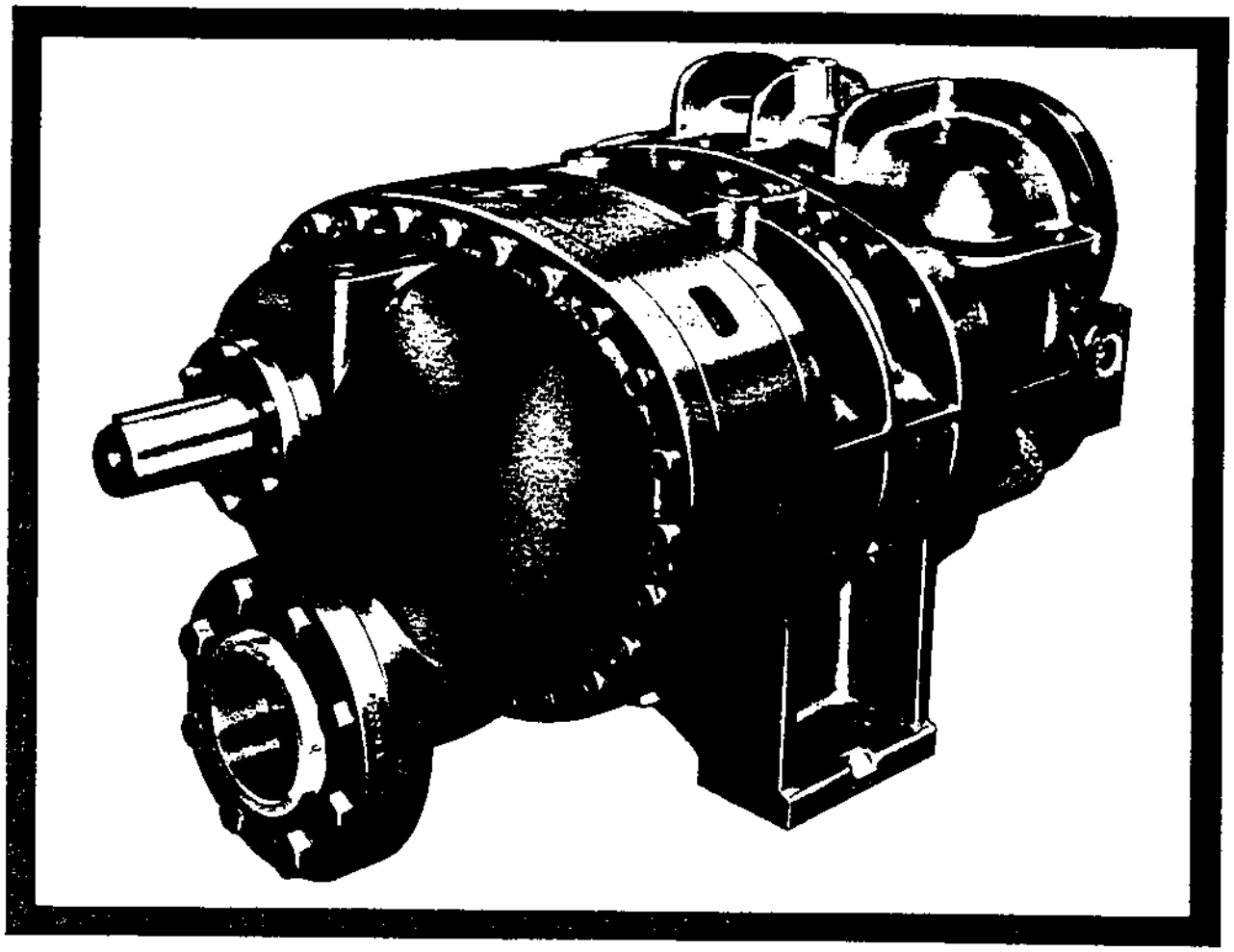
FORM NO. 6136A

DUNHAM-BUSH

DBX COMPRESSOR SERVICE MANUAL



DUNHAM-BUSH, INC. • West Hartford, Connecticut 06110, U.S.A.

This Manual is to be used ONLY by parties specifically authorized by Dunham-Bush, Inc. to perform these maintenance procedures

DBX - COMPRESSOR SERVICE MANUAL

CONTENTS

PRICE - $25.00

DUNHAM-BUSH

DBX COMPRESSOR SERVICE MANUAL

I. GENERAL

The Dunham-Bush screw compressor is a conservatively designed, ruggedly built piece of equipment, which can operate in excess of 50,000 hours without major maintenance.

The operating controls of the package are set up to provide pre-start up lubrication. The injected oil provides a continuous oil film between the driving male and driven female rotor.

Part of the total thrust load developed by the rotors is carried by the duplex mounted preloaded angular contact thrust bearings. The remaining thrust load is handled by the hydraulic counterbalance piston arrangement.

The journal bearings are heavy steel backed babbitt lined bushings that are machined in position. These bearings are lightly loaded even at maximum operating conditions.

In order to insure maximum compressor life, and in particular applications where unexpected down-time cannot be tolerated, a suitable preventive maintenance inspection program is recommended. In addition to routine maintenance listed in the unit I & O manuals, a compressor inspection should be scheduled around 25,000 hours operating time.

This inspection should include, but not be limited to, the shaft seal, the unloader seals, tightness and condition of thrust bearings, and slide valve assembly. All the areas inspected should be maintained within the limits outlined in this manual.

II. DIRECT DRIVE COMPRESSOR AND COMPRESSOR PORTION OF HERMETIC COMPRESSOR

A. SHAFT SEAL REPLACEMENT (DIRECT DRIVE)

a. Isolate compressor using available line valves or check valve and line valves. Pump out low side or entire unit. Check and record coupling alignment with unit hot, if possible, before disassembly.

b. (Refer to PCX Unit Pumpout procedure.) Pump out or purge refrigerant from compressor portion until atmospheric pressure is reached. *LOCK OUT MAIN CIRCUIT BREAKER TO PREVENT ENERGIZING MOTOR.*

c. Remove compressor coupling guard.

d. Disassemble center section of coupling and remove coupling half from compressor. Use Jack bolts to prevent distorting or damage to coupling.

e. Refer to type 8-1 (unbalanced) or 881 (balanced) or type 98 seal replacement and disassembly instructions, pages 2, 3 and 4.

f. After seal replacement, reassemble coupling and refer to alignment procedure on page 5.

g. Using shaft spanner wrench, rotate shaft several times to help seat seal. Trace of refrigerant leakage might be noticed prior to starting unit. After compressor has operated a short time and seal parts are mated, refrigerant leakage should stop.

h. Before restarting unit, check compressor coupling alignment with unit cold. Refer to table on page 5 for parallel and angular alignment requirements.

Start unit and bring up to normal operating temperature. Shut down and immediately recheck alignment and adjust as required to be within listed angular and parallel alignment values.

B. TYPE 8-1 & 8B1 SEALS.

a. Remove Seal Housing "9".

b. Use hand or soft block and press on carbon ring to break the seal head free from shaft.

c. Place two pieces of rod (Tip bent at 90° to form hook) into seal body holes and pull seal off of shaft.

d. Use a soft drift to tap seal seat "7" out of Seal Housing.

e. Remove chips and foreign material from shaft, seal cavity of seal housing. Stone all burrs created in removal of seal.

f. Inspect shaft journal for nicks or other irregularities.

g. Lubricate the secondary "O" Ring Seal on the inside of the carbon ring with refrigeration oil.

h. By hand, slide Seal Head "5" on shaft so that the spring pin "4" engages in one of the seal body spring holes. Seal Head Body must be fully seated against seal ring "3".

i. Install Seal Seat "O" Ring "8" in Seal Housing and Seal Housing "O" Rings "10" on Housing.

j. By hand, press Seal Seat into Seal Housing.*

k. Lubricate and install Seal Housing. Draw up the Seal Housing in an even manner.

*Inspect Seal Seat (part No. 7) carefully to determine which is the lapped face that runs in contact with the Carbon Ring, then install the Seat so that this polished surface is facing the Carbon Ring (Part No. 6). Using a protective piece of cardboard, seat may be tapped into housing if necessary. Operating face of seat should be parallel to seal housing "9" mounting flange within .002 TIR.

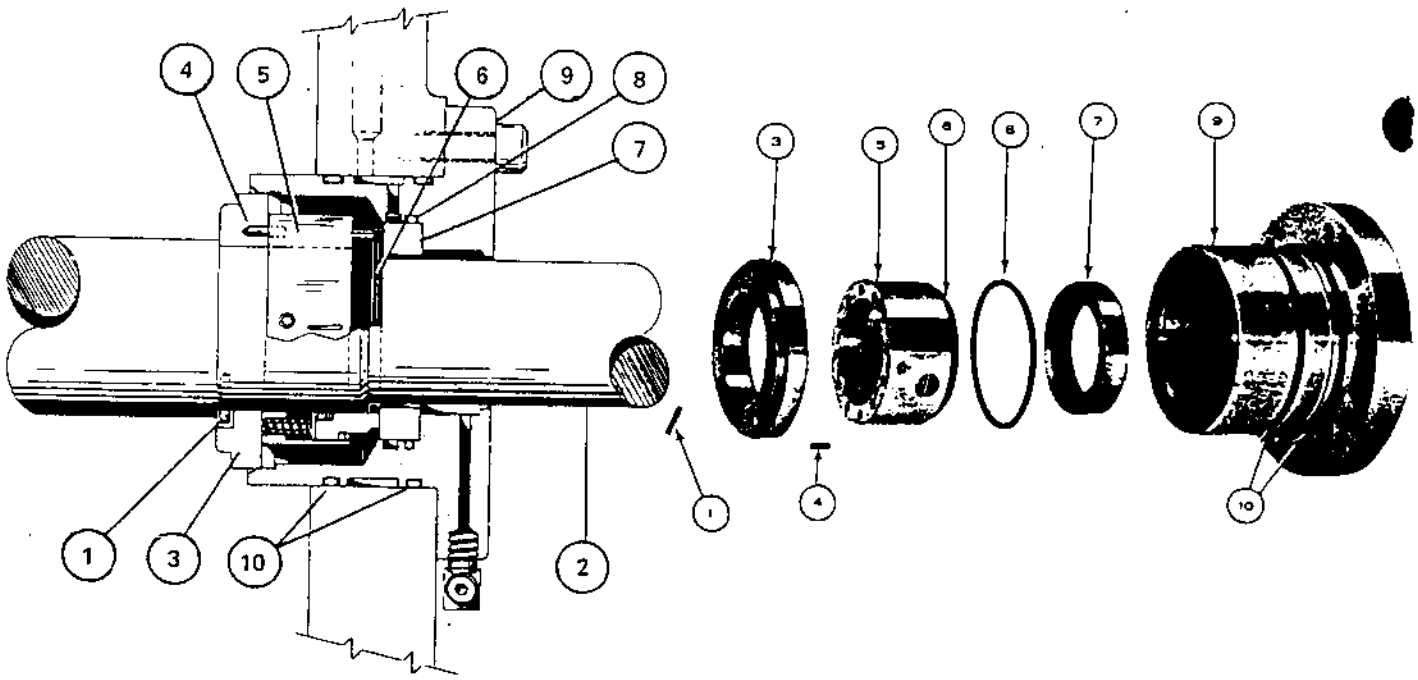


FIG. 1 – TYPE 8-1 AND 8B1 (LONG SEAL HOUSING)

1. DRIVE PIN
2. SHAFT
3. SEAL RING
4. SPRING PIN
5. SEAL HEAD
6. CARBON RING
7. SEAL SEAT
8. SEAL SEAT "O" RING
9. SEAL HOUSING
10. SEAL HOUSING "O" RINGS

B. DBX SHAFT SEAL ASSEMBLY DIMENSIONS

DIMENSIONS

COMP.	SEAL TYPE	A	B	FREE C	WORKING C'
163	98	2 5/32"	3/16"	1 31/32"	1 3/4"
163	8	2 3/32"	17/32"	1 9/16"	1 3/8"
163	88	2 5/32"	5/32"	1 15/16"	1 3/4"
204	98	2 7/8"	23/32"	2 5/32"	2 1/16"
204	8	2 7/8"	1"	1 7/8"	1 11/16"
204	88	2 7/8"	5/8"	2 1/4"	2 1/16"
255	8	3"	1 1/8"	1 7/8"	1 11/16"
255	88	3"	3/4"	2 1/4"	2 1/16"

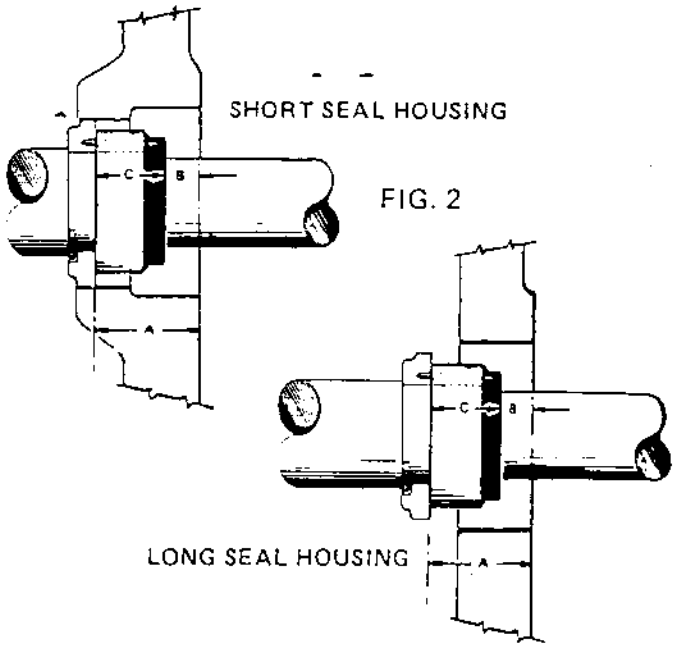


FIG. 2

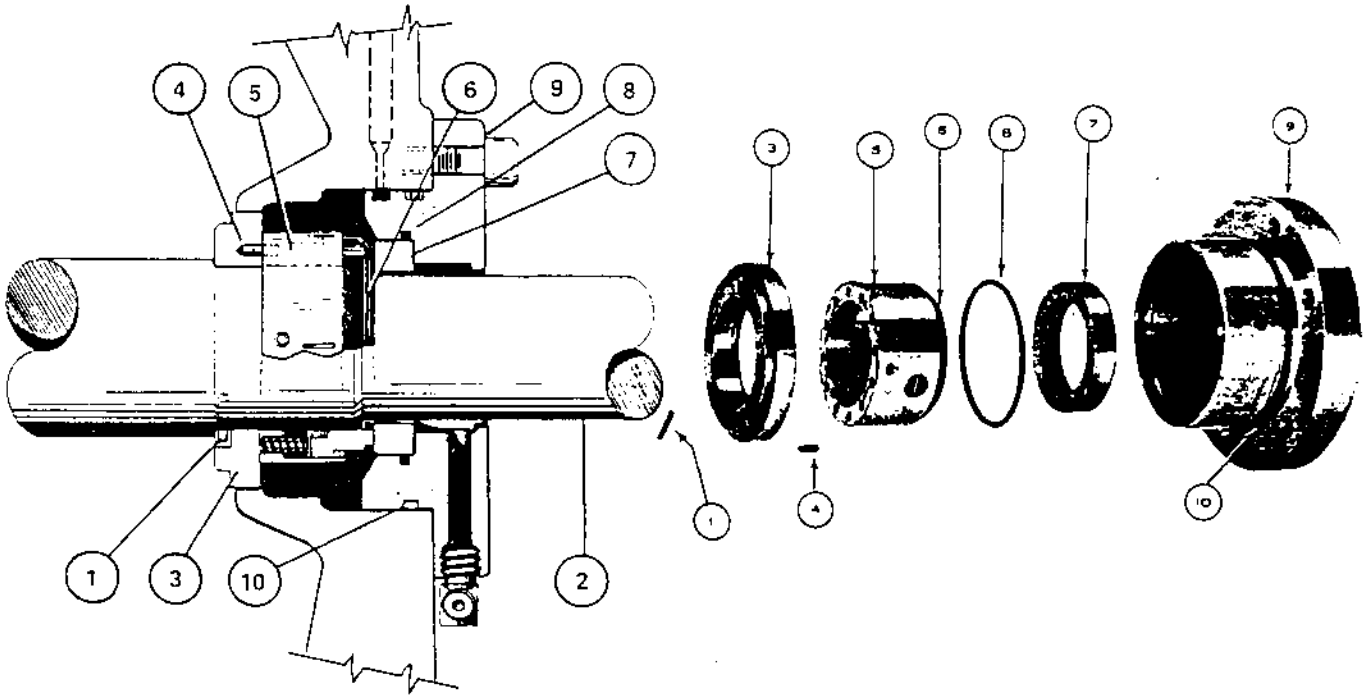


FIG. 3 – TYPE 8-1 AND TYPE 8B1 (SHORT SEAL HOUSING)

1. DRIVE PIN
2. SHAFT
3. SEAL RING
4. SPRING PIN
5. SEAL HEAD
6. CARBON RING
7. SEAL SEAT
8. SEAL SEAT "O" RING
9. SEAL HOUSING
10. SEAL HOUSING "O" RING

C. TYPE 9B SEAL

a. Remove seal housing "9B".

b. Use hand or soft block and press carbon ring to break the seal head free from shaft.

c. Place 2 pieces of Rod (Tip bent at 90° to form hook) into seal body holes and pull seal off of shaft.

d. Use a soft drift to tap seal seat "7" out of seal housing.

e. Remove chips and foreign material from shaft, seal cavity of seal housing. Stone any burrs created in removal of seal.

f. Inspect shaft journal for nicks or other irregularities.

g. Inspect seal ring "3" and lip seal "11". Replace lip seal "11" if worn, out of shape, or broken.

h. Lubricate secondary Teflon wedge on inside of the Carbon ring with clean refrigeration oil.

i. By hand slide seal head "5" on shaft so that the spring pin "4" engages one of the seal body spring holes. Seal head body must be fully seated against seal ring "3". Clean carbon face and coat with clean oil.

j. Install seal seat "8" in seal housing bore and insure that anti-rotation pin "12" engages in hole in seat. A protective piece of cardboard may be used to protect seat face if it is necessary to install seat in housing. Clean seat surface and coat with clean oil. Operating face of seal seat should be parallel to seal housing flange within .002 TIR

k. Install "O" rings "10" on seal housing.

l. Lubricate "O" rings "10" and install seal housing. Using assembly bolts, draw up seal housing in an even manner.

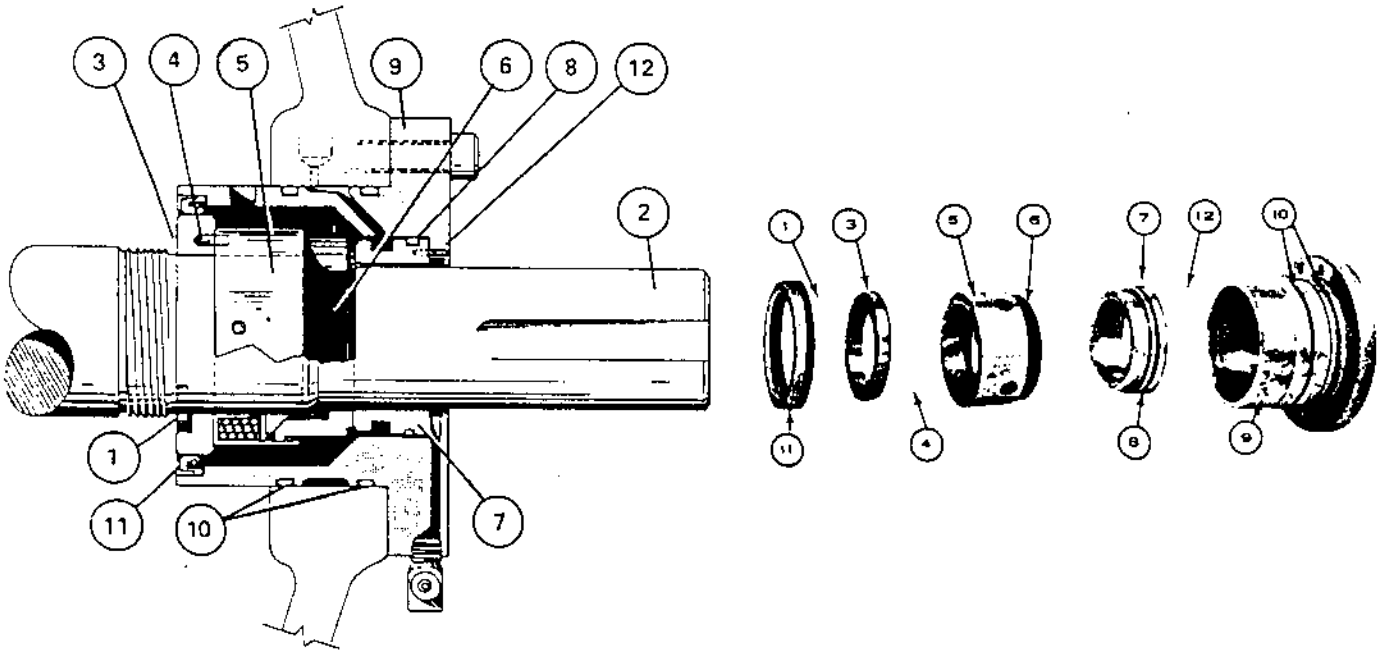


FIG. 4 – TYPE 9B SEAL

1. DRIVE PIN
2. SHAFT
3. SEAL RING
4. SPRING PIN
5. SEAL HEAD
6. CARBON RING
7. SEAL SEAT
8. SEAL SEAT "O" RING
9. SEAL HOUSING
10. SEAL HOUSING "O" RINGS
11. LIP SEAL
12. SEAT ANTI-ROTATION PIN

D. COUPLING ALIGNMENT
INDICATOR METHOD (RECOMMENDED)

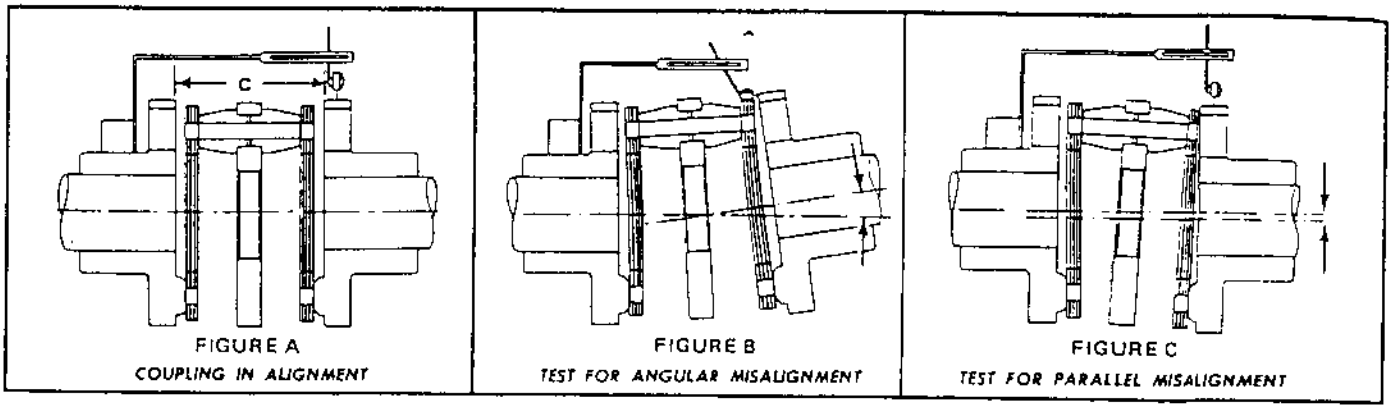


FIGURE A
COUPLING IN ALIGNMENT

FIGURE B
TEST FOR ANGULAR MISALIGNMENT

FIGURE C
TEST FOR PARALLEL MISALIGNMENT

1. To check angular misalignment (Figure B) mount indicator (as shown on left flange) with stem on face of right flange. *Rotate Equipment* noting maximum and minimum indicator reading. Move equipment as necessary to reduce the total indicator reading to that shown below.
2. To check parallel misalignment (Figure C) set indicator stem on outer surface of flange. Rotate equipment noting maximum and minimum indicator reading. Move equipment as necessary to reduce indicator reading to that shown below. Be careful not to disturb the setting of Step 1.
3. Repeat Steps 1 and 2 as necessary.
4. Coupling hubs to be spaced to dimension C.
5. This coupling should be rotated several revolutions to make sure no *"endwise creep"* in connected shafts is measured.
6. Tighten all bolts as shown in chart below.
7. When operating at full speed, both laminated rings should have a distinct and clearly defined appearance—not blurred when viewed from top and side.

NOTE: If unit had been previously aligned and doweled it may be necessary to redrill and taper-ream dowel holes and use next larger size taper dowel pins.

THOMAS COUPLING SERIES	FORM-FLEX COUPLING SERIES	BOLT TORQUE-FT. LB.		MISALIGNMENT		DIM. C (SEE FIG. A)
		THOMAS	FORM-FLEX	PARALLEL	ANGULAR	
163 DBZ-8	–	13	–	.003 TIR	.003 TIR	$2\frac{7}{16}$"
201 DBZ-8	–	25	–	.005 TIR	.005 TIR	$2\frac{15}{16}$"
226 DBZ-8	AK30	43	40	.005 TIR	.005 TIR	$3\frac{13}{16}$"
263 DBZ-8	AK35	63	40	.007 TIR	.007 TIR	$4\frac{5}{16}$"
301 DBZ-8	AK40	95	80	.007 TIR	.007 TIR	$4\frac{7}{8}$"
351 DBZ-8	AK45	175	80	.007 TIR	.007 TIR	$5\frac{7}{8}$"
350-51	–	95	–	.007 TIR	.007 TIR	6"

NOTE: 1. All dimensions and tolerances are in inches.
2. Consult factory for complete engineering specification ASY-ES-1 if additional information is required.

E. DIRECT DRIVE DISASSEMBLY

The following illustrations show disassembly and assembly for the direct drive models.

Pump down compressor and isolate compressor from remaining part of system. Purge or pump out remaining refrigerant till 0 psig is reached. Pull main breaker switch. Lock out main circuit breaker.

Disassemble shaft coupling. Disconnect all compressor oil feed lines. Remove compressor assembly from unit and set up on suitable table. Refer Table 2 Page 20 for compressor weights. Remove coupling and key from compressor shaft. Use suitable wheel puller: do not hammer coupling off compressor.

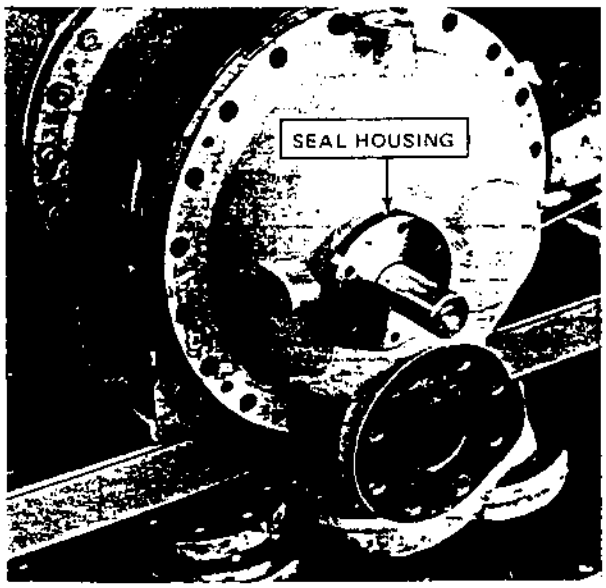


FIG. 5 – SEAL HOUSING REMOVAL

Using 3/8"– 16 x 3½" length jack bolts, remove seal housing, shaft seal and seal drive ring. Refer to Page 1 for instructions.

Insert several long studs in outlet end cover bolt holes to aid in removing end cover using four 5/8" – 11 x 3" long jack off bolts, tighten evenly and jack end cover off dowel pins.

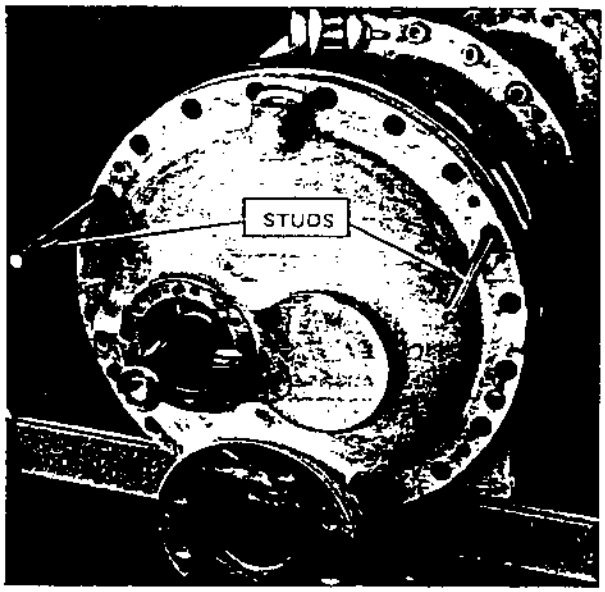


FIG. 6 – OUTLET END COVER REMOVAL

With slide valve in fully loaded position (pushed back toward suction end of compressor) use feeler gauges to determine rotor outlet end clearance. Slip feeler gauge between discharge end of rotors and outlet end plate. Measurement should be taken on both male and female rotor. Normal readings should be in range .004/.006". For field rebuild, figures of .003 min. to .008 max. can be used. If dimensions exceed these limits, refer to thrust bearing and adjustment section Page 8.
Compressor internal leakage and efficiency will vary with higher discharge outlet end clearances. Readings should be the same even with an axial push and pull exerted on the rotors. Any visible axial change of clearance indicates loose thrust bearing set up.

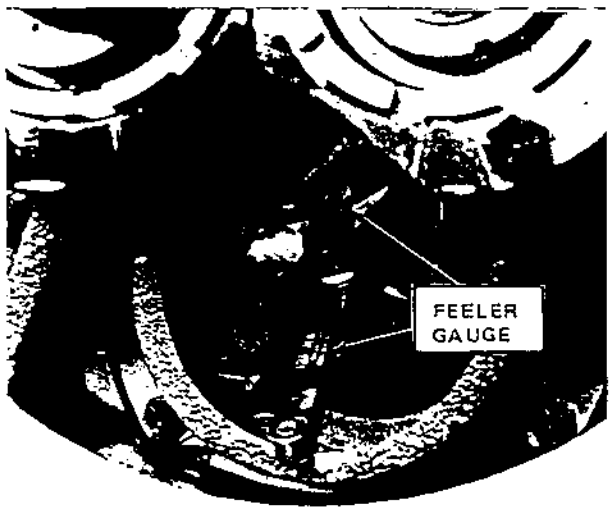


FIG. 7 – ROTOR END CLEARANCE
(MALE ROTOR)

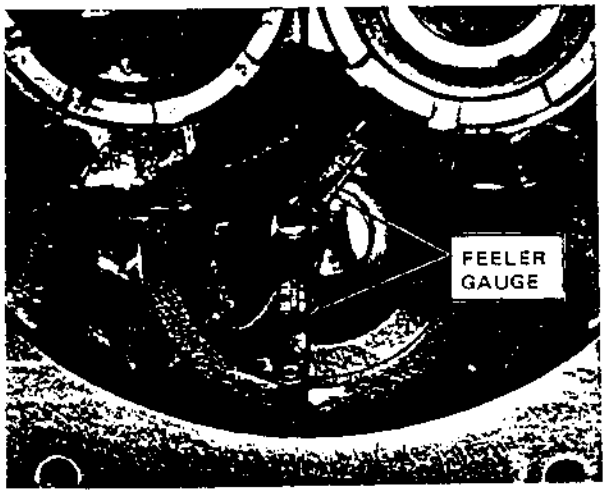


FIG. 8 – ROTOR END CLEARANCE
(FEMALE ROTOR)

Refer Section VI for servicing and removal of unloader controller indicator assembly.
Remove balance piston cover, unloader cylinder injection tube plate, unloader cylinder and unloader piston.

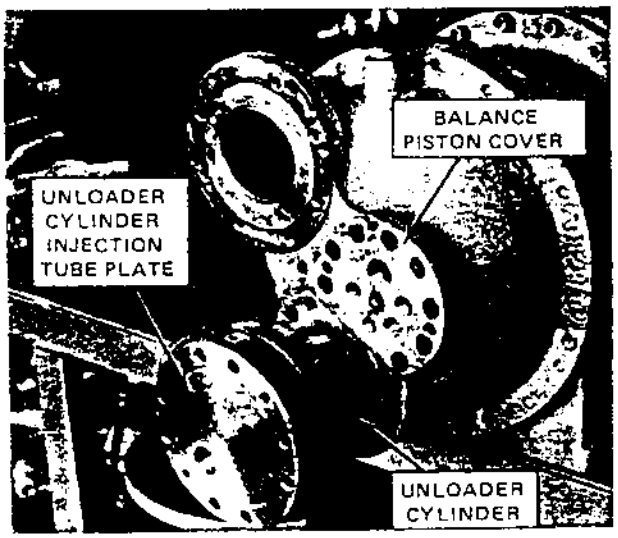


FIG. 9 – BALANCE PISTON COVER REMOVAL

Using feeler gauge, check clearance between balance piston and balance piston sleeve. Clearance should be .0005 to .003. Clearances much in excess of these figures indicate balance piston and sleeve should be replaced.

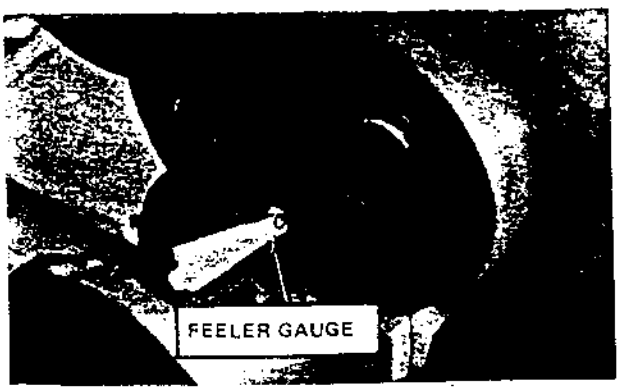


FIG. 10 – BALANCE PISTON CLEARANCE

Using snap ring pliers, remove snap ring from balance piston. By using small puller or by threading two bolts into balance piston, the balance piston can be removed from the male rotor. The balance piston sleeve can then be removed.

