Model 1384 Electric Drive

NOTRON Manufacturing, Inc.
801 W. Milford Street Glendale, CA 91203
Phone: 818-247-7739 Fax: 818-247-7689 email: sales@notronmfg.com

Warnings and Cautions

APPLICATION

WARNINGS:

1. ARO valves are designed for use only in industrial pneumatic (air) and / or vacuum systems applications and are NOT to be used for individual consumer use, application or service.
2. When any ARO valve is used in any type application, safeguards must be provided to insure against bodily injury for the operator and / or persons in the immediate area.
3. ARO valves are NOT to be used as a safety device or to operate and / or control the operator of full revolution clutch systems and / or brake systems on power presses or similar equipment. ARO valves are not designed or intended for such uses.

LUBRICATION

Valve components are lubricated at the time of assembly at the factory and can normally be operated without air line lubrication to an approximate life of twenty million cycles, depending on application. If air line cylinders, or other air line devices used in conjunction with ARO valves require lubrication, be sure the lubricating oils used are compatible with the valve seals and are of sufficient viscosity to assure adequate lubrication. Aro recommends an oil lubricant with a viscosity of 100-200 SUS at 100?F. Aro does not recommend the use of compound oils containing graphite fillers, extremely low viscosities and other non-fluidic lubricants. RECOMMENDED: Aro 29665 air line lubricator oil is available in one quart containers.

INSTALLATION AND SERVICE

WARNINGS:

1. Shut off, disconnect and exhaust air pressure from system before installing or performing service to any ARO valve.
2. Shut off and disconnect electrical supply to system before installing or performing service to any ARO valve.
3. Allow only persons with a thorough understanding of the operation and application of all ARO valves being used in a particular system and how the ARO valve(s) relate to and interact with other components of the system to install or perform maintenance or service to any ARO valve or other components of the system.
4. DO NOT subject any ARO valve to any condition that exceeds the limits set forth in the specifications for a particular valve model.
5. When a manually operated (actuated) valve is used or installed into a system, provisions must be made to prevent the valve from being accidentally operated (actuated), which may in turn cause bodily injury or otherwise cause a hazardous or dangerous condition.
6. Damaged air pressure hoses or electrical wiring, or connections, can cause accidental valve operation (actuation), which may in turn cause accidental valve operation (actuation), which may in turn cause bodily injury or otherwise cause a hazardous or

dangerous condition. KEEP ALL HOSES, ELECTICAL WIRING, FITTINGS AND CONNECTIONS IN FIRST CLASS OPERATING CONDITION.

7. **ARO 2-POSITION, 4-WAY VALVES**: Regardless of which of the 2-positions this type of ARO valve is in, when air pressure is applied to the inlet port (s) of these valves, there will always be an open flow path of air from the inlet to one of the valve outlets. A method to exhaust this trapped air pressure must be installed into the system so all air pressure can be removed from valve or system before performing service or maintenance to valve.
8. **ARO 3-POSITION, 4-WAY VALVES**: To actuate this type of ARO valve, either a double solenoid, double remote air pilot pressure or manual operation is used. When the valve actuator has shifted the valve, air pressure applied at the interport (s) will flow thru the valve to one of the two outlet ports. When the valve is not in a shifted position, the valve will automatically move to a center position. ARO valves can be either closed center or open center type and will reveal the following characteristics when the valve is in the center position.
    a. **OPEN CENTER VALVES**: When this type ARO valve is in the center position the inlet port(s) is blocked and the two outlet ports are open to the exhaust port(s) of the valve. With this type valve, in the center position air pressure is not present at either outlet port. Do not use this type ARO valve if exhausting the air pressure from the valve will cause hazardous or dangerous condition.
    b. **CLOSED CENTER VALVES**: When this type valve is in the center position all inlet, outlet and exhaust ports are blocked. Do not use this type valve if having the air pressure blocked at the port(s) may cause a dangerous or hazardous condition in the application, installation and / or servicing of an ARO valve. These valves must not be used to control load holding devices without an additional mechanical positive stop on the holding device.

MODEL 1384-L CONTINUOUS ROTARY PRESSURE MIXER

SUGGESTED MAINTENANCE:

1. Wipe off exposed metering cylinder shafts each morning to prevent seal damage.
2. Drain air line filter / water trap.

Weekly:

1. Check oil level in air line lubricator and refill if necessary. (Use only10 W non-detergent oil or equivalent).
2. Check level in pump shaft lube wells and refill if necessary. (Use mineral or castor oil only).
3. Stir accelerator material each Monday to prevent settling.
4. Make visual inspection of mixer checking for loose or worn hoses. Also check for excessive air or material leakage.

Monthly:

1. Tighten metering cylinder packing gland nuts, on the lower end only. (Never more than 1/6 turn at one time). Do not tighten upper packing gland nuts.
2. Tighten pump shaft lube wells.

Daily Operating Procedures:

1. Remove mixing head assembly from freezer and thaw.
   a. 20 – 25 minutes thaw at room temperature.
   b. 5 minutes thaw when using warm water at 125’ F.

2. Turn on coolant unit – water pump off.
3. Turn on main air valve.
4. With mixing head removed, place paper napkin in mixing bracket chamber; push start button several times until base and accelerator are flowing into chamber.
   a. This will show inlet ports are free and clear.
   b. If accelerator does not flow in a reasonable time, remove accelerator automatic shut off and clean orifices.
5. Place in mixing head unit and lock.
6. Turn on water pump.
7. Meter gauges _____. Slightly higher when starting cold.

8 Important:
If gauge records high pressure _____, stop machine and check orifice at accelerator automatic shut off valve.

9. Normal flow rate to fill six-ounce cartridge – 18 – 20.
   a. The base pump air pressure controls the flow rate.
      Normal air pressure approximately _____ PST.

b. To maintain a “balanced system” with the accelerator meter gauges showing _____, regulate the accelerator pump until you have a balance or slightly higher back pressure reading. Approximate pressure 25/30 PSI.
c. Cold start, these gauge pressures will be higher.

10. Take button samples.

SPARE PARTS

MODEL 1384 – L MIXER

1 each	230609	Seal Kit
1 each	224084	Rear Seal
1 each	224095	Bearing
1 each	224094	Bearing
1 each	224096	Seal
2 each	286284	O-Ring
4 each	286526	O-Ring
1 each	286323	O-Ring
1 each	286545	O-Ring
1 each	286544	O-Ring
1 each	230223	Base Meter Seal Kit
1 each	230224	Accelerator Seal Kit
		(note: please indicate ratio by volume)

1 each	224073	Cap Assembly
1 each	224080	Rotor Housing
2 each	228413	Wiper Ring, 55 Gallon
1 each	222639	Wiper Ring, 5 Gallon
4 each	222749	Cup Seal, Teflon
4 each	222615	Cotter Pin
4 each	L31033	Gasket
2 each	L34296	O-Ring
4 each	L34309	O-Ring
2 each	L48614	Washer
2 each	L83849	Packing and Retainer
2 each	L34401	U-Cup Packing

230609 SEAL KIT

MODEL 1384-L – H. V. MIXING HEAD

MIXING HEAD:

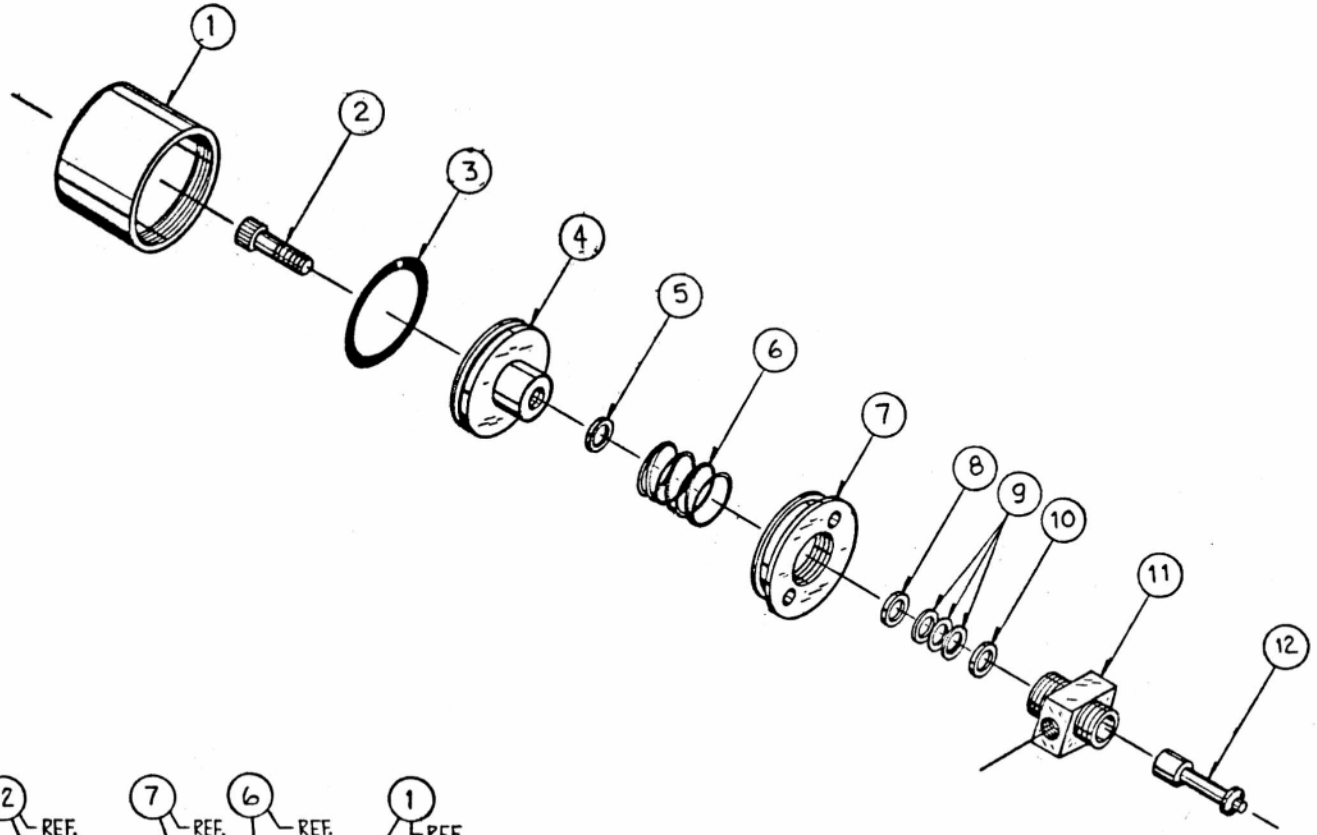
1 each	224084	Rear Seal
1 each	224095	Bearing
1 each	224094	Bearing
1 each	224096	Seal
1 each	221342	P-1 Poppet
2 each	286284	O-Ring
2 each	286526	O-Ring
1 each	286545	O-Ring
1 each	286323	O-Ring
1 each	286544	O-Ring

