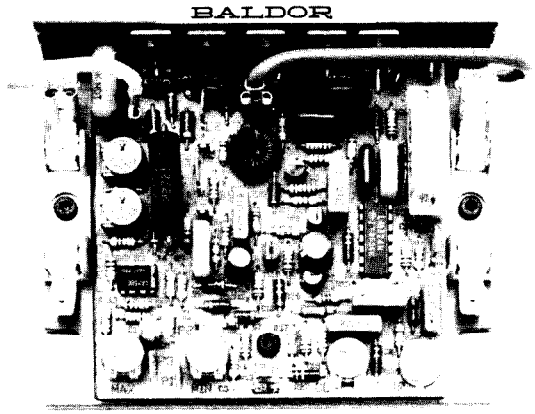
BALDOR
Solid State DC Motor Speed Control

Installation and Operating Instructions*

* See Safety Warning on Page 2.



BC141 or 142

5K Speed Potentiometer (Included)

BALDOR
MOTORS AND DRIVES

MN704

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

LIST OF TABLES

SAFETY WARNING—PLEASE READ CAREFULLY

This product should be installed and serviced by a qualified technician, electrician or electrical maintenance personnel familiar with its operation and the hazards involved. Proper installation (see instruction information which accompanies product), which includes wiring, mounting in proper enclosure, fusing or other overcurrent protection and grounding, can reduce the chance of electric shocks, fires or explosion in this product or products used with this product, such as electric motors, switches, coils, solenoids and/or relays. Eye protection must be worn when working with control under power. This product is constructed of materials (plastics, metals, carbon, silicon, etc.) which may be a potential hazard. Individual material safety data sheets (MSDS) are available upon request. Proper shielding, grounding and filtering of this product can reduce the emission of radio frequency interference (RFI) which may adversely affect sensitive electronic equipment. If information is required on this product, contact our factory. It is the responsibility of the equipment manufacturer and individual installer to supply this safety warning to the ultimate user of this product.

****IMPORTANT****

You must read these simplified instructions before operating control.

1. Be sure AC line voltage corresponds to control voltage. (See electrical rating chart).
2. Install the correct Plug-in Horsepower Resistor® according to armature voltage and motor horsepower (See Table 4. Page 5.) **(supplied separately).**
3. Recheck connections: AC line to L1 and L2; armature to A+ and A– and Field (Shunt motors only to F+ and F—. (Note: If motor runs in wrong direction, interchange armature leads).
4. Install proper AC line fuse and armature fuse as required (See page 9) **(Supplied separately).**
5. Nominal trimpot settings are as follow (expressed in % of full CW rotation):

TABLE 1: NOMINAL TRIMPOT SETTINGS For detailed instructions see Sec. III

MIN (minimum speed):	15%	CL (current limit/torque):	65%
MAX (maximum speed):	65%	ACCEL (acceleration start):	20%
IR (IR compensation):	25%	DECEL (deceleration):	20%

TABLE 2. ELECTRICAL RATINGS

MODEL NUMBER	AC LINE VOLTAGE (VAC)	MOTOR VOLTAGE (VDC)	RATING WITHOUT AUXILIARY HEATSINK			RATING WITH AUXILIARY HEATSINK		
			AC LOAD CURRENT (RMS AMPS)	DC LOAD CURRENT (AVG. AMPS)	MAX. HP	AC LOAD CURRENT (RMS AMPS)	DC LOAD CURRENT (AVG. AMPS)	MAX. HP
BC141	115	90-130	12.0	8.0	¾	24.0	16.0	1½
BC142	230	180	12.0	8.0	1½	24.0	16.0	3

TABLE 3. GENERAL PERFORMANCE SPECIFICATIONS

Speed range (ratio)	50:1	CL/torque range (% full load)	0-200
Load regulation—armature feedback (0-full load, 50:1 speed range) (% base speed)	1*	Accel time range (0-full speed) (secs.)	.2-10
Load regulation—tachometer feedback (0-full load, 50:1 speed range) (% set speed)	1*	Decel time range (full-0 speed) (secs.)	.2-10
Line voltage regulation—armature feedback (at full load, ±10% line variation(% base speed)	½*	Min. speed trimpot range (% full speed)	0-30*
Line voltage regulation—tachometer feedback (at full load, ±10% line variation) (% set speed)	½*	Max. speed trimpot range (% full speed)	50-110*
Control linearity (% speed vs. dial rotation)	2	IR compensation trimpot range (at specified full load) (volts)	0-24
		Maximum allowable ambient temperature at full rating (°C/°F)	45/113
		Tachometer feedback input volts (per 1000 RPM) (VDC)	7/50

*Performance is for SCR rated PM motors only. Lower performance can be expected with other motor types. Factory setting is for 3% load regulation. To obtain superior regulation, see Sec. III F. Other factory trimpot settings are as follows: CL-150% FL, Accel-2 sec., Decel-2 sec., MIN-(0)-speed, MAX-full speed & IR-6 volts.