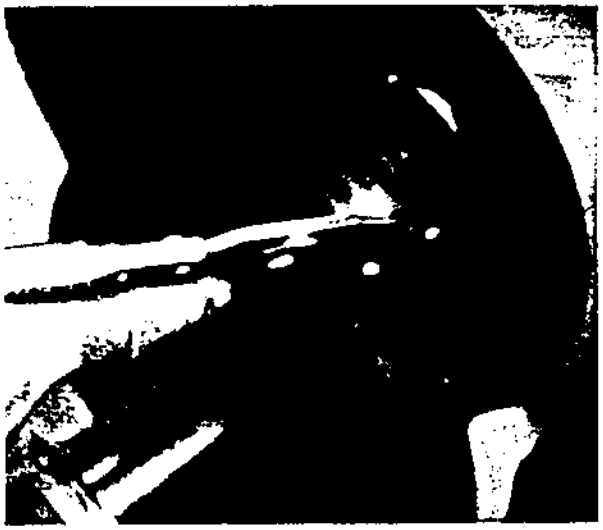


FIG. 11 – SNAP RING REMOVAL

FIG. 12 – BALANCE PISTON REMOVAL

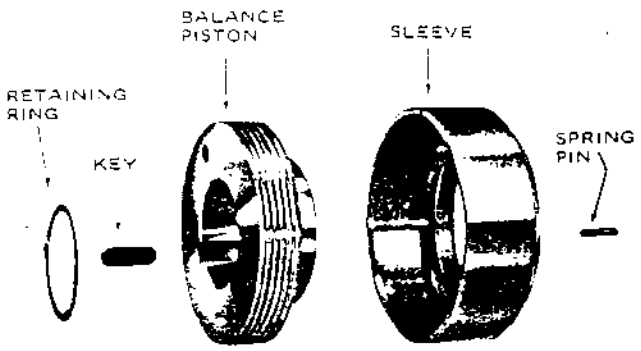


FIG. 13 – BALANCE PISTON ARRANGEMENT

F. THRUST BEARING ADJUSTMENT (DB 163, 204, and 255)

Relieve locking corners bent over hex head bolts holding bearing sleeves to outlet end plate. Check torque of thrust bearing sleeve hold down bolts. Bolt torques should be 65 lb/ft.

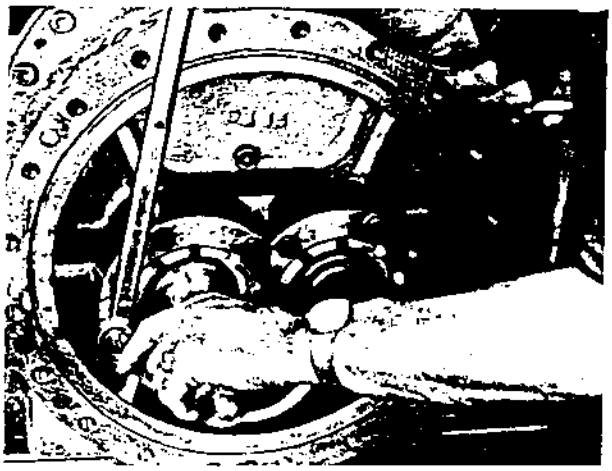


FIG. 14 – TORQUING SLEEVE BOLTS

With feeler gauges determine rotor outlet end clearance per Table 1. Normal readings should be .004/.006 clearance between rotors and outlet end plate. A higher clearance may be an indication that thrust bearing assembly is loose. By pushing and pulling on end of rotor determine if rotor end clearance changes. If thrust bearing assembly is loose, outer race lock nuts must be removed for inspection. If there is evidence of outer race turning, ball bearings should be removed. If there is no wear on nut face, proceed as follows;

1. Tighten inner race ball bearing lock nuts on both rotors to 250 lb. ft., using Tol. 1, 2, 3 for DB 163, 204, 255 respectively.
2. Tighten outer race lock nuts to 200 lb. ft. on 163, 204 and 400 lb. ft. on 255 using Tol. 6, 7 or 8 respectively to set assembly. Lightly scribe a line across outer nut and bearing sleeve.
3. Check rotor discharge end clearance. Clearance should be .004 to .006.
4. Back off outer bearing nut.
5. Tighten outer race nut and torque as follows:

   DB 163, 200 lb. ft. Using Tol. 6
   204, 200 lb. ft. Using Tol. 7
   255, 400 lb. ft. Using Tol. 8

6. Scribe bearing line across outer nut and bearing sleeve.
7. Repeat for male rotor.
8. Recheck male and female outlet end clearance. Record on build sheet.
9. Assemble outer nut lock plate and bolt. Torque bolt to 30 lb. ft. Bend locking plate over hex bolt.

G. THRUST BEARING REPLACEMENT (DBX 163, 204)

Relieve locking corners bent over four (4) hex bolts that hold male and female bearing sleeves to outlet end plate.

Loosen inner race lock nuts.
Loosen outer race lock nuts.
Loosen the four (4) hex head bolts on each bearing sleeve. Check and tag male and female bearing sleeves before removing.

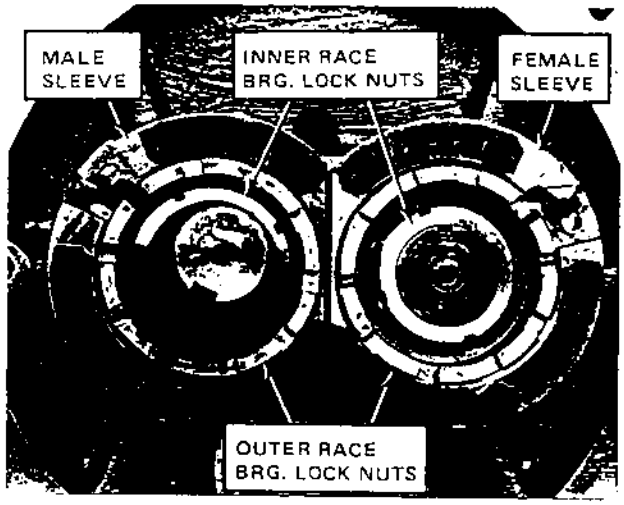


FIG. 15 – THRUST BEARING ASSEMBLY

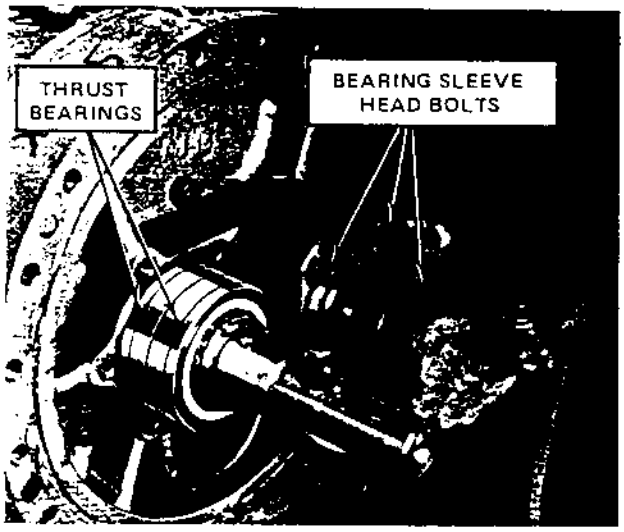


FIG. 16 – THRUST BEARING SLEEVE REMOVAL

Unbolt inlet end cover. Using inlet cover jack screw holes, jack off inlet cover. Since dowel pins are short, it is recommended that long rods are installed into opposite bolt holes for guiding. Inlet cover must be evenly moved backward until inlet cover clears rotor bearing journal ends.

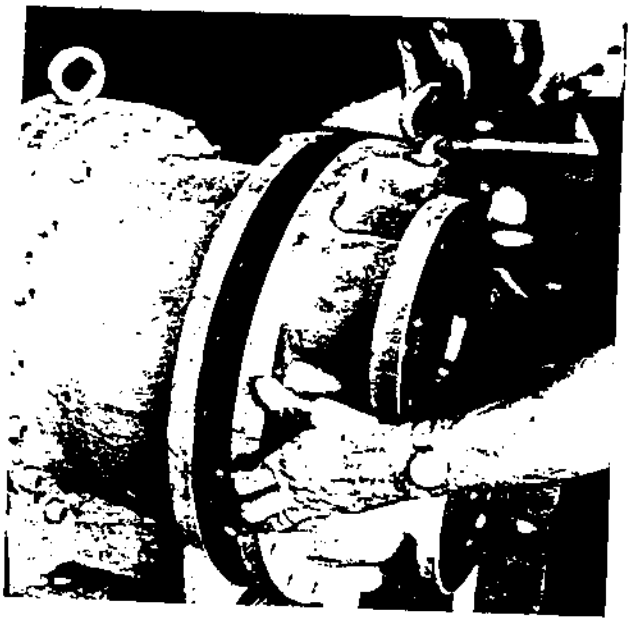


FIG. 17 – INLET HOUSING REMOVAL

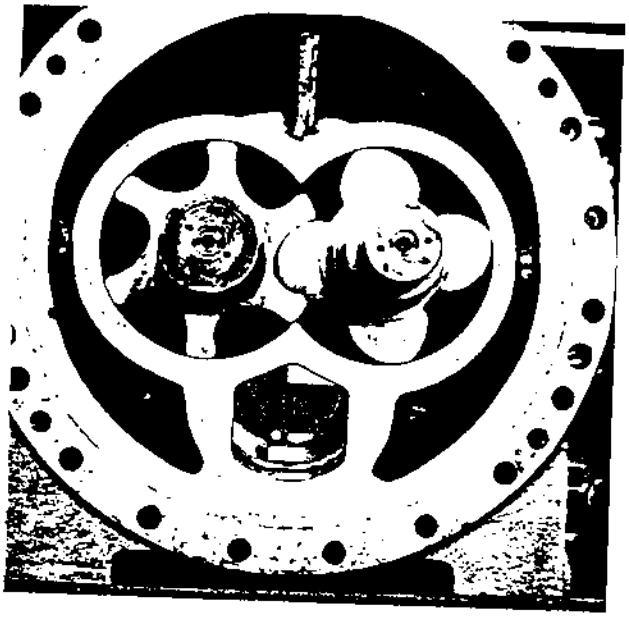


FIG. 18 – ROTOR INLET VIEW

With inlet end removed, inlet end of rotor housing and inlet end of rotors will be exposed. A puller plate (see Figure 19) can be used to push first the male rotor out and then the female. A soft plug or block should be placed between end of rotor and puller drive screw in order to protect end of rotor and rotor center. Care must be taken so that rotor does not drop once rotor moves axially enough to clear the journal bearing.

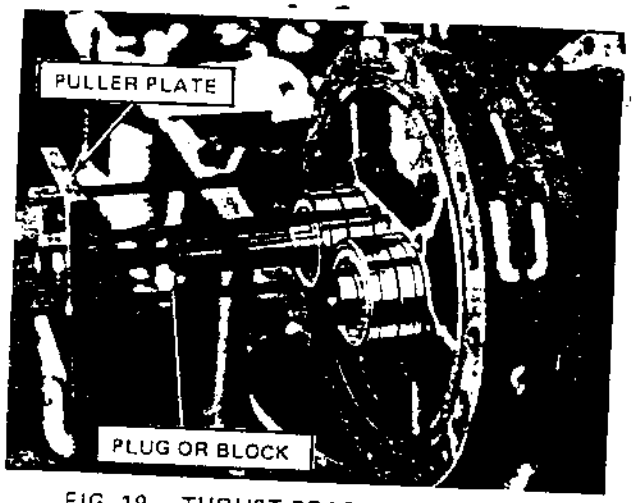


FIG. 19 – THRUST BEARING REMOVAL

Once rotor has moved 2"-3", the ball bearings will have been stripped off of their journal diameter. Tag bearings as being male rear and male front. Do not damage shim pack that is on rotor shoulder where ball thrust bearings have been mounted.

REPEAT PROCEDURE FOR FEMALE ROTOR.

Tag male and female shim pack and record thickness.

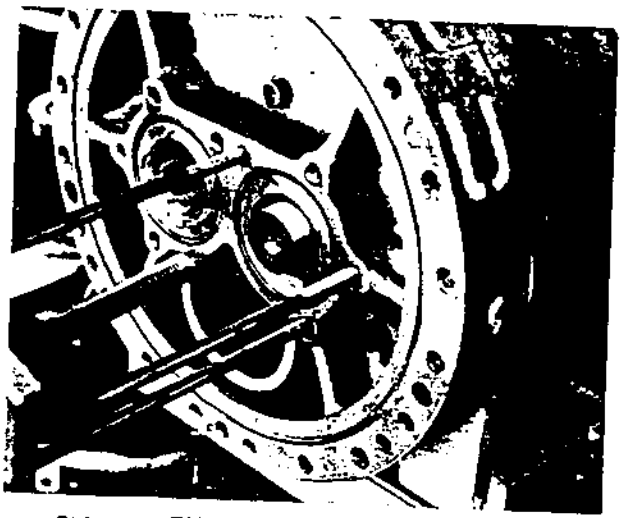


FIG. 20 – THRUST BEARINGS REMOVED

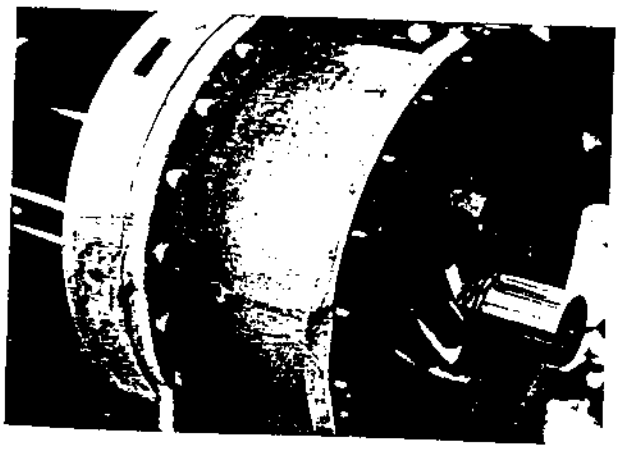
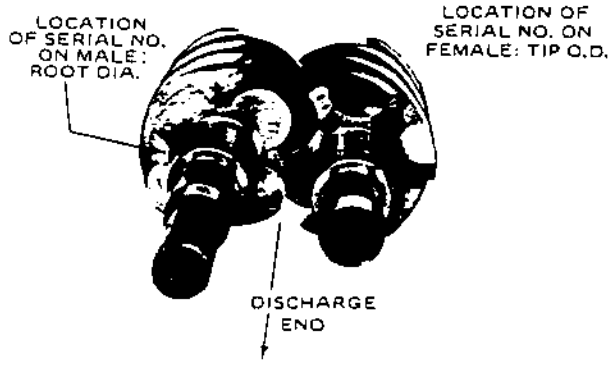


FIG. 21 – ROTOR REMOVAL

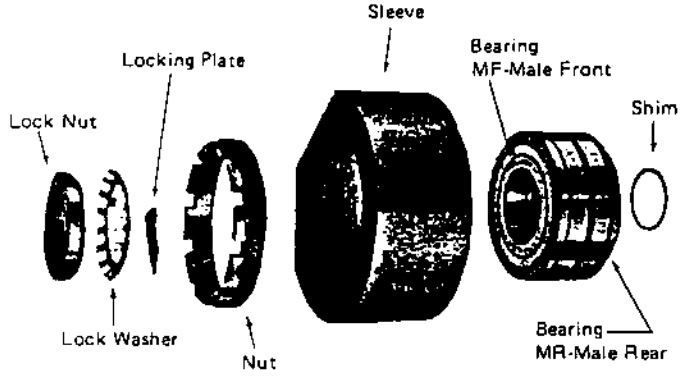
With both rotors out of the compressor examine for any nicks or burrs on the lobe profiles. Using a fine file or stone dress down any burrs or scratches that are present. Reinstall rotors in rotor housing by first putting male rotor in place. Notice location of rotor number on male rotor inlet and root diameter. Locate corresponding mark on female tip O.D. Screw female rotor into rotor housing by meshing with male rotor. Marked male rotor must start in same mesh as marked female rotor tip.

FIG. 22 – ROTOR SERIAL NUMBER LOCATION



Care must be taken when passing rotor journals thru the journal bearings. Rotors should be supported on both ends in order to avoid shaving bearing material. Install new "O" ring or gasket on inlet housing. Lightly oil journals and assemble inlet housing ontc dowel pins using several bolts. Draw up evenly. This will support the inlet end of the rotors.

FIG. 23 – THRUST BEARING ARRANGEMENT



H. DBX THRUST BEARING ASSEMBLY (FEMALE ROTOR)

1. Using depth micrometer determine recess of rotor shoulder below outlet end plate. Rotors must be pulled hard against outlet end cover when this reading is taken.

2. Add .005 to this dimension and record.

3. Peel off shim pack until this thickness is reached. Put shim pack on shaft against shoulder.

4. Bearing pairs may be marked as shown by scribing MF, MR. FF, FR on cages for identification and assembly orientation. Degrease ball bearing sets to remove packing grease.

5. Heat ball thrust bearings to 250° to 300°F.

6. Quickly install on shaft in back to back (DB) arrangement. Bearing stamped races are exposed on outsides of bearing pair. Unstamped faces of inner ring are together.

7. Quickly add inner race lock nut washer and lock nut. Tighten lock nut against bearing and lock up tight.

8. Assemble bearing sleeves to outlet end plate. Assemble bolts and lock straps and torque bolts to 65 lb. ft. Lock tabs over bolt heads.

9. Allow bearing to cool to room temperature before tightening outer race lock nut. Squirt clean refrigeration oil into ball races and rotate shafts. Bearings should not be rotated in dry condition. Inner race lock nut tightness should be rechecked after bearings are cooled to room temperature. Loosen and retorque to 250 lb. ft. using Tol. 1, 2, 3 for DB 163, 204 or 255 respectively, secure nut with lock washer tab.

10. Turn lock nut into bearing sleeve.

11. Tighten outer race lock nuts to 200 lb. ft. on 163, 204 and 400 lb. ft. on 255 using Tol. 6, 7 or 8 respectively. Lightly scribe a line across outer nut and bearing sleeve.

12. Check rotor discharge end clearance; clearance should be .004 to .006. For field rebuild a clearance of .003 min. to .008 max. can be tolerated.

13. Back off outer bearing nut.

14. Tighten outer race nut and torque as follows:
    DB 163 , 200 lb. ft. Using Tol. 6
    DB 204 , 200 lb. ft. Using Tol. 7
    DB 255 , 400 lb. ft. Using Tol. 8

15. Scribe heavy line across outer nut and bearing sleeve.

16. Repeat for male rotor.

17. Recheck male and female outlet end clearance. Record on build sheet.

18. Assemble outer nut lock plate and bolt. Torque bolt to 30 lb. ft. Bend locking plate over hex bolt.

I. THRUST BEARING REPLACEMENT (DBX 255)

Proceed as in 163 and 204 models, check and record rotor discharge end clearance. Remove thrust bearing sleeves. The DBX 255 model compressors are built with thrust bearing stripper plates that are located under the bearing sleeves in counterbores in the outlet end plate. The rotors do not have to be removed from the compressor in order to remove the bearings. The thrust bearings can be jacked off the rotors by using three 1/2"-13 bolts, 4½" long or threaded rod and nuts with the thrust bearing stripper plates.

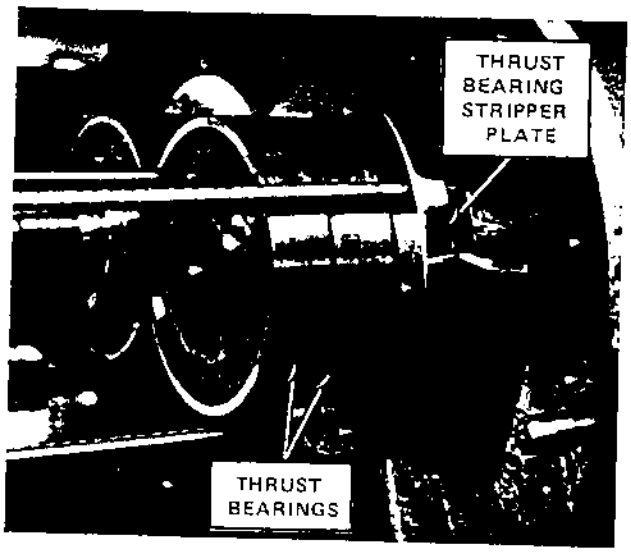


FIG. 24 – THRUST BEARING REMOVAL

Turn bolts evenly so that plate moves outward evenly thereby stripping off ball bearings. Repeat for female rotor.

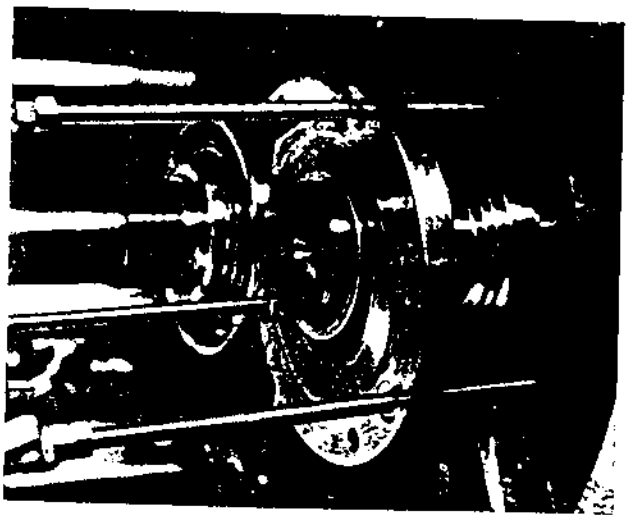


FIG. 25 – THRUST BEARINGS REMOVED

After bearings are removed from both male and female rotors, check parts for burrs or raised metal. Remove any raised metal with small file and stone. Also, check outlet end plate face and counterbores. If rotor end clearance as taken before disassembly is in the .004 to .006 range and the thrust bearings shims are not damaged, these shims may be reused.

Place thrust bearing plates in outlet end plate. Bolt thrust bearing plates to outlet end plate using 1/2"-13 bolts, 1½" long with lock straps or soft washers under the bolt heads to avoid marking the thrust bearing plates. Torque bolts to 65 lb/ft.

Pull rotors toward outlet end plate. There should not be any clearance between discharge rotor ends and outlet end plate.

Using 0 to 1" depth micrometer, determine location of shaft shoulder to surface of thrust bearing plate. To this dimension add .005. Peel shim pack to this total dimension and record. Later, when this shim pack is placed on the rotor against shaft shoulder and sandwiched between ball bearing and shoulder, rotor outlet end clearance should result in nominal .005 dimension.

This can be double checked before assembly by placing .005 shim between rotor and outlet end plate and pulling rotor hard against outlet end plate. Place prepared shim pack on shaft against shoulder and check with depth micrometer. Face of shim pack should be flush with thrust bearing plate and micrometer reading should be 0.

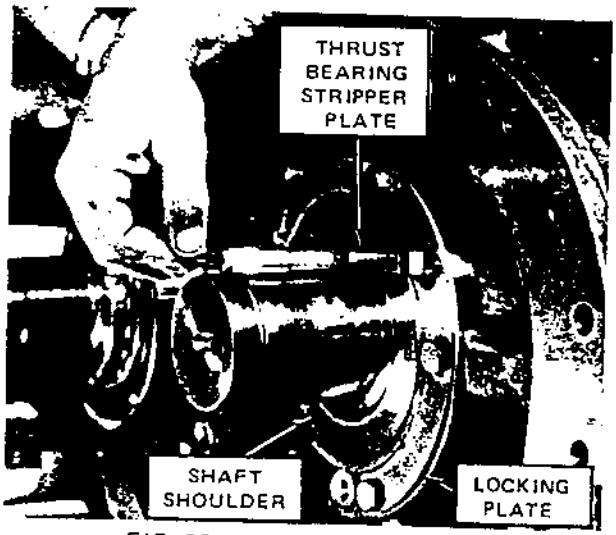


FIG. 26 – MEASUREMENT FOR SHIM PACK THICKNESS

Repeat for other rotor.

Proceed to assemble new thrust bearings as outlined in paragraph II-H "DBX Thrust Bearing Assembly".

J. SERVICE OR REMOVAL OF SLIDE VALVE

The slide valve assembly can be removed after the compressor outlet end cover and unloader cylinder end plate has been removed.

Main hydraulic unloader parts are shown below.

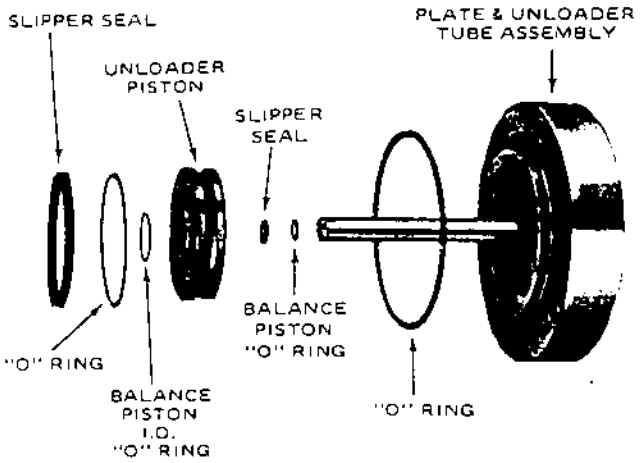


FIG. 27 – UNLOADER PARTS

Examine injection tube and hydraulic piston teflon slipper seals for wear, nicks, or cuts. These parts must be smooth for satisfactory operation and proper sealing. Any imperfections will cause oil leakage resulting in hydraulic unloader not being able to maintain a hold position which will also result in frequent cycling of unloader solenoid valves to balance compressor with system load requirements.

Inspect slide valve spindle bore for scratches and scoring.

These rings may be replaced by first removing old teflon ring and "O" ring. Then install new "O" ring and stretch new slipper seal over shaft or piston. Use care so as not to nick or crack new teflon ring. Ring must be fully seated over "O" ring in ring groove. Smooth ring to round shape concentric with groove. Oil parts before reassembly.

Slide valve spindle assembly may be removed by pushing slide valve thru outlet port in outlet end plate.

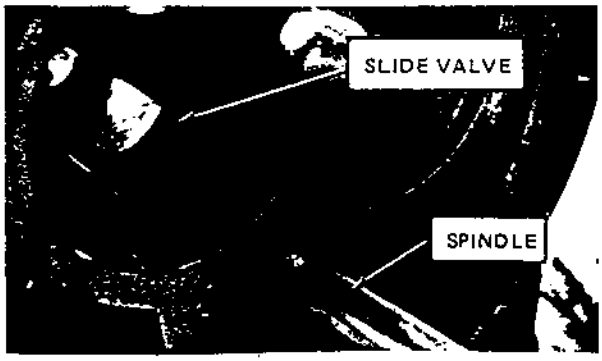


FIG. 28 – SLIDE VALVE REMOVAL

Once removed, examine slide valve for scratches or burrs on valve OD and on slide valve slot.

Check clearance between slide valve slot and slide guide block by measuring each part or by putting guide block in slot and using a feeler gauge. Guide block to slot. Clearance should be around .001". Clearances much larger than this indicate wear on either guide or slot. It may be necessary to replace guide block if block is worn.

Note that all guide blocks are marked "This side Up" and "Inlet End". Guide block must be installed in this position on guide block spindle in rotor housing.

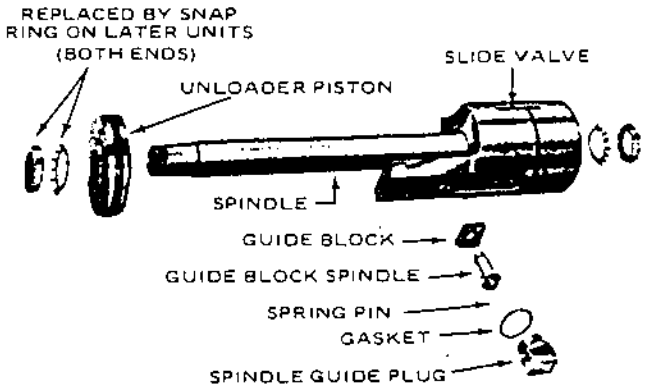


FIG. 29 – SLIDE VALVE PARTS & ARRANGEMENT

K. SLIDE GUIDE

1. Inspect condition of slide valve bore and slide guide. Check for any burrs and scoring. Stone as required and clean.
2. Check security of slide guide retaining bolts and slide guide locator pins. Tighten bolts if loose to torque shown in Table 5. Relock lock washer tabs over bolt heads.

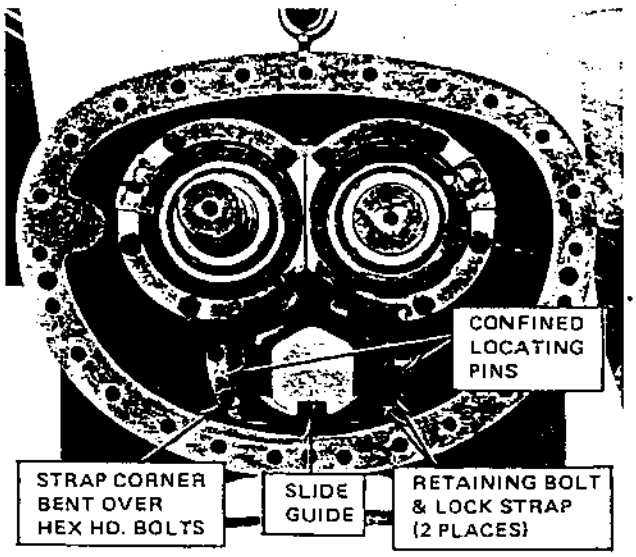


FIG. 30 – SLIDE VALVE BORE

L. DBX 163 DIRECT DRIVE (VERSIONS A,B,C & D)

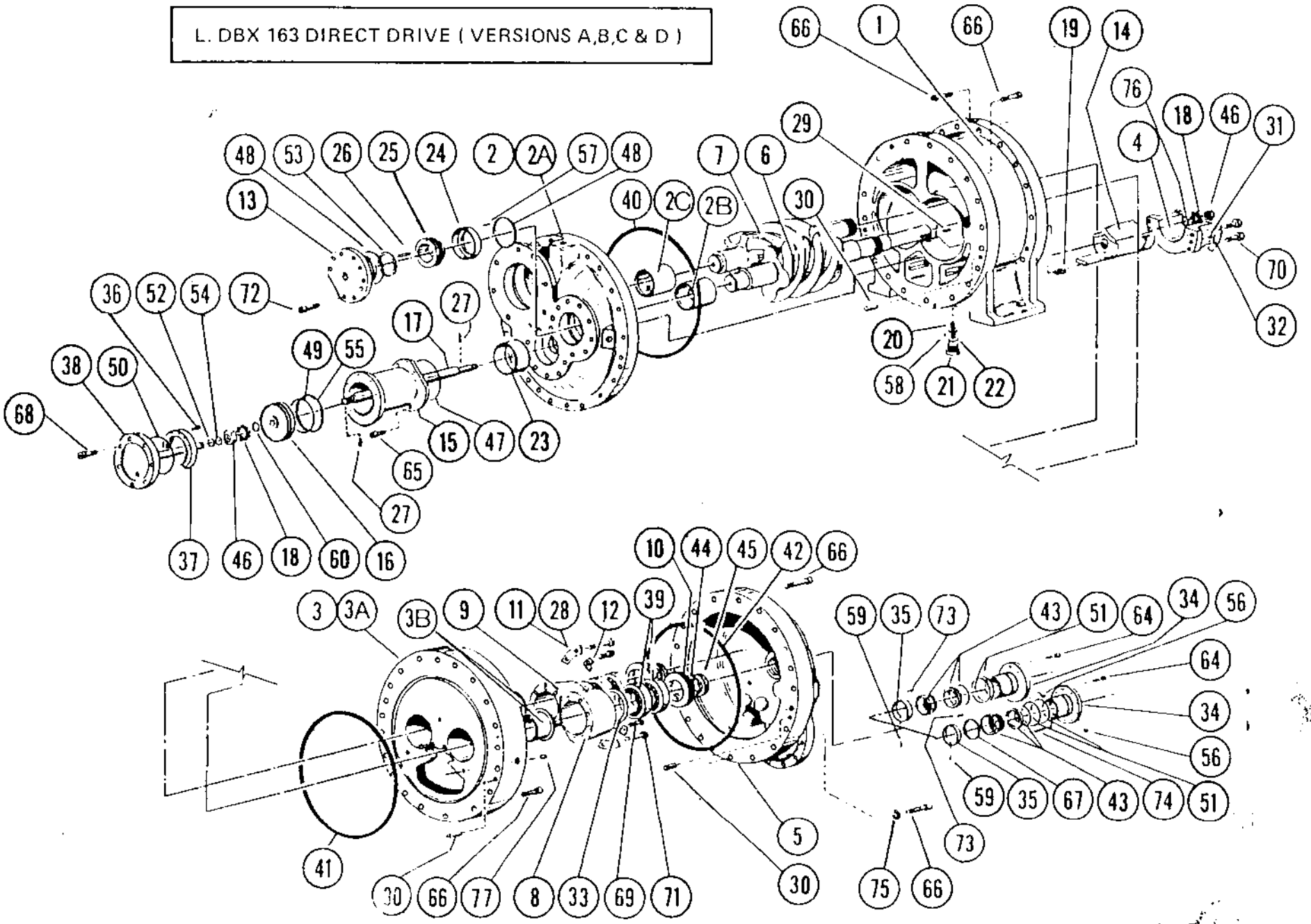


FIGURE 31

DBX 163 DIRECT DRIVE (VERSION A & B)[1]

ITEM	DESCRIPTION	QTY.	(1610) PART NO.	(1613) PART NO.	(1615) PART NO.
1	Housing, Rotor	1	HSG58X	HSG59X	HSG59X
2	Housing Assembly, Inlet	1	HSG60AX	HSG60AX	HSG60AX
2A	Inlet Housing	1	HSG60X	HSG60X	HSG60X
2B	Journal Bearing, Male Rotor	1	BRG72	BRG72	BRG72
2C	Journal Bearing, Female Rotor	1	BRG73	BRG73	BRG73
3	Plate Assembly – Outlet End	1	[1]PLT824AX	[1]PLT824AX	[1]PLT824AX
3A	Plate Outlet End	1	PLT824X	PLT824X	PLT824X
3B	Journal Bearing	2	BRG71	BRG71	BRG71
4	Guide, Slide	1	GDE9X	GDE9X	GDE9X
5	Cover, Outlet End	1	COV84X	COV84X	COV84X
6	Rotor, Male	1	ROR22	ROR24	ROR24
7	Rotor, Female	1	ROR23	ROR25	ROR25
8	Sleeve (Bearing)	1	SLV13	SLV13	SLV13
9	Sleeve (Bearing)	1	SLV14	SLV14	SLV14
10	Nut (Bearing)	2	NUT28	NUT28	NUT28
11	Plate, Locking	2	PLT1044T1	PLT1044T1	PLT1044T1
12	Plate, Locking	2	[2]	[2]	[2]
13	Cover, Balance Piston	1	[1]COV85	[1]COV85	[1]COV85
14	Valve, Sliding (High Temp. Compressor)	1	[1]VAL506X	[1]VAL507X	[1]VAL507X
14	Valve, Sliding (Low Temp. Compressor)	1	[1]VAL514X	[3]	[1]VAL515X
15	Cylinder, Unloader Piston	1	CYL20	CYL20	CYL20
16	Piston, Unloader	1	[1]PST71X	[1]PST71X	[1]PST71X
17	Spindle Assembly	1	[1]SPN1AX	[1]SPC2AX	[1]SPC2AX
18	Washer, Lock	2	[1]WAS60	[1]WAS60	[1]WAS60
19	Guide, Block	1	GDE10	GDE10	GDE10
20	Spindle, Guide Block	1	SPN3	SPN3	SPN3
21	Plug, Spindle Guide	1	PLU105	PLU105	PLU105
22	Gasket, Plug	1	GKT238	GKT238	GKT238
23	Spacer, Piston	1	SPC89	N/R	N/R
24	Sleeve, Balancing Piston	1	SLV15[4]	SLV15[4]	SLV15[4]
25	Piston, Balancing	1	PST72	PST72	PST72
26	Key, Balancing Piston	1	KEY5	KEY5	KEY5
27	Pin, Dowel		N/R	N/R	N/R
28	Plate, Locking	2	PLT1044T2	PLT1044T2	PLT1044T2
29	Key, Male Rotor	1	KEY6	KEY6	KEY6
30	Pin, Dowel	6	[1]PIN87T1	[1]PIN87T1	[1]PIN87T1
31	Pin, Dowel	2	PIN51T3	PIN51T3	PIN51T3
32	Plate, Locking	2	PLT1043	PLT1043	PLT1043
33	Shim (Bearing)	2	SHM 8	SHM 8	SHM 8
34	Housing, Seal (Freon Compressor)	1	HSG61	HSG61	HSG61
34	Housing, Seal (Ammonia Compressor)	1	HSG99	HSG99	HSG99
35	Ring, Seal (Freon Compressor)	1	SLV16	SLV16	SLV16
35	Ring, Seal (Ammonia Compressor)	1	RNG139	RNG139	RNG139
36	Screw, Soc HD		N/R	034P09	N/R
37	Spacer, Piston		N/R	SPC127T2	N/R

ITEM	DESCRIPTION	QTY.	(1610) PART NO.	(1613) PARY NO.	(1615) PART NO.
38	Plate & Injection Tube Assembly	1	[1]PLT627AX	[1]PLT628AX	[1]PLT628AX
39	Bearing, Thrust	2 pr	BRG75	BRG75	BRG75
40	"O" Ring (Parker No. 2-385-C-147-7)	1	RNG203	RNG203	RNG203
41	"O" Ring (Parker No. 2-385 C-147-7)	1	RNG203	RNG203	RNG203
42	"O" Ring (Parker No. 2-385-C-147-7)	1	RNG203	RNG203	RNG203
43	Shaft Seal (Freon Compressor)	1	SEL24A	SEL24A	SEL24A
43	Seal Assembly (Ammonia Compressor)	1	SEL31A	SEL31A	SEL31A
44	Washer, Lock (SAE W-11)	2	WAS94	WAS94	WAS94
45	Nut, Lock (SAE N-11)	2	NUT65	NUT65	NUT65
46	Nut, Lock (SAE N-07)	2	[1]NUT82	[1]NUT82	[1]NUT82
47	"O" Ring (Parker No. 2-350-C-147-7)	1	RNG202	RNG202	RNG202
48	"O" Ring (Parker No. 2-346 C-147-7)	2	RNG206	RNG206	RNG206
49	"O" Ring (Parker No. 2-344-C-147-7)	1	RNG205	RNG205	RNG205
50	"O" Ring (Parker No. 2-360 C-147-7)	1	RNG207	RNG207	RNG207
51	"O" Ring (Parker No. 2-238 C-147-7)	2	RNG135	RNG135	RNG135
52	"O" Ring (Parker No. 2-115-C-147-7)	1	[1]RNG204	[1]RNG204	[1]RNG204
53	Ring, Retaining (Truarc No. 5100-200)	1	RNG212	RNG212	RNG212
54	Ring – Slipper Seal	1	[1]RNG129X	[1]RNG129X	[1]RNG129X
55	Ring – Slipper Seal	1	RNG130	RNG130	RNG130
56	Elbow 90°	1	[1]ELL75	[1]ELL75	[1]ELL75
57	Pin, Dowel (1/16 Dia. x 1/2 LG)	1	0602P03	0602P03	0602P03
58	Pin, Spring (1/16 Dia. x 7/8 LG)	1	PIN53	PIN53	PIN53
59	Pin, Spring (1/8 Dia. x 1/8 LG)	1	PIN80T3	PIN80T3	PIN80T3
60					
61					
62					
63					
64	Screw, Soc HD Cap – 3/8 – 16 x 1 1/2 LG	6	036P13	036P13	036P13
65	Screw, Soc HD Cap – 1/2 – 13 x 1 3/4 LG	10	SCR94	SCR94	SCR94
66	Screw, Soc HD Cap – 5/8 – 11 x 2" LG	62	0348P19	0348P19	0348P19
67	Seal, Lip (Freon Compressor)	1	SEL25	SEL25	SEL25
68	Screw, Soc HD Cap 1/2 – 13 x 2 1/4 LG	8	SCR95	SCR95	SCR95
69	Screw, HEX HD Cap – 1/4 – 16 x 5/8 LG	2	012P07	012P07	012P07
70	Screw, HEX HD Cap – 3/8 – 16 x 1 1/2 LG	4	012P15	012P15	012P15
71	Screw, HEX HD Cap – 1/2 – 13 x 3 3/4 LG	8	014P33	014P33	014P33
72	Screw, Soc HD Cap – 5/8 – 11 x 1 3/4 LG	8	0348P17	0348P17	0348P17
73	Pin, Spring – 1/8 Dia x 3/4 LG	1	PIN80T6	PIN80T6	PIN80T6
74	Pin, Spring (Freon Compressor)	1	PIN76	PIN76	PIN76
75	Gasket, Bolt	1	GKT254	GKT254	GKT254
76	Shim		N/R	N/R	N/R
77					

[1] Consult Factory—Part No. varies with application & accessories.
[2] Select part at assembly—use combination of PLT1089 &/or PLT1090 for a total of 2 locking plates.
[3] Low temperature not available with this compressor.
[4] Can use SLV61.