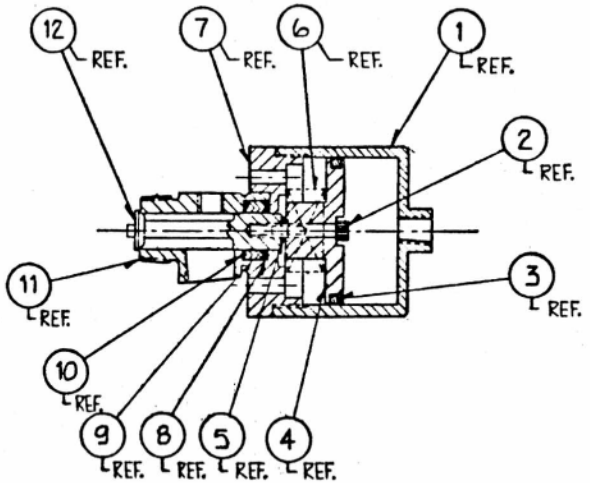
BASE SHUT OFF VALVE:

1 each	286312	O-Ring
1 each	223824	Fiber Washer
1 each	223371	Female Washer
3 each	223369	Chevron Seal
1 each	223368	Male Washer

ASSCELERATOR SHUT OFF VALVE:

1 each	286098	O-Ring
2 each	286091	O-Ring
2 each	286180	O-Ring
1 each	286302	O-Ring
1 each	286282	O-Ring





	NO	REQ'D	PART NO.	DESCRIPTION
A	12	1	223820	STEM
B	11	1	223819	BODY
A	10	1	223368	MALE WASHER
A	9	3	223369	CHEVRON SEAL
A	8	1	223371	FEMALE WASHER
B	7	1	223966	END CAP
A	6	1	223825	SPRING
A	5	1	223824	FIBER WASHER
A	4	1	223964	PISTON
/	3	1	286312	O-RING
/	2	1	265401	SCREW SOCKET HEAD STEEL CAP 5/16-18 X 1.75 L.
B	1	1	223816	CYLINDER SHUT-OFF

CHNG	DATE	BY	APRV	REVISION

DWG SIZE

UNLESS OTHERWISE SPECIFIED.
NOTED PART IS TO BE FUNCTIONALLY AND DIMENSIONALLY INTERCHANGEABLE
BREAK ALL SHARP EDGES
MEET ALL DIMENSIONS BEFORE PLATING
.031 R ON SPOTFACES & COUNTERBORES

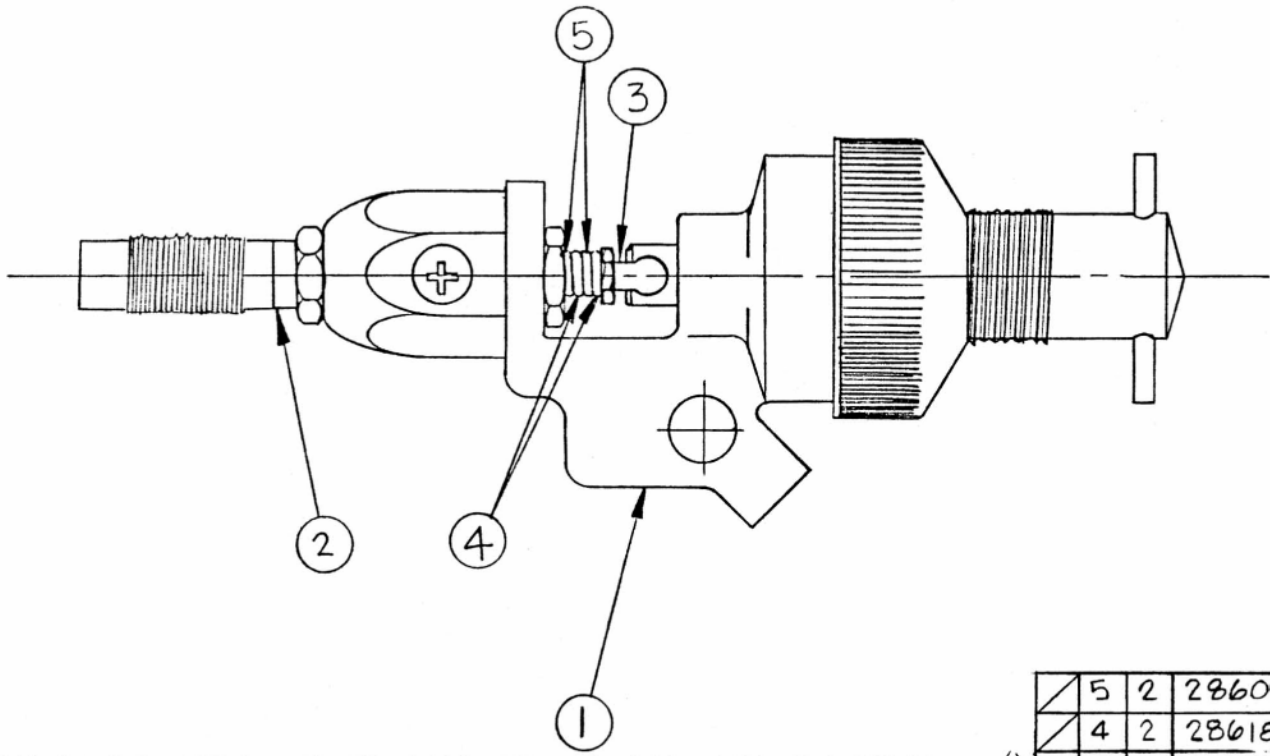
ALL DIMENSIONS ARE IN INCHES
TOLERANCES ARE ANGLE ± 1/2°
FRACTION ± 1/32
DECIMALS .X = ± .090
.XX = ± .010
.XXX = ± .005

1409	227462
1384	227436
USED ON	NEXT ASSY

DRN J. ROBINETT
APPV G. Conda
FINISH NONE
TITLE
DATE 4-23-71
SCALE NONE
SHEET 1 OF 1
PART NO. 223815
CHNG

PART NO. 230479

REVISIONS				
LTR	DESCRIPTION	BY	DATE	APPR'D
	RELEASED FOR PRODUCTION	JRM	1-21-76	SDO



	5	2	286091	O-RING, TEFLON 6227-2
	4	2	286180	O-RING, VITON 6227-2
1.	B 3	1	226333	VALVE ROD, .125 ORFICE
1.	B 2	1	228936	EXTENSION HOUSING, .125 ORFICE
	A 1	1	228533	DISPENSING VALVE
	SIZE	NO. REQ'D	PART NO.	DESCRIPTION OR MATERIAL

1. ITEMS 2 AND 3 ARE SEMCO STANDARD REPLACEMENT PARTS FOR GRACO STANDARD PARTS, ALTERNATE ORIFICE SIZES ARE AVAILABLE.

NOTES: UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED

INTERPRET PER MIL 100
ALL DIMENSIONS ARE IN INCHES
ALL DIMENSIONS BEFORE PLATING
BREAK ALL SHARP EDGES
MACHINED FILLET RADII TO BE .020
SURFACE TEXTURE ✓

TOLERANCES
ON DEC. .XXX = ±.010
.XX = ±.030
.X = ±.100
ANGLES MACHINED ±0° .30'

