder				
13	39333257	1	Interlock				
14	32342123	1	Lug, power grounding				

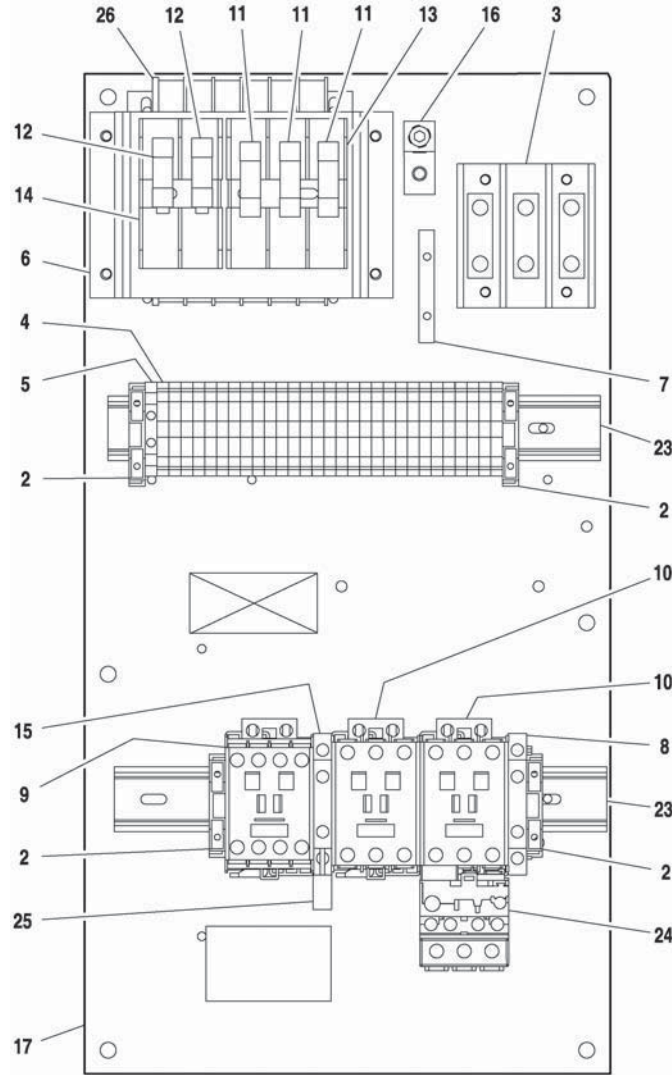
INTELLISYS PARTS – C43/37 STAR/DELTA – 60Hz – 200V 20hp, 220/230V – 25hp



32344053  
Revision D

Item	ccn	Qty.	Description	Item	ccn	Qty.	Description
1	-			16	32342123	1	Lug, power grounding
2	39252937	4	Block, end stop	17	22113351	1	Panel
3	39164520	1	Block, terminal	*18	39191648	1	Plug 11 position
4	39252903	29	Block, terminal	*19	39191655	1	Plug 16 position
5	39252911	1	Block, terminal ground	*20	39186101	1	Plug 4 position
6	22114623	1	Bracket	*21	39191630	1	Plug 5 position
7	32342115	1	Bus, grounding	*22	39186093	1	Plug 6 position
8	22132963	2	Contact, auxilliary	23	22056741	2	Rail
9	39251061	1	Contacteur – C37	24	23053754	1	Relay, overload
10	39250998	2	Contacteur – C43	25	39203443	1	Suppressor
11	22074033	3	Fuse 2.0A 125–250V	26	39491519	1	Transformer
12	32342099	2	Fuse 1.5A 600V				* Not illustrated
13	39479035	1	Fuse, holder				
14	39480504	1	Fuse, holder				
15	39333257	1	Interlock				

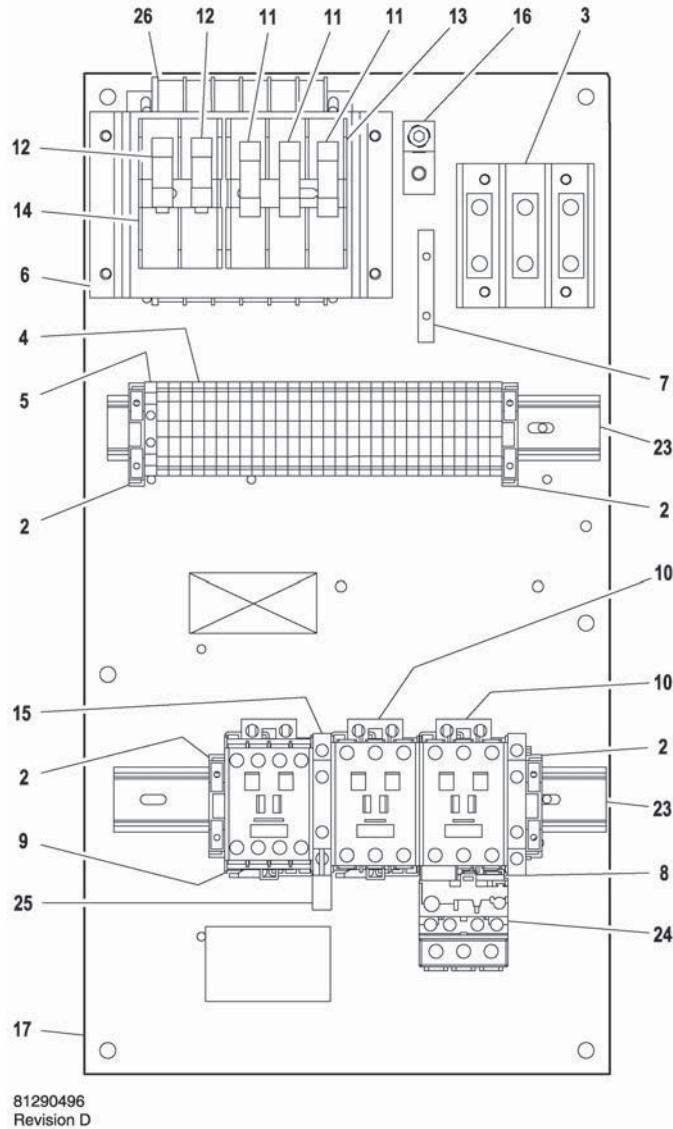
INTELLISYS PARTS – C37/23 STAR/DELTA – 60Hz – 220/230V – 15–20hp, 440/460V – 30hp



32344046  
Revision D

Item	ccn	Qty.	Description	Item	ccn	Qty.	Description
1	–			16	32342123	1	Lug, power grounding
2	39252937	4	Block, end stop	17	22113351	1	Panel
3	39164520	1	Block, terminal	*18	39191648	1	Plug 11 position
4	39252903	29	Block, terminal	*19	39191655	1	Plug 16 position
5	39252911	1	Block, terminal ground	*20	39186101	1	Plug 4 position
6	22114623	1	Bracket	*21	39191630	1	Plug 5 position
7	32342115	1	Bus, grounding	*22	39186093	1	Plug 6 position
8	22132963	1	Contact, auxilliary	23	22056741	2	Rail
9	39252036	1	Contact – C23	24	23053754	1	Relay, overload
10	39251061	2	Contact – C37	25	39203443	1	Suppressor
11	22074033	3	Fuse 2.0A 125–250V	26	39491519	1	Transformer 220/230V & 440/460V
12	32342099	2	Fuse 1.5A 600V				
13	39479035	1	Fuse, holder				
14	39480504	1	Fuse, holder				
15	39333257	1	Interlock				* Not illustrated

INTELLISYS PARTS – C37/23 STAR/DELTA – 60Hz – 380V – 25/30hp



Item	ccn	Qty.	Description	Item	ccn	Qty.	Description
1	–			16	32342123	1	Lug, power grounding
2	39252937	4	Block, end stop	17	22113351	1	Panel
3	39164520	1	Block, terminal	*18	39191648	1	Plug 11 position
4	39252903	29	Block, terminal	*19	39191655	1	Plug 16 position
5	39252911	1	Block, terminal ground	*20	39186101	1	Plug 4 position
6	22114623	1	Bracket	*21	39191630	1	Plug 5 position
7	32342115	1	Bus, grounding	*22	39186093	1	Plug 6 position
8	22132963	1	Contact, auxilliary	23	22056741	2	Rail
9	39252036	1	Contact – C23	24	23053754	1	Relay, overload
10	39251061	2	Contact – C37	25	39203443	1	Suppressor
11	22074033	3	Fuse 2.0A 125–250V	26	39313143	1	Transformer 380V
12	32342099	2	Fuse 1.5A 600V				
13	39479035	1	Fuse, holder				
14	39480504	1	Fuse, holder				
15	39333257	1	Interlock				
							* Not illustrated







The UP series integrated dryer is not for use with the low ambient or outdoor module options.

**INSTALLATION**

- a) Do not obstruct the dryer air grilles.
- b) Allow sufficient gap around the unit to facilitate maintenance and ensure unimpeded air discharge from the condenser.
- c) Avoid recirculation of hot condenser air back into the condenser air inlet.
- d) Do not connect condensate drains common to other pressurized drain lines in a closed circuit. Make sure the outflow from the condensate drains is unimpeded. Connect the condensate piping in such a way to ensure that sound levels are kept to a minimum during drainage. Ensure that all condensate is disposed of in a responsible manner, in accordance with local norms concerning environmental protection.
- e) The ambient air around the dryer and compressor must not contain solid or gaseous contaminants. All compressed and condensed gases can generate acids or chemical products which may damage the compressor or components inside the dryer. Take particular care with sulphur, ammonia, chlorine and installations in marine environments. For further advice or assistance consult your local Ingersoll Rand representative.

**ELECTRICAL CONNECTION**

The dryer is powered from single-phase that must be supplied separately from the compressor three-phase supply. The dryer should be connected to a single phase supply in accordance with local requirements and codes.

**CONDENSATE DRAINS**

The dryer package is equipped with three automatic condensate float drains in the moisture separator, the dryer's compressor, and the post-filter. Each float drain has a drainage port near the compressed air outlet on the package.

THESE LINES MUST BE KEPT SEPARATE. Joining them will cause improper operation.

**START-UP AND OPERATION**

**Preliminary checks**

Before starting the compressor, make sure that:

The power supply is correct for the dryer voltage.

**Starting the dryer**

- a) Use the green switch to start the dryer (Fig.2b).
- b) To protect dryer equipment, always start up the dryer before activating the air compressor.
- c) Wait about 5 minutes until the dryer is running at the correct operating temperatures and pressures before starting the compressor.
- d) Always leave the dryer running while the air compressor is operating, irrespective of load condition.

After stopping the dryer, wait at least 3 minutes before starting it again.

