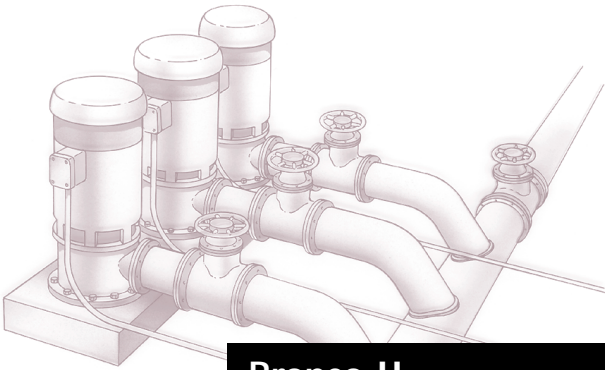
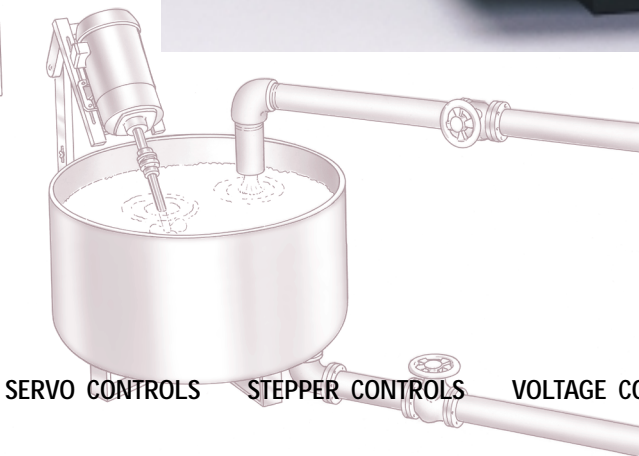


# WARNER ELECTRIC®



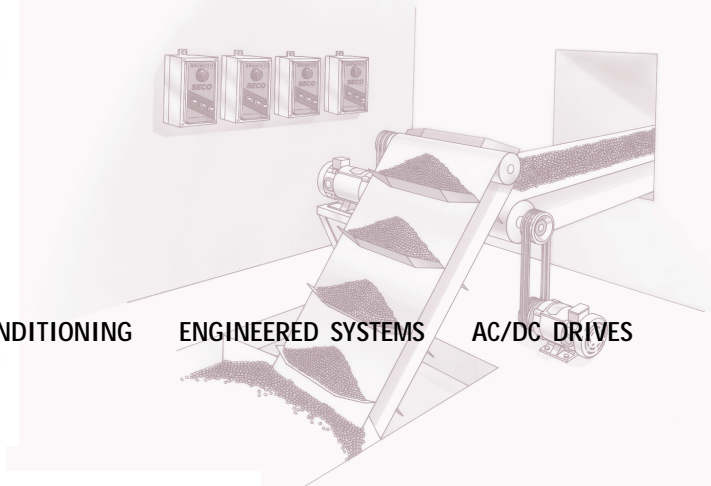
## Bronco II 160 Series DC Drives



SERVO CONTROLS

STEPPER CONTROLS

VOLTAGE CONDITIONING



ENGINEERED SYSTEMS

AC/DC DRIVES

*People Finding A Better Way®*

## ADDITIONAL WARNER ELECTRIC DC DRIVES & CONTROLS



### SE2000 DC Drives

This non-regenerative DC drive is designed to control shunt wound or permanent magnetic field DC motors from ¼ to 5 HP. It offers isolated 4-20mA or 0-10 VDC control signal, tachometer generator feedback, circuit protection, diagnostic capabilities, control relay, torque and slope control, and overcurrent protection. Jumper selectable to program drives for specified motor or application. Horsepower range 115 VAC to 230 VAC. Open chassis available and UL listed.



### QUADRALINE 7000 DC Drives

Designed for full wave, regenerative applications, the Quadraline 7000 is designed for either permanent magnet or wound field DC motors from ¼ to 5 HP. It features fullwave 4-quadrant operation, seven selectable performance features, electronic reversing and seven control adjustments, positioning accuracy. Chassis or NEMA 4/12 enclosures available and UL listed.



### M4000 Digital 3-Phase DC Drives

The M4000 Series Digital 3-Phase DC Drive is a programmable, microprocessor based variable speed DC drive. It allows keypad control of each parameter. Digital readout provides on-line monitoring of drive operation. Ideal for many drive applications including wire and cable, packaging/converting, machinery and material handling. Improved circuit board technology has added standard features, including serial communications and a field-weakening controller for constant power and extended speed range applications.



### DS9000 Digital Drive Speed Controller

The DS9000 Digital Speed Controller features long term speed accuracy, control and stability. It offers 16-bit microprocessor based, AC or DC drive control,  $\pm .01\%$  accuracy, digital master or follower, analog or digital input, and two selectable sets of programmable parameters. Front panel controls include a 4-digit LED readout, keypad controls and four LED status indicators.

**\*Contact Warner Electric for information on our complete line of AC drives**

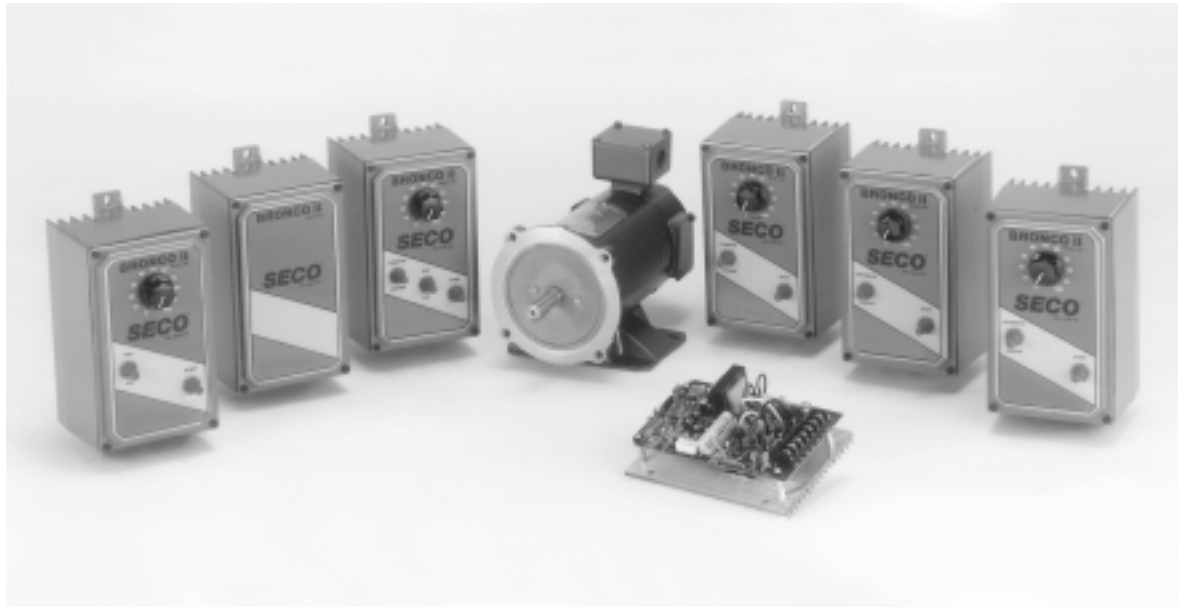
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## Features and Benefits

Check out these outstanding standard features of the Bronco II 160 Series from Warner Electric Motors and Controls...