A Plug-in Horsepower Resistor* must be installed to match the SCR Drive to the motor horsepower and voltage. See Table 4 for the correct value. Plug-in Horsepower Resistors* are stocked by your distributor **(supplied separately).**

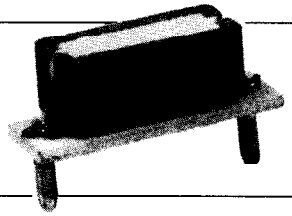


TABLE 4. PLUG-IN HORSEPOWER RESISTOR® CHART

MOTOR HORSEPOWER		PLUG-IN HORSEPOWER RESISTOR® RESISTANCE VALUE (OHMS)	BALDOR CATALOG NUMBER
ARMATURE VOLTAGE 90-130V DC	ARMATURE VOLTAGE 180V DC		
1/100	1/50	1.0	BR1000
1/50	1/25	.51	BR0510
1/30	1/15	.35	BR0350
1/20	1/10	.25	BR0250
1/15	1/8	.25	BR0251
1/12	1/6	.18	BR0180
1/8	1/4	.1	BR0100
1/6	1/3	.1	BR0101
1/4	1/2	.05	BR0050
1/3	3/4	.035	BR0035
1/2	1	.025	BR0025
3/4	1 1/2	.015	BR0015
1*	2*	.01	BR0010
1 1/2*	3*	.006	BR0006

*External heatsink required

BC141 or BC142

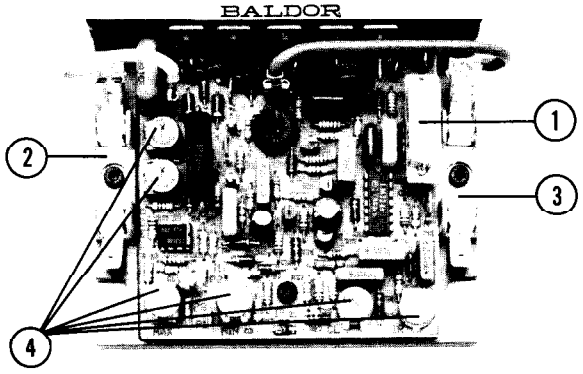


FIG. 1. FEATURES AND FUNCTIONS

(1) Plug-In Horsepower Resistor®
(2) AC Line Fuse
(3) Armature Fuse
(4) Trimpots: MIN, MAX, IR, CL, ACCEL & DECEL

INTRODUCTION

The BALDOR Full Wave Solid State DC Motor Speed Control;

Features Include:

- ***Integrated Circuitry***
  Used to control and amplify command and reference levels with both closed and open loop feedback to provide superior motor regulation. (Speed changes due to load, line voltage, or temperature variations are held to minimum levels).
- ***High Quality Components***
  Selected and tested for proven dependability.
- ***Transient Protection***
  Used to prevent failure of the power bridge circuit caused by voltage spikes on the AC Line.
- ***High Reliability***
  When used in accordance with the instructions included in this manual, the BC141 & BC142 will provide years of trouble-free operation. (One year warranty—see page 20.)

SECTION I. APPLICATION INFORMATION

A. *Motor Type.* The BC141 & BC142 are designed for Permanent Magnet (PM) and Shunt Wound D.C. motors. Controls operated on 115 volt AC inputs are designed for 90 volt SCR rated motors. Controls operated on 230 volt AC inputs are designed for 180 volt SCR rated motors. Use of higher voltage motors will result in degradation of full speed performance. Also, if motor is not an SCR rated type, the actual AC line amperage at full load should not exceed the motor's DC nameplate rating.

B. *Torque Requirements.* When replacing an AC induction motor with a DC motor and speed control, consideration must be given to the maximum torque requirements. The full load torque rating of the DC motor must be equal to, or greater than, that of the AC motor.

C. *Acceleration Start.* The BC141 & BC142 contain an adjustable acceleration start feature which allow the motor to smoothly accelerate from 0-full speed over a time period of .2-10 seconds. The "ACCEL" is factory set at 2 seconds.

D. *Limitations in Use.* The BC141 & BC142 controls are designed for use on machine applications.

E. *Armature Switching:* Do not switch the armature without taking proper precautions. See Sec. IV.

CAUTION: Consult factory before using on constant horsepower applications such as saws or drill presses. Do not use in explosive atmosphere.