**STOPPING THE DRYER**

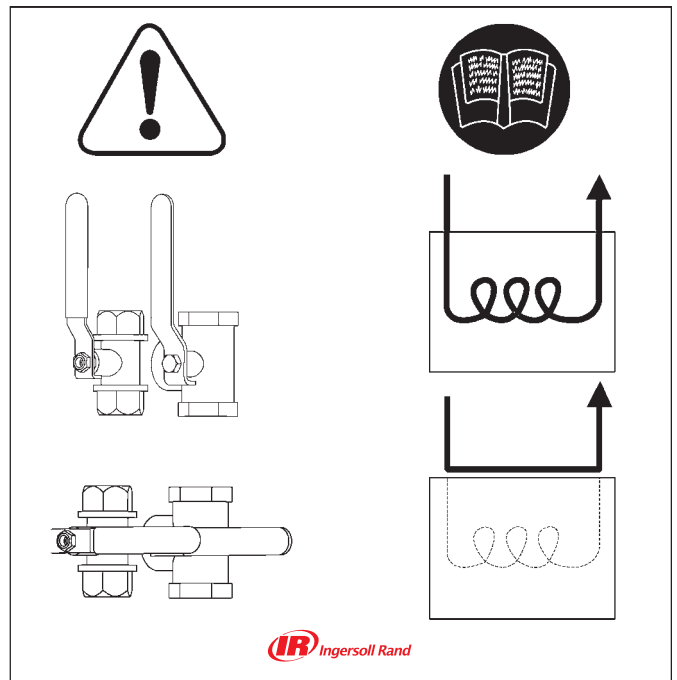
- a) Use the switch to stop the dryer (Fig.2b).
- b) Stop the dryer at least 2 minutes after shutting down the air compressor or interrupting the air flow to the dryer.

Compressed air must never enter the dryer when the dryer is switched off or when it is in an alarm situation which stops the refrigeration compressor. The dryer can be bypassed in these conditions.

**OPERATION**

- The dryer operates automatically. It is factory set for a dew point of 37°F (3°C) (ISO7183, Part 2) and therefore requires no further calibration.
- For maximum performance from your dryer, follow the maintenance schedule.
- The dewpoint thermometer gives an indication of performance of the dryer. When the dryer is switched off at ambient conditions, it displays red. In normal conditions it should be operating in the green region. If the unit continues to operate in the red region, contact your local Ingersoll Rand representative.

Fig.1 shows the dryer's refrigeration and air circuits.



In order to bypass the dryer, stop the UP compressor and lock and tag it out. Turn BOTH valves to a horizontal position, as shown. The compressor can be run and the dryer can be removed from the system for repair in bypass mode.

Do not operate with valves in positions other than those shown here. This may pressurize dryer with no air flow.

# 32 DRYER OPTION

## MAINTENANCE

Before accessing live electrical parts, disconnect the power supply to the dryer using disconnect switch or disconnect the cable connections.

### Preventive maintenance

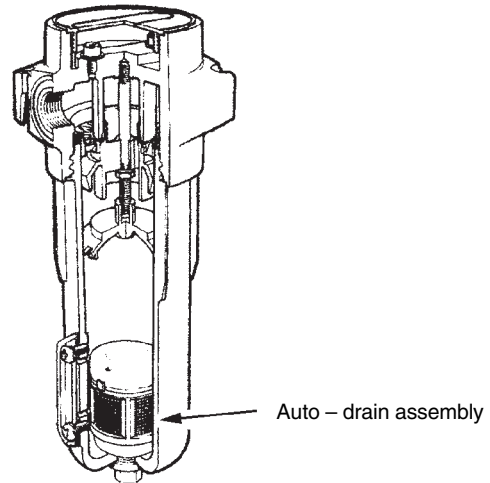
For optimum performance from your dryer, follow the periodic maintenance schedule described below.

<b>WEEKLY</b>	<b>CONDENSATE DRAINS</b> Verify that the condensate drains are operating correctly.
<b>MONTHLY</b>	<b>COMPRESSOR</b> Make sure the refrigerant compressor temperature is below 140°F (60°C) when running.
<b>EVERY 4 MONTHS</b>	<b>CONDENSER</b> Remove any dust from the condenser fins. <b>COMPRESSOR</b> Make sure compressor power consumption complies with data plate specifications.
<b>YEARLY</b>	<b>CONDENSATE DRAINS</b> Completely disassemble the drains and clean all their components. <b>AIR FILTER</b> Replace air filter element.

## MOISTURE SEPARATOR MAINTENANCE

The moisture separator will operate indefinitely under normal working conditions, however at some time it may be necessary to replace the seals should the housing leak.

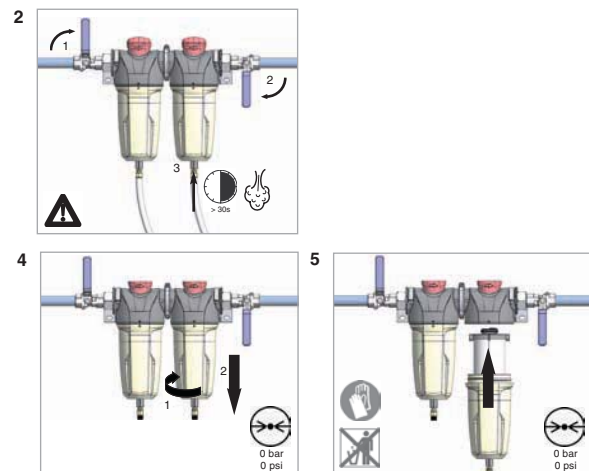
1. Isolate the housing from the air supply.
2. Fully depressurize in drain bowl as appropriate.
3. Unscrew bowl and remove. If pressure has not been completely released from the housing, air will escape from the warning hole giving an audible alarm. Screw back bowl and repeat instruction 2 before attempting again. Should resistance to unscrewing be experienced, provision is made for a 'C' spanner to fit onto the ribs of the bowl.
4. Check condition of bowl seal and replace if necessary. Clean screw threads.
5. The autodrain assembly is not serviceable and must be replaced if faulty.
6. Refit bowl with 'O' ring seal.
7. Repressurize and check for leaks. If leaks occur they will most probably be from the bowl 'O' ring. Depressurize housing and remove 'O' ring as stated above and inspect and clean. Ensure that mating surfaces are clean and then refit 'O' ring and repressurize.

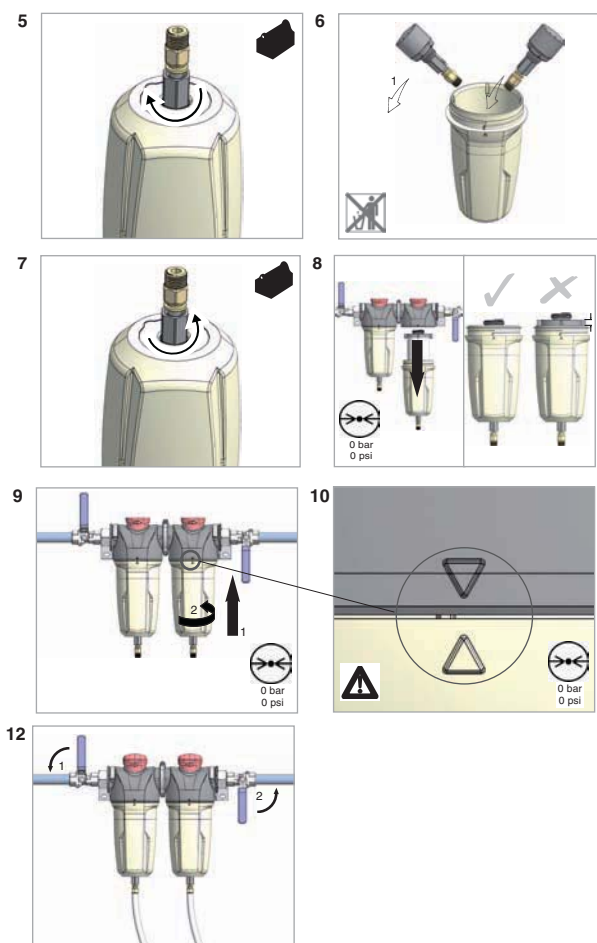


## AIR FILTER MAINTENANCE

In order to ensure optimum compressed air quality the filter element should be replaced as follows. (Used filter elements must be disposed of in accordance with local regulations.)

Use only genuine Ingersoll Rand replacement elements.





**DISASSEMBLING THE UNIT**

The unit has been designed and constructed to guarantee continuous operation.

The long service life of some components such as the fan and compressor depends on good maintenance.

The unit must only be disassembled by a refrigerant specialist.

Refrigerant liquid and lubricating oil inside the refrigeration circuit must be recovered in compliance with current norms in the country where the machine is installed.

**RECYCLING DISASSEMBLY**

Frame and panels	Steel / epoxy resin polyester
Heat exchanger (cooler)	Copper
Pipes	Copper
Drainage system	Polyamide
Heat exchanger insulation	EPS (polystyrene sintered)
Pipe insulation	Gum synthetic
Compressor	Steel / copper / aluminium / oil
Condenser	Steel / copper / aluminium
Refrigerant	R134a
Valve	Brass
Electrical cable	Copper / PVC

**REFRIGERANT LEAKS IN THE REFRIGERATION CIRCUIT**

The unit is dispatched in perfect working order, already charged.

Refrigerant leaks may be identified by tripping of the compressor overload protector (SK).

IF A LEAK IS DETECTED IN THE REFRIGERANT CIRCUIT, SEEK TECHNICAL ASSISTANCE.

**REFRIGERANT CHARGING**

THIS OPERATION MUST ONLY BE PERFORMED BY A REFRIGERANT SPECIALIST.

**WHEN REPAIRING THE REFRIGERANT CIRCUIT, COLLECT ALL THE REFRIGERANT IN A CONTAINER AND DISPOSE OF IT IN THE APPROPRIATE MANNER.**

**CHARACTERISTICS OF REFRIGERANT R134A**

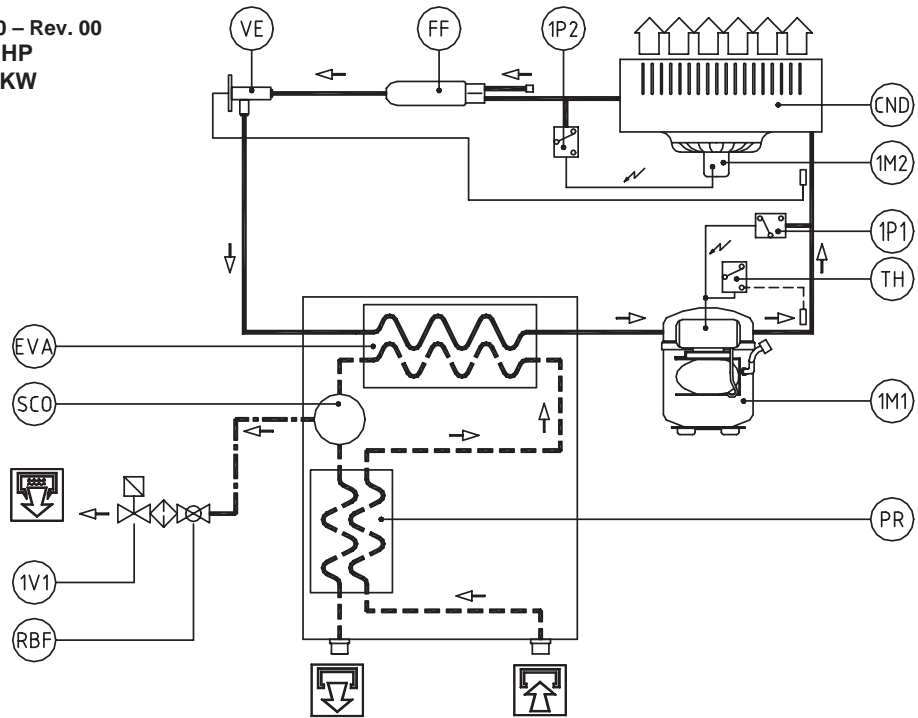
In normal temperature and pressure conditions the above refrigerant is a colorless, class A1/A1 gas with TVL value of 1000ppm (ASHRAE classification).