DBX 163 DIRECT DRIVE (VERSION C)

ITEM	DESCRIPTION	QTY.	(1610) PART NO.	(1613) PART NO.	(1615) PART NO.
1	Housing, Rotor	1	HSG58T1	HSG59T1	HSG59T1
2	Housing Assembly, Inlet	1	HSG60AT1	HSG60AT1	HSG60AT1
2A	Inlet Housing	1	HSG60T1	HSG60T1	HSG60T1
2B	Journal Bearing, Male Rotor	1	BRG72	BRG72	BRG72
2C	Journal Bearing, Female Rotor	1	BRG73	BRG73	BRG73
3	Plate Assembly – Outlet End (Ultra-Low)	1	PLT2151AT1	[5]	PLT2151AT1
3	Plate Assembly – Outlet End (Hi & Low Temperature)	1	PLT824AT1	PLT824AT1	PLT824AT1
3A	Plate, Outlet End (Hi & Lo Temperature)	1	PLT824T1	PLT824T1	PLT824T1
3B	Journal Bearing	2	BRG71	BRG71	BRG71
4	Guide, Slide	1	GDE9	GDE9	GDE9
5	Cover, Outlet End	1	COV84T1	COV84T1	COV84T1
6	Rotor, Male	1	ROR22	ROR24	ROR24
7	Rotor, Female	1	ROH23	ROR25	ROR25
8	Sleeve (Bearing)	1	SLV13	SLV13	SLV13
9	Sleve (Bearing)	1	SLV14	SLV14	SLV14
10	Nut (Bearing)	2	NUT28	NUT28	NUT28
11	Plate, Locking	2	PLT1044T1 [2]	PLT1044T1 [2]	PLT1044T1 [2]
12	Plate, Locking	2			
13	Cover, Balance Piston	1	COV85 [4]	COV85 [4]	COV85 [4]
14	Valve, Sliding (High Temp. Compressor)	1	VAL738T4	VAL739T4	VAL739T4
14	Valve, Sliding (Low Temp. Compressor)	1	VAL738T3	[3]	VAL739T3
14	Valve, Sliding (Ultra-Low)	1	VAL738T1	[5]	VAL739T1
15	Cylinder, Unloader Piston	1	CYL20	CYL20	CYL20
16	Piston, Unloader	1	PST71	PST71	PST71
17	Spindle Assembly	1	SPN1A	SPN2A	SPN2A
18					
19	Guide, Block	1	GDE10	GDE10	GDE10
20	Spindle, Guide Block	1	SPN3	SPN3	SPN3
21	Plug, Spindle Guide	1	PLU105	PLU105	PLU105
22	Gasket, Plug	1	GKT238	GKT238	GKT238
23	Spacer, Piston	1	SPC89	N/R	N/R
24	Sleeve, Balancing Piston	1	SLV15 [7]	SLV15 [7]	SLV15 [7]
25	Piston, Balancing	1	PST72	PST72	PST72
26	Key, Balancing Piston	1	KEY5	KEY5	KEY5
27	Pin, Dowel	2	PIN82T3	PIN82T3	PIN82T3
28	Plate, Locking	2	PLT1044T2	PLT1044T2	PLT1044T2
29	Key, Male Rotor	1	KEY6	KEY6	KEY6
30	Pin, Dowel	6	PIN87T1	PIN87T1	PIN87T1
31	Pin, Dowel	2	PIN51T3	PIN51T3	PIN51T3
32	Plate, Locking	2	PLT1043	PLT1043	PLT1043
33	Shim (Bearing)	2	SHM8	SHM8	SHM8
34	Housing, Seal	1	HSG138	HSG138	HSG138
35	Ring, Seal	1	RNG251	RNG251	RNG251
36	Screw, Soc. HD	2	N/R	034P09	N/R
37	Spacer, Piston	2	N/R	SPC127T2	N/R

ITEM	DESCRIPTION	QTY.	(1610) PART NO.	(1613) PART NO.	(1615) PART NO.
38	Plate & Injection Tube Assembly	1	PLT1066AT1	PLT1066AT1	PLT1066AT1
39	Bearing, Thrust (Freon Compressor)	2 pr.	BRG74	BRG74	BRG74
39	Bearing, Thrust (Ammonia Compressor)	2 pr.	BRG75	BRG75	BRG75
40	"O" Ring (Parker No. 2-385-C-147-7)	1	RNG203	RNG203	RNG203
41	"O" Ring (Parker No. 2-385-C-147-7)	1	HNG203	RNG203	RNG203
42	"O" Ring (Parker No. 2-385-C-147-7)	1	RNG203	RNG203	RNG203
43	Seal Assembly	1	SEL45T1	SEL45T1	SEL45T1
44	Washer, Lock (SAE W-11)	2	WAS94	WAS94	WAS94
45	Nut, Lock (SAE N-11)	2	NUT65	NUT65	NUT65
46	Ring, Retaining	2	RNG286	RNG286	RNG286
47	"O" Ring (Parker No. 2-350-C-147-7)	1	RNG202	RNG202	RNG202
48	"O" Ring (Parker No. 2-346-C-147-7)	2	RNG206	RNG206	RNG206
49	"O" Ring (Parker No. 2-344-C-147-7)	1	RNG205	RNG205	RNG205
50	"O" Ring (Parker No. 2-360-C-147-7)	1	RNG207	RNG207	RNG207
51	"O" Ring (Parker No. 2-238-C-147-7)	2	HNG135	RNG135	RNG135
52	"O" Ring (Parker No. 2-118-C-147-7)	1	RNG256	RNG256	RNG256
53	Ring, Retaining (Truarc No. 5100-200)	1	RNG212	RNG212	RNG212
54	Ring – Slipper Seal	1	RNG255	RNG255	RNG255
55	Ring – Slipper Seal	1	HNG130	RNG130	RNG130
56	Elbow 90°	1	ELL136T1	ELL136T1	ELL136T1
57	Pin, Dowel (3/16 Dia. x 1/2 Lg.)	1	0602P03	0602P03	0602P03
58	Pin, Spring (3/16 Dia. x 3/8 Lg.)	1	PIN53	PIN53	PIN53
59	Pin, Spring (1/8 Dia. x 3/8 Lg.)	1	PIN80T3	PIN80T3	PIN80T3
60	"O" Ring (Parker No. 2-220-C-147-7)	1	RNG275	RNG275	RNG275
61					
62					
63					
64	Screw, Soc HD Cap – 3/8 – 16 x 1 1/2 Lg	6	036P13	036P13	036P13
65	Screw, Soc HD Cap – 1/2 – 13 x 1 3/4 Lg	10	SCR94	SCR94	SCR94
66	Screw, Soc HD Cap – 5/8 – 11 x 2" Lg	62	0348P19	0348P19	0348P19
67					
68					
69	Screw, Soc HD Cap – 1/2 – 13 x 2 3/4 Lg	8	SCR95	SCR95	SCR95
70	Screw, Hex HD Cap – 3/8 – 16 x 5/8 Lg	2	012P07	012P07	012P07
71	Screw, Hex HD Cap – 3/8 – 16 x 1 1/2 Lg	4	012P15	012P15	012P15
	Screw, Hex HD Cap – 1/2 – 13 x 3 3/4 Lg	8	014P33	014P33	014P33
72	Screw, Soc HD Cap – 5/8 – 11 x 1 3/4 Lg	8	0348P17	0348P17	0348P17
73	Pin, Spring – 1/8 Dia. x 3/4 Lg	1	PIN80T6	PIN80T6	PIN80T6
74					
75	Gasket, Bolt	1	GKT254 [6]	GKT254 [6]	GKT254 [6]
76	Shim	AR			
77					

[1] Consult factory—part number varies with application.
[2] Select part at assembly—use combination of PLT1089 &/or PLT1090 for a total of 2 locking plates.
[3] Low temperature not available with this compressor.
[4] Specify cover with 4 tapped oil holes.
[5] Ultra-low temperature not available with this compressor.
[6] Use combination of SHM19T1 & SHM19T2 to obtain approximately .004 min. axial clr.
[7] Can use SLV61.

DBX 163 DIRECT DRIVE (VERSION D)

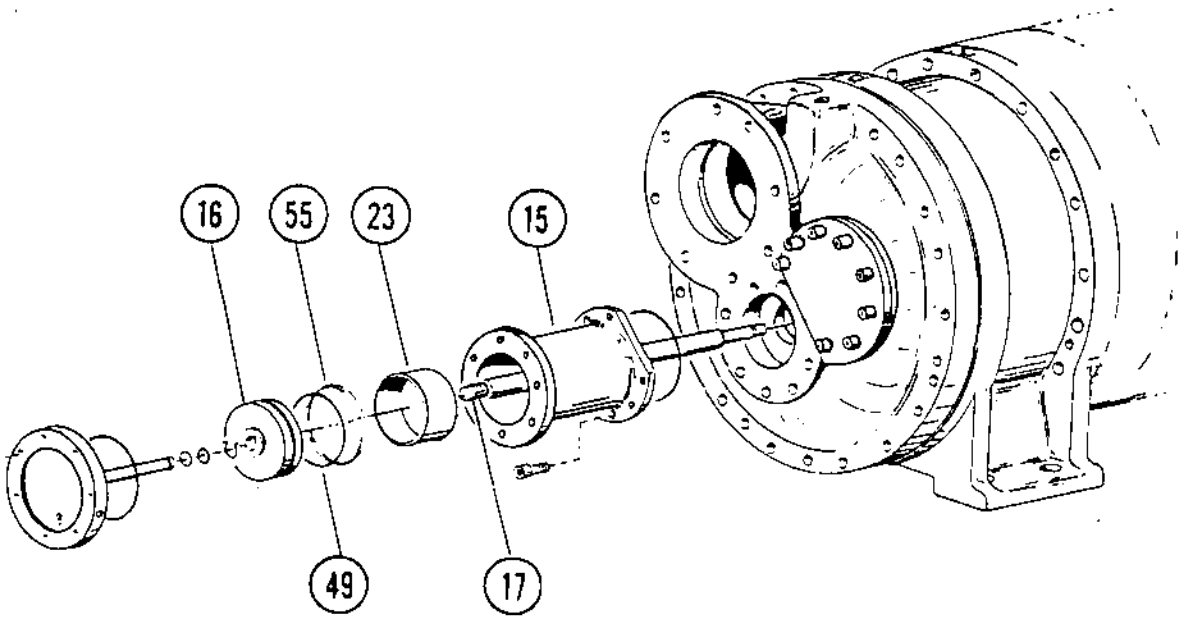
ITEM	DESCRIPTION	QTY.	(1610) PART NO.	(1613) PART NO.	(1615) PART NO.
1	Housing, Rotor	1	HSG58T2	HSG59T2	HSG59T2
2	Housing Assembly, Inlet	1	HSG60AT2	HSG60AT2	HSG60AT2
2A	Inlet Housing	1	HSG60T2	HSG60T2	HSG60T2
2B	Journal Bearing, Male Rotor	1	BRG72	BRG72	BRG72
2C	Journal Bearing, Female Rotor	1	BRG73	BRG73	BRG73
3	Plate Assembly – Outlet End (Ultra-low)	1	PLT2151AT2	[4]	PLT2151AT2
3	Plate Assembly – Outlet End (Hi & Low Temperature)	1	PLT824AT2	PLT824AT2	PLT824AT2
3A	Plate Outlet End (Hi & Low Temp.)	1	PLT824T2	PLT824T2	PLT824T2
3B	Journal Bearing	2	BRG71	BRG71	BRG71
4	Guide, Slide	1	GDE9	GDE9	GDE9
5	Cover, Outlet End	1	COV84T2	COV84T2	COV84T2
6	Rotor, Male	1	ROR22	ROR24	ROR24
7	Rotor, Female	1	ROR23	ROR25	ROR25
8	Sleeve (Bearing)	1	SLV13	SLV13	SLV13
9	Sleeve (Bearing)	1	SLV14	SLV14	SLV14
10	Nut (Bearing)	2	NUT28	NUT28	NUT28
11	Plate, Locking	2	PLT1044T1	PLT1044T1	PLT1044T1
12	Plate, Locking	2	[2]	[2]	[2]
13	Cover, Balance Piston	1	COV85	COV85	COV85
14	Valve, Sliding (High Temp. Compressor)	1	VAL738T4	VAL739T4	VAL739T4
14	Valve, Sliding (Low Temp. Compressor)	1	VAL738T3	[3]	VAL739T3
14	Valve, Sliding (Ultra-low)	1	VAL738T1	[4]	VAL739T1
15	Cylinder, Unloader Piston	1	CYL20	CYL20	CYL20
16	Piston, Unloader	1	PST71	PST71	PST71
17	Spindle Assembly	1	SPN1A	SPN2A	SPN2A
18					
19	Guide, Block	1	GDE10	GDE10	GDE10
20	Spindle, Guide Block	1	SPN3	SPN3	SPN3
21	Plug, Spindle Guide	1	PLU105	PLU105	PLU105
22	Gasket, Plug	1	GKT238	GKT238	GKT238
23	Spacer, Piston	1	SPC89	N/R	N/R
24	Sleeve, Balancing Piston	1	SLV61	SLV61	SLV61
25	Piston, Balancing	1	PST72	PST72	PST72
26	Key, Balancing Piston	1	KEY5	KEY5	KEY5
27	Pin, Dowel	2	PIN82T3	PIN82T3	PIN82T3
28	Plate, Locking	2	PLT1044T2	PLT1044T2	PLT1044T2
29	Key, Male Rotor	1	KEY6	KEY6	KEY6
30	Pin, Dowel	6	PIN87T1	PIN87T1	PIN87T1
31	Pin, Dowel	2	PIN51T3	PIN51T3	PIN51T3
32	Plate, Locking	2	PLT1043	PLT1043	PLT1043
33	Shim (Bearing)	2	SHM8	SHM8	SHM8
34	Housing, Seal	1	HSG142	HSG142	HSG142
35	Ring, Seal	1	RNG251	RNG251	RNG251
36	Screw, Soc HD	2	N/R	034P09	N/R
37	Spacer, Piston	2	N/R	SPC127T2	N/R

ITEM	DESCRIPTION	QTY.	(1610) PART NO.	(1613) PART NO.	(1615) PART NO.
38	Plate & Injection Tube Assembly	1	PLT1066AT1	PLT1066AT1	PLT1066AT1
39	Bearing, Thrust (Freon Compressor)	2 pr.	BRG74	BRG74	BRG74
39	Bearing, Thrust (Ammonia Compressor)	2 pr.	BRG75	BRG75	BRG75
40	Gasket (Inlet)	1	GKT466	GKT466	GKT466
41	Gasket (Rotor Hsg.)	1	GKT467	GKT467	GKT467
42	Gasket (Outlet End)	1	GKT468	GKT468	GKT468
43	Seal Assembly	1	SEL45T1	SEL45T1	SEL45T1
44	Washer, Lock (SAE W-11)	2	WAS94	WAS94	WAS94
45	Nut, Lock (SAE N-11)	2	NUT65	NUT65	NUT65
46	Ring, Retaining	2	RNG286	RNG286	RNG286
47	"O" Ring (Parker No. 2 350 C-147-7)	1	RNG202	RNG202	RNG202
48	"O" Ring (Parker No. 2 346 C-147-7)	2	RNG206	RNG206	RNG206
49	"O" Ring (Parker No. 2 344 C-147-7)	1	RNG205	RNG205	RNG205
50	"O" Ring (Parker No. 2 360 C-147-7)	1	RNG207	RNG207	RNG207
51	"O" Ring (Parker No. 2 238 C-147-7)	2	RNG135	RNG135	RNG135
52	"O" Ring (Parker No. 2 118 C-147-7)	1	RNG256	RNG256	RNG256
53	Ring, Retaining (Truarc No. 5100-200)	1	RNG212	RNG212	RNG212
54	Ring – Slipper Seal	1	RNG255	RNG255	RNG255
55	Ring – Slipper Seal	1	RNG130	RNG130	RNG130
56	Elbow 90°	1	ELL136T1	ELL136T1	ELL136T1
57	Pin, Dowel (1/16 Dia. x 1/2 Lg.)	1	0602P03	0602P03	0602P03
58	Pin, Spring (1/16 Dia. x 7/8 Lg.)	1	PIN53	PIN53	PIN53
59	Pin, Spring (1/8 Dia. x 1/8 Lg.)	1	PIN80T3	PIN80T3	PIN80T3
60	"O" Ring (Parker No. 2 220 C-147-7)	1	RNG275	RNG275	RNG275
61					
62					
63					
64	Screw, Soc HD Cap – 3/8 – 16 x 1 1/2 Lg.	6	036P13	036P13	036P13
65	Screw, Soc HD Cap – 1/2 – 13 x 1 3/4 Lg.	10	SCR94	SCR94	SCR94
66	Screw, Soc HD Cap – 5/8 – 11 x 2" Lg.	62	0348P19	0348P19	0348P19
67					
68	Screw, Soc HD Cap – 1/2 – 13 x 2 1/4 Lg.	8	SCR95	SCR95	SCR95
69	Screw, Hex HD Cap – 3/8 – 16 x 5/8 Lg.	2	012P07	012P07	012P07
70	Screw, Hex HD Cap – 3/8 – 16 x 1 1/2 Lg.	4	012P15	012P15	012P15
71	Screw, Hex HD Cap – 1/2 – 13 x 3 1/4 Lg.	8	014P33	014P33	014P33
72	Screw, Soc HD Cap – 5/8 – 11 x 1 3/4 Lg.	8	0348P17	0348P17	0348P17
73	Pin, Spring – 1/8 Dia. x 3/4 Lg.	1	PIN80T6	PIN80T6	PIN80T6
74					
75	Gasket, Bolt	1	GKT254	GKT254	GKT254
76	Shim	AR	[5]	[5]	[5]
77	Plug, Pipe – Flush Seal	1	PLU142T3	PLU142T3	PLU142T3

[1] Consult Factory – Part number varies with application.
[2] Select part at assembly – use combination of PLT1089 and/or PLT1090 for a total of 2 locking plates.
[3] Low temperature not available with this compressor.
[4] Ultra low temperature not available with this compressor.
[5] Use combination of SHM1911 and SHM1912 to obtain approximately .004 inch axial clr.

M. DBX 163 WITH OVERSIZE UNLOADER

FIGURE 32

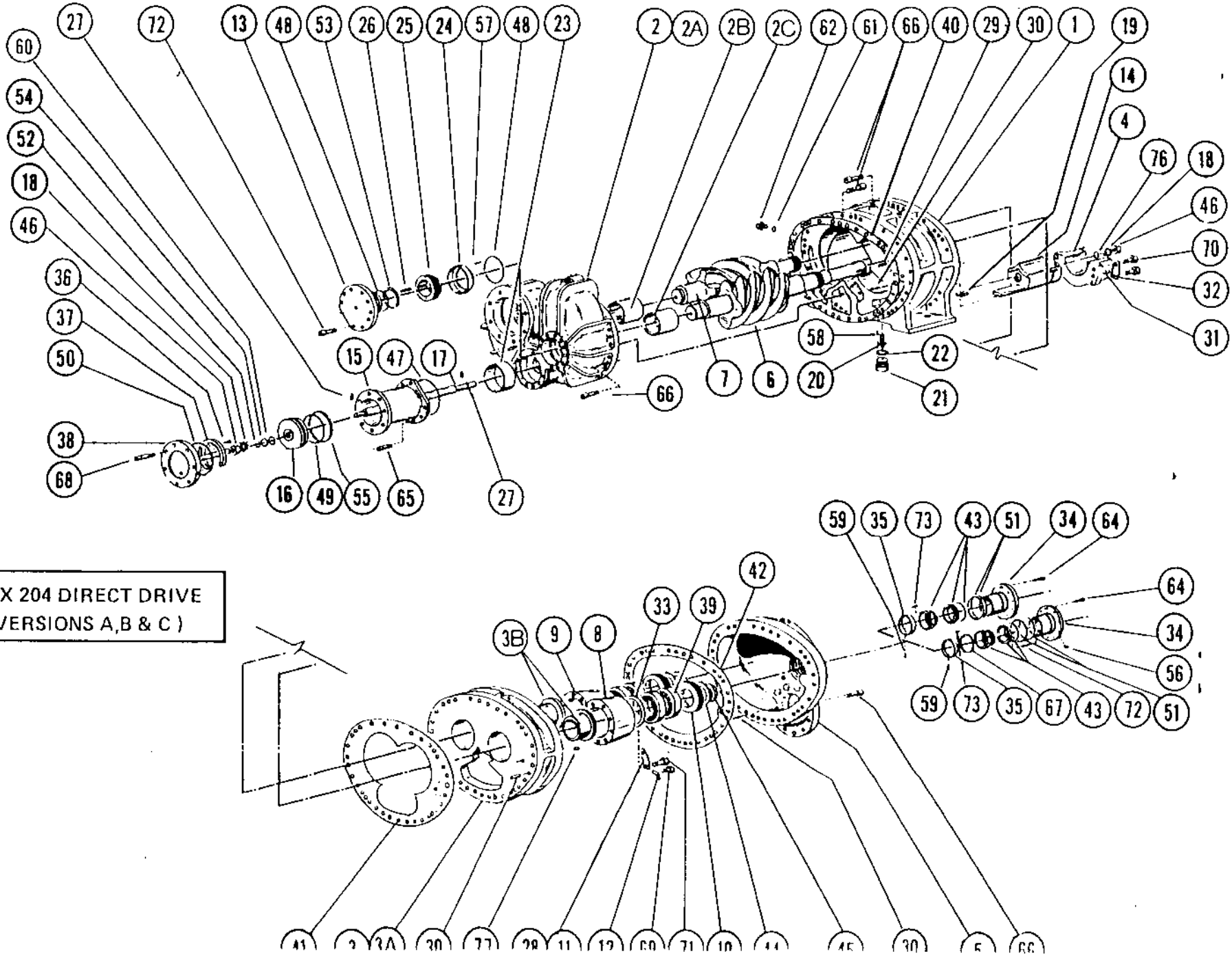


ITEM	DESCRIPTION	QTY.	1610 A & B	1610 C & D	1615 A & B	1615 C & D
15	Cylinder, Unloader	1	CYL24	CYL24	CYL24	CYL24
16	Piston, Unloader	1	PST109[1]	PST110	PST109[1]	PST110
17	Spindle Assembly	1	SPN10A[1]	SPN12A	SPN11A[1]	SPN13A
23	Spacer, Inboard	1	SPC124	SPC124	N/R	N/R
49	"O" Ring	1	RNG206	RNG206	RNG206	RNG206
55	Ring, Slipper Seal	1	RNG242	RNG242	RNG242	RNG242

For part number of part not identified, see DBX 163 Direct Drive Charts.

[1] Consult factory – part number varies with application.

N. DBX 204 DIRECT DRIVE
(VERSIONS A,B & C)



DBX 204 DIRECT DRIVE (VERSION A & B)[1]

ITEM	DESCRIPTION[2]	QTY.	(2010) PART NO.	(2013) PART NO.	(2015) PART NO.
1	Housing, Rotor	1	609612	609670	609670
2	Housing Assembly – Inlet	1	609689	609689	609689
2A	Housing, Inlet	1	609613	609613	609613
2B	Journal Bearing, Male Rotor	1	BRG115	BRG115	BRG115
2C	Journal Bearing, Female Rotor	1	BRG116	BRG116	BRG116
3	Plate Assembly – Outlet End	1	609695[1]	609695[1]	609695[1]
3A	Plate, Outlet End	1	609614	609614	609614
3B	Journal Bearing	2	BRG70	BRG70	BRG70
4	Guide, Slide	1	609615	609615	609615
5	Cover, Outlet End	1	609627	609627	609627
6	Rotor, Male	1	ROR14	ROR19	ROR19
7	Rotor, Female	1	ROR16	ROR21	ROR21
8	Sleeve (Bearing), Male Rotor	1	SLV53	SLV53	SLV53
9	Sleeve (Bearing), Female Rotor	1	SLV54	SLV54	SLV54
10	Nut (Bearing)	2	NUT77	NUT77	NUT77
11	Plate, Locking (4 1/4 between Centers)	2	PLT1046T1	PLT1046T1	PLT1046T1
12	Plate, Locking	2	PLT1052	PLT1052	PLT1052
13	Cover, Balance Piston	1	COV140[1]	COV140[1]	COV140[1]
14	Valve, Sliding (High Temp. Compressor)	1	609632[1]	609675[1]	609675[1]
14	Valve, Sliding (Low Temp. Compressor)	1	609632B[1]	[2]	609675B[1]
15	Cylinder, Unloader Piston	1	CYL23	CYL23	CYL23
16	Piston, Unloader	1	609635[1]	609635[1]	609635[1]
17	Spindle Assembly	1	609636[1]	609676[1]	609676[1]
18	Washer, Lock	2	WAS60[1]	WAS60[1]	WAS60[1]
19	Guide, Block	1	GDE10	GDE10	GDE10
20	Spindle, Guide Block	1	SPN3	SPN3	SPN3
21	Plug, Spindle Guide	1	PLU105	PLU105	PLU105
22	Gasket, Plug	1	GKT238	GKT238	GKT238
23	Spacer, Piston	1	SPC121	N/R	N/R
24	Sleeve, Balance Piston	1	SLV55	SLV55	SLV55
25	Piston, Balance	1	PST108	PST108	PST108
26	Key, Balance Piston	1	KEY5	KEY5	KEY5
27	Pin, Dowel	2	PIN82T3[1]	PIN82T3[1]	PIN82T3[1]
28	Plate, Locking (3 1/4 Between Centers)	2	PLT1046T2	PLT1046T2	PLT1046T2
29	Key, Male Rotor	1	KEY11	KEY11	KEY11
30	Pin, Dowel	6	PIN87T1[1]	PIN87T1[1]	PIN87T1[1]
31	Pin, Dowel	2	PIN51T3	PIN51T3	PIN51T3
32	Plate, Locking	2	PLT1045	PLT1045	PLT1045
33	Shims (Bearing)	2	SHM18	SHM18	SHM18
34	Housing, Seal (Freon Compressor)	1	HSG63A	HSG63A	HSG63A
34	Housing, Seal (Ammonia Compressor)	1	HSG97[1]	HSG97[1]	HSG97[1]
35	Ring, Seal (Freon Compressor)	1	SLV10	SLV10	SLV10
35	Ring, Seal (Ammonia Compressor)	1	RNG138	RNG138	RNG138
36	Screw, Soc HD	1	N/R	034P09	N/R
37	Spacer, Piston	1	N/R	SPC90	N/R

ITEM	DESCRIPTION	QTY.	(2010) PART NO.	(2013) PART NO.	(2015) PART NO.
38	Plate & Injection Tube Assembly	1	ASY986X[1]	PLT640A[1]	ASY989X[1]
39	Bearing, Thrust	2 pr	BRG80	BRG80	BRG80
40	Gasket (Inlet)	1	GKT390	GKT390	GKT390
41	Gasket (Rot Casing Outlet)	1	GKT389	GKT389	GKT389
42	Gasket (Outlet End Cover)	1	GKT388	GKT388	GKT388
43	Shaft, Seal (Freon Compressor)	1	SEL22A	SEL22A	SEL22A
43	Seal Assembly (Ammonia Compressor)	1	SEL32A[1]	SEL32A[1]	SEL32A[1]
44	Washer, Lock (SAE W 14)	2	WAS93	WAS93	WAS93
45	Nut, Lock (SAE N 14)	2	NUT56	NUT56	NUT56
46	Nut, Lock (SAE N 07)	2	NUT82[1]	NUT82[1]	NUT82[1]
47	"O" Ring (Parker No. 2 255-C-147 7)	1	RNG211	RNG211	RNG211
48	"O" Ring (Parker No. 2-431-C-147 7)	2	RNG209	RNG209	RNG209
49	"O" Ring (Parker No. 2 428-C-147 7)	1	RNG210	RNG210	RNG210
50	"O" Ring (Parker No. 2-360-C 147 7)	1	RNG207	RNG207	RNG207
51	"O" Ring (Parker No. 2 242 C 147 7)	2	RNG166	RNG166	RNG166
52	"O" Ring (Parker No. 2-115-C 147 7)	1	RNG204[1]	RNG204[1]	RNG204[1]
53	Ring, Retaining (Truarc No. 5100-268)	1	RNG213	RNG213	RNG213
54	Ring, Slipper Seal	1	RNG129X[1]	RNG129X[1]	RNG129X[1]
55	Ring, Slipper Seal	1	RNG131	RNG131	RNG131
56	Elbow – 90°	1	ELL75[1]	ELL75[1]	ELL75[1]
57	Pin, Dowel – 1/16 Dia. x 1/2 Lg	1	0602P03	0602P03	0602P03
58	Pin, Spring (5/16 Dia. x 7/8 Lg)	1	PIN53	PIN53	PIN53
59	Pin, Spring (1/8 Dia. x 3/4 Lg)	1	PIN80T3	PIN80T3	PIN80T3
60					
61	Gasket (Nozzle)	1	GKT245X[1]	GKT245X[1]	GKT245X[1]
62	Nozzle (oil injection)	1	NOZ1XT1[1]	NOZ1XT2[1]	NOZ1XT2[1]
63					
64	Screw, Soc HD Cap – 1/8 – 16 x 1 1/4 Lg.	6	036P13	036P13	036P13
65	Screw, Soc HD Cap – 1/2 – 13 x 1 1/2 Lg	10	SCR124	SCR124	SCR124
66	Screw, Soc HD Cap 5/8 – 11 x 2" Lg	24	0348P19	0348P19	0348P19
67	Seal, Lip (Freon Compressor)	1	SEL23	SEL23	SEL23
68	Screw, Soc HD Cap – 1/2 – 13 x 2 3/4 Lg.	8	SCR95	SCR95	SCR95
69	Screw, Hex HD Cap – 1/4 – 16 x 1/2 Lg.	2	012P07	012P07	012P07
70	Screw, Hex HD Cap – 1/4 16 x 1 1/2 Lg.	4	012P15	012P15	012P15
71	Screw, Hex HD Cap – 1/2 13 x 4 1/4 Lg	8	014P37	014P37	014P37
72	Screw, Soc HD Cap 1/8 – 11 x 1 1/4 Lg.	10	0348P17	0348P17	0348P17
73	Pin, Spring – 1/8 Dia. x 1/4 Lg	1	PIN80T6	PIN80T6	PIN80T6
74	Pin, Spring (Freon compressor)	1	PIN76	PIN76	PIN76
75					
76	Shim		N/R	N/R	N/R
77					

[1] Consult Factory – part number varies with application and accessories
[2] Low temperature version not available with this compressor

DBX 204 DIRECT DRIVE (VERSION C)