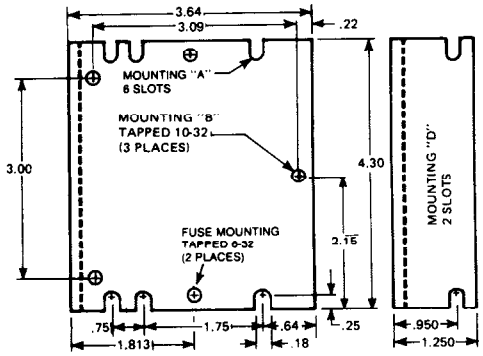
CAUTION: Be sure the BC141 & BC142 are used within max. ratings. Follow all installation instructions carefully. (Refer to Section II).

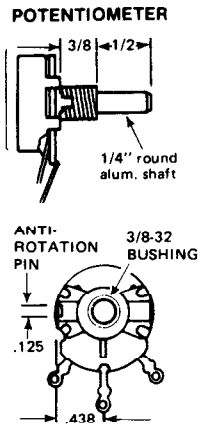
SECTION II. INSTALLATION INSTRUCTIONS

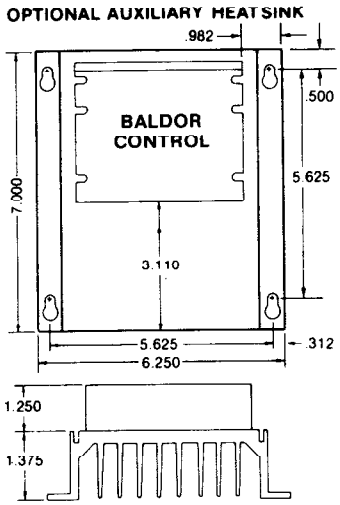
A. *Location and Mounting.* The BC141 & BC142 controls should be mounted on a flat surface and located in an area where it will not be exposed to contaminants such as water, metal chips, solvents or excessive vibration.

When mounting in an enclosure the air space should be large enough to provide adequate heat dissipation. The maximum allowable amibent temperature at full rating is 45°C/113°F. Consult factory if more information is required.

MECHANICAL SPECIFICATIONS







B. *Initial Setup and Wiring*

i. General Instructions

1. Install proper size Plug-in Horsepower Resistor® (See Table 4, page 5.).
2. The BC141 & BC142 can be connected to a standard 115V or 230V 50/60 Hz AC line [Be sure the AC input voltage corresponds to the control voltage rating and the motor rating (e.g. 90-130VDC motor on 115VAC and 180VDC motor on 230VAC)].
3. Follow the recommended supply wire sizes as per Table 5.
4. Follow the NEC and other electrical codes that apply. CAUTION: Separate branch protection must be provided on 230V circuits.
5. Connect control in accordance to connection diagram—See Fig. 3, page 8.

TABLE 5. MINIMUM SUPPLY WIRE SIZE REQUIREMENTS

MAX. MOTOR AMPS (DC AMPS)	MAX. MOTOR HP 90V	MAX. MOTOR HP 180V	MINIMUM WIRE SIZE (AWG) Cu Only	
			MAX. 50 FOOT RUN	MAX. 100 FOOT RUN
6.0	½	1	16	14
12.0	1	2	14	12*
16.0	1½	3	12	12

*Maximum recommended wire size.

CONNECTION DIAGRAMS

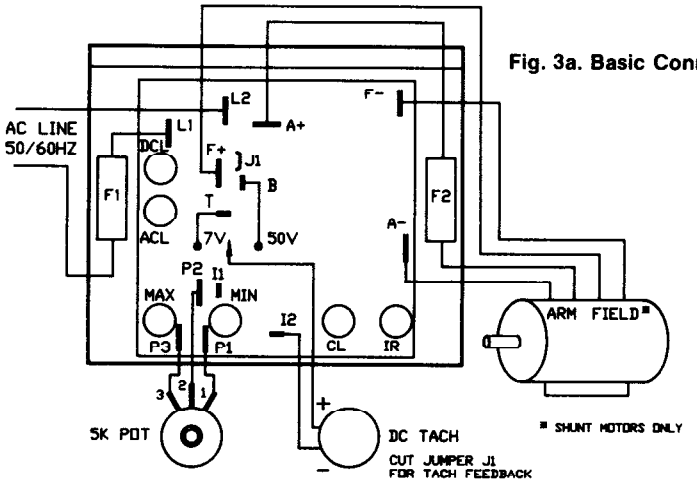


Fig. 3a. Basic Connection Diagram

ii. Tachometer Connection—All Models (Note: DC Tachs Only)

(1) For tach feedback, cut jumper J1 on Printed Circuit Board.