If a refrigerant leak occurs, thoroughly air the room before commencing work.

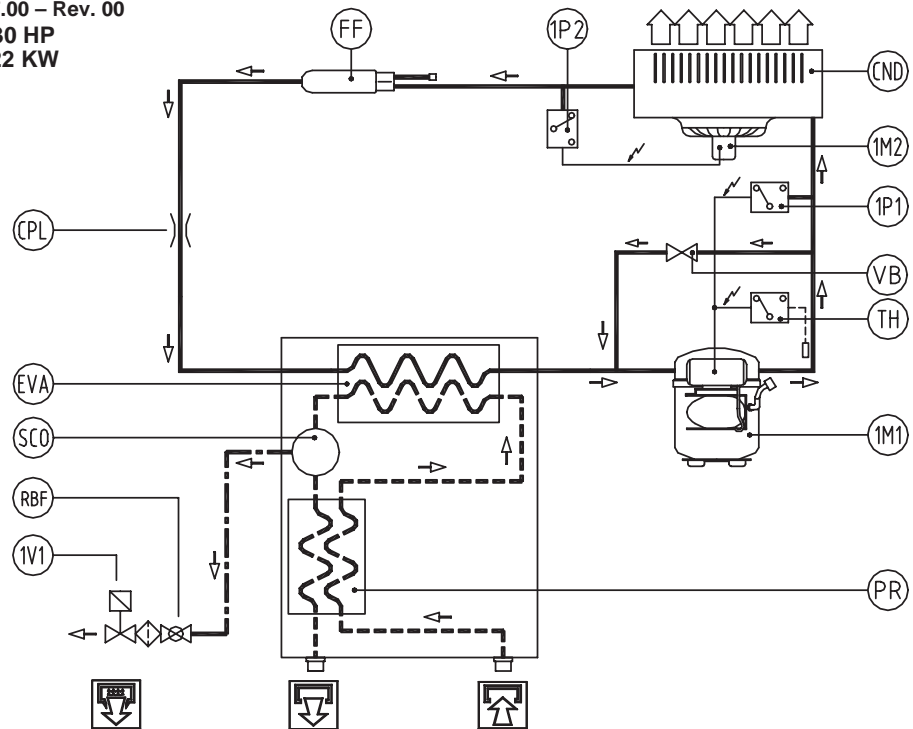
# 34 DRYER OPTION




## REFRIGERANT CIRCUIT

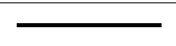
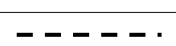
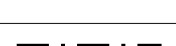

Cod. 713.0007.13.00 – Rev. 00  
 Model UP6 15-20 HP  
 UP5 11-15 KW



Cod. 713.0057.07.00 – Rev. 00  
 Model UP6 25-30 HP  
 UP5 18-22 KW



	Condensate drain
	Air inlet
	Air outlet

	Refrigerant line
	Compressed air line
	Condensate drain line
	Equalization line

**LEGEND**

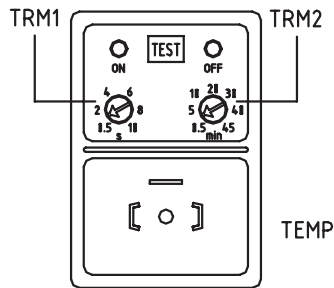
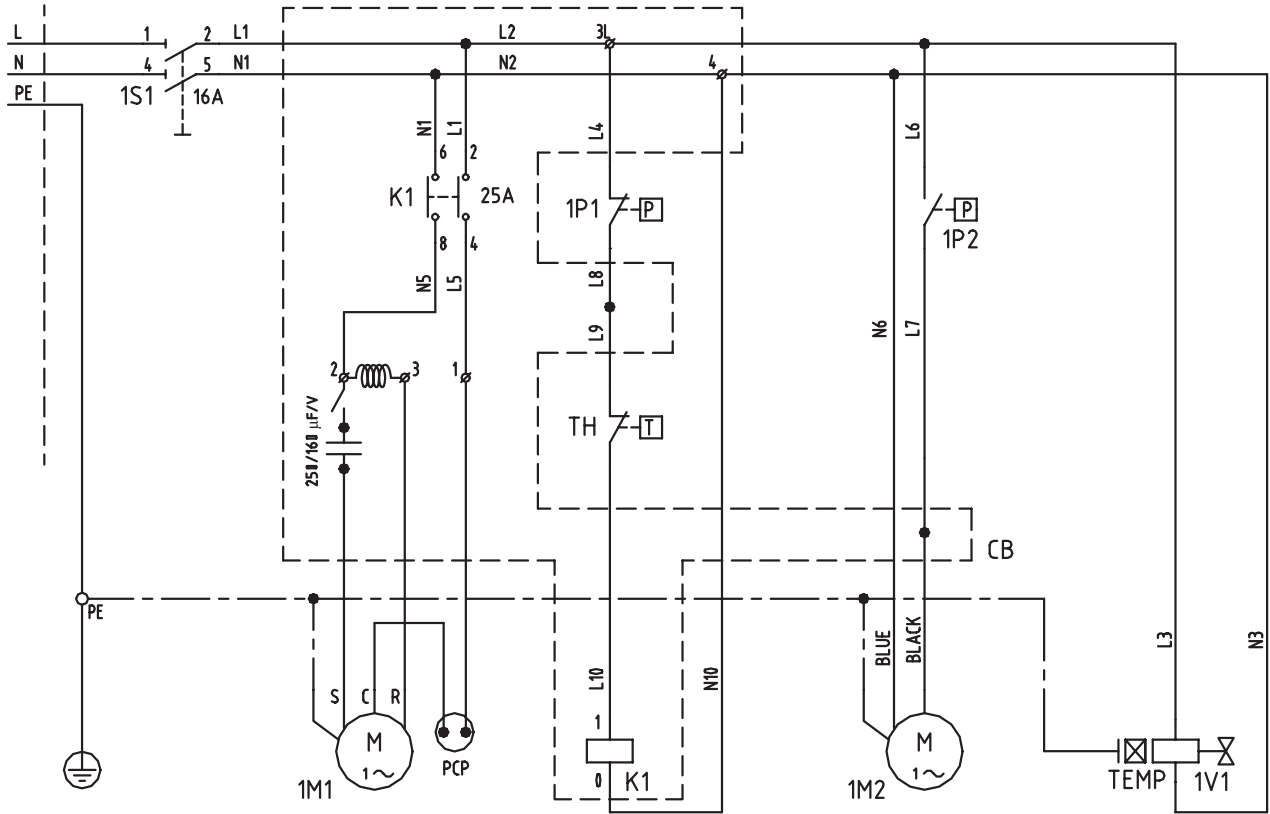
Pos.	DESCRIPTION
1A1	Electronic Controller
1B1	Drain solenoid valve coil
1M1	Refrigerant compressor
1M2	Fan Motor
1P1	High pressure Switch
1P2	Fan pressure Switch
1Q1	Compressor circuit breaker
1Q2	Fan circuit breaker
1S1	Main power switch
1S2	Plug
1T1	Transformer
1V1	Solenoid drain Valve
CB	Compressor box
CBL	Cables
CND	Condenser
CNV	Fan capacitor
CPL	Capillary tube
EB	Electrical box
ED	10 micron filter element
EH	0.01 micron filter element
EP	1 micron filter element
EQ	5 micron filter element
EVA	Evaporator
F1-F2	Fuses
FD	Air filter 10 micron
FF	Filter dryer
FH	Air filter 0.01 micron
FP	Air filter 1 micron
FQ	Air filter 5 micron
FR	Drain screen
FV	Fan motor fuse
G	Grid
IM	Moisture indicator

K1	Contactor switch
K2	Fan contactor switch
PCP	Thermal protection
PR	Air-air heat exchanger
PSC	Air-air heat exchanger (D_IT)
RBF	Tap with strainer
RR	Rotalock cock
RT1 - RT4	Temperature probes
SC	Heat exchanger base
SCO	Condensate separator
SLI	Liquid separator
SSC	Condensate drain
TEMP	Time setter
TH	Time setter
TLT	Remote cont. Thermostat
VB	By-pass hot gas valve
VE	Expansion valve
VNR	One way valves with strainer
VT	Fan blade
X1-X2, X3-XM	Terminal blocks

# 36 DRYER OPTION

## WIRING DIAGRAM

Cod. 714.0172.01.00 – Rev. 00  
 Models UP6 15 – 30 HP (115V/1Ph/60Hz)



TEMP - CONDENSATE DRAIN TIME SETTER (Front view)  
 - TRIMMER 1 (TRM1) - DISCHARGE ENDURANCE (sec)  
 - TRIMMER 2 (TRM2) - INTERVAL BETWEEN DISCHARGES (min)

**DATA SHEET**

MODEL		UP6 15-20 HP	UP6 25-30 HP
AR AIR FLOW RATE*	CFM	83	125
	m3/h	140	212
POW SUPPLY	VOLT/PH/HZ	115/1/60	
1M1 COMPRESSOR	HP	2/3	3/4
	kW	0.71	0.83
	Max kW	1.14	1.37
	RLA	8.16	9.69
	FLA	11.6	14
	LRA	46	54
1M2 FAN MOTOR	QTY	1	1
	HP	1/46	1/20
	RLA	1.00	1.60
	LRA	1.36	2.10
TOTAL A	A	9.2	11.3
CONNECTION	NPT	3/4"	3/4"
AIR T	°F	104	
	°C	40	
AIR T MAX	°F	162	
	°C	72	
AMB T	°F	77	
	°C	25	
AMB T MIN-MAX	°F	36 – 122	
	°C	2 – 50	
AIR W PRESS	psi	123	
	bar	8.5	
AIR PRESS MAX	psi	203	
	bar	14	
DEW POINT*	°F	< 50 (ISO CLASS 6)	
	°C	< 10 (ISO CLASS 6)	
REF. REFRIGERANT	TYPE	R134a	
	LB	0.99	1.65
	OZ	15.9	26.46
	KG	0.45	0.75
W WEIGHT	LB	138	147
	KG	63	67
EVAP. TEMP.*	°F	37 – 41	
	°C	3 – 5	
SUCTION TEMP.*	°F	39 – 64	
	°C	4 – 18	
DISCH. PRESS.*	psig	170 - 230	
	Bar	12 – 16	
HP SWITCH SETTING	psig	435	
	Bar	30	
FAN SWITCH SETTING	psig	123 – 160	
	Bar	8,5 – 11	
THERMOSTAT SWITCH SETTING	°F	212	239
	°C	100	115

\*Rating conditions of: 40°C (104°F) and 123 psig Air Inlet, 25°C (77°F) Ambient temperature

\*Conditions de fonctionnement de: 40°C (104°F) et 1 23 psig air en entrée, 25°C (77°F) température ambi ant

Performance and specifications - Performances et caractéristiques techniques + / -5%

