INSTRUCTIONS

99TA516058H (for RCD use only)

Instruction Sheet Number: **99TA516058H**

Description: Unloader Solenoid Kit

Author: Steve Von Borstel Date: February 13, 2014

Part Number: 06NA660011, 06NA660043, 06NA660044, 06NA660045, 06NA660017

⚠ WARNING

HAZARDS: ELECTRIC SHOCK / PRESSURE / EXPLOSION

REFRIGERANT AND OIL UNDER PRESSURE

- **Bodily injury may result from explosion and/or fire if power is supplied to compressor with terminal box cover removed or unsecured. Terminal pins may blow-out causing injuries, death or fire.**
- **Do not touch terminals, or wiring at terminals, or remove terminal cover or any part of compressor until power is disconnected and pressure is relieved. See safety instructions A, B, and C.**

ELECTRIC SHOCK

- **Bodily injury or death may result from electrocution if terminal cover is removed while power is supplied to compressor.**
- **Do not supply power to compressor unless terminal cover is secured in place and all service valves are open.**

Safety Instructions:

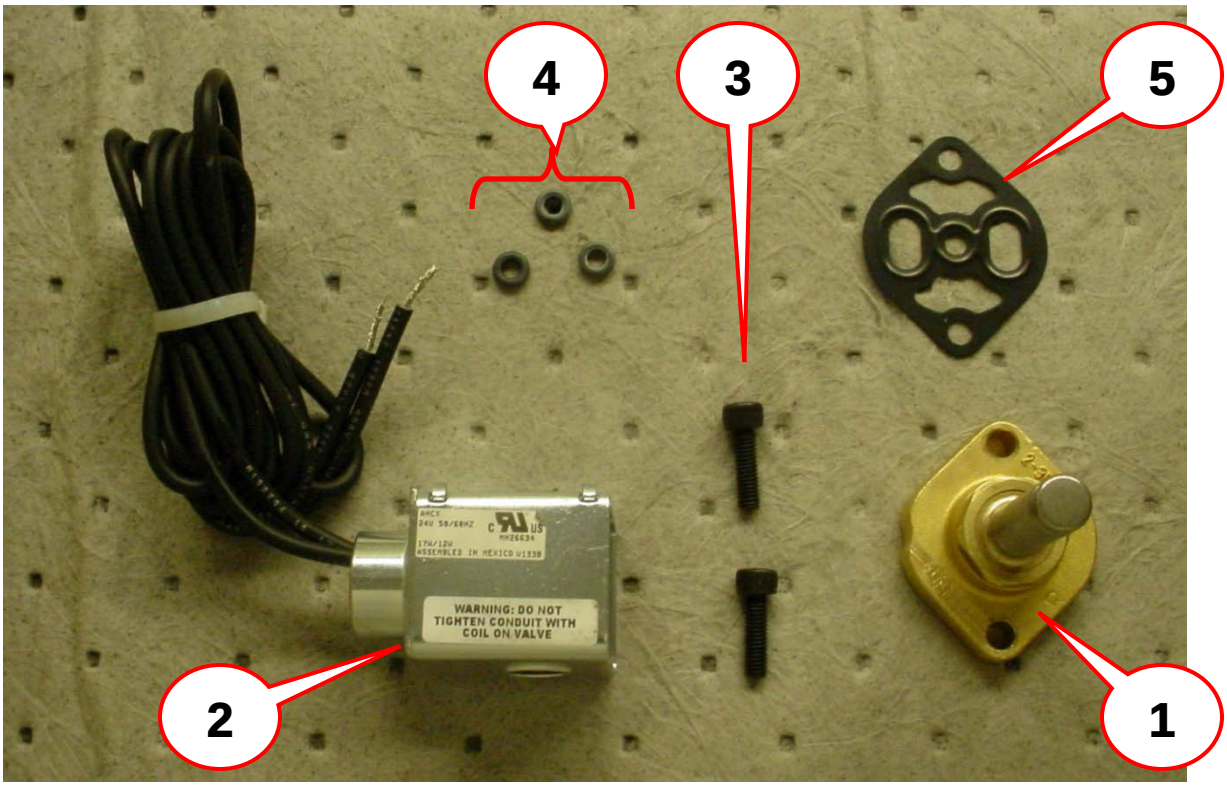
Service or maintenance must be performed only by trained certified technicians and according to service instructions.

