SUBMITTAL COVER SHEET

DATE:	X	NEW SUBMITTAL	0430105-207
9/29/2016		RESUBMITTAL	

TO:	(Owner) Arlington County: 3201 S. Eads Street Arlington, VA 22202 (Architect) STV, Inc. - 2722 Merrilee Dr. Suite 350 Fairfax, VA 22031 (Engineer) Atkins N. America, Inc. - 2318 Mill Rd., Suite 1040 Alexandria, VA 22314	FROM:	W. M. SCHLOSSER CO., INC. 2400 51ST PLACE HYATTSVILLE, MD 20781
ATTN:	Rami Natour, Jeremy Jenkins, Patrick Standiford, George Clark		

ART Bus Facility and Streetscape Improvements
Contract Agreement 722-15

ITEM NO.	DESCRIPTION OF ITEM SUBMITTED	Subcontractor, Manufacturer, Supplier	PROJECT SPEC SECTION	REVIEW CLASSIFICATION: A/E=ARCHITECT/ENGINEER/MIN APPROVAL I=INFORMATION ONLY	NO. OF COPIES P=PAPER E=ELECTRONIC
	CNG Facility and Operations	Subcontractor, Manufacturer, Supplier	Spec. #	A/E	1E
	CNG - Air Compressor O&M Manual	(Sub)Clean Energy	0430105	A/E	1E

Clarifications, Deviations and Comments:

This is a preliminary submittal only. Final O&M manuals will be submitted as a package per spec section 017823 - Operational and Maintenance Data. - CC, WMS

I HEREBY CERTIFY THAT THE EQUIPMENT, MATERIAL AND/OR ARTICLE SHOWN/MARKED IN THIS SUBMITTAL IS IN COMPLIANCE WITH THE CONTRACT DRAWINGS AND SPECIFICATIONS, CAN BE INSTALLED IN THE ALLOCATED SPACES AND IS APPROVED FOR USE.

NAME AND SIGNATURE OF CONTRACTOR

Chris Chapman, WMS

********** THIS SECTION FOR OWNER / ARCHITECT / ENGINEER USE ONLY **********

NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY

NAME: _____

TITLE: _____

SIGNATURE: _____

DATE IN:

DATE OUT:

ACTION TAKEN BY CONSTRUCTION MANAGER (CHECK APPLICABLE BOX):

_____ APPROVED (A)

_____ APPROVED AS NOTED (AAN)

_____ DISAPPROVED, REVISE AND RESUBMIT (RR)

_____ INFORMATION ONLY/NOT REVIEWED (FIO)

Quincy COMPRESSOR

Performance You Demand. Reliability You Trust.

QR-25® Series
Model 325

Parts Manual

Record of Change 107

This manual contains important safety information and must be carefully read in its entirety and understood prior to installation by all personnel who install, operate and/or maintain this product.

On-line product registration, parts ordering and warranty information is available at www.quincycompressor.com

Manual No. 2022204900

July 2014 Edition

INTRODUCTION

This manual provides information for the following QR-25 Series, Model 325 (Record of Change 107) compressor versions:

L **Control Version L**
head assembly with 1 unloader tower & a hydraulic unloader

LS **Control Version LS**
head assembly with 2 unloader towers, a hydraulic unloader, & a pilot valve with a check valve assembly

LVD **Control Version LVD**
head assembly with 2 unloader towers, a hydraulic unloader, & a pilot valve with a lockout & check valve

These compressors are aircooled, two stage, two cylinder, pressure lubricated compressors, with up to 200 PSI continuous pressure capability *(201 to 500 PSI intermittant pressure capability with proper configuration; consult factory)*. The Model 325 has a 4.5" low pressure piston bore and a 2.5" high pressure piston bore and a 3" stroke and can be run at 400-900 RPM.

Available options included in this manual:
-high pressure rated cylinder and head
-hooded air filter
-hooded air filter / silencer

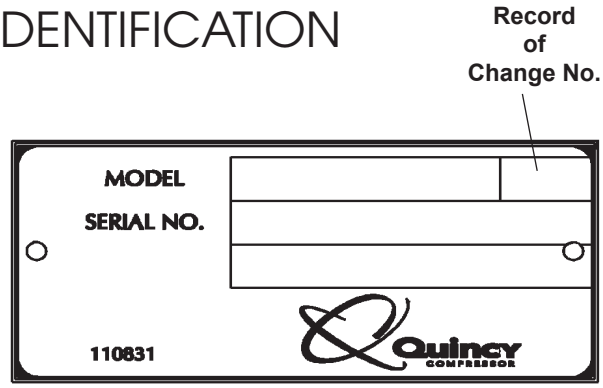
CHANGES

since previous printing dated January 2014:

The bearing carrier group was redesigned with a new oil pump including an oil filter

TABLE OF CONTENTS

MODEL & SERIAL NUMBER IDENTIFICATION



Model & Serial Number Identification Tag

The model & serial number tag is located on the handhole plate side of the crankcase. Fill in the numbers from your compressor's tag in the corresponding spaces provided here and reference this page when ordering replacement parts.

All replacement parts are to be ordered through an authorized Quincy distributor. Insist on genuine Quincy parts only! Failure to do so may void warranty.

ORDERING REPLACEMENT PARTS

Prompt service can be rendered on repair parts orders if the following information is given:

- **Item 1)** the model number, record of change number, & serial number.
- **Item 2)** the exact part number needed. (Do not order by item numbers.)
- **Item 3)** the exact quantity needed.
- **Item 4)** the preferred type of transportation

CRANKCASE LUBRICANT CAPACITY

Model	Capacity
325	1 qt. & 22 oz. (1.596 lit.)

QUIN-CIP LUBRICANT

Refer to the chart below to order Quin-Cip-D or Quin-Cip compressor lubricant from your local authorized Quincy distributor.

Quin-Cip-D Lubricant (synthetic)	
SAE 30 (ISO 100)	
Quart	115468Q
Case (12 Qts.)	115438C
Quin-Cip Lubricant	
SAE 10W (ISO 32)	
Quart	112541Q032
Case (12 Qts.)	112541C032
SAE 20 (ISO 68)	
Quart	112542Q068
Case (12 Qts.)	112542C068
SAE 30 (ISO 100)	
Quart	112543Q100
Case (12 Qts.)	112543C100

CAUTION !

Refer to the Quincy QR-25 Series instruction manual for vital lubrication information.

CAUTION !

Follow all safety precautions outlined in the QR-25 Series instruction manual.

WARNING !

Do not operate this compressor without a totally enclosed belt guard or any other required safety equipment.

DANGER !

Air used for breathing or food processing must meet OSHA 1910.134 or FDA 21 CFR 178.3570 regualtions. Failure to do so may cause severe injury or death.

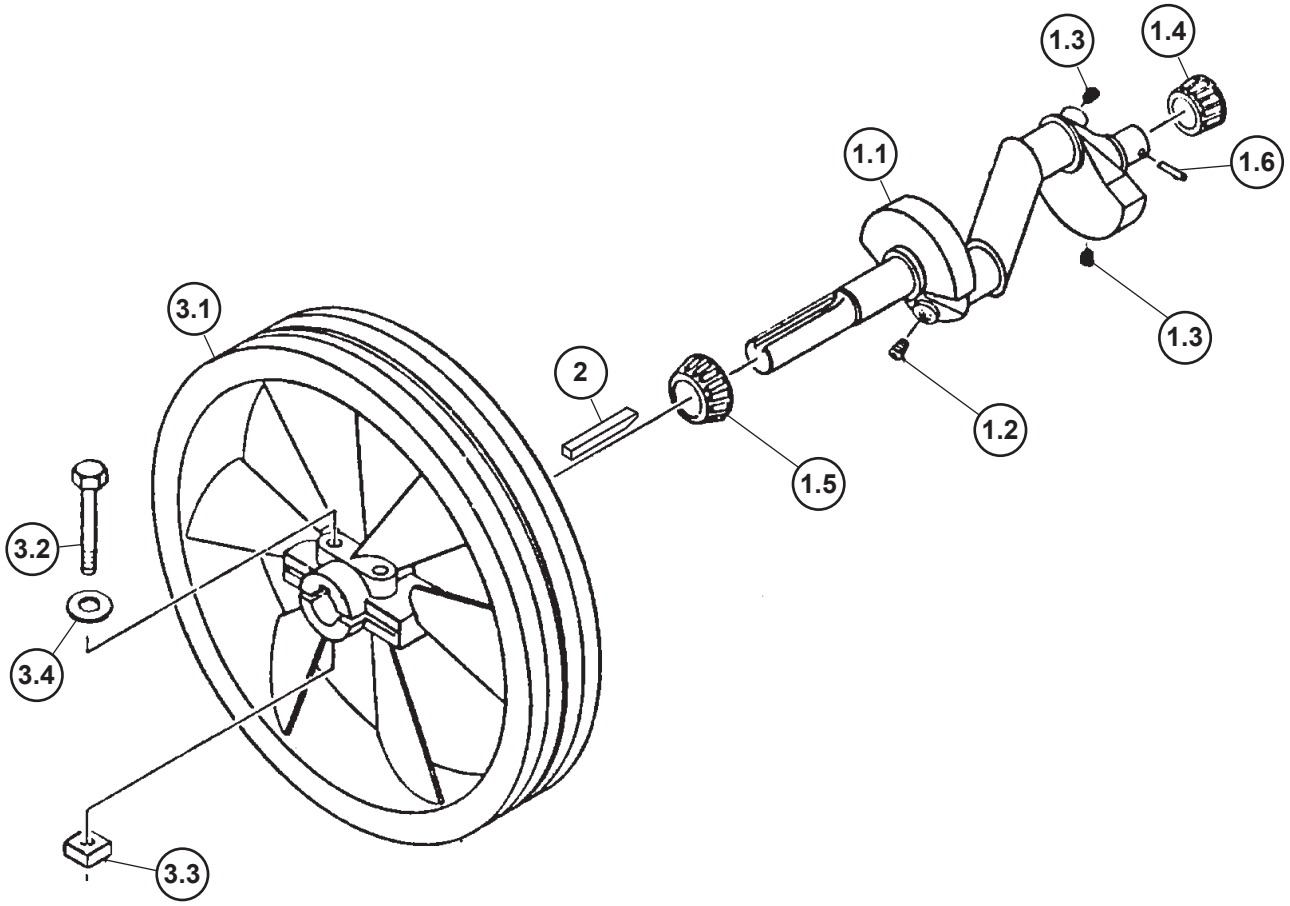
CRANKSHAFT GROUP 110238

Item Number	Qty.	Part Number	Description
1	1	110217	crankshaft assembly
1.1	1	110216	crankshaft (N.S.S.; order 110217)
1.2	1	110234	orifice, 1/8 npt
1.3	2	2755S	pipe plug, 1/8 npt
1.4	1	2585	bearing cone
1.5	1	2788	bearing cone
1.6	1	110705-F15	pin
2	1	1466	key
3	1	110472X	sheave assembly
3.1	1	4126R	sheave, 16", 2 groove, B sect., ccw (N.S.S.; order 110472X)
3.2	2	110983-N23	hex. screw, 1/2-13 unc x 3.50, grade 8 (@ 90 ft.-lbs.)
3.3	2	116124-N02	square nut, 1/2-13 unc
3.4	2	110428N050	flatwasher

N.S.S. = Not Sold Separate

@ Indicates torque value in foot pounds (dry threads)

Note: For reversal of compressor rotation refer to QR-25 instruction manual.



CRANKCASE GROUP 2021021301

Item Number	Qty.	Part Number	Description
1	1	5503X003	crankcase assembly
1.1	1	5503-003	crankcase
1.2	1	2720	bearing cup
2	*	6294D	bearing adj. shim, .002 steel
3	*	6294	bearing adj. shim, .005 steel
4	*	6294A	bearing adj. shim, .007 steel
5	*	6294B	bearing adj. shim, .020 steel
6	*	6294C	bearing adj. shim, .005 paper
7	4	123478-L10	hex. screw, 3/8-16 unc x .75, grade 5 (@ 30 ft.-lbs.)
8	1	5506X1	bearing adjustment plate assembly
8.1	1	5506	adjustment plate
8.2	1	6316	oil seal
9	1	112031X001	breather assembly
9.1	1	112032-001	breather tube
9.2	1	5783-002	breather ball
9.3	1	110705-C11	roll pin, 3/32 x .81
9.4	1	112031-001	breather body
10	3 ft.	110515-031	copper tube, 5/16 o.d.
11	1	1301	pipe plug, 3/8 npt
12	1	1840	gasket, inspection plate
13	1	2322-1	inspection plate, oil filler type
14	6	123478-K12	hex. screw, 5/16-18 unc x 1.00, grade 5 (@ 12 ft.-lbs.)
15	1	110070-3	oil gauge
16	1	123157-112	"o"ring, 3/32 wide x .69 o.d.
17	1	110919-010	tube fitting, 5/16 tube x 3/8 npt, 90°

Maintenance Parts

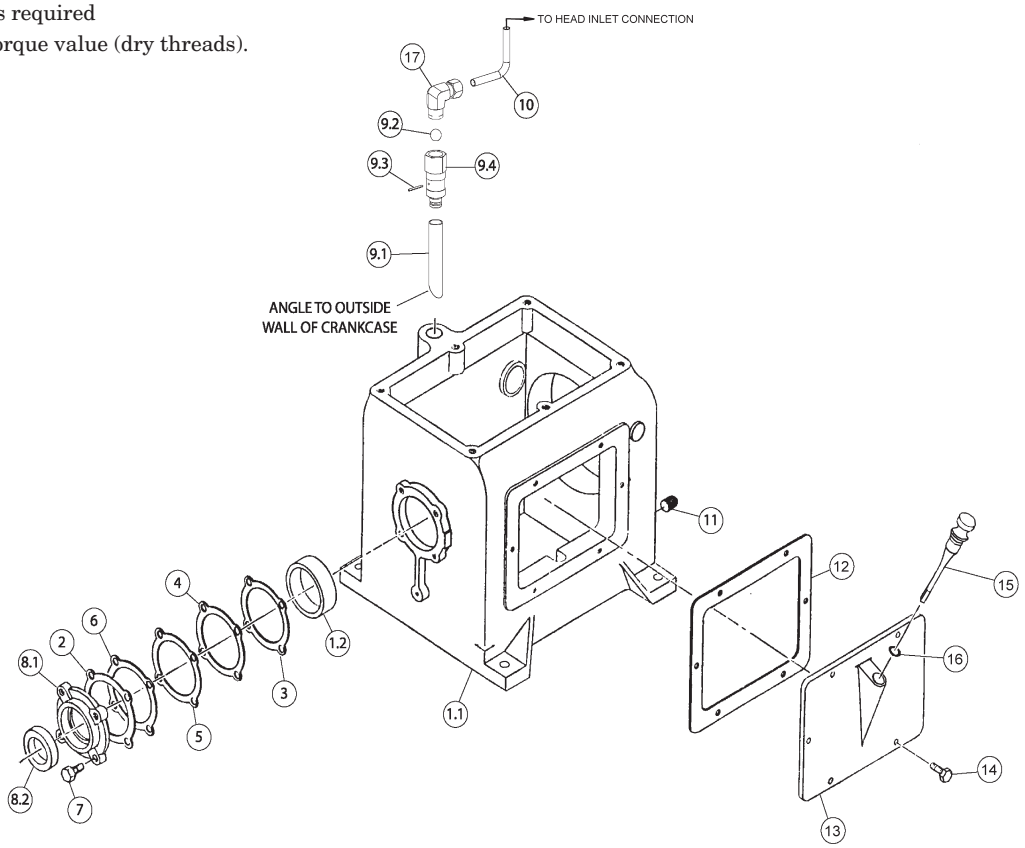
8.2	1	6316	oil seal

Parts for use with diester or phosphate ester synthetic based lubricants

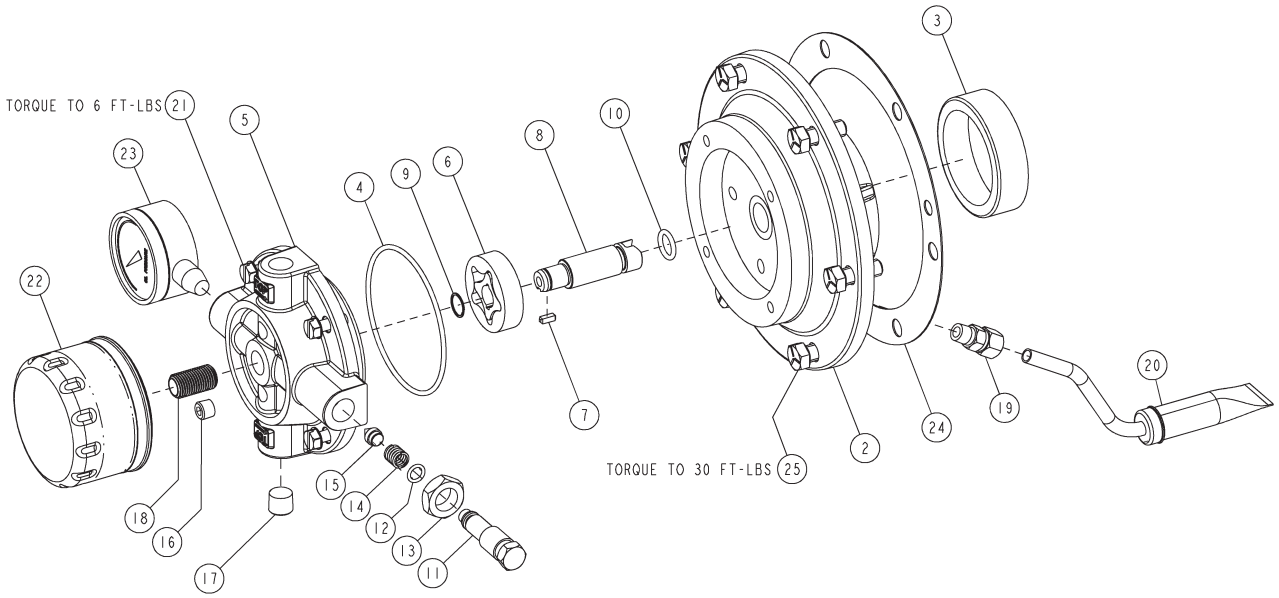
16	1	22749-112	"o"ring, 3/32 wide x .69 o.d.

* Quantity as required

@ Indicates torque value (dry threads).



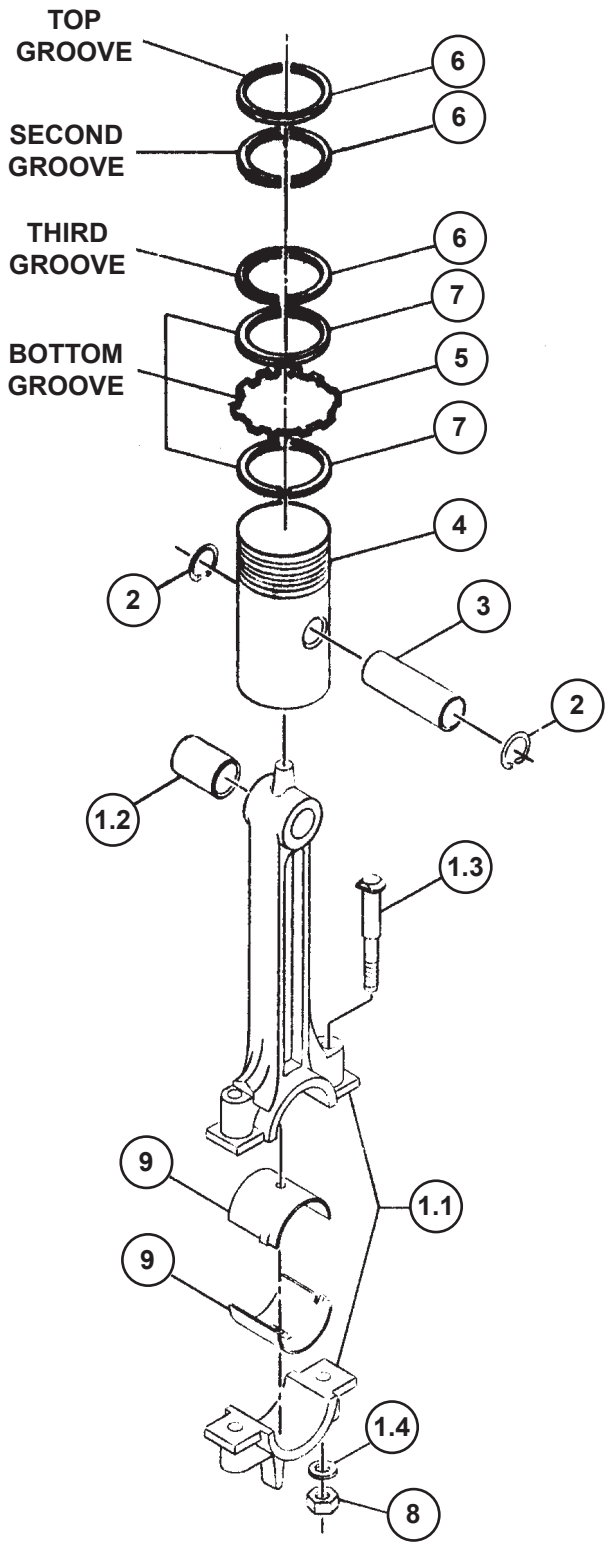
BEARING CARRIER GROUP 2024400060

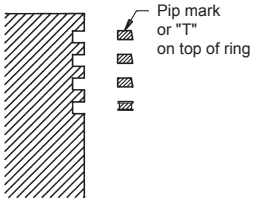


2024400060 BEARING CARRIER GROUP			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	2024400050	1	BEARING CARRIER ASSEMBLY (N.S.S. - ORDER KIT)
2	2024400001	1	BEARING CARRIER
3	2523	1	BEARING CUP
4	22749-152	1	O-RING, VITON
5	2024400601	1	OIL PUMP HOUSING
6	160003	1	OIL PUMP
7	160075-001	1	KEY
8	2024200202	1	OIL PUMP DRIVESHAFT
9	6285	1	RETAINING RING
10	22749-112	1	O-RING, VITON
11	5489	1	ADJUSTMENT SCREW
12	22749-011	1	O-RING, VITON
13	124369-P02	1	JAM NUT
14	1160	1	SPRING
15	112857	1	NEEDLE VALVE
16	2755S	1	PIPE PLUG, 1/8 NPT
* 17	2719	1	PIPE PLUG, 1/4 NPT
** 18	2023400200	1	FILTER STUD
*** 19	2023200108	1	TUBE FITTING,CONNECTOR, 5/16 TUBE X 1/8 NPT
20	2023400002	1	OIL PICKUP TUBE WITH SCREEN
21	123777-J10	4	MACHINE SCREW
22	2023400100	1	OIL FILTER
* 23	110822	1	OIL PRESSURE GAUGE
24	6312	1	BEARING CARRIER GASKET
25	142578-L12	6	CAP SCREW, 3/8-16x1.00, GRADE 5
MAINTENANCE PARTS			
2023400101			10 PACK OF OIL FILTERS
REPLACEMENT KITS			
2024400080			BEARING CARRIER ASSEMBLY REPLACEMENT KIT INCLUDES BEARING CARRIER ASSEMBLY, FILTER, GAUGE, AND GASKET

* INSTALL WITH PIPE SEALANT
** INSTALL WITH RETAINING COMPOUND
*** INSTALL WITH PIPE SEALANT ON NPT & THREADLOCKER ON NUT
N.S.S. = NOT SOLD SEPARATE
TORQUE VALUES ARE FOR DRY THREADS. TIGHTEN MULTIPLE BOLTS, CAPSCREWS, AND HEX NUTS IN A CRISS-CROSS PATTERN. BRING EACH FASTENER TO THE RECOMMENDED TORQUE SPECIFICATION IN EVEN INCREMENTS.

CONNECTING ROD & PISTON GROUP 110248
(high pressure)





Be sure to stagger ring gaps !