DRN J. ROBINETT 1-20-76
APPRV S. OGDEN 1-21-76
FINISH - NOTED

TITLE MODIFIED GRACO VALVE ASSEMBLY

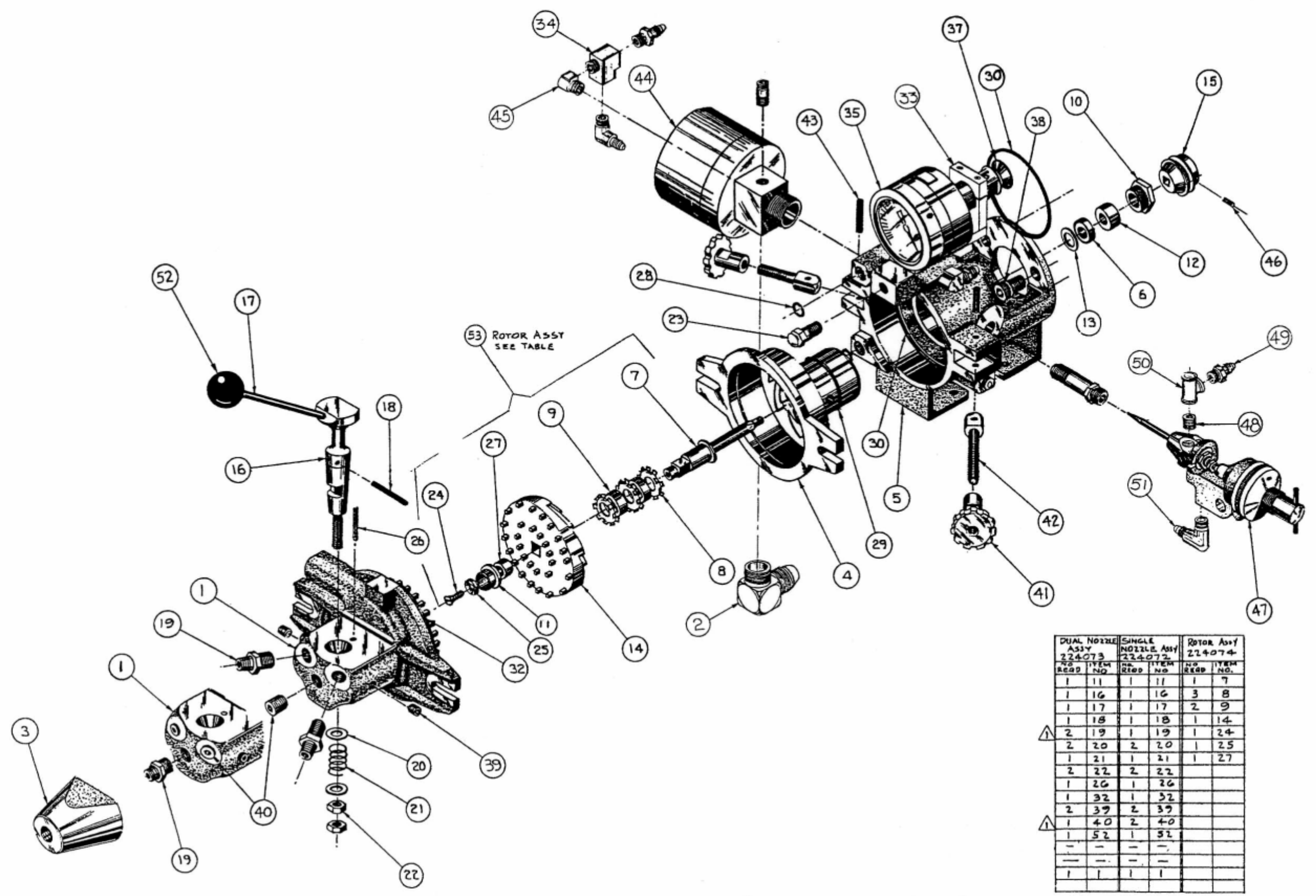
227436	1384
NEXT ASSY	USED ON

SCALE 1X1
SHEET 1 OF 1

SIZE B | PART NO. 230479 | CHG

227436

REVISIONS				
LTR	DESCRIPTION	BY	DATE	APPR'D
C	REDRAWN - SEE OBSOLETE DRAWING	DRP	1-12-70	
D	REVISED AND UPDATED	JPL	8-25-75	
E	ITEM 53, ADDED - NOZZLE & ROTOR TABLE ADDED.	E.G.	3-6-79	
F	226054 WAS 224083	EG/DN	4-21-82	
G	ITEM (33) WAS P/N 224119 (TACHOMETER SADDLE) ITEM (34) WAS SCREW SOCK HD.; DELETED ITEM (36) QTY. ITEM (45) WAS 3; ITEM (48) WAS P/N 227072 (VALVE); ITEM (49) WAS P/N 281499 (STREET ELBOW, BRASS, 1/4 NPT); ITEM (51) WAS P/N 281001 (CLOSE NIPPLE, 1/4 NPT); ADDED ITEM (2) ECN 90-033		8/21/90	



LTR	NO.	REQD	PART NO.	DESCRIPTION
SEE TABLE	53	1	224074	ROTOR ASSY.
A	52	1	224108	KNOB
/	51	2	284162	MALE ELBOW, 90°, 1/4 NPT X 1/4" HOSE
/	50	1	281460	PIPE TEE, GALV 1/4 NPT
/	49	2	284036.	HOSE ADAPTER, 1/4 NPT X 1/4 O.D. HOSE
	48	1	/	CLOSE NIPPLE, 1/4 NPT
A	47	1	230479	DISPENSING VALVE
/	46	1		SETSCREW, ½ DOG, 1/4-28 X 5/16 LONG
/	45	2	281499	ELBOW, BRASS, 1/4 NPT
C	44	1	223815	AUTOMATIC SHUT-OFF VALVE
/	43	2	269644	DOWEL PIN, 5/16 DIA X ½ LONG
A	42	2	224132	LUG BOLT
B	41	2	221151	KNOB
/	40	A/R	281606	DRY SEAL PLUG, 3/8 NPT
/	39	A/R	281604	DRY SEAL PLUG, 1/8 NPT
/	38	3	265448	SCREW, SOC. HD. CAP. STL. 1/2-13 X 7/8 L
B	37	1	224122	TACHOMETER DRIVE ASSEMBLY
	36			
A	35	1	224126	TACHOMETER, 770L-N6-V2-0-750
	34	1	281735	TEE, STREET, BRASS, 1/4 NPT
	33	1	233721	TACHOMETER MOUNT BRACKET ASSY.
/	32	1	286544	O-RING
/	31			
/	30	2	286545	O-RING
/	29	2	286526	O-RING
/	28	2	286284	O-RING
A	27	1	224116	END SPACER
/	26	1	269488	ROLL PIN, 3/16 DIA X 5/8 LONG
A	25	1	224114	WASHER RETAINING
/	24	1	267393	SCREW, OVAL HEAD STL. 1/4-20 X 5/16 L
A	23	1	221342	POPPET VALVE
/	22	2	269003	NUT, HEX STEEL 3/8-16
A	21	1	224113	SPRING
/	20	2	268904	WASHER, FLAT 3/8 STEEL SAE
A	19	A/R	224112	NOZZLE
/	18	1	269499	ROLL PIN, 3/16 DIA X 15/8 LONG
A	17	1	224110	HANDLE ROD
C	16	1	224106	VALVE STEM ASSY.
A	15	1	224101	DRIVE COUPLING
B	14	1	224099	ROTOR
A	13	1	224096	GASKET SEAL
A	12	1	224095	BEARING, BRASS
A	11	1	224094	BEARING, RULON
A	10	1	221084	NUT
A	9	2	224091	SPACER
A	8	3	221083	CHOPPER
B	7	1	224089	ROTOR SHAFT
A	6	1	224084	REAR SEAL
△2 D	5	1	226054	BRACKET
D	4	1	224080	ROTOR HOUSING
	3	1	226146	CAP, WITH ½ NPT DIRECT APPLICATION
/	2	1	284171	MALE ELBOW, 90°, 1/4 NPT X 1/2" HOSE
D	1	1	224077	CAP, MIXING HEAD

	DUAL NOZZLE ASSY 224073		SINGLE NOZZLE ASSY 224072		ROTOR ASSY 224074	
	NO REQD	ITEM NO	NO REQD	ITEM NO	NO REQD	ITEM NO.
	1	11	1	11	1	7
	1	16	1	16	3	8
	1	17	1	17	2	9
	1	18	1	18	1	14
△1	2	19	1	19	1	24
	2	20	2	20	1	25
	1	21	1	21	1	27
	2	22	2	22		
	1	26	1	26		
	1	32	1	32		
	2	39	2	39		
△1	1	40	2	40		
	1	52	1	52		
	—	—	—	—		
	—	—	—	—		
	1	1	1	1		

FOR SEAL KIT SEE DWG 230609

SEE TABLE

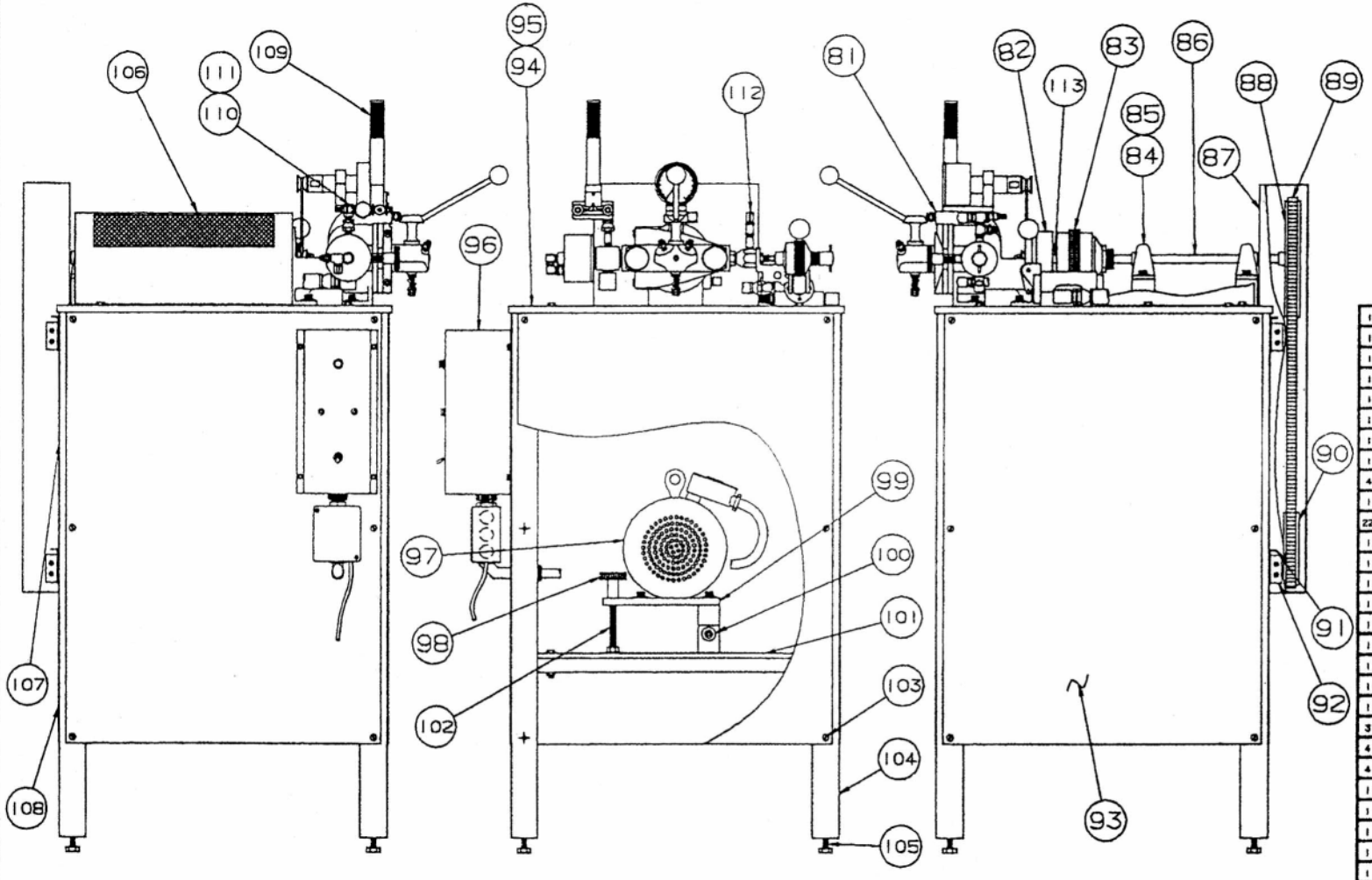
△2 FOR HEAVY VISCOSITY USE BRACKET No. 224083

△1 WHEN CAP 224077 IS FURNISHED WITH NOZZLE (19) AND SEAL PLUG (40) ONLY, USE PART NO 224070 FOR SINGLE NOZZLE AND 224071 FOR DUAL NOZZLE.