(2) Connect tach as follows:

(a) 7 volts/1000 RPM Connect (+) lead to Terminal "T"
Connect (–) lead to Terminal I_2 or F–

(b) 50 volts/1000 RPM Connect (+) lead to Terminal "B"
Connect (–) lead to Terminal I_2 or F–

Note: Set IR Comp to minimum for tach feedback.

TROUBLESHOOTING GUIDE - KBMM CONTROLS

Note: It is not recommended that repairs to this control should be attempted unless you are a qualified technician. **Read Safety Warning on Page 2.**

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. No output	1. Plug-in Horsepower Resistor® not installed.	1. Install correct Plug-in Horsepower Resistor® (see page 5)
	2. Fuses not installed	2. Install proper AC line and armature fuses (see page 11)
	3. Fuses blown	3. Check wiring and motor for grounds or shorts
2. Erratic motor performance	1. Plug-in Horsepower Resistor® wrong size	1. Replace with proper value
	2. IR Comp Trimpot set too high	2. Rotate trimpot CCW to approx. 9 o'clock position
3. Motor slows down substantially when load is applied-CL LED light	1. Plug-in Horsepower Resistor® wrong size	1. Replace with proper value
	2. CL trimpot set too low	2. Rotate trimpot CW to approx. 1 o'clock position
	3. Motor armature and field connections interchanged (Shunt motors only)	3. Correct wiring (armature has lower resistance field)
	4. Control voltage rating does not match AC line or motor voltage	4. Use proper control and/or motor
	5. Motor H.P. too low for application	5. Use larger horsepower motor
4. Motor runs in wrong direction	1. Armature leads reversed	1. Reconnect armature leads

CAUTION: If control is wired to a transformer, it is advisable to switch the secondary to disconnect power. If the primary is switched, additional snubber capacitors may have to be added across the transformer output to prevent damage to the power bridge.

Note: (Shunt motors only) For 90 Volt dc motors with 50VDC fields and 180 Volt dc motors with 100VDC fields use half voltage field connections F+ and L_1.

CAUTION: Do not bundle potentiometer connections (P_1, P_2, P_3) and Inhibit™ connections (I_1, I_2) with AC line or motor wires.

WARNING: Armature Switching. Do not switch the armature in and out of circuit or catastrophic failure will result.

C. ***Voltage Following.*** All models can be controlled with an **isolated** analog reference voltage (0-9VDC) in lieu of the main speed potentiometer. The voltage is connected to P_2(+) and F−. The control output voltage will linearily follow the input voltage. The source impedance of the input should be 10K ohms or less. The Min trimpot can be used to provide an offset speed. If an offset is not required adjust the Min to 0+ or 0− speed as desired. The Max trimpot is rendered inoperative in the voltage following mode. Use auxiliary trimpot to limit the control range.

CAUTION: 1. The voltage feeding P_2 and F− must be isolated from the AC line. Do not ground P_2 or F− to set up a zero or ground reference.
2. Do not bundle signal wires to P_2 and F− with AC line or motor connections. If signal wires are over 18", use shielded cables.

D. *Fusing.* The BC141 & BC142 have provisions for built-in AC line fuse and armature fuse. The AC line fuse protects the control against catastrophic failure. If the fuse blows, the control is miswired, the motor is shorted or grounded, or the BALDOR control is defective. The armature fuse provides overload protection for the motor and control. Choose the proper size armature fuse by multiplying the maximum **dc motor amps by 1.7. NOTE: Be sure to fuse each ungrounded AC line supply conductor. Do not fuse neutral or grounded conductors. All fuses should be normal blow ceramic 3AG, ABC or equivalent.**

1. *AC Line Fuse* is chosen according to the maximum rating of the control:
   12 Amp fuse for all motors up to ¾ HP-90V and 1½ HP-180VDC.
   25 Amp fuse for all motors 1 and 1½ HP-90V and 2 and 3 HP-180VDC.
   (Use Buss ABC, Litt. 326 ceramic fuse or equivalent.)
2. *Armature Fuse* can be chosen in accordance with the fuse chart. Note: The armature fuse is calculated based on the approximate full load DC current rating of the motor times a form factor of 1.5. If motor has characteristics not consistent with these approximations, a different fuse value may have to be used. Fuses are available from your distributor.