CONNECTING ROD & PISTON GROUP 110248
(high pressure)

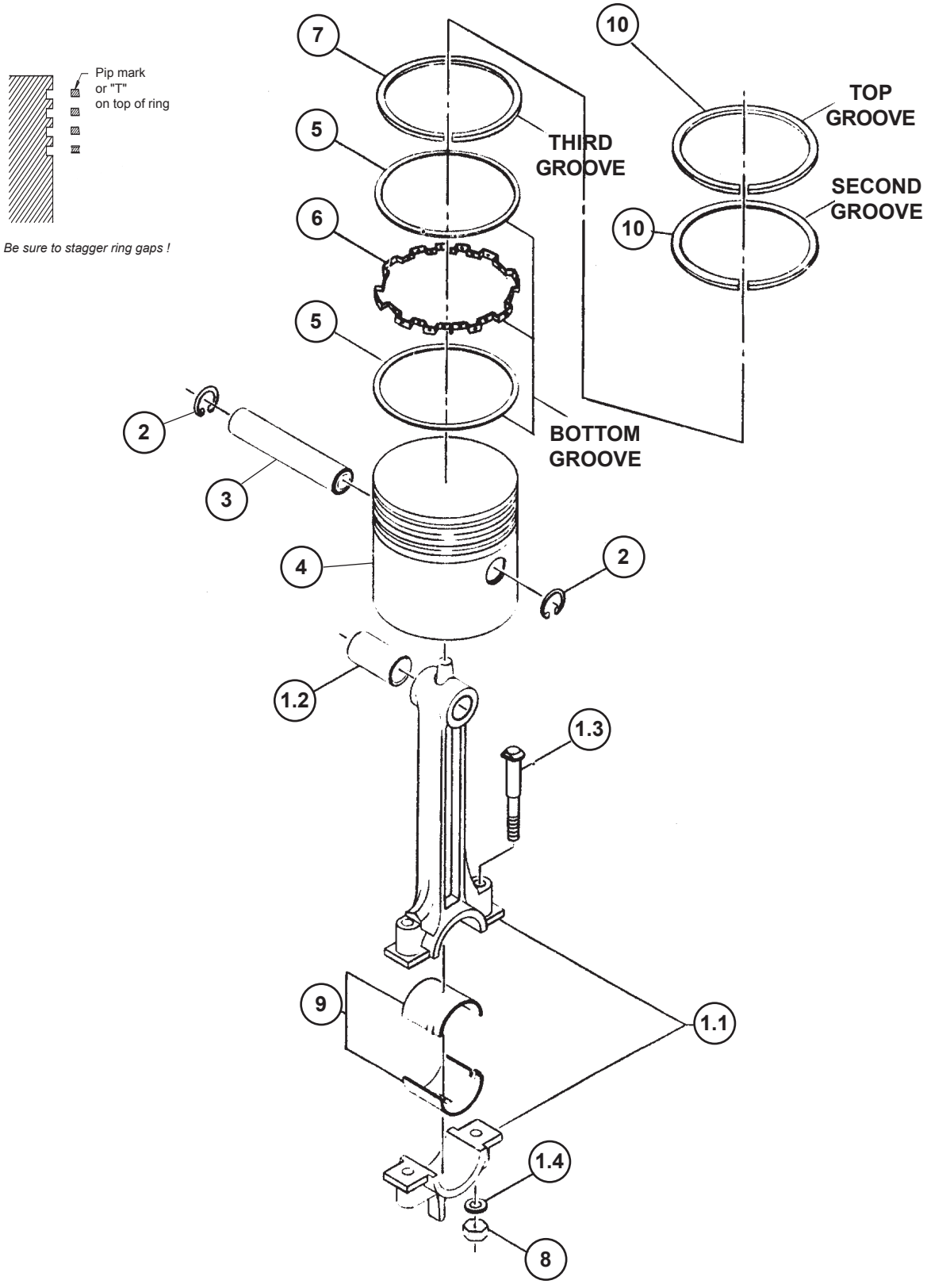
Item Number	Qty.	Part Number	Description
1	1	40201	connecting rod assembly (N.S.S.; order 6442HPX)
1.1	1	6442C- HP	rod, connecting (N.S.S.; see maintenance parts)
1.2	1	6443	bushing, connecting rod (N.S.S.; order 6440SR)
1.3	2	3493	connecting rod bolt
1.4	2	1836	washer
2	2	8648	retaining ring
3	1	110190-021	piston pin
4	1	1530-001	piston , high pressure
5	1	111280	oil ring expander
6	3	1652	piston ring
7	2	111281	oil ring rail
8	2	124471-L08	locknut, 3/8-24 unf (@ 35 ft.-lbs.)
9	2	6444	insert, connecting rod (N.S.S.; see maintenance parts)
			Maintenance Parts
* 9	1	6444PR	inserts, connecting rod (1 pair, standard size)
* 9	1	6444-010PR	inserts, connecting rod (1 pair, .010 undersize)
1.2	1	6440SR	replacement connecting rod bushing
4	1	1530-011	piston, high pressure (.010 oversize)
4	1	1530-021	piston, high pressure (.020 oversize)
	1	**8161A**	**Piston Ring Set (standard)** includes piston rings, oil ring rails & expander
	1	**4422-010**	**Piston Ring Set (.010 oversize, light blue color code)** includes includes piston rings, oil ring rails & expander
	1	**4422-020**	**Piston Ring Set (.020 oversize, yellow color code)** includes includes piston rings, oil ring rails & expander
	1	**1530X001**	**Piston Assembly, high pressure (standard)** includes ring set, piston pin, retaining rings, & piston
		1530X011	**Piston Assembly, high pressure (.010 oversize)** includes ring set, piston pin, retaining rings, & piston
		1530X021	**Piston Assembly, high pressure (.020 oversize)** includes ring set, piston pin, retaining rings, & piston
		6442HPX	**Replacement Connecting Rod Assembly** includes connecting rod assembly, connecting rod inserts, & locknuts

N.S.S. = Not Sold Separate

@ Indicates torque value (dry threads). Tighten multiple bolts, capscrews & hex nuts in a criss-cross or alternating pattern. Bring each fastener to the recommended torque specification in even increments.

* One pair required for each connecting rod assembly.

CONNECTING ROD & PISTON GROUP 110247
(low pressure)



CONNECTING ROD & PISTON GROUP 110247
(low pressure)

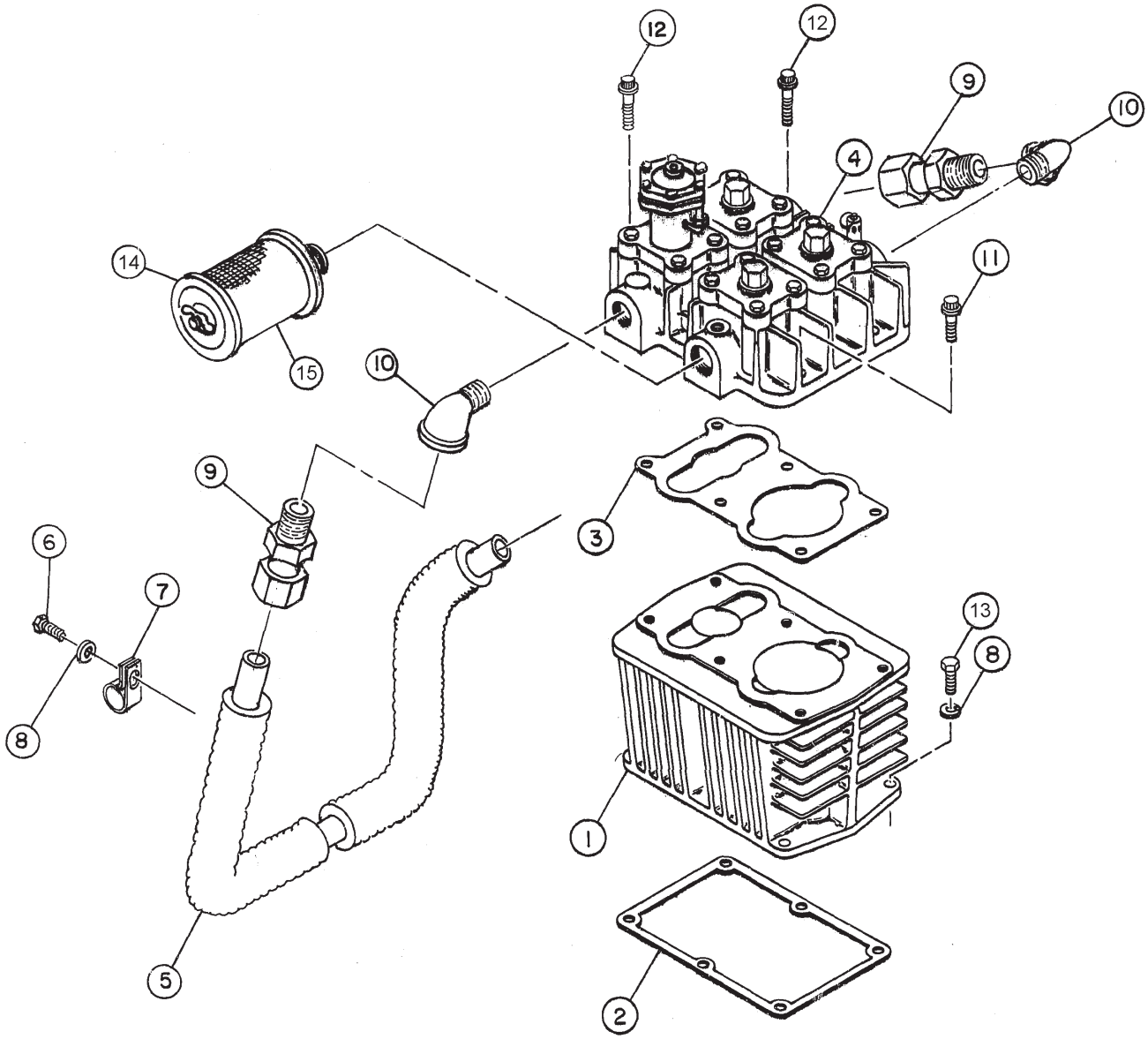
Item Number	Qty.	Part Number	Description
1	1	40139	connecting rod assembly (N.S.S.; see maintenance parts)
1.1	1	6442C	rod, connecting (N.S.S.; see maintenance parts)
1.2	1	6443	bushing, connecting rod (N.S.S.; order 6443SR)
1.3	2	3493	connecting rod bolt
1.4	2	1836	washer
2	2	8648	retaining ring
3	1	8646	piston pin
4	1	8643	piston, low pressure
5	2	112781	oil ring expander
6	1	112780	oil ring rail
7	1	7351	piston ring
8	2	124471-L08	locknut, 3/8-24 unf (@ 35 ft.-lbs.)
9	2	6444	insert, connecting rod (N.S.S.; see maintenance parts)
10	2	2584	piston ring
			Maintenance Parts
* 9	1	6444PR	inserts, connecting rod (1 pair, standard size)
* 9	1	6444-010PR	inserts, connecting rod (1 pair, .010 undersize)
1.2	1	6443SR	replacement connecting rod bushing
4	1	8643-010	piston, low pressure (.010 oversize)
4	1	8643-020	piston, low pressure (.020 oversize)
		8166A	**Piston Ring Set (standard)** includes piston rings, oil ring expander, & rails
		4434-010	**Piston Ring Set (.010 oversize, light blue color code)** includes piston rings, oil ring expander, & rails
		4434-020	**Piston Ring Set (.020 oversize, yellow color code)** includes piston rings, oil ring expander, & rails
		8643X	**Piston Assembly, low pressure (standard size)** includes piston, piston pin, retaining rings & ring set
		8643X010	**Piston Assembly, low pressure (.010 oversize)** includes piston, piston pin, retaining rings & ring set
		8643X020	**Piston Assembly, low pressure (.020 oversize)** includes piston, piston pin, retaining rings & ring set
		6442X	**Replacement Connecting Rod Assembly (standard)** includes connecting rod assy., connecting rod inserts, & locknuts

N.S.S. = Not Sold Separate

@ Indicates torque value (dry threads). Tighten multiple bolts, capscrews & hex nuts in a criss-cross or alternating pattern. Bring each fastener to the recommended torque specification in even increments.

* One pair required for each connecting rod assembly.

CYLINDER & HEAD GROUP 112071
(control version L)



CYLINDER & HEAD GROUP 112071
(control version L)

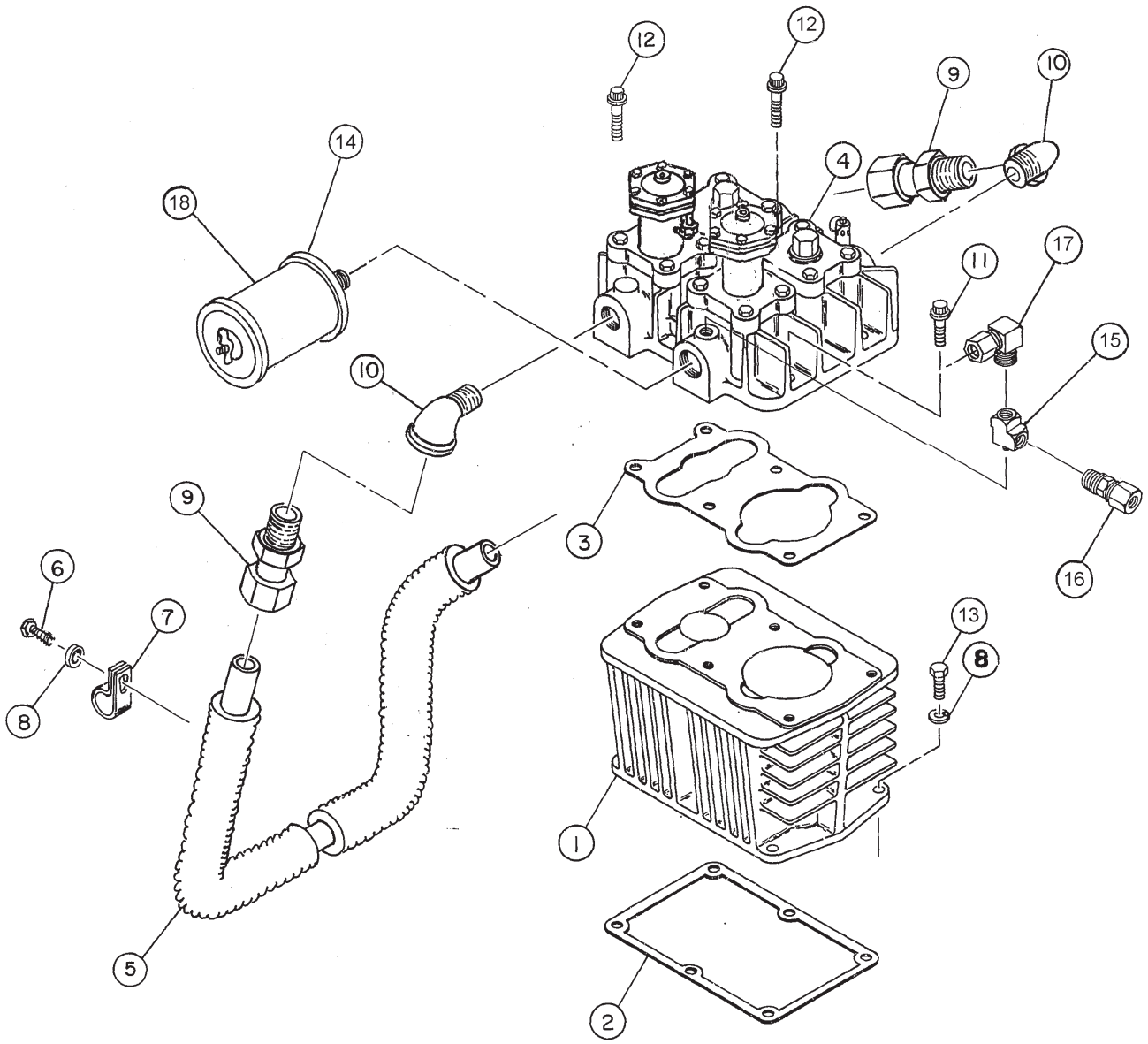
Item Number	Qty.	Part Number	Description
1	1	6610-5	cylinder
2	1	1833	gasket, cylinder to crankcase
3	1	7000	gasket
* 4	1	111496U	head assembly (see page 23 for parts breakdown)
5	1	112073	intercooler (N.S.S.; order Intercooler Replacement Kit)
6	1	123478-L10	hex. screw, 3/8-16 unc x .75, grade 5 (@ 30 ft.-lbs.)
7	1	6293-002	clamp
8	7	123115-06C	lockwasher, 3/8
9	2	124393-025	fitting
10	2	3092	pipe elbow, 3/4 npt x 3/4 npt, 90°
11	2	90386-N15	counterbore screw, 1/2-13 unc x 1.50, grade 8 (@ 50 ft.-lbs.)
12	4	90386-N20	counterbore screw, 1/2-13 unc x 2.75, grade 8 (@ 50 ft.-lbs.)
13	6	123478-L14	hex. screw, 3/8-16 unc x 1.25, grade 5 (@ 30 ft.-lbs.)
14	1	110377F100	air filter
14	1	110377H100	filter
14	1	110377S100	air filter/silencer, hooded
15	1	110377E100	air filter element, (fits110377F100 & 110377S100 filter)
			Maintenance Parts
	1	**111496X11L**	**Replacement Head Assembly** includes head assy., head gasket, copper tube & fittings
	1	**111496-051**	**Replacement Head Assembly (for high pressure rated compressors)** includes high pressure rated head assy., head gasket, copper tube & fittings
	1	**112088**	**Intercooler Replacement Kit** includes intercooler and nut / sleeve fittings

N.S.S. = Not Sold Separate

@ Indicates torque value (dry threads). Tighten multiple bolts, capscrews & hex nuts in a criss-cross or alternating pattern. Bring each fastener to the recommended torque specification in even increments.

* High pressure compressors and DNV certified applications require 111496HPS head in lieu of 111496 head and 6610-5HPS cylinder in lieu of 6610-5 cylinder

CYLINDER & HEAD GROUP 112072
(control versions LS & LVD)



CYLINDER & HEAD GROUP 112072
(control versions LS & LVD)

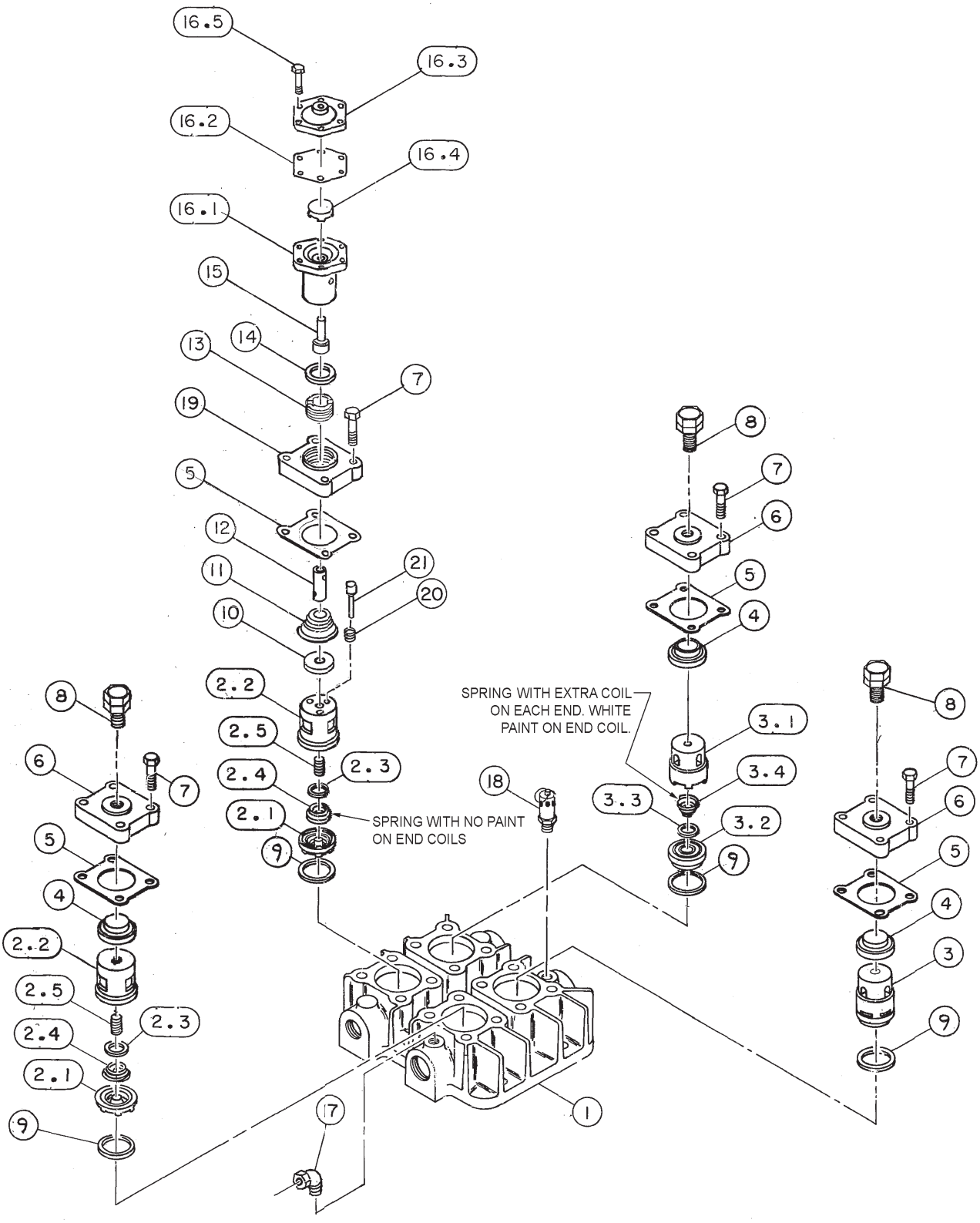
Item Number	Qty.	Part Number	Description
1	1	6610-5	cylinder
2	1	1833	gasket, cylinder to crankcase
3	1	7000	gasket
* 4	1	111496UU	head assembly (see page 25 for parts breakdown)
5	1	112073	intercooler (N.S.S.; order Intercooler Replacement Kit)
6	1	123478-L10	hex. screw, 3/8-16 unc x .75, grade 5 (@ 30 ft.-lbs.)
7	1	6293-002	clamp
8	7	123115-06C	lockwasher, 3/8
9	2	124393-025	fitting
10	2	3092	pipe elbow, 3/4 npt x 3/4 npt, 90°
11	2	90386-N15	counterbore screw, 1/2-13 unc x 1.50, grade 8 (@ 50 ft.-lbs.)
12	4	90386-N20	counterbore screw, 1/2-13 unc x 2.75, grade 8 (@ 50 ft.-lbs.)
13	6	123478-L14	hex. screw, 3/8-16 unc x 1.25, grade 5 (@ 30 ft.-lbs.)
14	1	110377F100	air filter
or			
14	1	110377H100	filter
or			
14	1	110377S100	air filter/silencer, hooded
15	1	3003	pipe tee, 1/4 npt x 1/4 npt x 1/4 npt
16	1	2706	connector
17	1	2708	tube fitting, 90° male elbow, 1/4 tube x 1/4 npt
			Maintenance Parts
18	1	110377E100	air filter element, (fits110377F100 & 110377S100 filter)
	1	**111496X11S**	**Replacement Head Assembly** includes head assy., head gasket, copper tube & fittings
	1	**111496-052**	**Replacement Head Assembly (for high pressure rated compressors)** includes high pressure rated head assy., head gasket, copper tube & fittings
	1	**112088**	**Intercooler Replacement Kit** includes intercooler and nut / sleeve fittings

N.S.S. = Not Sold Separate

@ Indicates torque value (dry threads). Tighten multiple bolts, capscrews & hex nuts in a criss-cross or alternating pattern. Bring each fastener to the recommended torque specification in even increments.

