
SUPPLEMENTAL INSTRUCTIONS

Start Kit

Models:

SK111 SK114 SK116 SK118 SK120
SK113 SK115 SK117 SK119 SK121

Operation

These start kits are intended to provide additional starting torque for capacitor start and capacitor run motors. The start relay keeps the start capacitor energized during the start up of the compressor. This relay has a normally closed contact. As the compressor speed increases, the voltage induced from the start windings also increases. When the start winding's voltage increases to the relay's set value, the contact opens and the start capacitor is removed from the circuit. When the compressor is stopped, the voltage drops and the relay's contact closes.

WARNING

Electrical shock hazard.
Disconnect the remote electric power supply or supplies before servicing.
Failure to do so can result in serious injury or death.

WARNING

Exposed moving parts.
Disconnect all electrical power before servicing.
Failure to do so can result in severe injury or amputation.

CAUTION

Sharp metallic edges.
Take care and wear appropriate protective devices to avoid accidental contact with sharp edges.
Failure to do so can result in personal injury.



Climate Control Solutions

Bard Manufacturing Company, Inc.
Bryan, Ohio 43506
www.bardhvac.com

Manual: 7960-573I
Supersedes: 7960-573H
Date: 9-24-19

Installation

Field-supplied tools needed:

- Personal protection equipment, including gloves and safety glasses
 - 5/16" nut driver
 - Multimeter for troubleshooting
1. Locate the start kit control box near the compressor run capacitor and compressor contactor in a dry location. The recommended place to mount the start kit control box, in a wall mount, is in the outdoor section—attached to the unit back.
 2. Use the four (4) self-drilling screws (supplied) to mount the start kit assembly securely.
 3. Using the wiring diagram provided on page 5, connect the three (3) wires as shown. The wire colors will correspond with the wire colors going to the compressor.
 - A. The yellow wire attaches to the start side of the compressor cap.
 - B. The black wire attaches to the compressor contactor as per diagram.
 - C. The red wire also attaches to the compressor contactor as per diagram.

Troubleshooting

Certain problems may lead to start failure in new, properly wired units. These include:

- Voltage measured at the compressor terminals during start up is too low.
- Compressor discharge and suction pressures are not equalized.