NOTES:

NEXT ASSY	USED ON	DATE	TITLE	SCALE
229474	1384	1-12-70	MODEL 1383 HIGH VOLUME ROTARY MIXING HEAD ASSEMBLY	NONE
		PERKINS		227436 G

REVISIONS				
LTR	DESCRIPTION	BY	DATE	APPRV



1	□	113	224143	SHAFT
1	/	112		MALE, ELBOW, 90°, 1/4 NPT X 1/4" HOSE
1	/	111		ELBOW, BRASS 1/4 NPT
1	/	110		B-NUT, 1/4 NPT
1	□	109	233722	RATIO HAND VALVE ASSEMBLY
1	□	108		REAR PANEL LOWER
1	□	107		REAR PANEL UPPER
1	□	106	233712	CLUTCH GUARD
4	□	105		LEVELING BOLT
1	□	104	APN692	FRAME ASSEMBLY
22	/	103		MACHINE SCREW 10-32 X 3/8
1	□	102		STUD
1	□	101	APN690	BOTTOM PLATE ASSEMBLY
1	□	100		STUD
1	□	99	APN691	MOTOR MOUNT ASSEMBLY
1	□	98	221151	KNOB
1	□	97	APN479	MOTOR
1	□	96	APN478	D/C CONTROL
1	□	95	APN697	STAINLESS STEEL COVER
1	□	94	APN499	TABLE TOP
3	□	93	APN526	PANEL
4	□	92		HINGE
4	□	91		RELEASE PIN
1	□	90	224138	SPROCKET (MOTOR)
1	□	89	224142	TIMING BELT
1	□	88	224136	SPROCKET UPPER
1	□	87	APN700	REAR GUARD
1	□	86	APN698	SHAFT
2	□	85	APN696	SPACER
2	□	84	224140	PILLOW BLOCK
1	□	83	224293	CLUTCH ASSEMBLY
1	□	82		BEARING BLOCK ASSEMBLY
1	□	81	227436	MIXING HEAD ASSEMBLY
QTY	SIZE	ITEM	PART NO	DESCRIPTION OR MATERIAL

COMPUTER AIDED DRAWING DO NOT REVISE WITHOUT CHANGING ORIGINAL SOURCE DATA

FILE NAME: C:\AWIL\233685-3.DRW DISK NO. □

UNLESS OTHER WISE SPECIFIED
INTERPRET PER ML 100
ALL DIMENSIONS ARE IN INCHES
ALL DIMENSIONS BEFORE PLATING
BREAK ALL SHARP EDGES .030 MAX.
MACHINED FILLET RADII TO BE .005
SURFACE TEXTURE 63

TOLERANCES		
DECIMAL	XXX	± .005
	XX	± .010
	X	± .030
FRACTION	±	1/32
ANGLE	±	0°30'

NEXT ASSY. USED ON

DRN R. GRAVO APPRV
AUGUST 27, 1980 REL. DATE
MATERIAL:
FINISH

TITLE 1384-L MIXER ASSY. ELECTRIC

SIZE D PART NO 233685 REV

SCALE NONE SHEET 3 OF 4

Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

Dayton® DC Motors

Description

Dayton PMDC motors are TEFC and feature continuous (8-hour day) duty, max. 40°C ambient, Class F insulation, ball bearings, oriented ferrite ceramic magnets and externally replaceable brushes.

Specifications

Model	F/L RPM	F/L Torque (lb.-in.)	HP	F/L* Amps	AG Max.
4Z379A	1750	54	1.5	8.0	15.9
4Z380A	1750	72	2	10.9	16.9
6Z791A	1750	108	3	15.0	19.9

Motor HP and F/L torque rating only apply when the motor is used with Dayton 4Z377 Control for the 4Z379 and 4Z380 models, and the Dayton 6Z812 Control for the 6Z791 model. Other filtered full wave rectified controls with a free wheeling diode and a form factor not exceeding 1.3 may also be used. Consult Dayton Electric Mfg. if the form factor is greater.

(*) Full-load amps — average current reading from a DC ammeter @ nameplate volts.

Maximum Continuous Stall Ratings of 180 Volt PMDC Motors are as follows:		
4Z379A	8.0 Amps	(54 Lb.-In.)
4Z380A	10.9 Amps	(72 Lb.-In.)
6Z791A	15.0 Amps	(108 Lb.-In.)

⚠ CAUTION ***Stall torques of PMDC motors are many times greater than full-load torques of the motor. Caution should be taken to prevent damage to the driven mechanism as a result of the exceedingly high stall torques.***

General Safety Information

⚠ WARNING ***Disconnect power before installing or servicing.***

1. Lock and tag the power disconnect to "OFF" to prevent unexpected application of power.
2. Follow all local and electrical safety codes as well as the National Electrical Code (NEC) in the United States and the Occupational Safety and Health Act (OSHA).
3. Motor must be securely and adequately grounded. This can be accomplished by using a separate ground wire connected to the bare metal of the motor frame or other suitable means. Refer to NEC Article 250 (Grounding) for additional information.
4. Provide guarding for all moving parts.
5. Do not touch the shell of an operating motor — they run hot. Modern design motors normally run hot at rated voltage and load.
6. Protect the power cable from sharp objects.
7. Make certain that the power source conforms to the requirements of the equipment.
8. Keep dirty cleaning rags and flammable waste materials in a tightly closed metal container and dispose of later in the proper fashion.
9. When cleaning electrical or electronic equipment, always use an approved nonflammable cleaning solvent.
10. These motors are NOT intended for instant reverse applications.

ENGLISH

ESPAÑOL

FRANÇAIS

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Printed in U.S.A.

04977
0996/302/VCPVP

Dayton®

Dayton® DC Motors

ENGLISH

Installation

⚠WARNING ***Do not install the control and motor where the atmosphere is (or may become) explosive.***

⚠WARNING ***When an installation involves a holding or overhauling application (such as hoist or conveyor), a separate magnetic brake or other locking device should be used.***

MOUNTING

1. Motor should be located in a clean and dry area with access to an adequate supply of cooling air. If installation is outdoors, make certain that the unit is protected from the weather.
2. Mount the motor to a rigid surface, preferably metallic using the largest bolts that will fit through the base holes.

CONNECTION

1. All wiring and electrical connections must comply with the National Electrical Code (NEC) in the United States and local electrical codes in effect. In particular, refer to Article 430 (Motors, Motor Circuits and Controllers) of the NEC.
2. Whenever possible, the motor should be powered from a separate branch circuit of adequate capacity to keep voltage drop to a minimum during starting and running. For longer runs, increase wire size in accordance with the wire selection guide.
3. Motor should be grounded by use of a separate grounding conductor connected to the motor frame. Verify that the ground wire runs to a good electrical ground such as a grounded conduit or cold water system.

WIRE SELECTION GUIDE

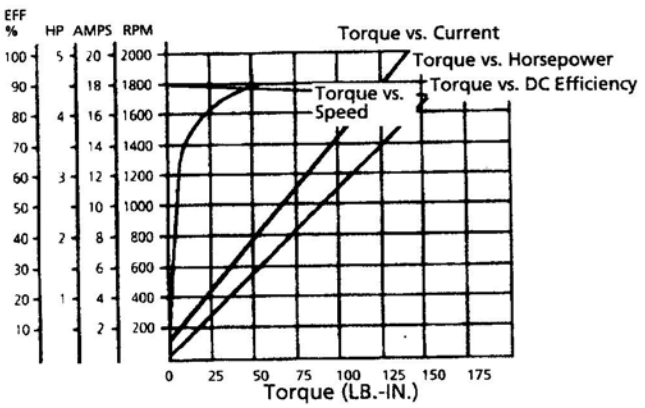
Model	50 Ft.	100 Ft.	150 Ft.	200 Ft.
4Z379A	#14*	#12	#10	#8
4Z380A	#12*	#10	#8	#8
6Z791A	#10*	#8	#8	#6

(*) Never use conductors smaller than #14AWG for 4Z379A and #12AWG for 4Z380A, or #10AWG for 6Z791A.

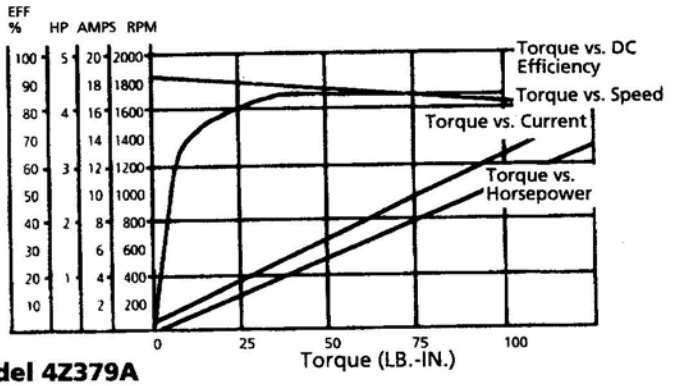
4. Connect the SCR control (or control switch).

ATTACHING (COUPLING) THE LOAD

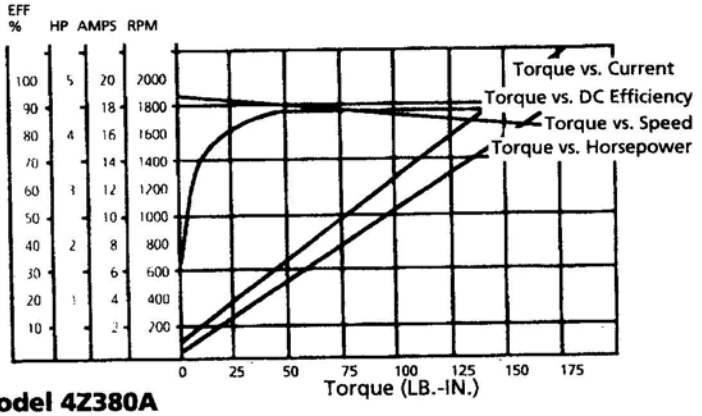
Shock loads should be avoided. When connecting a load to the motor shaft, care should be taken to avoid excessive tension when either belt or chains with chain sprockets are used.