Listed



Listed for use in Canada

### Speed regulation

Regulation by armature voltage feedback or tachometer generator feedback (non-reversing models only).

### Dual voltage input (115/230 VAC)

Each model can be connected to either of two line voltages 1/4, 1/2, 3/4 and 1HP motors @115VAC input or 1, 1-1/2 and 2 HP motors @ 230VAC.

### Circuit protection

Transient voltage protection by MOV.

### Torque control

Controls motor armature current for applications requiring torque or tension control.

### Local or remote operator control

Flexible, compact...fits where you want it.

### Open chassis unit availability

For convenient mounting of one or several drives in your enclosure.

### Field programmable jumpers

Allow the Bronco II to be quickly modified to match available plant line voltage, select motor HP, and to select the feedback signal required.

### AC line protection fuse

Fault protection...eliminates a costly replacement.

### Full wave power conversion circuit with 2 SCR's and 3 diodes providing NEMA Code K, DC armature supply

Insures optimum motor performance, cooler motor operation and longer life.

### IR compensation adjustment

Improves speed regulation in armature voltage feedback mode.

### Control relay with 3-wire start/stop circuit

Prevents automatic restart after power outage for increased safety. (May be reconnected for line start operation if required.)

### Jog at potentiometer speed

Set your Bronco II speed potentiometer at the desired speed and you can jog the motor allowing easy set up of your machine process.

### Field supply for shunt wound field motors

Permanent magnet field or shunt wound field motors...Bronco II is the right one.

### Totally enclosed, cast aluminum enclosure meets NEMA 4, NEMA 12 and NEMA 4X standards

Incredibly rugged DC drives for the most critical industrial environment—dust tight, oil tight and water resistant.

### Maximum and minimum speed adjustments

Establishes minimum and maximum speeds.



### Adjustable acceleration (1 to 5 seconds)

Easy-to-set for smooth, linear speed control.

## Washdown Duty

### A new standard in adjustable speed DC Drives.

Specifically designed for food processing and other industries where the motor and control are constantly exposed to high pressure washdown to maintain cleanliness.

- Rugged
- Reliable
- Versatile
- Accurate
- Economically priced
-  Listed
-  Listed for use in Canada

The Bronco II Washdown Duty DC Drives convert single phase AC line voltages of either 115 or 230 VAC to variable DC for armature voltage speed control of permanent magnet or shunt wound DC motors from 1/4 to 2 HP.



## Features and Benefits

Totally enclosed cast aluminum epoxy coated FDA approved white enclosure with gasketed cover and stainless steel captive screws meets NEMA 4X.

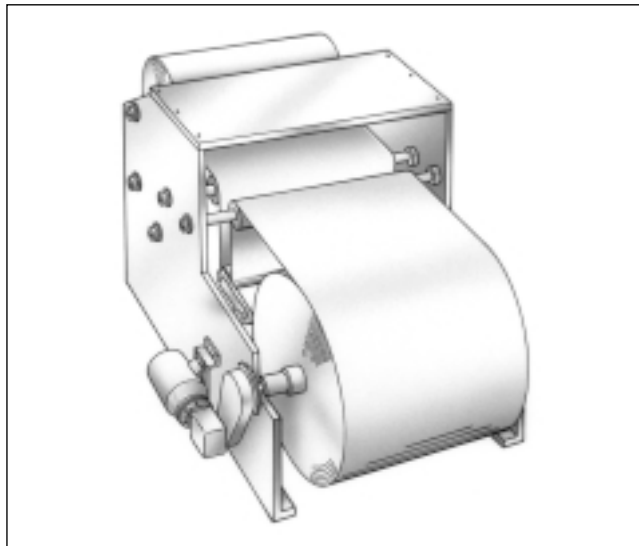
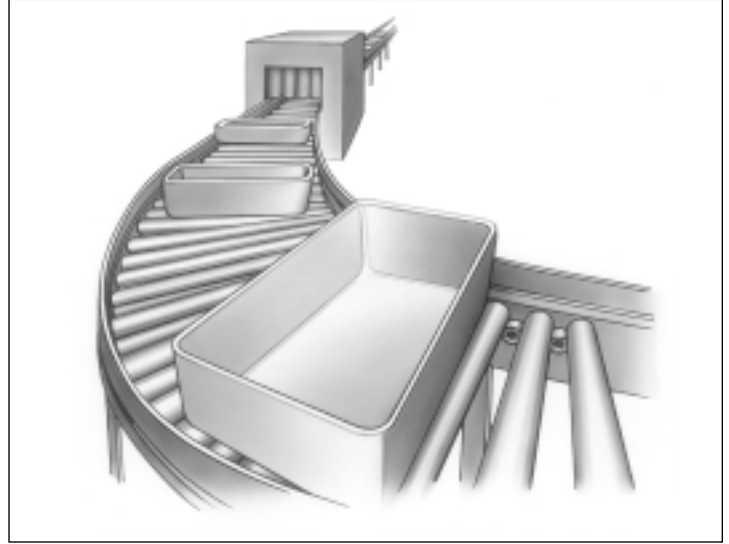
### Proven Warner Electric Dependability

- Full Wave power conversion circuit with 2 SCR's and 3 diodes with NEMA K configuration allows cooler motor operation.
- IR compensation improves speed regulation in armature voltage feedback mode.
- Control relay with 3-wire start/stop circuit prevents automatic restart after power outage for increased safety. (May be reconnected for line start operation if required.)
- Full two year warranty.