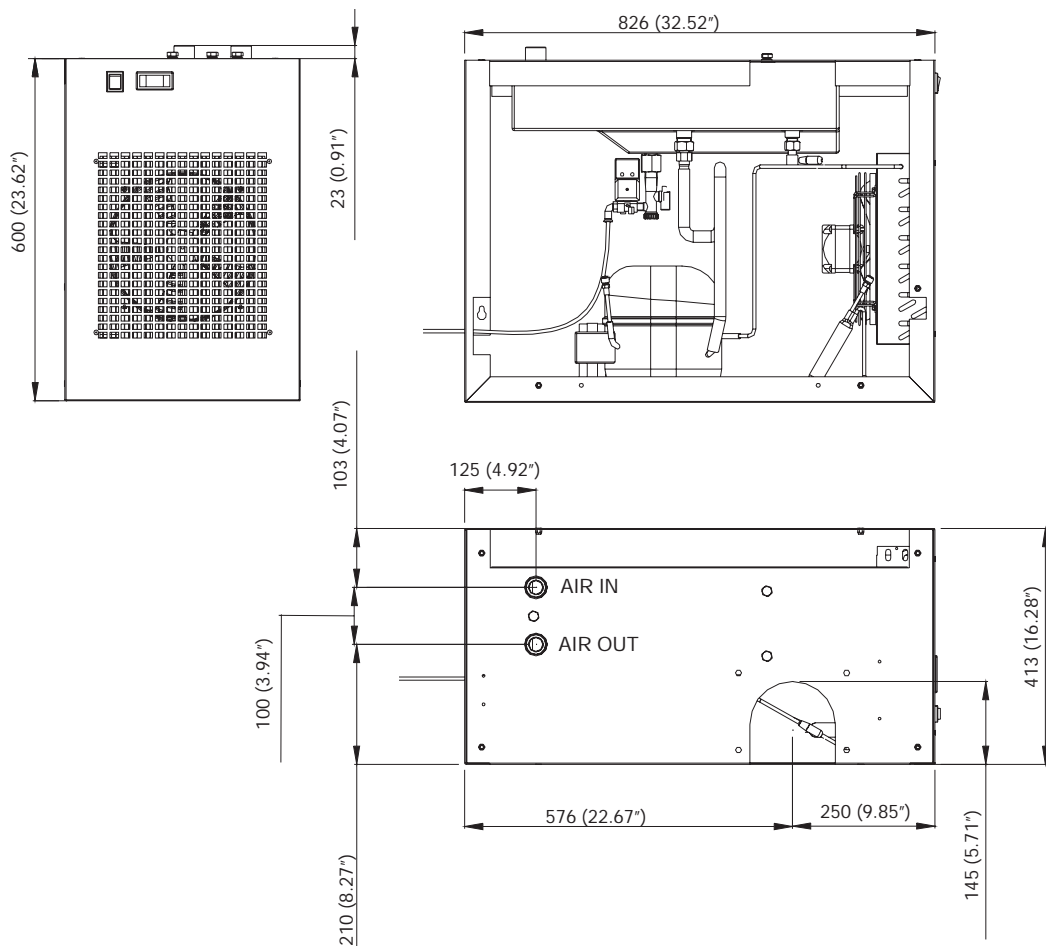
# 38 DRYER OPTION

## LEGEND

POS.	DESCRIPTION
AR	Air flow rate
POW SUPPLY	Power supply
HP	Nominal power
kW	Nominal consumption
Max kW	Full load consumption
RLA	Nominal Current
FLA	Full load current
LRA	Locked rotor current
TOTAL A	Total current
CONNECTION	Air connections
AIR T	Air inlet temperature
AIR T MAX	Max. air inlet temperature
AMBT	Ambient temperature
AMBT MIN-MAX	Min-Max. ambient temperature
AIR W PRESS	Air working pressure

POS.	DESCRIPTION
AIR PRESS MAX	Max. air pressure
DEWP	Pressure dew point
REF.	Refrigerant
MAX FUSE	Max fuse size
MINCIRCUIT AMPACITY	Minimum circuit ampacity
W	Weight
EVAP. TEMP.	Evaporation Temperature
SUCTION TEMP.	Suction Temperature
DISCH. PRESS.	Discharge Pressure
HP SWITCH SETTING	High pressure switch setting
THERMOSTAT SWITCH SETTING	Thermostat switch setting

## DRYER DIMENSIONS





## CALIBRATION

The dryer is supplied factory set and therefore requires no further calibration.

## ENGINEERING DATA

Compressor	UP6 15 - 30		
Maximum operating pressure psig (bar)	125 (8.62)	150 (10.34)	200 (13.79)
Factory set reload pressure psig (bar)	110 (7.58)	135 (9.31)	185 (12.76)

Model	UP6 15	UP6 20	UP6 25	UP6 30
Pressure Dew Point (°F) (see note 3. below)	38			
Base-Mounted Dryer Package Weight (lb)	1367	1411	1451	1537
120 Gallon Tank Dryer Package Weight (lb)	1691	1735	1775	1861
240 Gallon Tank Dryer Package Weight (lb)	1960	2004	2044	2130
Electrical Supply (+/- 10%) (AC) (see note 2. below)	115V / 1ph / 60Hz			
L.R.A. Current (Amps)	45.0	45.0	48.8	48.8
F.L.A. Current (Amps)	9.6	9.6	12.3	12.3
Total Installed Power (kW)	0.96	0.96	1.19	1.19
Electrical Protection Class (Std.)	NEMA 1 (IP20)			
Refrigerant Type	134a			

## Notes:

1. Electrical data refers to dryer only.
2. The dryer requires a separate power supply from the compressor drive.

3. Rated at:	
Working Pressure (psig)	100
Inlet Air Temperature (°F)	100
Ambient Temperature (°F)	100
Relative Humidity (%)	100

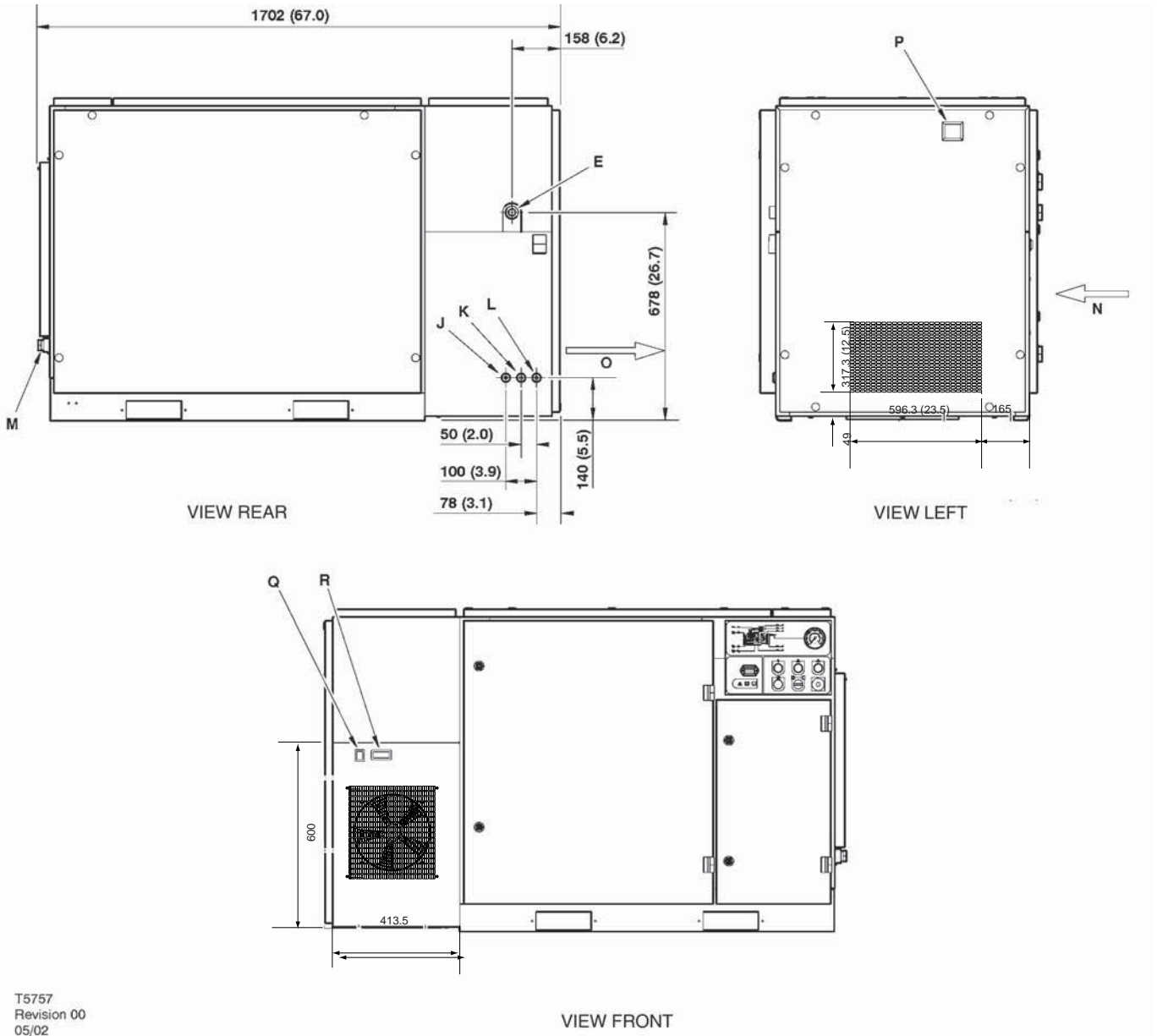
## Notes on the use of the Schrader non-return valve.

### ATTENTION

1. This unit is equipped with refrigerant as for quantity and kind clearly shown in operating manual and with identification label.
2. Any ordinary test and / or refrigerant recharge by means of connections can take place only after refrigerant evacuation. The evacuation must be proportional to dimensions and length of the connections used. The use of the valve can be justified only when the dryer is not in working order.
3. During the unit guarantee period, the Schrader valve can be used by authorized staff only, otherwise any damage caused by a wrong refrigerant recharge will invalidate warranty.