* High pressure compressors and DNV certified applications require 111496HPS head in lieu of 111496 head and 6610-5HPS cylinder in lieu of 6610-5 cylinder

HEAD ASSEMBLY 111496U
(control version L)



HEAD ASSEMBLY 111496U
(control version L)

Item Number	Qty.	Part Number	Description
* 1	1	111496	head
2	2	7277X1	valve assembly
2.1	1	7277	valve bumper
2.2	1	1815	seat
2.3	1	1846	valve disc
2.4	1	7270	valve spring
2.5	1	1849	stud
3	2	7271X004	discharge valve assembly
3.1	1	7271-004	discharge valve bumper
3.2	1	1819-002	discharge valve seat
3.3	1	1846	valve disc
3.4	1	7270-2	valve spring
4	3	110639	spacer
5	4	1852	gasket
6	3	5906	valve cover plate
‡ 7	16	7480	hex. screw, 7/16-14 unc x 1.38, grade 5(@ 50 ft.-lbs.)
** 8	3	114545-R15	bolt & jamnut assembly (bolt @ 60 ft.-lbs. - jamnut @ 50 ft.-lbs.)
9	4	1848	gasket
10	1	6925	platform
11	1	6964	spacer
12	1	6965-001	pin
13	1	3008	holddown screw (@ 70 ft.-lbs.)
14	1	1556	gasket
15	1	7532X	unloader piston assembly
16	1	40055	unloader assembly (@ 75 ft.-lbs.) (N.S.S.; order 7483X)
16.1	1	7483	unloader body
16.2	1	1855	diaphragm
16.3	1	1818B	diaphragm cover plate
16.4	1	5910	diaphragm disc
16.5	6	7499	hex. screw, 1/4-20 unc x .75, grade 2 (@ 72 in.-lbs.)
17	1	2710	fitting
18	1	2961-100	pressure relief valve
19	1	6928	plate
20	3	6910	valve spring
21	3	1857	valve pin

Maintenance Parts

1	**111496HPS**	**Replacement Head (for high pressure rated compressors)**
1	**7277X**	**Replacement Suction Valve Assembly** includes suction valve assy. & valve gasket
1	**7277XU**	**Replacement Suction Valve Assembly** includes suction valve assy., valve gasket, valve pins, & valve springs
2	**7271X04**	**Replacement Discharge Valve Assembly** includes discharge valve assy. & valve gasket
1	**7483X**	**Replacement Unloader Assembly** includes unloader assembly, unloader piston assembly, valve gasket & pipe plug

Parts for use with diester or phosphate ester synthetic based lubricants

16.2	1	1855S	diaphragm

N.S.S. = Not Sold Separate

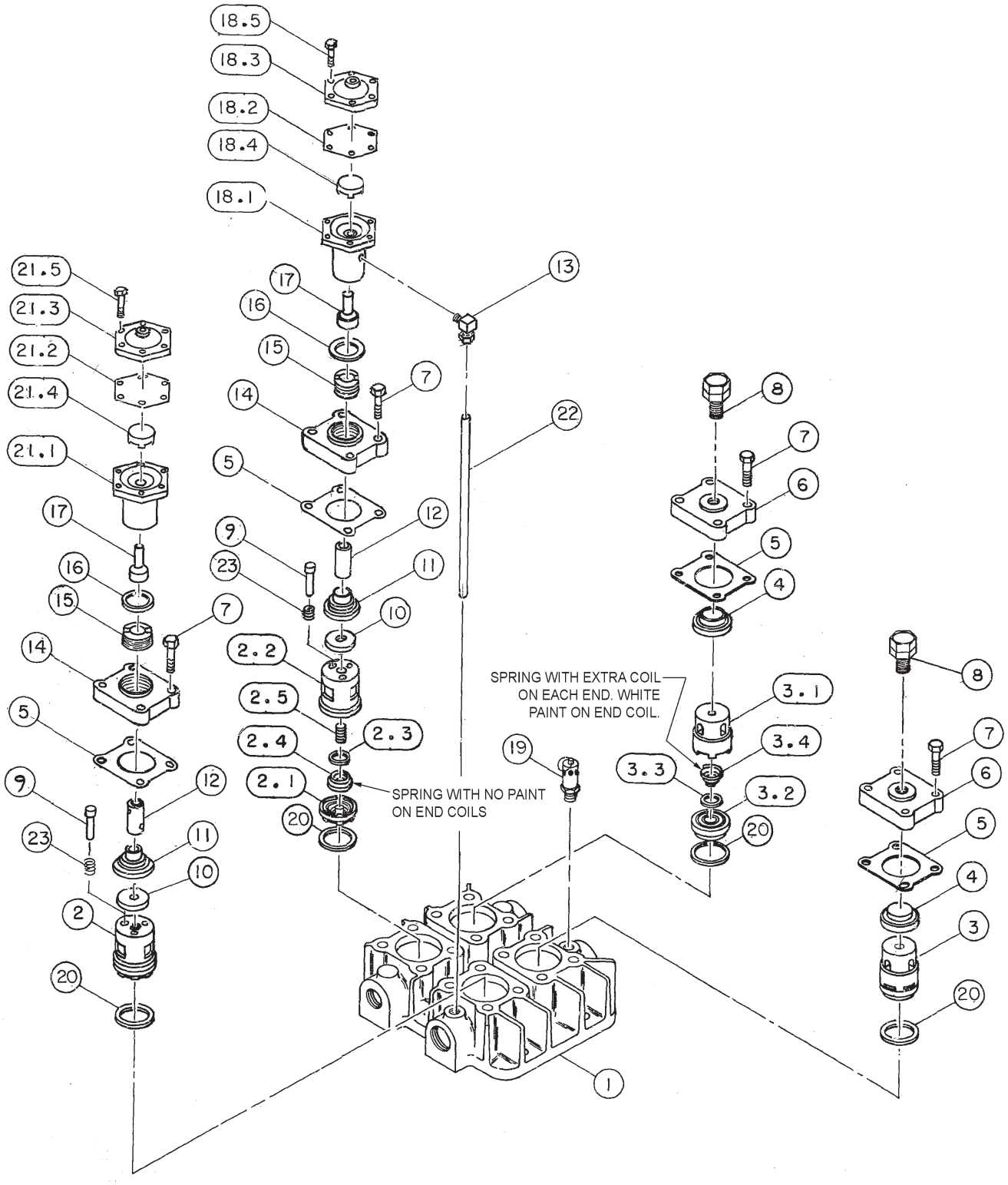
@ Indicates torque value (dry threads). Tighten multiple bolts, capscrews & hex nuts in a criss-cross or alternating pattern. Bring each fastener to the recommended torque specification in even increments.

* High pressure compressors and DNV certified applications require 111496HPS head in lieu of 111496 head.

‡ Tighten and torque valve cover plate hex screws (item 7) prior to tightening valve clamp hex screws (item 8).

** Install with Loctite® 272 applied to threads.

HEAD ASSEMBLY 111496UU
(control versions LS & LVD)



HEAD ASSEMBLY 111496UU
(control versions LS & LVD)

Item Number	Qty.	Part Number	Description
* 1	1	111496	head
2	2	7277X1	valve assembly
2.1	1	7277	valve bumper
2.2	1	1815	seat
2.3	1	1846	valve disc
2.4	1	7270	valve spring
2.5	1	1849	stud
3	2	7271X004	discharge valve assembly
3.1	1	7271-004	discharge valve bumper
3.2	1	1819-002	discharge valve seat
3.3	1	1846	valve disc
3.4	1	7270-2	valve spring
4	2	110639	spacer
5	4	1852	gasket
6	2	5906	valve cover plate
‡ 7	16	7480	hex. screw, 7/16-14 unc x 1.38, grade 5 (@ 50 ft.-lbs.)
** 8	2	114545-R15	bolt & jamnut assembly (bolt @ 60 ft.-lbs. - jamnut @ 50 ft.-lbs.)
9	6	1857	valve pin
10	2	6925	platform
11	2	6964	spacer
12	2	6965-001	pin
13	1	1642	tube fitting, 90° male elbow, 1/4 tube x 1/8 npt
14	2	6928	plate
15	2	3008	holddown screw (@ 70 ft.-lbs.)
16	2	1556	gasket
17	2	7532X	unloader piston assembly
18	1	40055	unloader assembly (@ 75 ft.-lbs.) (N.S.S.; order 7483X)
18.1	1	7483	unloader body
18.2	1	1855	diaphragm
18.3	1	1818B	diaphragm cover plate
18.4	1	5910	diaphragm disc
18.5	6	7499	hex. screw, 1/4-20 unc x .75, grade 2 (@ 72 in.-lbs.)
19	1	2961-100	pressure relief valve
20	4	1848	gasket
21	1	40192	unloader assembly (@ 75 ft.-lbs.), (N.S.S.; order 8272X)
21.1	1	8272	unloader body
21.2	1	1855	diaphragm
21.3	1	1818B	diaphragm cover plate
21.4	1	5910	diaphragm disc
21.5	6	7499	hex. screw, 1/4-20 unc x .75, grade 2 (@ 72 in.-lbs.)
22	1 ft.	110515-025	copper tube, 1/4 o.d.
23	6	6910	valve spring
			Maintenance Parts
	1	**111496HPS**	**Replacement Head (for high pressure rated compressors)**
	1	**7277X**	**Replacement Suction Valve Assembly** includes suction valve assy. & valve gasket
	2	**7277XU**	**Replacement Suction Valve Assembly** includes suction valve assy., valve gasket, valve pins & valve springs
	2	**7271X04**	**Replacement Discharge Valve Assembly** includes discharge valve assy. & valve gasket
	1	**7483X**	**Replacement Unloader Assembly** includes unloader assy. (40055), unloader piston assy., valve gasket & pipe plug
	1	**8272X**	**Replacement Unloader Assembly** includes unloader piston assembly, unloader assembly (40192), & valve gasket
			Parts for use with diester or phosphate ester synthetic based lubricants
18.2 & 21.2	1	1855S	diaphragm

N.S.S. = Not Sold Separate

@ Indicates torque value (dry threads). Tighten multiple bolts, capscrews & hex nuts in a criss-cross or alternating pattern. Bring each fastener to the recommended torque specification in even increments.

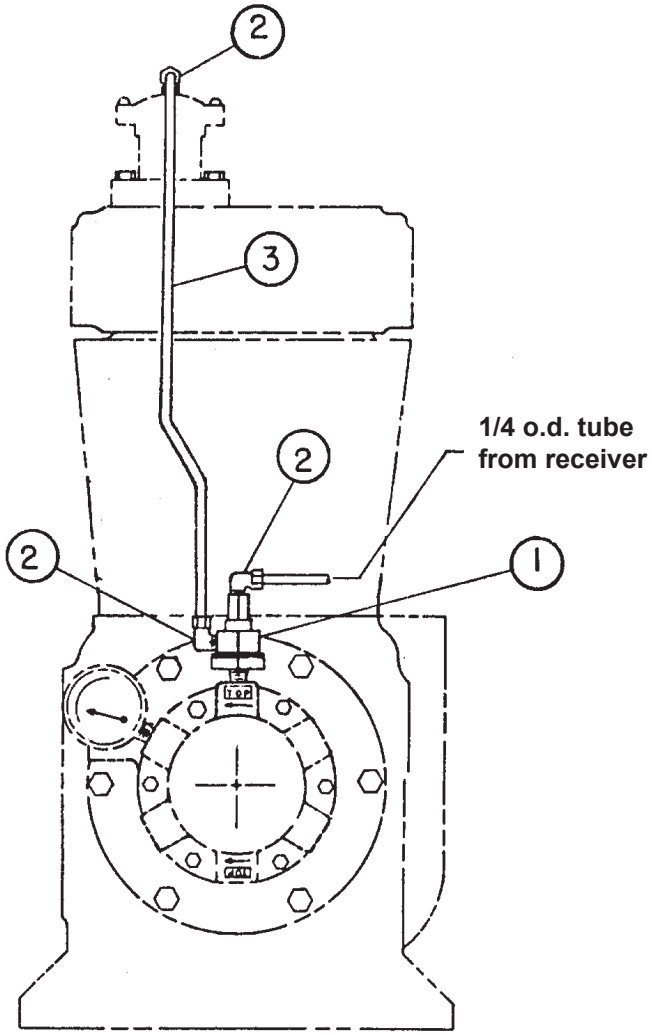
* High pressure compressors and DNV certified applications require 111496HPS head in lieu of 111496 head.

‡ Tighten and torque valve cover plate hex screws (item 7) prior to tightening valve clamp hex screws (item 8).

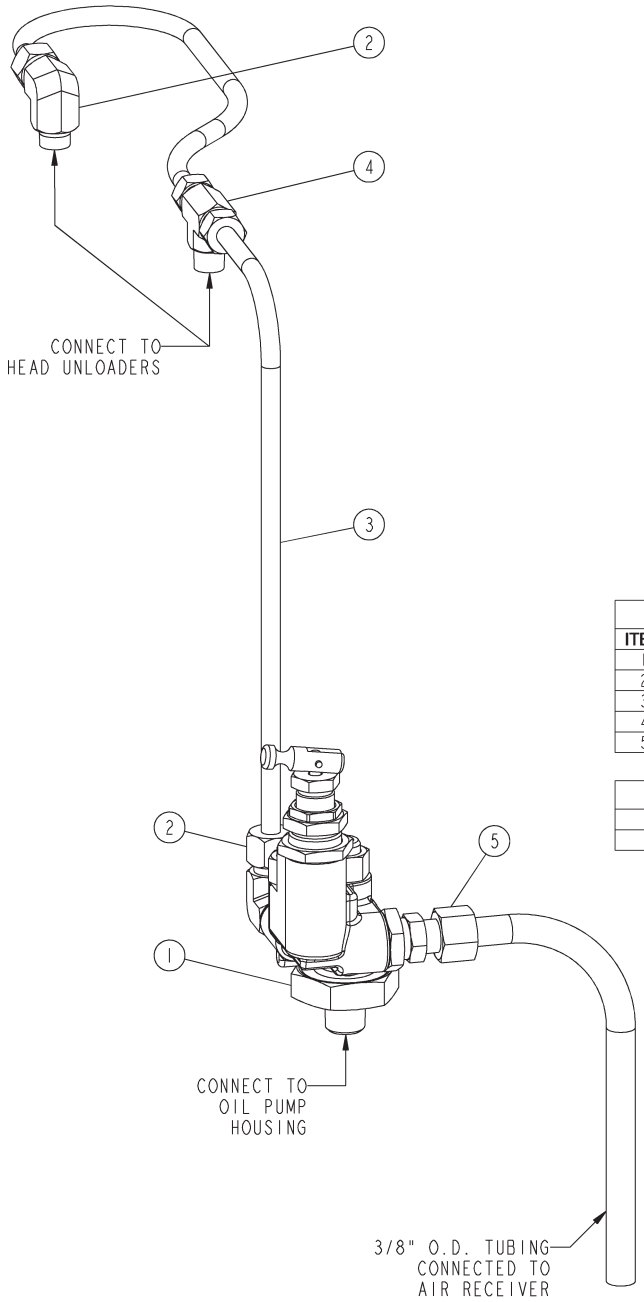
** Install with Loctite® 272 applied to threads.

CONTROL GROUP 110855
(control version L)

Item Number	Qty.	Part Number	Part Number	Description
		0-200 PSI	**201-500 PSI**	
1	1	110827-001	110827-002	hydraulic unloader assembly
2	3	1642	1642	tube fitting, 90° male elbow, 1/4 tube x 1/8 npt
3	3 ft.	110515-025	110515-025	copper tube, 1/4 o.d.
				Maintenance Parts
		113225	**113225**	**Hydraulic Unloader Repair Kit** includes diaphragm, stem assembly, inlet filter & fitting assembly, spring (0-200 PSI) and spring (201-500 PSI, red color code)
				Parts for use with diester or phosphate ester synthetic based lubricants
1	1	110827-003		hydraulic unloader assembly (standard, 0-200 PSI)
1	1		110827-004	hydraulic unloader assembly (high pressure, 201-500 PSI)



CONTROL GROUP 2023903355
(control version LS)

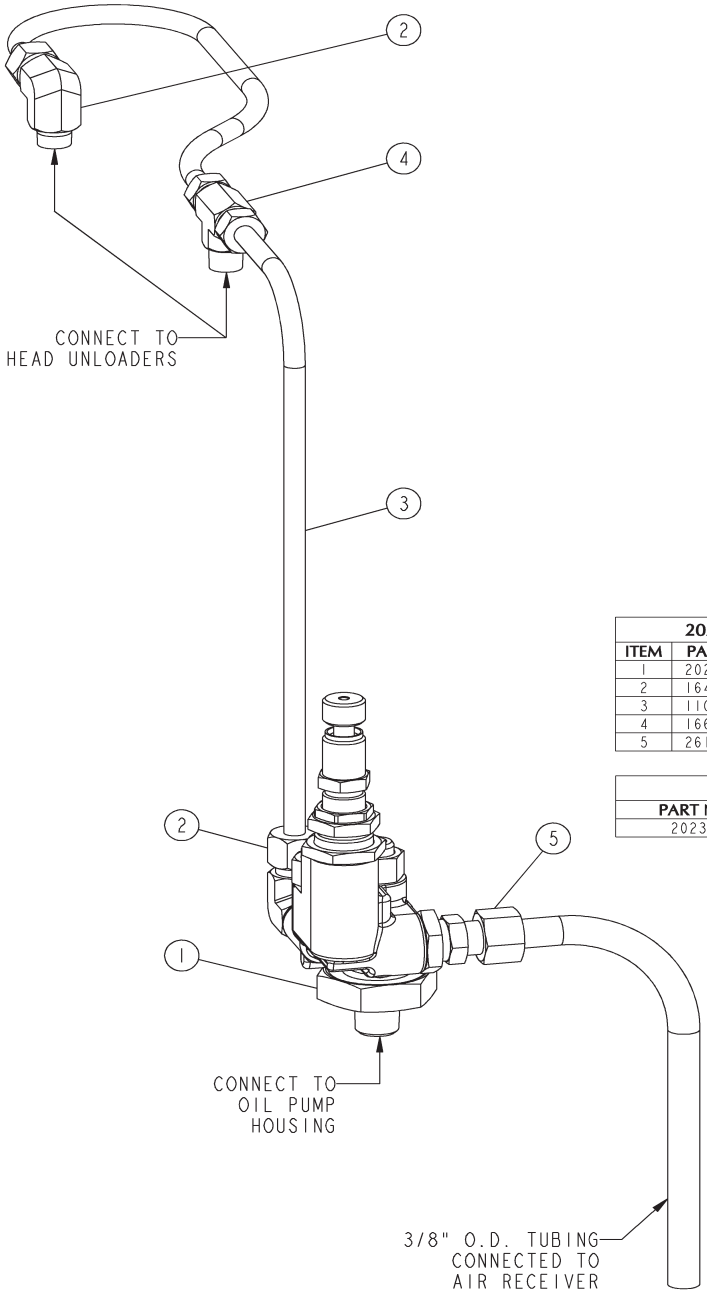


2023903355 LS CONTROL GROUP (STANDARD 165-175 PSI)			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	2023903305	1	LS CONTROL VALVE, 165-175 PRESET
2	1642	2	TUBE FITTING, 90° ELBOW, 1/4Tx1/8MP
3	110515-025	1	1/4" COPPER TUBING - 5 FT.
4	1665	1	MALE BRANCH TEE 1/4T X 1/8P
5	2616	1	TUBE FITTING, STRAIGHT, 3/8 TUBE X 1/4 NPT

MAINTENANCE PARTS	
PART NUMBER	DESCRIPTION
2023903290	CONTROL VALVE INLET FILTER

* See page 21 for optional pilot valves that must be used with respective pressure ranges.

CONTROL GROUP 2023903255
(control version LVD)



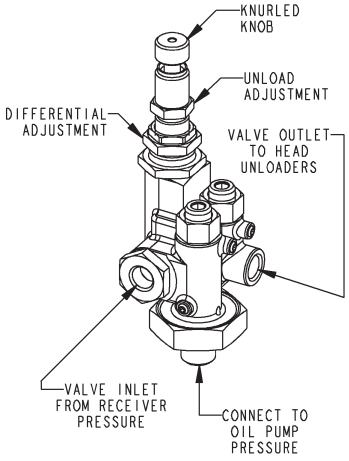
2023903255 LVD CONTROL GROUP (STANDARD 155-165 PSI)			
ITEM	PART NUMBER	QTY	DESCRIPTION
1	2023903205	1	LVD CONTROL VALVE, 155-165 PRESET
2	1642	2	TUBE FITTING, 90° ELBOW, 1/4Tx1/8MP
3	110515-025	1	1/4" COPPER TUBING - 5 FT.
4	1665	1	MALE BRANCH TEE 1/4T X 1/8P
5	2616	1	TUBE FITTING, STRAIGHT, 3/8 TUBE X 1/4 NPT

MAINTENANCE PARTS	
PART NUMBER	DESCRIPTION
2023903290	CONTROL VALVE INLET FILTER

* See page 21 for optional pilot valves that must be used with respective pressure ranges.

COMBINATION VALVES - CONTROL VERSION "LVD"

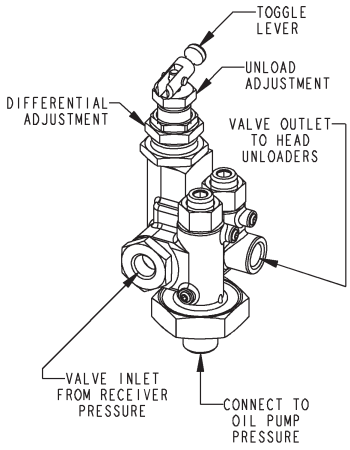
CONTAINS THE HYDRAULIC UNLOADER, PILOT VALVE, AND CHECK VALVE IN A SINGLE PART



PILOT SETTINGS SEE WARNING BELOW	QUINCY PART #	FACTORY PRE-SET:		*CUSTOMER RE-SETTABLE:	
		LOAD PRESSURE (PSI)	UNLOAD PRESSURE (PSI)	LOAD PRESSURE RANGE (PSI)	UNLOAD PRESSURE RANGE (PSI)
CUSTOM PRESSURE SETTING	2023903201	100	115	**	51-120
	2023903202	130	140	**	121-250
	2023903203	450	500	**	251-500
STANDARD 1-STAGE COMPRESSOR	2023903204	85	95	**	51-120
STANDARD 2-STAGE COMPRESSOR	2023903205	155	165	**	121-250

COMBINATION VALVES - CONTROL VERSION "LS"

CONTAINS THE HYDRAULIC UNLOADER, PILOT VALVE, AND CHECK VALVE IN A SINGLE PART



PILOT SETTINGS SEE WARNING BELOW	QUINCY PART #	FACTORY PRE-SET:		*CUSTOMER RE-SETTABLE:	
		LOAD PRESSURE (PSI)	UNLOAD PRESSURE (PSI)	LOAD PRESSURE RANGE (PSI)	UNLOAD PRESSURE RANGE (PSI)
CUSTOM PRESSURE SETTING	2023903301	100	110	**	51-120
	2023903302	130	140	**	121-250
	2023903303	450	500	**	251-500
STANDARD 1-STAGE COMPRESSOR	2023903304	90	100	**	51-120
STANDARD 2-STAGE COMPRESSOR	2023903305	165	175	**	121-250

* THE PILOT IS SUPPLIED PRESET FROM THE FACTORY. IF THE PILOT NEEDS TO BE RESET, REFER TO THE QR-25 SERIES INSTRUCTION MANUAL FOR INSTRUCTIONS.

** SEE DIFFERENTIAL SETTING CHART. LOAD PRESSURE = UNLOAD PRESSURE - DIFFERENTIAL.

DIFFERENTIAL SETTING CHART	
UNLOAD PRESSURE (PSI)	DIFFERENTIAL MIN-MAX (PSI)
51-175	10-15
175-250	15-25
251-500	25-50

WARNING!