## Applications

### Conveyors

- Simple, variable speed control
- Forward or reverse direction
- Compact and rugged for on machine mounting

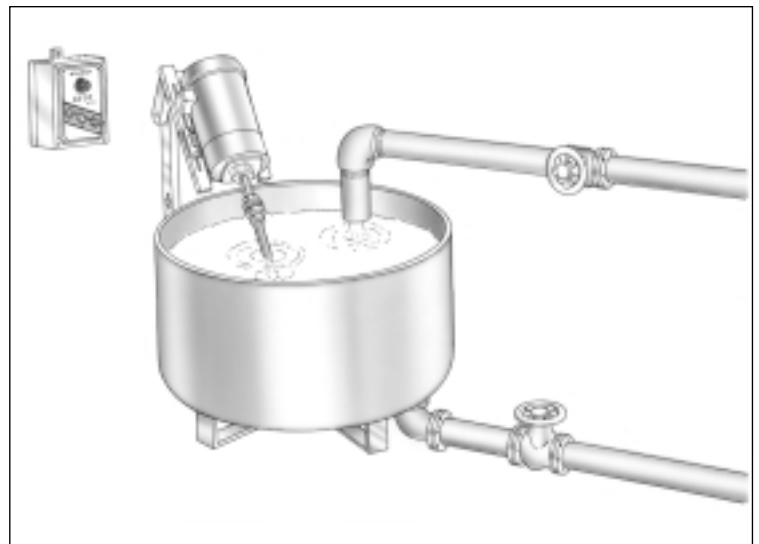


### Take-up

- Simple center winders
- Constant Torque

### Mixers

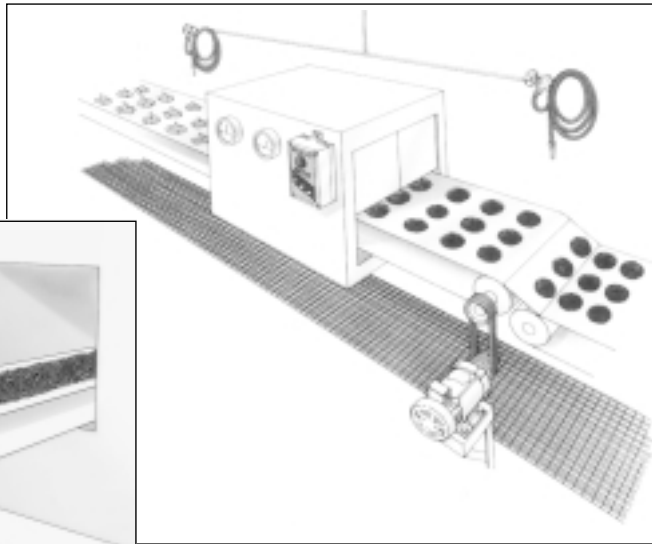
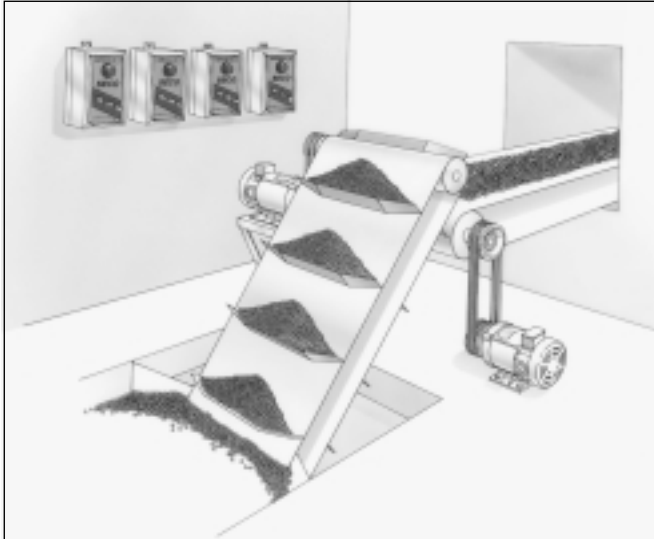
- Variable speed
- Rugged and industrially tough
- NEMA 4/12 enclosures



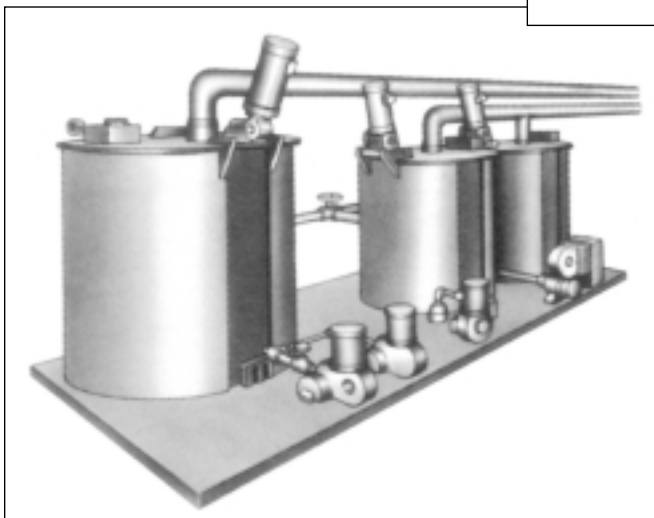
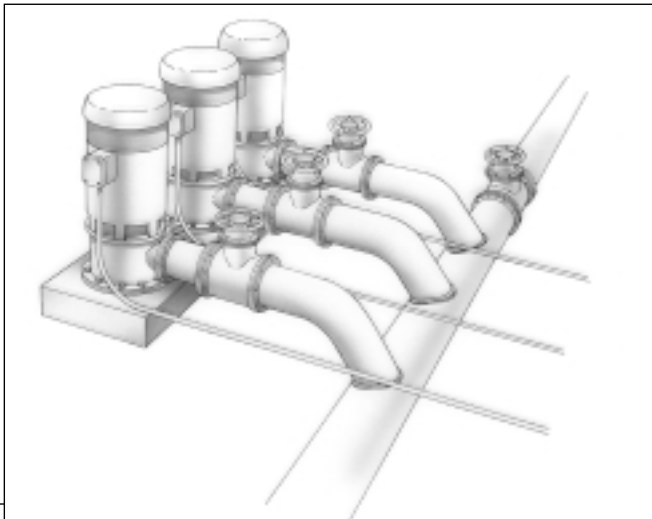
## Applications

**Food Processing**

- Washdown is frequent
- Cleanliness is critical
- Rugged, tough environment

**Chemical Processing**

- Corrosive atmosphere
- Frequently wet
- Simple mounting

**Waste Water Treatment**

- Wet environment
- Compact size
- Minimal maintenance

## Specifications

### Versatility

#### 7 Standard Models

##### **Model B160**

NEMA 4/12 enclosure with Start/Stop, Run/Jog switches and Speed potentiometer mounted on enclosure front cover

##### **Model B161S**

Chassis for mounting in customer supplied enclosure

##### **Model B162**

NEMA 4/12 enclosure for use with a remote operator control

##### **Model B163**

NEMA 4/12 enclosure with Start/Stop, Run/Jog, Forward/Reverse switches and Speed Potentiometer on enclosure front cover

##### **Model B165**

NEMA 4/12 enclosure with torque control. Start/Stop and Forward/Reverse switches and Torque Potentiometer on enclosure front cover

##### **Model B168**

Same features as Model 169 described below except the front panel mounted Speed Potentiometer trims the speed signal when operated in the automatic mode.