Hard Start Kits for R-410A Units

Bard Unit Model Numbers	Bard Compressor Part Number	Compressor Model Number	Bard Start Kit
W17A1-A, W17A2-A, W17L1-A, W17L2-A, W18A1-A, W18A2-A, W18H1-A, W18L1-A, W18L2-A, W18AA-A, W18LA-A, W18HA-A	8000-313	ZP16K5E-PFV-130	SK111
W18AB-A, W18LB-A, W18HB-A	8000-433	ZP16K6E-PFV-130	SK111
PH13241-A, PH13242-A, T24H1-A, T24H1DA	8000-276	ZP20K5E-PFV-130	SK111
GV27S2AA, GV27S3AA, QW2S2-A, QW2S2DA, GW0241S1-A, C24H2-A	8000-394	ZPS20K5E-PFV-130	SK111
W24AB-A, W24LB-A, W24G4-A	8000-434	ZP21K5E-PFV-130	SK111
W24HB-A	8000-441	ZP21K6E-PFV-130	SK111
W24A1-D, W24A2-D	8000-317	ZP24K5E-PFJ-130	SK111
Q24A1-A, Q24A1DA, Q24H1-A, Q24H1DA, W24A1-A, W24A2-A, W24L1-A, W24L2-A, W24H1-A, W24H1DA, W24H1LA, W24G1-A, W24G1CA, W24G1DA, W26H1-A, W24AA-A, W24LA-A, W24HA-A, W24HADA	8000-314	ZP24K5E-PFV-130	SK111
I30H1-A, I30H1DA, C30H2-A, T30S2-A, T30S2DA	8000-388	ZPS25K5E-PFV-130	SK111
PH13301-A, PH13302-A, T30H1-A, T30H1DA, W30AB-A, W30ABDA, W30HB-A, W30HBD, W30G4-A, W30G4DA	8000-277	ZP25K5E-PFV-130	SK111
S31H1-A, S31H1DA, W31H1-A, W30AA-A, W30AADA, W30LA-A	8000-346	ZP28K5E-PFV-130	SK111
W30A1-D, W30A2-D	8000-301	ZP29K5E-PFJ-130	SK111
Q30A1-A, Q30A1DA, Q30H1-A, Q30H1DA, W30A1-A, W30A2-A, W30L1-A, W30L2-A, W30H1-A, W30H1DA, W30G1-A, W30G1CA, W30G1DA, W30HA-A, W30HADA	8000-298	ZP29K5E-PFV-130	SK111
CH3S1-A, GTC36S1-A, GV38S1-A, GV38S1AA, QW3S1-A, QW3S1DA, WA3S1-A, WA3S2-A, WG3S1-A, WG3S1CA	8000-269	ZPS30K4E-PFV-130	SK114
CH3S2-A, GTC36S2-A, GV38S2AA, GV38S3AA, I36H1-A, I36H1DA, QW3S2-A, QW3S2DA, WA3S3-A, WG362-A, GW0361S1-A, HR36APA, HR36APA-A, HR35APA-A	8000-379	ZPS30K5E-PFV-130	SK111
PH13361-A, PH13362-A, Q36A1-A, Q36A1DA, T36H1-A, T36H1DA, W36HA-A, W36HADA, W36AB-A, W36ABDA, W36LB-A, W36HB-A, W36HBD, W36G4-A, W36G4DA	8000-278	ZP31K5E-PFV-130	SK111
Q36H1-A, Q36H1DA, S38H1-A, S38H1DA, W36A1-A, W36A2-A, W36H1-A, W36L1-A, W36L2-A, W36G1-A, W36G1CA, W36G1DA, W36H1DA, W36H1LA, W38A1-A, W38H1-A, W36AA-A, W36AADA, W36LA-A	8000-309	ZP34K5E-PFV-130	SK111
W3LV1-R, W3RV1-R	8000-355	ZPD34K5E-PFV-130	SK111
I42H1-A, I42H1DA	8000-391	ZPS35K5E-PFV-130	SK111
W36A1-D, W36A2-D	8000-312	ZP36K5E-PFJ-130	SK111
T42H1-A, T42H1DA, W42HA-A, W42HADA, W42G4-A, W42G4DA	8000-362	ZP36K5E-PFV-130	SK111
S43H1-A, S43H1DA, W43H1-A, W42AA-A, W42AADA, W42LA-A, W42AC-A, W42ACDA, W42HC-A, W42HCDA	8000-349	ZP38K5E-PFV-130	SK111
H42A1, H42L1-A, Q24A1-A, Q42A1DA, Q42H1-A, Q42H1DA, W42A1-A, W42A1DA, W42L1-A, W42L2-A, W42G1-A, W42G1CA, W42G1DA, W42A2-A, W42A2DA	8000-318	ZP39K5E-PFV-130	SK111
CH4S1-A, GTC48S1-A, GV51SAAA, QW4S1-A, QW4S1DA, WA4S1-A, WG4S1-A, WG4S1CA, GW0481S1-A	8000-267	ZPS40K4E-PFV-130	SK111
CH4S2-A, GTC48S2-A, GV51S2AA, GV51S3AA, I48H1-A, I48H1DA, QW4S2-A, QW4S2DA, WA4S3-A, WG4S2-A	8000-382	ZPS40K5E-PFV-130	SK118
T48H1-A, T48H1DA, W42H1-A, W42H1DA, W42H1LA, W48HA-A, W48HADA, W48AC-A, W48ACDA, W48HC-A, W48HCDA, W48G4-A, W48G4DA	8000-332	ZP42K5E-PFV-130	SK111
W48A1-A, W48A1DA, W48A12A, W48A13A W48H1-A, W48L1-A, W48L12A, W48L13A	8000-321 or 8000-343	ZP44K3E-PFV-130 ZP44K5E-PF130	SK111 SK119
H48A1-A, H48L1-A, S49H1-A, S49H1DA, Q48A1-A, Q48A1DA, Q48H1-A, Q48H1DA, W48A1-A, W48A1DA, W48A12A, W48A13A, W48G1-A, W48G1CA, W48G1DA, W48H1-A, W48H1DA, W48H1LA, W48L1-A, W48L12A, W48L13A, W49A1-A, W49H1-A, W48AA-A, W48AADA, W48LA-A	8000-343	ZP44K5E-PFV-130	SK119
W48A2-A, W48A2DA, W48L2-A, W48A23A, W48L23A	8000-400	ZP49K5E-PFV-130	SK111
PA13601-A, PA13602-A, PH13602-A, W60AC-A, W60ACDA	8000-289	ZP51K5E-PFV-130	SK111
W60HC-A, W60HCDA, W60G4-A, W60G4DA	8000-421	ZP51K6-PFV-130	SK111
CH5S1-A, GTC60S1-A, GV61S1AA, QW5S1-A, QW5S1DA, WA5S1-A, WG5S1-A, WG5S1CA	8000-268	ZPS51K4E-PFV-130	SK115
CH5S2-A, GTC60S2-A, GV61S2AA, GV61S3AA, I60H1-A, I60H1DA, QW5S2-A, QW5S2DA, WA5S3-A, WG5S2-A, GW0601S1-A, HR58APA, HR58APA-A	8000-385	ZPS51K5E-PFV-130	SK118

