



DATE: February 12, 2009

FILE: TB09-01

ISSUED BY: Technical Service Dept.

SUBJECT: Hard Start Kits

Bard has created and released six (6) new start kits, SK111, SK113, SK114, SK115, SK116 and SK117 that can be used with R-410A products. These products are already in production or will be introduced over the next several months. SK111 and SK113 are also suitable for use with the majority of R-22 products that are still in production or were produced in recent years.

All SK-Series hard start kits consist of a potential relay and a start capacitor, which are enclosed in a metal box. They are all field-installed and not available as a factory installed option. The installation location will vary depending upon the product type, and for most will be outside of the main control panel in adjacent area, and can be installed in compressor section as required.

Certain basic unit models have a PTCR start assist as standard equipment. If for any reason it is determined that a hard start kit is required, the PTCR device must be disconnected when the hard start kit is installed. PTCR start assist devices increase the compressor motor starting torque by 2-3x. Hard start kits with the proper potential relay and start capacitor increase the starting torque by 9x and reduce the starting time by 75%.

The breakdown on the next page shows which start kit, SK111 through SK117, is suitable for use with which unit model/compressor. Only the referenced start kit should be used as shown. Use of the incorrect start kit can result in compressor damage.

Bard Hard Start Kits:

- >Temporarily increase starting torque 9x
- >Reduce starting time by 75%
- >Unit Model Numbers and Compressor Model No. listed in general ascending order by capacity

Start Kit Part No.	Start Capacitors		Start Relays				
	Bard Part No.	Description	Bard Part No.	Vendor No.	Pick-Up Volts	Drop-Out Volts	Coil Volts
SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
SK113	8551-006	270-324MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
SK114	8551-011	88-106MFD, 330V	8201-116	040-0166-21	150-160	35-77	253
SK115	8551-006	270-324MFD, 330V	8201-117	040-0166-07	140-150	40-90	332
SK116	8551-011	88-106MFD, 330V	8201-117	040-0166-07	140-150	40-90	332
SK117	8551-010	189-227MFD, 330V	8201-117	040-0166-07	140-150	40-90	332

Note: 040-0166-07 and 040-0140-08 are interchangeable part numbers for Bard part number 8201-117

Hard Start Kits for R410A Units

Bard Unit Model Numbers	Compressor Bard PN	Compressor Model No.	Bard Start Kit	Start Capacitor		Start Relay				
				Bard PN	Rating	Bard PN	Emerson PN	Pick-Up Volts	Drop-Out Volts	Coil Volts
W18A1-A, W18H1-A, W18L1-A	8000-313	ZP16K5E-PFV-130	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
PH13241-A	8000-276	ZP20K5E-PFV-130	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
GV27S1-A	8000-335	ZPS20K4E-PFV-130	SK116	8551-011	88-106MFD, 330V	8201-117	040-0166-37	140-150	40-90	332
W24A1-D	8000-317	ZP24K5E-PFJ-130	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
W24A1-A, W24L1-A, W24H1-A, W24H1DA	8000-314	ZP24K5E-PFV-130	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
PH13301-A	8000-277	ZP25K5E-PFV-130	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
W30A1-D	8000-301	ZP29K5E-PFJ-130	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
W30A1-A, W30L1-A	8000-298	ZP29K5E-PFV-130	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
CH3S1-A, WA3S1-A, WG3S1-A, WG3S1CA	8000-269	ZPS30K4E-PFV-130	SK114	8551-011	88-106MFD, 330V	8201-116	040-0166-21	150-160	35-77	253
GV38S1-A										
PH13361-A	8000-278	ZP31K5E-PFV-130	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
W36A1-A, W36H1-A, W36L1-A	8000-309	ZP34K5E-PFV-130	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
W36A1-D	8000-312	ZP36K5E-PFJ-130	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
W42A1-A, W42A1DA, W42L1-A, Q42H1-A	8000-318	ZP39K5E-PFV-130	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
CH4S1-A, WA4S1-A, WG4S1-A, WG4S1CA	8000-267	ZPS40K4E-PFV-130	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
GV51S1-A										
W42H1-A, W42H1DA	8000-332	ZP42K5E-PFV-130	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
W48A1-A, W48A1DA, W48A12A, W48A13A	8000-321	ZP44K3E-PFV-130	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
W48H1-A, W48L1-A, W48L12A, W48L13A										
W48H1DA										
PA13601-A, PA13602-A, PH13602-A	8000-289	ZP51K5E-PFV-130	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
CH5S1-A, WA5S1-A, WG5S1-A, WG5S1CA	8000-268	ZPS51K4E-PFV-130	SK115	8551-006	270-324MFD, 330V	8201-117	040-0166-07	140-150	40-90	332
GV61S1-A										
W60A1-A, W60A1DA, W60A12A, W60A13A	8000-324	ZP54K5E-PFV-130	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
W60H1-A, W60L1-A, W60L12A, W60L13A										
W60H1DA										
W61A1-A	8000-327	ZP57K3E-PFV-130	SK113	8551-006	270-324MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
GV71S1-A	8000-336	ZPS60K4E-PFV-130	SK115	8551-006	270-324MFD, 330V	8201-117	040-0166-07	140-150	40-90	332
W70A1-A, W70L1-A	8000-337	HLH068TLP6	SK117	8551-010	189-227MFD, 330V	8201-117	040-0166-07	140-150	40-90	332