##### **Model B169**

External isolated signal follower in NEMA 4/12 enclosure with Start/Stop and Auto/Manual switches mounted on enclosure front. Controls motor speed from either a grounded or ungrounded signal—4–20mA, 1–5mA, 0–10 VDC, 0–14 VDC, 0–100 VDC in auto mode, or from the speed potentiometer in manual mode.





## Specifications



## Washdown Duty

### 6 Standard Models

#### Model B160WD

NEMA 4X enclosure with Start/Stop, Run/Jog switches and Speed potentiometer mounted on enclosure front cover

#### Model B162WD

NEMA 4X enclosure for use with a remote operator control

#### Model B163WD

NEMA 4X enclosure with Start/Stop, Run/Jog, Forward/Reverse switches and Speed Potentiometer on enclosure front cover

#### Model B165WD

NEMA 4X enclosure with torque control. Start/Stop and Forward/Reverse switches and Torque Potentiometer on enclosure front cover

#### Model B168WD

Same features as Model 169 described below except the front panel mounted Speed Potentiometer trims the speed signal when operated in the automatic mode.

#### Model 169WD

External isolated signal follower in NEMA 4X enclosure with Start/Stop and Auto/Manual switches mounted on enclosure front. Controls motor speed from either a grounded or ungrounded signal—4–20mA, 1–5mA, 0–10 VDC, 0–14 VDC, 0–100 VDC in auto mode, or from the speed potentiometer in manual mode.

## Specifications

### Ratings

Horsepower Range	115 VAC 1/4–1 HP 230 VAC 1/2–2 HP
AC Line Input Voltage	115 or 230 VAC $\pm 10\%$
AC Line Frequency	50/60 Hz $\pm 2$ Hz
115 VAC Supply	
Armature Voltage	0–90 VDC
Field Voltage	50/100 VDC
230 VAC Supply	
Armature Voltage	0–180 VDC
Field Voltage	100/200 VDC
Service Factor	1.0
Duty	Continuous
Maximum Load Capacity	150% for 1 minute
Line Protection	Fuse

### Operating Conditions

Ambient Temperature	
Chassis Model	0–55°C
Enclosed Models	0–40°C
Relative Humidity	5–95% non-condensing
Altitude	To 3300 feet (1000m)

### Performance Characteristics

Speed Range	30:1 with armature voltage feedback 50:1 with tach-generator feedback
Speed Regulation (As % of motor base speed) for 95% load change	
Armature Voltage Feedback	$\pm 2\%$
Tachometer Feedback	1/2–1%

### Adjustments

Current Range	2.5, 5, 7.5, 10 Amps DC Nominal (Adjustable to 150% of each range)
Maximum Speed	75–110% of motor base speed
Minimum Speed	0–30% of motor base speed
IR Compensation	Adjustable
Acceleration	1–5 seconds (Linear, 0 to top speed)

### Options

- External Signal Isolation Follower Kit remote (Standard on Models B168 and B169) Model BWC 36015 For installation on chassis or enclosed units. Allows motor speed to be controlled from a grounded or ungrounded external signal—4–20mA, 1–5mA, 0–10 VDC, 0–14 VDC, or 0–100 VDC. There is a provision for auto/manual operation if required.
- For use with Bronco II M/N B162 when required.

In determining the components that comprise a drive system, the following selections must be made for features and options.



### 1. DC Motor Controller

Select HP and AC input voltage. The AC input voltage will determine motor armature and field voltage.

AC Input Voltage	Motor Voltage Arm/Field
115V	90V Arm 50V/100V Field
230V	180V Arm 100V/200V Field

Now select drive configuration, chassis or enclosure. If enclosure, do you want a blank front cover or operators controls. Determine which operators are required (i.e., run/jog, auto/manual) and whether they will be on a remote operators station or on the drive enclosure. From the list of standard option boards, select those required for your application.



### 2. DC Motor

With the motor voltage specified by the AC input voltage selected above, now determine permanent magnet or shunt wound, frame size, enclosure type (TEFC or TENV), C face, and whether a tachometer will be required.



### 3. Remote (ROS) Operator Station

If a remote operators station will be used, select which operators will be used, and the NEMA rating required. These apply to the chassis model B161S or Model B162. If the application requires reversing a model B163 Bronco II must be selected as Bronco II models cannot provide reversing with a remote operator station.

### 4. Isolation Transformer

Select KVA of transformer when required by adding the total HP of all drives to be connected to the transformer. Then select model number by primary input voltage and secondary output voltage.

### 5. Options/Accessories

- A. The Bronco II provides only one option; i.e. the process follower applicable only to B161S or B162 models.
- B. The isolated follower is factory installed in the B168 and B169 models or field installed in B161S or B162 models.

#### Example 1

A conveyer requires a 1 HP DC motor, 1750 RPM, shunt wound field, TEFC enclosure and a 7V/1000RPM tachometer. The DC drive will be chassis mount, 230 VAC single phase input, to be operated from a ROS. ROS to include start/stop and a speed potentiometer. Isolation transformer from a 230 VAC input is required.

Item	Qty	Part No.
1	1	B161S
2	1	MOH2210831
3	1	R1001
4	1	TRS21-020
5	0	Not Required

#### Example 2

A Food Processing Conveyor requires a 1 HP DC Motor, 1750 RPM. The operation requires the selection of start, stop, run or jog, forward and reverse as well as speed adjustment. The plant supply voltage is single phase, 60 hertz, 230 VAC.

Item	Qty	Part No.
1	1	B163WD
2	1	MOH7211300
3	0	Not Required
4	0	Not Required

## Selection Information

### BRONCO II

Select the model that best fits your application needs.

Input Line Voltage	HP	Run/Stop			Run-Jog Fwd-Rev	Torque Control	External Signal		External Signal Isolation Follower Option Kit
		Chassis	Remote Enclosed	Local Operator			Local Operator	Local Operator	
115 VAC Single Phase	1/4-1	B161S	B162	B160	B163	B165	B169	B168	BWC36015
230 VAC	1/2-2								

### WASHDOWN DUTY BRONCO II<sup>(1)</sup>

Input Line Voltage	HP	Run-Jog Stop		Run-Jog Fwd-Rev	Torque Control	External Signal		External Signal Isolation Follower Option Kit
		Remote Enclosed	Local Operator			Local Operator	Local Operator w/ Speed Trim	
115 VAC Single Phase	1/4-1	B162WD	B160WD	B163WD	B165WDB	B169WD	B168WD	BWC36015
230 VAC	1/2-2							

<sup>(1)</sup>**Note:**

Washdown Duty Broncos provide the same features as non washdown models with the exception of the epoxy finish and stainless exterior hardware.