TABLE 6. ARMATURE FUSE CHART

90VDC MOTOR	180VDC MOTOR	APPROX. DC MOTOR CURRENT (AMPS)	FUSE RATING (AC AMPS)
HORSEPOWER			
1/30	1/15	.33	1/2
1/20	1/10	.5	3/4
1/15	1/8	.65	1
1/12	1/6	.85	1-1/4
1/8	1/4	1.3	2
1/6	1/3	1.7	2-1/2
1/4	1/2	2.5	4
1/3	3/4	3.3	5
1/2	1	5.0	8
3/4	1-1/2	7.5	12*
1	2	10.0	15
1-1/2	3	15.0	25*

*Also used as AC Line Fuse.

SECTION III—ADJUSTMENTS AND CONTROL FUNCTIONS

WARNING. If adjustments are made under power, insulated adjustment tools must be used and eye protection must be worn.

The BC141 & BC142 have been factory adjusted to provide 0-full speed using the speed control knob. Minimum and Maximum speed trimpots are provided to change the speed from other than 0-full speed. The Acceleration (ACCEL) trimpot is provided to allow for a smooth start over an an adjustable time period each time the AC power is applied or the speed pot is rotated. The DECEL trimpot controls the amount of ramp-down time when the speed pot is adjusted to a lower speed. The Current Limit (CL, or torque output) adjustment is factory set to approximately 1½ times the motor rating. The IR Compensation (IR) is factory adjusted to provide excellent motor regulation under normal operation.

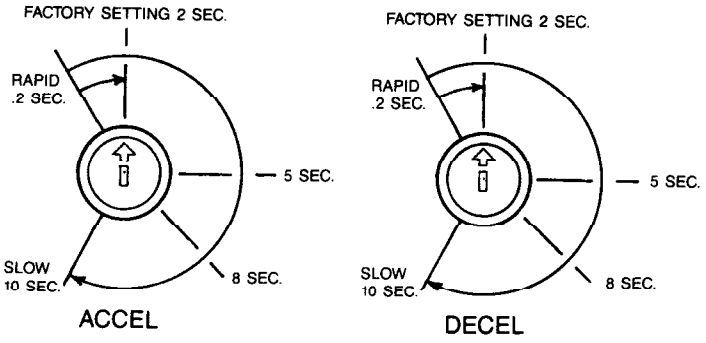
NOTE: In order for the IR comp and CL trimpot settings to be correct, the proper Plug-in Horsepower Resistor® must be installed for the particular motor and input voltage being used. Do not attempt to change the settings of the trimpots unless absolutely necessary since they are factory adjusted to near optimum settings.

The following procedure, presented in order of adjustment sequence, should be used when readjusting all trimpot functions:

Fig. 4 ACCEL/DECEL TRIMPOT ADJUSTMENT

CAUTION!

[PM motors only]. Adjusting the accel time below .5 seconds increases inrush current. It may be necessary to measure the peak inrush current and consult with motor manufacturer since field magnet demagnetization may occur.



A. *Acceleration Start.* The ACCEL is factory set at approx. 2 seconds. To readjust to different times, set the knob to the desired position as indicated in Fig. 4.

B. *Deceleration.* The DECEL is factory set to provide a ramp-down time of 2 seconds. To change the ramp-down time adjust the DECEL trimpot as indicated in Fig. 4.

C. *Minimum Speed Adjustment.* If a higher than zero minimum speed is desired, readjust the minimum speed by turning the speed control knob to zero setting (full CCW position). Then adjust the Min. Speed Trimpot to the desired setting.

NOTE: The min. speed adjustment will affect the max. speed setting. Therefore, it is necessary to readjust the max. speed after the min. speed.

D. *Maximum Speed Adjustment.* Turn Speed Control Knob to full speed (maximum CW position). Adjust max. speed trimpot to new desired setting.

NOTE: Do not attempt to adjust the max. speed above the rated motor RPM since unstable motor operation may occur. For moderate changes in the max. speed, there will be a slight effect on the min. speed setting.

E. *Current Limit (CL/Torque Adjustment).* CL circuitry is provided to protect the motor and control against overloads. The CL also limits the inrush current to a safe level during startup. The CL is factory set to approximately 1.5 times the full load rating of the motor. (CL trimpot is nominally set to approx. 65% of full CW rotation.) CL Led will light when control is in CL.

To set the CL to factory specifications adjust as follows:

1. Set speed control knob at approximately 30-50% CW rotation. Set CL trimpot to full CCW position.
2. Connect a DC ammeter in series with the armature lead.
3. Lock shaft of motor (be sure CL pot is in full CCW position). Apply power and rotate CL pot CW slowly until DC ammeter reads 1.5 times motor rating (do not exceed 2 times motor rating, Max. CW position).

NOTE: If only an AC ammeter is available, it can be installed in series with AC input line. Follow above instructions; however, set AC amperage at .75 times motor rating.