# 40 DRYER OPTION

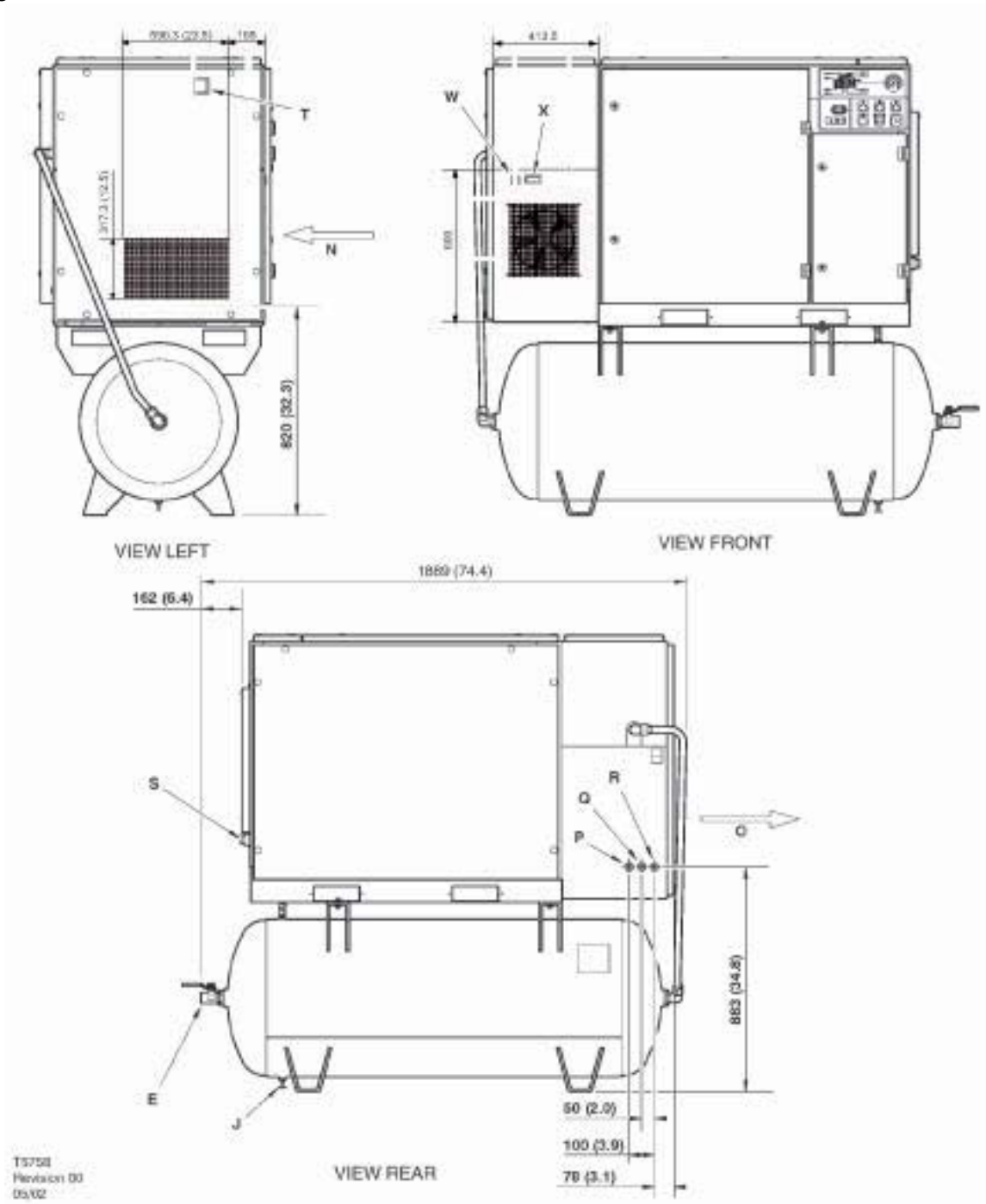
## BASE MOUNTED UNITS



### KEY

- |  |   |
|--|---|
| A Pre filter   | H Button, emergency stop                  |
| B Compressor and cooling air intake  | I Primary compressor service door         |
| C Starter box  | J 0.25 inch BSPT moisture separator drain |
| D Cooling air exhaust  | K 0.25 inch BSPT dryer drain              |
| E 1.00" BSPT air discharge   | L 0.25 inch BSPT air filter drain         |
| E 1.00" NPT air discharge  | M 1.00 inch NPT plug                      |
| F Customer power inlet   | N Dryer air inlet                         |
| G Fork lift openings   | O Dryer air exhaust                       |
| Fork lift hole covers must be installed after unit is in place to reduce noise and ensure proper cooling of package) | P Filter restriction indicator            |
|  | Q Dryer On/Off switch                     |
|  | R Dew point indicator                     |

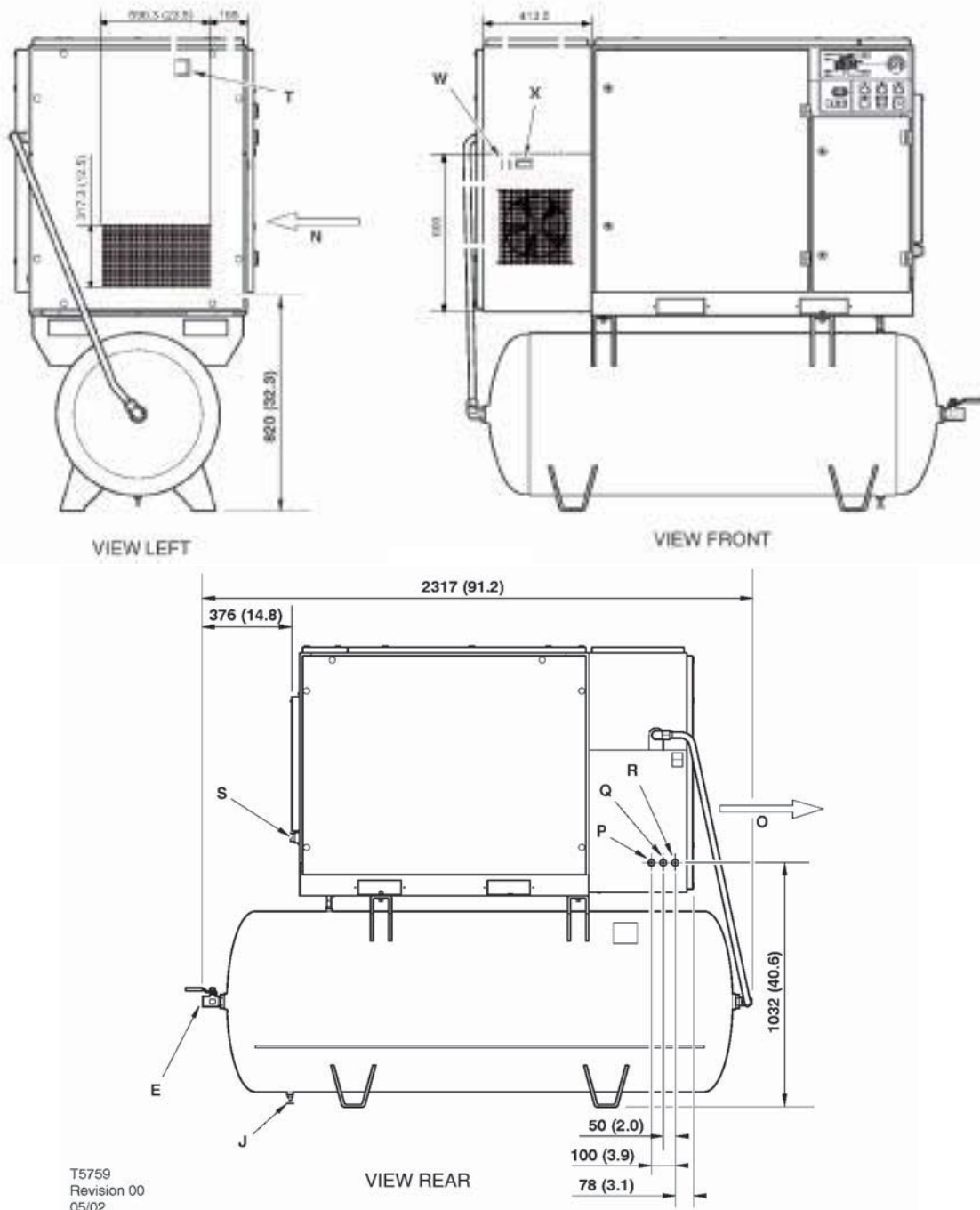
TANK MOUNTED (120 GALLON)  
60 Hz UNITS



KEY

- |                                     |   |
|-------------------------------------|---|
| A Pre filter                        | L Primary compressor service door         |
| B Compressor and cooling air intake | M Inspection port                         |
| C Starter box                       | N Dryer air inlet                         |
| D Cooling air exhaust               | O Dryer air exhaust                       |
| E 1.00" BSPT air discharge          | P 0.25 inch BSPT moisture separator drain |
| F Customer power inlet              | Q 0.25 inch BSPT dryer drain              |
| G Fork lift openings                | R 0.25 inch BSPT air filter drain         |
| H Air receiver (120 gallons)        | S 1.00 inch NPT plug                      |
| I Automatic drain valve             | T Filter restriction indicator            |
| J Valve, drain                      | W Dryer On/Off switch                     |
| K Button, emergency stop            | X Dew point indicator                     |

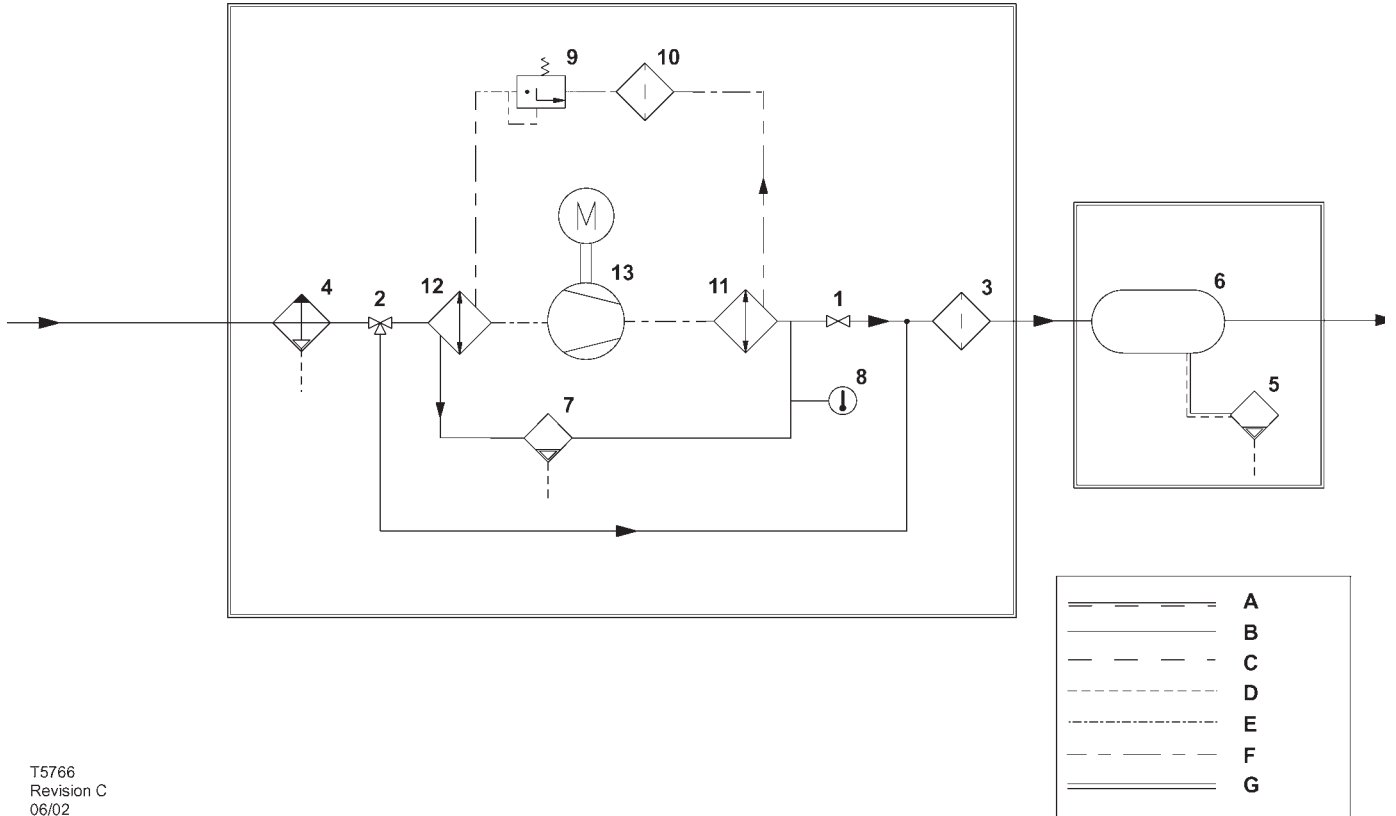
TANK MOUNTED (240 GALLON)  
60 Hz UNITS



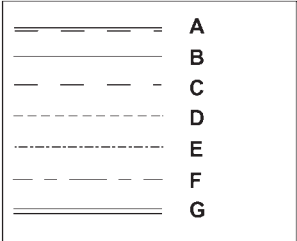
### KEY

- |   |                                   |   |   |
|---|-----------------------------------|---|---|
| A | Pre filter                        | L | Primary compressor service door         |
| B | Compressor and cooling air intake | M | Inspection port                         |
| C | Starter box                       | N | Dryer air inlet                         |
| D | Cooling air exhaust               | O | Dryer air exhaust                       |
| E | 1.00" BSPT air discharge          | P | 0.25 inch BSPT moisture separator drain |
| F | Customer power inlet              | Q | 0.25 inch BSPT dryer drain              |
| G | Fork lift openings                | R | 0.25 inch BSPT air filter drain         |
| H | Air receiver (240 gallons)        | S | 1.00 inch NPT plug                      |
| I | Automatic drain valve             | T | Filter restriction indicator            |
| J | Valve, drain                      | W | Dryer On/Off switch                     |
| K | Button, emergency stop            | X | Dew point indicator                     |