#### Model B160 and B160 WD

NEMA 4/12 enclosure with Start/Stop, Run/Jog switches and Speed Potentiometer mounted on enclosure front cover

#### Model B161S

Chassis for mounting in customer supplied enclosure

#### Model B162 and B162 WD

NEMA 4/12 enclosure for use with a remote operator control

#### Model B163 and B163 WD

NEMA 4/12 enclosure with Start/Stop, Run/Jog, Forward/Reverse switches and Speed Potentiometer on enclosure front cover

#### Model B165 and B165 WD

NEMA 4/12 enclosure with torque control. Start/Stop and Forward/Reverse switches and Torque Potentiometer on enclosure front cover

#### Model B168 and B168 WD

Same features as Model 169 described below except the front panel mounted Speed Potentiometer trims the speed signal when operated in the automatic mode.

#### Model B169 and B169 WD

External isolated signal follower in NEMA 4/12 enclosure with Start/Stop and Auto/Manual switches and Speed Potentiometer mounted on enclosure front. Controls motor speed from either a grounded or ungrounded signal—4-20ma, 1-5ma, 0-10VDC, 0-14VDC, 0-100VDC in auto mode, or from the speed potentiometer in manual mode.

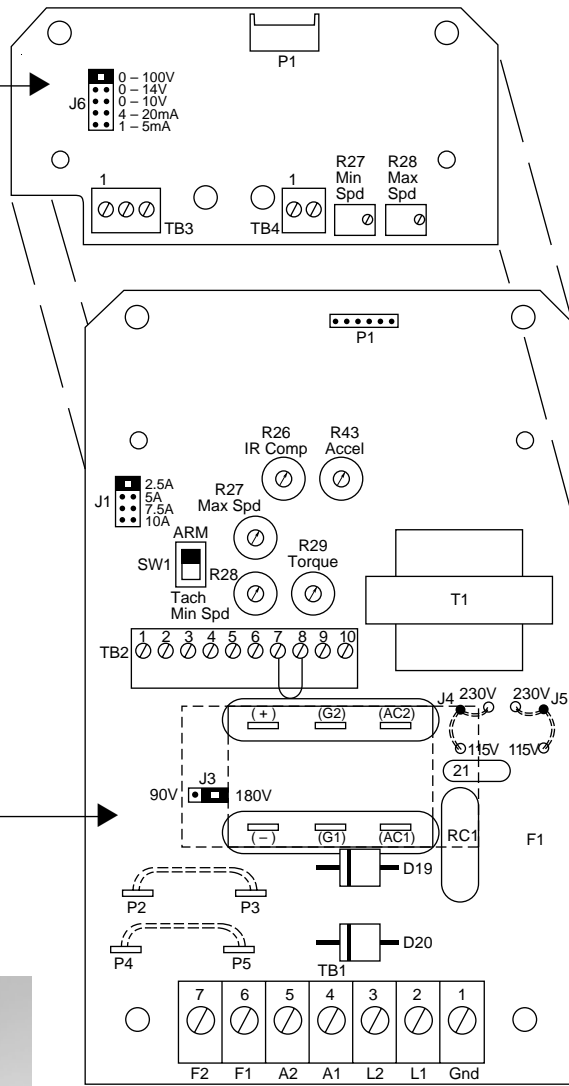
#### Option

External Signal Isolation Follower Kit (Standard on Models B168 and B169) Model BWC 36015 For installation on chassis or remote enclosed units. Allows motor speed to be controlled from a grounded or ungrounded external signal—4-20mA, 1-5mA, 0-10VDC, 0-14VDC, or 0-100VDC. There is a provision for auto/manual operation if required.

Options  
Process  
Follower  
Board  
Replacement  
Parts

**Model BWC 36015  
Process Follower Board**

Standard on Models B168 and B169.  
Optional for customer installation on  
models B161S or B162.



**PC Board Assembly**  
(Standard on all Bronco II models)



Remote  
Operator  
Stations

## Remote Operator Stations (ROS)

Function	Model Number	Model Number Suffix for 10 Turn Speed Pot
Start Pushbutton (1) (3) Stop Pushbutton Single Turn Speed Pot	R8005	-10
Start Pushbutton (1) (3) Stop Pushbutton Single Turn Speed Pot Auto-Manual Speed	R8011	-10
Start-Stop Switch (2) (3) Run-Jog Switch Auto-Man Switch Single Turn Speed Pot	R1001	N/A

**Note:**

- (1) NEMA 12 Enclosed with wiring to operators  
 (2) NEMA 4 Enclosed with wiring to terminal strips  
 (3) Applies to Models B161S and B162 only.

Isolation  
Transformers

## Isolation Transformers

**Single phase NEMA I Enclosed, Dry Type, No Taps, 60 Hz, Type G**

HP	KVA	Primary Voltage	Secondary Voltage	Model Number
1/4	1/2	120/240	120/240	TRS21-005
1/2	1	120/240	120/240	TRS21-010
3/4	1 1/2	120/240	120/240	TRS21-015
1	2	120/240	120/240	TRS21-020
1 1/2	3	240/480	120/240	TRS42-030
2	5	240/480	120/240	TRS42-050

## How to Order

Selection charts for DC motors, available from Warner Electric Motors and Controls, are listed on the following pages. For more complete specifications and dimensional information, contact Warner Electric Motors and Controls customer service.