Model 6Z791A



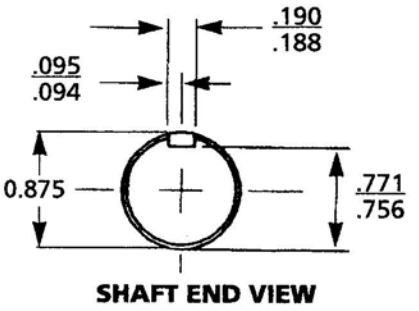
Model 4Z379A



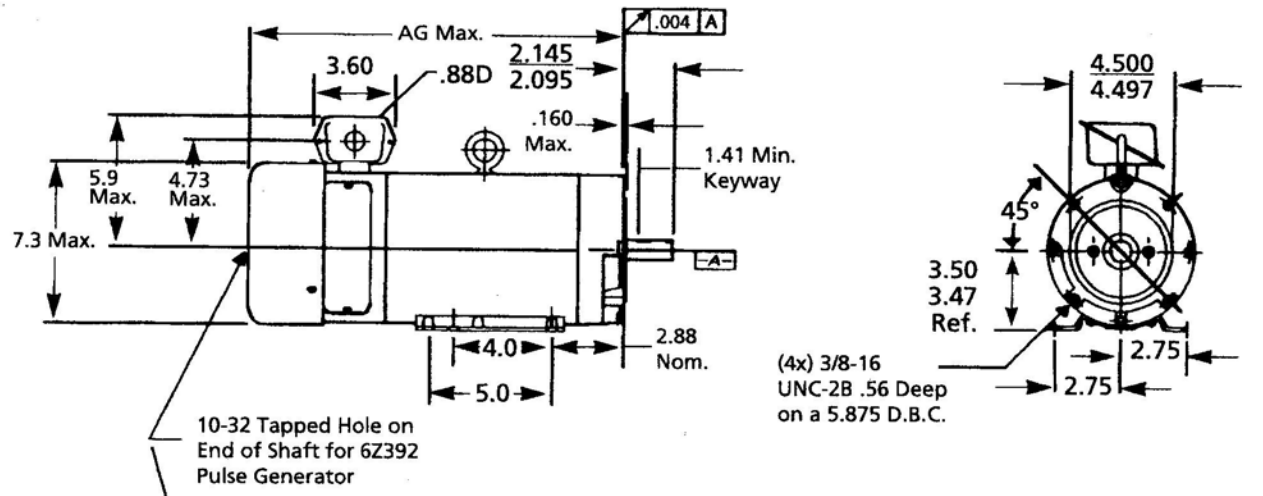
Model 4Z380A

Models 4Z379A, 4Z380A and 6Z791A

Dimensions (In inches)



Models 4Z379A & 4Z380A



Model 6Z791A

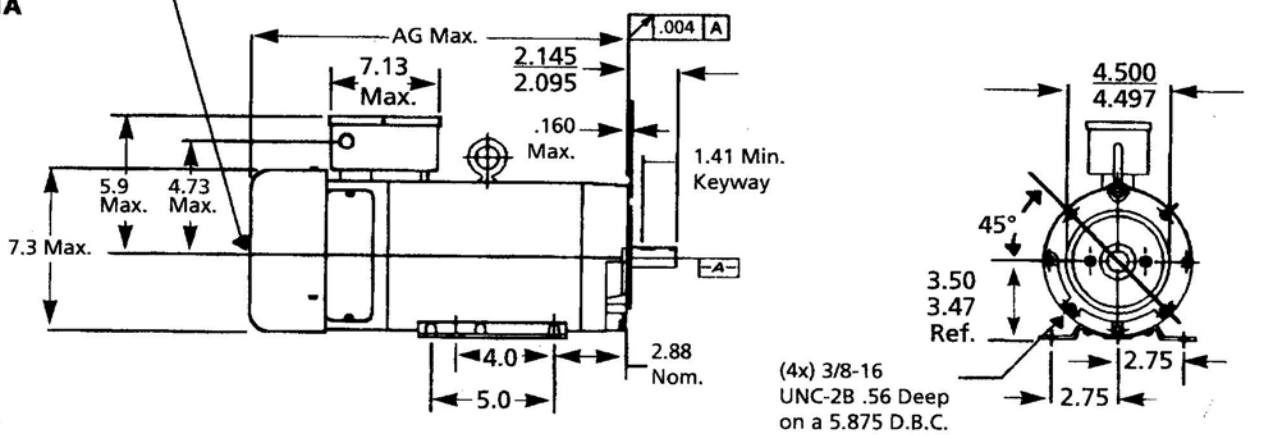


Figure 1 - NEMA Dimensions 143TC/145TC Frame

Dayton®

Dayton® DC Motors

ENGLISH

Operation

PRECAUTIONS DURING OPERATION

1. PM motors may be operated continuously without damage as long as nameplate amps are not exceeded.
2. PM motors typically will gradually increase in RPMs slightly from stop mode over the first couple of hours, depending on operating conditions.
3. Motor brushes need periodic inspection and replacement as wear indicates. Inspect brushes after initial 200 hours of operation. See "Brush Maintenance & Commutator Care" for more details.
4. Use of PM motors with unfiltered power supplies or pure DC with no current limiting circuitry can result in damage of the driven mechanism and driving motor because stall torques of the PM motor with exceed full-load torque ratings by many times.
5. PM motors are not intended for instant reversing applications. PM motors can be dynamically braked and reversed at some low armature voltage (10%), but should not be plug-reversed with full armature voltage.

WIRING MOTOR TO SCR CONTROL

The two motor leads are to be connected to terminal posts in the control marked A1 and A2 (armature). To reverse rotation (if there is no reversing switch on the control), reverse the motor lead connections.

FORM FACTOR

Permanent magnet DC motor horsepower rating is determined by the motor's ability to dissipate heat. The lower the form factor of the motor and SCR control combination, the cooler the motor will run and the higher its horsepower rating will be.

Form factor is a measurement of the ripple of the DC supply voltage. For motors operated on rectified power the higher the form factor number (above 1.0 or unity) the greater the ripple. Ripple is undesirable because it increases motor heating as a result of energy losses in the motor winding and commutator which also accelerates brush and commutator wear. Higher form factors reduce the ability to control the DC motor. A motor is suitable for operation at the form factor stamped on the nameplate or lower at rated load and rated speed. With a Dayton DC control, the user need not be concerned with form factor.

Maintenance

BRUSH MAINTENANCE & COMMUTATOR CARE

⚠ WARNING ***Always disconnect power source before servicing!***

⚠ CAUTION ***To avoid brush and motor problems replacement brushes must be Dayton brand.***

Periodic inspection of both motor brushes should be made to determine brush wear.

Brushes are a consumable product and wear rates will vary depending on a number of factors, i.e. application environment, current drawn, etc. Brush material, spring tension, etc. have been selected by the manufacturer to give optimum brush life under generic conditions. Each application will determine the life of the brushes and motor.

Brush life can be anticipated by monitoring the motor brush wear in the specific application. Recommend brush inspection every 200 hrs. Adjustment of this time frame is at the discretion of the customer to determine a proper preventive maintenance schedule. During each inspection de-energize the motor and vacuum out the brush/commutator area. Excessive brush dust accumulation can lead to premature motor failure. However, each application will vary and proper maintenance must be determined by the customer.

Dayton approved brushes must be replaced by reordering through GPO Customer Service Department. After two brush changes, consult a competent motor repair station for possible commutator refinishing.

⚠ CAUTION ***The motor is extremely hot after it has been under continuous operation. Allow enough time to cool before replacing brushes (approximately 45 minutes to 1 hour).***

1. Disconnect power source.
2. Remove the motor from the system.
3. Refer to Figures 2 thru 4. Remove the four hex head screws (Ref. No. 19) from brush cover along with gasket (Ref. Nos. 8 and 27).

NOTE: The motor may have to be rotated slightly in order to have access to the hex head screws.

4. Push brush spring retainer (Ref. No. 6) inward and up or down until tang is free of slot. Loosen the #6-32 screws (Ref. No. 32) of brush lead and slide brush (Ref. No. 9) out.
5. Install new brush and tighten the #6-32 screw on brush lead. Also connect red and black lead wires to this same screw making sure these leads are routed as shown in Figure 3.

⚠ CAUTION ***The red and black lead wires are to be kept as far as possible away from any moving parts. Push brush spring retainer (Ref. No. 6) forward with riveted tip toward the brush holder retaining bracket until the tang engages the slot. Check pigtail so it is not grounded or bound so that the brush will have free movement for brushwear.***

6. Replace brush cover and gasket (Ref. Nos. 8 and 27) and screws (Ref. No. 19).
7. The motor is now ready to be replaced into the system.

Models 4Z379A, 4Z380A and 6Z791A

Troubleshooting Chart

Symptom	Possible Cause(s)	Corrective Action
Unit fails to operate	1. Open circuit breaker or blown fuse in control	1. Replace fuse or reset circuit beaker
	2. No AC power	2. Contact power company
	3. Defective motor, or control	3. Repair or replace
Unit fails to operate when used with speed control	1. Control speed potentiometer set near zero	1. Rotate speed potentiometer CW to 100%
	2. RUN/STOP or FORWARD/OFF/REVERSE switch in OFF position	2. Move switch to RUN, FORWARD or REVERSE position
Intermittent rotation of output shaft	1. Motor brushes worn or not making contact with commutator	1. Replace brushes
	2. Worn commutator	2. Resurface commutator or replace armature assembly
Excessive noise	1. Bearings worn	1. Replace bearings
	2. Belt or chain tension too tight	2. Adjust tension
	3. Overhung load exceeds rating and causes bearing wear	3. Correct load and/or replace bearing
	4. Motor brushes worn	4. Replace brushes
	5. Worn commutator	5. Resurface commutator or replace armature assembly

NOTE: Motor full-load amp ratings should not be exceeded.