NOT ALL PILOTS ARE FOR USE WITH ALL COMPRESSOR SYSTEMS. MAKE SURE THAT THE PILOT YOU ORDER IS SET WITHIN THE SAFE OPERATING LIMITS OF YOUR COMPRESSOR. FAILURE TO HEED THIS WARNING COULD RESULT IN AN EXLOSION.

REFER TO THE "INTRODUCTION" SECTION OF YOUR PARTS MANUAL FOR THE SAFE OPERATING LIMITS OF YOUR COMPRESSOR.

SUCTION VALVE UNLOADER ASSEMBLIES

Description

The Quincy suction valve unloader assembly consists of unloading arrangements on the suction valves, having a plunger to contact the suction valve disc and an unloader pilot valve to automatically regulate the passing of receiver pressure to the unloading arrangement.

Application

Suction valve unloader assemblies are recommended for use on Quincy compressors where the compressor is to run continuously and a constant pressure is to be maintained. The purpose is to automatically unseat the suction valve of the compressor when the air supply is greater than the demand.

Operation

Unloading occurs when receiver pressure is sufficient to overcome pilot valve spring pressure. The check ball is then unseated, allowing receiver pressure to pass to the unloading arrangements. The compressor will run unloaded until the receiver pressure drops to a predetermined level. At this time, the action of the ball is reversed, shutting off receiver pressure to the unloader arrangement and venting the unloader to atmosphere. This allows the compressor to load. The drive, either electric motor or combustion engine, runs continuously and must be started and stopped manually.

The LS control version is equipped with a toggle lever on the pilot valve which can be flipped to provide manual unloading.

The LVD control version is designed to provide a choice between "start/stop" or "continuous run" operation. The LVD pilot valve can be set for "start/stop" operation by turning the knurled knob at the end of the pilot valve clockwise until it stops. Under these circumstances a pressure switch is required to stop the motor. Failure to use a pressure switch, with the pilot valve locked out, could result in unsafe conditions.

WARNING !

A pressure switch must be incorporated whenever an LVD pilot valve is employed as part of the control system.

The compressor will operate in the continous run mode if the knurled knob on the LVD pilot valve is turned counterclockwise until it stops.

Installation

The pilot valve is to be connected to the air receiver using a minimum of 3/8" o.d. copper tube. Compressors in the field, not equipped with a suction valve unloader assembly, can be converted to constant speed. Consult your local Quincy distributor for assistance with conversion procedures.

Service

Periodically check the filter & screens in the inlet of the pilot valve to make sure they are free of obstructions. If they become clogged, remove and clean or replace. Inspect the "o"ring located in the opposite end of the pilot valve body for wear or damage; replace if necessary.

Adjustment

The unloading pressure is adjustable and is regulated by turning the hex nut (marked "unload adj." in cross sectional illustrations of pilot valves). Turn the hex nut clockwise to increase and counterclockwise to decrease the unloading pressure.

The differential (difference between unloading and loading pressure) is set by turning the hex nut marked "differential adjustment" in the illustrations of the pilot valves on previous pages. Increase the differential pressure by turning the hex nut clockwise - decrease by turning counterclockwise. Tighten the locknuts after adjustment.

Head Kit K325A

Item #	Qty.	Part Number	Description
	1	110377E100	air filter element
	2	1556	gasket
	2	1855	diaphragm
	4	1848	gasket, valve
	4	1852	gasket, valve cover
	2	1556	gasket, valve cover
	4	1846	valve disc
	1	7000	gasket, cylinder to head
	2	7270	valve spring
	2	7270-2	valve spring
	1	5700	gasket, intercooler

Yearly Maintenance Kit 110516-325

Item #	Qty.	Part Number	Description
	1	110822	oil pressure gauge
	2	1855	diaphragm
	6	1857	valve pin
	4	1846	valve disc
	2	6283	hydraulic unloader filter
	6	6910	valve spring
	2	7270	valve spring
	2	7270-2	valve spring
	1	7126	gasket set

Overhaul Kit K325B

Item #	Qty.	Part Number	Description
	1	110377E100	air filter element
	2	1855	diaphragm
	4	1846	valve disc
	2	6444PR	connecting rod inserts (1 pair)
	2	7270	valve spring
	2	7270-2	valve spring
	1	7126	gasket set
	1	8161A	ring set
	1	8166A	ring set
	1	6316	oil seal

Oil Pump Repair Kit 2022132203

Item #	Qty.	Part Number	Description
	1	22749-152	"o"ring
	1	22749-112	"o"ring
	1	22749-011	"o"ring
	1	160003	oil pump gerotor
	1	160075-001	key
	1	6285	retaining ring
	1	2024200202	driveshaft

Basic Compressor Repair Kit 2022118438

Item #	Qty.	Part Number	Description
	1	110190-021	piston pin
	1	110377E100	air filter element
	1	110610-002	"o"ring kit
	1	2023400100	oil filter
	1	2720	bearing cup
	1	2585	bearing cone
	1	2523	bearing cup
	1	2788	bearing cone
	2	6443SR	connecting rod bushing
	2	6444PR	connecting rod inserts (1 pair)
	2	7270	valve spring
	2	7270-2	valve spring
	1	8161	ring set
	4	1846	valve disc
	1	7126	gasket set
	1	8646	piston pin
	1	8166	ring set

Overhaul Kit K325C

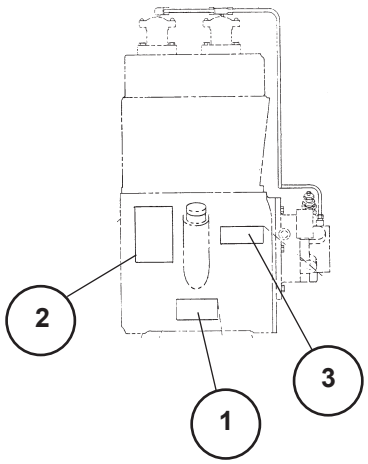
Item #	Qty.	Part Number	Description
	2	6444PR	con-rod bearing
	1	110377E100	air filter element
	1	110610-001	"o"ring kit
	1	8161	ring set
	1	8166	ring set
	1	7126	gasket set
	4	1846	valve disc
	2	7270	spring
	2	7270-2	valve spring

Gasket Set 7126

Item #	Qty.	Part Number	Description
	2	1556	gasket
	1	1833	gasket, cylinder to crankcase
	1	1840	gasket, inspection plate
	4	1848	gasket
	4	1852	gasket
	2	5700	gasket
	2	6294	bearing adj. shim, .005 steel
	2	6294A	bearing adj. shim, .007 steel
	1	6294B	bearing adj. shim, .020 steel
	6	6294C	bearing adj. shim, .005 paper
	2	6294D	bearing adj. shim, .002 steel
	1	6312	gasket, bearing carrier
	1	7000	gasket

Recommended Spare Parts			
Item #	Qty.	Part Number	Description
	2	7277XU	replacement suction valve assy.
	2	7271X04	replacement discharge valve assy.
	1	110822	pressure gauge
	1	2022132203	oil pump repair kit
	1	7126	gasket set
	1	113225	hydraulic unloader repair kit
	2	6444PR	connecting rod inserts (1 pair)
	2	1855	unloader diaphragm
	1	2023903290	control valve inlet filter
	1	110377E100	air filter element

DECALS



Decals for QR 325 Basic Compressor			
Item #	Qty.	Part Number	Description
1	1	110831	serial number & nameplate
2	1	127889-A	decal, CAUTION!/manual/ "Failure to follow..."
3	1	127889-B	decal, DANGER! / "Air used for breathing..."

* Not sold separate; order 127889.

TYPICAL UNIT REPAIR PARTS LIST

The parts listed here are for <u>standard</u> QR 325 (up to 175 PSI) units and may or may not be applicable to custom built units. Check with your local authorized Quincy distributor for parts that can be used for custom built units. Make sure the components you order are rated within the safe operating limits of your system. If you are doubtful about which components to order, contact your local Quincy distributor.

(QR 325 simplex - horizontal tank - electric motor)

Qty	Part Number	Part Number	Part Number	Description
	60 gal.	**80 gal.**	**120 gal.**	
1	113891-200	113268-200	113271-200	tank (200 PSI max. working pressure)
1	n/a	n/a	*113281	top plate
1	2713	2713	111136-050	tank drain valve
1	111136-075	111136-075	111136-100	ball valve
1	110514-300	110514-300	110514-300	pressure gauge
1	110512-003	110512-003	§110512-003	pressure switch (135-175 PSI)
1	110513-200	110513-200	110513-200	pressure relief valve (200 PSI)
3 ft.	110515-075	110515-075	110515-075	discharge tube (3/4" copper tube to be formed by customer)
2	23271	23271	23271	compression fittings
	3 h.p.	**5 h.p.**		
1	110357B065	110357B068		drive belt
1	110580-118	115240		motor pulley
1	n/a	8928		motor pulley bushing
1	113242K001	113242K001		belt guard assembly
	115/230v, 1Ø	**200v, 3Ø**	**230/460v, 3Ø**	
1	4003	8098	124517-006	3 h.p. motor (ODP)
1	**127466I020	8099	124517-005	5 h.p. motor (ODP)

* 113281 top plate is also used for all QR 325 base mounted electric motor driven units.

! Pre-formed discharge tubes are available. Contact factory with model & tank size information.

** 230 volt only.

§ 2298-175 pressure switch on base mounted unit.

(QR 325 duplex - horizontal tank - electric motor)

Qty	Part Number	Part Number	Part Number	Description
	80 gal.	**120 gal.**	**200 gal.**	
1	113471-200	113467-200	113469-200	tank (200 p.s.i. max. working pressure)
2	N/A	113281	113281	top plate
1	2713	111136-050	111136-050	tank drain valve
1	111136-075	111136-100	111136-100	ball valve
1	110514-300	110514-300	110514-300	pressure gauge
2	110512-003	110512-003	110512-003	pressure switch (135-175 PSI)
1	110513-200	110513-200	110513-200	pressure relief valve (200 PSI)
6 ft.	110515-075	110515-075	110515-075	discharge tube (3/4" copper tube to be formed by customer)
4	23271	23271	23271	compression fittings
	3 h.p.	**5 h.p.**		
2	110357B065	110357B068		drive belt
2	110580-118	115240		motor pulley
2	n/a	8928		motor pulley bushing
2	113242K001	113242K001		belt guard assembly
	115/230v, 1Ø	**200v, 3Ø**	**230/460v, 3Ø**	
2	4003	8098	124517-006	3 h.p. motor (ODP)
2	*127466I020	8099	124517-005	5 h.p. motor (ODP)

! Pre-formed discharge tubes are available. Contact factory with model & tank size information.

* 230 volt only.

TYPICAL UNIT REPAIR PARTS LIST

The parts listed here are for standard QR 325 (up to 175 PSI) units and may or may not be applicable to custom built units. Check with your local authorized Quincy distributor for parts that can be used for custom built units. Make sure the components you order are rated within the safe operating limits of your system. If you are doubtful about which components to order, contact your local Quincy distributor.

(QR 325 vertical tank - electric motor)

Qty	Part Number	Part Number	Part Number	Description
	60 gal.	**80 gal.**		
1	114948P200	114949P200		tank (200 PSI max. working pressure)
1	110425-025	110425-050		tank drain valve
1	111136-075	111136-075		ball valve
1	110514-300	110514-300		pressure gauge
1	110512-003	110512-003		pressure switch (135-175 PSI)
1	110513-200	110513-200		pressure relief valve (200 PSI)
3 ft.	110515-075	110515-075		! discharge tube (3/4" copper tube to be formed by customer)
2	23271	23271		compression fittings
	3 h.p.	**5 h.p.**		
1	110357B065	110357B068		drive belt
1	110580-118	115240		motor pulley
1	n/a	8928		motor pulley bushing
1	113242K001	113242K001		belt guard assembly
	115/230v, 1Ø	**200v, 3Ø**	**230/460v, 3Ø**	
1	4003	8098	124517-006	3 h.p. motor (ODP)
1	*127466I020	8099	124517-005	5 h.p. motor (ODP)

! Pre-formed discharge tubes are available. Contact factory with model & tank size information.

* 230 volt only.

(QR 325 gasoline engine driven - Kohler)

Qty	Part Number	Part Number	Part Number	Description
	base unit	**tank unit**		
1		113727P200		tank (200 PSI)
1	113764			top plate
1		111136-025		tank drain valve
1		111136-050		ball valve
1		110514-300		pressure gauge
1		110513-200		pressure relief valve (200 PSI)
2	110258B074	110258B074		drive belt
1	5629	5629		engine pulley
1	8927	8927		engine pulley bushing
1	113702K005	113702K005		belt guard assembly
1	113143-003	113143-003		throttle control, bullwhip cable
1	113698	113698		Kohler engine group, 11 h.p. (includes exhaust system & throttle control)
3 ft.		110515-075		! discharge tube (3/4" copper tube to be formed by customer)
2		23271		compression fittings

! Pre-formed discharge tubes are available. Contact factory with model & tank size information.

TYPICAL UNIT REPAIR PARTS LIST

The parts listed here are for standard QR 325 (up to 175 PSI) units and may or may not be applicable to custom built units. Check with your local authorized Quincy distributor for parts that can be used for custom built units. Make sure the components you order are rated within the safe operating limits of your system. If you are doubtful about which components to order, contact your local Quincy distributor.

(QR 325 gasoline engine driven - Honda)

Qty	Part Number	Part Number	Part Number	Description
	base unit	**tank unit**		
1		113727P200		tank (200 PSI)
1	113764			top plate
1		111136-025		tank drain valve
1		111136-050		ball valve
1		110514-300		pressure gauge
1		110513-200		pressure relief valve (200 PSI)
2	110258B074	110258B074		drive belt
1	5629	5629		engine pulley
1	8927	8927		engine pulley bushing
1	113702-012	113702-012		belt guard assembly
1	113143-002	113143-002		throttle control, bullwhip cable
1	113700-1	113700-1		Honda engine group, 11 h.p. (includes engine & throttle control)
1		112266-323	!	discharge piping group (includes discharge piping and fittings- 3/4" copper tube to be formed by customer)

! Pre-formed discharge tubes are available. Contact factory with model & tank size information.

(QR 325 diesel engine driven - Yanmar)

Qty	Part Number	Part Number	Part Number	Description
	base unit	**tank unit**		
1		113727P200		tank (200 PSI)
1	113764			base
1		111136-025		tank drain valve
1		111136-050		ball valve
1		110514-300		pressure gauge
1		110513-200		pressure relief valve (200 PSI, in tank)
2	110258B074	110258B074		drive belt
1	5629	5629		engine pulley
1	8927	8927		engine pulley bushing
1	113702K008	113702K008		belt guard assembly
1	113143-001	113143-001		throttle control
1	114080-002	114080		Yanmar diesel engine group, 10 h.p. (includes throttle control)
2.5 ft.		110515-075	!	discharge tube (3/4" copper tube to be formed by customer)
2		23271		compression fittings

! Pre-formed discharge tubes are available. Contact factory with model & tank size information.

QUINCY COMPRESSOR
STANDARD TERMS AND CONDITIONS

LEGAL EFFECT: Except as expressly otherwise agreed to in writing by an authorized representative of Seller, the following terms and conditions shall apply to and form a part of this order and any additional and/or different terms of Buyer's purchase order or other form of acceptance are rejected in advance and shall not become a part of this order.

The rights of Buyer hereunder shall be neither assignable nor transferable except with the written consent of Seller.

This order may not be canceled or altered except with the written consent of Seller and upon terms which will indemnify Seller against all loss occasioned thereby. All additional costs incurred by Seller due to changes in design or specifications, modification of this order or revision of product must be paid for by Buyer.

In addition to the rights and remedies conferred upon Seller by this order, Seller shall have all rights and remedies conferred at law and in equity and shall not be required to proceed with the performance of this order if Buyer is in default in the performance of such order or of any other contract or order with seller.

TERMS OF PAYMENT: Unless otherwise specified in the order acknowledgment, the terms of payment shall be 1% 15, net forty-five (45) days after shipment. These terms shall apply to partial as well as complete shipments. If any proceeding be initiated by or against Buyer under any bankruptcy or insolvency law, or in the judgment of Seller the financial condition of Buyer, at the time the equipment is ready for shipment, does not justify the terms of payment specified, Seller reserves the right to require full payment in cash prior to making shipment. If such payment is not received within fifteen (15) days after notification of readiness for shipment, Seller may cancel the order as to any unshipped item and require payment of its reasonable cancellation charges.

If Buyer delays shipment, payments based on date of shipment shall become due as of the date when ready for shipment. If Buyer delays completion of manufacture, Seller may elect to require payment according to percentage of completion. Equipment held for Buyer shall be at Buyer's risk and storage charges may be applied at the discretion of Seller.

Accounts past due shall bare interest at the highest rate lawful to contract for but if there is no limit set by law, such interest shall be eighteen percent (18%). Buyer shall pay all cost and expenses, including reasonable attorney's fees, incurred in collecting the same, and no claim, except claims within Seller's warranty of material or workmanship, as stated below, will be recognized unless delivered in writing to Seller within thirty (30) days after date of shipment.

TAXES: All prices exclude present and future sales, use, occupation, license, excise, and other taxes in respect of manufacture, sales or delivery, all of which shall be paid by Buyer unless included in the purchase price at the proper rate or a proper exemption certificate is furnished.

ACCEPTANCE: All offers to purchase, quotations and contracts of sales are subject to final acceptance by an authorized representative at Seller's plant.

DELIVERY: Except as otherwise specified in this quotation, delivery will be F. O. B. point of shipment. In the absence of exact shipping instruction, Seller will use its discretion regarding best means of insured shipment. No liability will be accepted by Seller for so doing. All transportation charges are at Buyer's expense. Time of delivery is an estimate only and is based upon the receipt of all information and necessary approvals. The shipping schedule shall not be construed to limit seller in making commitments for materials or in fabricating articles under this order in accordance with Seller's normal and reasonable production schedules.

Seller shall in no event be liable for delays caused by fires, acts of God, strikes, labor difficulties, acts of governmental or military authorities, delays in transportation or procuring materials, or causes of any kind beyond Seller's control. No provision for liquidated damages for any cause shall apply under this order. Buyer shall accept delivery within thirty (30) days after receipt of notification of readiness for shipment. Claims for shortages will be deemed to have been waived if not made in writing with ten (10) days after the receipt of the material in respect of which any such shortage is claimed. Seller is not responsible for loss or damage in transit after having received "In Good Order" receipt from the carrier. All claims for loss or damage in transit should be made to the carrier.

TITLE & LIEN RIGHTS: The equipment shall remain personal property, regardless of how affixed to any realty or structure. Until the price (including any notes given therefore) of the equipment has been fully paid in cash, Seller shall, in the event of Buyer's default, have the right to repossess such equipment.

PATENT INFRINGEMENT: If properly notified and given an opportunity to do so with friendly assistance, Seller will defend Buyer and the ultimate user of the equipment from any actual or alleged infringement of any published United States patent by the equipment or any part thereof furnished pursuant hereto (other than parts of special design, construction, or manufacture specified by and originating with Buyer), and will pay all damages and costs awarded by competent court in any suit thus defended or of which it may have had notice and opportunity to defend as aforesaid.

STANDARD WARRANTY: Seller warrants that products of its own manufacture will be free from defects in workmanship and materials under normal use and service for the period specified in the product instruction manual. Warranty for service parts will be Ninety (90) days from date of factory shipment. Electric Motors, gasoline and diesel engines, electrical apparatus and all other accessories, components and parts not manufactured by Seller are warranted only to the extent of the original manufacturer's warranty.

Notice of the alleged defect must be given to the Seller, in writing with all identifying details including serial number, type of equipment and date of purchase within thirty (30) days of the discovery of the same during the warranty period.

Seller's sole obligation on this warranty shall be, at its option, to repair or replace or refund the purchase price of any product or part thereof which proves to be defective. If requested by Seller, such product or part thereof must be promptly returned to seller, freight prepaid, for inspection.

Seller warrants repaired or replaced parts of its own manufacture against defects in materials and workmanship under normal use and service for ninety (90) days or for the remainder of the warranty on the product being repaired.

This warranty shall not apply and Seller shall not be responsible or liable for:

(a) Consequential, collateral or special losses or damages;

(b) Equipment conditions caused by fair wear and tear, abnormal conditions of use, accident, neglect or misuse of equipment, improper storage or damage resulting during shipping;

(c)Deviation from operating instructions, specifications or other special terms of sale;

(d) Labor charges, loss or damage resulting from improper operation, maintenance or repairs made by person(s) other than Seller or Seller's authorized service station.

In no event shall Seller be liable for any claims whether arising from breach of contract or warranty or claims of negligence or negligent manufacture in excess of the purchase price.

THIS WARRANTY IS THE SOLE WARRANTY OF SELLERS AND ANY OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED IN LAW OR IMPLIED IN FACT, INCLUDING ANY WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR USE ARE HEREBY SPECIFICALLY EXCLUDED.

LIABILITY LIMITATIONS: Under no circumstances shall the Seller have any liability for liquidated damages or for collateral, consequential or special damages or for loss of profits, or for actual losses or for loss of production or progress of construction, whether resulting from delays in delivery or performance, breach of warranty, negligent manufacture or otherwise.

ENVIRONMENTAL AND OSHA REQUIREMENTS: At the time of shipment of the equipment from the factory, Quincy Compressor / Ortman Fluid Power will comply with the various Federal, State and local laws and regulations concerning occupational health and safety and pollution. However, in the installation and operation of the equipment and other matters over which the seller has no control, the Seller assumes no responsibility for compliance with those laws and regulations, whether by the way of indemnity, warranty or otherwise.

June 30, 2003

Quincy COMPRESSOR

Performance You Demand. Reliability You Trust.

Reciprocating / Systems: 217.222.7700
E-mail: info@quincycompressor.com
Website: quincycompressor.com

MEMBER COMPRESSED AIR AND GAS INSTITUTE CAGI

KNOW PRESSURE COMPRESSED AIR CHALLENGE

Quincy COMPRESSOR

Performance You Demand. Reliability You Trust.

QR-25® Series

Instruction Manual

This manual contains important safety information and must be carefully read in its entirety and understood prior to installation by all personnel who install, operate and/or maintain this product.

On-line product registration, parts ordering and warranty information is available at www.quincycompressor.com

Manual No. 2022208600

July 2014 Edition

Contents

SECTION 1 SAFETY

Safety First

At Quincy Compressor safety is not only a primary concern, but a faithfully performed practice. Beginning with the design stage, safety is built into every Quincy compressor. It is the intention of this manual to pass along the "safety first" concept to you by providing safety precautions throughout its pages.

"DANGER !", **"WARNING !"**, and **"CAUTION !"** are displayed in large bold capital letters in the left hand column to call attention to areas of vital concern. They represent different degrees of hazard seriousness, as stated below. The safety precaution is spelled out in bold upper and lower case letters in the right hand column.

DANGER ! **Immediate hazards which will result in severe personal injury or death.**

WARNING ! **Hazards or unsafe practices that could result in personal injury or death.**

CAUTION ! **Hazards or unsafe practices which could result in minor personal injury, product or property damage.**

Each section of this instruction manual, as well as any instructions supplied by manufacturers of supporting equipment, should be read and understood prior to starting the compressor. If there are any questions regarding any part of the instructions, please call your local Quincy Compressor distributor, or the Quincy Compressor factory before creating a potentially hazardous situation. Life, limb, or equipment could be saved with a simple phone call.

Compressors are precision high speed mechanical equipment requiring caution in operation to minimize hazard to property and personnel. There are many obvious safety rules that must be observed in the operation of this type of equipment. Listed below are some additional safety precautions that must be observed.

•Transfer of toxic, dangerous, flammable or explosive substances using Quincy Compressor products is at the user's risk.

•All installation, maintenance and repair must be performed by a qualified technician and/or electrician.

•Turn off and lockout/tagout (per OSHA regulation 1910.147) the main power disconnect switch before attempting to work or perform any maintenance.

•Wear safety glasses and hearing protection during operation, service and maintenance procedures.