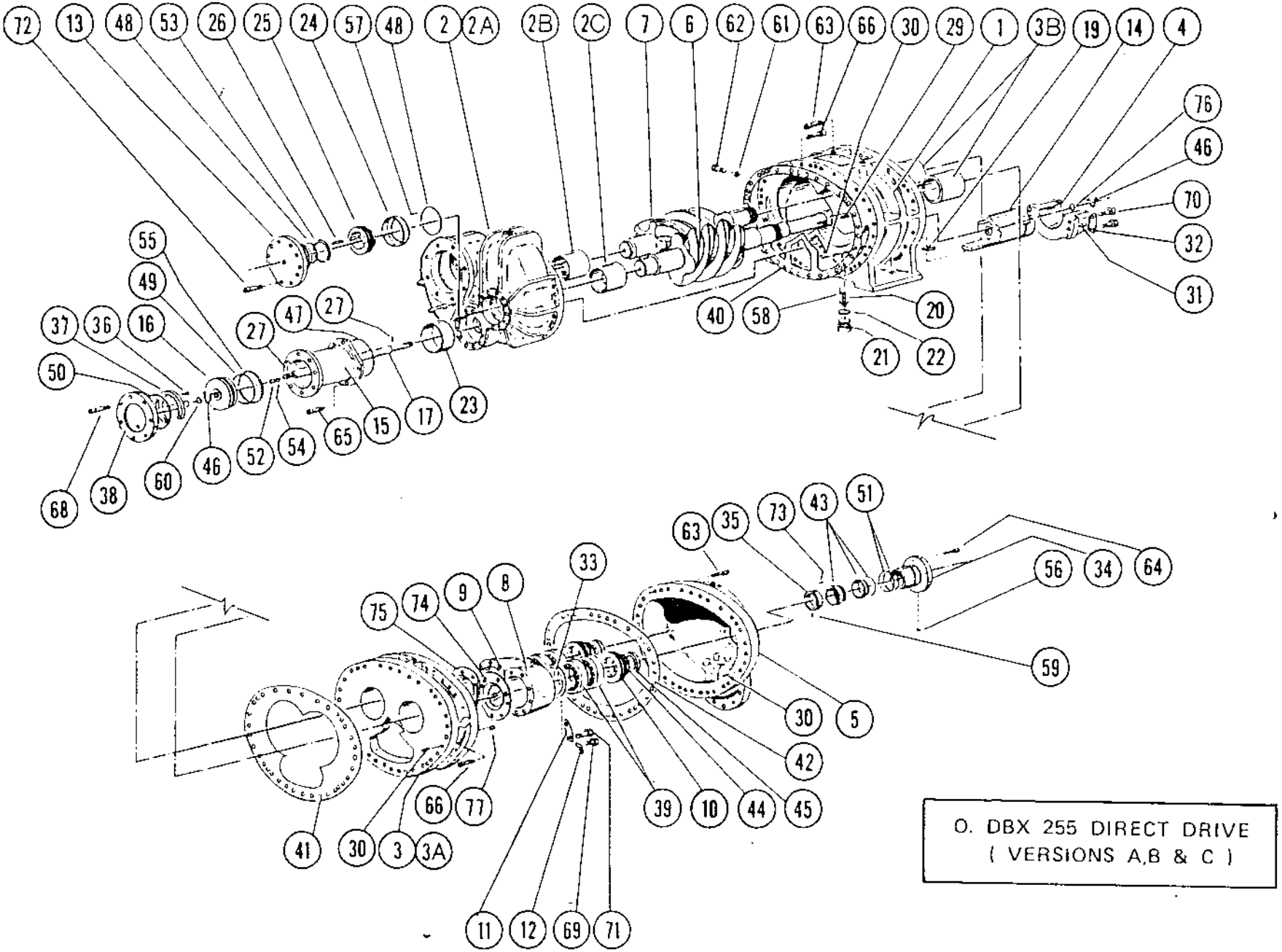
ITEM	DESCRIPTION	QTY.	(2010) PART NO.	(2013) PART NO.	(2015) PART NO.	(2018) PART NO.
1	Housing, Rotor	1	HSG121T1	HSG120T1	HSG120T1	HSG134T1
2	Housing Assembly – Inlet	1	HSG122AT1	HSG122AT1	HSG122AT1	HSG122AT1
2A	Housing, Inlet	1	HSG122T1	HSG122T1	HSG122T1	HSG122T1
2B	Journal Bearing, Male Rotor	1	BRG115	BRG115	BRG115	BRG115
2C	Journal Bearing, Female Rotor	1	BRG116	BRG116	BRG116	BRG116
3	Plate Assembly – Outlet End – Ultra-Low	1	PLT2152AT1	[5]	PLT2152AT1	PLT2152AT1
3	Plate Assembly – Outlet End (Hi & Low Temperature)	1	PLT2016AT1	PLT2016AT1	PLT2016AT1	PLT2016AT1
3A	Plate, Outlet End (Hi & Low Temp.)	1	PLT2016T1	PLT2016T1	PLT2016T1	PLT2016T1
3B	Journal Bearing	2	BRG70	BRG70	BRG70	BRG70
4	Guide, Slide	1	GDE24	GDE24	GDE24	GDE24
5	Cover, Outlet End	1	COV139T1	COV139T1	COV139T1	COV139T1
6	Rotor, Male	1	ROR559	ROR561	ROR561	ROR555
7	Rotor, Female	1	ROR560	ROR575	ROR575	ROR576
8	Sleeve (Bearing), Male Rotor	1	SLV53	SLV53	SLV53	SLV53
9	Sleeve (Bearing), Female Rotor	1	SLV54	SLV54	SLV54	SLV54
10	Nut (Bearing)	2	NUT77	NUT77	NUT77	NUT77
11	Plate, Locking (4 1/4 Between Centers)	2	PLT1046T1	PLT1046T1	PLT1046T1	PLT1046T1
12	Plate, Locking	2	PLT1052	PLT1052	PLT1052	PLT1052
13	Cover, Balance Piston	1	COV140[4]	COV140[4]	COV140[4]	COV140[4]
14	Valve, Sliding (High Temp. Compressor)	1	VAL740T4	VAL741T4	VAL741T4	VAL742T4
14	Valve, Sliding (Low Temp. Compressor)	1	VAL740T3	[3]	VAL741T3	VAL742T3
14	Valve, Sliding (Ultra-Low Temp.)	1	VAL740T1	[5]	VAL741T1	VAL742T1
15	Cylinder, Unloader Piston	1	CYL23	CYL23	CYL23	CYL25
16	Piston, Unloader	1	PST107	PST107	PST107	PST107
17	Spindle Assembly	1	SPN8A	SPN9A	SPN9A	SPN14A
18						
19	Guide, Block	1	GDE10	GDE10	GDE10	GDE10
20	Spindle, Guide Block	1	SPN3	SPN3	SPN3	SPN3
21	Plug, Spindle Guide	1	PLU105	PLU105	PLU105	PLU105
22	Gasket, Plug	1	GKT238	GKT238	GKT238	GKT238
23	Spacer, Piston	1	SPC121	N/R	N/R	N/R
24	Sleeve, Balance Piston	1	SLV55	SLV55	SLV55	SLV55
25	Piston, Balance	1	PST108	PST108	PST108	PST108
26	Key, Balance Piston	1	KEY5	KEY5	KEY5	KEY5
27	Pin, Dowel	2	PIN82T3	PIN82T3	PIN82T3	PIN82T3
28	Plate, Locking (3 1/4 Between Centers)	2	PLT1046T2	PLT1046T2	PLT1046T2	PLT1046T2
29	Key, Male Rotor	1	KEY11	KEY11	KEY11	KEY11
30	Pin, Dowel	6	PIN87T1	PIN87T1	PIN87T1	PIN87T1
31	Pin, Dowel	2	PIN51T3	PIN51T3	PIN51T3	PIN51T3
32	Plate, Locking	2	PLT1045	PLT1045	PLT1045	PLT1045
33	Shims (Bearing)	2	SHM18	SHM18	SHM18	SHM18
34	Housing, Seal	1	HSG138	HSG138	HSG138	HSG138
35	Ring, Seal	1	RNG138	RNG138	RNG138	RNG138
36	Screw, Soc HD	1	N/R	034P09	N/R	N/R
37	Spacer, Piston	1	N/R	SPC90	N/R	N/R
38	Plate & Injection Tube Assembly	1	PLT1066AT1	PLT1066AT2	PLT1066AT2	PLT1066AT2
39	Bearing, Thrust	2 pr	BRG80	BRG80	BRG80	BRG80
39						
40	Gasket (Inlet)	1	GKT390	GKT390	GKT390	GKT390
41	Gasket (Rot Casing Outlet)	1	GKT389	GKT389	GKT389	GKT389
42	Gasket (Outlet End Cover)	1	GKT388	GKT388	GKT388	GKT388
43	Shaft, Seal	1	SEL46T1	SEL46T1	SEL46T1	SEL46T1
44	Washer, Lock (SAE W-14)	2	WAS93	WAS93	WAS93	WAS93
45	Nut, Lock (SAE N-14)	2	NUT56	NUT56	NUT56	NUT56
46	Ring, Retaining	2	RNG286	RNG286	RNG286	RNG286
47	"O" Ring (Parker No. 2-255-C-147-7)	1	RNG211	RNG211	RNG211	RNG211
48	"O" Ring (Parker No. 2-431-C-147-7)	2	RNG209	RNG209	RNG209	RNG209
49	"O" Ring (Parker No. 2-428-C-147-7)	1	RNG210	RNG210	RNG210	RNG210
50	"O" Ring (Parker No. 2-360-C-147-7)	1	RNG207	RNG207	RNG207	RNG207
51	"O" Ring (Parker No. 2-242-C-147-7)	2	RNG166	RNG166	RNG166	RNG166
52	"O" Ring (Parker No. 2-118-C-147-7)	1	RNG256	RNG256	RNG256	RNG256
53	Ring, Retaining (Truarc No. 5100-268)	1	RNG213	RNG213	RNG213	RNG213
54	Ring, Slipper Seal	1	RNG255	RNG255	RNG255	RNG255
55	Ring, Slipper Seal	1	RNG131	RNG131	RNG131	RNG131
56	Elbow – 90°	1	ELL136T1	ELL136T1	ELL136T1	ELL136T1
57	Pin, Dowel – 3/16 Dia. x 1/2 Lg.	1	0602P03	0602P03	0602P03	0602P03
58	Pin, Spring (3/16 Dia. x 7/8 Lg.)	1	PIN53	PIN53	PIN53	PIN53
59	Pin, Spring (1/8 Dia. x 3/8 Lg.)	1	PIN80T3	PIN80T3	PIN80T3	PIN80T3
60	"O" Ring (Parker No. 2-220-C-147-7)	1	RNG275	RNG275	RNG275	RNG275
61						
62						
63						
64	Screw, Soc HD Cap – 3/8 – 16 x 1 1/4 Lg.	6	036P13	036P13	036P13	036P13
65	Screw, Soc HD Cap – 1/2 – 13 x 1 1/2 Lg.	10	SCR124	SCR124	SCR124	SCR124
66	Screw, Soc HD Cap – 5/8 – 11 x 2" Lg.	74	0348P19	0348P19	0348P19	0348P19
67						
68	Screw, Soc HD Cap – 1/2 – 13 x 2 3/4 Lg.	8	SCR95	SCR95	SCR95	SCR95
69	Screw, Hex HD Cap – 3/8 – 16 x 1/2 Lg.	2	012P07	012P07	012P07	012P07
70	Screw, Hex HD Cap – 3/8 – 16 x 1 1/2 Lg.	4	012P15	012P15	012P15	012P15
71	Screw, Hex HD Cap – 1/2 – 13 x 4 1/4 Lg.	8	014P37	014P37	014P37	014P37
72	Screw, Soc HD Cap – 5/8 – 11 x 1 3/4 Lg.	10	0348P17	0348P17	0348P17	0348P17
73	Pin, Spring – 1/8 Dia. x 3/4 Lg.	1	PIN80T6	PIN80T6	PIN80T6	PIN80T6
74						
75						
76	Shim	AR	[6]	[6]	[6]	[6]
77						

[1] Consult Factory – Part number varies with application and accessories
[2] Low temperature version not available with this compressor
[4] Specify cover with 4 tapped oil holes
[5] Ultra-Low version not available with this compressor
[6] Use combination of SHM19T1 and SHM19T2 to obtain approximately .004 min. axial clr.

DBX 204 DIRECT DRIVE (VERSION D)

ITEM	DESCRIPTION	QTY	(2010) PART NO.	(2013) PART NO.	(2016) PART NO.	(2018) PART NO.
1	Housing, Rotor	1	HSG121T2	HSG120T2	HSG120T2	HSG134T2
2	Housing Assembly – Inlet	1	HSG122AT2	HSG122AT2	HSG122AT2	HSG122AT2
2A	Housing, Inlet Journal Bearing	1	HSG122T2	HSG122T2	HSG122T2	HSG122T2
2B	Journal Bearing, Male Rotor End	1	BRG115	BRG115	BRG115	BRG115
2C	Journal Bearing, Female Rotor End	1	BRG116	BRG116	BRG116	BRG116
3	Plate Assembly – Outlet End – Ultra Low	1	PLT2152AT2	[1]	PLT2152AT2	PLT2152AT2
3	Plate Assembly – Outlet End (Hi & Low Temperature)	1	PLT2016AT2	PLT2016AT2	PLT2016AT2	PLT2016AT2
3A	Plate, Outlet End (Hi & Low Temp.)	1	PLT2016T2	PLT2016T2	PLT2016T2	PLT2016T2
3B	Journal Bearing, Outlet End – Male & Female Rotor	2	BRG70	BRG70	BRG70	BRG70
4	Guide, Slide	1	GDE24	GDE24	GDE24	GDE24
5	Cover, Outlet End	1	COV139T1	COV139T1	COV139T1	COV139T1
6	Rotor, Male	1	ROR558T4	ROR561T4	ROR561T4	ROR556T4
7	Rotor, Female	1	ROR560T4	ROR575T4	ROR575T4	ROR576T4
8	Sleeve (Bearing), Male	1	SLV53T2	SLV53T2	SLV53T2	SLV53T2
9	Sleeve (Bearing), Female	1	SLV54T2	SLV54T2	SLV54T2	SLV54T2
10	Nut (Bearing)	2	NUT77	NUT77	NUT77	NUT77
11	Plate, Locking – Sleeve (4¾" Centers)	2	PLT1046T1	PLT1046T1	PLT1046T1	PLT1046T1
12	Plate, Locking – Nut	2	PLT2227	PLT2227	PLT2227	PLT2227
13	Cover, Balance Piston	1	COV140	COV140	COV140	COV140
14	Valve, Sliding (High Temp. Compressor)	1	VAL740T4	VAL741T4	VAL741T4	VAL742T4
14	Valve, Sliding (Low Temp. Compressor)	1	VAL740T3	[3]	VAL741T3	VAL742T3
14	Valve, Sliding (Ultra-Low Temp.)	1	VAL740T1	[5]	VAL741T1	VAL742T1
15	Cylinder, Unloader Piston	1	CYL23	CYL23	CYL23	CYL25
16	Piston, Unloader	1	PST107	PST107	PST107	PST107
17	Spindle Assembly	1	SPN18AT5	SPN18AT8	SPN18AT8	SPN18AT7
18						
19	Guide, Block	1	GDE10	GDE10	GDE10	GDE10
20	Spindle, Guide Block	1	SPN3	SPN3	SPN3	SPN3
21	Plug, Spindle Guide	1	PLU105	PLU105	PLU105	PLU105
22	Gasket, Plug – Spindle	1	GKT238	GKT238	GKT238	GKT238
23	Spacer, Piston – Unloader	1	SPC121	N/R	N/R	N/R
24	Sleeve, Balance Piston	1	SLV55	SLV55	SLV55	SLV55
25	Piston, Balance	1	PST108	PST108	PST108	PST108
26	Key, Balance Piston	1	KEY5	KEY5	KEY5	KEY5
27	Pin, Spring – Spindle	2	PIN82T3	PIN82T3	PIN82T3	PIN82T3
28	Plate, Locking – Sleeve (3 1/4 Centers)	2	PLT1046T2	PLT1046T2	PLT1046T2	PLT1046T2
29	Key, Male Rotor	1	KEY11	KEY11	KEY11	KEY11
30	Pin, Dowel	6	PIN87T1	PIN87T1	PIN87T1	PIN87T1
31	Pin, Dowel – Slide Guide	2	PIN51T3	PIN51T3	PIN51T3	PIN51T3
32	Plate, Locking – Slide Guide	2	PLT1045	PLT1045	PLT1045	PLT1045
33	Shim, Bearing – Thrust	AR	[7]	[7]	[7]	[7]
34	Housing, Seal – Type 8B	1	HSG138	HSG138	HSG138	HSG138
34	Housing, Seal – Type 9B	1	HSG63	HSG63	HSG63	HSG63
36	Ring, Seal – Type 8B Seal	1	RNG138	RNG138	RNG138	RNG138
35	Ring, Seal – Type 9B Seal	1	SLV10	SLV10	SLV10	SLV10
36	Screw, Soc HD	1	N/R	034P09	N/R	N/R
37	Spacer, Piston – Unloader	1	N/R	SPC90	N/R	N/R
38	Plate & Injection Tube Assembly	1	PLT1066AT1	PLT1066AT2	PLT1066AT2	PLT1066AT2
39	Bearing, Thrust	2 pr	BRG80T2	BRG80T2	BRG80T2	BRG80T2
39						
40	Gasket (Inlet)	1	GKT417	GKT417	GKT417	GKT417
41	Gasket, Rotor Housing Outlet	1	GKT416	GKT416	GKT416	GKT416
42	Gasket (Outlet End Cover)	1	GKT415	GKT415	GKT415	GKT415
43	Seal, Shaft – Type 9B	1	SEL22A	SEL22A	SEL22A	SEL22A
	Seal, Shaft – Type 8B	2	SEL46T1	SEL46T1	SEL46T1	SEL46T1
44	Washer, Lock – SAE W-14	2	WAS93	WAS93	WAS93	WAS93
45	Nut, Lock (SAE N-14)	2	NUT56	NUT56	NUT56	NUT56
46	Ring, Retaining Truarc No. 5160-137	2	RNG286	RNG286	RNG286	RNG286
47	"O" Ring (Parker No. 2-255-C-147-7)	1	RNG211	RNG211	RNG211	RNG211
48	"O" Ring (Parker No. 2-431-C-147-7)	2	RNG209	RNG209	RNG209	RNG209
49	"O" Ring (Parker No. 2-428-C-147-7)	1	RNG210	RNG210	RNG210	RNG210
50	"O" Ring (Parker No. 2-360-C-147-7)	1	RNG207	RNG207	RNG207	RNG207
51	"O" Ring (Parker No. 2-242-C-147-7)	2	RNG166	RNG166	RNG166	RNG166
52	"O" Ring (Parker No. 2-118-C-147-7)	1	RNG256	RNG256	RNG256	RNG256
53	Ring, Retaining (Truarc No. 5100-268)	1	RNG213	RNG213	RNG213	RNG213
54	Ring, Slipper Seal Spindle	1	RNG255	RNG255	RNG255	RNG255
55	Ring, Slipper Seal Unloader Piston	1	RNG131	RNG131	RNG131	RNG131
56	Elbow – 90° – Seal Housing	1	ELL136T1	ELL136T1	ELL136T1	ELL136T1
57	Pin, Dowel – 3/16 Dia. x 1/2 Lg.	1	0602P03	0602P03	0602P03	0602P03
58	Pin, Spring (3/16 Dia. x 3/8 Lg.)	1	PIN53	PIN53	PIN53	PIN53
59	Pin, Spring (1/8 Dia. x 3/8 Lg.)	1	PIN80T3	PIN80T3	PIN80T3	PIN80T3
60	"O" Ring (Parker No. 2-220-C-147-7)	1	RNG275	RNG275	RNG275	RNG275
61						
62						
63						
64	Screw, Soc HD Cap – 3/8 – 16 x 1 1/4 Lg.	6	036P13	038P13	036P13	038P13
65	Screw, Soc HD Cap – 1/2 – 13 x 1 1/2 Lg.	10	SCR124	SCR124	SCR124	SCR124
66	Screw, Soc HD Cap – 5/8 – 11 x 2" Lg.	74	0348P19	0348P19	0348P19	0348P19
67	Seal, Lip – Type 9B Seal	1	SEL23	SEL23	SEL23	SEL23
68	Screw, Soc HD Cap – 1/2 – 13 x 2 3/4 Lg.	8	SCR95	SCR95	SCR95	SCR95
69	Screw, Hex HD Cap – 3/8 – 16 x 1 1/2 Lg.	2	012P07	012P07	012P07	012P07
70	Screw, Hex HD Cap – 3/8 – 16 x 1 1/2 Lg.	4	012P15	012P15	012P15	012P15
71	Screw, Hex HD Cap – 1/2 – 13 x 4 1/4 Lg.	8	014P37	014P37	014P37	014P37
72	Screw, Soc HD Cap – 5/8 – 11 x 1 3/4 Lg.	10	0348P17	0348P17	0348P17	0348P17
73	Pin, Spring – 1/8 Dia. x 3/4 Lg.	1	PIN80T6	PIN80T6	PIN80T6	PIN80T6
74	Pin, Spring – Type 9B Seal	1	PIN81T1	PIN81T1	PIN81T1	PIN81T1
75						
76	Shim, Spindle	AR	[6]	[6]	[6]	[6]
77	Plug, Pipe	1	PLU142T5	PLU142T5	PLU142T5	PLU142T5
78	Screw, Set – 5/8 – 18 x 1 3/4" Lg.	2	SCR176	SCR176	SCR176	SCR176
79	Nut, Hex – 5/8" x 18	2	012P00	012P00	012P00	012P00
80	Washer, Split Lock – 5/8"	2	012P01	012P01	012P01	012P01

[1] Consult Factory – Part number varies with application and accessories
[2] Low temperature version not available with this compressor
[4] Specify cover with 4 tapped oil holes
[5] Ultra-Low version not available with this compressor
[6] Use combination of SHM19T1 and SHM19T2 to obtain approximately .004 min. axial clr.
[7] Use combination of SHM21T11, T12, T13, T14 and T15 to obtain approximately .004 to .006 rotor discharge end clearance.



O. DBX 255 DIRECT DRIVE
(VERSIONS A,B & C)

FIGURE 34

DBX 255 DIRECT DRIVE (VERSION A & B)[1]

ITEM	DESCRIPTION	QTY.	(2510) PART NO.	(2512) PART NO.	(2514) PART NO.	(2515) PART NO.	(2516) PART NO.
1	Housing, Rotor	1	HSG100X	HSG74T1	HSG106X	HSG106X	HSG73T1
2	Housing Assembly, Inlet	1	HSG104AX	HSG104AX	HSG104AX	HSG104AX	HSG104AX
2A	Housing, Inlet	1	HSG103X	HSG103X	HSG103X	HSG103X	HSG103X
2B	Bearing, Inlet End – Male Rotor	1	BRG77	BRG77	BRG77	BRG77	BRG77
2C	Bearing, Inlet End – Female Rotor	1	BRG78	BRG78	BRG78	BRG78	BRG78
3	Plate Assembly – Outlet End	1	PLT880AX[1]	PLT880AX[1]	PLT880AX[1]	PLT880AX[1]	PLT880AX[1]
3A	Plate – Outlet End	1	PLT881X	PLT881X	PLT881X	PLT881X	PLT881X
3B	Bearing, Male & Female – Outlet End	2	BRG76	BRG76	BRG76	BRG76	BRG76
4	Guide, Slide	1	GDE14	GDE14	GDE14	GDE14	GDE14
5	Cover, Outlet End	1	COV98X[1]	COV98X[1]	COV98X[1]	COV98X[1]	COV98X[1]
6	Rotor, Male	1	ROR517	ROR35	ROR521	ROR521	ROR31
7	Rotor, Female	1	ROR518	ROR37	ROR522	ROR522	ROR33
8	Sleeve (Bearing), Male	1	SLV31	SLV31	SLV31	SLV31	SLV31
9	Sleeve (Bearing), Female	1	SLV32	SLV32	SLV32	SLV32	SLV32
10	Nut (Bearing)	2	NUT34	NUT34	NUT34	NUT34	NUT34
11	Plate, Locking	4	PLT1047	PLT1047	PLT1047	PLT1047	PLT1047
12	Plate, Locking	2	PLT882	PLT882	PLT882	PLT882	PLT882
13	Cover, Balancing Piston	1	COV99X[1]	COV99X[1]	COV99X[1]	COV99X[1]	COV99X[1]
14	Valve, Sliding (High Temp. Compressor)	1	VAL604[1]	VAL672 [2]	VAL605 [2]	VAL605[1]	VAL671
14	Valve, Sliding (Low Temp. Compressor)	1	VAL606[1]			VAL607[1]	VAL713
15	Cylinder, Unloader Piston	1	CYL21[1]	CYL21	CYL21	CYL21[1]	CYL21
16	Piston, Unloader	1	PST73[1]	PST73	PST73	PST73[1]	PST73
17	Spindle Assembly	1	SPN4A[1]	SPN7A[1]	SPN5A[1]	SPN5A[1]	SPN6A[1]
18							
19	Guide, Block	1	GDE10	GDE10	GDE10	GDE10	GDE10
20	Spindle, Guide Block	1	SPN3	SPN3	SPN3	SPN3	SPN3
21	Plug, Spindle Guide	1	PLU105	PLU105	PLU105	PLU105	PLU105
22	Gasket, Plug	1	GKT238	GKT238	GKT238	GKT238	GKT238
23	Spacer, Piston	1	SPC120T1[1]	SPC120T2	SPC120T3	SPC120T3[1]	N/R
24	Sleeve, Balance Piston	1	SLV50	SLV50	SLV50	SLV50	SLV50
25	Piston, Balance	1	PST74	PST74	PST74	PST74	PST74
26	Key, Balance Piston	1	KEY5	KEY5	KEY5	KEY5	KEY5
27	Pin, Spring	2	PIN82T3[1]	PIN82T3	PIN82T3	PIN82T3[1]	PIN82T3
28							
29	Key, Male Rotor	1	KEY9	KEY9	KEY9	KEY9	KEY9
30	Pin, Dowel	6	PIN87T1[1]	PIN87T1	PIN87T1	PIN87T1[1]	PIN87T1
31	Pin, Dowel	2	PIN51T3	PIN51T3	PIN51T3	PIN51T3	PIN51T3
32	Plate, Locking	2	PLT1048	PLT1048	PLT1048	PLT1048	PLT1048
33	Shims (Bearing)	2	SHM12	SHM12	SHM12	SHM12	SHM12
34	Housing, Seal	1	HSG105X[1]	HSG105X[1]	HSG105X[1]	HSG105X[1]	HSG105X[1]
35	Ring, Seal	1	RNG141	RNG141	RNG141	RNG141	RNG141
36	Screw, Soc HD Cap	1	N/R	N/R	034P10	N/R	N/R
37	Spacer, Piston	1	N/R	N/R	SPC122	N/R	N/R
38	Plate & Injection Tube Assembly	1	PLT1050AT1[1]	PLT1050AT2	PLT1050AT2	PLT1050AT2[1]	PLT1050AT2
39	Bearing, Thrust	2 pr.	BRG83	BRG83	BRG83	BRG83	BRG83
40	Gasket (Inlet) – F.F.	1	GKT336X[3]	GKT336X[3]	GKT336X[3]	GKT336X[3]	GKT336X[3]
41	Gasket (Rotor Housing Outlet) – F.F.	1	GKT337X[4]	GKT337X[4]	GKT337X[4]	GKT337X[4]	GKT337X[4]
42	Gasket (Outlet End Cover) – F.F.	1	GKT338X[5]	GKT338X[5]	GKT338X[5]	GKT338X[5]	GKT338X[5]
43	Seal Shaft	1	SEL33A[1]	SEL33A[1]	SEL33A[1]	SEL33A[1]	SEL33A[1]
44	Washer, Lock (SAE W-17)	2	WAS67	WAS67	WAS67	WAS67	WAS67
45	Nut, Lock (SAE N-17)	2	NUT35	NUT35	NUT35	NUT35	NUT35
46	Ring, Retaining (Truarc No. 5100-137)	2	RNG142	RNG142	RNG142	RNG142	RNG142
47	"O" Ring (Parker No. 2-440-C-147-7)	1	RNG144	RNG144	RNG144	RNG144	RNG144
48	"O" Ring (Parker No. 2-439-C-147-7)	2	RNG145	RNG145	RNG145	RNG145	RNG145
49	"O" Ring (Parker No. 2-436-C-147-7)	1	RNG146	RNG146	RNG146	RNG146	RNG146
50	"O" Ring (Parker No. 2-365-C-147-7)	1	RNG147	RNG147	RNG147	RNG147	RNG147
51	"O" Ring (Parker No. 2-246-C-147-7)	2	RNG148	RNG148	RNG148	RNG148	RNG148
52	"O" Ring (Parker No. 2-212-C-147-7)	1	RNG230[1]	RNG230[1]	RNG230[1]	RNG230[1]	RNG230[1]
53	Ring, Retaining (Truarc No. 5100-350)	1	RNG143	RNG143	RNG143	RNG143	RNG143
54	Ring – Slipper Seal	1	RNG229[1]	RNG229[1]	RNG229[1]	RNG229[1]	RNG229[1]
55	Ring – Slipper Seal	1	RNG132	RNG132	RNG132	RNG132	RNG132
56	Elbow – 90°	1	ELL75[1]	ELL75[1]	ELL75[1]	ELL75[1]	ELL75[1]
57	Pin, Dowel – 3/16 Dia. x 1/2 Lg.	1	0602P03	0602P03	0602P03	0602P03	0602P03
58	Pin, Spring – 3/16 Dia. x 7/8 Lg.	1	PIN53	PIN53	PIN53	PIN53	PIN53
59	Pin, Spring – 1/8 Dia. x 3/8 Lg.	1	PIN80T3	PIN80T3	PIN80T3	PIN80T3	PIN80T3
60	"O" Ring (Parker No. 2-220-C-147-7)	1	RNG275[1]	RNG275[1]	RNG275[1]	RNG275[1]	RNG275[1]
61	Gasket (Nozzle)	1	GKT245X[1]	N/R	GKT245X[1]	GKT245X[1]	N/R
62	Nozzle (Oil Injection)	1	NOZ2XT[1]	N/R	NOZ2XT2[1]	NOZ2XT2[1]	N/R
63	Screw, Soc HD Cap – 5/8 – 11 x 2 1/2	55	0348P23[1]	0348P23	0348P23	0348P23[1]	0348P23
64	Screw, Soc HD Cap – 3/8 – 16 x 1 1/4	6	036P13	036P13	036P13	036P13	036P13
65	Screw, Soc HD Cap – 5/8 – 11 x 1 3/4	10	0348P17	0348P17	0348P17	0348P17	0348P17
66	Screw, Soc HD Cap – 5/8 – 11	32	0348P21[1]	0348P21	0348P21	0348P21[1]	0348P21
67							
68	Screw, Soc HD Cap – 5/8 – 11 x 2 3/4" Lg.	8	0348P25	0348P25	0348P25	0348P25	0348P25
69	Screw, Hex HD Cap – 3/8 – 16 x 5/8" Lg.	2	012P07	012P07	012P07	012P07	012P07
70	Screw, Hex HD Cap – 3/8 – 16 x 1 1/2 Lg.	4	012P15	012P15	012P15	012P15	012P15
71	Screw, Hex HD Cap – 1/2 – 13 x 5 1/2 Lg.	8	014P47	014P47	014P47	014P47	014P47
72	Screw, Soc HD Cap – 5/8 – 11 x 2" Lg.	10	0348P19[1]	0348P19	0348P19	0348P19[1]	0348P19
73	Pin, Spring – 1/8 Dia. x 3/4 Lg.	1	PIN80T6	PIN80T6	PIN80T6	PIN80T6	PIN80T6
74	Plate, Bearing – Male	1	PLT883	PLT883	PLT883	PLT883	PLT883
75	Plate, Bearing – Female	1	PLT884	PLT884	PLT884	PLT884	PLT884
76	Shim	AR	[6]	[6]	[6]	[6]	[6]
77							

[1] Consult Factory – part number varies with application and accessories.
[2] Low temperature version not available with this compressor
[3] GKT446 can be used by trimming internal oil tab
[4] GKT447 can be used
[5] GKT448 can be used by trimming internal oil tab
[6] Use combination of SHM19T1 and SHM19T2 to obtain approximately .004 axial clr.