A. Follow recognized safety practices and wear protective goggles.
B. Disconnect and lockout all electrical power. Electrical measurements during operation must be taken outside of the compressor terminal box.
C. Isolate the compressor from the system. Reclaim all refrigerant in the compressor. Do not disassemble bolts, plugs, fittings, etc. unless all pressure has been relieved from the compressor. The oil filter cavity must be relieved independently from the rest of the compressor since it can be isolated by the oil check valve.

NOTE: Valves may be sealing off refrigerant from the rest of the system. Do not open isolation valves while servicing the compressor.

1

Replacement Unloader Solenoid Valve Kits include:



Item	Qty.	Part No.	Description
1	1	2BAB000626	Unloader Solenoid Valve
2	1	EF19ZZ001	06NA660011 – 24 A/C Volt Coil
		EF19ZZ002	06NA660043 – 120 A/C Volt Coil
		EF19ZZ003	06NA660044 – 240 A/C Volt Coil
		22-50030-00	06NA660045 – 24 DC Volt Coil
3	2	8TB0675	M6x1.00x20 SHCS
4	3	8TB0279	Unloader Valve O-Ring (Used on 06N, 05T & 06T comp'r s/n <4003JXXXX)
5	1	2TB1009	Gasket (Used on comp'r s/n ≥4003JXXXX) & all Thunderbolts
6	1	99TA516058	Instruction Sheet (not shown)

2

Replacement Seal Kit for Unloader Solenoid Valves includes:

Item	Qty.	Part No.	Description
4	3	8TB0279	Unloader Valve O-Ring (Used on 06N, 05T & 06T comp'r s/n <4003JXXXX)
5	1	2TB1009	Gasket (Used on comp'r s/n ≥4003JXXXX)
6	1	99TA516058	Instruction Sheet (not shown)