•Do not attempt to service any part of the unit while it is operating.

•Allow ample time for the compressor to cool before performing service pro-

cedures. Some surface temperatures exceed 350°F when the compressor is operating.

•Per OSHA regulation 1910.147, relieve the system of all pressure before attempting to service any part of the unit.

•Do not operate the unit with any of its safety guards, shields, or screens removed.

•Do not remove or paint over any DANGER!, WARNING!, CAUTION!, or instructional materials attached to the compressor. Lack of information regarding hazardous conditions can cause property damage or personal injury.

•Periodically check all pressure relief valves for proper operation.

•Do not rebuild or change the pressure setting of the pressure relief valve, restrict the function of the inlet or outlet of the pressure relief valve, or replace the pressure relief valve with a plug or any device not specifically certified for this function.

•Do not install a shutoff valve in the compressor discharge line without first installing a pressure relief valve of proper size and design between the shutoff valve and the compressor.

•All components of the compressed air system must be properly rated for the application.

•Alterations must not be made to this compressor without Quincy Compressor's approval.

•Be sure that all tools, shipping and installation debris have been removed from the compressor and installation site prior to starting the compressor.

WARNING !

Do not operate a Quincy Compressor in excess of 250 PSIG unless it has been tested and certified for high pressure application by Quincy Compressor prior to shipment.

•High pressure units (pressures exceeding 250 PSIG) require parts certified for use in high pressure applications. When replacing parts on high pressure units, please consult the parts manual and use only the part numbers listed in that manual.

•Do not operate the compressor in excess of the ASME pressure vessel rating for the receiver or the service rating of the compressor, whichever is lower.

•Make a general overall inspection of the unit daily and correct any unsafe situations. All fasteners must be kept tight.

•Reckless behaviour of any kind involving compressed air is dangerous and can cause very serious injury to the participants.

•Provisions should be made to have the instruction manual readily available

to the operator and maintenance personnel. If for any reason any part of the manual becomes illegible or the manual is lost, have it replaced immediately. The instruction manual should be read periodically to refresh one's memory. It may prevent a serious or fatal accident.

•Never use a flammable or toxic solvent for cleaning the air filter or any parts.

DANGER !

Air used for breathing or food processing must meet OSHA 29 CFR 1910.134 or FDA 21 CFR 178.3570 regulations. Failure to do so may cause severe injury or death.

WARNING !

Oil and moisture residue must be drained from the air receiver daily or after each use. Accumulations of oil residue in the receiver can be ignited by embers of carbon created by the heat of compression, causing an explosion, damage to property and injury to personnel.

CAUTION !

When using battery cables to start engine driven units do not use more than a total of 40 ft. of #4 gauge cable (GND & HOT).

The owner, lessor or operator of any compressor unit manufactured by Quincy Compressor is hereby warned that failure to observe the safety precautions and procedures outlined in this manual may result in serious personal injury, damage to property, and may void your warranty. Quincy Compressor must authorize all warranty service. Before contacting your distributor or the factory, check the maintenance requirements and the troubleshooting guide for your compressor. Most warranty issues can be resolved by following proper maintenance procedures.

Quincy Compressor neither states as fact, nor in any way implies that the above list of safety precautions is an all inclusive list, the observance of which will prevent all damage to property or injury to personnel.

Every effort has been taken to ensure that complete and correct instructions have been included in this manual. However, possible product updates and changes may have occurred since this printing. Quincy Compressor reserves the right to change specifications without incurring any obligation for equipment previously or subsequently sold.

Summary of Changes to This Manual

(since previous printing dated January 2014):

· Updated lubricant capacity specifications as result of bearing carrier redesign.

· Added Lubricant Filter information.

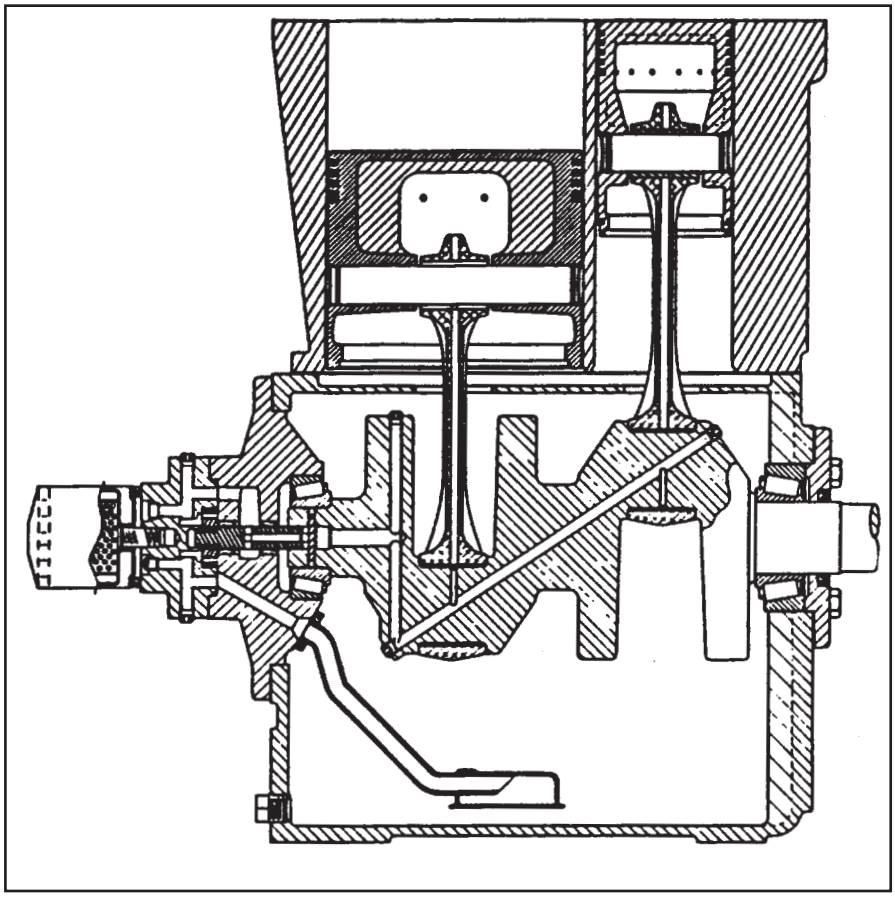


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Fig. 2-1 Cross Section of Typical QR-25 2 Stage Pressure Lubricated Cylinder & Crankcase

Description & Application

The Quincy Compressor QR-25 Series consists of heavy duty industrial, belt driven, single or two stage compressors. Single stage compressors are capable of delivering up to 100 PSIG continuously. Some single stage compressors are capable of delivering up to 150 PSIG intermittantly (with proper controls and modifications). Two stage compressors can deliver up to 200 PSIG continuously, and up to 250, 350 or 500 PSIG intermittently depending upon the model, controls and configuration.

Principles of Compression Cycles

Single Stage Compressors

During the downstroke of a single stage compressor, air is drawn through an intake valve in the head of the compressor and into the cylinder. At the bottom of the stroke, the intake valve closes and air is trapped in the cylinder. The air is then compressed in the cylinder during the upstroke of the piston. Total compression, from atmospheric pressure to the final discharge pressure, is accomplished in one stroke of the piston.

Two Stage Compressors

During the downstroke of the piston of a two stage compressor, air is drawn through an intake valve in the head of the compressor into the low pressure cylinder and compressed during the upstroke of the piston.

The compressed air is then released through a discharge valve in the head of the compressor to an intercooler (usually finned tubing) where the heat resulting from compression is allowed to dissipate. The cooler compressed air is then drawn into a second compression cylinder, the high pressure cylinder, for compression to final pressure.

From there the compressed air is released through a discharge valve to an air receiver tank or directly to a network of compressed air supply lines. In one revolution of the crankshaft a compression cycle is completed.

Principles of Lubrication Systems

Moving parts within the crankcase are supplied with lubrication by a positive displacement, gerotor type oil pump. Oil is drawn up from the bottom of the crankcase to the oil pump through an oil sump strainer screen. The oil is then forced under pressure through the oil filter (if so equipped). Oil travels under pressure through drilled journals in the crankshaft and connecting rods to lubricate crankshaft bearings, connecting rod journals, wrist pin bearings and the cylinder walls.

Principles of Cooling Systems

Fan blades of the compressor sheave force ambient air across fins of the cylinder head(s), and intercooler fins of two stage compressors, to cool the compressor. QR-25 series compressors are normally set up at the factory with a sheave that turns in a counterclockwise rotation. For special applications, clockwise rotation compressor sheaves are available as optional equipment on some models. QR-25 series compressors should be operated in temperatures under 104°F.

Principles of Dryers & Filters

Moisture occurs naturally in air lines as a result of compression. Moisture vapor in ambient air is concentrated when pressurized and condenses when cooled in downstream air piping. Compressed air dryers reduce the moisture vapor concentration and prevent water formation in compressed air lines. Dryers are a recommended companion to filters, aftercoolers, and automatic drains for improving the productivity of compressed air systems.

Water and moisture vapor removal increases the efficiency of air operated equipment, reduces contamination and rusting, increases the service life of pneumatic equipment and tools, prevents air line freeze-ups, and reduces product rejects.

Control Components

Unloader Towers: Provided as part of the basic compressor when control version is specified.

Pilot Valve: Used in conjunction with unloader towers when the compressor is to run continuously and an operating pressure range is to be maintained. Refer to your parts manual for correct pilot valve, ranges and settings.

Hydraulic Unloader: The hydraulic unloader allows the compressor to start in an “unloaded” state, that is, the compressor starts but does not begin to create compressed air until oil pressure is established. The hydraulic unloader also guards against excessive damage in the event of an oil pressure drop.

Pressure Switch: Used for start/stop applications (usually accompanied by a hydraulic unloader). The pressure switch detects the demand for compressed air and allows the unit to start. When the demand is satisfied, the unit stops.

Control Versions

Various control versions are available for the model QR-25 series compressors. The control version required is determined by how frequent there is a demand for compressed air. The idea is to create compressed air on demand, but to limit the number of times a motor must start the compressor in a given time

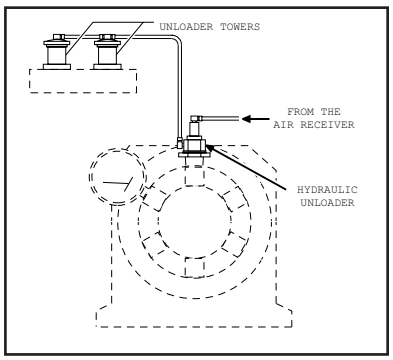

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Fig. 2-2 Control Version L

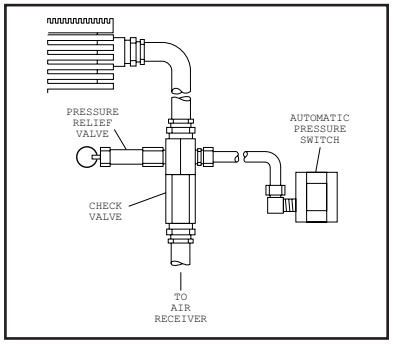

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Fig. 2-3 Control Version L Variation (Discharge Line Check Valve & Pressure Switch)

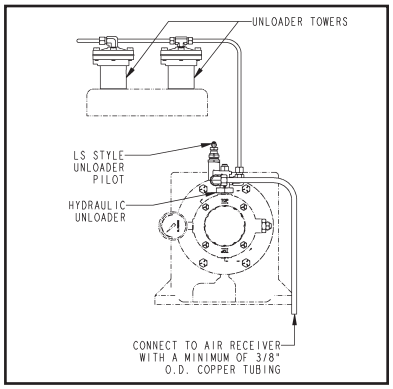

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Fig. 2-4 Control Version LS

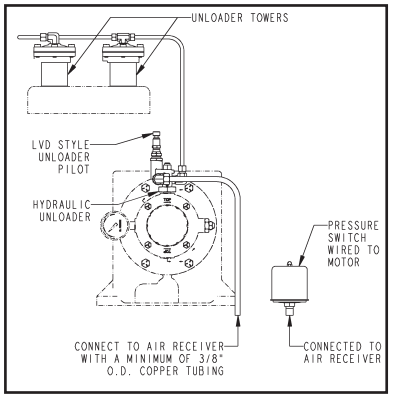

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Fig. 2-5 Control Version LVD

period. To prevent motor burnout, the motor should be limited to no more than six (6) starts per hour.

Control Version P : Describes a basic compressor with no added control features.

Control Version L : Consists of unloader tower(s)* located on the head of the compressor, a hydraulic unloader mounted on the bearing carrier, and a pressure switch. This version is recommended for those applications where the compressor will not be required to start more than six (6) times per hour. A compressor equipped with control Version L is sometimes referred to as a "start/stop machine"

Control Version L Variation: A variation of Control Version L is illustrated in **Fig. 2-3.** It shows how a discharge line check valve, pressure switch, & pressure relief valve are combined to provide start/stop operation.

Control Version LS: This version consists of a head assembly with unloader tower(s)* a pilot valve and a hydraulic unloader. It is usually applied to gas or diesel engine driven units. This version is best suited for "continuous run" applications (whenever the compressor must start more than six [6] times per hour). If the demand for compressed air is continuous and exceeds one half or more of the compressor's capacity, Control Version LS should be used.

Once the compressor is started, it continues to run until it is manually turned off. Whenever there is a demand for compressed air, the pilot valve closes, allowing the unloader in the unloader tower to de-actuate. At this point, the compressor starts making compressed air. As soon as the demand for compressed air is met, the pilot valve opens, allowing air pressure to actuate in the unloader tower. The compressor continues to run but does not compress air. The pilot valve has a manual toggle, to manually actuate the unloader.

Control Version LVD: Unloader tower(s)*, a pilot valve with a manual shut-off, a hydraulic unloader, a check valve assembly, and a pressure switch make up the LVD Control Version. This version is recommended wherever the degree of demand and usage is variable.

The manual shutoff allows for the selection of either "start/stop" or "continuous run" control. In either situation, the hydraulic unloader protects the compressor from excessive damage caused by a drop in oil pressure.

**1, 2, or 4 unloader towers are employed depending upon the model of compressor.*

Specifications

Model	Stroke	Bore(s) LP - HP	RPM Range	Maximum PSIG**†
210	2	2 1/2	400-1000	100/150
216	2 1/2	3	400-900	100
240	3	4	400-900	100
270	4	4 1/2	400-900	100
4125	4	4 1/2	400-900	100
310	2 1/2	3 1/2 - 2	400-900	200/500
325	3	4 1/2 - 2 1/2	400-900	200/500
340	3 1/2	5 1/4 - 3	400-900	200/500
350	3 1/2	6 - 3 1/4	400-900	200/350
370	4	6 - 3 1/4	400-1070	200/250
390	4	7 1/2 - 4	400-950	200/250
5120	4	6 - 3 1/4	400-1050	200/250

***Maximum continuous pressure is indicated on left side, maximum intermittent high pressure on right side.*
†High pressure basics required for pressures above 250 PSIG applications.

Receiving Delivery

Immediately upon receipt of compressor equipment and prior to completely uncrating, the following steps should be taken:

Step 1) Inspect compressor equipment for damage that may have occurred during shipment. If any damage is found, demand an inspection from the carrier. Ask the carrier how to file a claim for shipping damages. (Refer to **SECTION 3, *Freight Damage*** for complete details.) **Shipping damage is not covered by Quincy Compressor warranty.**

Step 2) Insure that adequate lifting equipment is available for moving the compressor equipment.

CAUTION !

Improper lifting can result in component or system damage, or personal injury. Follow good shop practices and safety procedures when moving the unit.

Step 3) Read the compressor nameplate to verify the model and size ordered.

Step 4) Read the motor nameplate to be sure the motor is compatible with your electrical conditions (volts, phase, hertz). **NOTE: If voltage drops below 207 volts, use a 200 volt motor. Do not substitute with a triple voltage (208/230-460) 3 phase motor.**

Step 5) Read the pressure relief valve nameplate to be sure it does not exceed the working pressure shown on the compressor or any other component in the system.

Step 6) **Read and understand the safety precautions contained within this manual.** The successful and efficient operation of compressor equipment depends largely upon the amount of care taken to install and maintain the equipment. Quincy Compressor strongly recommends that any or all person(s) in charge of installing, maintaining, or servicing one of our compressors read and understand the entire contents of this manual in order to perform such duties safely and efficiently.

Freight Damage

It is extremely important that you examine every carton and crate as soon as you receive it. If there is any obvious damage to the shipping container, have the delivering carrier sign the freight bill, noting the apparent damage, and request a damage report.

If concealed damage is discovered at a later date, the carrier must be notified within 15 days of initial receipt of freight. Concealed shipping damage is not covered by Quincy Compressor Warranty. Contact the carrier as soon as possible, giving them an opportunity to inspect the ship-

ment at the premises where the delivery was made. Do not move the damaged freight from the premises where the original delivery was made. Retain all containers and packing for inspection by the carrier.

A claim form can be requested from the carrier: Standard Form for Presentation of Loss and Damage Claims (form # 3208). Your claim will need to be substantiated with the following documents:

a.) form #3208

b.) original bill of lading

c.) original paid freight bill

d.) original invoice or certified copy

e.) other particulars obtainable in proof of loss or damage (photos, damage inspection, etc.)

The proper description and classification of our product in the National Motor Freight Classification 100-H, contained in item 118100, reads as follows: Compressors, air, or air ends: with or without air tanks, hose or nozzles, mounted or not mounted."

We suggest that these instructions be circulated to your shipping and receiving personnel.

Location

Quincy air compressors must be installed and operated in a secure, upright position in an area that is clean, dry, well lighted, adequately ventilated and not closer than 24 inches to a wall or another compressor. *(Note: A gas engine will produce carbon monoxide; always provide adequate ventilation!)* Inspection and maintenance checks are required daily. Therefore, sufficient space needs to be provided around the compressor for safe and proper inspection, cleaning, and maintenance.

Ample circulation of air must be provided across the compressor cylinders, heads and cooler (if so equipped). Do not allow hot air from additional equipment to blow towards the compressor unit. If at all possible, the pulley drive system (i.e. motor pulley, compressor sheave, belts and guard) should be located next to a wall to minimize any danger created by the drive system while the compressor is operating.

QR-25 series compressors should be operated in temperatures under 104°F. In cold climates, compressors should be installed in a heated building.

CAUTION ! **Do not operate this compressor in ambient temperatures lower than -15° F. A crankcase heater is recommended for a compressor that is to operate in temperatures under 32° F.**

WARNING ! **Under no circumstances should a compressor be used in an area that may be exposed to toxic, volatile, or corrosive atmosphere. Do not store toxic, volatile, or corrosive agents near the compressor.**

Noise

Noise is a potential health hazard that must be considered. There are federal

and local laws governing acceptable noise levels. Check with local officials for specifications.

Excessive noise can be effectively reduced through various methods. Total enclosures, intake silencers, baffle walls, relocating or isolating the compressor can reduce noise levels. Care must be taken when constructing total enclosures or baffle walls. If not properly constructed or positioned, they could contribute to unacceptable noise levels or overheating. Consult your local Quincy Compressor distributor if assistance is required.

CAUTION ! **Unusual noise or vibration indicates a problem. Do not operate the compressor until the source has been identified and corrected.**

Electrical Supply Requirements

The electrical installation of this unit must be performed by a qualified electrician in accordance with the National Electrical Code (NEC) or the Canadian Electrical Code (CEC), the National Electrical Safety Code (NESC), OSHA and/or state and local codes. Failure to abide by the national, state and local codes may result in physical harm and/or property damage.

Before installation, the electrical supply must be checked for adequate wire size and transformer capacity. A suitable circuit breaker or fused disconnect switch should be provided. When a 3 phase motor is used to drive a compressor, any unreasonable voltage imbalance between the legs must be eliminated and any low voltage corrected to prevent excessive current draw. **Note: This unit must be grounded.**

DANGER ! **High voltage may cause personal injury or death. Disconnect and lockout/tagout per OSHA regulation 1910.147 all electrical power supplies before opening the electrical enclosure or servicing.**

WARNING ! **Never assume a compressor is safe to work on just because it is not operating. It could restart at any time. Follow all safety precautions outlined in SECTION 5, *Stopping For Maintenance.***

CAUTION ! **NEMA electrical enclosures and components must be appropriate to the area installed.**

Overload Relay

An overload relay monitors the compressor motor electrical current and turns the compressor motor off when an overload is sensed. It is mounted on the bottom of the motor starter. The overload relay is designed for motors with a 1.15 service factor. The overload relay setting should be adjusted to the motor nameplate amp rating. If the motor has a service factor rating other than 1.15, the overload relay setting must be adjusted to compensate. Contact your Quincy distributor for assistance.

CAUTION ! **Overload relays are designed to protect the motor from damage due to motor overload. If the overload relay trips persistently, DO NOT CONTINUE TO PUSH THE RESET BUTTON! Contact your local Quincy distributor for assistance.**

Mounting

Proper mounting of Quincy compressor units is crucial to the safe operation and longevity of the equipment. The installation requires a flat and level concrete floor or pad *(for mobile units see* **Mounting Mobile Units***)*. Satisfactory results can usually be obtained by mounting horizontal tank units on vibration isolators available from your local Quincy distributor. ***All vertical tank units must be anchored!*** Quincy recommends that all vertical tank units be mounted as indicated **without** isolators. Refer to **Fig. 3-1, Isolator Installation for Unanchored or Anchored Receivers.**

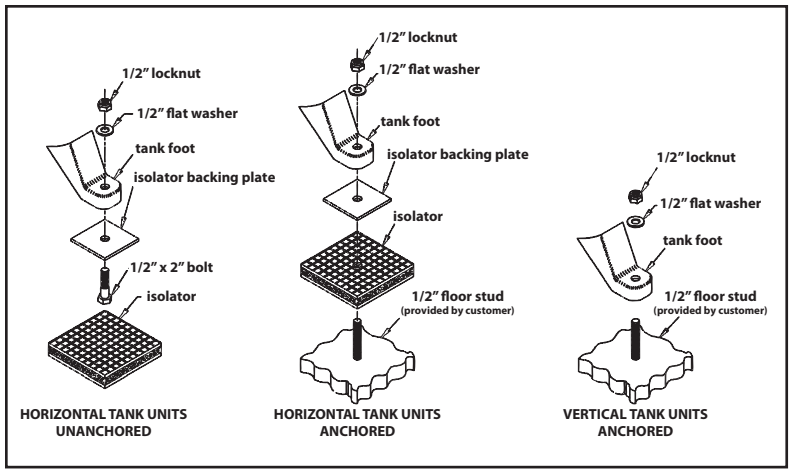


Fig. 3-1 Isolator Installation for Unanchored or Anchored Receivers

State or local codes may mandate that the unit be bolted to the floor. In this case the unit must be leveled and bolted making absolutely certain the feet are not stressed in any manner. ***Leave the locknut loose!*** Uneven feet drawn tightly to the concrete pad will cause severe vibrations resulting in cracked welds or fatigue failure. The customer is responsible for providing a suitable foundation & isolator mounting where necessary.

Mounting Mobile Units

Units mounted to truck beds should be fastened in such a way so as not to create any stress to the air receiver tank. Truck beds, characteristically, have a tendency to flex and could cause damage to the receiver tank if the tank is fastened directly to the truck bed. It is the User's responsibility to provide an adequate means of fastening the unit in these applications.