### Motor chart specify:

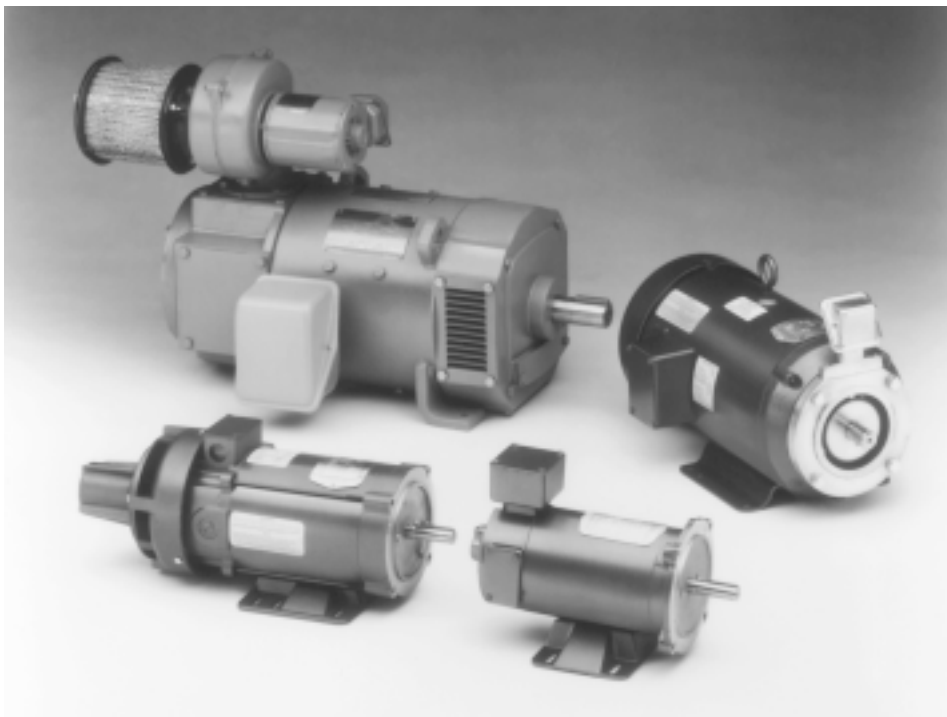
Horsepower  
 Motor Type (Manufacturer)  
   B=Baldor  
   G=General Electric  
   M=Indiana General  
 Frame Size  
 Motor Enclosure  
   TE=Totally Enclosed  
   TEFC=Fan Cooled  
   TENV=Non Ventilated  
 'C' Face Size  
 (For use with Single Phase  
 Controllers only)  
 Armature Voltage  
 Model Number  
   Motor with Tachometer  
   (mounted)  
   Motor without Tachometer  
   Tachometer Kit

### Non-Listed Motors

Non-listed motors are available, but specific information is required.

1. Motor horsepower
2. RPM
3. Frame size
4. Volts, armature
5. Volts, field or PM
6. Enclosure
7. Conduit location, F1, F2 etc.
8. Thermostat
9. Accessory endshield
10. 'C' face
11. Delivery requirements
12. Special application or environmental considerations and other important information.

## Standard DC Motors



## Standard DC Motors

### DC Motors

1/4 to 1 Horsepower 90 VDC Armature – PERMANENT MAGNET FIELD – 1750 RPM – Totally Enclosed

HP	Motor Type	Frame Size	Enclosure	NEMA 'C' Face	Model Number		7 VDC Tachometer Kit
					Motor without Tachometer	Motor with 7 VDC/1000 RPM Tachometer (mounted)	
1/4	G	56HAA	NV	56C	MOD6110210	N/A	N/A
	B	320P	NV	56C	MOD6211200	MOD6211231	TAC 4001-13
1/2	G	56KAA	FC	56C	MOF6210210	N/A	N/A
	B	336P	NV	56C	MOF6211200	MOF6211231	TAC 4001-13
3/4	G	56PAA	FC	56C	MOG6210210	N/A	N/A
	B	428P	FC	56C	MOG6211100	MOG6211131	TAC 4001-00
1	G	56SAA	FC	56C	MOH6210210	N/A	N/A
	B	435P	FC	56C	MOH6211100	MOH6211131	TAC 4001-00

Note: All motors are capable of 20:1 constant torque speed range.

### DC Motors

1/2 to 2 Horsepower 180 VDC Armature – PERMANENT MAGNET FIELD – 1750 RPM – Totally Enclosed

HP	Motor Type	Frame Size	Enclosure	NEMA 'C' Face	Model Number		7 VDC Tachometer Kit
					Motor without Tachometer	Motor with 7 VDC/1000 RPM Tachometer (mounted)	
1/2	G	56KAA	FC	56C	MOF7210210	N/A	N/A
	B	336P	NV	56C	MOF7111100	MOF7111131	TAC 4001-13
3/4	G	56PAA	FC	56C	MOG7210210	N/A	N/A
	B	336P	NV	56C	MOG7211100	MOG7211131	TAC 4001-10
1	G	146ATC	FC	140TC	MOH7210800	MOH7210831	TAC 4004-02
	G	56SAA	FC	56C	MOH7210210	N/A	N/A
	B	435P	FC	56C	MOH7211100	MOH7211131	TAC 4001-00
1-1/2	B	536P	FC	140TC	MOI7211100	MOI7211131	TAC 4007-01
	G	148ATC	FC	140TC	MOI7210800	MOI7210831	TAC 4004-02
2	B	548P	FC	140TC	MOJ7211100	MOJ7211131	TAC 4007-01
	G	149ATC	FC	140TC	MOJ7210800	MOJ7210831	TAC 4004-02

Note: All motors are capable of 20:1 constant torque speed range.



## Standard DC Motors

### DC Motors

1/4 to 1 Horsepower 90 VDC Armature – 100/50 VDC SHUNT WOUND FIELD – 1750 RPM – Totally Enclosed

HP	Motor Type	Frame Size	Enclosure	NEMA 'C' Face	Model Number		7 VDC Tachometer Kit
					Motor without Tachometer	Motor with 7 VDC/1000 RPM Tachometer (mounted)	
1/4	B	413D	FC	56C	MOD1211700	MOD1211731	TAC 4001-00
1/2	B	420D	FC	56C	MOF1211700	MOF1211731	TAC 4001-00
3/4	B	428D	FC	56C	MOG1211700	MOG1211731	TAC 4001-00
1	B	535D	FC	56C	MOH1211700	MOH1211731	TAC 4007-00

Note: All motors are capable of 20:1 constant torque speed range.

### DC Motors

1/2 to 2 Horsepower 180 VDC Armature – 200/100 VDC SHUNT WOUND FIELD – 1750 RPM – Totally Enclosed

HP	Motor Type	Frame Size	Enclosure	NEMA 'C' Face	Model Number		7 VDC Tachometer Kit
					Motor without Tachometer	Motor with 7 VDC/1000 RPM Tachometer (mounted)	
1/2	B	420D	FC	56C	MOF2211700	MOF2211731	TAC 4001-00
3/4	B	428D	FC	56C	MOG2211700	MOG2211731	TAC 4001-00
1	G	146ATC	FC	140TC	MOH2210800	MOH2210831	TAC 4001-02
	B	535D	FC	56C	MOH2211800	MOH2211831	TAC 4007-01
	G	L182ACY	NV	180C	MOH2110100	MOH2110131	TAC 4002-03
1-1/2	G	148ATC	FC	140TC	MOI2210800	MOI2210831	TAC 4004-02
	G	L186ACY	NV	180C	MOI2110100	MOI2110131	TAC 4002-03
	B	636D	FC	180C	MOI2211400	MOI2211431	TAC 4001-15
2	G	149ATC	FC	140TC	MOJ2210800	MOJ2210831	TAC 4004-02
	B	646D	FC	180C	MOJ2211400	MOJ2211431	TAC 4001-15
	G	L186ACY	NV	180C	MOJ2110100	MOJ2110131	TAC 4002-03

Note: All motors are capable of 20:1 constant torque speed range.