Hard Start Kits for R-22 Units

Bard Unit Model Numbers	Compressor Bard PN	Compressor Model No.	Bard Start Kit	Start Capacitor		Start Relay				
				Bard PN	Rating	Bard PN	Emerson PN	Pick-Up Volts	Drop-Out Volts	Coil Volts
GSVS242-A, WH185-A	8000-257	ZR18K4-PFV-230	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
WA253-A, WL253-A, WH262-A, SH261-A	8000-258	ZR22K4-PFV-230	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
QA242-A, QW242-A, GSVS302-A										
QH243-A, QW242-A	8000-259	ZR24K4-PFV-230	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
WH311-A, SH311-A	8000-233	ZR26K3-PFV-230	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
WA302-A, WL302-A, WG302-A	8000-255	ZR28KC-PFV-230	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
QA242-A, QH302-A, QW361-A, GSVS361-A	8000-172	ZR28K3-PFV-230	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
WH381-A, SH381-A, GSVS421-A	8000-175	ZR34K3-PFV-230	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
QA361-A, QH362-A, QW421-A										
WA381-A	8000-251	ZR34KC-PFV-230	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
WA372-A, WL372-A	8000-225	ZR36KC-PFV-230	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
WA423-A, WL423-A, WG423-A	8000-253	ZR42KC-PFV-230	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
WH431-A, SH431-A, QW481-A	8000-176	ZR40K3-PFV-230	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
QA421-A, QH422-A, GSVS481-A	8000-177	ZR42K3-PFV-230	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
WA484-A, WL484-A, WH483-A, WG482-A	8000-236	ZR47KC-PFV-235	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
WA491-A, WH491-A, SH491-A, QH482-A	8000-218	ZR47K3-PFV-230	SK111	8551-011	88-106MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
QW601-A, GSVS601-A	8000-178	ZR54K3-PFV-230	SK113	8551-006	270-324MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
WA605-A, WA611-A, QH602-A, WH604-A	8000-150	ZR57K3-PFV-230	SK113	8551-006	270-324MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
WA602-A, WL602-A, WH602-A, WG602-A	8000-153	ZR61K3-PFV-230	SK113	8551-006	270-324MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
WH611-A, WH612-A, SH611-A, SH612-A										
WA702-A, WL702-A	8000-264	ZR68KC-PFV-230	SK113	8551-006	270-324MFD, 330V	8201-115	040-0166-37	170-180	40-90	332