CAUTION ! **Do not operate this compressor more than 15° off level or move it while it is operating.**

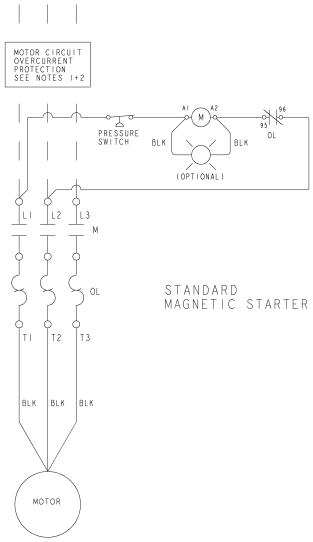
System components

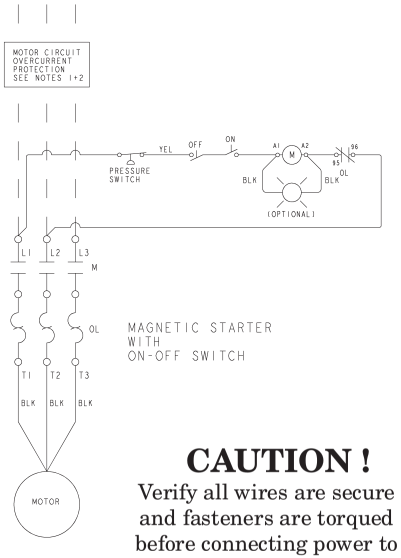
Efficiency and safety are the primary concerns when selecting components for compressed air systems. Products of inferior quality can not only hinder performance of the unit, but could cause system failures that result in bodily harm or even death. Select only top quality components for your system. Call your local Quincy distributor for quality parts and professional advice.

Drive Pulleys / Sheaves

Various pulley and sheave combinations are available to obtain the desired air pressure and delivery rate of your compressor. Consideration must be given to these combinations to ensure that the motor is not overloaded by operating above or below the designed speed range.

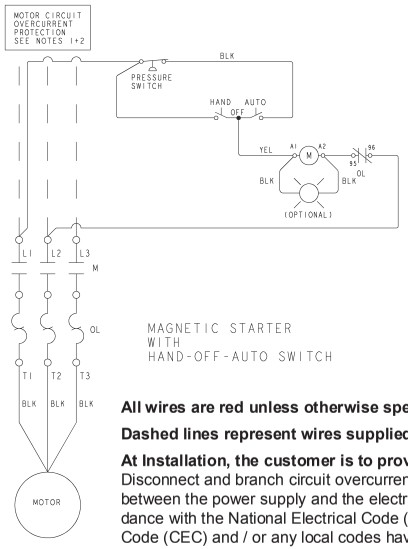
Whatever combination is employed, the drive pulleys & compressor sheaves must be properly aligned and drive belt tension set to specifications (refer to **SECTION 5,** ***Pulley / Sheave Alignment & Belt Tension***). Improper pulley/sheave alignment and belt tension can cause motor overloading, excessive vibration, and premature belt and/or bearing failure.

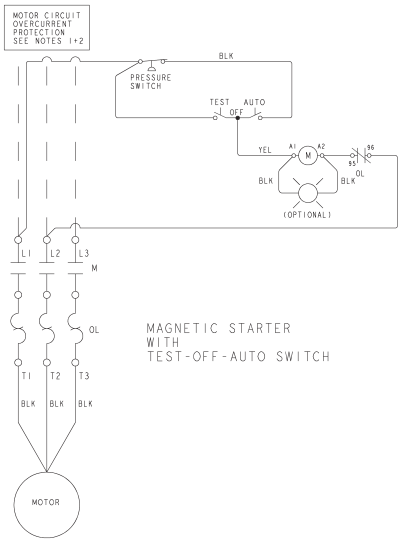




CAUTION !

Verify all wires are secure and fasteners are torqued before connecting power to the unit.

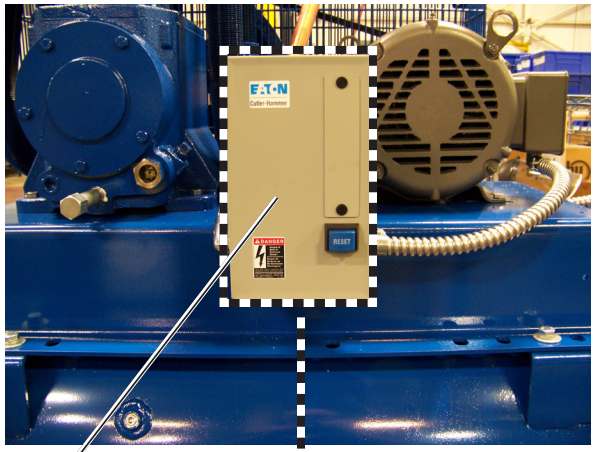


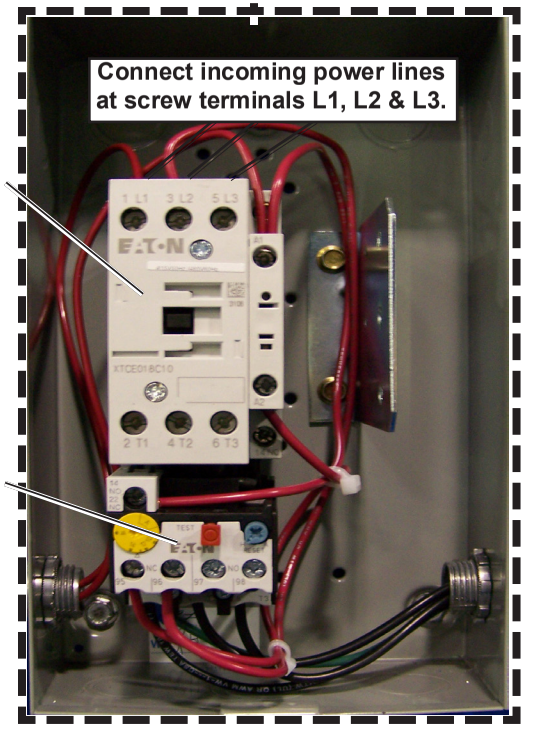


All wires are red unless otherwise specified.

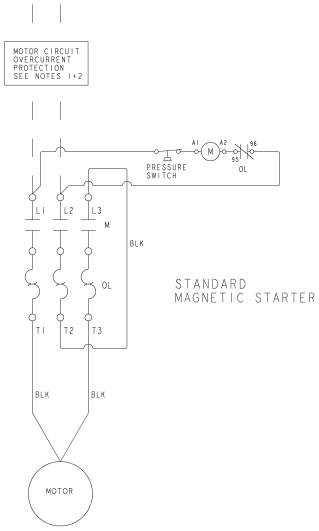
Dashed lines represent wires supplied by others.

At Installation, the customer is to provide:
Disconnect and branch circuit overcurrent protection and grounding between the power supply and the electrical control enclosure in accordance with the National Electrical Code (NEC), the Canadian Electrical Code (CEC) and / or any local codes having precedence.

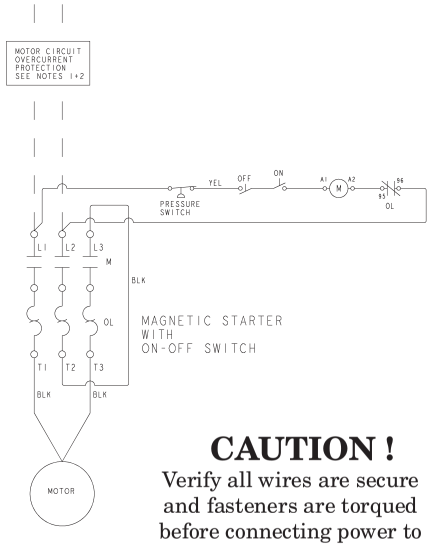




3 Phase Magnetic Motor Starter With Automatic Start / Stop Control Wiring Schematic WP1744A



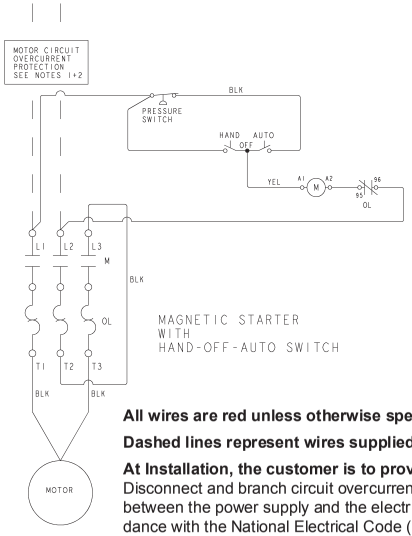
STANDARD MAGNETIC STARTER



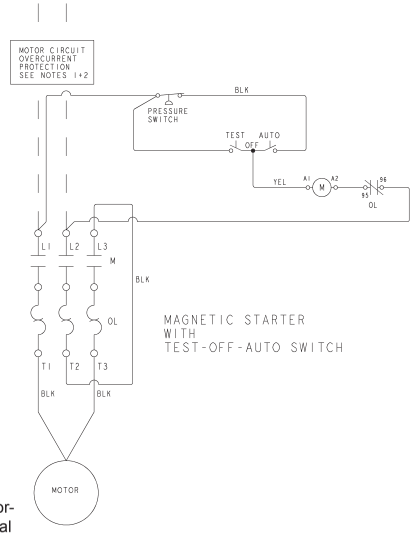
MAGNETIC STARTER WITH ON-OFF SWITCH

CAUTION !

Verify all wires are secure and fasteners are torqued before connecting power to the unit.



MAGNETIC STARTER WITH HAND-OFF-AUTO SWITCH



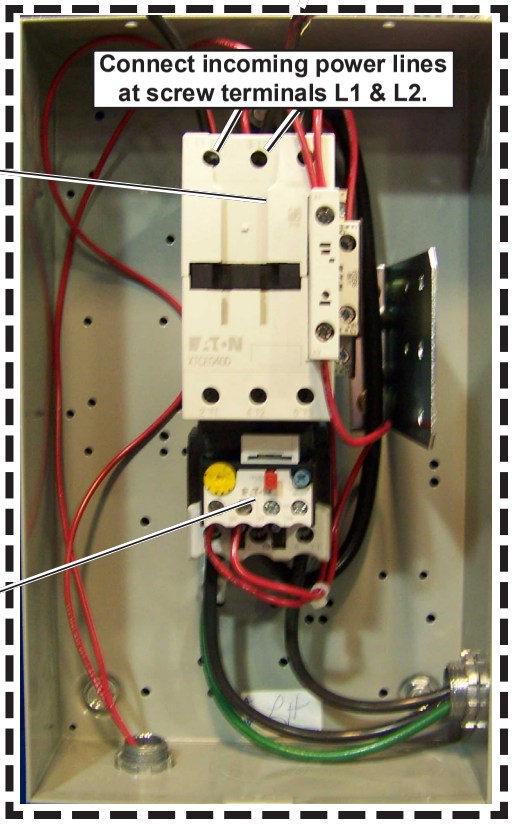
MAGNETIC STARTER WITH TEST-OFF-AUTO SWITCH

All wires are red unless otherwise specified.

Dashed lines represent wires supplied by others.

At Installation, the customer is to provide:
Disconnect and branch circuit overcurrent protection and grounding between the power supply and the electrical control enclosure in accordance with the National Electrical Code (NEC), the Canadian Electrical Code (CEC) and / or any local codes having precedence.

Magnetic Starter



Single Phase Magnetic Motor Starter With Automatic Start / Stop Control
Wiring Schematic WP1744B

WARNING !

Excessive compressor RPM's (speed) could cause a pulley or sheave to shatter. In an instant, the pulley or sheave could separate into fragments capable of penetrating the belt guard and causing bodily harm or death. Do not operate the compressor above the recommended RPM (refer to SECTION 2, *Specifications*).

Guards

All mechanical action or motion is hazardous in varying degrees and needs to be guarded. Guards should be designed to achieve the required degree of protection and still allow full air flow from the compressor sheave across the unit. Guards shall be in compliance with OSHA safety and health standards 29 CFR 1910.219 in OSHA manual 2206 and any state or local codes.

WARNING !

Guards must be fastened in place before starting the compressor and never removed before cutting off and locking out the main power supply.

Check Valves

Check valves are designed to prevent back-flow of air pressure in the compressed air system (air flows freely in one direction only). The check valve must be properly sized for air flow and temperature. **Do not rely upon a check valve to isolate a compressor from a pressurized tank or compressed air delivery system during maintenance procedures!**

Manual Shutoff Valves

Manual shutoff valves block the flow of air pressure in either direction. This type of valve can be used to isolate a compressor from a pressurized system, provided the system is equipped with a pressure relief valve capable of being manually released. The pressure relief valve should be installed between the manual shutoff valve and the compressor (refer to **Fig. 3-2, Typical Drop Leg & Component Location**).

Pressure Relief Valves

Pressure relief valves aid in preventing system failures by relieving system pressure when compressed air reaches a determined level. They are available in various pressure settings to accommodate a range of applications. Pressure relief valves are preset by the manufacturer and under no circumstances should the setting be changed by anyone other than the manufacturer.

DANGER !

Pressure relief valves must be provided to protect compressed air systems in accordance with ASME B19 safety standards. Failure to provide properly sized pressure relief valves may cause property damage, severe personal injury or even death.

Induction System

Air Intake

A clean, cool and dry air supply is essential to the satisfactory operation of your Quincy air compressor. The standard air filter that the compressor is equipped with when leaving the factory is of sufficient size and design to meet normal

conditions, when properly serviced, in accordance with the maintenance section of this manual.

If, however, the compressor is to be installed in a location where considerable dust, dirt and other contaminants are prevalent, consult your local Quincy distributor for advice and optional filters. A condensate trap must be installed as close as possible to the inlet filter if, as a result of installation or environmental conditions, there is any risk of moisture forming in the inlet piping. It is the user's responsibility to provide adequate filtration for those conditions. Oil bath filters are not to be used. Warranty will be void if a failure is determined to be caused by inadequate filtration.

Remote Inlet Filters

Depending on the size of the compressor and the size and construction of the room in which the unit operates, the air inlet may have to be located outside of the room. If it is necessary to remotely install the air filter, make the inlet piping as short and direct as possible. Remotely installed air filters can lead to vibrations in the inlet piping. These vibrations can be minimized by adding a pulsation dampener in the inlet piping between the remote inlet filter(s) and the compressor.

If the intake is piped to outside atmosphere, a hooded filter should be installed to prevent water or snow from being ingested into the compressor.

All inlet piping should be at least the same size (or larger) in diameter as the inlet connection to the compressor. For every 10 feet of inlet piping or every 90° bend, increase the inlet piping diameter by one pipe size. The inlet piping must be thoroughly clean inside. Remove all weld slag, rust or dirt. Galvanized pipe with threaded or flanged fittings is preferred.

CAUTION !

Never locate the compressor air inlet system where toxic, volatile or corrosive vapors, air temperatures exceeding 100°F, water, or extremely dirty air could be ingested. These types of atmospheres could adversely affect the performance of the compressor system.

Compressed Air Discharge System

The discharge piping should be of the same diameter as the compressor discharge connection, or sized so that the pressure drop at any point in the system does not exceed 10% of the air receiver pressure. Install auxiliary air receivers near heavy loads or at the far end of a long system. This will insure sufficient pressure if the use is intermittent, or sudden large demands are placed on the system.

Discharge piping should slope to a drop leg (refer to **Fig. 3-2, Typical Drop Leg & Component Location**) or moisture trap to provide a collection point where moisture can be easily removed. All service line outlets should be installed above the moisture traps to prevent moisture from entering the tool or device using the air. Manual shutoff valves, protected by pressure relief valves, should be installed at all service line outlets to eliminate leakage while the tools are not in use.

As with any piping, all parts of the discharge piping should fit so as not to create any stress between the piping and components.

Pnuematic Circuit Breakers or Velocity Fuses

The Occupational Safety and Health Act (OSHA), Section 1926.303, Paragraph 7, published in the Code of Federal Regulations 29 CFR 1920.1, revised July 1, 1982 states that all hoses exceeding 1/2" inside diameter shall have a safety device at the source of supply or branch line to reduce pressure in case of a hose failure"

These pnuematic safety devices are designed to prevent hoses from whipping and/or the loss of hazardous or toxic gasses, all of which could result in a serious or fatal accident.

WARNING !

Never join pipes or fittings with lead-tin soldering. Welded or threaded steel pipes and cast iron fittings, designed for the pressures and temperatures, are recommended.

Pressure Vessels

Air receiver tanks and other pressure containing vessels such as *(but not limited to)* pulsation bottles, heat exchangers, moisture separators and traps,

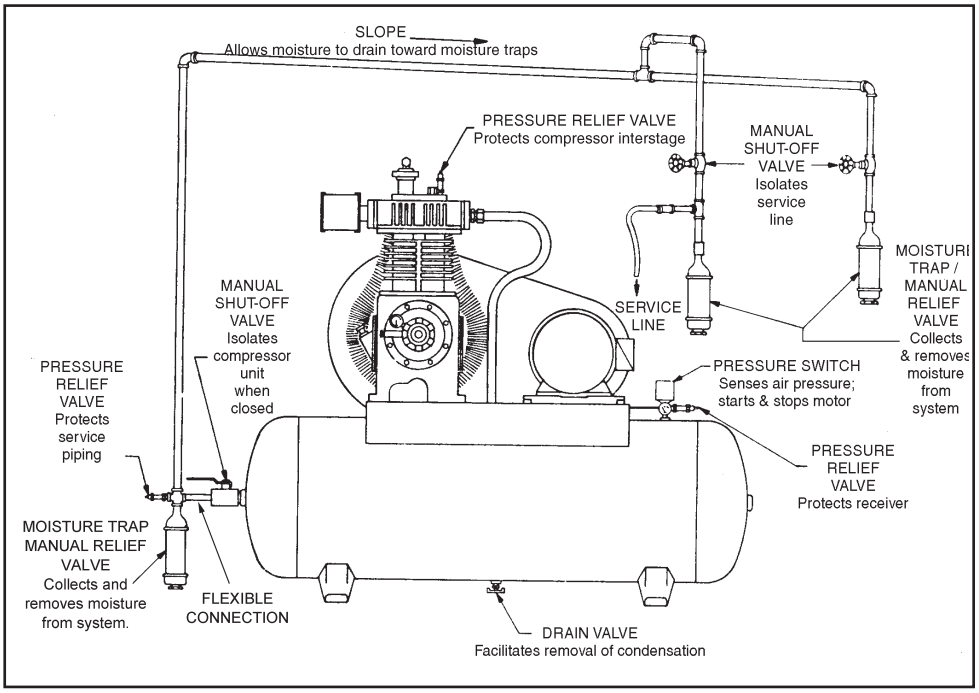


Fig. 3-2 Typical Drop Leg & Component Location Pix 1007

must be in accordance with ASME Boiler and Pressure Vessel Code Section VIII and ANSI B19.3 safety standards. They must be equipped with a properly sized pressure relief valve, pressure gauge, tank drain, & manual shutoff valve (refer to **Fig. 3-2, Typical Drop Leg & Component Location**).

The compressed air supply line from the air receiver of a stationary unit must be equipped with a pressure and heat rated flexible connection.

WARNING !

Follow ASME code for air receiver tanks and other pressure containing vessels. Pressure vessels may not be modified, welded, repaired, reworked or subjected to operating conditions outside the nameplate ratings. Such actions will negate code status, affect insurance status and may cause property damage, severe injury or even death.

WARNING !

Always replace worn, cracked or damaged receivers. Do not use plastic pipe (PVC) anywhere in a compressed air system. Serious injury or death could result.

A drain valve must be located in the bottom of the air receiver to allow for moisture drainage. Extend piping away from the unit to provide safe and convenient removal of excess moisture. An automatic drain valve is recommended.

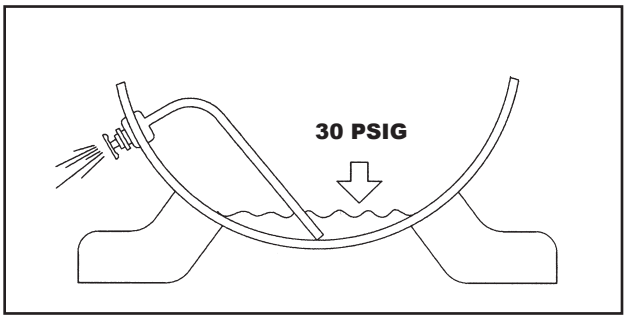


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Fig. 3-3 Internal Drain Tube

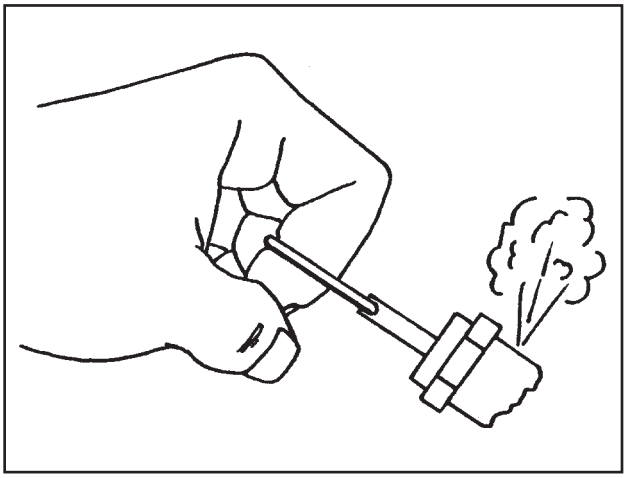

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Fig. 3-4 Checking Pressure Relief Valves & Relieving System Pressure

If the air receiver is going to be subject to temperatures of 32°F or below, provisions must be made to guard against freezing of the pressure relief valves, pressure gauge, moisture drain and any moisture in the tank.

Condensation

Rust can form inside the crankcase and on internal components as a result of condensation. A compressor must operate long enough during each run cycle to reach full operating temperature in order to reduce the risk of condensation. Lubricant that appears milky may have mixed with condensate. **Failure to replace contaminated lubricant will result in damage to the compressor and may void warranty.**

Condensation can also form in the air tank of your compressor. When this happens, a mixture of air and moisture will be expelled through the service valve and into whatever is connected to the valve (e.g. air hoses, metal air lines, pneumatic tools, spray guns). An in-line filter or dryer, available from your local Quincy distributor, may be required to eliminate the moisture.

Condensation in the air tank can be kept to a minimum by draining the tank on a daily basis. This also reduces the risk of rust developing and weakening the tank.

Manual Tank Drain Valve Operation

The manual tank drain valve on portable compressors and some stationary compressors is located on the underside of the air tank. Portable compressors can be tilted in the direction of the drain to allow removal of tank moisture.

Some tanks use an internal drain tube (Refer to **Fig. 3-3, Internal Drain Tube**) to drain the moisture. Tank pressure is required to force moisture out of the tank through the drain tube. Safe removal of tank moisture from the

air tank is dependent upon an internal tank pressure of 20 to 30 PSIG (no more than 30 PSIG). Higher internal tank pressures are dangerous and could cause serious injury!

WARNING ! **Oil and moisture residue must be drained from the air receiver daily or after each use. Accumulations of oil residue in the receiver can be ignited by embers of carbon created by the heat of compression, causing an explosion, damage to property and injury to personnel.**

WARNING ! **Do not open a manual tank drain valve on any air tank containing more than 30 PSIG of air pressure!**

WARNING ! **Never attempt to relieve an air tank by removing a pipe plug or any other system component!**

Manually Draining An Air Tank:

Step 1) Disconnect & lockout the compressor from the power source (electric models) or disconnect the spark plug wire from the spark plug (gas engine models).

Step 2) Tank(s) subjected to freezing temperatures may contain ice. Store the compressor in a heated area before attempting to drain moisture from the tank(s). Reduce the air pressure in the tank to 30 PSIG by pulling the pressure relief valve ring (refer to **Fig. 3-4, Checking Pressure Relief Valves & Relieving System Pressure**).

Step 3) Slowly open the drain valve and allow the moisture and air mixture to drain from the tank.

Step 4) Once the moisture has been completely drained, close the drain valve.