## Washdown Duty DC Motors



The Washdown Duty DC Motors are specifically suited for tough environments where washdown is essential to maintain cleanliness. These motors are selected to function as a companion with the appropriate WASHDOWN DUTY BRONCO II D.C. Drive Controller.

### Features

#### 8 standard Washdown Duty DC Motors

- Epoxy Finished - FDA approved
- Moisture Resistant Wire
- 90 or 180 VDC Armature
- Permanent Magnet Field
- 1750 RPM
- Totally Enclosed
- Sealed and corrosion protected to meet the environments found in food and other industries demanding high levels of cleanliness.

### DC Motors – Washdown Duty

1/4 to 3/4 Horsepower 90 VDC Armature – PERMANENT MAGNET FIELD – 1750 RPM – Totally Enclosed

HP	Motor Type	Frame Size	Enclosure	NEMA 'C' Face	Model Number		7 VDC Tachometer Kit
					Motor without Tachometer	Motor with 7 VDC/1000 RPM Tachometer (mounted)	
1/4	M	4622	NV	56C	MOD6112010	N/A	N/A
1/2	M	4660	NV	56C	MOF6112010	N/A	N/A
3/4	M	4680	NV	56C	MOG6112010	N/A	N/A

Note: All motors are capable of 20:1 constant torque speed range.

### DC Motors – Washdown Duty

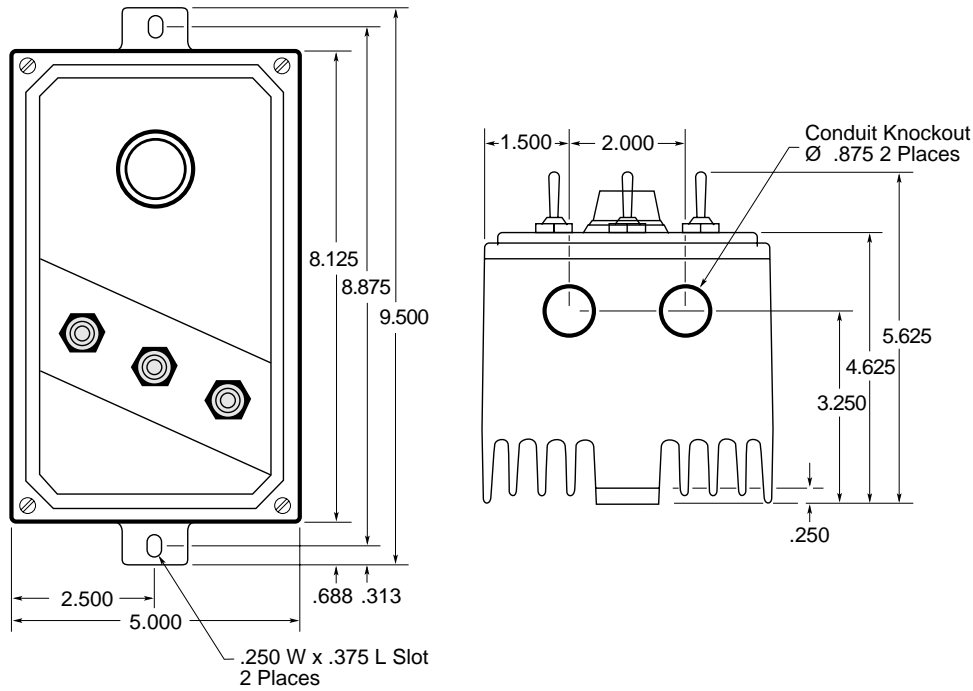
1/2 to 2 Horsepower 180 VDC Armature – PERMANENT MAGNET FIELD – 1750 RPM – Totally Enclosed

HP	Motor Type	Frame Size	Enclosure	NEMA 'C' Face	Model Number		7 VDC Tachometer Kit
					Motor without Tachometer	Motor with 7 VDC/1000 RPM Tachometer (mounted)	
1/2	M	4660	NV	56C	MOF7112010	N/A	N/A
3/4	M	4680	NV	56C	MOG7112010	N/A	N/A
1	B	435P	FC	56C	MOH7211300	N/A	N/A
1-1/2	B	536P	FC	145C	MOI7211300	N/A	N/A
2	B	548P	FC	145C	MOJ7211300	N/A	N/A

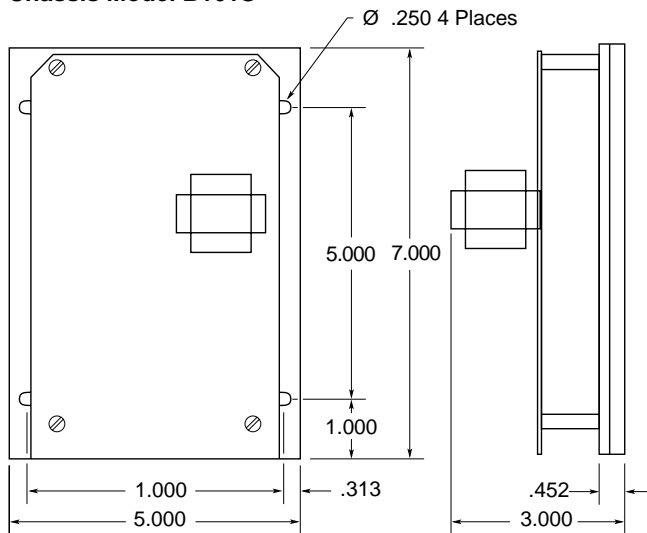
Note: All motors are capable of 20:1 constant torque speed range.