⚠ CAUTION ***To avoid brush/motor problems, brushes must be checked periodically for wear. Brushes must be replaced when worn to 13/64" when measured on long side. Replacement brushes must be Dayton brand. Reinspection of brushes should not exceed 500 hours.***

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Limited Warranty

Dayton One-Year Limited Warranty. *Dayton® DC Motors, Models covered in this manual, are warranted by Dayton Electric Mfg. Co. (Dayton) to the original user against defects in workmanship or materials under normal use for one year after date of purchase. Any part which is determined to be defective in material or workmanship and returned to an authorized service location, as Dayton designates, shipping costs prepaid, will be, as the exclusive remedy, repaired or replaced at Dayton's option. For limited warranty claim procedures, see PROMPT DISPOSITION below. This limited warranty gives purchasers specific legal rights which vary from jurisdiction to jurisdiction.*

Limitation of Liability. *To the extent allowable under applicable law, Dayton's liability for consequential and incidental damages is expressly disclaimed. Dayton's liability in all events is limited to and shall not exceed the purchase price paid.*

Warranty Disclaimer. *Dayton has made a diligent effort provide product information and to illustrate and describe the products in this literature accurately; however, such information and illustrations are for the sole purpose of identification, and do not express or imply a warranty that the products are merchantable, or fit for a particular purpose, or that the products will necessarily conform to the illustrations or descriptions.*

Except as provided below, no warranty or affirmation of fact, expressed or implied, other than as stated in the "LIMITED WARRANTY" above is made or authorized by Dayton.

Product Suitability. *Many jurisdictions have codes and regulations governing sales, construction, installation, and/or use of products for certain purposes, which may vary from those in neighboring areas. While Dayton attempts to assure that its products comply with such codes, it cannot guarantee compliance, and cannot be responsible for how the product is installed or used. Before purchase and use of a product, review the product applications, and all applicable national and local codes and regulations, and be sure that the product, installation, and use will comply with them.*

Certain aspects of disclaimers are not applicable to consumer products; e.g., (a) some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you; (b) also, some jurisdictions do not allow a limitation on how long an implied warranty lasts, consequentially the above limitation may not apply to you; and (c) by law, during the period of this limited warranty, any implied warranties of implied merchantability or fitness for a particular purpose applicable to consumer products purchased by consumers, may not be excluded or otherwise disclaimed.

Prompt Disposition. *Dayton will make a good faith effort for prompt correction or other adjustment with respect to any product which proves to be defective within limited warranty. For any product believed to be defective within limited warranty, first write or call dealer from whom the product was purchased. Dealer will give additional directions. If unable to resolve satisfactorily, write to Dayton at address below, giving dealer's name, address, date, and number of dealer's invoice, and describing the nature of the defect. Title and risk of loss pass to buyer on delivery to common carrier. If product was damaged in transit to you, file claim with carrier.*

Manufactured for Dayton Electric Mfg. Co., 5959 W. Howard St., Niles, Illinois 60714 U.S.A.

Dayton®

For Replacement Parts, call 1-800-323-0620

24 hours a day - 365 days a year

Please provide following information:
Model number
-Serial number (if any)
-Part description and number as shown in parts list

Address parts correspondence to:
Grainger Parts Operations
P.O. Box 3074
1657 Shermer Road
Northbrook, IL 60065-3074 U.S.A.

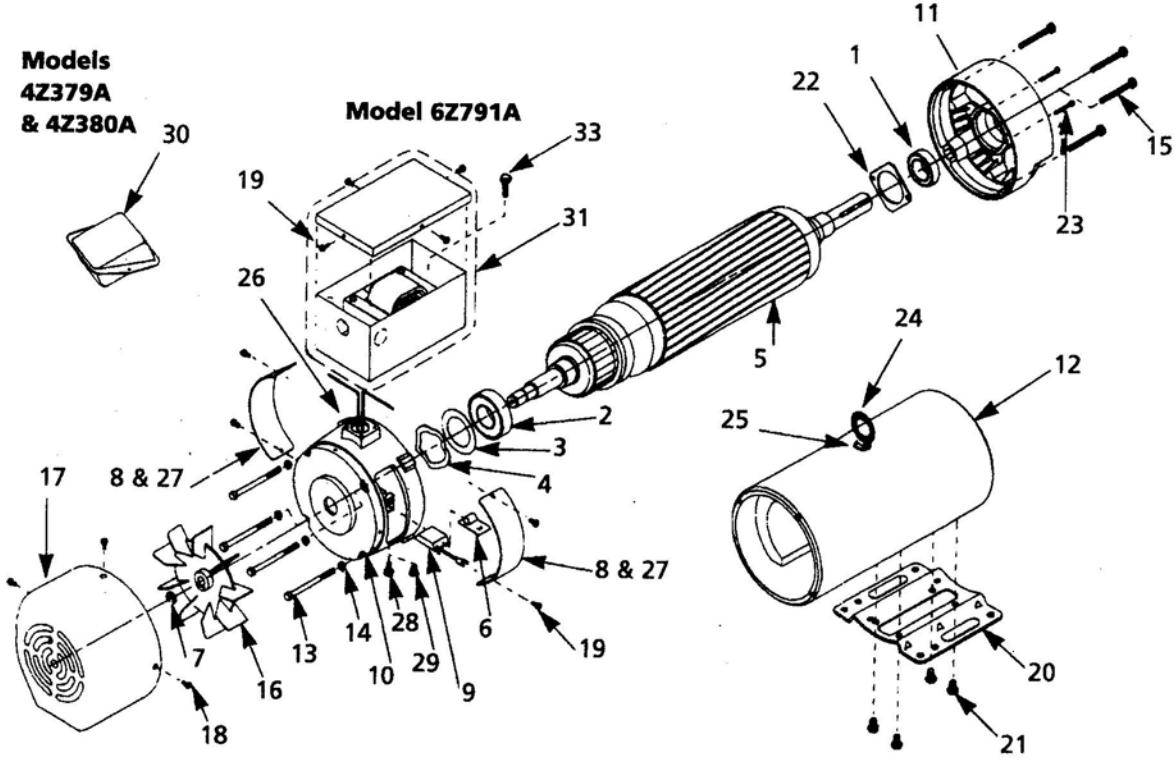

Figure 2 - Replacement Parts Illustration

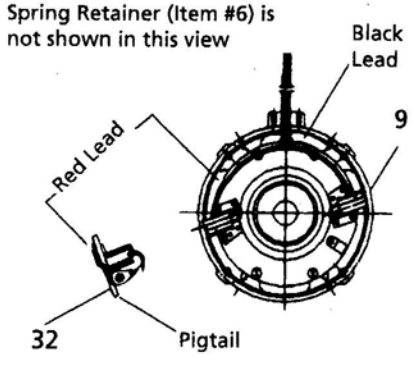

Figure 3 - Lead Wiring Diagram

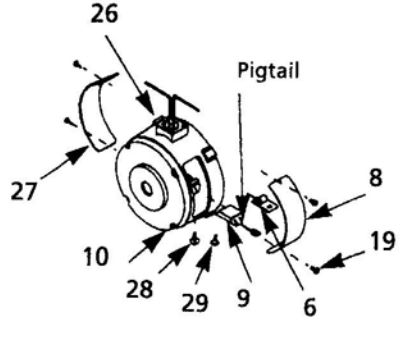

Figure 4 - Replacement Brush Diagram

Replacement Parts List

Reference Number	Description	Part Number for Models: 4Z379A	4Z380A	6Z791A	Qty.
1	Front ball bearing	10000407	10000407	10000407	1
2	Rear ball bearing	BRG-591	BRG-591	BRG-591	1
3	Shim washer	WAS-1190	WAS-1190	WAS-1190	1
4	Spring washer	WAS-1149	WAS-1149	WAS-1149	1
5	Armature assembly	5-6657AC-1	5-6667AD-1	5-6690AF-1	1
6	Brush spring	SPR-476	SPR-476	SPR-476	2
7	Bowed ring	13829302	13829302	13829302	1
8	Brush holder cover	COV-1246	COV-1246	COV-1246	2
9	Brush with lead	16-133	16-133	16-133	2
10	End bracket assembly	3-6600R-2	3-6600R-2	3-6600R-1	1
11	End bracket (shaft end)	BRA-6607A	BRA-6607A	BRA-6607A	1
12	Yoke & magnet assembly	27-6657G-1	27-6667G-1	27-6690G-1	1
13	1/4-20 Hex head screw	SCR-1239	SCR-1239	SCR-1239	4
14	Lockwasher	*	*	*	4
15	1/4-20 Hex head screw	SCR-1335	SCR-1335	SCR-1335	4
16	Fan	15775801	15775801	15775801	1
17	Fan cover	11514116	11514116	11514116	1
18	1/4-28 Pan head screw	10008234	10008234	10008234	3
19	#8-32 Hex head screw	SCR-1287	SCR-1287	SCR-1287	4
20	Mounting base	BAS-517	BAS-517	BAS-517	1
21	5/16-24 Round head screw	*	*	*	4
22	Bearing plate	10216701	10216701	10216701	1
23	#8-32 Hex head screw	15771201	15771201	15771201	2
24	Eye bolt	SCR-1157	SCR-1157	SCR-1157	1
25	Space washer	WAS-1183	WAS-1183	WAS-1183	1
26	Protective plug	PLU-197	PLU-197	PLU-197	1
27	Gasket for Ref. No. 8	GAS-242	GAS-242	GAS-242	2
28	1/4-20 Hex head screw	†	†	SCR-1250	1
29	Plug	PLU-213	PLU-213	†	1
30	Terminal box	89-1130	89-1130	†	1
31	Choke box kit	†	†	KIT-6600V	1
32	#6-32 Round head screw	*	*	*	2
33	1/4-20 Hex head screw	†	†	SCR-1334	1
Δ	Brush Holder	4-660001	4-660001	4-660001	1

(*) Standard hardware item available locally.
(†) Not applicable.
(Δ) Not Shown.

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Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

Dayton® DC Motor Control

Description

The Dayton line of enclosed, adjustable speed, DC motor controls are used for applications requiring constant or diminishing torque, such as conveyors, fans, blowers, etc.