Air Tank Inspection

Tank Capacity	Horizontal or Vertical	Minimum Allowable Wall Thickness		Visually Inspect	Hydrostatically Inspect
		Head	Shell		
30 Gal.	Horizontal	.094	.106	Yearly	10 Years
30 Gal.	Vertical	.109	.111		
60 Gal.	Horizontal	.109	.135		
60 Gal.	Vertical	.109	.111		
80 Gal.	Horizontal	.109	.135		
80 Gal.	Vertical	.131	.133		
120 Gal.	Horizontal	.131	.162		
120 Gal.	Vertical	.163	.199		
200 Gal.	Horizontal	.163	.199		
240 Gal.	Horizontal	.163	.199		

Fig. 3-5 Recommended Air Tank Inspection Intervals

Quincy Compressor recommends that all air tanks be inspected at scheduled intervals. Refer to **Fig. 3-5 Recommended Air Tank Inspection Intervals** for relative information. Measure tank wall thickness at several locations, including the lowest point where condensation can accumulate.

Refer to federal, state or provincial, or local codes for mandatory air tank maintenance information.

Pre-starting Checklist

WARNING ! **Never assume a compressor is safe to work on just because it is not operating. It could restart at any time. Follow all safety precautions outlined in SECTION 5, *Stopping For Maintenance.***

WARNING ! **Failure to perform the pre-starting checklist may result in mechanical failure, property damage, serious injury or even death.**

Steps 1 through 12 should be performed prior to connecting the unit to a power source. If any condition of the checklist is not satisfied, make the necessary adjustments or corrections before starting the compressor.

Step 1) Remove all installation tools from the compressor and check for installation debris.

Step 2) **Check lubricant level in crankcase**. (Refer to **SECTION 5, *Lubrication*** for quantity and types of lubricant to be used.)

Step 3) Check motor pulley and compressor sheaves for alignment and tightness on shaft. (Refer to **SECTION 5, *Pulley / Sheave Alignment & Belt Tension.***)

Step 4) Manually rotate the compressor sheave several rotations to be sure there are no mechanical interferences.

Step 5) Check inlet piping installation (Refer to **SECTION 3, *Induction System.***)

Step 6) Check belt tension. (Refer to **SECTION 5, *Pulley / Sheave Alignment & Belt Tension.***)

Step 7) Check all pressure connections for tightness.

Step 8) Make sure all pressure relief valves are correctly installed. (Refer to **SECTION 3, *System Components.***)

Step 9) Be sure all guards are in place and securely mounted. (Refer to **SECTION 3, *System Components.***)

Step 10) Check fuses, circuit breakers, and overload relays for proper size. (Refer to **SECTION 3, *Electrical Supply Requirements.***)

Step 11) Open all manual shutoff valves at and beyond the compressor discharge.

Step 12) After all the above conditions have been satisfied, the unit can be connected to the proper power source.

Step 13) Jog the starter switch to check the rotational direction of the compressor.It should agree with the rotation arrow embossed on the compressor sheave.

Step 14) Check for proper rotation of the cylinder cooling fan (fins inside sheave). The fan should blow cooling air across the cylinder.

Initial Starting & Operating

This instruction manual, as well as any instructions supplied by manufacturers of supporting equipment, should be read and understood prior to starting the compressor. If there are any questions regarding any part of the instructions, please call your local Quincy distributor, or the Quincy Compressor factory.

CAUTION ! **When using battery cables to start engine driven units do not use more than a total of 40 ft. of #4 gauge cable (GND & HOT).**

With the pre-starting checklist completed and satisfied, start the compressor. Watch and listen for excessive vibration and strange noises. If either exist, stop the compressor. Refer to **SECTION 6, *Troubleshooting*** for help in determining the cause of such problems.

If you are starting a pressure lubricated model, check the oil pressure. Compressors producing up to 250 PSIG of discharge air pressure should maintain 18 to 20 PSIG of oil pressure. High pressure rated compressors producing more than 250 PSIG of discharge air pressure should maintain 22 to 25 PSIG of oil pressure.

Normally the oil pressure does not need to be adjusted. But if it does, loosen the locknut on the adjustment screw located on the left side of the oil pump housing (see **Fig. 4-1, Oil Pressure Adjustment**). Increase the oil pressure by turning the adjustment screw clockwise; decrease the oil pressure by turning the adjusting screw counterclockwise. After adjustment tighten the locknut.

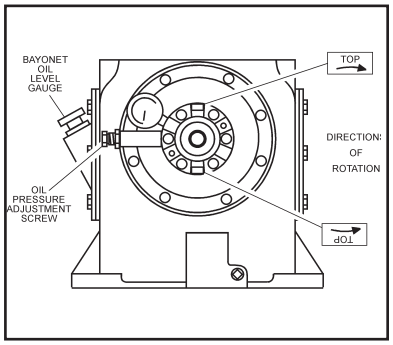

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Fig. 4-1
Oil Pressure Adjustment

Check the air receiver pressure gauge or system pressure gauges for proper readings. If inadequate or excessive air pressure conditions exist, refer to **Section 6 Troubleshooting**.

Heat created during the initial startup of a new compressor will cause slight expansion of the head(s). This slight expansion crushes the head gasket ever so slightly and affects the torque value of the cylinder fasteners (capscrews). To ensure optimal performance, Quincy recommends that you initially operate the compressor for at least one hour. Shut the compressor off and follow precautions outlined in **SECTION 5, *Stopping for Maintenance***. Retorque the cylinder to head capscrews to the specifications outlined in the parts book corresponding to the Record of Change for your compressor after the compressor has cooled.

Observe compressor operation closely for the first hour of operation and then frequently for the next seven hours. After the first eight hours, monitor the compressor at least once every eight hours. If any abnormal conditions are witnessed, stop the compressor and correct the problem. After two days of operation check belt tension, lubricant level, and inspect the system for leaks.

Quincy Compressor recommends that a new or rebuilt reciprocating compressor should be run for a total of 100 hours at full discharge operating pressure to break-in the new piston rings. Until the rings are seated, the compressor will discharge higher than normal amounts of lubricant. In light of this fact, the lubricant level should be checked more frequently during the 100 hour break-in period.

Daily Starting Checklist

Do not proceed until the ***Pre-starting Checklist*** and ***Initial Starting & Operating*** sub-sections have been read and are thoroughly understood.

Step 1) Check the lubricant level in the crankcase.

Step 2) Check all hoses and fittings for weak or worn conditions and replace if necessary.

Step 3) Drain liquid from the air receiver (refer to **Section 3, Manually Draining An Air Tank**) and moisture trap (if so equipped).

Step 4) Jog the starter button and check compressor rotation. *Note: Continuous Run Units - Prior to starting a continuous run unit, flip the toggle lever on the pilot valve stem to the "MANUAL UNLOAD" position (see below). Now the compressor can be started unloaded. Once the compressor is running at full speed, flip the toggle back to the "RUN" position.*

Step 5) Start compressor per factory instructions. (Refer to **SECTION 4, *Pre-Starting Checklist and Initial Starting & Operating.***)

Step 6) Check system pressure.

Step 7) Check cooling fan.

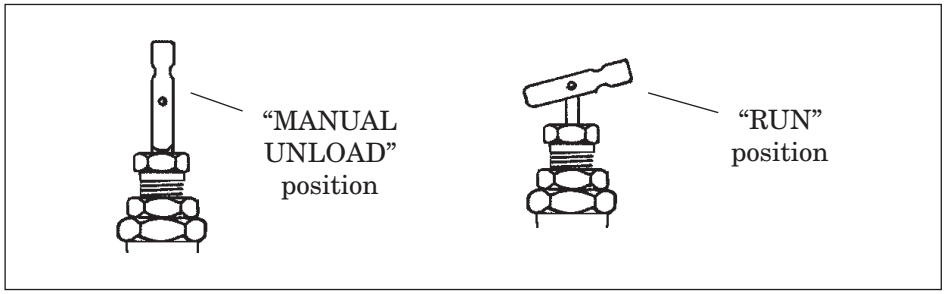

Fig. 4-2
Continuous Run Pilot Valve

Step 8) Check all pressure relief valves for proper operation.

Step 9) Check control system for proper operation.

Step 10) Check the lubricant level in the crankcase several minutes after the compressor has run. (Discoloration or a higher lubricant level reading may indicate the presence of condensed liquids.) If lubricant is contaminated, drain and replace.

Stopping for Maintenance

The following procedures should be followed when stopping the compressor for maintenance or service:

Step 1) Per OSHA regulation 1910.147: The Control of Hazardous Energy Source (Lockout/Tagout), disconnect and lockout the main power source. Display a sign in clear view at the main power switch stating that the compressor is being serviced.

WARNING ! **Never assume a compressor is safe to work on just because it is not operating. It could restart at any time.**

Step 2) Isolate the compressor from the compressed air supply by closing a manual shutoff valve upstream and downstream from the compressor. Display a sign in clear view at the shutoff valve stating that the compressor is being serviced.

Step 3) Open a pressure relief valve within the pressurized system to allow it to be completely de-pressurized. **NEVER** remove a plug to relieve the pressure!

Step 4) Open all manual drain valves within the area to be serviced.

Step 5) Wait for the unit to cool before starting to service. (Temperatures of 125°F can burn skin. Some surface temperatures exceed 350°F when the compressor is operating.)

Maintenance Schedule

To assure maximum performance and service life of your compressor, a routine maintenance schedule should be developed. A sample schedule has been included here to help you to develop a maintenance schedule designed for your particular application. Time frames may need to be shortened in harsher environments.

At the back of this instruction manual you will find a **Maintenance Schedule Checklist**. Make copies of this checklist and retain the master to make more copies as needed. On a copy of the checklist, enter dates and initials in the appropriate spaces. Keep the checklist and this Instruction Manual readily available near the compressor.

Maintenance Schedule Checklist Sample

Every 8 Hours (or Daily)

- Maintain lubricant level between high and low level marks on dipstick. Check the lubricant level several minutes after the compressor has run. (Discoloration or a higher lubricant level reading may indicate the presence of condensed liquids.) If lubricant is contaminated, drain and replace.

- Drain receiver tank, drop legs and traps in air distribution system.
- Give compressor an overall visual inspection and be sure safety guards are in place.
- Check for any unusual noise or vibration.
- Check lubricant pressure *(hot)*. Maintain 18 to 20 PSIG*.
- Check for lubricant leaks.
- Check all pressurized components for rust, cracks or leaks. Immediately discontinue use of the equipment and relieve all system pressure if any of these problems are discovered. Do not use the equipment until it has been inspected and repaired by a qualified mechanic.

Every 40 Hours (or Weekly)

- Manually operate the pressure relief valves to be certain they are working.
- Clean the cooling surfaces of the intercooler, aftercooler and compressor.
- Check the compressor for air leaks.
- Check the compressed air distribution system for leaks.
- Inspect lubricant for contamination & change if necessary.
- Clean or replace the air intake filter. Check more often under humid or dirty conditions.

Every 160 Hours (or Monthly)

- Check belt tension

Every 500 Hours (or Every 3 Months)

- Change oil & filter (more frequently in harsher environments).
- Torque pulley clamp screws or jamnut.

Every 1000 Hours (or Every 6 Months)

- When Quin-Cip lubricant is used, lubricant change intervals may be extended to every 1000 hours or every 6 months, whichever occurs first (change more frequently in harsher conditions).
- Inspect compressor valves for leakage and/or carbon build-up. The oil sump strainer screen inside the crankcase of pressure lubricated models should be thoroughly cleaned with a safety solvent during every oil change. If excessive sludge build-up exists inside the crankcase, clean the inside of the crankcase as well as the screen. **Never use a flammable or toxic solvent for cleaning. Always use a safety solvent and follow the directions provided.**

Every 2000 Hours (or Every 12 Months)

- Inspect the pressure switch diaphragm and contacts. Inspect the contact points in the motor / starter.

Lubrication

QR-25 Series compressors are normally shipped *with* lubricant in the crankcase. Before starting your compressor, check the lubricant level in the crankcase. The lubricant should register between the high and low marks on the dipstick. **Replace the break-in lubricant after 100 hours of operation or 1 month (whichever comes first) with Quin-Cip lubricant!**

**High pressure rated compressors should maintain 22 to 25 PSIG of oil pressure.*

Quin-Cip lubricant has proven under extensive testing to minimize friction and wear, limit lubricant carryover, and reduce carbon and varnish deposits. It will support the performance characteristics and life designed into all Quincy compressors and is highly recommended. Refer to the charts below to determine the correct amount of lubricant and viscosity to use for your model and application.

Approximate Crankcase Lubricant Capacities

Models	Lubricant Capacity
210	26 oz. (770 ml.)
216, 240, 310 & 325	1qt. & 22 oz. (1.60 lit.)
270, 340, 350 & 370	4 qts. & 30 oz. (4.67 lit.)
390	9 qts. & 22 oz. (9.17 lit.)
4125 & 5120	9 qts. & 30 oz. (9.41 lit.)

Lubricant Specifications
(Use Quin-Cip lubricant.)

Ambient Temperature	SAE Viscosity	ISO Viscosity
Below 0°F	SAE 5W	ISO 22
0-32° F	SAE 10W	ISO 32
32-80°F	SAE 20W	ISO 68
60-104°F	SAE 30	ISO 100

CAUTION ! **The lubricant selected must have a pour point at least 15°F lower than the minimum expected ambient temperature .**

Lubricant Filter

When replacing the filter, apply a thin film of lubricant to the gasket surface of the new filter prior to installing it onto the oil pump housing. Spin the filter on the threaded stud until the gasket makes contact with the housing. Then tighten the filter an additional 3/4 turn.

The filter provided with the compressor is for use with Quin-Cip or Qui-Cip-D lubricant only.

CAUTION ! **A bent or damaged filter may rupture and leak. Do not use a filter in this condition.**

Pulley / Sheave Alignment & Belt Tension

Improper pulley/sheave alignment and belt tension are causes for motor overloading, excessive vibration, and premature belt and/or bearing failure. To prevent this from happening, check the pulley/sheave alignment and belt tension on a regular basis (refer to **SECTION 5, *Maintenance Schedule***).

Periodically inspect the motor pulley(s) and compressor sheave(s) for oil, grease, nicks or burrs. Clean or replace if necessary. Make sure they are securely fastened. Align the compressor sheave with the motor or engine pulley. Drive belt grooves of the pulley(s) and sheave(s) should be in line with each other. The compressor crankshaft must be parallel to the motor or engine drive shaft.

Belt tension should be measured and adjusted to provide smooth operation. Step-by-step procedures are provided here to correctly measure and set the drive belt tension:

Step 1) Measure the span length of the drive. (Refer to **Fig. 5-1, Setting Belt Tension**.)

Belt Cross Section	Motor Pulley Dia. Range (inches)	Recommended Deflection Force (lbs.) Initial Install.	Minimum	Maximum
A	up to 3.0	3.6	2.4	3.1
	3.1 - 4.0	4.2	2.8	3.6
	4.1 - 5.0	5.2	3.5	4.6
	5.1 + above	6.1	4.1	5.3
B	up to 4.6	7.3	4.9	6.4
	4.7 - 5.6	8.7	5.8	7.5
	5.7 - 7.0	9.3	6.2	8.1
	7.1 + above	10.0	6.8	8.8

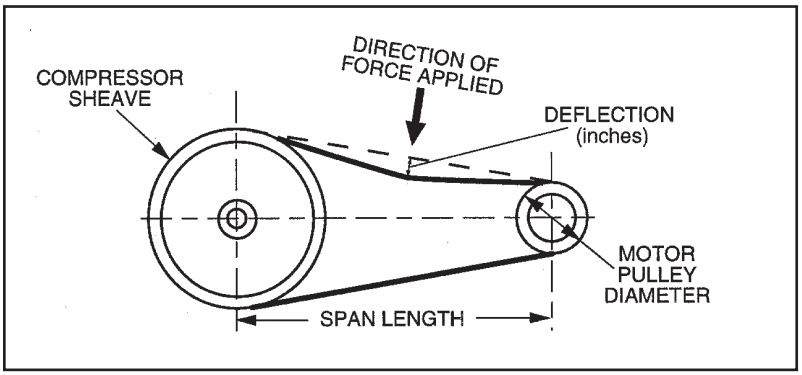

Fig. 5-1
Setting Belt Tension

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Step 2) Determine the amount of deflection (in inches) required to measure deflection force (in pounds) by multiplying the span length x $^1/_{64}$ (.016) (i.e. 32" span length x $^1/_{64}$ [.016] = $^1/_2$"[.50] of deflection required to measure deflection force).

Step 3) Lay a straightedge across the top outer surface of a drive belt from pulley to sheave.

Step 4) At the center of the span, perpendicular to the belt, apply pressure to the outer surface of the belt with a belt tension gauge (refer to **Fig. 5-2, Belt Tension Gauge**). Force the belt to the predetermined deflection (refer to **Step 2** above). Record the reading on the belt tension gauge and compare to the chart following **Fig 5-1**. The deflection force reading should be within the minimum and maximum values shown. Adjust belt(s) accordingly. New belts should be tensioned to the values listed under "Initial Install".

Step 5) Recheck the tension of the new belts several times in the first 50 hours of operation and adjust if necessary. Thereafter, check belt

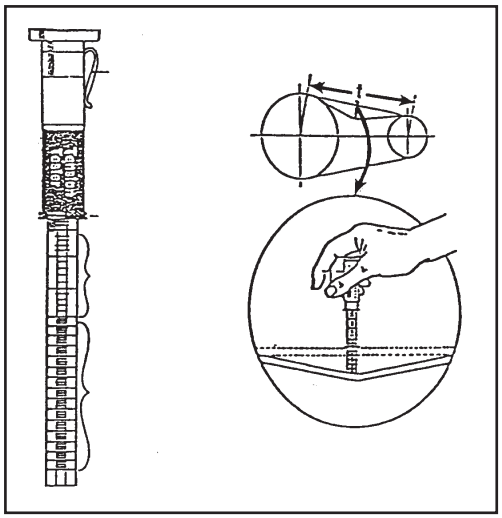

Fig. 5-2 Belt Tension Gauge Pix 1153

tension on a regular basis (refer to **SECTION 5, *Maintenance Schedule***).

Pressure Switch Adjustment

Pressure switches provided by Quincy Compressor are pre-set at the factory and usually do not require adjustment. However, the following procedures can be performed by a qualified electrician to adjust the pressure switch.

Step 1) Remove the pressure switch cover.

Step 2) While the compressor is running, screw the spring loaded adjustment screw in (clockwise) to increase the amount of air pressure required to open the switch and stop the unit. Screw the spring loaded adjustment screw out (counterclockwise) to decrease the amount of air pressure required to open the switch and stop the unit.

WARNING ! **Electric power always exists inside the pressure switch whenever the compressor package is connected to a power supply. Be careful not to touch any electrical leads when setting the pressure switch.**

WARNING ! **Never exceed the designed pressure for the system or overload the motor beyond its Maximum Amp Draw.**

* Full Load Amps x Service Factor = Maximum Amp Draw

WARNING ! **Never assume a compressor is safe to work on just because it is not operating. It may be in the automatic stand-by mode and may re-start any time. Follow all safety precautions outlined in SECTION 5, *Stopping For Maintenance.***

Reversal of Compressor Rotation

Pressure lubricated QR-25 series compressors can be modified to operate in reverse rotation with exception to the Model 210. This model operates in the counterclockwise direction only.

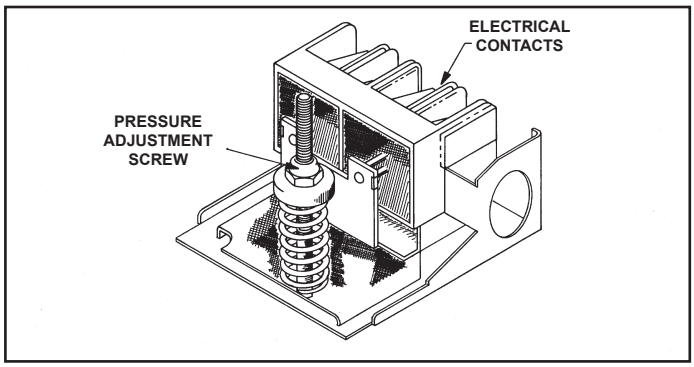

Fig. 5-3 Pressure Switch Pix 1067

To reverse the operating direction of a pressure lubricated compressor, perform the following steps:

Step 1) Remove the control tubing from the hydraulic unloader and pilot valve (if so equipped)...

the oil pressure gauge and hydraulic unloader...

the pilot mounting stud set screw and pilot valve assembly...

the oil filter* (turn counterclockwise)...

and four (4) oil pump housing bolts.

**Full load amps (FLA) & Service Factor can be found on the motor nameplate.*

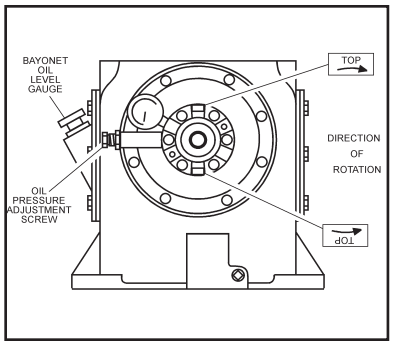

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Fig. 5-4 Compressor Directional Arrows

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Fig. 5-5 Driveshaft Alignment

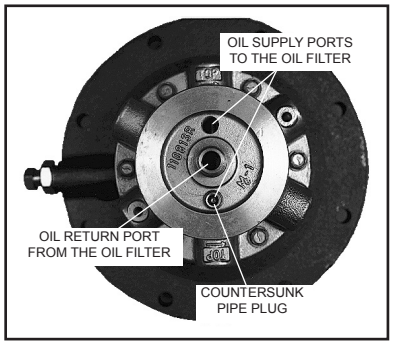

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Fig. 5-6 Relocating Countersunk Pipe Plug

Step 2) Rotate the oil pump housing $^1/_2$ turn (180°). **Note: The rotational arrow at the top of the pump housing should now reference the direction you wish the compressor to rotate. Make sure the forks of the bearing carrier driveshaft line up properly with the pin in the end of the crankshaft during reassembly.** (See **Fig. 5-4, *Compressor Directional Arrows*** **and Fig. 5-5, *Driveshaft Alignment.***)

Step 3) Re-install the four (4) housing bolts and torque them in a star or cross pattern to specifications outlined in the parts book.

Step 4) Remove the countersunk pipe plug* from the oil pump housing and relocate it in the opposite (bottom) hole. (See **Fig. 5-6, *Relocating Countersunk Pipe Plug***)

Failure to relocate this pipe plug will result in complete loss of oil flow throughout the compressor. Compressor seizure will result and warranty will be void. The countersunk pipe plug must always be relocated in the bottom port position.

Step 5) Install a new oil filter*. Tighten the filter 3/4 turn after initial gasket contact.

Step 6) Re-assemble the control components in reverse order.

Step 7) Double check the directional arrows.

Step 8) For aircooled models only, remove the standard compressor sheave and replace with a reverse rotation sheave available from your local Quincy Compressor distributor.

Step 9) Start the compressor and adjust the oil pressure.

**Not applicable to models without oil pumps.*

PILOT VALVE ADJUSTMENTS

All adjustments made to the pilot valve must be performed by a qualified technician. The adjustments must be made while the unit is operating, therefore, extreme caution must be taken while working on the unit. Observe all necessary precautions. Always use a back-up wrench and make all differential and unload pressure adjustments in very small increments (1/8 turn).

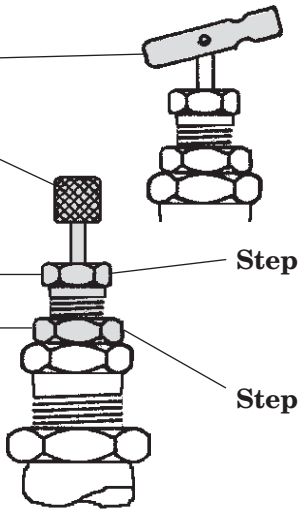
WARNING !

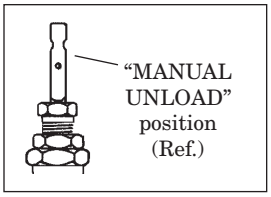
The pressure switch and / or pilot valve are set at the factory for maximum efficiency. Adjustments to either component must be performed by a qualified technician. Exceeding the factory recommended maximum pressure will void the warranty and may cause personal injury.