ELECTRO – PNEUMATIC CONTROL AND INSTRUMENTATION DIAGRAM

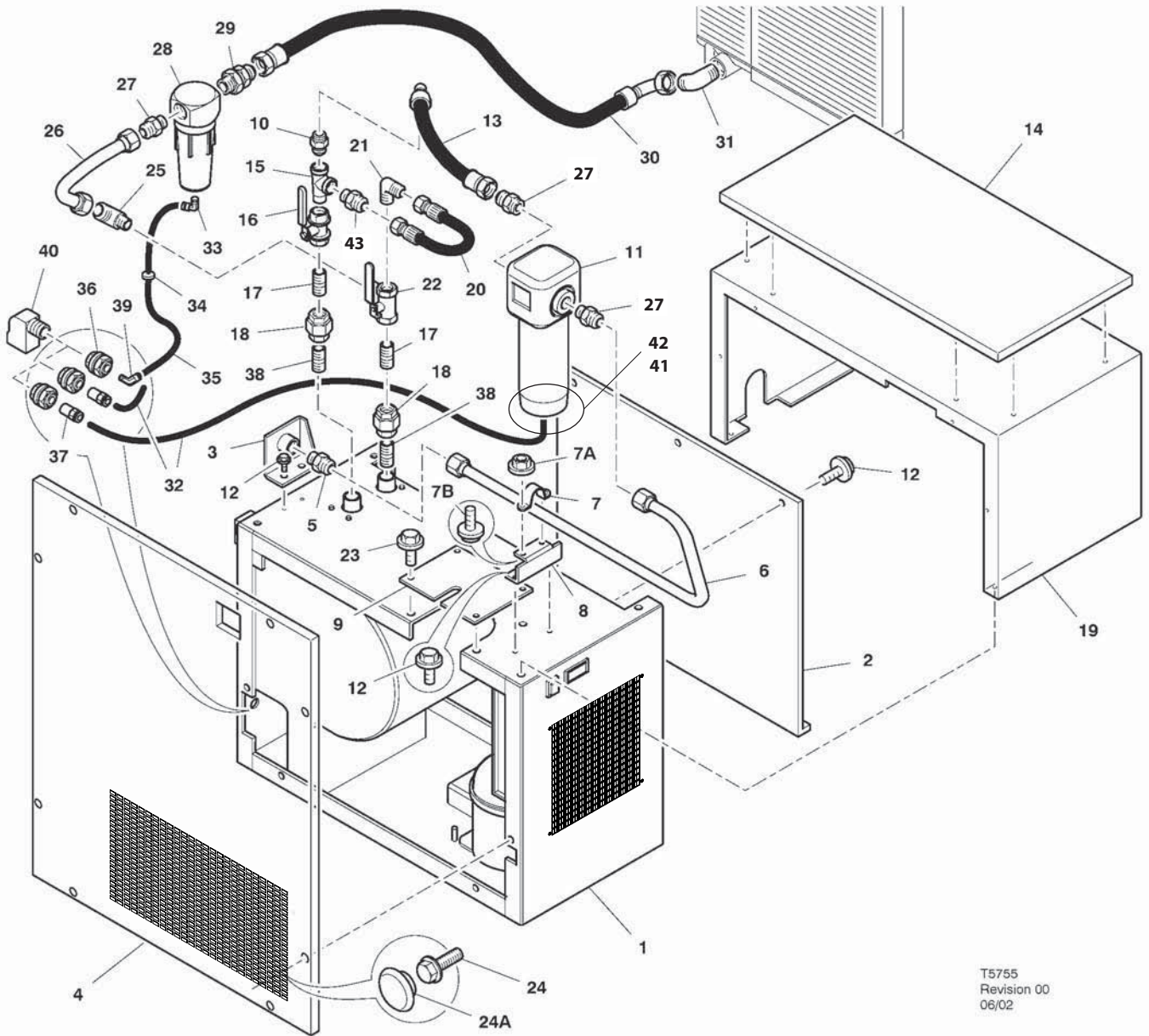


T5766  
Revision C  
06/02



KEY

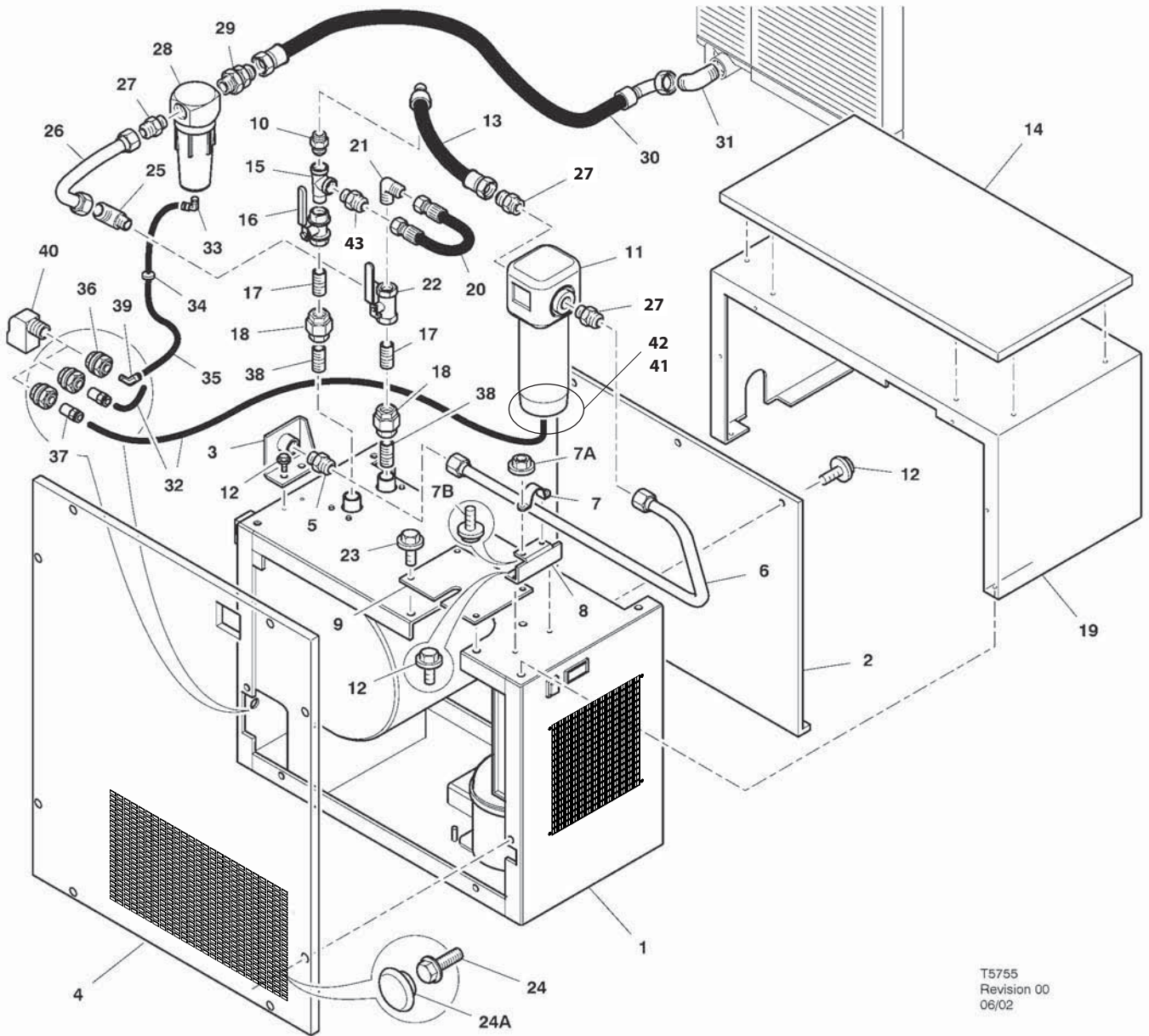
- |                                |                           |
|--------------------------------|---------------------------|
| 1 Valve, isolation             | 12 Evaporator             |
| 2 Valve, three way bypass      | 13 Refrigerant compressor |
| 3. Filter, air                 |                           |
| 4 Moisture separator           |                           |
| 5. Valve, autodrain            | A Air/Coolant             |
| 6 Receiver, air                | B Air                     |
| 7. Valve, drain                | C Coolant                 |
| 8. Indicator, dew point colour | D Condensate              |
| 9 Valve, expansion             | E Component boundary      |
| 10 Filter, refrigerant         | F Refrigerant             |
| 11. Condenser                  | G Option                  |



T5755  
Revision 00  
06/02

Item	ccn	Qty.	Description	Item	ccn	Qty.	Description
1	23320955	1	Dryer 60Hz – 15-20HP	7B	96705058	2	Setscrew
	23335631	1	Dryer 60Hz – 25-30 HP	8	22100556	1	Bracket
2	22067292	1	Panel	9	22097968	1	Panel
3	22100648	1	Bracket 60Hz	10	95937538	4	Connector
4	23321920	1	Panel	11	85565182	1	Filter, air
5	95937520	1	Connector 60HZ	12	92368687	14	Setscrew
6	22100549	1	Tube assembly	13	85560985	1	Hose assembly
7	22070304	1	Bracket	14	22099295	1	Panel
7A	96737564	2	Nut	15	95954269	1	Tee
				16	22098750	1	Valve, ball
				17	95953576	2	Nipple
				18	95996153	2	Connector





T5755  
Revision 00  
06/02

Item	ccn	Qty.	Description	Item	ccn	Qty.	Description
19	22097869	1	Cover	30	85561215	1	Hose assembly
20	85560275	1	Hose assembly	31	95937645	1	Elbow
21	95937637	1	Elbow	32	22101414	AR	Tube (Nylon)
22	22097588	1	Valve, ball	33	39155577	1	Elbow
23	96742689	6	Setscrew	34	85583367	1	Grommet
24	96742689	AR	Screw	35	39124813	AR	Tube (Nylon)
24A	96742689	AR	Plug	36	54514583	3	Fitting
25	95937652	1	Elbow	37	22132971	2	Adaptor
26	22070825	1	Tube assembly	38	95928040	2	Nipple
27	95937520	3	Connector	39	39155478	1	Elbow
28	22101083	1	Separator, water	40	37143542	3	Elbow
29	22098859	1	Connector				