# Dimensions

## Enclosed Models B160, B162, B163, B165, B168 & B169



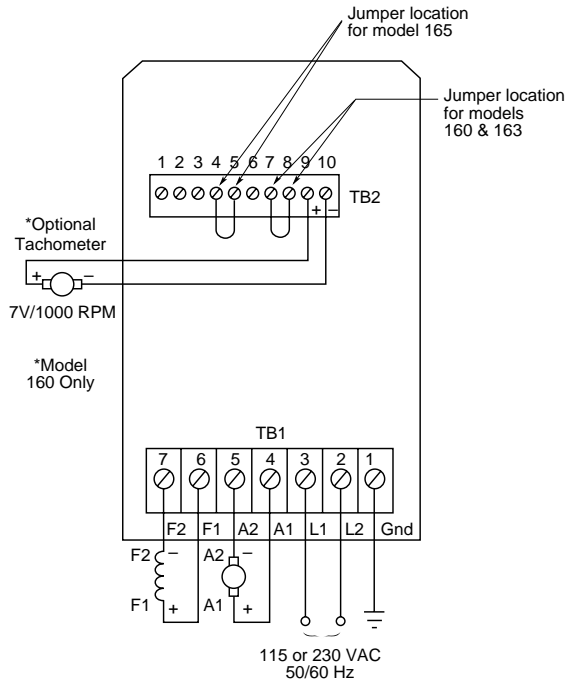
## Chassis Model B161S



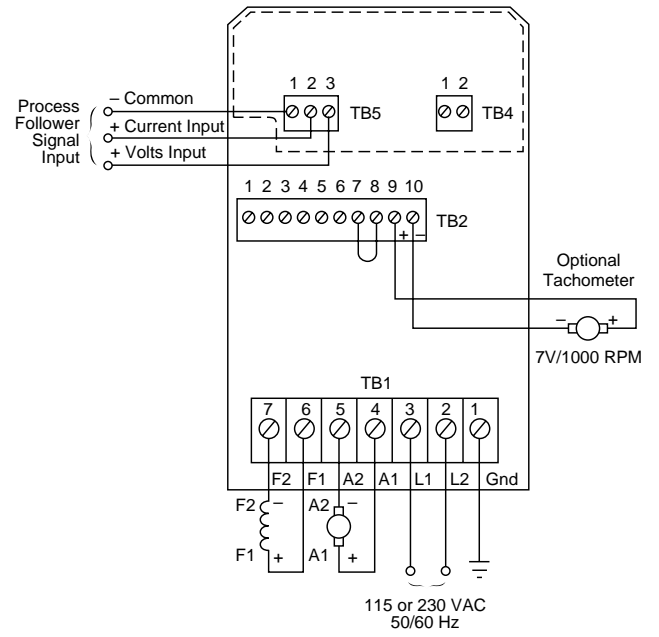
Dimensions are listed in inches

# Connection Diagrams

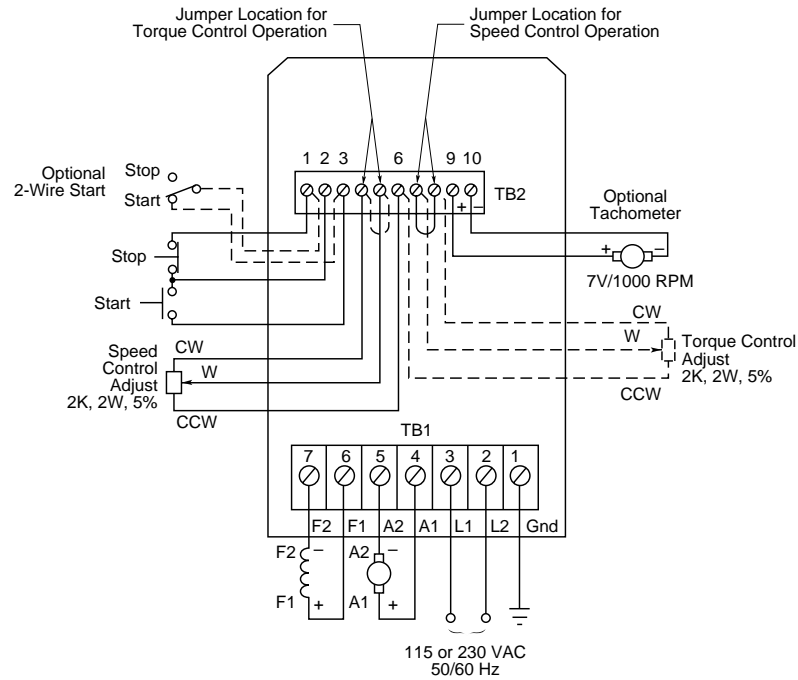
**Models B160, B163 & B165**



**Models B168 & B169**



**Models B161S & B162**



## Replacement parts list for all models

Description	Warner Electric Part Number	
	Old	New
Speed/Torque Adjust Pot. 2K	APT2026-00	224552-000
Start/Run/Stop Switch	ASW3010-00	224554-000
Forward/Reverse Switch	ASW1051-01	224579-001
Auto/Manual or Run/Jog Switch	ASW1079-00	224551-000
Water Tight Boot (For all Switches)	HMI 1103-00	224639-000
Water Tight Nut (For all Pots)	HMI1012-00	224638-000
Fuse, 20 Amp	PFU1010-07	104364-025
Isolation Follower Card	BWC36015-00	–
Power Module	ATY4001-03	224544-001
PC Board Assembly	SPD36006-00	–

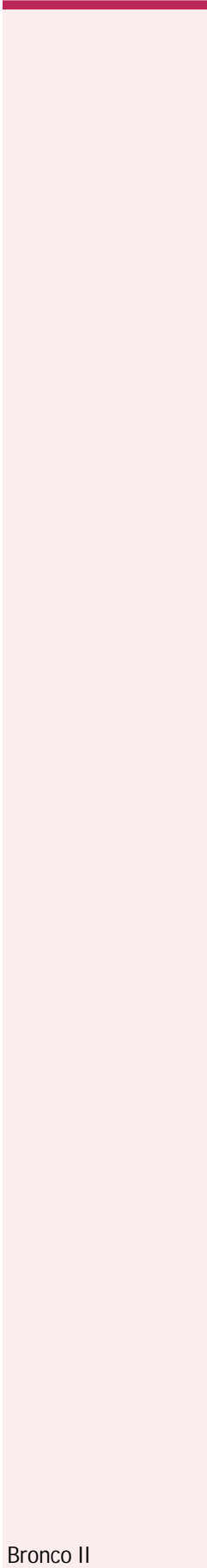
## Service

It is intended that the Bronco II should be serviced by replacing major sub-assemblies. The Replacement Parts List lists all of the sub-assemblies required to service Bronco II drives. It is recommended that users keep these parts readily available to support the drive's critical applications.

**For additional assistance or the name of your closest authorized service center, contact Warner Electric Motors and Controls customer service at 800-787-3532.**

## Recommended Spare Parts

## Service



Lined writing area consisting of 25 horizontal lines.

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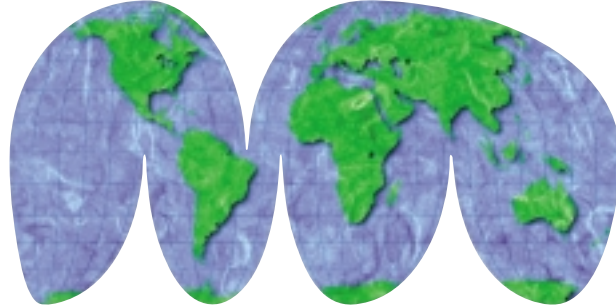
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- ◆ Product Application: 800-787-3532
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- ◆ Web Site: [www.warnernet.com](http://www.warnernet.com)



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