Setting Unload Pressure

Step 1. Flip the toggle to the "RUN" position as shown, or turn the knurled knob (if so equipped) counterclockwise until it stops.

Step 2. Loosen locknut (counterclockwise). * **Stabilize with back-up wrench!**

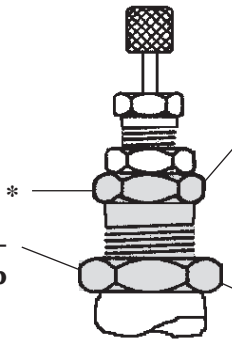




Step 3. Turn clockwise to increase unload pressure, turn counterclockwise to decrease unload pressure. Hold position with wrench and proceed to Step 4.

Step 4. Tighten locknut (clockwise) with wrench. * **Stabilize with back-up wrench!**

Setting Differential Pressure



Step 5. Loosen locknut (counterclockwise). * **Stabilize with back-up wrench!**

Step 6. Turn clockwise to increase the differential pressure and counterclockwise to decrease the differential pressure. Hold position with wrench and proceed to Step 7.

Step 7. Tighten locknut (clockwise) with wrench. * **Stabilize with back-up wrench!**

Trouble	Probable Cause
Low discharge pressure	•Restricted inlet •Defective compressor valves or valve unloading mechanism •Leaks in the compressed air distribution system at fittings, connections, etc. •Unloader pilot defective or set wrong •Pressure switch defective or set wrong •Drive belt slipping •Incorrect speed •Worn piston rings or loose piston •Faulty hydraulic unloader •Leaking head gasket •Low oil pressure •Drain valve open •Defective pressure gauge •Excessive running clearances *(refer to* **SECTION 2, *Specifications*** *)* •Pressure relief valve leaking •Clogged intercooler •Loose compressor valves or leaking at valve gaskets •Compressor incorrectly sized for the altitude it is operating at •Piston rings not seated; allow 100 hours at full pressure
Water in the crankcase (lubricant appears milky)	•Compressor does not run long enough to get hot and vaporize the liquids squeezed out of the air during compression *(compressor may be too large for application)* •Incorrect or inferior grade of lubricant •System pressure leaking back through discharge valve
Rusty valves and/or cylinders	•Compressor operated too infrequently •Compressor does not run long enough to get hot and vaporize the liquids squeezed out of the air during compression *(compressor may be too large for application)* •Compressor not properly prepared for storage •Discharge line from compressor head is pointed upward allowing con densation to drain back at shutdown
Excessive vibration	•Incorrect speed •Compressor valves not functioning properly •Loose pulley/sheave •Motor or engine out of balance •Compressor, motor or engine not secured tightly, or tightened into a bind

Trouble	Probable Cause
Excessive Vibration (cont.)	•Foundation or frame inadequate •Piping inadequately supported or tightened into a bind •Excessive discharge pressure •Compressor feet may need to be leveled with shims
Excessive drive belt wear	•Pulley/sheave out of alignment •Belt too loose or too tight •Belt slipping •Pulley/sheave wobbling •Pulley/sheave groove damaged or rough •Incorrect belts
Low oil pressure	•Oil pump direction reversed •Oil sump strainer plugged •Excessive leakage at crankshaft seals •Low oil level •Oil pump incorrectly assembled to the bearing carrier (“o”ring not properly located between oil pump body & bearing carrier) •Oil pressure adjusting screw not set properly •Defective oil pressure gauge •Plugged oil filter
Compressor loads and unloads excessively	•Air receiver too small •Compressor valves or unloaders defective •Excessive system leakage •Compressor operating at incorrect speed •Unloader pilot differential set too close •Pressure switch defective
Defective pressure switch	•Moisture &/or oil buildup on the pressure switch diaphragm •Ruptured diaphragm •Burned contact points •Plugged air passage from the receiver to the pressure switch •Loose electrical connection
Excessive air pressure in air receiver	•Air pressure gauge inaccurate •Leaks in unloader piping system •Defective compressor valve unloader •Pilot valve or pressure switch set incorrectly or defective •Pressure switch wired incorrectly •Hydraulic valve or three way valve not functioning properly •Tube to compressor unloader valve plugged
Excessive intercooler pressure ***(Two stage models only)***	•Intercooler restricted or plugged •Compressor valves in second stage broken or not functioning properly •Pilot valve or pressure switch set incorrectly or defective •Pressure gauge defective

Trouble	Probable Cause
Intercooler pressure abnormally low ***(Two stage models only)***	•Compressor valves or valve unloaders in first stage not functioning properly or defective •Restricted air inlet filter or suction line •Pilot valve or pressure switch set incorrectly or defective •Pressurized air at valve unloader not venting properly when demand for air is required; vent passage at hydraulic unloader or three-way valve could be plugged •Compressor valve or head gasket leaking •Worn piston rings •Defective pressure gauge •Leaking air at intercooler or intercooler connections
Compressor overheats	•Clogged intake system •Defective compressor valves •Pressure setting too high •Clogged intercooler, internally or externally •Inadequate ventilation, or recirculation of hot air •Pulley/sheave rotation wrong •Incorrect speed •Running clearances insufficient *(piston to cylinder wall or running gear)* •Lubrication inadequate •Compressor incorrectly sized
High discharge temperature	•Compressor valve assemblies defective •Discharge pressure too high •Inadequate ventilation or hot air recirculating •Cooling surfaces of compressor or intercooler excessively dirty •Internal surface of heat exchanger fouled •Ambient temperature too high •Scored or excessively worn cylinder walls
Compressor knocks	•Head clearance insufficient •Piston loose in cylinder bore, cylinder bore worn, piston or piston rings worn •Worn rods or main bearing •Wrong pressure setting, discharge pressure excessive •Crankcase lubrication inadequate •Loose pulley/sheave •Compressor valve assemblies loose

Trouble	Probable Cause
Excessive lubricant consumption	•Compressor runs unloaded too long •Worn piston rings •Restricted intake system •Compressor running too hot •Breather valve not functioning properly •Lubricant level in crankcase too high •Lubricant viscosity wrong for the application •Connecting rod out of alignment, bent or twisted •Leaking oil seal •Piston rings not seated *(allow 100 hours for seating)* •Wrong lubricant *(may be a detergent oil with a tendency to foam)* •Inferior grade of lubricant
Excessive current draw *(To determine maximum amperage allowed, multiply the FLA on the motor nameplate by the service factor.)* **CAUTION !** **Motor surface temperature normally exceeds 170° F.**	•Low voltage *(must be within 10% of nameplate voltage)* •Loose electrical connection •Wire size too small •Incorrect lubricant •Discharge pressure too high •Intercooler plugging •Bearings tight or seizing •No crankshaft endplay •Motor sized incorrectly •Motor defective •Drive belts too tight
Failure to start	•Power not on •Blown circuit fuse •Overload relay tripped •Low voltage •Faulty start switch •Power failure •Pressure switch incorrectly adjusted or faulty •Loose or broken wire •Motor defective •Compressor seized
Motor stalls	•Motor overloaded *(refer to* **Excessive current draw***)*

CAUTION !

Overload relays are designed to protect the motor from damage due to motor overload. If the overload relay trips persistently, DO NOT CONTINUE TO PUSH THE RESET BUTTON! Contact your local Quincy distributor for assistance.

Approximate Capacity Correction for Altitude

Altitude (ft.)	Correction Factors						
	25 PSIG	**40 PSIG**	**60 PSIG**	**80 PSIG**	**90 PSIG**	**100 PSIG**	**125 PSIG**
Sea Level	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1000	0.996	0.993	0.992	0.992	0.998	0.987	0.982
2000	0.992	0.987	0.984	0.977	0.972	0.969	0.962
3000	0.987	0.981	0.974	0.967	0.959	0.954	0.942
4000	0.982	0.974	0.963	0.953	0.944	0.940	0.923
5000	0.977	0.967	0.953	0.940	0.931	0.925	
6000	0.972	0.961	0.945	0.928	0.917	0.908	
7000	0.967	0.953	0.936	0.915	0.902	0.890	
8000	0.962	0.945	0.925	0.900	0.886	0.873	
9000	0.957	0.938	0.915	0.887	0.868	0.857	
10000	0.951	0.931	0.902	0.872	0.853	0.840	
11000	0.945	0.923	0.891	0.858	0.837		
12000	0.938	0.914	0.878	0.839	0.818		
14000	0.927	0.897	0.852	0.805			
15000	0.918	0.887	0.836	0.784			

Notes:

1.) Correction factors are approximate and shown for **single stage compressors**.

2.) For two stage compressors use the interstage pressure to find the correction factor.

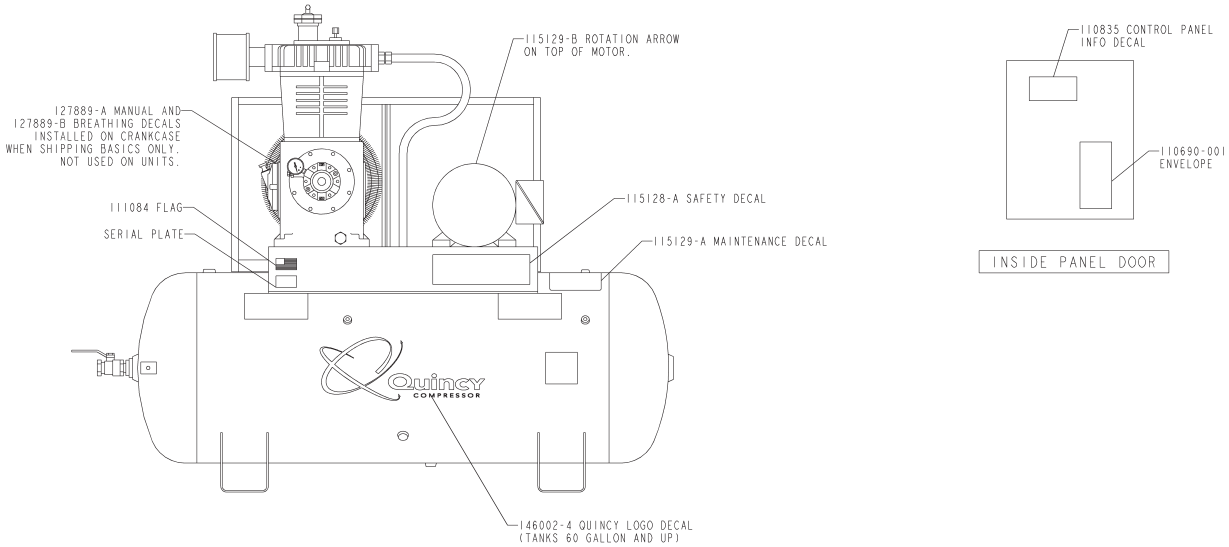
3.) This chart does not allow for air tools which require more free air at altitudes above sea level.

4.) To find the capacity of a compressor at a given altitude, multiply the rated capacity of the compressor by the factor corresponding to the altitude and discharge pressure. The result will be the actual capacity (CFM) of the compressor at the given altitude.

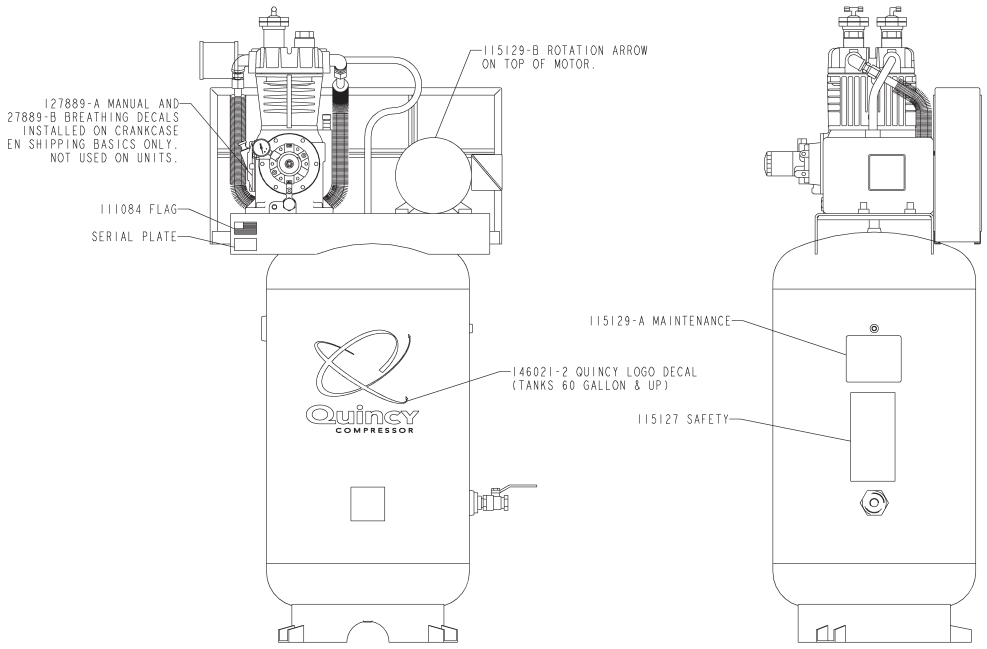
Average Intercooler Pressures

Final Discharge Pressure (PSIG)	QR-25 Series Models						
	310	**325**	**340**	**350**	**370**	**390**	**5120**
100	35.0	35.5	32.0	34.0	41.0	41.0	39.0
125	36.5	37.0	33.0	35.0	43.5	43.5	41.0
150	38.0	38.5	34.0	36.5	46.0	45.5	43.0
175	39.5	40.0	35.0	38.0	48.5	47.5	45.0
200	41.0	41.5	36.0	39.0	51.5	49.0	47.0
225	42.0	43.0	37.0	40.5	53.5	51.0	48.5
250	43.5	44.5	38.0	42.0	56.0	53.0	50.0
275	45.0	46.0	39.0	43.0			
300	47.0	47.5	40.0	44.5			
325	48.5.	49.0	41.0	46.0			
350	50.0	50.5	42.0	47.0			
375	51.5.	52.0	43.0				
400	53.0	53.5	44.0				
425	54.0	55.0	45.0				
450	55.5	57.0	46.0				
475	57.0	58.5	47.0				
500	58.5	60.0	48.0				

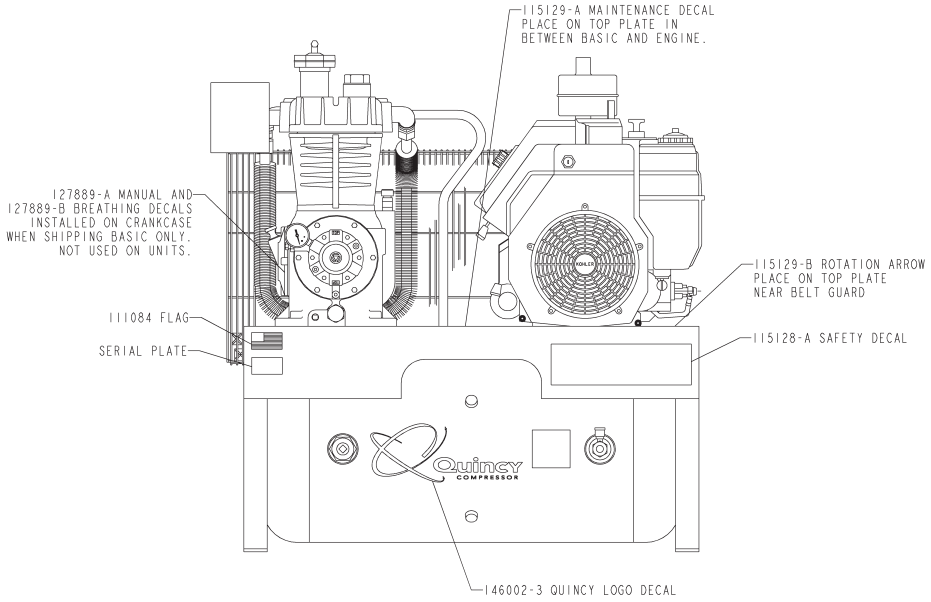
Decal Locations



Typical QR-25 Unit with Horizontal Receiver



Typical QR-25 Unit with Vertical Receiver



Typical Engine Driven QR-25 Unit with Horizontal Receiver

MAINTENANCE SCHEDULE CHECKLIST

Use this form to develop a routine maintenance schedule and record of performed maintenance. In the numbered columns enter the initials of the person who performed the maintenance and the date. Enter additional maintenance procedures in the spaces provided in the left hand column as needed per your application.

Equipment operating under humid or dirty conditions may require shorter intervals between scheduled maintenance.

The instruction manual provided with Quincy Compressor products, as well as any instructions supplied by manufacturers of supporting equipment, should be read and understood prior to performing maintenance.

NOTE: Make your entries on a copy of this form. Retain this original form to make more copies in the future.

Suggested Weekly (40 hrs.) Intervals

Maintenance Procedures	1	2	3	4	5	6	7	8	9	10	11	12
•manually test pressure relief valves												
•												
•clean surfaces of intercooler												
•												
•check distribution system for leaks												
•												
•check for contaminated lubricant *												
•												
•check for compressor/vacuum leaks												
•												
•												

Suggested Monthly (160 hrs.) Intervals

Maintenance Procedures	1	2	3
•check belt tension (if applicable)			
•			
•torque sheave fasteners (if applicable)			
•			
•change lubricant (& filter if applicable)*			
•			

**QRD Series excluded*

QUINCY COMPRESSOR
STANDARD TERMS AND CONDITIONS

LEGAL EFFECT: Except as expressly otherwise agreed to in writing by an authorized representative of Seller, the following terms and conditions shall apply to and form a part of this order and any additional and/or different terms of Buyer's purchase order or other form of acceptance are rejected in advance and shall not become a part of this order.

The rights of Buyer hereunder shall be neither assignable nor transferable except with the written consent of Seller.

This order may not be canceled or altered except with the written consent of Seller and upon terms which will indemnify Seller against all loss occasioned thereby. All additional costs incurred by Seller due to changes in design or specifications, modification of this order or revision of product must be paid for by Buyer.

In addition to the rights and remedies conferred upon Seller by this order, Seller shall have all rights and remedies conferred at law and in equity and shall not be required to proceed with the performance of this order if Buyer is in default in the performance of such order or of any other contract or order with seller.

TERMS OF PAYMENT: Unless otherwise specified in the order acknowledgment, the terms of payment shall be 1% 15, net forty-five (45) days after shipment. These terms shall apply to partial as well as complete shipments. If any proceeding be initiated by or against Buyer under any bankruptcy or insolvency law, or in the judgment of Seller the financial condition of Buyer, at the time the equipment is ready for shipment, does not justify the terms of payment specified, Seller reserves the right to require full payment in cash prior to making shipment. If such payment is not received within fifteen (15) days after notification of readiness for shipment, Seller may cancel the order as to any unshipped item and require payment of its reasonable cancellation charges.

If Buyer delays shipment, payments based on date of shipment shall become due as of the date when ready for shipment. If Buyer delays completion of manufacture, Seller may elect to require payment according to percentage of completion. Equipment held for Buyer shall be at Buyer's risk and storage charges may be applied at the discretion of Seller.

Accounts past due shall bare interest at the highest rate lawful to contract for but if there is no limit set by law, such interest shall be eighteen percent (18%). Buyer shall pay all cost and expenses, including reasonable attorney's fees, incurred in collecting the same, and no claim, except claims within Seller's warranty of material or workmanship, as stated below, will be recognized unless delivered in writing to Seller within thirty (30) days after date of shipment.

TAXES: All prices exclude present and future sales, use, occupation, license, excise, and other taxes in respect of manufacture, sales or delivery, all of which shall be paid by Buyer unless included in the purchase price at the proper rate or a proper exemption certificate is furnished.

ACCEPTANCE: All offers to purchase, quotations and contracts of sales are subject to final acceptance by an authorized representative at Seller's plant.

DELIVERY: Except as otherwise specified in this quotation, delivery will be F. O. B. point of shipment. In the absence of exact shipping instruction, Seller will use its discretion regarding best means of insured shipment. No liability will be accepted by Seller for so doing. All transportation charges are at Buyer's expense. Time of delivery is an estimate only and is based upon the receipt of all information and necessary approvals. The shipping schedule shall not be construed to limit seller in making commitments for materials or in fabricating articles under this order in accordance with Seller's normal and reasonable production schedules.

Seller shall in no event be liable for delays caused by fires, acts of God, strikes, labor difficulties, acts of governmental or military authorities, delays in transportation or procuring materials, or causes of any kind beyond Seller's control. No provision for liquidated damages for any cause shall apply under this order. Buyer shall accept delivery within thirty (30) days after receipt of notification of readiness for shipment. Claims for shortages will be deemed to have been waived if not made in writing with ten (10) days after the receipt of the material in respect of which any such shortage is claimed. Seller is not responsible for loss or damage in transit after having received "In Good Order" receipt from the carrier. All claims for loss or damage in transit should be made to the carrier.

TITLE & LIEN RIGHTS: The equipment shall remain personal property, regardless of how affixed to any realty or structure. Until the price (including any notes given therefore) of the equipment has been fully paid in cash, Seller shall, in the event of Buyer's default, have the right to repossess such equipment.

PATENT INFRINGEMENT: If properly notified and given an opportunity to do so with friendly assistance, Seller will defend Buyer and the ultimate user of the equipment from any actual or alleged infringement of any published United States patent by the equipment or any part thereof furnished pursuant hereto (other than parts of special design, construction, or manufacture specified by and originating with Buyer), and will pay all damages and costs awarded by competent court in any suit thus defended or of which it may have had notice and opportunity to defend as aforesaid.

STANDARD WARRANTY: Seller warrants that products of its own manufacture will be free from defects in workmanship and materials under normal use and service for the period specified in the product instruction manual. Warranty for service parts will be Ninety (90) days from date of factory shipment. Electric Motors, gasoline and diesel engines, electrical apparatus and all other accessories, components and parts not manufactured by Seller are warranted only to the extent of the original manufacturer's warranty.

Notice of the alleged defect must be given to the Seller, in writing with all identifying details including serial number, type of equipment and date of purchase within thirty (30) days of the discovery of the same during the warranty period.

Seller's sole obligation on this warranty shall be, at its option, to repair or replace or refund the purchase price of any product or part thereof which proves to be defective. If requested by Seller, such product or part thereof must be promptly returned to seller, freight prepaid, for inspection.

Seller warrants repaired or replaced parts of its own manufacture against defects in materials and workmanship under normal use and service for ninety (90) days or for the remainder of the warranty on the product being repaired.

This warranty shall not apply and Seller shall not be responsible or liable for:

(a) Consequential, collateral or special losses or damages;

(b) Equipment conditions caused by fair wear and tear, abnormal conditions of use, accident, neglect or misuse of equipment, improper storage or damage resulting during shipping;

(c) Deviation from operating instructions, specifications or other special terms of sale;

(d) Labor charges, loss or damage resulting from improper operation, maintenance or repairs made by person(s) other than Seller or Seller's authorized service station.

In no event shall Seller be liable for any claims whether arising from breach of contract or warranty or claims of negligence or negligent manufacture in excess of the purchase price.

THIS WARRANTY IS THE SOLE WARRANTY OF SELLERS AND ANY OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED IN LAW OR IMPLIED IN FACT, INCLUDING ANY WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR USE ARE HEREBY SPECIFICALLY EXCLUDED.

LIABILITY LIMITATIONS: Under no circumstances shall the Seller have any liability for liquidated damages or for collateral, consequential or special damages or for loss of profits, or for actual losses or for loss of production or progress of construction, whether resulting from delays in delivery or performance, breach of warranty, negligent manufacture or otherwise.

ENVIRONMENTAL AND OSHA REQUIREMENTS: At the time of shipment of the equipment from the factory, Quincy Compressor / Ortman Fluid Power will comply with the various Federal, State and local laws and regulations concerning occupational health and safety and pollution. However, in the installation and operation of the equipment and other matters over which the seller has no control, the Seller assumes no responsibility for compliance with those laws and regulations, whether by the way of indemnity, warranty or otherwise.

June 30, 2003

Reciprocating / Systems: 217.222.7700
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