DBX 255 DIRECT DRIVE (VERSION D)

ITEM	DESCRIPTION	QTY.	(2509) PART NO.	(2510) PART NO.	(2512) PART NO.	(2514) PART NO.	(2515) PART NO.	(2516) PART NO.
1	Housing, Rotor	1	HSG100T2	HSG100T2	HSG140T2	HSG106T2	HSG106T2	HSG103T2
2	Housing Assembly, Inlet	1	HSG103AT2	HSG103AT2	HSG103AT2	HSG103AT2	HSG103AT2	HSG103AT2
2A	Housing, Journal Bearing, Inlet	1	HSG103T2	HSG103T2	HSG103T2	HSG103T2	HSG103T2	HSG103T2
2B	Bearing, Inlet End – Male Rotor	1	BRG77	BRG77	BRG77	BRG77	BRG77	BRG77
2C	Bearing, Inlet End – Female Rotor	1	BRG78	BRG78	BRG78	BRG78	BRG78	BRG78
3	Plate Assembly – Outlet End (Ultra-Low Temperature)	1	[3]	PLT2153AT2	PLT2153AT2	[3]	PLT2153AT2	PLT2153AT2
3	Plate Assembly – Outlet End (Hi & Low Temperature)	1	PLT2017AT2	PLT2017AT2	PLT2017AT2	PLT2017AT2	PLT2017AT2	PLT2017AT2
3A	Plate – Outlet End (Hi & Low Temp.)	1	PLT2017T2	PLT2017T2	PLT2017T2	PLT2017T2	PLT2017T2	PLT2017T2
3B	Bearing, Mate & Female – Outlet End	2	BRG76	BRG76	BRG76	BRG76	BRG76	BRG76
4	Guide, Slide	1	GDE14	GDE14	GDE14	GDE14	GDE14	GDE14
5	Cover, Outlet End - Type 96 Seal	1	COV98T3	COV98T3	COV98T3	COV98T3	COV98T3	COV98T3
5	Cover, Outlet End - Type 88 Seal	1	COV98T4	COV98T4	COV98T4	COV98T4	COV98T4	COV98T4
6	Rotor, Male	1	ROR563T4	ROR563T4	ROR565T4	ROR567T4	ROR567T4	ROR569T4
7	Rotor, Female	1	ROR564T4	ROR564T4	ROR566T4	ROR577T4	ROR577T4	ROR570T4
8	Sleeve (Bearing), Male	1	SLV31T2	SLV31T2	SLV31T2	SLV31T2	SLV31T2	SLV31T2
9	Sleeve (Bearing), Female	1	SLV32T2	SLV32T2	SLV32T2	SLV32T2	SLV32T2	SLV32T2
10	Nut (Bearing)	2	NUT34	NUT34	NUT34	NUT34	NUT34	NUT34
11	Plate, Locking - Sleeve	4	PLT1047	PLT1047	PLT1047	PLT1047	PLT1047	PLT1047
12	Plate, Locking - Nut	2	PLT2227	PLT2227	PLT2227	PLT2227	PLT2227	PLT2227
13	Cover, Balancing Piston	1	COV99	COV99	COV99	COV99	COV99	COV99
14	Valve, Sliding (High Temp. Compressor)	1	VAL743T4	VAL743T4	VAL744T4	VAL745T4	VAL745T4	VAL746T4
14	Valve, Sliding (Low Temp. Compressor)	1	[2]	VAL743T3	VAL744T3	[2]	VAL745T3	VAL746T3
14	Valve, Sliding (Ultra-Low Temp. Comp.)	1	[3]	VAL743T1	VAL744T1	[3]	VAL745T1	VAL746T1
15	Cylinder, Unloader Piston	1	CYL21	CYL21	CYL21	CYL21	CYL21	CYL21
16	Piston, Unloader	1	PST73	PST73	PST73	PST73	PST73	PST73
17	Spindle Assembly	1	SPN18AT8	SPN18AT8	SPN18AT9	SPN18AT10	SPN18AT10	SPN18AT11
18								
19	Guide, Block	1	GDE10	GDE10	GDE10	GDE10	GDE10	GDE10
20	Spindle, Guide Block	1	SPN3	SPN3	SPN3	SPN3	SPN3	SPN3
21	Plug, Spindle Guide Block	1	PLU105	PLU105	PLU105	PLU105	PLU105	PLU105
22	Gasket, Plug - Spindle	1	GKT238	GKT238	GKT238	GKT238	GKT238	GKT238
23	Spacer, Piston - Unloader	1	SPC120T1	SPC120T1	SPC120T2	SPC120T3	SPC120T3	N/R
24	Sleeve, Balancing Piston	1	SLV60	SLV60	SLV60	SLV60	SLV60	SLV60
25	Piston, Balancing	1	PST74	PST74	PST74	PST74	PST74	PST74
26	Key, Balancing Piston	1	KEY5	KEY5	KEY5	KEY5	KEY5	KEY5
27	Pin, Spring - Spindle	2	PIN82T3	PIN82T3	PIN82T3	PIN82T3	PIN82T3	PIN82T3
28								
29	Key, Male Rotor	1	KEY9	KEY9	KEY9	KEY9	KEY9	KEY9
30	Pin, Dowel	6	PIN87T1	PIN87T1	PIN87T1	PIN87T1	PIN87T1	PIN87T1
31	Pin, Dowel - Slide Guide	2	PIN51T3	PIN51T3	PIN51T3	PIN51T3	PIN51T3	PIN51T3
32	Plate, Locking - Slide Guide	2	PLT1048	PLT1048	PLT1048	PLT1048	PLT1048	PLT1048
33	Shim, Bearing - Thrust	AR	[6]	[6]	[6]	[6]	[6]	[6]
34	Housing, Seal	1	HSG144	HSG144	HSG144	HSG144	HSG144	HSG144
35	Ring, Seal - Type 88	1	RNG141	RNG141	RNG141	RNG141	RNG141	RNG141
35	Ring, Drive - Type 98	1	RNG316	RNG316	RNG316	RNG316	RNG316	RNG316
36	Screw, Soc HD Cap	2	034P10	N/R	034P10	N/R	N/R	N/R
37	Spacer, Piston - Unloader	1	SPC142T1	N/R	SPC122	N/R	N/R	N/R
38	Plate & Injection Tube Assembly	1	PLT1050AT1	PLT1050AT1	PLT1050AT2	PLT1050AT2	PLT1050AT2	PLT1050AT2
39	Bearing, Thrust (Freon Compressor)	2 pr.	BRG82T2	BRG82T2	BRG82T2	BRG82T2	BRG82T2	BRG82T2
39	Bearing, Thrust (Ammonia Compressor)	2 pr.	BRG83T2	BRG83T2	BRG83T2	BRG83T2	BRG83T2	BRG83T2
40	Gasket (Inlet)	1	GKT446	GKT446	GKT446	GKT446	GKT446	GKT446
41	Gasket (Rotor Housing Outlet)	1	GKT447	GKT447	GKT447	GKT447	GKT447	GKT447
42	Gasket (Outlet End Cover)	1	GKT448	GKT448	GKT448	GKT448	GKT448	GKT448
43	Seal, Shaft - Type 98	1	SEL63T1	SEL63T1	SEL63T1	SEL63T1	SEL63T1	SEL63T1
43	Seal, Shaft - Type 88	1	SEL47T1	SEL47T1	SEL47T1	SEL47T1	SEL47T1	SEL47T1
44	Washer, Lock (SAE W 17)	2	WAS67	WAS67	WAS67	WAS67	WAS67	WAS67
45	Nut, Lock (SAE N 17)	2	NUT35	NUT35	NUT35	NUT35	NUT35	NUT35
46	Ring, Retaining (Truarc No. 5160-137)	2	RNG286	RNG286	RNG286	RNG286	RNG286	RNG286
47	"O" Ring (Parker No. 2-440-C-147-7)	1	RNG144	RNG144	RNG144	RNG144	RNG144	RNG144
48	"O" Ring (Parker No. 2-439-C-147-7)	2	RNG145	RNG145	RNG145	RNG145	RNG145	RNG145
49	"O" Ring (Parker No. 2-436-C-147-7)	1	RNG146	RNG146	RNG146	RNG146	RNG146	RNG146
50	"O" Ring (Parker No. 2-365-C-147-7)	1	RNG147	RNG147	RNG147	RNG147	RNG147	RNG147
51	"O" Ring (Parker No. 2-246-C-147-7)	1	RNG148	RNG148	RNG148	RNG148	RNG148	RNG148
52	"O" Ring (Parker No. 2-118-C-147-7)	1	RNG256	RNG256	RNG256	RNG256	RNG256	RNG256
53	Ring, Retaining (Truarc No. 5100-350)	1	RNG143	RNG143	RNG143	RNG143	RNG143	RNG143
54	Ring – Slipper Seal - Spindle	1	RNG255	RNG255	RNG255	RNG255	RNG255	RNG255
55	Ring – Slipper Seal - Unloader Piston	1	RNG132	RNG132	RNG132	RNG132	RNG132	RNG132
56	Elbow – 90° - Seal Housing	1	ELL136T1	ELL136T1	ELL136T1	ELL136T1	ELL136T1	ELL136T1
57	Pin, Dowel – 3/16 Dia. x 1/2 Lg.	1	0602P03	0602P03	0602P03	0602P03	0602P03	0602P03
58	Pin, Spring – 3/16 Dia. x 3/8 Lg.	1	PIN53	PIN53	PIN53	PIN53	PIN53	PIN53
59	Pin, Spring – 1/8 Dia. x 3/8 Lg.	1	PIN80T3	PIN80T3	PIN80T3	PIN80T3	PIN80T3	PIN80T3
60	"O" Ring (Parker No. 2-220-C-147-7)	1	RNG275	RNG275	RNG275	RNG275	RNG275	RNG275
61								
62								
63	Screw, Soc HD Cap – 5/8 – 11 x 2 1/2 Lg.	55	0348P23	0348P23	0348P23	0348P23	0348P23	0348P23
64	Screw, Soc HD Cap – 3/8 – 16 x 1 1/4 Lg.	6	036P13	036P13	036P13	036P13	036P13	036P13
65	Screw, Soc HD Cap – 3/8 – 11 x 1 3/4 Lg.	10	0348P17	0348P17	0348P17	0348P17	0348P17	0348P17
66	Screw, Soc HD Cap – 5/8 – 11 x 2 1/4 Lg.	32	0348P21	0348P21	0348P21	0348P21	0348P21	0348P21
67	Seal, Lip – Type 98 Seal	1	SEL66	SEL66	SEL66	SEL66	SEL66	SEL66
68	Screw, Soc HD Cap – 5/8 – 11 x 2 3/4" Lg.	8	0348P25	0348P25	0348P25	0348P25	0348P25	0348P25
69	Screw, Hex HD Cap – 1/2 – 16 x 5/8" Lg.	2	012P07	012P07	012P07	012P07	012P07	012P07
70	Screw, Hex HD Cap – 3/8 – 16 x 1 1/2" Lg.	4	012P15	012P15	012P15	012P15	012P15	012P15
71	Screw, Hex HD Cap – 1/2 – 13 x 5 1/2" Lg.	8	014P47	014P47	014P47	014P47	014P47	014P47
72	Screw, Soc HD Cap – 5/8 – 11 x 2" Lg.	10	0348P19	0348P19	0348P19	0348P19	0348P19	0348P19
73	Pin, Spring – 1/8 Dia. X 3/4 Lg.	1	PIN80T6	PIN80T6	PIN80T6	PIN80T6	PIN80T6	PIN80T6
74	Plate, Bearing – Male	1	PLT883	PLT883	PLT883	PLT883	PLT883	PLT883
75	Plate, Bearing – Female	1	PLT884	PLT884	PLT884	PLT884	PLT884	PLT884
76	Shim, Spindle	AR	[5]	[5]	[5]	[5]	[5]	[5]
77	Plug, Pipe	1	PLU142T5	PLU142T5	PLU142T5	PLU142T5	PLU142T5	PLU142T5
78	Screw, Set - 3/8 – 16 x 1 3/4" Lg.	2	SCR176	SCR176	SCR176	SCR176	SCR176	SCR176
79	Nut, Hex - 3/8" x 16	2	012P00	012P00	012P00	012P00	012P00	012P00
80	Washer, Split Lock - 3/8"	2	012P01	012P01	012P01	012P01	012P01	012P01

[1] Consult Factory – part number varies with application and accessories
[2] Low temperature version not available with this compressor
[3] Ultra-Low temperature version not available with this compressor
[4] Specify cover with 4 tapped oil holes
[5] Use combination of SHM19T1 and SHM19T2 to obtain approx. .004 min. axial clr.
[6] Use combination of SHM21T21, T22, T23, T24 and T25 to obtain approximately .004 to .006 rotor discharge end clearance.

DBX 255 DIRECT DRIVE (VERSION C)

ITEM	DESCRIPTION	QTY.	(2509) PART NO.	(2510) PART NO.	(2512) PART NO.	(2514) PART NO.	(2515) PART NO.	(2516) PART NO.
1	Housing, Rotor	1	HSG100T1	HSG100T1	HSG140T1	HSG106T1	HSG106T1	HSG73T1
2	Housing Assembly, Inlet	1	HSG103AT1	HSG103AT1	HSG103AT1	HSG103AT1	HSG103AT1	HSG103AT1
2A	Housing, Inlet	1	HSG103T1	HSG103T1	HSG103T1	HSG103T1	HSG103T1	HSG103T1
2B	Bearing, Inlet End – Male Rotor	1	BRG77	BRG77	BRG77	BRG77	BRG77	BRG77
2C	Bearing, Inlet End – Female Rotor	1	BRG78	BRG78	BRG78	BRG78	BRG78	BRG78
3	Plate Assembly – Outlet End (Ultra-Low Temperature)	3	3	PLT2153AT1	PLT2153AT1	3	PLT2153AT1	PLT2153AT1
3	Plate Assembly – Outlet End (Hi & Low Temperature)	1	PLT2017AT1	PLT2017AT1	PLT2017AT1	PLT2017AT1	PLT2017AT1	PLT2017AT1
3A	Plate – Outlet End (Hi & Low Temp.)	1	PLT2017T1	PLT2017T1	PLT2017T1	PLT2017T1	PLT2017T1	PLT2017T1
3B	Bearing, Male & Female – Outlet End	2	BRG76	BRG76	BRG76	BRG76	BRG76	BRG76
4	Guide, Slide	1	GDE14	GDE14	GDE14	GDE14	GDE14	GDE14
5	Cover, Outlet End	1	COV98T1	COV98T1	COV98T1	COV98T1	COV98T1	COV98T1
6	Rotor, Male	1	ROR563	ROR563	ROR565	ROR567	ROR567	ROR569
7	Rotor, Female	1	ROR564	ROR564	ROR566	ROR577	ROR577	ROR570
8	Sleeve (Bearing), Male	1	SLV31	SLV31	SLV31	SLV31	SLV31	SLV31
9	Sleeve (Bearing), Female	1	SLV32	SLV32	SLV32	SLV32	SLV32	SLV32
10	Nut (Bearing)	2	NUT34	NUT34	NUT34	NUT34	NUT34	NUT34
11	Plate, Locking	4	PLT1047	PLT1047	PLT1047	PLT1047	PLT1047	PLT1047
12	Plate, Locking	2	PLT882	PLT882	PLT882	PLT882	PLT882	PLT882
13	Cover, Balancing Piston	1	COV99[4]	COV99[4]	COV99[4]	COV99[4]	COV99[4]	COV99[4]
14	Valve, Sliding (High Temp. Compressor)	1	VAL743T4	VAL743T4	VAL744T4	VAL745T4	VAL745T4	VAL746T4
14	Valve, Sliding (Low Temp. Compressor)	1	2	VAL743T3	VAL744T3	2	VAL745T3	VAL746T3
14	Valve, Sliding (Ultra-Low Temp.)	1	3	VAL743T1	VAL744T1	3	VAL745T1	VAL746T1
15	Cylinder, Unloader Piston	1	CYL21	CYL21	CYL21	CYL21	CYL21	CYL21
16	Piston, Unloader	1	PST73	PST73	PST73	PST73	PST73	PST73
17	Spindle Assembly	1	SPN7A	SPN4A	SPN7A	SPN5A	SPN5A	SPN6A
18								
19	Guide, Block	1	GDE10	GDE10	GDE10	GDE10	GDE10	GDE10
20	Spindle, Guide Block	1	SPN3	SPN3	SPN3	SPN3	SPN3	SPN3
21	Plug, Spindle Guide	1	PLU105	PLU105	PLU105	PLU105	PLU105	PLU105
22	Gasket, Plug	1	GKT238	GKT238	GKT238	GKT236	GKT238	GKT238
23	Spacer, Piston	1	SPC120T1	SPC120T1	SPC120T2	SPC120T3	SPC120T3	N/A
24	Sleeve, Balance Piston	1	SLV50	SLV50	SLV50	SLV50	SLV50	SLV50
25	Piston, Balance	1	PST74	PST74	PST74	PST74	PST74	PST74
26	Key, Balance Piston	1	KEY5	KEY5	KEY5	KEY5	KEY5	KEY5
27	Pin, Spring	2	PIN82T3	PIN82T3	PIN82T3	PIN82T3	PIN82T3	PIN82T3
28								
29	Key, Male Rotor	1	KEY9	KEY9	KEY9	KEY9	KEY9	KEY9
30	Pin, Dowel	6	PIN87T1	PIN87T1	PIN87T1	PIN87T1	PIN87T1	PIN87T1
31	Pin, Dowel	2	PIN51T3	PIN51T3	PIN51T3	PIN51T3	PIN51T3	PIN51T3
32	Plate, Locking	2	PLT1048	PLT1048	PLT1048	PLT1048	PLT1048	PLT1048
33	Shims (Bearing)	2	SHM12	SHM12	SHM12	SHM12	SHM12	SHM12
34	Housing, Seal	1	HSG144	HSG144	HSG144	HSG144	HSG144	HSG144
35	Ring, Seal	1	RNG141	RNG141	RNG141	RNG141	RNG141	RNG141
36	Screw, Soc HD Cap	2	034P10	N/R	N/R	034P10	N/R	N/R
37	Spacer, Piston	1	SPC142T1	N/R	N/R	SPC122	N/R	N/R
38	Plate & Injection Tube Assembly	1	PLT1050AT1	PLT1050AT1	PLT1050AT2	PLT1050AT2	PLT1050AT2	PLT1050AT2
39	Bearing, Thrust (Freon Compressor)	2 pr	BRG82	BRG82	BRG82	BRG82	BRG82	BRG82
39	Bearing, Thrust (Ammonia Compressor)	2 pr	BRG83	BRG83	BRG83	BRG83	BRG83	BRG83
40	Gasket (Inlet) – F.F.	1	GKT446	GKT446	GKT446	GKT446	GKT446	GKT446
41	Gasket (Rotor Housing Outlet) – F.F.	1	GKT447	GKT447	GKT447	GKT447	GKT447	GKT447
42	Gasket (Outlet End Cover) – F.F.	1	GKT448	GKT448	GKT448	GKT448	GKT448	GKT448
43	Seal Shaft	1	SEL47T1	SEL47T1	SEL47T1	SEL47T1	SEL47T1	SEL47T1
44	Washer, Lock (SAE W-17)	2	WAS67	WAS67	WAS67	WAS67	WAS67	WAS67
45	Nut, Lock (SAE N-17)	2	NUT35	NUT35	NUT35	NUT35	NUT35	NUT35
46	Ring, Retaining (Truarc No. 5160-137)	2	RNG286	RNG286	RNG286	RNG286	RNG286	RNG286
47	"O" Ring (Parker No. 2-440-C-147-7)	1	RNG144	RNG144	RNG144	RNG144	RNG144	RNG144
48	"O" Ring (Parker No. 2-439-C-147-7)	2	RNG145	RNG145	RNG145	RNG145	RNG145	RNG145
49	"O" Ring (Parker No. 2-436-C-147-7)	1	RNG146	RNG146	RNG146	RNG146	RNG146	RNG146
50	"O" Ring (Parker No. 2-365-C-147-7)	1	RNG147	RNG147	RNG147	RNG147	RNG147	RNG147
51	"O" Ring (Parker No. 2-246-C-147-7)	1	RNG148	RNG148	RNG148	RNG148	RNG148	RNG148
52	"O" Ring (Parker No. 2-118-C-147-7)	1	RNG256	RNG256	RNG256	RNG256	RNG256	RNG256
53	Ring, Retaining (Truarc No. 5100-350)	1	RNG143	RNG143	RNG143	RNG143	RNG143	RNG143
54	Ring – Slipper Seal	1	RNG255	RNG255	RNG255	RNG255	RNG255	RNG255
55	Ring – Slipper Seal	1	RNG132	RNG132	RNG132	RNG132	RNG132	RNG132
56	Elbow – 90°	1	ELL136T1	ELL136T1	ELL136T1	ELL136T1	ELL136T1	ELL136T1
57	Pin, Dowel – 3/16 Dia. X 1/2 Lg.	1	0602P03	0602P03	0602P03	0602P03	0602P03	0602P03
58	Pin, Spring – 3/16 Dia. X 7/8 Lg.	1	PIN53	PIN53	PIN53	PIN53	PIN53	PIN53
59	Pin, Spring – 1/8 Dia. X 3/4 Lg.	1	PIN80T3	PIN80T3	PIN80T3	PIN80T3	PIN80T3	PIN80T3
60	"O" Ring (Parker No. 2-220-C-147-7)	1	RNG275	RNG275	RNG275	RNG275	RNG275	RNG275
61								
62								
63	Screw, Soc HD Cap – 5/8 – 11 x 2 1/2 Lg.	55	0348P23	0348P23	0348P23	0348P23	0348P23	0348P23
64	Screw, Soc HD Cap – 3/8 – 16 x 1 1/4 Lg.	6	036P13	036P13	036P13	036P13	036P13	036P13
65	Screw, Soc HD Cap – 5/8 – 11 x 1 3/4 Lg.	10	0348P17	0348P17	0348P17	0348P17	0348P17	0348P17
66	Screw, Soc HD Cap – 5/8 – 11 X 2 1/4 Lg.	32	0348P21	0348P21	0348P21	0348P21	0348P21	0348P21
67								
68	Screw, Soc HD Cap – 5/8 – 11 x 2 3/4" Lg.	8	0348P25	0348P25	0348P25	0348P25	0348P25	0348P25
69	Screw, Hex HD Cap – 3/8 – 16 x 5/8" Lg.	2	012P07	012P07	012P07	012P07	012P07	012P07
70	Screw, Hex HD Cap – 3/8 – 16 x 1 1/2" Lg.	4	012P15	012P15	012P15	012P15	012P15	012P15
71	Screw, Hex HD Cap – 1/2 – 13 x 5 1/2" Lg.	8	014P47	014P47	014P47	014P47	014P47	014P47
72	Screw, Soc HD Cap – 5/8 – 11 x 2" Lg.	10	0348P19	0348P19	0348P19	0348P19	0348P19	0348P19
73	Pin, Spring – 1/8 Dia. x 3/4 Lg.	1	PIN80T6	PIN80T6	PIN80T6	PIN80T6	PIN80T6	PIN80T6
74	Plate, Bearing – Male	1	PLT883	PLT883	PLT883	PLT883	PLT883	PLT883
75	Plate, Bearing – Female	1	PLT884	PLT884	PLT884	PLT884	PLT884	PLT884
76	Shim	AR	5	5	5	5	5	5
77								

[1] Consult Factory – part number varies with application and accessories
[2] Low temperature version not available with this compressor
[3] Ultra-Low temperature version not available with this compressor
[4] Specify cover with 4 tapped oil holes
[5] Use combination of SHM19T1 and SHM19T2 to obtain approx. .004 min. axial clr.

P. SLIDE VALVE REPLACEMENT

Remove old slide valve from spindle. Take new slide valve and check for burrs and damage, stone as required. Assemble new slide valve to spindle, position keyway and attach lock washer, lock nut or snap ring.

Remove guide block from rotor housing. Note markings "This Side Up" and "Inlet End". Check guide block fit in slide valve slot. If block does not move smoothly in slot, dress sides of block using flat stone or garnet cloth on flat surface, finish with crocus cloth. Guide block must be good sliding fit in valve slot.

Replace guide block on guide block spindle in rotor housing checking orientation, "This Side Up" and "Inlet End" toward inlet end of compressor.

Clean slide valve and apply light coating of oil to slide valve diameter. Install slide valve in rotor housing slide valve bore. Check ease of movement of slide valve in bore.

Look into rotor discharge port and view slide valve and rotor housing bore intersections. There should be no appreciable step and slide valve cusp should line up exactly with rotor housing cusp. A feeler gauge of .0015 to .002 thickness should pass freely between rotor outside diameter and top of slide valve. To verify that rotors are not contacting valve, the top of the slide valve may be coated with steel blue or prussian blue. With slide in place turn rotors several times and remove slide valve for inspection. If no marks are present, slide valve positionings are all right. If marks appear near cusp or near slide valve edges, slide valve needs repositioning.

To reposition, it will be necessary to elevate compressor to allow access to plug under rotor housing. Remove spindle, guide plug, and guide block spindle. This may be done with slide valve removed by tapping exposed end of guide block spindle and driving it out of rotor housing.

Install new guide block spindle and turn until slide valve is properly centered. Holding guide block spindle in position, drill 3/16"diameter hole 7/8" deep using pilot hole in spindle flange. Install new roll pin in drilled hole to secure position of slide valve spindle.

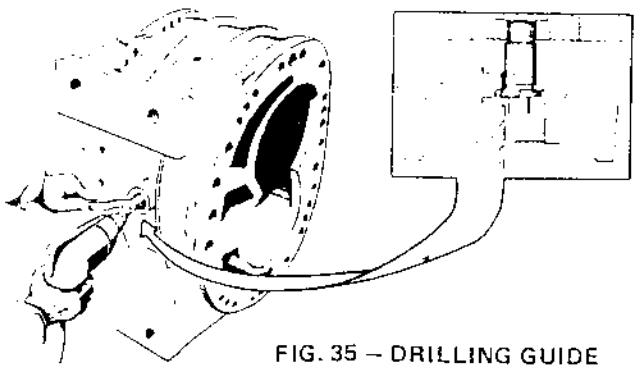


FIG. 35 – DRILLING GUIDE BLOCK SPINDLE

Reinstall new slide valve and check position both visually and by passing feeler gauge between rotors and slide valve.

Reassemble piston on spindle using new lock washer nut or snap ring.

Reassemble cylinder to inlet cover.

Piston slide valve assembly should move back and forth freely. Refer to Table 3 for typical values.

Reassemble remaining parts in reverse order from which they were removed.

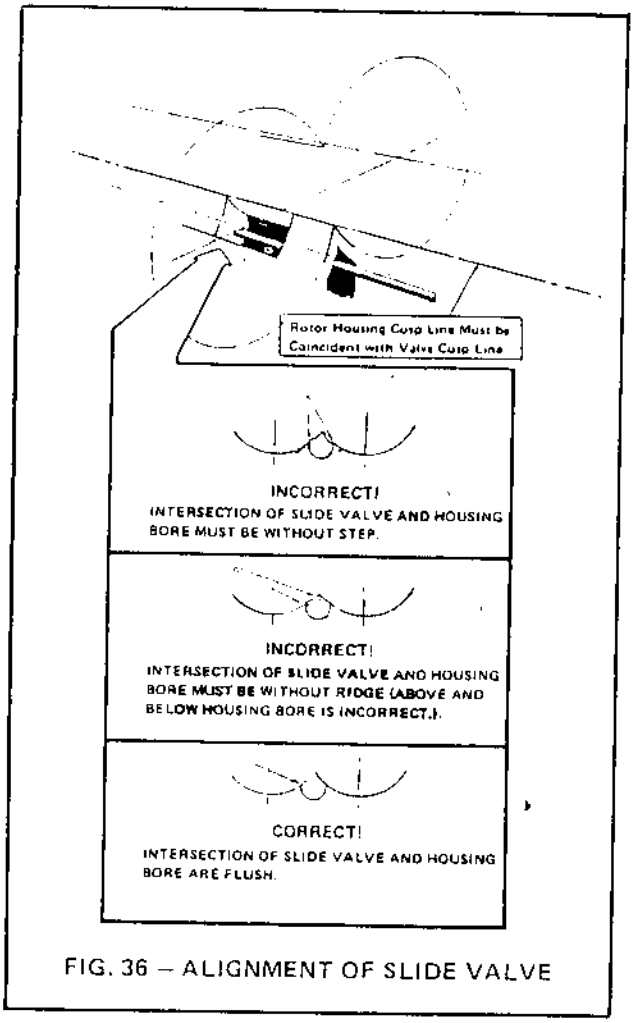


FIG. 36 – ALIGNMENT OF SLIDE VALVE

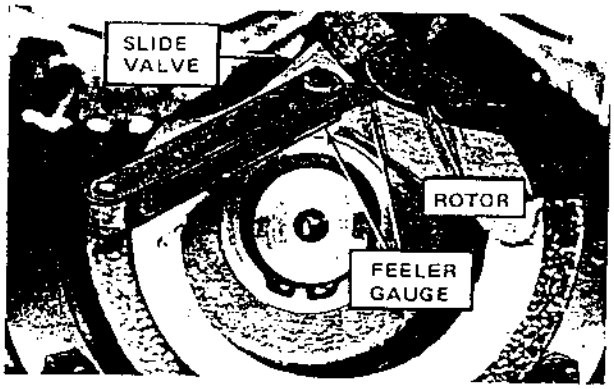


FIG. 37 – CLEARANCE BETWEEN THE SLIDE VALVE & ROTORS

III. MEASUREMENTS, WEIGHTS & TOOLS

TABLE 1
DBX COMPRESSOR OPERATING CLEARANCES

	DBX 163		DBX 204		DBX 255	
	NORMAL	MAXIMUM ALLOWABLE BEFORE REPLACEMENT	NORMAL	MAXIMUM ALLOWABLE BEFORE REPLACEMENT	NORMAL	MAXIMUM ALLOWABLE BEFORE REPLACEMENT
1. Rotor Bearing Clearance	.0025/.0037	.006	.0028/.0042	.006	.0038/.0054	.008
2. Rotor Housing Clearance (Diameter)	.0039/.0065	.025 (3)	.0041/.0069	.035 (3)	.0039/.0072	.045 (3)
3. Rotor End Clearance Discharge, Rotor to End Plate Inlet, Rotor to Inlet Housing	.004/.006 .008/.019(1)	SEE THRUST BEARING ASSY.	.004/.006 .010/.030(1)	SEE THRUST BEARING ASSY	.004/.006 .010/.031(1)	SEE THRUST BEARING ASSY.
4. Balance Piston Clearance	.0005/.0027	.005 (2)	.0007/.0033	.005 (2)	.0006/.0032	.005 (2)
5. Motor Shaft Bearing Clearance	.003/.005	.007	.003/.005	.007	.0035/.0055	.007
6. Motor Thrust End Clearance Thrust Washer Thickness	.012/.033	.045	.017/.038	.050	.017/.038	.050

(1) Depends on rotor L/D, longest rotor has larger clearance Minimum listed clearance is required in any L/D
(2) Larger clearance can be tolerated if oil pressure greater than 20 PSI can be maintained.
(3) Maximum clearance dependent on operating conditions & compressor/system capacity balance.

TABLE 2
APPROXIMATE COMPRESSOR WEIGHTS

MODEL	DIRECT DRIVE	HERMETIC
1610	905	1620
1613, 1615	1025	1835
1610ARPCX	—	1705
2010	1275	2935
2013, 2015	1435	3220
2018	1550	3500
2509, 2510	2100	4900
2512	2250	5200
2514, 2515	2400	5500
2516	2575	5850

TABLE 3
OPERATING INFORMATION
(Slide Valve and Rotors)

COMPRESSOR SIZE	PRESSURE (PSI) TO MOVE SLIDE VALVE/UNLOADER PISTON	TORQUE TO ROTATE ROTORS BY HAND LB.-FT.
1610	8-14	5-13
1613, 1615	8-14	7-15
2010	8-14	7-15
2013, 2015	8-14	8-16
2018	8-14	9-17
2509, 2510	8-14	15-23
2512	8-14	16-24
2514, 2515	8-14	17-25
2516	8-14	18-26

TABLE 4
THRUST BEARING INFORMATION

ITEM	16	20	25
DB Part Number	Bronze—BRG 74 Steel—BRG 75	Steel—BRG 80	Bronze—BRG 82 Steel—BRG 83
Quantity Required	2 Pair	2 Pair	2 Pair
Bearing Inner Race ID	2.1654/2.1648	2.7559/2.7553	3.3465/3.3457
Rotor Journal Diameter	2.1659/2.1653	2.7564/2.7558	3.3471/3.3464

NOTES:
(1) Thrust Bearings are angular contact, Duplex mounted back to back (DB) preloaded pairs.
(2) Refer to bearing packing slip and bearing replacement instructions.

Table No. 5

TORQUE CHART (LB.–FT.)

COMPRESSOR	163		204		255		
DESCRIPTION	FASTENER SIZE	TORQUE	FASTENER SIZE	TORQUE	FASTENER SIZE	TORQUE	NOTES
SLIDE GUIDE	3/8–16 HEX	30	3/8–16 HEX	30	3/8–16 HEX	30	
SPINDLE GUIDE PLUG	1-1/4–12 FLAT	90	1-1/4–12 FLAT	90	1-1/4–12 FLAT	90	
ROTOR HOUSING (OUTLET END)	5/8–11 SOC	205	5/8–11 SOC	205	5/8–11 SOC	205	
ROTOR HOUSING (INLET END)	5/8–11 SOC	205	5/8–11 SOC	205	5/8–11 SOC	205	
THRUST BEARING SLEEVE	1/2–13 HEX	65	1/2–13 HEX	65	1/2–13 HEX	65	
BEARING LOCKNUT, INNER	2.156–18 SPAN		2-3/4–18 SPAN		3.340–12 SPAN		7
BEARING LOCKNUT, OUTER	4-3/4–16 LUG		6"–16 LUG		7.472–8 LUG		7
LOCKING PLATE SCREW	3/8–16 HEX	30	3/8–16 HEX	30	3/8–16 HEX	30	
UNLOADER CYLINDER MTG.	1/2–13 SOC	105	1/2–13 SOC	105	5/8–11 SOC	205	
OUTBOARD SPACER SCREW	N/A	N/A	1/4–20 SOC	10	1/4–20 SOC	10	3, 4
PLATE & INJECTION TUBE	1/2–13 SOC	65	1/2–13 SOC	65	5/8–11 SOC	205	
BALANCE PISTON COVER	5/8–11 SOC	205	5/8–11 SOC	205	5/8–11 SOC	205	
OUTLET END COVER	5/8–11 SOC	205	5/8–11 SOC	205	5/8–11 SOC	205	1
SHAFT SEAL HOUSING	3/8–16 SOC	45	3/8–16 SOC	45	3/8–16 SOC	45	1
STATOR LOCKING SCREW	5/8–11 SET	50	5/8–11 SET	50	5/8–11 SET	50	2, 4
LOCKING SCREW BACKUP	5/8–11 SET	50	5/8–11 SET	50	5/8–11 SET	50	2, 4
TRANSITION HOUSING	N/A		N/A		5/8–11 SOC	205	2
BEARING SUPPORT PLATE	1/4–20 SOC	10	1/4–20 SOC	10	1/4–20 SOC	10	2
SHAFT LOCKNUT	2 5/32–18 SPAN	50	2-3/4–18 SPAN	75	3.137–12 SPAN	75	2
TERMINAL STUD MTG	1/2–13 STUD	9-10	1/2–13 STUD	9-10	3/4–10 STUD	15	2, 5
TERMINAL LUG NUT	1/2–13 HEX	20	1/2–13 HEX	20	3/4–10 HEX	30	2, 5
TERMINAL PLATE MTG	5/8–11 SOC	205	5/8–11 SOC	205	5/8–11 SOC	205	2
HERMETIC TERMINAL	10–32 SOC	6	10–32 SOC	6	10–32 SOC	6	2
COMPRESSOR MTG.	5/8–11 SOC	205	5/8–11 SOC	205	5/8–11 SOC	205	2
SEP. HOUSING OR COVER MTG.	5/8–11 SOC	205	5/8–11 SOC	205	5/8–11 SOC	205	2
INLET FLANGE	5/8–11 HEX	150	3/4–10 HEX	200	3/4–10 HEX	200	
OUTLET FLANGE	3/4–10 HEX	200	3/4–10 HEX	200	3/4–10 HEX	200	
MAIN OIL INJECTION	1-3/16–12 HEX	100	1-3/16–12 HEX	100	1-3/16–12 HEX	100	
MAIN OIL INLET	1-5/16–12 HEX	100	1-5/8–12 HEX	100	1-5/8–12 HEX	120	6
LIQUID INJECTION	9/16–18 HEX	90	3/4–16 HEX	90	1 1/16–12 HEX	120	

N/A : NOT APPLICABLE

NOTES:

1) On open type compressors only
2) On hermetic compressors only
3) On blocked compressors (1613, 2013, 2509, 2514.) only
4) Torque with Loctite—Screw lock grade CMP9
5) Use proper wrenching procedure to prevent loosening of stud, see terminal plate assembly
6) On "D" compressors only
7) Refer thrust bearing set up procedure in lieu of tightening torque

TOOLS REQUIRED

Set Standard Mechanics Tools
Set of Socket Wrenches
Set of Allen Socket Wrenches
Set of Feeler Gauges
Torque Wrench 0 to 250 lb./ft.
Magnetic Base Dial Indicator
Coupling or Wheel Puller
Small Files, Stones

Snap Ring Pliers for DBX 163 – "Snap Ring" Pliers # 3, 4, 6
DBX 204 & 255 – "Snap Ring" Pliers # 4, 5, 6
Coupling Alignment Dial Indicators
Hoist for Moving Rotor Table 2 for Compressor Weights
Spanner Wrench – Size 1-3/4" To 2-3/4"
Set of Micrometers and Depth Micrometers 0 to 1"
Hot Plate or Oven

SPECIAL ITEMS (Consult Sales Office For Special Tools)

BALL BEARING LOCKNUT WRENCHES FOR:

		MODEL	LOCKNUT WRENCH PART NUMBER	ROTOR WRENCH* PART NUMBER
Nut 65	SAE N-11	DBX 163	TOL 1	TOL 17
Nut 56	SAE N-14	DBX 204	TOL 2	TOL 18
Nut 35	SAE N-17	DBX 255	TOL 3	TOL 19
Nut 82	SAE N-07	DBX 163, 204	TOL 4	—
Nut 76	SAE N-16	DBX 255 Hermetic	TOL 5	—

*Not Essential – Can Use Spanner Wrench

TRUST BEARING OUTER RACE WRENCH FOR:

	MODEL	TOOL PART NUMBER
Nut 28	DBX 163	TOL 6
Nut 77 (609623)	DBX 204	TOL 7
Nut 34	DBX 255	TOL 8

SLIPPER SEAL ASSEMBLY TOOLS FOR:

MODEL	VERSION	INJECTION TUBE	UNLOADER PISTON
DBX 163	A, B C, D	TOL 9 TOL 10	TOL 11T1
DBX 204	A, B C	TOL 9 TOL 10	TOL 11T2
DBX 255	A B, C	TOL 9 TOL 10	TOL 11T3

ADDITIONAL TOOLS FOR:

Slide Valve Eccentric Adjustment	TOL 12
Stator Lock Drill Bushing	TOL 13
Hermetic Motor Stator Removal Fixture	TOL 14
163/204 Thrust Bearing Removal	TOL 15
Hermetic Coupling Removal	TOL 16
Spindle Plug (PLU105) Socket	TOL 20
Hermetic Motor Hook	TOL 23

IV. ORDERING PARTS

A. When ordering kits or parts, the following information should be specified:

1. NAMEPLATE DATA: (See Figure 38)
   PCX/DBX (X) No. (Example: X479)
   Compressor Model No. (Example: 2515DHROB or 204/150)
   Compressor Serial No. (Example: 201571A001C)
   Compressor Serial No. also stamped on Rotor Housing Main Flange
2. TYPE OF UNLOADER CONTROL—IDR Controller or CNT Controller. (See Figures 39 and 40)
3. DESIGNATE AMMONIA OR FREON APPLICATION

B. SPECIFY KIT BY TITLE:

(1) Shaft Seal Replacement
(2) Complete Gasket & "O" Ring Replacement
(3) Thrust Bearing Replacement
(4) Unloading Cylinder Seal Replacement
(5) Complete Compressor Replacement
(6) Oversize Unloader Conversion Kit (For 163 Operating at ΔP in Excess of 190 PSI, Consult Factory)
(7) Double-Acting Unloader Conversion Kit
(8) CNT Controller to IDR Controller Conversion

C. When only a specific part is required, specify:

(1) Part number as obtained from exploded views
(2) Which exploded view was used, item number and on what page it is located.