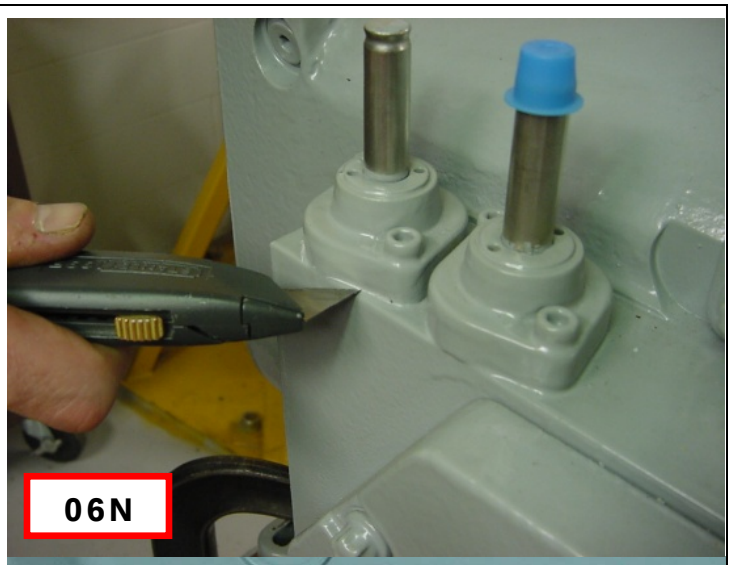
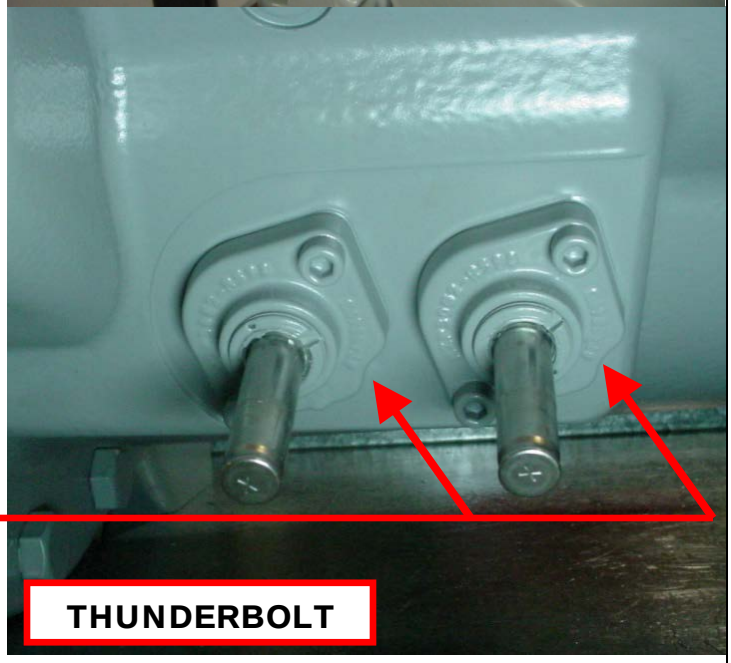
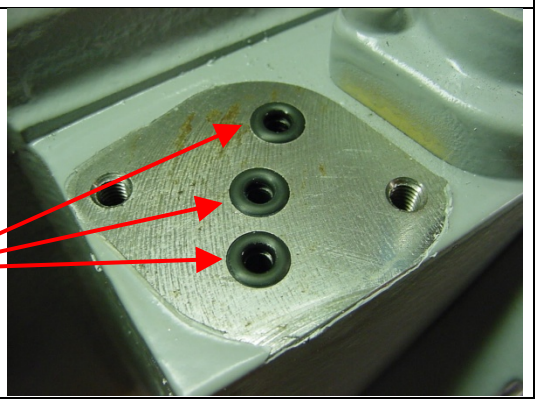
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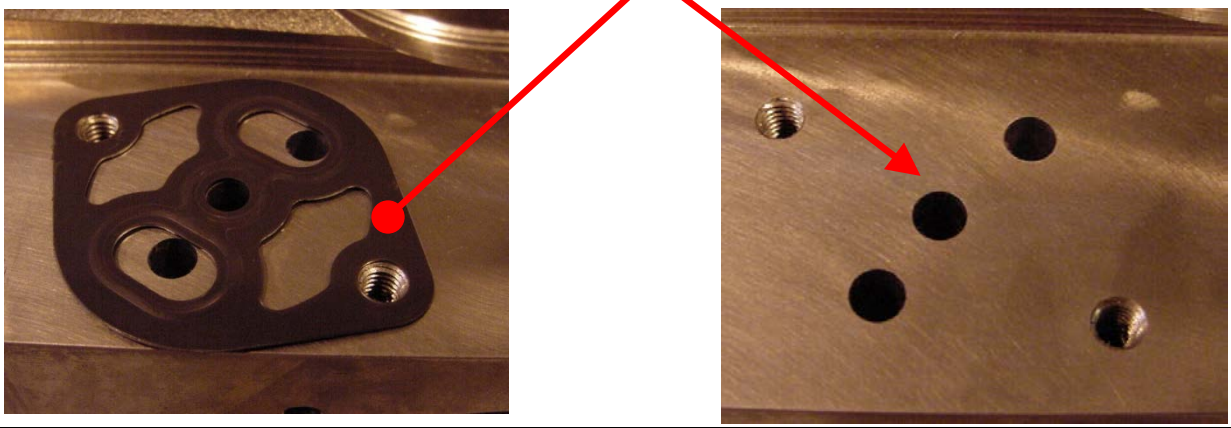
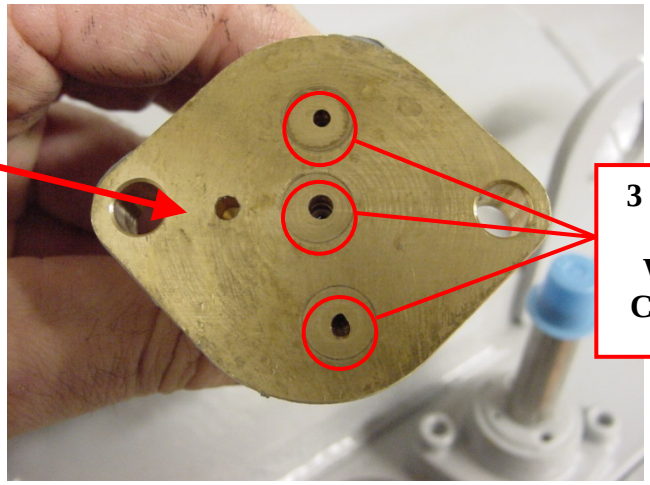
Several different valve manufacturers have been used for the screw compressor unloading valves. The valves supplied in these kits will work with all applications.

			
ALCO: Used from 1994 – Sept 2003	Parker: Used from Oct 2003 – Jan 2014	STF: Used from Feb 2014 - Present	Sanhua – Used from June 2014 - Present

4

After all pressure has been relieved from the compressor, remove the solenoid coil from the unloader valve stem. If more than one coil is removed, identify the location of each coil.