It is designed to operate only one DC motor. The 5X485 control is a general purpose, economical variable speed control for DC and universal motor applications. It features dual input voltages 120/240 VAC, power On/Off toggle switch, adjustable trimpot settings, terminal block connections, and packaged in a rugged Nema 4/12 enclosure.

Control Features

- MOV transient and surge protection
- Fixed acceleration (1 sec. "soft start")
- Adjustable minimum and maximum speed limits
- Adjustable Current Limit
- Adjustable IR Compensation
- Line fused
- Power ON/OFF switch
- Power "ON" indicator
- NEMA 4/12 enclosure
- Dual Voltage 120/240VAC input
- Output Voltage 0-90/180Vdc
- 1% speed regulation
- Shunt field supply provided
- Overload capacity of 200% for 1 minute

MODEL 5X485

Figure 1

Dayton® DC Motor Control

Dimensions

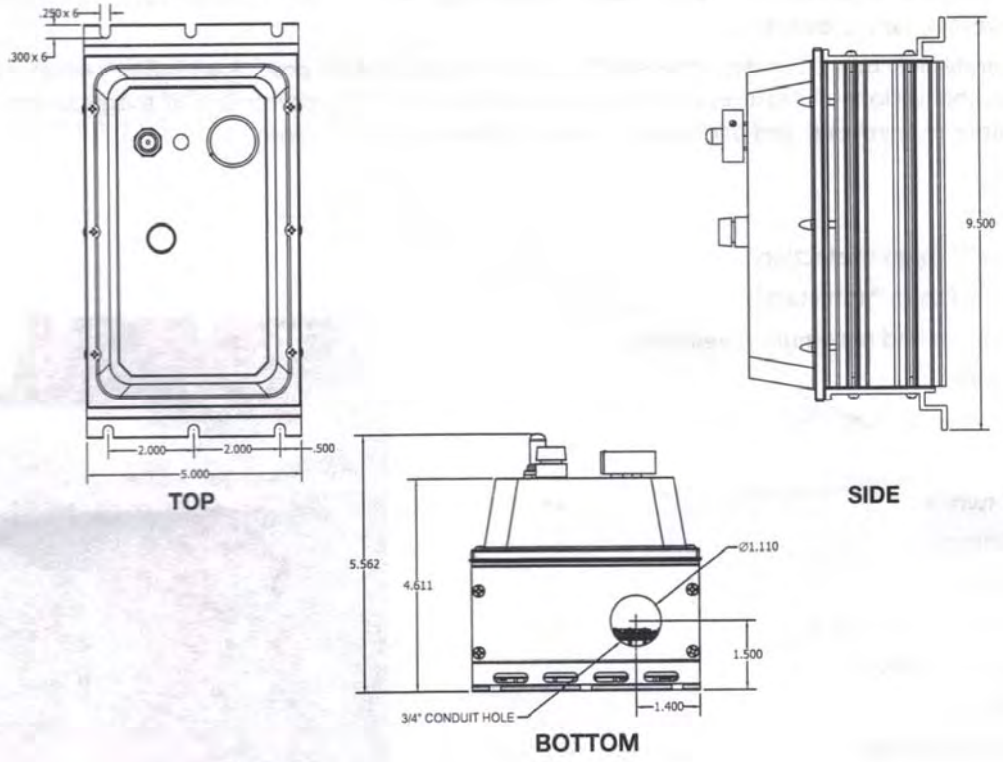


Figure 2

Specifications

AC Input Voltage	120 VAC or 240 VAC ± 10% Rated Line Voltage
Output	0-90Vdc (1/8 - 1 HP) or 0-180Vdc (1/4 - 2 HP)
Amps - Max Continuous DC Output	10 Amps
Input Frequency	50 / 60 Hertz
I.R. Compensation	Adjustable - full range
Max. Speed	Adjustable (60 - 110% of Base Speed)
Min. Speed	Adjustable (0 - 30% of Max)
Shunt Field Voltage	1 Amp max, 100 VDC at 120 VAC
	1 Amp max, 200 VDC at 240 VAC
Speed Control	5K Ohm Speed Potentiometer
Speed Range	50:1
Speed Regulation	± 1% of Base Speed
Temperature Range	-10° to 40° C. Ambient (15° to 105° F.)
Transient Protection	G-Mov
Dimensions	5.000" wide, 9.500" high, 5.562" deep
Weight	59.5 oz.

Model 5X485H

Application Information

If replacing another motor with this control and a DC motor, make sure that the full load torque rating of the DC motor is equal to, or greater than, the full load torque rating of the motor being replaced. Take into consideration how much starting torque is required.

If high voltage surges (transients) are present on the AC supply lines for the control, protect the control by installing an isolation transformer or other line filtering.

Because of the "soft start" circuit in the control, the motor takes about 1 second to accelerate from stop to the set speed. The acceleration period varies with speed setting and system (motor + load) inertia.

⚠ WARNING

Do not operate the contol near high capacitive discharge equipment such as electrical welders.

⚠ CAUTION

Incorrect wiring and accidental grounds will seriously damage the control and/or motor and will void the warranty.

General Safety Information

⚠ WARNING

Disconnect power before installing or servicing.

1. Lock and tag the power disconnect to "OFF" to prevent unexpected application of power.
2. Follow all local and electrical safety codes as well as the National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).
3. Motor and control must be securely and adequately grounded. This can be accomplished by wiring with a grounded, metal-clad raceway system, by using a separate ground wire connected to the bare metal of the motor and control frame, or other suitable means. Refer to NEC Article 250 (Grounding) for additional information.
4. Provide guarding for all moving parts.
5. Do not touch the frame of an operating motor or control. When fully loaded they may run at very hot temperatures. Modern-designed motors and controllers normally run hot at rated voltage and load.
6. Protect the power cable from sharp objects.
7. Do not kink the power cable, and never allow it to touch oil, grease, hot surfaces, or chemicals.
8. Make certain that the power source conforms to the requirements of your equipment.
9. Keep dirty cleaning rags and flammable waste materials in a tightly closed metal container or dispose of in the proper fashion.
10. If needed, clean the control enclosure with a mild solution.

Installation

⚠ WARNING

Do not install the control and motor where the atmosphere is (or may become) explosive.

⚠ CAUTION

It is strongly suggested that only qualified electricians or service people install, troubleshoot, maintain or service the control, motor, and interconnect wiring.

MOUNTING

1. Select a flat, rigid surface for mounting the control.

⚠ CAUTION

Avoid locating the control where vibration, temperature and/or oil will affect control operation or damage control components.

2. Refer to Figure 2 for mounting dimensions and layout mounting pattern on location selected.

NOTE: #10 bolts are recommended for mounting the control; these are not provided

Dayton® DC Motor Control

Connection

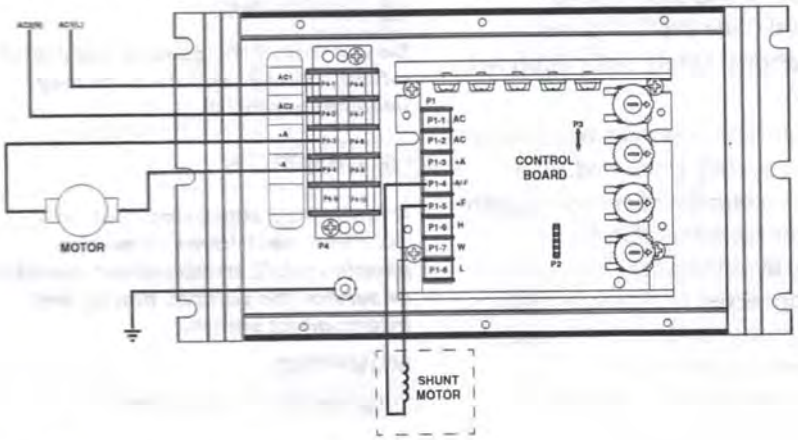


Figure 3 - Control Terminal Connectors

⚠ WARNING

Disconnect power source before connecting control or motor. Size motor armature and AC line conductors according to all national, state, and local codes. Minimum recommended wire size is "stranded" No. 14 AWG for control input lines, and for interconnecting lines between control and motor.

Make connections to the control and to the motor in accordance with the Connection Chart. Refer to Figure 3 for AC line and motor connections to the control terminal block that is located at the bottom of the control. To connect the AC line and motor, remove the front cover and support the cover (DO NOT strain the wiring).

CONNECTION CHART (See Figure 3)

These enclosures use a 5 position terminal strip for ease of connection.

AC1 (P4-1) and AC2 (P4-2)
120 VAC - Connect incoming hot AC or L (black wire) to AC1 (P4-1) and neutral AC or N (white wire) to AC2 (P4-2). Connect ground (green wire) to Gnd lug of control.
240 VAC -Connect one AC line to AC1 (P4-1) and connect the other AC line to AC2 (P4-2). Connect ground wire to Gnd lug of control.

+A (P4-3) Connect to the +Armature lead of the DC motor.

-A (P4-4) Connects to the -Armature lead of the DC motor.

+F (P1-5) DO NOT use for Permanent Magnet Motor. This supplies +Field voltage for a SHUNT WOUND MOTOR. For motors with dual voltage field (ie. 50/100V or 100/200V), make sure highest value is connected.

-F (P1-4) Connect to -Field of shunt wound motors ONLY.

⚠ WARNING

Do not connect control AC power inputs to DC lines. Do not operate shunt wound DC motor with its field disconnected or de-energized.

FUSE SELECTION

The control is shipped with a ceramic 1/4 x 1-1/4" 15 amp line (250V) fuse. This provides correct protection for 1 HP 90Vdc or 2 HP 180Vdc motors. If the control will be used to drive a motor rated differently, then fuses sized per the Control Fuse Selection Table below may need to be installed for proper protection.

CONTROL FUSE SELECTION TABLE

HORSEPOWER	120 VAC INPUT
1/8	2 AMP
1/4	4 AMP
1/3	6 AMP
1/2	8 AMP
3/4	12 AMP
1	15 AMP

HORSEPOWER	240 VAC INPUT
1/4	2 AMP
1/3	3 AMP
1/2	4 AMP
3/4	6 AMP
1	8 AMP
1.5	12 AMP
2	15 AMP

⚠ CAUTION

Use only ceramic 1/4 x 1-1/4" (250V) fuses in the control, such as the Bussman ABC Series or the Littlefuse 314 Series. DO NOT use slow-blow fuses. Incorrect fuses (wrong current rating) will cause either inadequate control/motor protection, or nuisance fuse blowing.