(Example: 163 Slide Valve VAL738T4, View: DBX 163 Direct Drive Item 14, Page 16.)

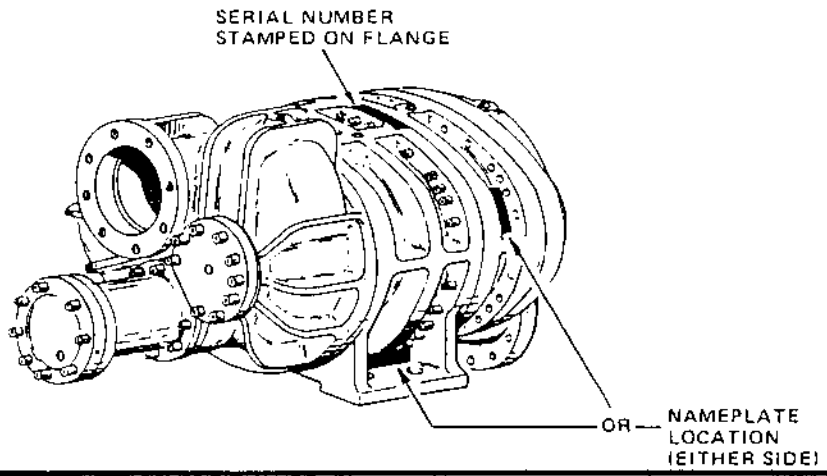


FIGURE 38

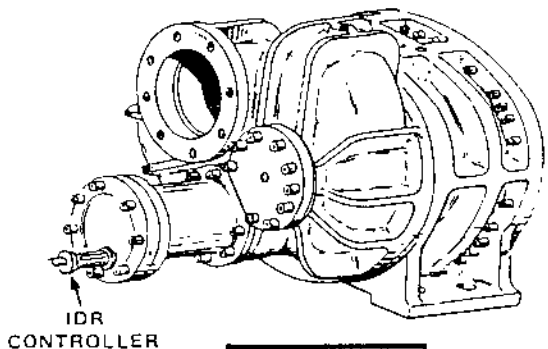


FIGURE 39

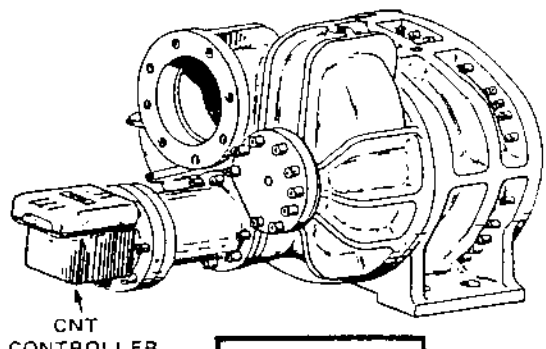
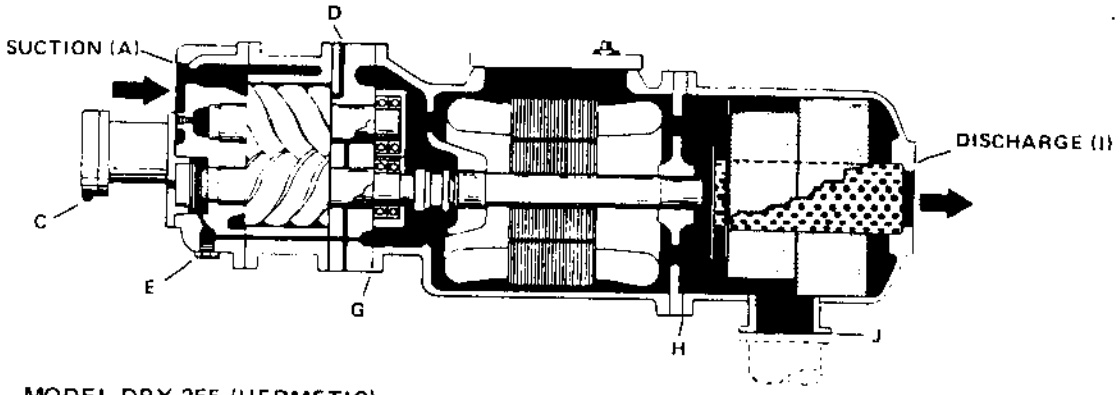


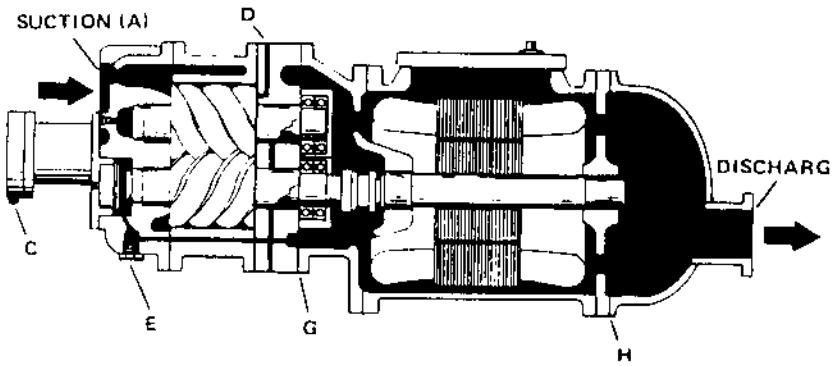
FIGURE 40

D. INTERFACE GASKETS & "O" RINGS

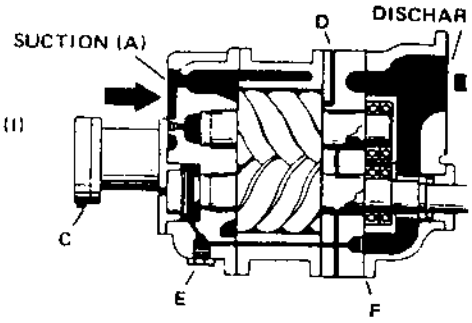
MODELS DBX 163 & 204 (HERMETIC)



MODEL DBX 255 (HERMETIC)



MODELS DBX 163, 204 & 25
(DIRECT DRIVE)*



*NOTE: Discharge flange has been rotated for

FIG. 41 – "O" RING AND GASKET LOCATIONS

For other gaskets and "O" Rings, refer to specific exploded diagram and part number chart. NOTE: Complete gasket and "O" Ring kits are available.

SYM.	DESCRIPTION	163A	163 B & C	163D	204A	204 B & C	204D	255A	255 B & C	255D
A	SUCTION FLANGE	GKT252	GKT252	GKT252	GKT229	GKT229	GKT229	GKT380	GKT380	GKT380
B	DISCHARGE FLANGE	GKT267	GKT267	GKT267	GKT257	GKT257	GKT257	GKT248	GKT248	GKT248
C	MAIN OIL INJECTION	"Pipe Thd"	GKT383	GKT383	"Pipe Thd"	GKT383	GKT383	"Pipe Thd"	GKT383	GKT383
D	LIQUID INJECTION	–	RNG237[1]	RNG237	–	RNG238[1]	RNG238	–	RNG239	RNG239
E	INTERNAL MAIN OIL	–	–	RNG235	–	–	RNG236	–	–	RNG236
F	D/D OUTLET END COVER	RNG203	RNG203	GKT468	GKT388	GKT388	GKT415	GKT338X[2]	GKT448	GKT448
G	MOTOR HOUSING OR TRANSITION HOUSING	RNG203	RNG203	GKT468	GKT223	GKT223	GKT223	GKT265	GKT265	GKT265
H	SEPARATOR HOUSING	GKT318	GKT318	GKT318	GKT222	GKT222	GKT222	GKT222	GKT222	GKT222
I	VAPOR DISCHARGE FLANGE	GKT267	GKT267[3]	"Welded Conn."	GKT257	GKT257	GKT257	GKT248	GKT248	GKT248
J	OIL DISCHARGE FLANGE	RNG188	RNG188[3]	"Welded Conn."	RNG188	RNG188	"Welded Conn."	INCORPORATED WITH VAPOR DISCHARGE		

[1] Some B versions have pipe thd instead of SAE 'O' Ring Boss
[2] GKT448 may be used by trimming internal oil tab
[3] Welded connection on some B versions and on all C versions.

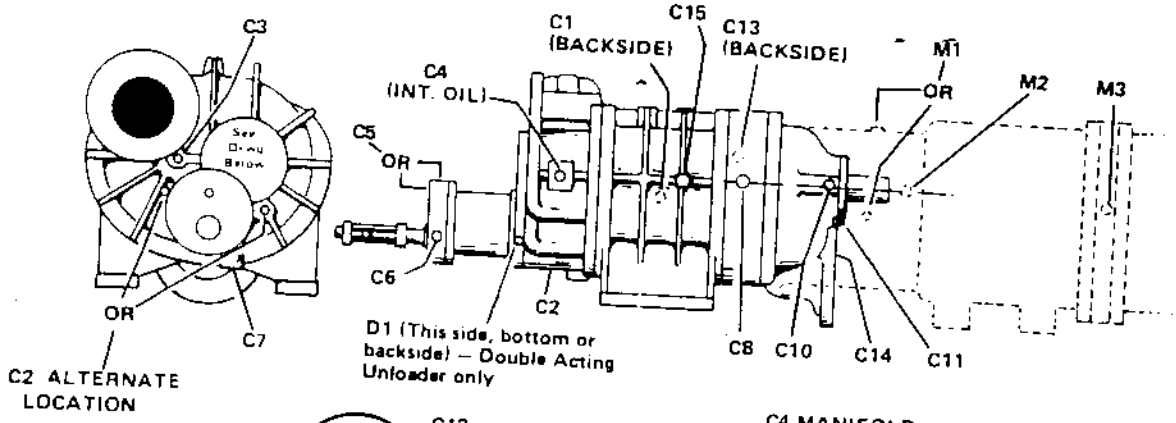
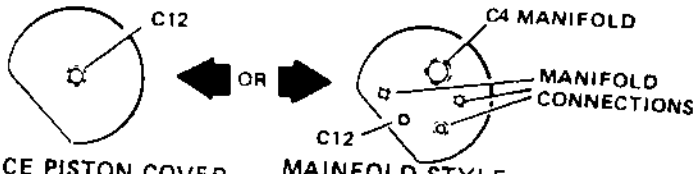


FIGURE 42



BALANCE PISTON COVER (INTERNAL OIL VERSION)

MAINFOLD STYLE BALANCE PISTON COVER (EXTERNAL OIL VERSION)

PORT IDENT.	DESCRIPTION	163A	163 B & C	163D	204A	204 B & C
C1	Side Injection	1/4-18NPTF	1/4-18NPTF	INTERNAL	3/8-18NPTF	3/8-18NPTF
C2	Bleed Off (Suction Pressure)	3/8-18NPTF	3/8-18NPTF	—	3/8-18NPTF	3/8-18NPTF
C2 ALT	Bleed Off (Suction Pressure)	—	1/4-18NPTF	1/4-18NPTF	—	1/4-18NPTF
C3	Female Inlet Bearing	3/8-18NPTF	3/8-18NPTF	INTERNAL	3/8-18NPTF	3/8-18NPTF
C4	Male Balance Piston	3/8-18NPTF	—	—	3/8-18NPTF	—
C4 MANIF	Male Balance Piston Manifold	—	1"-11 1/2NPTF	—	—	1"-11 1/2NPTF
C4 INT	Main Oil	—	—	1 5/16-12UN	—	—
C5	Unloader Oil	1/4-18NPTF	1/4-18NPTF	1/4-18NPTF	1/4-18NPTF	1/4-18NPTF
C6	Main Oil Injection	3/4-14NPTF	1 3/16-12UN[1]	1 3/16-12UN[1]	3/4-14NPTF	1 3/16-12UN[1]
C7	Male Inlet Bearing	3/8-18NPTF	3/8-18NPTF	INTERNAL	3/8-18NPTF	3/8-18NPTF
C8	Male and Female Discharge Bearing	3/8-18NPTF[2]	3/8-18NPTF	INTERNAL	3/8-18NPTF[2]	3/8-18NPTF
C8	Shaft Seal or Motor Bearing Oil Supply	—	—	3/8-18NPTF	—	—
C10	Shaft Seal Oil (D/D Only)	1/4-18NPTF	1/4-18NPTF	1/4-18NPTF	1/4-18NPTF	1/4-18NPTF
C11	Seal Weepage Drain (D/D Only)	1/8-27MPT	1/8-27MPT	1/8-27MPT	1/8-27MPT	1/8-27MPT
C12	Unloader Oil Supply	—	3/8-18NPTF	3/8-18NPTF	—	3/8-18NPTF
C13	Liquid Injection	—	9/16-18UNF[3]	9/16-18UNF	—	3/4-16UN[3]
C14	Discharge Pressure (O/D Only)	—	1/4-18NPTF	1/4-18NPTF	—	1/4-18NPTF
C15	Oil Failure Pressure	1/8-27NPTF	—	—	—	—
M1	Discharge Pressure (Hermetic)	1/4-18NPTF	1/4-18NPTF	1/4-18NPTF	1/4-18NPTF	1/4-18NPTF
M2	Inboard Motor Bearing (Hermetic)	1/4-18NPTF	1/4-18NPTF	1/4-18NPTF	1/4-18NPTF	1/4-18NPTF
M3	Outboard Motor Bearing (Hermetic)	1/4-18NPTF	1/4-18NPTF	1/4-18NPTF	1/4-18NPTF	1/4-18NPTF
D1	Unloader Oil (DBL ACT)	1/8-27NPTF	1/8-27NPTF	1/8-27NPTF	1/8-27NPTF	1/8-27NPTF
	Manifold Connector	—	3 ea -1/4-14NPTF	—	—	2 ea.-1/2-14NPTF 1 ea.-3/4-14NPTF

PORT IDENT.	DESCRIPTION	204-D	255A	255 B & C	255 D
C1	Side Injection	INTERNAL	3/8-18NPTF	3/8-18NPTF	INTERNAL
C2	Bleed Off (Suction Pressure)	—	3/8-18NPTF	3/8-18NPTF	—
C2 ALT	Bleed Off (Suction Pressure)	1/4 - 18 NPTF	—	1/4-18NPTF	1/4 - 18 NPTF
C3	Female Inlet Bearing	INTERNAL	3/8-18NPTF	3/8-18NPTF	INTERNAL
C4	Male Balance Piston	—	3/8-18NPTF	—	—
C4 MANIF.	Male Balance Piston Manifold	—	—	1"-11 1/2NPTF	—
C4 INT	Main Oil	1 5/8 - 12UN - 2B	—	—	—
C5	Unloader Oil	1/4 - 18 NPTF	—	—	1 5/8 - 12UN-2B
C6	Main Oil Injection	1 3/16 - 12UN[1]	1/4-18NPTF	1/4-18NPTF	1/4 - 18NPTF
C7	Male Inlet Bearing	INTERNAL	3/4-14NPTF	1 3/16-12UN[1]	1 3/16 - 12UN[1]
C8	Male and Female Discharge Bearing	INTERNAL	3/8-18NPTF	3/8-18NPTF	INTERNAL
C8	Shaft Seal or Motor Bearing Oil Supply	3/8 - 18 NPTF	3/8-18NPTF[2]	3/8-18NPTF	INTERNAL
			—	—	3/8 - 18NPTF
C10	Shaft Seal Oil (D/D Only)	1/4 - 18 NPTF	1/4-18NPTF	1/4-18NPTF	1/4 - 18NPTF
C11	Seal Weepage Drain (D/D Only)	1/8 - 27 NPTF	1/8-27MPT	1/8-27MPT	1/8 - 27NPTF
C12	Unloader Oil Supply	3/8 - 18 NPTF	—	3/8-18NPTF	3/8 - 18NPTF
C13	Liquid Injection	3/4 - 16UN	—	1 1/16-12UN	1 1/16 -12UN
C14	Discharge Pressure (O/D Only)	1/4 - 18 NPTF	—	1/4-18NPTF	1/4 - 18NPTF
C15	Oil Failure Pressure	1/8 - 27NPTF	—	—	1/8 - 27NPTF
M1	Discharge Pressure (Hermetic)	1/4 - 18NPTF	1/4-18NPTF	1/4-18NPTF	1/4 - 18NPTF
M2	Inboard Motor Bearing (Hermetic)	1/4 - 18 NPTF	1/4-18NPTF	1/4-18NPTF	1/4 - 18NPTF
M3	Outboard Motor Bearing (Hermetic)	1/4 - 18NPTF	1/4-18NPTF	1/4-18NPTF	1/4 - 18NPTF
D1	Unloader Oil (DBL ACT)	1/8 - 27 NPTF	1/8-27NPTF	1/8-27NPTF	1/8 - 27NPTF
	Manifold Connector	—	—	2 ea.-1/2-14NPTF 1 ea.-3/4-14NPTF	—

[1] Special boss; use with GKT383 and ADP135 or ADP136
[2] On some A versions, requires feed from both sides
[3] On some B versions: 9/16-18UN was 1/4-18NPTF; 3/4-16UN was 1/2-14NPTF

V. DBX HERMETIC COMPRESSOR

A. THE FOLLOWING CHECKS SHOULD BE MADE PERIODICALLY OR AT A MINIMUM OF ONCE A YEAR.

1. Leak test of hermetic compressor assembly. Minor flange leaks may be corrected by retorquing the bolts. Refer Section III for both torque specifications.

2. Leak test of hermetic terminal plate. Any minor leaks indicate motor terminal bushings may be under compression. Refer terminal plate assembly and torque chart, Section III.

3. Megger test of motor windings.

   The terminal plate and motor windings should be megger tested on an annual basis.

   a. Proceed by first disconnecting external power leads in order to isolate terminal plate and motor.

   b. Connect proper megger lead to terminal post and connect ground to terminal plate or compressor body. Take megger reading of each motor phase to ground. Using 500V megger with motor hot. Record motor temperature.

   c. The following table should be used as a guide.

Megger Reading	Action Required
Infinity to 200 meg ohms	OK Recheck in 1 Year
200 to 30 meg ohms	Recheck in 1 Month
Under 30 meg ohms	Immediate action required. Consult factory.

FOR COMPLETE PROCEEDURE
REFER TO UNIT I & O MANUAL.

B. SERVICING OF THE HERMETIC COMPRESSOR ASSEMBLY

1. Isolate compressor using available line valves or check valves and line valves. Pump out compressor and low side of package. While pump out is in process continue to circulate water thru shell and tube heat exchanger so as not to run danger of freeze up.

   Refer PCX unit Pump out instructions.

2. Remove main fuses or open main disconnect. Remove main motor leads and control circuit connections to compressor terminal plate.

3. Loosen and remove all oil connection lines.

4. Unbolt compressor suction flange connection and separator housing main flange ring. When removing compressor and motor housing portion from package the separator housing (DBX 204, 163) should be supported in place and left on the package.

   On Series III DBX 163 and 204 units the separator housing is direct connected to the oil sump without any intermediate flanges.

5. Compressor motor section can then be hoisted off unit. Refer Table 2 for compressor and motor housing assembly weights.

6. Separation of compressor from motor assembly.

   a. Place compressor motor assembly on suitable level surface supporting both motor housing and compressor feet.

   b. Remove snap ring from exposed end of motor drive shaft. Insert 3/8-16 size bolt in tapped end of spline drive shaft and remove from hollow motor shaft.

   c. Remove all bolts from flange joining motor housing flange to compressor outlet end plate.

   d. Insert 5/8-11 Jack bolts and evenly separate flange until motor housing is clear of flange dowel pins.

C. FOR INSPECTION OF MOTOR BEARINGS AND THRUST RINGS

1. Using magnetic base dial indicator determine motor thrust assembly end clearance by pulling motor fore and aft and recording dial readings.

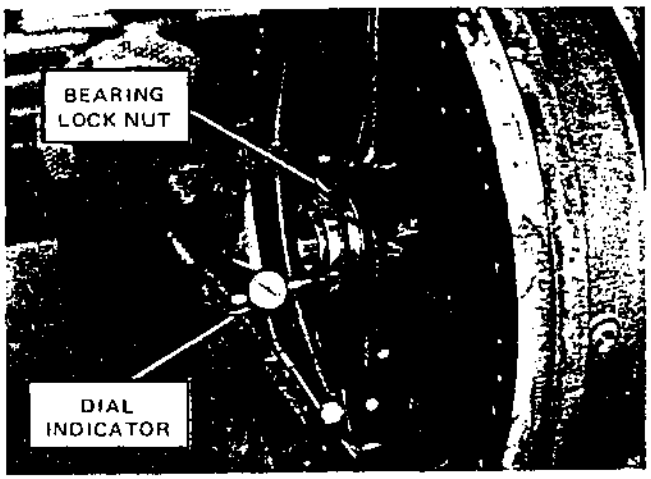


FIG. 43 – MOTOR ASSEMBLY END CLEARANCE

Model	Total End Clearance	Max. End Clearance before replacing parts
163	.012 – .033	.046
204	.017 – .038	.054
255	.017 – .038	.054

2. Using drift and hammer or retaining lock nut spanner wrench remove lock nut by tapping and turning in a counterclockwise direction.

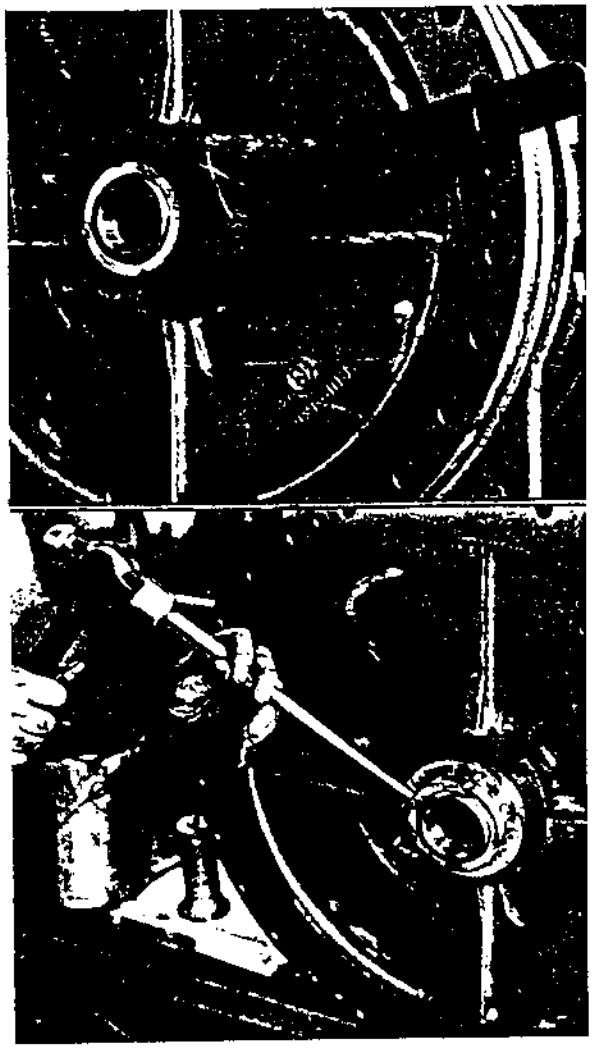


FIG. 44 – MOTOR LOCKNUT REMOVAL

3. Remove lock nut, lock washer, steel runner ring and thrust washer. Loosen the three 1/4" Allen socket head set screws that mount the bearing support plate to the motor housing.

   The outboard roll drive pin should be removed from the shaft. Failure to remove this pin may result in scoring bearing when bearing support plate is removed.

4. Install two 5/8" – 11 studs or threaded drill rod as shown to support weight of bearing support during removal.

   The bearing support plate can now be removed by pulling forward or by inserting three 5/8 – 11 bolts into tapped jack off holes.

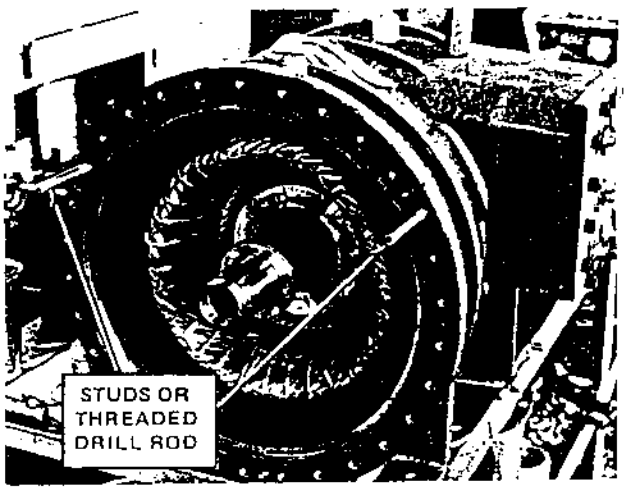


FIG. 45 – BEARING SUPPORT REMOVED

The internal runner ring and thrust washer may now be removed for examination.

5. The motor rotor shaft assembly can now be removed by carefully sliding assembly out of stator. Care must be taken to avoid damage to motor housing bearing as end of motor shaft comes clear of the bearing. A piece of rod or pipe should be slipped into rotor shaft bore at compressor end of shaft to support shaft assembly during removal operation.

6. Shaft journals and bearings can now be inspected for wear. Refer Table 1 for these dimensions.

D. REMOVAL OF TERMINAL PLATE

1. Terminal plate can be removed by loosening and removing terminal plate bolts. Insert two 5/8 – 11 studs to support weight of plate while it is being loosened.

2. Carefully pull plate outward 2–4" so that access can be obtained to loosen motor lead lug nuts.

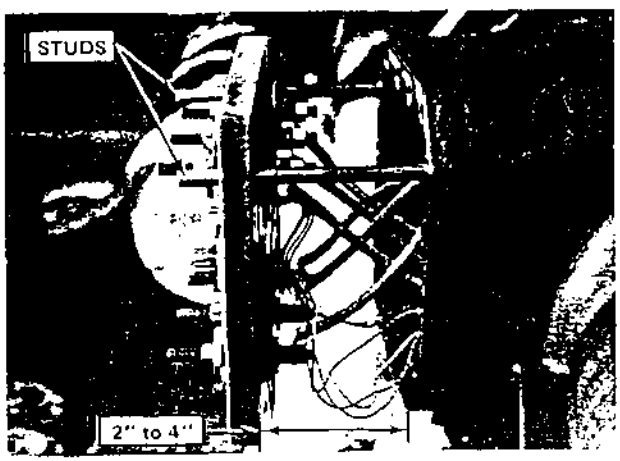
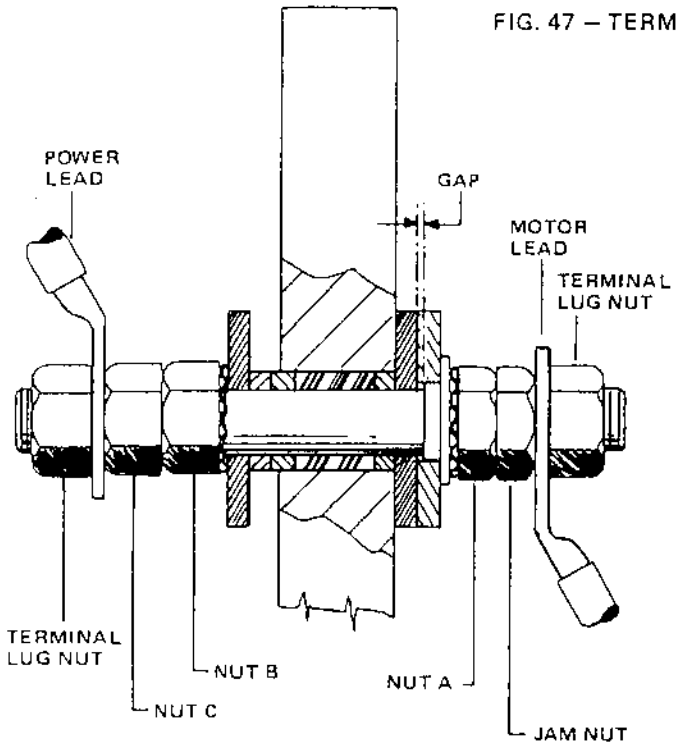


FIG. 46 – TERMINAL PLATE REMOVAL

FIG. 47 – TERMINAL PLATE ASSEMBLY



SEE TEXT AT RIGHT FOR INSTRUCTIONS.

TIGHTENING PROCEDURE (See Dwg. at Left)

1. Run up nut A to end of thread such that square on post does not bear on insulating washer - note gap between square on post and insulating washer.
2. Jam nut to be jammed against nut A while holding nut A.
3. Torque nut B as specified below, while holding nut A to insure the stud does not turn.
4. Nut C to be jammed against nut B while holding nut B.
5. Install motor lead terminal on stud and torque terminal lug to values in table below while holding jam nut.
6. When installing power leads to terminal from starter, torque external terminal lug nut values in table below while holding nut B.

TERMINAL TORQUING SPECIFICATIONS

COMP. MODEL	NUT B	TERMINAL LUG NUTS
163,204	9-10 Lb.Ft.	20 Lb.Ft.
255	15 Lb.Ft.	30 Lb.Ft.

Two wrenches should be used in loosening lug nuts. One to hold plate assembly nut and one to loosen the outboard lug nut.

Location of leads on terminal plate should be noted and marked.

3. Loosen the 4 Allen socket screws on small fusite terminal plate. Separate fusite plate from terminal plate by 2" – 3" to provide access for removing motor protection spade type terminals. If mylar shrinkable sleeve cannot be pushed back to expose terminal connections it may be necessary to slit shrinkable tubing to gain access to terminals. Note these terminal connections must be covered with new shrinkable sleeving at reassembly if original sleeving is either removed or damaged.

4. Terminal plate can now be removed from motor housing. For plate reassembly to housing, reverse above order. Also refer to torque chart Table 5 for torque specifications.

Extreme care is required when connecting motor leads and power leads to terminal plate studs so that excessive torque or bending movement is not imparted to terminal studs. Two wrenches must always be used when connecting lugs so that torque-compression setting of rubber bushings are not disturbed and that terminal post assembly is not rotated.

Under normal conditions terminal post will not rotate but excessive torque can cause split of internal phenolic locking plate and resulting rotation of terminal post.

If this happens after plate is installed when connecting power leads an improper assembly will result. Internal lead connecting lugs may rotate resulting in decreased air gap between lug and motor housing. A phase to ground short may result.

After terminal plate is installed, a megger test should be performed to verify correctness of assembly. These readings should be recorded for future reference.

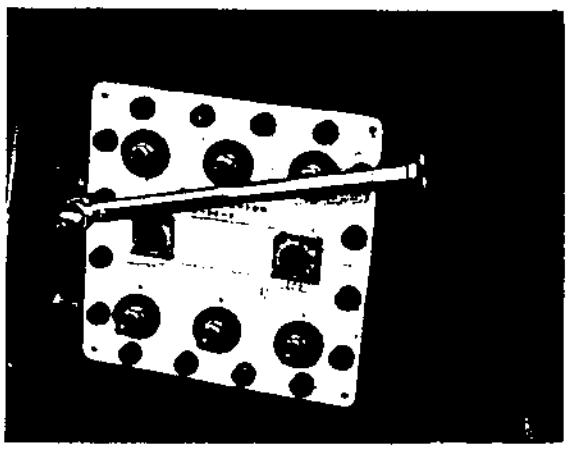


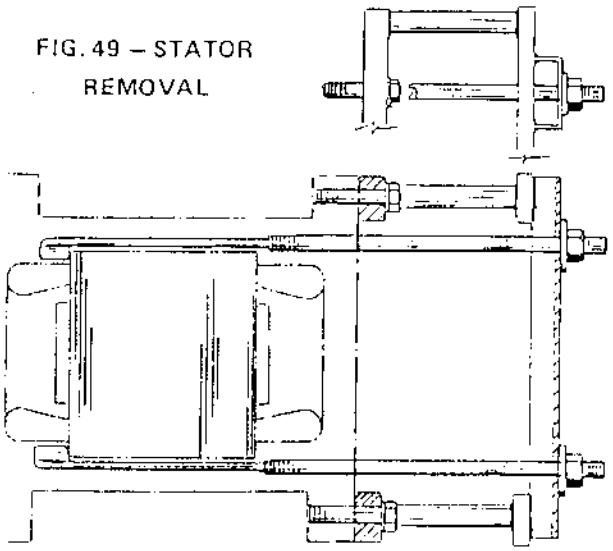
FIG. 48 – TORQUING TERMINAL PLATE SCREWS

E. REMOVAL OF STATOR

1. Remove stator locking set screws located behind terminal plate.

2. A puller is required to remove stator since motor housing ID and motor stator OD is only a slight clearance fit. A pair of puller arms can be fabricated that will pass over OD of stator thru two opposite gas ducts in ID of housing. Ends of puller must be formed so that tips can grip back side of stator body iron. A suitable plate or bar can be attached to motor housing flange ring and motor stator jacked out of housing. Care must be taken to feed motor leads back thru housing slots as motor is removed.

FIG. 49 – STATOR REMOVAL



F. INSTALLATION OF NEW STATOR

1. Clean housing thoroughly to remove any dirt, rust or foreign matter.

2. Deburr as required.

3. Examine new stator and prepare location of motor lead groupings in relation to motor housing terminal box core openings.