F. *IR Compensation Adjustment.* IR compensation is provided to substantially improve load regulation. If the load presented to the motor does not vary substantially, the IR adjustment may be set at a minimum level (approximately 1/4 of full setting). The control is factory adjusted to approximately 3% regulation. If superior performance is desired (less than 1% speed change of base speed from 0 to full load), then the IR comp. should be adjusted as follows:

NOTES: 1. Excessive IR comp. will cause control to become unstable, which causes motor cogging.
2. For tach feedback applications the IR Comp can be set to minimum rotation (full CCW).

1. Set IR comp. trimpot at approximately 25% of CW rotation. Run motor unloaded at approximately 1/3 speed and record RPM.
2. Run motor with maximum load and adjust IR comp. trimpot so that the motor speed under load equals the unloaded speed per step 1.
3. Remove load and recheck unloaded RPM. If unloaded RPM has shifted, repeat procedure for more exact regulation.

The SCR Drive is now compensated to provide minimal speed change under large variations of applied load.

SECTION IV. SWITCHING CIRCUITS

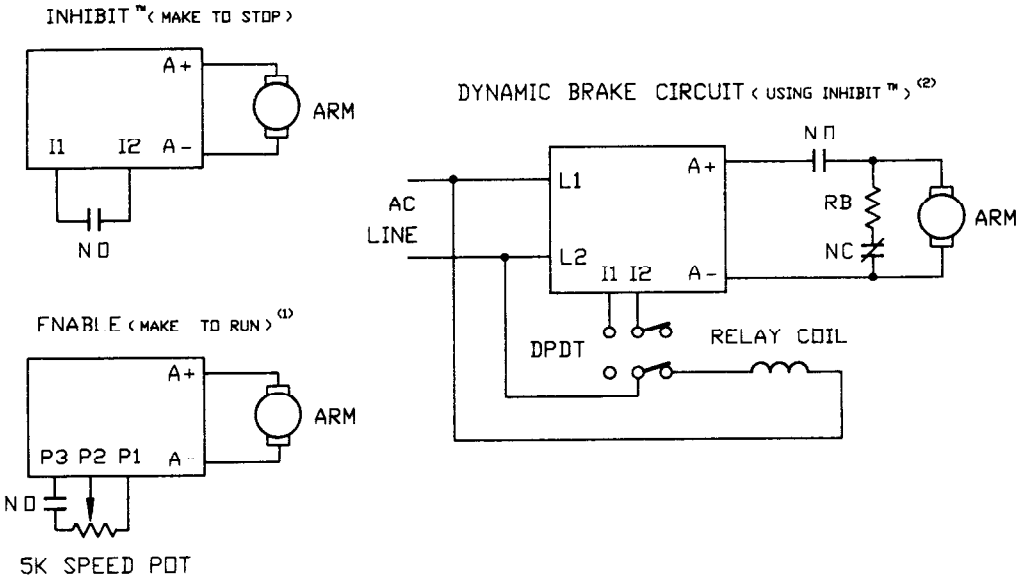
A. *AC Line Switching.* The BC141 & BC142 can be turned "on" and "off" using the AC Line. Auto Inhibit® circuitry contained in the BC141 & BC142 automatically resets critical components each time the AC line is interrupted. This, along with Acceleration Start and CL, provides a smooth start each time the AC line is connected.

Warning: Do not disconnect and reconnect the Armature with the AC line applied or catastrophic failure will result. See armature switching.

B. *Inhibit™ and Armature Switching.* If the armature is to be disconnected and reconnected with AC power applied the Inhibit Circuit™ must be simultaneously activated and deactivated. Connect I_1 and I_2 together to activate the Inhibit Circuit™. When the Inhibit is activated the control output will be electronically extinguished which eliminates arcing. See Fig. (5) for Dynamic brake circuit.

NOTE: Inhibit is not to be used as a failsafe or safety switch.

FIG. (5) SWITCHING CIRCUITS—CONNECTION DIAGRAMS



APPLICATION NOTES:

1. ***ENABLE:*** Stop time is adjustable with DECEL trimpot. To obtain zero speed when enable is open Min. speed trimpot must be set to zero speed. Two speed operation can be obtained by setting the Min. speed to the desired level.
2. ***DYNAMIC BRAKE:*** choose RB resistance and wattage according to braking requirements. Inhibit Circuit extinguishes output of control during brake. When armature is reenergized the Inhibit releases and provides a smooth start. Choose relay or contactor with appropriate rating.