5	On the 06N compressor, the solenoids are located on the top of the rotor housing. Older compressors were originally built using ALCO valves (shown top). Newer compressors were built using Parker valves which are shown on the Thunderbolt compressor in the lower picture. Note the notch on the later valves to assist in proper orientation. Score the paint between the valve and the casing to provide a "clean break" when removing the valve. Remove the two socket head cap screws using a 5mm hex drive. It is helpful to strike the cap screws using a hammer and drift. This will make it easier to remove the screws. Lift the valve from the casing, being careful not to allow any dirt or paint chips to fall into the holes. **NOTCH IN BASE OF PARKER VALVES IS ORIENTED "DOWN-AND-TO-THE-RIGHT" ON THE THUNDERBOLT COMPRESSORS**	 
6	Early 06N compressors use three o-rings, remove them and clean the grooves and the surface of the casing and the valve being installed. Install the new o-rings included in the kit. **O-RINGS (8TB0279) USED TO SEAL PASSAGES ON COMP'Rs MADE BEFORE 4003J09058 AND THE SMALL 06T & 05T SCREW COMPRESSORS**	

7	All Thunderbolt and 06Ns manufactured after the serial number listed above will use the 2TB1009 gasket. The solenoid valves are exactly the same however the compressor housings do not have the grooves for the o-rings and the gasket must be used. **NO O-RING GROOVES (C'BORES) AROUND DRILLED HOLES MUST USE 2TB1009 GASKET** 
8	Install the new valve being careful to properly align the gas passages of the casing and the valve. The hole pattern is not symmetrical and can only go on one way. Incorrect orientation of the valve will cause the valve to not function properly. Note: Some valves and compressor housing may have a roll pin hole and may be assembled with a roll pin. If the replacement solenoid has a roll pin and the compressor housing does not have the hole for the pin, simply remove the pin with a pair of pliers and install the valve. The roll pin is only an assembly aid and is not required for proper operation. **EXTRA HOLE USED FOR ROLL PIN ON SOME 06N COMP'Rs**  **3 HOLES IN VALVE MUST LINE UP WITH HOLES ON COMP'R HOUSING**

9	Install the M6x1.00x15 socket head cap screws, torque to 5-7 lb-ft, (7-10 Nm).
10	Evacuate the system and check for leaks.
11	The replacement valves included in this kit, which require A/C coils, must be used with the higher temperature rating AHCX coils listed in Step 1. The older A/C coils used on units manufactured before 2014 CANNOT be used with these replacement valves.
12	Refer to the unit installation and startup procedures for restarting the system.

APPENDIX I: TOOLS FOR SOLENOID REPLACEMENT

TOOL	TOOL NUMBER	SUPPLIER	OPERATION	STEP(s)	NOTES
UTILITY KNIFE			SCORE PAINT AT BASE OF SOLENOID VALVE	**5**	
3/8" DRIVE RATCHET	F830	SNAP-ON	REMOVAL OF SOLENOID VALVE SOCKET HD CAP SCREWS	**5**	
5mm HEX DRIVE	FAM5E	SNAP-ON	REMOVAL & INSTALLATION OF SOLENOID VALVE SOCKET HD CAP SCREWS	**5** **9**	WRENCH SUPPLIED W/KIT CAN BE USED FOR REMOVAL
PICK	YA338	SNAP-ON	REMOVING O-RING	**6**	
3/8" DRIVE TORQUE WRENCH	TE25FA	SNAP-ON	INSTALLATION OF SOLENOID VALVE SOCKET HD CAP SCREWS	**9**	0-25 LB-FT RANGE

REVISION RECORD

DATE	REV.	DESCRIPTION	CARLYLE REF. FILE NAME
	---	UPDATED TO INCLUDE GASKET 2TB1009 USED ON PRODUCTION STARTING IN OCT 2003	
3/25/09	F	ADDED KIT 06NA660017 FOR SEALS/GASKET ONLY	99TA516058F.doc
11/29/12	G	ADDED DETAIL FOR THUNDERBOLT SERVICE	99TA516058G_Unl_Solenoids.docx
2/13/14	H	UNLOADER VALVE PART NUMBER 2BAB000626 WAS 8TA0049D, ADDED KITS 06NA660043, 06NA660044, 06NA660045, ADDED APPROPRIATE COIL TO EACH KIT, REMOVED KLE-LLM5 ALLEN WRENCH FROM THE KIT, ADDED PHOTOS SHOWING CONTENTS OF THE KITS AND DIFFERENT MANUFACTURES VALVES SERVICE BY THESE KITS, RENUMBER STEPS	99TA516058H_Unl_Solenoids.docx