4. Pick up stator using hoist and special motor hook as shown.

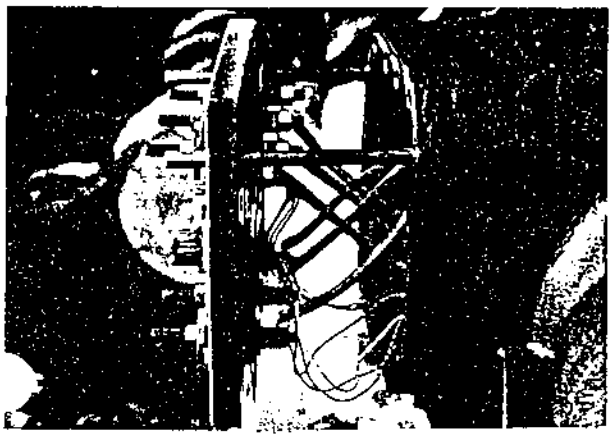


FIG. 50 – TERMINAL PLATE REMOVAL

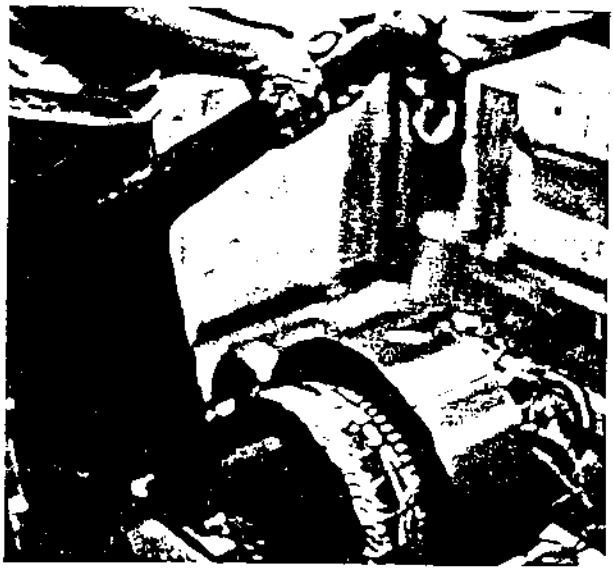


FIG. 51 – POSITIONING STATOR HOOK

Stator weights will vary as shown below and handling is difficult if hook is not available or is not fabricated for this operation.

COMPRESSOR MODEL	STATOR WEIGHT LBS.
1610	223
1613, 1615	287
2010	400
2013	475
2015	553
2018	710
2509, 2510	664
2512	796
2514, 2515	1007
2516	1200

5. Position stator at entrance to motor housing bore and feed motor terminals thru cored slots in terminal box. If stator will not easily slide into bore the motor housing will have to be expanded slightly. This can be accomplished by gently and uniformly applying heat to OD of motor housing.

   While pushing motor into position, leads must be guided thru slots so they are not scraped or pinched. For proper motor axial alignment stator must be pushed and seated against stops in motor housing bore.

6. Using drill bushing threaded into housing set screw locking holes, drill .437 dia. holes into stator iron. Drill depth should be only deep enough for clearance of dog point set screws. After drilling is complete, remove all chips before installing set screws. Apply Loctite to set screws and install dog point set screw followed by cup point back up set screws.

   Note 163 and 204 have 2 sets of locking screws and the 255 has 3 sets of locking screws.

G. REASSEMBLY

Reassemble motor assembly components in reverse order of disassembly procedure.

Items to check after rotor/shaft and bearing support plate are installed.

1. Motor stator and rotor laminations should have an axial mismatch of 3/16" to 1/4". This is intended and normal.

2. Check shaft assembly total end shake with dial indicator, as shown and described previously. Note and record dimensions.

3. Using feeler gauges, check rotor OD to stator ID air gap in 4 positions by inserting feelers thru bearing support cored holes. Clearances should be as follows and should be the same all around within .006.

MIN. AIR GAP

MODEL	GE MOTOR	RELIANCE MOTOR
163	.041	.032
204	.055	.070
255	.055	.030

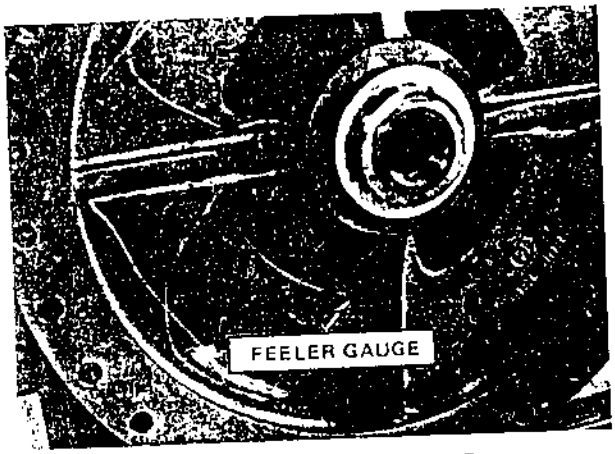


FIG. 52 – MEASURING AIR GAP

H. MOTOR DRIVE COMPRESSOR SPLINE COUPLING

Motor spline drive coupling is key driven and also an interference fit on compressor rotor of .0005/.002. A special duty split collar and heavy duty puller is required for removal of spline drive coupling.

For reassembly of coupling to compressor rotor the coupling must be heated to about 350° to 400°F. This can be done in a small oven if available or on a hot plate with coupling in a bath of some fluid suitable for high temperature use.

Standard refrigeration oil or Therminal should not be

I. COMPRESSOR REPLACEMENT DUE TO HERMETIC BURNOUT

Refer to System Burnout Procedure (Form 4232) for more complete coverage.

1. GENERAL

Replacement parts and material should be lined up and available prior to opening system. Once system is open and air is emitted, fast action is required to minimize further damage and corrosive action.

2. COMPRESSOR PORTION

a. Remove compressor, install end cover plate and gasket. Plug or cap all external oil and refrigerant connections. Fill compressor housing with clean refrigerant oil.

b. Remove motor housing from system. Do not disassemble any parts of motor. Install protective covering over motor housing.

c. Remove separator core. Scrap, do not return separator core to West Hartford.

d. Use steel flare nuts to protect fitting threads when removing fittings from original compressor.

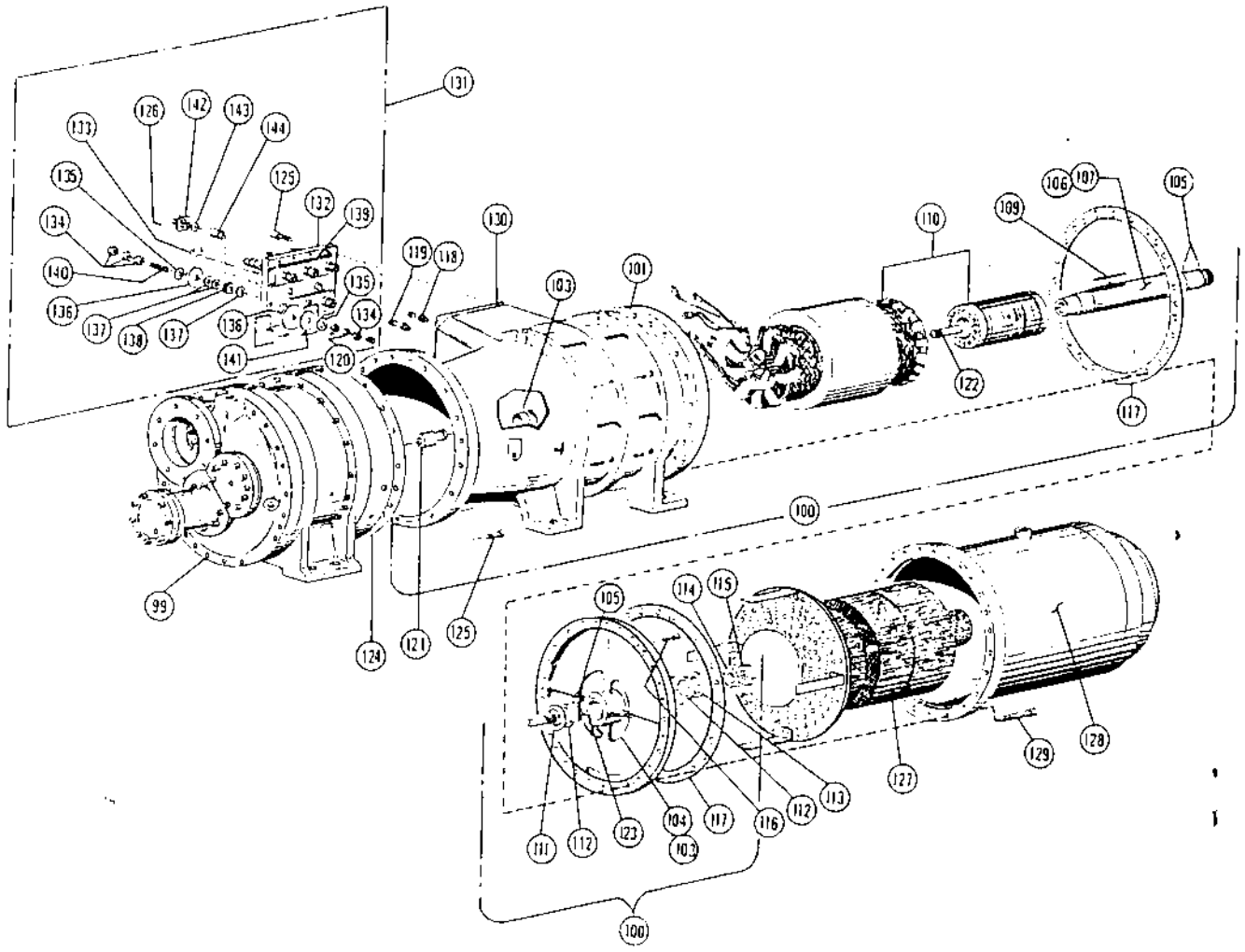
e. Re-use new compressor plugs to seal openings in original compressor.

3. CLEANING & REASSEMBLING PROCEDURES

a. Thoroughly clean separator housing and oil sump with R–11. Oil these surfaces with clean oil.

b. Install new separator core – CAUTION: Units with box on housing, insert a piece of light gauge sheet metal over box opening to prevent tearing the wire mesh. Prior to insertion, bend the raw edges of perforated inner sleeve slightly inward to prevent these raw edges from hanging up on machined recess in separator housing at discharge gas end. It is very important that core be correctly installed to prevent any by pass of separated oil. When properly in place, target plate should be approximately 2" inside bolt ring. The guide extensions are designed to bear against motor bearing support plate to firmly hold core in place. Prior to installing motor housing, insure that inner sleeve is supported in recess at gas discharge flange and that guide extensions will bear against rotor bearing support plate.

c. Install new motor housing and compressor. These can be installed separately or as one unit depending on job condition. CAUTION: Care must be exercised to prevent distortion of oil drain connection flange. Motor housing must remain supported until all bolts are set up. When bolt ring alignment is correct, all bolts will make up finger tight. After torquing up all bolts to 205 ft./lb. with motor housing still supported, shim under motor housing feet. If compressor is to be installed separately, quill shaft must be inserted and engaged thru motor shaft. Insure that snap ring is in place at discharge end of motor shaft. This prevents quill shaft from sliding thru motor & striking target plate on separator core. Compressor must be supported and balanced to properly engage quill shaft into spline coupling on male rotor. Care must be exercised in lining up quill shaft and spline coupling. Female screw may be rotated with wooden block to facilitate engagement. Do not attempt to force engagement. Once proper alignment has been achieved, compressor may be moved forward by hand until dowel pins are engaged. Threaded rods may be used for pull up if care is exercised not to force or bind quill shaft. With dowel pins engaged, gradually pull compressor forward until bolt flanges are together. All bolts should make up finger tight. With compressor still supported tighten all bolts to 205 ft./lbs. Release compressor support. From compressor inlet, rotate female rotor with wooden block to insure quill shaft is not binding. Remove plugs and install new oil line fittings.



J. DBX 163 HERMETIC
(VERSION A, B, C & D)

FIGURE 53

DBX 163 HERMETIC (VERSION A, B, C & D)

			(1610)	(1613)	(1615)
ITEM	DESCRIPTION	QTY.	PART NO.	PART NO.	PART NO.
99	Compressor	1	[1]	[1]	[1]
100	Motor Assembly DWG.		ISR49	ISR49	ISR49
101	Housing, Motor	1	HSG55A	HSG55A	HSG55A
102					
103	Bearing, Motor	2	BRG68	BRG68	BRG68
104	Support, Bearing	1	SUP163	SUP163	SUP163
105	Pin, Spring	6	PIN82T1	PIN82T1	PIN82T1
106	Shaft & Motor Assembly DWG		TAB50	TAB50	TAB50
107	Shaft, Motor	1	SHF34	SHF34	SHF34
108					
109	Key	1	KEY3	KEY3	KEY3
110	Motor, Hermetic[2] – Select for Proper Voltage:				
	208V, 60HZ, 3ø		MTR1000	MTR1025AT1	MTR1004
	220, 230, 240V, 60HZ, 3ø		MTR1001	MTR1025AT2	MTR1005
	380, 415V, 50HZ, 3ø; 440, 460, 480V, 60HZ, 3ø		MTR1002	MTR1025AT3	MTR1006
	575V, 60HZ, 3ø		MTR1003	MTR1025AT4	MTR1007
111	Plate, Thrust	1	PLT432	PLT432	PLT432
112	Washer, Thrust	2	WAS58	WAS58	WAS58
113	Plate, Thrust	1	PLT431	PLT431	PLT431
114	Lockwasher, Bearing	1	WAS94	WAS94	WAS94
115	Locknut, Bearing	1	NUT65	NUT65	NUT65
116	Screw, Soc HD Cap	3	034P15	034P15	034P15
117	Gasket, Motor Housing	2	GKT318	GKT318	GKT318
118	Screw, Stator Locking	2	SCR44	SCR44	SCR44
119	Screw, Set – Oval PT	2	SCR87	SCR87	SCR87
120	Nut, Hex – 1/2 – 13 (Brass) Jam	12	NUT91	NUT91	NUT91
121	Coupling, Spline	1	CPL120	CPL120	CPL120
122	Shaft, Quill	1	SHF35	SHF35	SHF35
123	Ring, Retaining	1	RNG179	RNG179	RNG179
124	Gasket, Motor Housing	1	GKT468[3]	GKT468[3]	GKT468[3]
125	Screw, Soc HD Cap	36	0348P19	0348P19	0348P19
126	Screw, Soc HD Cap	8	0339P07	0339P07	0339P07
127	Separator, Oil	1	SEP43A	SEP43A	SEP43A
128	Housing Assembly, Oil Sep. & Sump	1	HSG109A	HSG109A	HSG109A
129	Screw, Soc HD Cap	20	0348P29	0348P29	0348P29
130	Gasket, Terminal Plate	1	GKT224	GKT224	GKT224
131	Plate – Terminal Assembly	1	PLT612A	PLT612A	PLT612A
132	Plate, Terminal	1	PLT445	PLT445	PLT445
133	Decal, Motor Temp. Sensor	1	DCM53	DCM53	DCM53
134	Nut, Hex – 1/2 – 13 (Brass)	24	NUT55	NUT55	NUT55
135	Lockwasher, Ext. Tooth	12	014P05	014P05	014P05
136	Bushing	12	BUS53	BUS53	BUS53
137	Bushing, Spacer	18	BUS52	BUS52	BUS52
138	Bushing – Terminal Seal	6	BUS51	BUS51	BUS51
139	Plate, Locking	2	PLT453	PLT453	PLT453
140	Post, Terminal	6	POS18	POS18	POS18
141	Washer, Flat	6	014P03	014P03	014P03
142	Terminal, Hermetic	2	TER13	TER13	TER13
143	"O" Ring	2	RNG167	RNG167	RNG167
144	Tubing – Mylar, Shrinkable	1.5 ft.	INN11	INN11	INN11

[1] Compressor: Same as open compressor except do not use items: 5, 34, 35, 43, 51, 56, 59, 64, 67, 73, 74, 75, & 42. Quantities differ as follows: Item 66-53

[2] Consult Factory – part number varies with application

[3] RNG203 on A, B and C versions

K. ARPCX 163 HERMETIC (VERSIONS B & C)

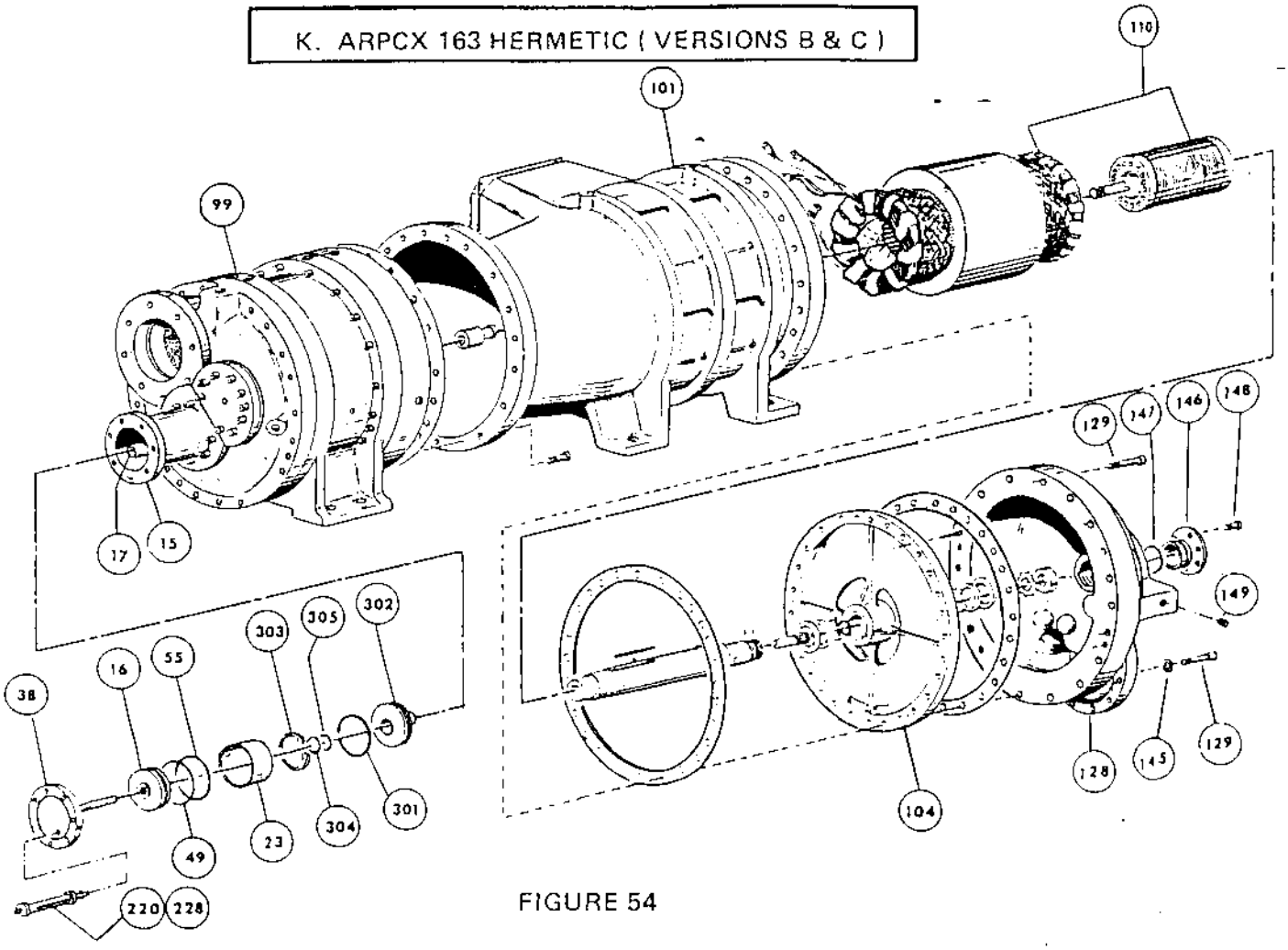


FIGURE 54

ITEM	DESCRIPTION	QTY.	1610 ARPCX B & C	1610 ARPCX D
15	Cylinder, Unloader Piston	1	CYL20	CYL27
16	Piston, Unloader	1	PST71	PST110
17	Spindle Assembly	1	SPN1A	SPN18AT3
23	Spacer, Piston	1	SPC89	SPC124
38	Plate & Injection Tube Assembly	1	PLT2038A	PLT1066AT1
49	"O" Ring, Piston	1	RNG205	RNG206
55	Ring—Slipper Seal Piston	1	RNG130	RNG242
99	Compressor	1	1	1
101	Housing, Motor	1	RE042	RE042
104	Support, Bearing	1	RE043	RE043
110	Motor, Hermetic	1	— SELECT FOR PROPER VOLTAGE —	
	208V, 60Hz, 3φ		MTR1004	MTR1004
	220, 230, 240V, 60Hz, 3φ		MTR1005	MTR1005
	380, 415V, 50Hz, 3φ; 440, 460, 480V, 60Hz, 3φ		MTR1006	MTR1006
	575V, 60Hz, 3φ		MTR1007	MTR1007
127	Separator	—	N/R	N/R
128	Cover	1	COV84T1[2]	COV84T1[2]
129	Screw, Soc. HD Cap	20	0348P29	0348P29
145	Gasket, Bolt	1	GKT254	GKT254
146	Cover, Shaft Bore	1	COV156	COV156
147	"O" Ring	1	RNG135	RNG135
148	Screw, Soc HD Cap	6	036P13	036P13
149	Plug, Pipe — 1/4NPTF	1	055P71	055P71
220	Indicator Assembly	1	N/R	IDR56A
228	Scale Indicator	1	N/R	IDR53T1
301	"O" Ring, Bulkhead	1	N/R	RNG166
302	Plate, Bulkhead	1	N/R	PLT2126
303	Ring, Retaining	1	N/R	RNG288
304	"O" Ring, Spindle OD	1	N/R	RNG254
305	Ring, Seal — Spindle OD	1	N/R	RNG252

[1] Compressor same as direct drive except as shown and do not use Items 5, 34, 35, 42, 43, 51, 56, 59, 64, 67, 73, 74 and 75. For hermetic parts not identified, see DBX 1610 hermetic chart.

[2] Can use COV84T2

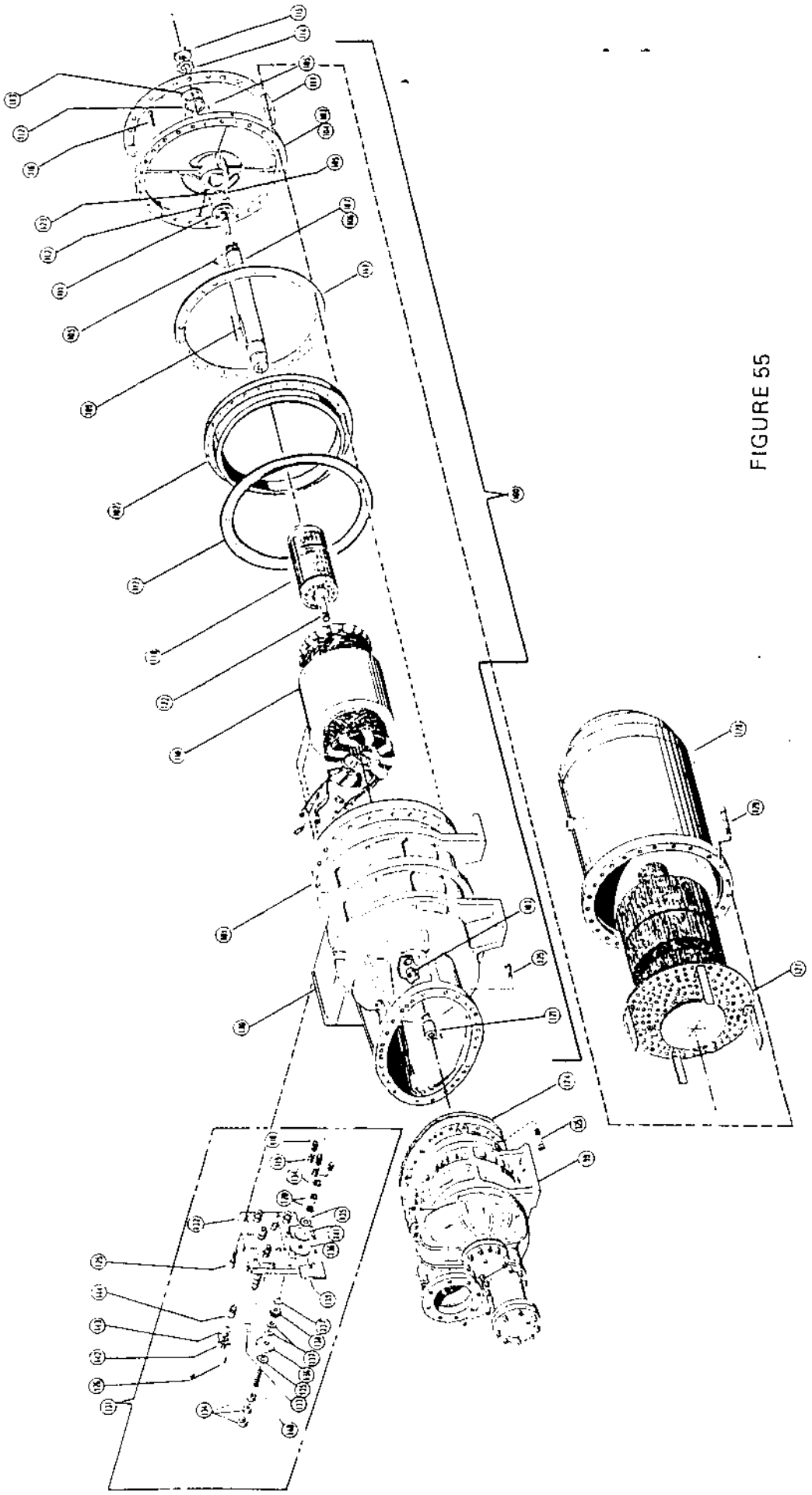


FIGURE 55

L. DBX 204 HERMETIC (VERSIONS A, B & C)

DBX 204 HERME (VERSION A, B & C)

ITEM	DESCRIPTION	QTY.	(2010) PART NO.	(2013) PART NO.	(2015) PART NO.	(2018) PART NO.
99	Compressor	1	[1]	[1]	[1]	[1]
100	Motor Assembly DWG		ISR49	ISR49	ISR49	ISR49
101	Housing, Motor	1	HSG43A	HSG43A	HSG43A	HSG43A
102	Spacer, Herm	1	N/R	N/R	N/R	SPC147
103	Bearing, Motor	2	BRG62	BRG62	BRG62	BRG62
104	Support, Bearing	1	SUP138A	SUP138A	SUP138A	SUP623W
105	Pin, Spring	6	PIN82T1	PIN82T1	PIN82T1	PIN82T1
106	Shaft & Motor Assembly DWG		TAB51	TAB51	TAB51	TAB51
107	Shaft, Motor	1	SHF28	SHF28	SHF28	SHF53
108						
109	Key	1	KEY3	KEY3	KEY3	KEY3
110	Motor, Hermetic[2] – Select for Proper Voltage					
	208V, 60HZ, 3φ		MTR1100	MTR1131	MTR1125	MTR1160T1
	220, 230, 240V, 60HZ, 3φ		MTR1101	MTR1132	MTR1126	MTR1160T2
	380, 415V, 50HZ, 3φ; 440, 460, 480V, 60HZ, 3φ		MTR1102	MTR1133	MTR1127	MTR1160T3
	575V, 60HZ, 3φ		MTR1103	MTR1134	MTR1128	MTR1160T4
111	Plate, Thrust	1	PLT407	PLT407	PLT407	PLT407
112	Washer, Thrust	2	WAS55	WAS55	WAS55	WAS55
113	Plate, Thrust	1	PLT408	PLT408	PLT408	PLT408
114	Lockwasher, Bearing	1	WAS93	WAS93	WAS93	WAS93
115	Locknut, Bearing	1	NUT56	NUT56	NUT56	NUT56
116	Screw, Soc HD Cap	3	034P15	034P15	034P15	034P27
117	Gasket, Motor Housing	2	GKT222	GKT222	GKT222	GKT222[3]
118	Screw, Stator Locking	2	SCR44	SCR44	SCR44	SCR44
119	Screw, Set – Oval PT	2	SCR87	SCR87	SCR87	SCR87
120	Nut, Hex – 1/2 – 13 (Brass) Jam	12	NUT91	NUT91	NUT91	NUT91
121	Coupling, Spline	1	CPL118	CPL118	CPL118	CPL118
122	Shaft, Quill	1	SHF31	SHF31	SHF31	SHF31
123	Ring, Retaining	1	RNG128	RNG128	RNG128	RNG128
124	Gasket	1	GKT223	GKT223	GKT223	GKT223
125	Screw, Soc HD Cap	40	0348P19	0348P19	0348P19	0348P19
126	Screw, Soc HD Cap	8	0339P07	0339P07	0339P07	0339P07
127	Separator, Oil	1	SEP66A[4]	SEP66A	SEP66A	N/A
128	Housing, Oil Separator or Cover Assembly	1	HSG115A[4]	HSG115A	HSG115A	COV89A
129	Screw, Soc HD Cap	30	0348P31	0348P31	0348P31	0348P47
130	Gasket, Terminal Plate	1	GKT224	GKT224	GKT224	GKT224
131	Plate – Terminal Assembly	1	PLT612A	PLT612A	PLT612A	PLT612A
132	Plate, Terminal	1	PLT445	PLT445	PLT445	PLT445
133	Decal, Motor Temp. Sensor	1	DCM53	DCM53	DCM53	DCM53
134	Nut, Hex – 1/2 – 13 (Brass)	24	NUT55	NUT55	NUT55	NUT55
135	Lockwasher, Ext. Tooth	12	014P05	014P05	014P05	014P05
136	Bushing	12	BUS53	BUS53	BUS53	BUS53
137	Bushing, Spacer	18	BUS52	BUS52	BUS52	BUS52
138	Bushing – Terminal Seal	6	BUS51	BUS51	BUS51	BUS51
139	Plate, Locking	2	PLT453	PLT453	PLT453	PLT453
140	Post, Terminal	6	POS18	POS18	POS18	POS18
141	Washer, Flat	6	014P03	014P03	014P03	014P03
142	Terminal, Hermetic	2	TER13	TER13	TER13	TER13
143	"O" Ring	2	RNG167	RNG167	RNG167	RNG167
144	Tubing – Mylar, Shrinkable	1.5 ft.	INN11	INN11	INN11	INN11

[1] Compressor: Same as open compressor except. Do not use items 5, 34, 35, 42, 43, 51, 56, 59, 64, 67, 73 and 74. Quantities differ as follows: Item 66-50

[2] Consult Factory – part number varies with application

[3] QTY. – 3

[4] All version A & B, some version C will have HSG44 & SEP41A

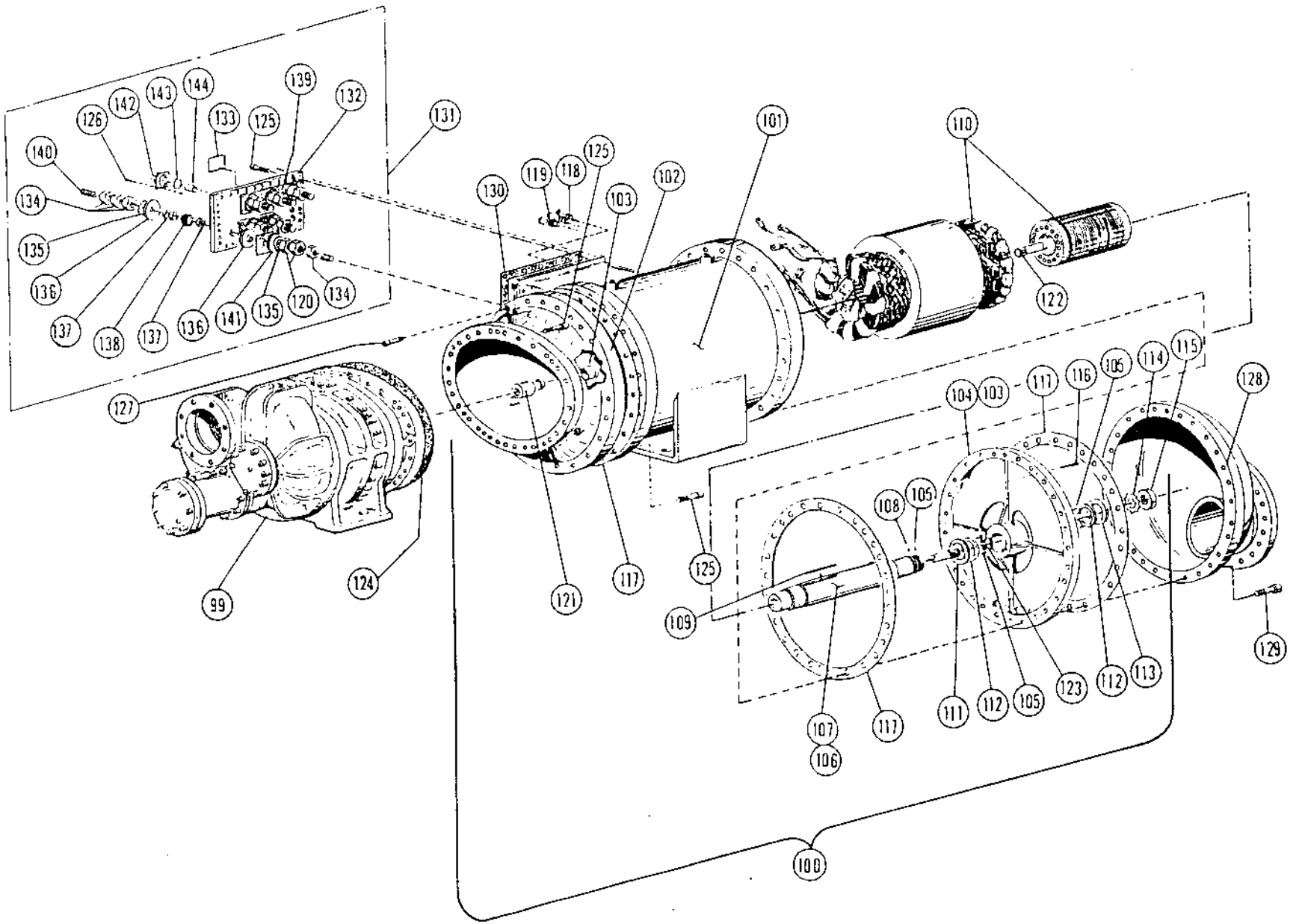


FIGURE 56

M. DBX 255 HERMETIC (VERSIONS A, B & C)

DBX 255 HERMETIC (VERSION A, B, & C)

ITEM	DESCRIPTION	QTY.	(2509) PART NO.	(2510) PART NO.	(2512) PART NO.	(2514) PART NO.	(2515) PART NO.	(2516) PART NO.
99	Compressor	1	1	1	1	1	1	1
100	Motor Assembly Drawing (DWG)		ISR49	ISR49	ISR49	ISR49	ISR49	ISR49
101	Housing, Motor	1	HSG66	HSG66	HSG66	HSG66	HSG66	HSG66
102	Housing, Transition	1	HSG65	HSG65	HSG65	HSG65	HSG65	HSG65
103	Bearing, Motor	2	BRG81	BRG81	BRG81	BRG81	BRG81	BRG81
104	Support, Bearing	1	SUP243A	SUP243A	SUP243A	SUP243A	SUP243A	SUP243A
105	Pin, Spring	5	PIN82T1	PIN82T1	PIN82T1	PIN82T1	PIN82T1	PIN82T1
106	Shaft & Motor Assembly DWG		TAB52	TAB52	TAB52	TAB52	TAB52	TAB52
107	Shaft, Motor	1	SHF39	SHF39	SHF39	SHF39	SHF39	SHF39
108	Pin, Spring	1	PIN82T3	PIN82T3	PIN82T3	PIN82T3	PIN82T3	PIN82T3
109	Key	1	KEY7	KEY7	KEY7	KEY7	KEY7	KEY7
110	Motor, Hermetic[2] – Select For Proper Voltage:							
	208V, 60HZ, 3ϕ		MTR1147	MTR1147	MTR1153T1	MTR1154T2	MTR1142	MTR1155T1
	220, 230, 240V, 60HZ, 3ϕ		MTR1148	MTR1148	MTR1153T2	MTR1154T2	MTR1143	MTR1155T2
	380, 415V, 50HZ, 3ϕ, 440, 460, 480V, 60HZ, 3ϕ		MTR1149	MTR1149	MTR1153T3	MTR1154T3	MTR1144	MTR1155T3
	575V, 60HZ, 3ϕ		MTR1150	MTR1150	MTR1153T4	MTR1154T4	MTR1145	MTR1155T4
111	Plate, Thrust	1	PLT689	PLT689	PLT689	PLT689	PLT689	PLT689
112	Washer, Thrust	2	WAS61	WAS61	WAS61	WAS61	WAS61	WAS61
113	Plate, Thrust	1	PLT690	PLT690	PLT690	PLT690	PLT690	PLT690
114	Lockwasher, Bearing	1	WAS99	WAS99	WAS99	WAS99	WAS99	WAS99
115	Locknut, Bearing	1	NUT76	NUT76	NUT76	NUT76	NUT76	NUT76
116	Screw, Soc HD Cap	3	034P15	034P15	034P15	034P15	034P15	034P15
117	Gasket, Motor Housing	3	GKT222	GKT222	GKT222	GKT222	GKT222	GKT222
118	Screw, Stator Locking	3	SCR44	SCR44	SCR44	SCR44	SCR44	SCR44
119	Screw Set – Oval Pt	3	SCR87	SCR87	SCR87	SCR87	SCR87	SCR87
120	Nut, Hex – 3/4 – 10 (Brass) Jam	12	NUT92	NUT92	NUT92	NUT92	NUT92	NUT92
121	Coupling, Spline	1	CPL121	CPL121	CPL121	CPL121	CPL121	CPL121
122	Shaft, Quill	1	SHF38	SHF38	SHF38	SHF38	SHF38	SHF38
123	Ring, Retaining	1	RNG137	RNG137	RNG137	RNG137	RNG137	RNG137
124	Gasket	1	GKT265	GKT265	GKT265	GKT265	GKT265	GKT265
125	Screw, Soc HD Cap	80	0348P21	0348P21	0348P21	0348P21	0348P21	0348P21
126	Screw, Soc HD Cap	8	0339P07	0339P07	0339P07	0339P07	0339P07	0339P07
127	Screw, Soc HD Cap	6	0348P19	0348P19	0348P19	0348P19	0348P19	0348P19
128	Cover Assembly	1	COV89A	COV89A	COV89A	COV89A	COV89A	COV89A
129	Screw, Soc HD Cap	30	0348P31	0348P31	0348P31	0348P31	0348P31	0348P31
130	Gasket, Terminal Plate	1	GKT266	GKT266	GKT266	GKT266	GKT266	GKT266
131	Terminal Plate Assembly	1	PLT825A	PLT825A	PLT825A	PLT825A	PLT825A	PLT825A
132	Plate, Terminal	1	PLT692A	PLT692A	PLT692A	PLT692A	PLT692A	PLT692A
133	Decal, Motor Temp Sensor	1	DCM53	DCM53	DCM53	DCM53	DCM53	DCM53
134	Nut, Hex – 3/4 – 10 (Brass)	24	NUT30	NUT30	NUT30	NUT30	NUT30	NUT30
135	Lockwasher, Ext. Tooth	12	017P04	017P04	017P04	017P04	017P04	017P04
136	Washer, Insulating	12	WAS62	WAS62	WAS62	WAS62	WAS62	WAS62
137	Bushing, Spacer	18	BUS60	BUS60	BUS60	BUS60	BUS60	BUS60
138	Bushing, Terminal Seal	6	BUS59	BUS59	BUS59	BUS59	BUS59	BUS59
139	Plate, Locking	2	PLT691	PLT691	PLT691	PLT691	PLT691	PLT691
140	Post, Terminal	6	POS19	POS19	POS19	POS19	POS19	POS19
141	Washer, Flat	6	017P03	017P03	017P03	017P03	017P03	017P03
142	Terminal, Hermetic	2	TER13	TER13	TER13	TER13	TER13	TER13
143	"O" Ring	2	RNG167	RNG167	RNG167	RNG167	RNG167	RNG167
144	Tubing, Mylar, Shrink	11.0 ft.	INN11	INN11	INN11	INN11	INN11	INN11

[1] Compressor: Same as open compressor except: do not use items 5, 34, 35, 42, 43, 51, 56, 59, 64 and 73
Quantities differ as follows: Item 60-29.