FIG. (6) BC141/BC142 SCHEMATIC

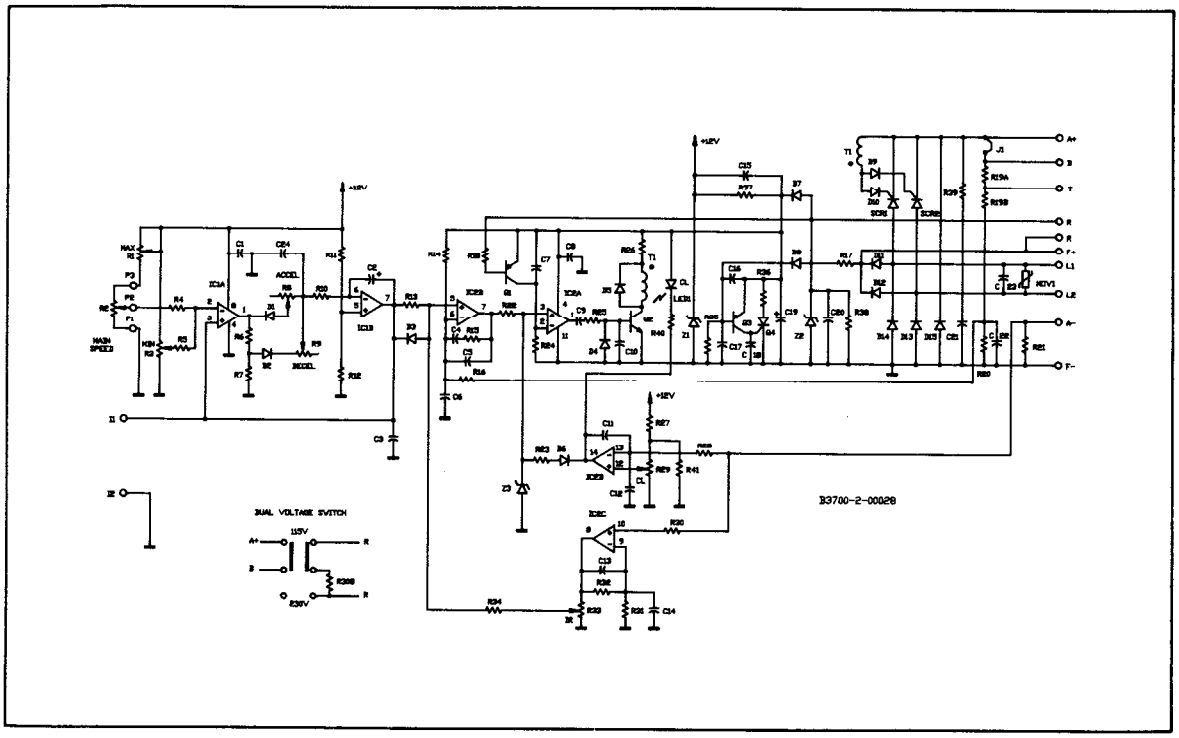


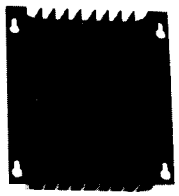
TABLE 7—BC141/BC142 PARTS LIST

CKT. REF.	SPECIFICATION	MFG. TYPE	FUNCTION
C1,14-16,18	0.01μF-50V-30%	Ceramic	Capacitor
C2	1.5μF-50V-20%	Electrolytic	Capacitor
C3	0.47μF-50V-20%	Electrolytic	Capacitor
C4	0.33μF-50V-20%	Metal Film	Capacitor
C5	0.033μF-50V-20%	Metal Film	Capacitor
C6,8,10,12,24	0.022μF-50V-30%	Ceramic	Capacitor
C7	0.1μF-250V-20%	Metal Film	Capacitor
C9,11,13	0.01μF-50V-20%	Metal Film	Capacitor
C17	4.7μF-50V-20%	Electrolytic	Capacitor
C19	100μF-50V-20%	Electrolytic	Capacitor
C20	0.047μF-50V-20%	Metal Film	Capacitor
C21,23	0.1μF250V-20%	Metal Film	Capacitor
C22	0.022μF-50V-20%	Metal Film	Capacitor
D1-10	1A-600PIV	1N4005GP	Diode
D11,12	1.5A-600PIV	1N5397GP	Diode
D13,14	25A-600PIV	D6025L	Power Diode
D15	20A-600PIV	D6020L	Power Diode
IC1		358P	Dual Op Amp
IC2		324N	Quad Op Amp
J1			Jumper
LED1	35mA-3mcd-Red	MV5753	CL Indicating LED
MOV1	150VRMS	V150LA10A	Transient Suppressor
Q1,3	600mA-40V	2N4403	Bipolar Transistor
Q2	600mA-40V	2N4401	Bipolar Transistor
Q4	800mA-50V	S347S101E	Small Signal SCR
R1	10K-0.33W-20%	PTC10YV	MAX Trimpot
R2	5K-5W-10%	AW4743LN	Main Speed Pot
R3	25K-0.33W-20%	PTC10YV	MIN Trimpot
R4	33K-0.25W-5%	Carbon Film	Resistor
R5,16,18,27	47K-0.25W-5%	Carbon Film	Resistor
R28,30,31	47K-0.25W-5%	Carbon Film	Resistor
R6	24K-0.25W-5%	Carbon Film	Resistor
R7,12,25	3.3K-0.25W-5%	Carbon Film	Resistor
R8	500K-0.33W-20%	PTC10YV	ACCEL Trimpot
R9	500K-0.33W-20%	PTC10YV	DECEL Trimpot
R10,41	1K-0.25W-5%	Carbon Film	Resistor
R11	56K-0.25W-5%	Carbon Film	Resistor
R13,23,35	22K-0.25W-5%	Carbon Film	Resistor
R14,32	2.2M-0.25W-5%	Carbon Film	Resistor