Model 5X485H

BASIC CONTROL SETUP

1. Safety Precautions:
   a. Observe the normal safety precautions for the voltages involved. It is strongly suggested that only qualified electricians or service people should install, troubleshoot, maintain, or service the control, motor, and interconnect wiring.
   b. Be sure power is disconnected or shut OFF at fuse box or circuit breaker when installing the control and making adjustments (except running adjustments).
   c. Remove the load from motor (or gearmotor) before running it.
   d. Use an insulated screwdriver to make trimpot adjustments.

⚠ CAUTION

When making running adjustments, be very careful not to touch any components except the adjusting pots.

2. On the control front panel, turn the control ON-OFF switch to off and set the control pot knob fully counterclockwise (CCW) and check line fuse.

NOTE: The fuse should be as specified by the Control Fuse Selection Table.

3. Check all the connections at the control terminals and at the motor. Make sure that they are tight and are made according to Figure 3 and the Connection Chart.
4. Rotate the motor's shaft manually to make sure it turns freely. A slight resistance may be noticed.
5. Turn the control ON-OFF switch to the ON position and then slowly turn the Speed Control knob clockwise (CW) while observing direction of motor rotation. If opposite direction of rotation is desired, correct by turning OFF the control and then reverse the motor armature connections.
6. With AC line power and control back ON, slowly turn Speed Control knob fully CW while observing the motor. Motor should accelerate smoothly to top speed.
7. Turn OFF control and AC power to control.
8. Reconnect the motor load that the motor will normally drive.
9. Turn AC power and the control back ON and adjust the trimpots (Figure 4) for the motor horsepower and voltage being used.
10. Test the control and motor under actual operating and load conditions; run the motor through the entire range of speeds required while it is fully loaded. Check motor speed with a tachometer.

	C.L. I.R. MAX MIN	HP
INPUT 120 VAC OUTPUT 0-90 VDC		1/8
		1/4
		1/3
		1/2
		3/4
		1.0
INPUT 240 VAC OUTPUT 0-180 VDC		1/4
		1/3
		1/2
		3/4
		1.0
		1.5
		2.0

Operation of the control beyond ±10% of the normal line voltage could result in re-adjustment. These adjustments are permanent; periodic re-adjustment is normally not needed.

Figure 4 - Trimpot Adjustment Chart

If control/motor performance is still not satisfactory, continue adjusting the control by following the procedures given in the next section, "Special Control Setup".

SPECIAL CONTROL SETUP

Use applicable sections of the following procedures if the "Basic Control Setup" procedures and the settings in Figure 4 do not provide satisfactory motor/control performance.

Dayton® DC Motor Control

1. Follow the Safety Precautions given in paragraph 1 of "Basic Control Setup Procedure".

Max Setting

2. If a different maximum speed or voltage is desired, adjust the MAX trim pot (on circuit board) as follows:
   a. Turn ON AC power to the control
   b. Set Speed Control knob fully (100%) CW
   c. Check motor speed and voltage with a tachometer and a DC Voltmeter.
   d. Using an insulated handle screwdriver, adjust the MAX trim pot on the control PC board. (See Figure 5 for location.) Clockwise adjustment of the pot increases the maximum output to the motor; counterclockwise adjustment decreases the maximum output to the motor.

NOTE: Do not increase maximum motor speed above 1800 RPM for motors rated at 1725 RPM. Do not operate motor continuously above the rated DC voltage.

Min Setting

3. If a minimum speed is desired, adjust as follows:
   a. Turn ON AC power to the control.
   b. Turn Speed Control knob CCW as far as possible.
   c. Check motor output speed or voltage
   d. Adjust the MIN trim pot on the control PC board. (See Figure 5 for location.) Clockwise adjustment of the pot increases output to the motor; counterclockwise adjustment decreases.

NOTE: Typically the MIN pot should be set at Deadband which is the point in the CW rotation just before getting an output.

IR Setting

4. If better speed regulation is needed, then adjust the IR pot as follows:
   a. Set speed at 50%
   b. Check speed with Tach at no load
   c. Apply normal load to the motor
   d. Adjust the IR pot CW to increase speed regulation or CCW to decrease speed regulation until loaded motor speed is equal to unloaded motor speed.

CUR.LIM.

5. Limits DC motor current to prevent damage to the motor or control. CW rotation of this trimpot increases the maximum allowable armature current (or torque produced). To set:
   a. Connect a DC current meter between A1 on motor and +ARM on the control (in series with the motor).
   b. Set Speedpot at 50% or above.
   c. Turn CL trimpot full CCW.
   d. Stall and lock motor shaft so it can not spin.
   e. With motor stalled, set current at 125% of rated motor current by adjusting C.L. trimpot CW.

TACHOMETER

6. To utilize Tachometer (Tach) Feedback, the Tach Generator must provide 3 V/1000 RPM.
   a. Set the IR COMP Pot fully CCW when operating the control with a tach signal.

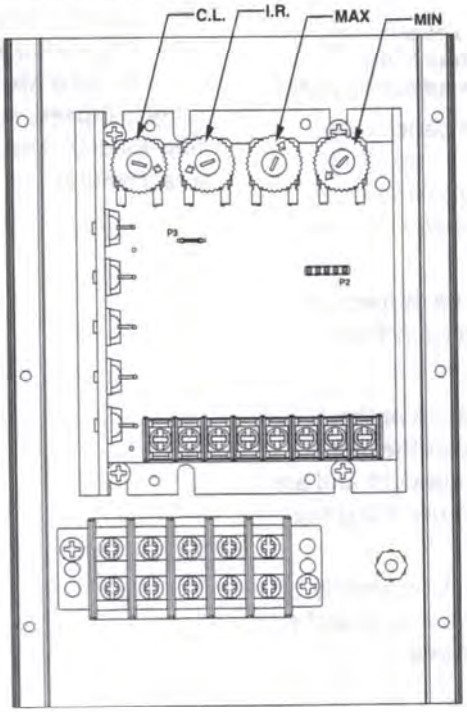
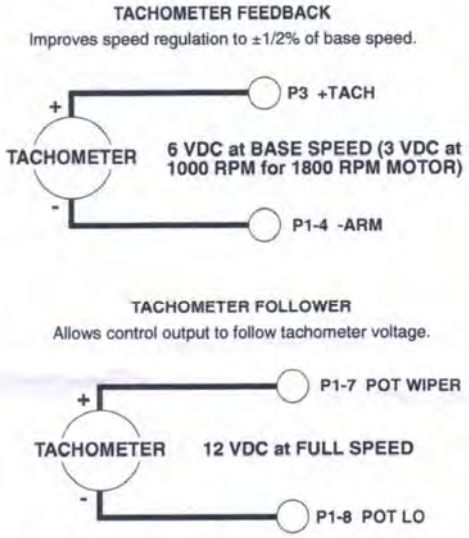


Figure 5 - Trimpot Location

Model 5X485H

b. Reapply power to the control and run the control. Set the front panel speed control to 100% and adjust the MAX Pot for the desired base speed.



NOTE: If motor runs at maximum speed regardless of Speed Pot setting, Tach polarity may be incorrect or Tach may be inoperative.

OPERATION

PRECAUTIONS

⚠ WARNING

Do not operate the control in an explosive atmosphere.

⚠ WARNING

Do not operate the control near high capacitive discharge electrical circuits, such as electrical welding machines.

Regardless of motor speed, do not allow the torque load on the motor to exceed the motor nameplate full-load torque rating for extended periods of time.

OPERATING PROCEDURES

To start and run the motor, proceed as follows:

1. Perform "Basic Control Setup Procedure" first.
2. Turn "ON" AC power and place the control power ON/OFF switch in the "ON" position.
3. Change motor speed by adjusting speed control dial.

To shut down motor and control for longer periods of time, set the "ON/OFF" switch to the "OFF" position.

⚠ WARNING

Grounded armature circuit or shorted power device may cause motor to run at full speed.

OPERATING PROBLEMS

Most motor problems are caused by one of the following conditions:

1. Loose connections at control or motor.
2. Overloading motor.
3. Low voltage at control or motor input terminals caused by one of the following conditions:
   a. Control AC input lines are undersized (conductors too small), or are too long for conductor size used.
   b. Control DC output lines to motor are undersized or too long
4. Worn Motor Brushes

Always check connections, load, and supply circuits if motor fails to perform satisfactorily. Although the control is designed to operate on the AC voltage/frequency specified on its nameplate, it will also operate safely under normal motor loading conditions, on AC voltages/frequencies up to 10% higher or lower than that specified. For heavy motor loads, however, do not operate the control on AC voltages lower than the specified nameplate voltage. Some common causes of low voltage not previously mentioned are:

1. AC supply circuits overloaded by lights, eletrical appliances, or other motors.
2. Low incoming line voltage caused by distribution system overloads.
3. Undersized AC lines in building where control is being used.

Some effects of low voltage are:

1. Motor power loss.
2. Slow motor starting.
3. Slow motor running (won't reach top speed).
4. Motor overheating
5. Frequent fuse blowing and/or circuit breaker tripping

NOTE: Effects 2 through 5 can also be caused by motor overloads.

Dayton®

Dayton® DC Motor Control

TROUBLESHOOTING

⚠ WARNING

Make certain that the power supply for the control is disconnected before touching any components inside the control, except when running adjustments must be made. If the AC power disconnect point is out of sight, lock it in the open position and tag it to prevent unexpected power application.

Only a qualified electricians or service people should install, troubleshoot, maintain, or service the control, motor, and interconnect wiring.

When making running adjustments, be very careful not to touch anything inside the control except the Trimpot adjusting screws; electrically "live" components are exposed, both on the front cover and on the internal panel.

Use an insulated handle screwdriver to adjust the Trimpots.

Notes

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Dayton® DC Motor Control

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Manufactured for Dayton Electric Mfg. Co., 100 Grainger Parkway, Lake Forest, Illinois 60045-5201 U.S.A.