Continued on page 4

Hard Start Kits for R-410A Units (Cont. from page 3)

Bard Unit Model Numbers	Bard Compressor Part Number	Compressor Model Number	Bard Start Kit
H60A1-A, H60L1-A, Q60A1-A, Q60A1DA, Q60H1-A, Q60H1DA, S61H1-A, S61H1DA, T60H1-A, T60H1DA, W60A1-A, W60A1DA, W60A12A, W60A13A, W60A23A, W60H1-A, W60L1-A, W60L2-A, W60L12A, W60L13A, W60L23A, W60G1-A, W60G1CA, W60G1DA, W60A2-A, W60A2DA, W61H1-A, W60A12A, W60A13A, W60HA-A, W60HADA	8000-324	ZP54K5E-PFV-130	SK111
P60RV1-R, P60LV1-R, W5LV1-R, W5RV1-R	8000-352	ZPD54K5E-PFV-130	SK111
W61A1-A	8000-327	ZP57K3E-PFV-130	SK113
W70A2-A, W70L2-A, W72AB-A, W72LB-A, W72AC-A, W72ACDA	8000-403	ZP67KCE-PFV-250	SK121
GV71S2AA, GV71S3AA	8000-395	ZPS60K5E-PFV-130	SK120
W70A1-A, W70L1-A, W70A13A, W70L13A	8000-337	HLH068TLP6	SK117
W60AA-A, W60LA-A, W60AADA	8000-415	H82J503ABC	SK119

Hard Start Kits for R-22 Units

Bard Unit Model Numbers	Bard Compressor Part Number	Compressor Model Number	Bard Start Kit
GSVS242-A	8000-257	ZR18K4-PFV-230	SK111
WA253-A, WL253-A, WH262-A, SH261-A QA242-A, QW242-A, GSVS302-A	8000-258	ZR22K4-PFV-230	SK111
QH243-A, QW242-A	8000-259	ZR24K4-PFV-230	SK111
WH311-A, SH311-A	8000-233	ZR26K3-PFV-230	SK111
WA302-A, WL302-A	8000-255	ZR28KC-PFV-230	SK111
QA242-A, QH302-A, QW361-A, GSVS361-A	8000-172	ZR28K3-PFV-230	SK111
WH381-A, SH381-A, GSVS421-A QA361-A, QH362-A, QW421-A	8000-175	ZR34K3-PFV-230	SK111
WA381-A	8000-251	ZR34KC-PFV-230	SK111
WA372-A, WL372-A	8000-225	ZR36KC-PFV-230	SK111
WA423-A, WL423-A	8000-253	ZR42KC-PFV-230	SK111
WH431-A, SH431-A, QW481-A	8000-176	ZR40K3-PFV-230	SK111
QA421-A, QH422-A, GSVS481-A	8000-177	ZR42K3-PFV-230	SK111
WA484-A, WL484-A, WH483-A	8000-236	ZR47KC-PFV-235	SK111
WA491-A, WH491-A, SH491-A, QH482-A	8000-218	ZR47K3-PFV-230	SK111
QW601-A, GSVS601-A	8000-178	ZR54K3-PFV-230	SK113
WA605-A, WA611-A, QA601-A, QH602-A	8000-150	ZR57K3-PFV-230	SK113
WA602-A, WL602-A, WH602-A WH611-A, WH612-A, SH611-A, SH612-A	8000-153	ZR61K3-PFV-230	SK113
WA702-A, WL702-A	8000-264	ZR68KC-PFV-230	SK113

START KIT PART NUMBER	START CAPACITORS		START RELAYS				
	Bard Part Number	Description	Bard Part Number	Vendor Number	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	040-0140-08	140-150	40-90	332
SK116	8551-011	88-106MFD, 330V	8201-117	040-0140-08	140-150	40-90	332
SK117	8551-010	189-227MFD, 330V	8201-117	040-0140-08	140-150	40-90	332
SK118	8551-011	88-106 MFD, 330V	8201-137	040-0166-02	190-200	60-130	450
SK119	8551-010	189-227 MFD, 330V	8201-115	040-0166-37	170-180	40-90	332
SK120	8551-013	43-52 MFD, 330V	8201-137	040-0166-02	190-200	60-130	450
SK121	8551-006	270-324 MFD, 330V	8201-138	040-0166-28	320-340	60-135	500