### ADDITIONAL SPARE PARTS FOR DRYER OPTION

CCN	DESCRIPTION
38457636	SCREEN, DRAIN
38457461	COMPRESSOR, REFRIGERANT 115V - 15/20HP (11/15KW)
* 38461364	COMPRESSOR, REFRIGERANT 115V - 25/30HP (18/22KW)
* 38460150	COMPRESSOR, REFRIGERANT 230V - 15/20HP (11/15KW)
* 38461489	COMPRESSOR, REFRIGERANT 230V - 25/30HP (18/22KW)
* 38461471	FAN MOTOR - 16W, 115V
38461497	FAN MOTOR - 16W, 230V
38461463	FAN MOTOR - 34W, 115V
38461505	FAN MOTOR - 34W, 230V
38461372	FAN BLADE
38459665	DRAIN SOLENOID VALVE - 115V
38457537	DRAIN SOLENOID VALVE - 230V
38459723	RELAY
38461380	THERMOMETER
* 38461398	FAN PRESSURE SWITCH
* 38461406	HIGH PRESSURE SWITCH
38461414	TIMER
38457826	ON/OFF SWITCH
* 38457602	DEHYDRATING FILTER
* 38461422	FILLING GAS VALVE
* 38461430	HEAT EXCHANGER - 15/20HP (11/15KW)
* 38461448	HEAT EXCHANGER - 25/30HP (18/22KW)
* 38459186	CONDENSER - 15/20HP (11/15KW)
* 38461455	CONDENSER - 25/30HP (18/22KW)
* 38461356	BY-PASS VALVE

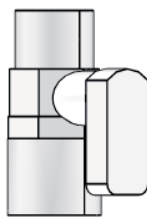
\* Must have EPA certified technician to order.

#### AUTOMATIC DRAIN



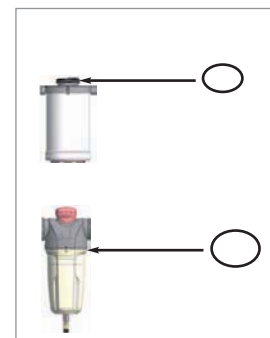
85566404

#### MANUAL DRAIN

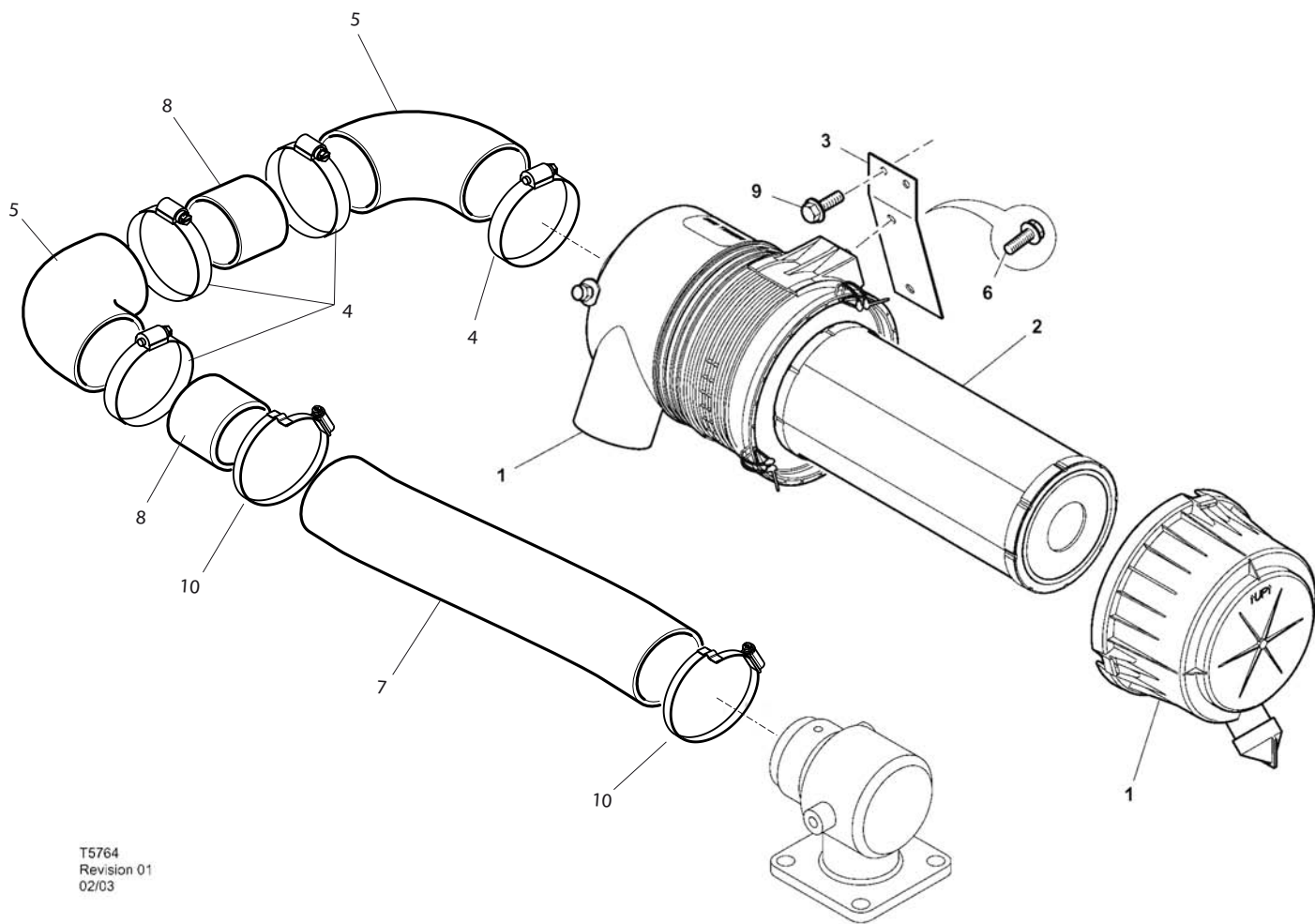


85566412

Model	Filter		Element
	BSPT	NPT	
	85564664	85565182	85565703

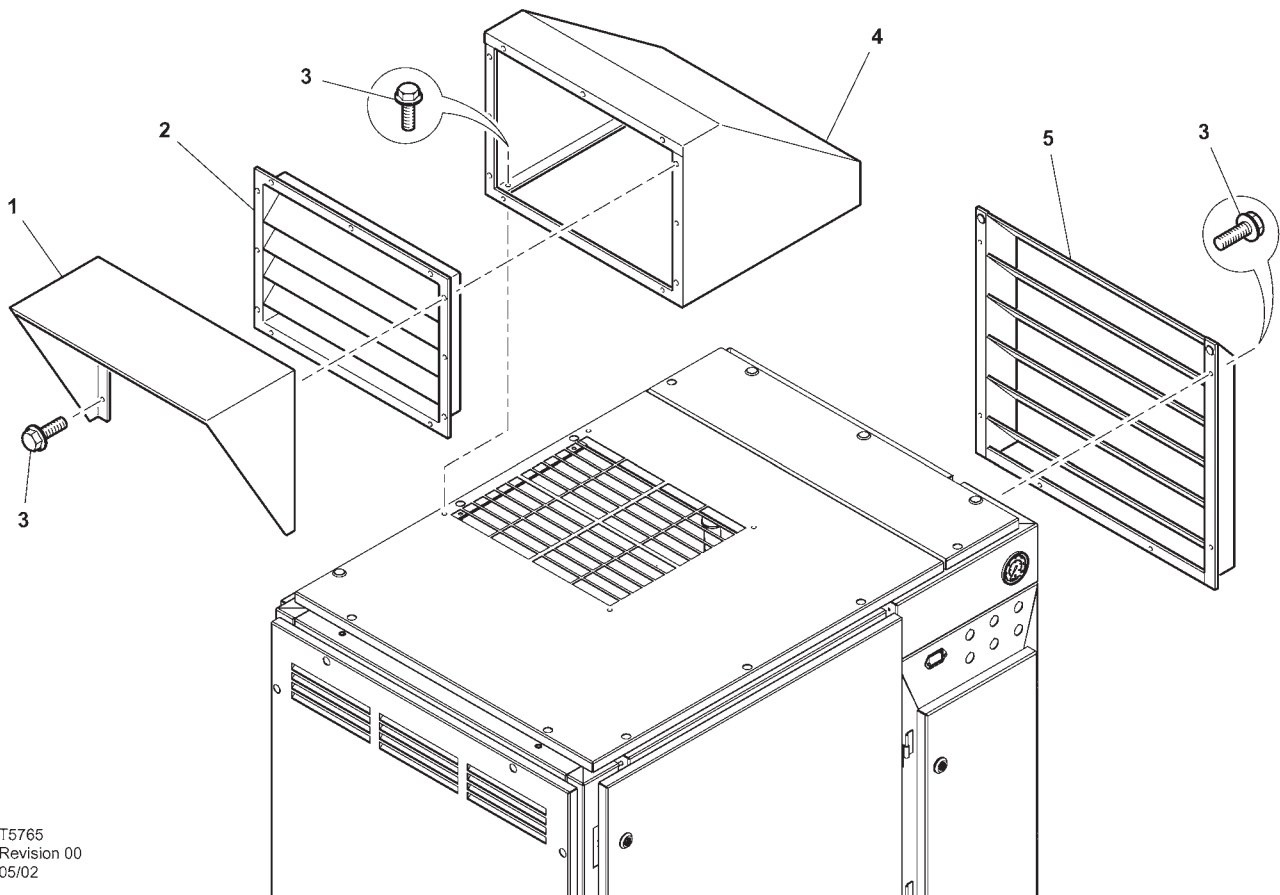






T5764  
Revision 01  
02/03

Item	ccn	Qty.	Description	Item	ccn	Qty.	Description
1	36897999	1	Filter	6	96712153	2	Screw
2	35393685	1	Element, air filter	7	22155345	1	Hose
3	22245534	1	Bracket	8	22153647	2	Pipe
4	95340683	4	Clamp	9	92368687	2	Screw
5	89295935	2	Hose	10	23411135	2	Clamp, Bridge



T5765  
Revision 00  
05/02

Item	ccn	Qty.	Description	Item	ccn	Qty.	Description
1	22134597	1	Cover	4	22127328	1	Box
2	22127500	1	Louvre	5	22053730	1	Louvre
3	92368687	AR	Screw				

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**POWER OUTAGE RESTART OPTION**

For customers that have interruptions in their incoming power supply to the compressor and must maintain an uninterrupted supply of compressed air, the Power Outage Restart Option allows a compressor to restart automatically 10 seconds (adjustable) after incoming power is restored.