[2] Consult factory – part number varies with application

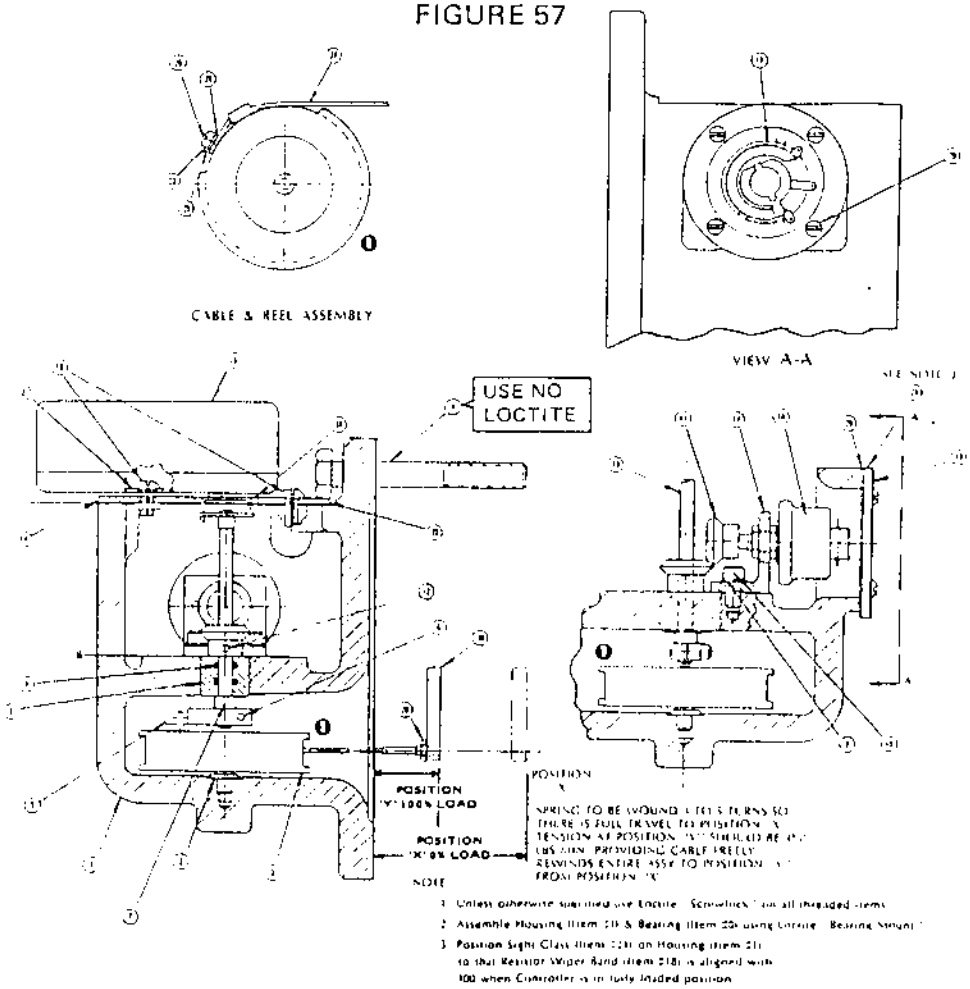
VI. UNLOADER CONTROLLERS

A. UNLOADER CONTROLLER INDICATOR
(Series I & II Units — Version A & B Compressors)

The above units are equipped with unloader control indicators consisting of a cable attached to unloader piston with tensioning means provided by a clock spring motor. Mechanical linkage transmits rotary clock reel motion to vertical shaft which operates potentiometer by means of a pair of spur gears. Vertical shaft may also operate micro switches and cam if unit is equipped with a switch box. Wiper arm of potentiometer indicates position of slide valve when viewed thru sight glass dial and etched scale.

The resistance change of the potentiometer also is integrated into the unit load control system using closed loop temperature load control. Complete information on this will be found in the unit operation and maintenance instructions.

FIGURE 57



ITEM	DESCRIPTION
1	Housing, unloader control
2	Washer, flat
3	Reel ass'y
4	Screw, hex head 1/2—13 x 3 1/2 l'g
5	Clamp
6	Screw, soc. h'd cap #10—32 NF x 1/4 l'g
7	Bearing, bronze
8	Bearing, sleeve
9	"O" ring
10	Screw, round head 1/4—20 x 1/2 l'g
11	Gear, miter
12	Screw, soc. h'd set (cup point), #6—32 NC x 1/4 l'g
13	Bracket & shaft ass'y
14	Cover, lineloader hsg
15	Screw, soc. h'd cap 1/4—20 x 1/2 l'g

ITEM	DESCRIPTION
16	Kit, switch
17	Bracket, resistor
18	Resistor, variable
19	Cover—resistor
20	Screw, round head #8—32 NC x 7/16 l'g
21	Washer flat
22	Gasket
23	Washer, external tooth # 8
24	Sight glass-resistor
25	Spacer, wire
26	Screw, pan head #8—32 NC x 3/18 l'g
27	Ass'y, cable
28	Nut, hex #10—24 NC
29	Gasket—resistor cover
30	Bracket, cable
31	O-ring

B. UNLOADER CONTROLLER SERVICING OR REPAIR

a. Compressor must be at atmospheric pressure before unloader controller housing is disassembled from compressor.

b. Housing removal from cylinder retainer plate is easier if unloader cylinder piston is in 100% load position. Loosen and remove bolts holding housing to unloader cylinder. Install two pieces of threaded rod to support weight of retainer plate and unloader housing. Slide unloader housing and retainer plate away from cylinder 2" – 3". Loosen bolt holding bracket plate to unloader piston while firmly holding bracket plate to prevent fast recoil of cable.

c. Separate unloader controller housing from retainer plate and feed bracket plate thru hole in retainer plate. Unloader controller can now be removed from set up pins.

In general, servicing of unloader controller may be required because of:

1. Assembly is bound up due to moisture, rust, or dirt in upper compartment.

2. Leakage is occurring at unloader shaft "O" rings.

3. Control cable is loose or broken.

The whole unloader controller assembly may be replaced or the assembly may be dismantled and rebuilt.

C. UNLOADER CONTROLLER DISASSEMBLY

a. Remove housing cover plate or switch box assembly.

b. Pull cable and with allen wrench loosen clamp above spring reel.

c. Remove potentiometer assembly by loosening 2 screws.

d. Remove vertical shaft.

e. Let spring reel unwind.
Insert allen wrench thru bearing and unscrew spring reel assembly.

f. With small scribe remove old "O"-ring seals from bearing bore.

g. Inspect and clean housing and prepare for assembly. Compare parts that were removed and parts shown on attached sketch. Replace all worn or damaged parts.

D. REASSEMBLY

a. Place 2 new "O" rings in bearing bore.

b. Assemble potentiometer to bracket with Loctite on threads and secure nut. Assemble gear to shaft of potentiometer and partially tighten.

c. Assemble reel sleeve assembly to unloader housing. Apply Loctite to reel post. Place flat washer in housing under reel assembly. Tighten reel assembly post into housing by inserting Allen wrench down thru bearing bore.

d. Assemble gear to shaft with top of gear 1½" below top of drive clip using Loctite and Allen screw.

e. Assemble cable to reel and secure with spacer, washer and screw. Wrap wire around reel and pull wire making complete turn. Place piece of wood between pin on spring reel and housing to prevent spring from unwinding.

Wrap wire around reel again and pull wire making complete turn. Repeat with wood to prevent unwinding.

Repeat winding procedure until reel assembly has been wound up thru 4 complete revolutions.

f. Assemble nut and bracket to wire and secure with Loctite. Screw end should be flush with bracket. Secure nut with Loctite. Secure bracket to clamp or jig so that bracket is in "Y" position, "L" distance away from face of flange. Refer to Table on Page 46.

Remove wooden block from spring reel.

g. Oil bearing "O" rings and center in grooves. Assemble shaft and gear assembly part way, assemble washer, bronze bushing and clamp to shaft as you push shaft thru bearing. Clamp must be engaged with pin on spring reel. Leave loose.

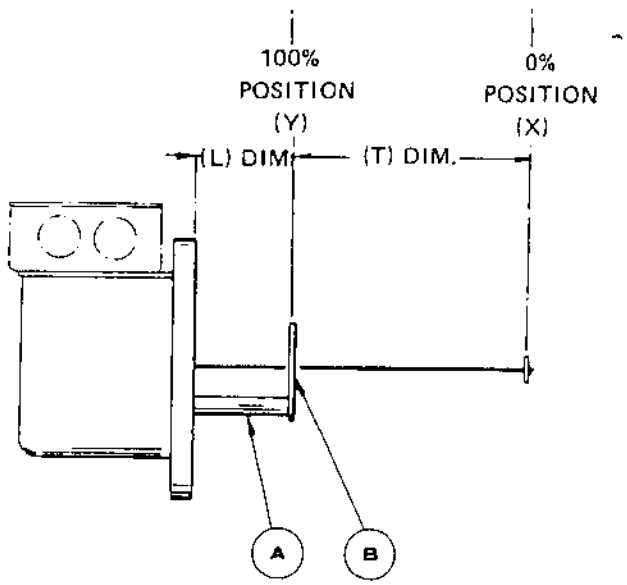


FIG. 58 – CABLE POSITION

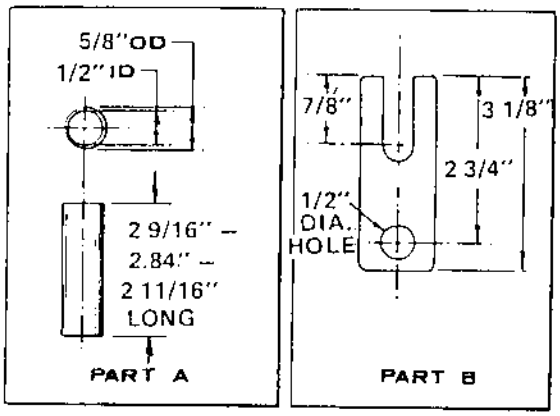


FIG. 59 – CABLE POSITION MEASURING GAUGE

MODEL	(L) DIM	TRAVEL (T) DIM	CABLE LENGTH	COMPRESSOR VALVE STROKE REFERENCE
1610	2 9/16"	3 13/16"	9 5/8"	3.60
1613	–	–	–	5.06
1615	2 9/16"	5 7/16"	11 1/8"	5.24
2010	2 9/16"	4 11/16"	10 1/2"	4.48
2013	2 27/32"	6 11/32"	12 7/16"	6.21
2015	2 9/16"	6 5/8"	12 7/16"	6.48
2018	–	–	–	7.74
2510	2 11/16"	5 11/16"	11 5/8"	5.56
2512	–	–	–	6.57
2514	–	–	–	7.73
2515	2 11/16"	8 1/16"	14"	7.91
2516	–	–	–	8.69

h. Assemble potentiometer assembly to housing. Secure with the 2 bracket screws. Check that gears mesh properly. Move gear on potentiometer gear set screw.

i. Turn drive shaft by hand so potentiometer wiper arm goes from 100% to 0%. Motion should be free and smooth. Loosen and reposition potentiometer bracket if necessary for smooth motion. Tighten bracket screws with Loctite.

j. Turn shaft to read 100% on potentiometer. Secure clamp to drive shaft by tightening screw in clamp.

k. Grasp bracket cable and pull cable outward and let spring rewind cable slowly. Pull and return operation should be smooth with no binding. If tight or binding, adjust above elements until it operates smoothly.

Insert piece of wood locking spring reel and clamp in position so spring does not unwind.

l. Mount gasket, cover plate and screws on top of housing. If unit has switch kit, reinstall same. Adjust switches if disturbed during disassembly.

m. Position unloader piston at 100% load. Place controller on unloader cylinder set up pins. Hold cable bracket and remove wood retaining block.

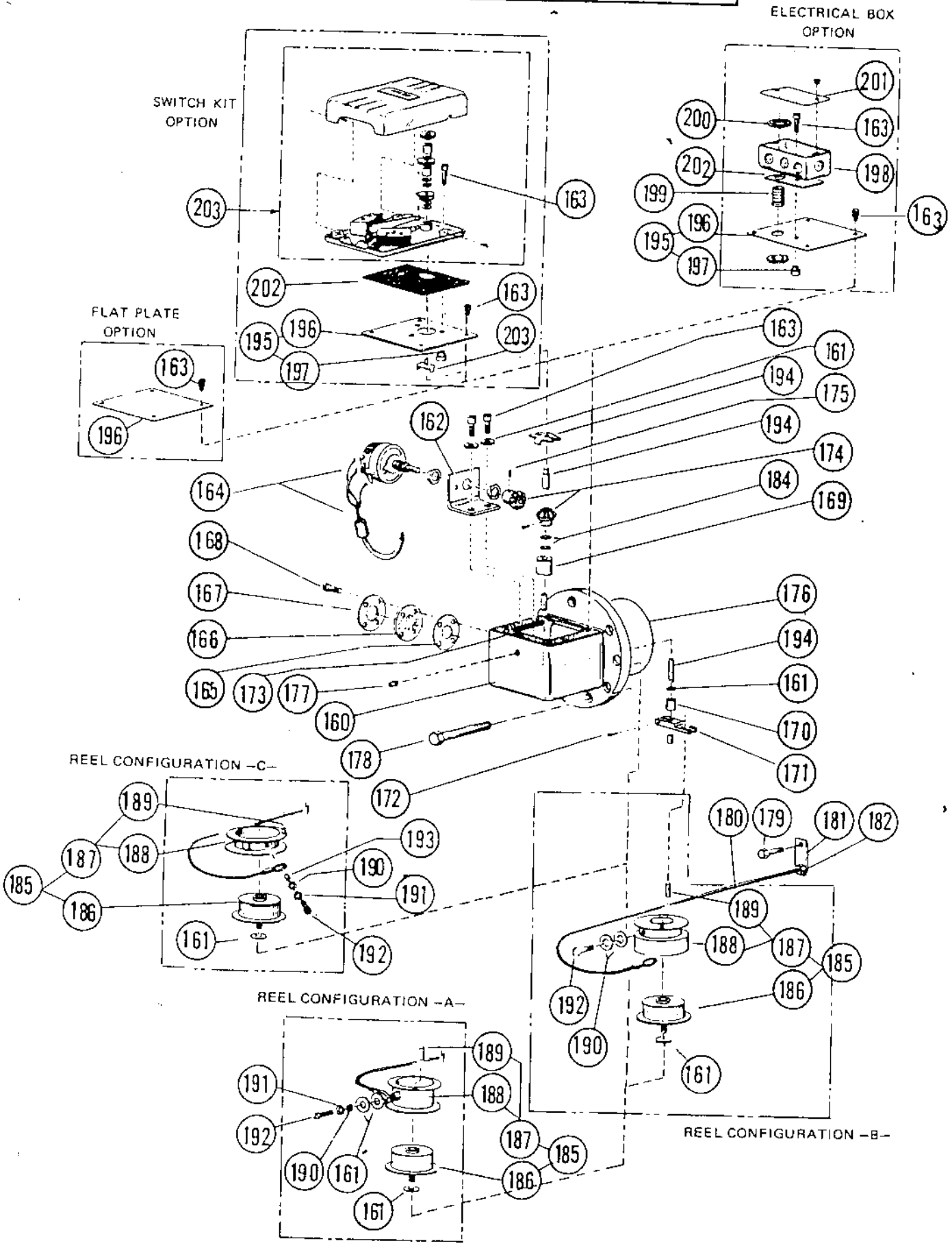
Put bracket thru hole in retainer plate and pull wire thru while pushing controller housing forward at the same time.

Secure bracket to unloader piston with Allen screw and Loctite. Push entire assembly forward. Insert and torque housing bolts.

n. By pressurizing cylinder piston can be moved to full unload. Potentiometer should then show 0% position.

FIGURE 60

E. UNLOADER CONTROLLER
(SEE NEXT PAGE FOR COMPONENT PARTS LISTING)



UNLOADER CONTROLLER

REMARKS	ITEM NO	DESCRIPTION	QTY	(1610) PART NO	(1615) PART NO	(2010) PART NO	(2013) PART NO	(2015) PART NO	(2510) PART NO	(2515) PART NO
COMMON PARTS	160	HOUSING UNLOADER	1	HSG48	HSG48	HSG48	HSG48	HSG48	HSG96	HSG96
	161	WASHER FLAT	3	010P211	010P211	010P211	010P211	010P211	010P211	010P211
	162	BRACKET RESISTOR	1	BRK279	BRK279	BRK279	BRK279	BRK279	BRK279	BRK279
	163	SCREW SOC HD CAP	2	034P07	034P07	034P07	034P07	034P07	034P07	034P07
	(1) 164	RESISTOR VARIABLE	1	RES1	RES1	RES1	RES1	RES1	RES1	RES1
	165	GASKET RESISTOR COVER	1	GKT305	GKT305	GKT305	GKT305	GKT305	GKT305	GKT305
	166	SIGHT GLASS RESISTOR	1	GLS7	GLS7	GLS7	GLS7	GLS7	GLS7	GLS7
	167	COVER RESISTOR	1	COV80	COV80	COV80	COV80	COV80	COV80	COV80
	168	SCREW RD HD	4	028P10	028P10	028P10	028P10	028P10	028P10	028P10
	169	BEARING SLEEVE	1	BRG64	BRG64	BRG64	BRG64	BRG64	BRG64	BRG64
	170	BEARING BRONZE	1	BRG69T1	BRG69T2	BRG69T2	BRG69T2	BRG69T2	BRG69T2	BRG69T2
	171	CLAMP	1	CLP35	CLP35	CLP35	CLP35	CLP35	CLP35	CLP35
	172	SCREW SOC HD CAP	1	0339P07	0339P07	0339P07	0339P07	0339P07	0339P07	0339P07
	173	GASKET	1	GKT304	GKT304	GKT304	GKT304	GKT304	GKT272	GKT272
	174	GEAR MITER	2	GER1	GER1	GER1	GER1	GER1	GER1	GER1
	175	SCREW	2	SCR88	SCR88	SCR88	SCR88	SCR88	SCR88	SCR88
	176	O RING	1	RNG165	RNG165	RNG165	RNG165	RNG165	RNG136	RNG136
	(2) 177	PLUG PIPE - FLANGE	1	055P71	055P71	055P71	055P71	055P71	055P71	055P71
	178	SCREW HEX HD	8	014P31	014P31	014P31	014P31	014P31	014P31	014P31
	179	SCREW SOC HD CAP	1	0341P07	0341P07	0341P07	0341P07	0341P07	0341P07	0341P07
	180	CABLE ASSEMBLY	1	CAB10AT4	CAB10AT3	CAB10AT3	CAB10AT2	CAB13T1	CAB13T2	CAB13T2
	181	NUT HEX	1	022P00	022P00	022P00	022P00	022P00	022P00	022P00
	182	BRACKET CABLE	1	BRK282	BRK282	BRK282T1	BRK282T2	BRK282T2	BRK368	BRK368
FREON COMPRESSOR ONLY	184	O RING	1	RNG104	RNG104	RNG104	RNG104	RNG104	RNG104	RNG104
AMMONIA COMPRESSOR ONLY	184	O RING	2	RNG233	RNG233	RNG233	RNG233	RNG233	RNG233	RNG233
REEL CONFIGURATION A	184	WASHER FLAT	1			010P211				
	185	REEL ASSEMBLY	1			REL4A				
	186	REEL SPRING LOADED	1			REL3				
	187	SLEEVE ASSEMBLY	1			SLV44				
	188	SLEEVE	1			SLV11				
	189	PIN	1			PIN21				
	190	WASHER FLAT	1			021P03				
	191	WASHER EXT TOOTH	1			0173P04				
	192	SCREW	1			SCR88				
REEL CONFIGURATION B	184	WASHER FLAT	1	010P211						
	185	REEL ASSEMBLY	1	REL4A						
	186	REEL SPRING LOADED	1	REL3						
	187	SLEEVE ASSEMBLY	1	SLV44A						
	188	SLEEVE	1	SLV19						
	189	PIN	1	PIN21						
	190	WASHER FLAT	2	021P03						
	192	SCREW SHOULDERED	1	SCR45						
REEL CONFIGURATION C	184	WASHER FLAT	1		010P211		010P211	010P211	010P211	010P211
	185	REEL ASSEMBLY	1		REL4A		REL4A	REL4A	REL4A	REL10
	186	REEL SPRING LOADED	1		REL3		REL3	REL3	REL3	REL3
	187	SLEEVE ASSEMBLY	1		SLV44A		SLV45	SLV20A	SLV22A	SLV22A
	188	SLEEVE	1		SLV9		SLV17	SLV13	SLV19	SLV21
	189	PIN	1		PIN21		PIN21	PIN21	PIN21	PIN21
	190	WASHER FLAT	1		021P03		021P03	021P03	021P03	021P03
	191	WASHER EXT TOOTH	1				0173P04	0173P04	0173P04	0173P04
	192	SCREW	1		SCR45		SCR88	SCR88	SCR88	SCR88
	193	SPACER	1		SPC83 (1)		SPC83	SPC83	SPC83	SPC83
ELECTRICAL BOX OPTION	163	SCREW SOC HD CAP	5	034P07	034P07	034P07	034P07	034P07	034P07	034P07
	194	SHAFT ASSEMBLY	1	BRK318A	BRK318A	BRK318A	BRK318A	BRK318A	BRK318A	BRK318A
	195	COVER ASSEMBLY	1	COV87A	COV87A	COV87A	COV87A	COV87A	COV87A	COV87A
	196	COVER	1	COV86	COV86	COV86	COV86	COV86	COV93	COV93
	197	NUT PLUG	1	NUT20	NUT20	NUT20	NUT20	NUT20	NUT20	NUT20
	198	BOX OUTLET	1	0153P02	0153P02	0153P02	0153P02	0153P02	0153P02	0153P02
	199	NIPPLE, CONDUIT	1	NIP1	NIP1	NIP1	NIP1	NIP1	NIP1	NIP1
	200	NUT CONDUIT	2	0640P00	0640P00	0640P00	0640P00	0640P00	0640P00	0640P00
	201	COVER OUTLET BOX	1	0153P02	0153P02	0153P02	0153P02	0153P02	0153P02	0153P02
	202	GASKET	1	(4)	(4)	(4)	(4)	(4)	(4)	(4)
FLAT PLATE OPTION	163	SCREW SOC HD CAP	4	034P07	034P07	034P07	034P07	034P07	034P07	034P07
	194	SHAFT ASSEMBLY	1	BRK318A	BRK318A	BRK318A	BRK318A	BRK318A	BRK318A	BRK318A
	196	COVER	1	(5)	(5)	(5)	(5)	(5)	COV113	COV113
SWITCH KIT OPTION	163	SCREW SOC HD CAP	5	034P07	034P07	034P07	034P07	034P07	034P07	034P07
	194	SHAFT ASSEMBLY	1	BRK318A	BRK318A	BRK318A	BRK318A	BRK318A	BRK318A	BRK318A
	195	COVER ASSEMBLY	1	COV87A	COV87A	COV87A	COV87A	COV87A	COV91A	COV91A
	196	COVER	1	COV81	COV81	COV81	COV81	COV81	COV90	COV90
	197	NUT PLUG	3	NUT20	NUT20	NUT20	NUT20	NUT20	NUT20	NUT20
	202	GASKET	1	GKT378	GKT378	GKT378	GKT378	GKT378	GKT378	GKT378
	203	SWITCH KIT	1	KIT250	KIT250	KIT250	KIT250	KIT250	KIT250	KIT250

(1) CONSULT FACTORY - RESISTOR COMES WITHOUT LEADS SPECIFY IF LEADS ARE REQUIRED
(2) QUANTITY VARIES
(3) SPC83 MUST BE SHORTENED TO A LENGTH OF 9/16
(4) NO PART NO - USE GKT378 AND TRIM TO ELECTRICAL BOX OUTLINE
(5) NO PART NO - ORDER COV81 WITH HOLES IN FOUR CORNERS ONLY

ASSEMBLIES

MODEL	FLAT PLATE	ELECTRICAL BOX	SWITCH KIT
1610		CNT150A	
1615		CNT182A	CNT149A
2010		CNT152A	CNT157A
2013		CNT185A	CNT160A
2015		CNT181A	CNT159A
2510	CNT203A	CNT198A	CNT186A
2515	CNT204A	CNT197A	CNT187A

IF ORDERING COMPLETE CNT ASSEMBLY SPECIFY FOR FREON OR AMMONIA.
ALSO SPECIFY IF FLAT PLATE, ELECTRICAL BOX OR A SWITCH KIT OPTION

(Series III Units — Version B & C Compressors)

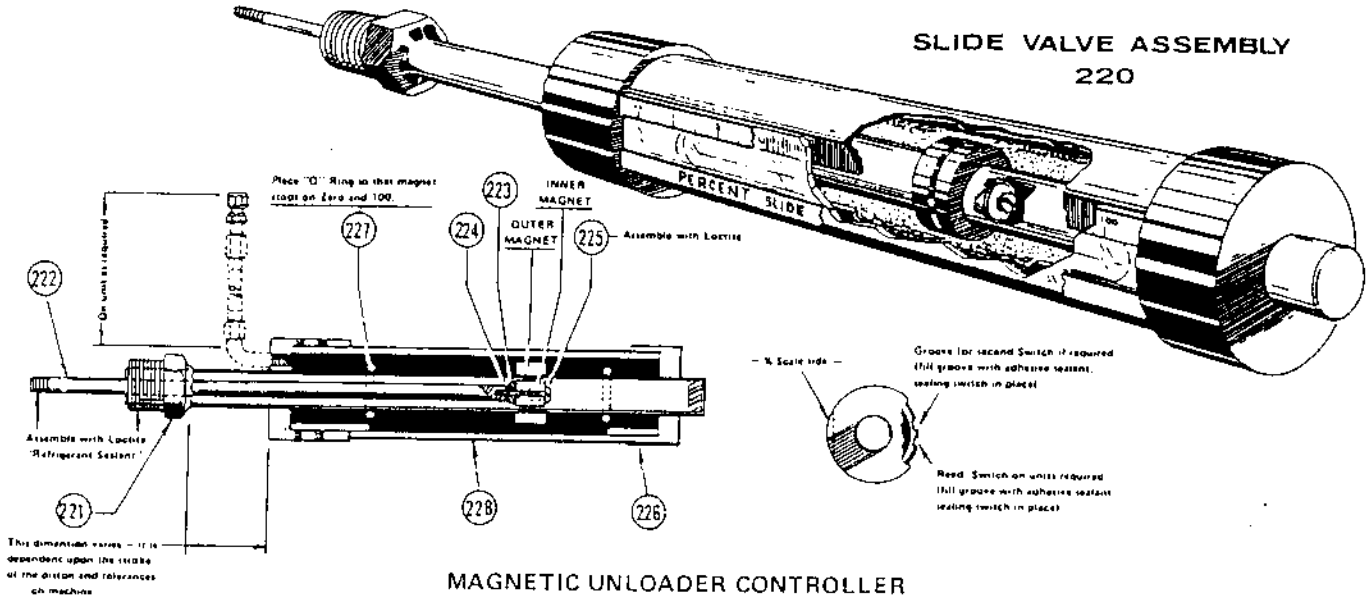
The above units are equipped with the new magnetic load position indicator instead of the unloader controller CNT type indicator.

This unit functions with an internal magnet mounted on a rod that is attached to the hydraulic piston in the unloader cylinder. An external magnet, on the OD of a non-magnetic stainless steel tube, tracks the internal magnet and indicates via an external stationary scale the % load position of the slide valve. The scale markings are a percent of slide valve stroke and not necessarily a percent of compressor output.

The % of compressor capacity will vary relative to the % of slide valve position with different application ranges of evaporating pressure and condensing pressure.

In other words, 60% slide valve position is not 60% compressor capacity for all compressor operating conditions.

Slide valve indicators may also be equipped with reed switches for performing functions relative to hot gas by-pass or expansion valve operation on package units.



MAGNETIC UNLOADER CONTROLLER

			COMPRESSOR	COMPRESSOR
			2510, 2509, 2010, 1615, 1613, 1610	2516, 2515, 2514, 2512, 2018, 2015, 2013
ITEM	DESCRIPTION	QTY.	PART NO.	PART NO.
220	INDICATOR ASSEMBLY	1	IDR56A	IDR57A
221	TUBE, GUIDE ASSEMBLY	1	TUB2656AT1	TUB2656AT2
222	ROD	1	ROD84T1	ROD84T2
223	WASHER, TFE	1	WAS100	WAS100
224	WASHER, FLAT	1	028P03	028P03
225	SCREW	1	028P19	028P19
226	INDICATOR	1	IDR52T1	IDR52T2
227	"O" RING	2	RNG204	RNG204
			COMPRESSOR	PART NO.
228	SCALE, INDICATOR	1	1610	IDR53T1
			1613, 1615	IDR53T2
			2010	IDR53T3
			2013	IDR53T4
			2015	IDR53T5
			2018	IDR53T11
			2509, 2510	IDR53T6
			2512	IDR53T7
			2514	IDR53T8
			2515	IDR53T9
			2516	IDR53T10

B. SLIDE VALVE INDICATOR SERVICING OR REPAIR

a. Loosen set screws on plastic indicator body and slide plastic body over end of tube.

b. Outer magnet can be replaced if required by removing end "O" ring on tube and slipping magnet off.

c. Outer tube can be removed for inspection of inner magnet by unscrewing hex head tube guide assembly. Caution, this tube is filled with pressurized oil and compressor must be at atmospheric pressure before this operation is performed.

d. Inner magnet, TFE ring, or complete rod assembly may now be replaced by gripping rod and unscrewing same.

C. REASSEMBLY

a. All internal threads to be coated with Loctite before assembly and tightening.

b. Assemble external tube and hex head bushing with Loctite refrigerant sealant or suitable refrigerant resistant pipe joint compound.

c. Place "O" rings and outer magnet on the tube assembly. Note that poles of outer magnet must be oriented with poles of inner magnet.

d. With refrigerant or air pressure connected to unloader cylinder, move piston from fully loaded position and note extreme positions of magnet travel. Position unloader piston in 100% load position.

e. Position "O" rings so that outer magnet is free to travel to its extreme positions.

f. Slip on plastic indicator body and align body with groove on outer magnet to 100% position. Pressurize unloader cylinder and unload. Magnet should now be aligned with 0% position. Minor axial adjustment may be necessary to have 0% and 100% points line up. Tighten set screws to lock position of indicator body on tube assembly.