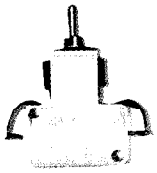
TABLE 7—BC141/BC142 PARTS LIST (continued)

CKT. REF.	SPECIFICATION	MFG. TYPE	FUNCTION
R15	1M-0.25W-5%	Carbon Film	Resistor
R17	4.7K-3W-5%	MO3 [3W @ 70 °C]	Resistor
R19A	62K-0.25W-5%	Carbon Film	Resistor
R19B	12K-0.25W-5%	Carbon Film	Resistor
R20	3.9K-0.25W-5%	Carbon Film	Resistor
R21	0.006-1Ω-5W-5%	Wire Wound	PHR
R22,24,34	100K-0.25W-5%	Carbon Film	Resistor
R26	47Ω-0.25W-5%	Carbon Film	Resistor
R29	25K-0.33W-5%	PTC10YV	CL Trimpot
R33	10K-0.33W-20%	PTC10YV	IR Trimpot
R36	1Ω-0.25W-5%	Carbon Composite	Resistor
R37	1.8K-0.25W-5%	Carbon Film	Resistor
R38	6.8K-0.25W-5%	Carbon Film	Resistor
R39	1K-0.25W-5%	Flameproof	Resistor
R40	4.7K-0.25W-5%	Carbon Film	Resistor
SCR1,2	25A-600V	S6025L	Power SCR
T1	1:1		Pulse Transformer
Z1	12V-1W-5%	1N4742A	Zener Diode
Z2	22V-1W-5%	1N4748A	Zener Diode
Z3	18V-1W-5%	1N4746A	Zener Diode
Component changes required for 230V Input—BC142:			
C21	0.047μF-400V-20%	Metal Film	Capacitor
C23	0.047μF-250VAC	X Type	Capacitor
J1	82K-0.25W-5%	Carbon Film	Resistor
MOV1	275VRMS	V275LA20A	Transient Suppressor
R17	12K-7W-5%	CW7 [7W @ 70 °C]	Resistor

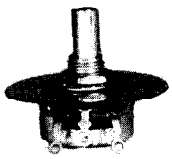
ACCESSORY ITEMS FOR BALDOR CONTROLS available from your distributor



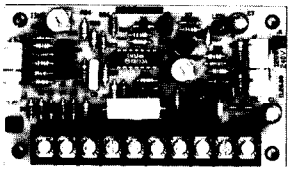
Auxiliary
Heatsink
BC-143



Foward-Brake
Reverse Switch
BC-144



Potentiometer Kit



BC-146

LIMITED WARRANTY—BC141, BC142

For a period of 1 year from date of original purchase BALDOR will repair or replace without charge devices which our examination proves to be defective in material or workmanship. This warranty is valid if the unit has not been tampered with by unauthorized persons, misused, abused, or improperly installed and has been used in accordance with the instructions and/or ratings supplied. The foregoing is in lieu of any other warranty or guarantee expressed or implied, and we are not responsible for any expense (including installation and removal), inconvenience, or consequential damage, including injury to any person, caused by items or our manufacture or sale. Some states do not allow certain exclusion or limitations found in this warranty so that they may not apply to you. In any event, BALDOR's total liability, under all circumstances, shall not exceed the full purchase price of this unit.

BALDOR®
MOTORS AND DRIVES

BALDOR/FORT SMITH, ARKANSAS 72902 U.S.A.

PHONE 501-646-4711 FAX 501-648-5792

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