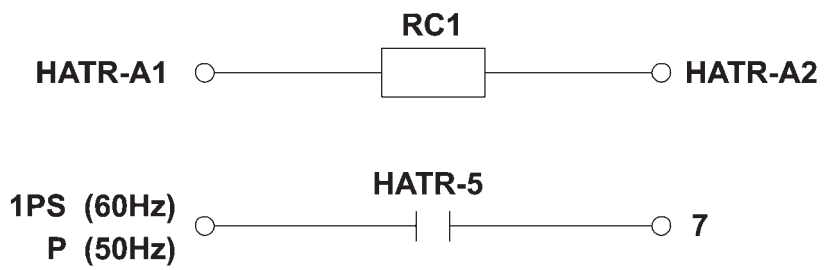
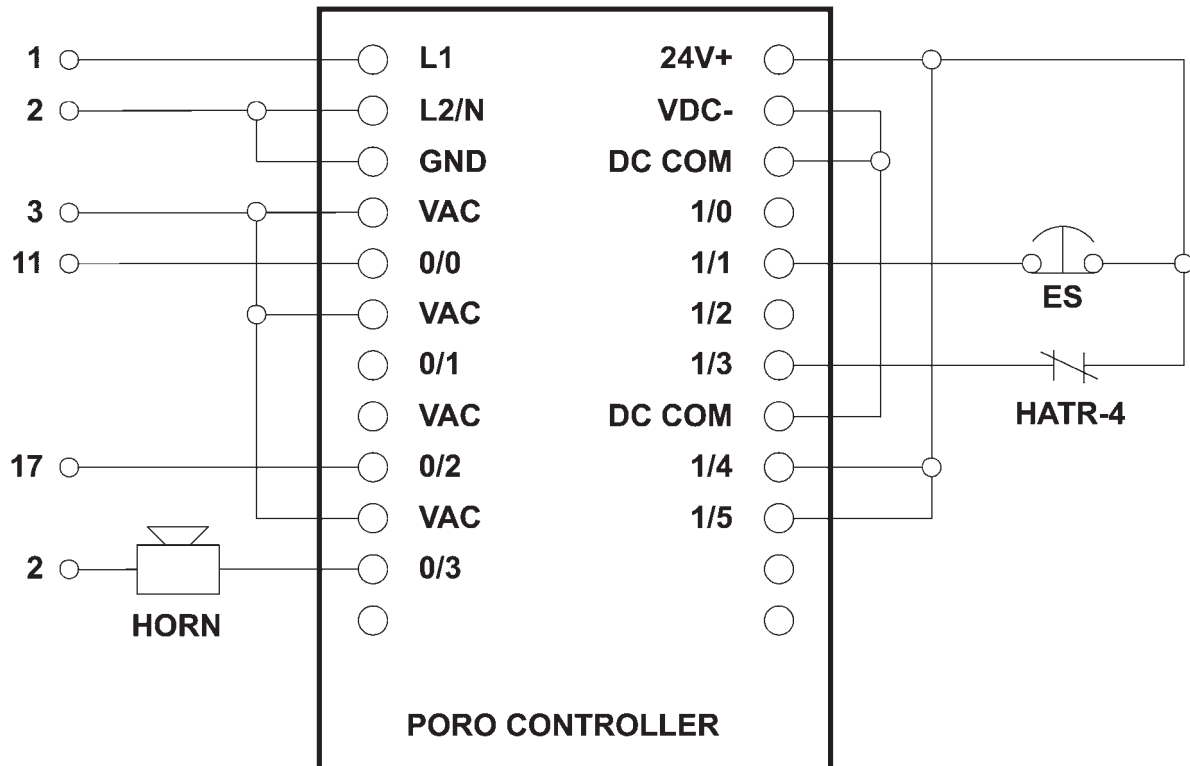
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**FUNCTION TEST**

To test the operation of the Power Outage Restart Option:

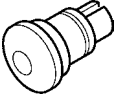


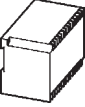












1. Slowly open the main isolation valve.
2. Start the compressor.
- 3 The compressor will load automatically if there is sufficient demand for air. Allow the compressor to load.
4. Open the main disconnect to remove power from the compressor.
5. Close the main disconnect to reapply power to the compressor. The horn will sound for ten seconds; then the compressor will start automatically.







**POWER OUTAGE RESTART OPTION (PORO)  
ELECTRO-MECHANICAL CONTROL.**



22388037 Rev A.

PARTS LIST FOR POWER OUTAGE RESTART OPTION  
(P/N 22396600)

	ITEM	PART NUMBER	QUANTITY	DESCRIPTION
	1	22113344	1	Button, emergency stop
	2	35266788	8	Tie, cable
	3	22265946	1	Contact, auxilliary
	4	22396592	1	Controller, LOGIC PORO
	5	22140545	1	Decal: PORO
	6	39194097	1	Decal: Power Out Restart Option
	7	22388037	1	Decal: Schematic
	8	39331954	1	DIN rail
	9	35275494	1	Hub
	10	39108949	2	Locknut
	11	22396618	1	Instructions
	12	39100136	1	Horn, Weather Resistant
	13	39133467	8	Mount
	14	95785192	1	Nipple
	15	39146733	1	Plug
	16	39203443	1	Suppressor

	ITEM	PART NUMBER	QUANTITY	DESCRIPTION
	17	39252937	2	Block, end stop
	18	39309554	1	Tape, adhesive
	19	35246131	1	Terminal
	20	39204763	1.2m (4ft)	Wire, Blue 16 Ga
	21	39129085	1.2m (4ft)	Wire, Red 16 Ga
	22	39146790	1.2m (4ft)	Wire, Green 16 Ga

**OPERATION****POWER OUTAGE RESTART OPTION**

For customers that have interruptions in their incoming power supply to the compressor and must maintain an uninterrupted supply of compressed air, the Power Outage Restart Option allows an Intellisys compressor to restart automatically 10–120 seconds (adjustable) after incoming power is restored.

The Power Outage Restart Option is turned on by using the customer set routine on the Intellisys® controller. The restart time delay, which is adjustable from 10–120 seconds, can also be adjusted while in the set routine on the Intellisys® controller. Any time power is restored to the compressor after a power interruption and if the compressor was running when power was lost, a horn located on the side of the starter box will sound during the restart time delay (10–120 seconds), after which the compressor will automatically start. After starting, the compressor will return to the mode of operation that the compressor was in prior to the power interruption.

**To operate in the power outage restart mode, proceed with following steps:**

1. Power up the unit and wait for the Intellisys® display to read READY TO START.
2. Press the SET button once to enter the customer set point routine. The Set Offline Air Pressure indicator will light and the display will show the set point pressure.
3. Press and release the SET button multiple times until the message PWR OUT RSTR OFF is displayed.
4. Push the up or down arrows to change to the desired condition. ON in the display indicates Power Outage Restart is turned on and OFF in the display indicates Power Outage Restart is turned off.
5. Once the selection has been made, press SET button to put the selection into Intellisys® memory. The display will flash twice and the message will change to STR DELAY 10 Sec if the option was turned on. This message will only display if the Power Outage Restart Option is turned on.
6. Use the up or down arrows to select the desired delay time (10–120 sec.).
7. Press SET and the display will flash twice indicating the change has been made.
8. Push the DISPLAY SELECT BUTTON or wait 30 seconds for the controller to automatically exit the set routine. The display returns to READY TO START.

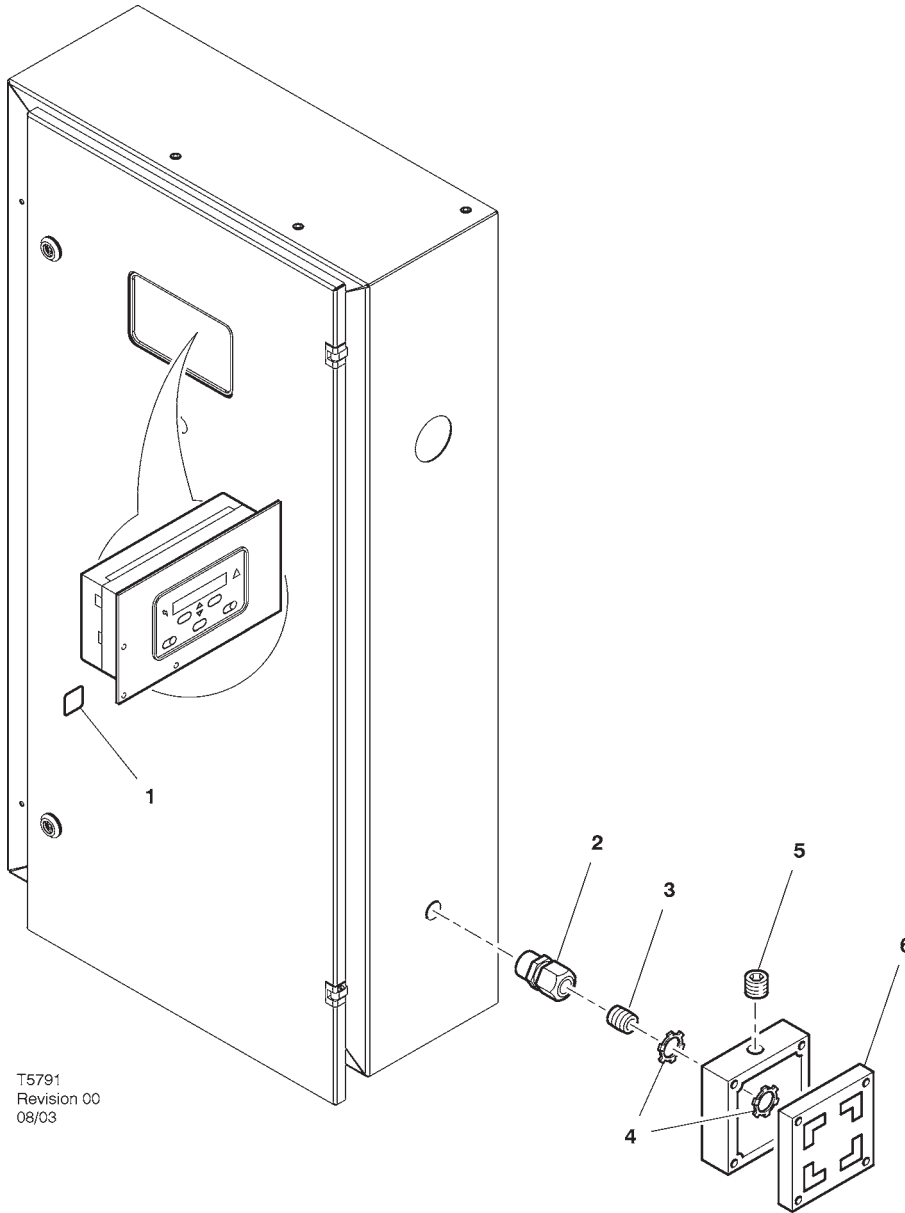
**Function test**

To test the operation of the Power Outage Restart Option:

1. Slowly open the main isolation valve.
2. Push the green START button on the Intellisys® display to start the compressor.
3. The compressor will load automatically if there is a sufficient demand for air. Allow the compressor to load.
4. Open the main disconnect to remove power from the compressor.
5. Close the main disconnect to reapply power to the compressor. The horn will sound and the Intellisys® display will read START IN \_\_\_SEC. The display will count down the time until the compressor starts automatically and the horn stops. After starting, the compressor will automatically return to the same mode of operation as prior to the power interruption.

**Fault Analysis**

1. If the Intellisys® display indicates the count down message and the horn does not sound, check the wiring of the horn.
2. If the Intellisys® display does not indicate the count down message, the horn does not sound and the unit does not restart automatically, verify that the Option has been turned on.



Item	ccn	Qty.	Description	Item	ccn	Qty.	Description
1	39194097	1	Option, Module	4	39108949	2	Locknut
2	35275494	1	Connector, bulkhead	5	39146733	1	Plug
3	95934279	1	Nipple	6	39100136	1	Horn