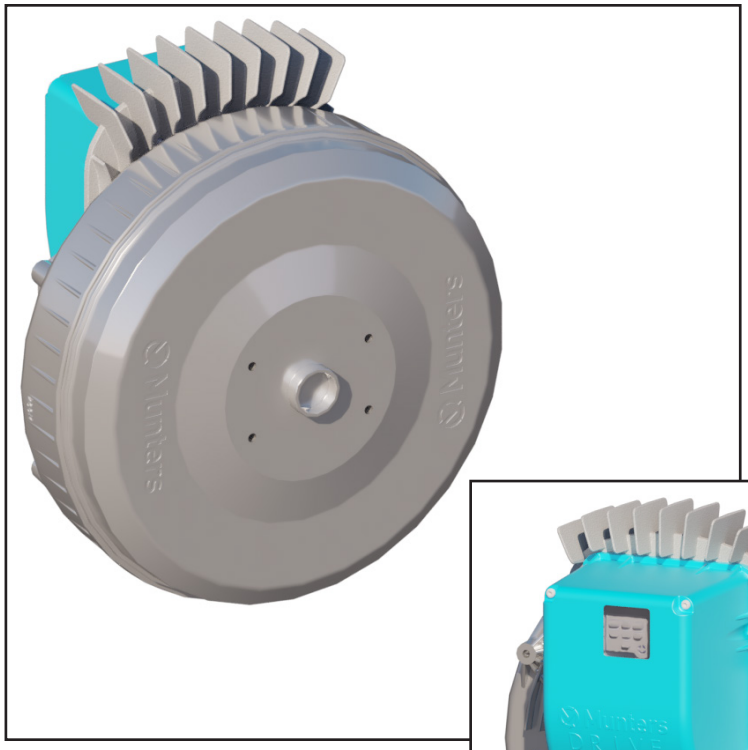
"MD2" Munters Drive* G2

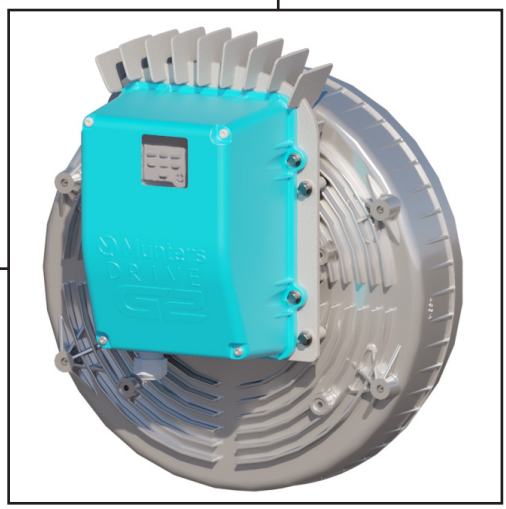
Motor & Controller Replacement Kit for ATS74 and CX74 Fans

*Protected by U.S. Patent No. 20230031171A1, 11632932B2 and other Patents Pending

Instruction Manual



Front View



Rear View

"MD2" Munters Drive G2

Motor and Controller Replacement Kit

Models: MD2-ATS7443-HO • MD2-ATS7443-HE • MD2-CX7443-HO

Munters

Thank You:

Thank you for purchasing a "MD" motor & controller replacement kit. Munters equipment is designed to be the highest performing, highest quality equipment you can buy. With the proper installation and maintenance it will provide many years of service.

Please Note:

To achieve maximum performance and insure long life from your Munters product it is essential that it be installed and maintained properly. Please read all instructions carefully before beginning installation.

Warranty:

For Warranty claims information see the "Warranty Claims and Return Policy" form QM1021 available from the Munters Corporation office at 1-800-227-2376 or by e-mail at aghort.info@munters.com.

Conditions and Limitations:

- Products and Systems involved in a warranty claim under the "Warranty Claims and Return Policy" shall have been properly installed, maintained and operated under competent supervision, according to the instructions provided by Munters Corporation.
- Malfunction or failure resulting from misuse, abuse, negligence, alteration, accident or lack of proper installation or maintenance shall not be considered a defect under the Warranty.

Index

Unpacking the Equipment

1.

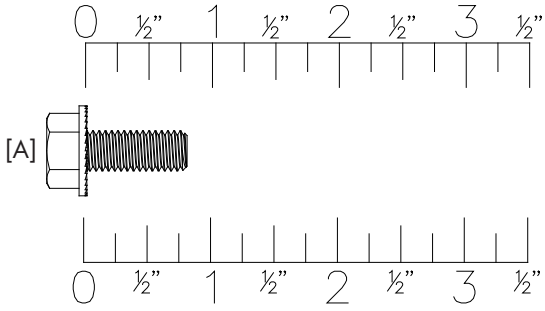
1.1 Parts List

Before beginning installation, check the overall condition of the equipment. Remove packing materials, and examine all components for signs of shipping damage. Any shipping damage is the customer's responsibility and should be reported immediately to your freight carrier.

Each "MD2" Munters Drive G2 Kit Includes:

1 – Munters Drive G2 Motor/Controller Assembly

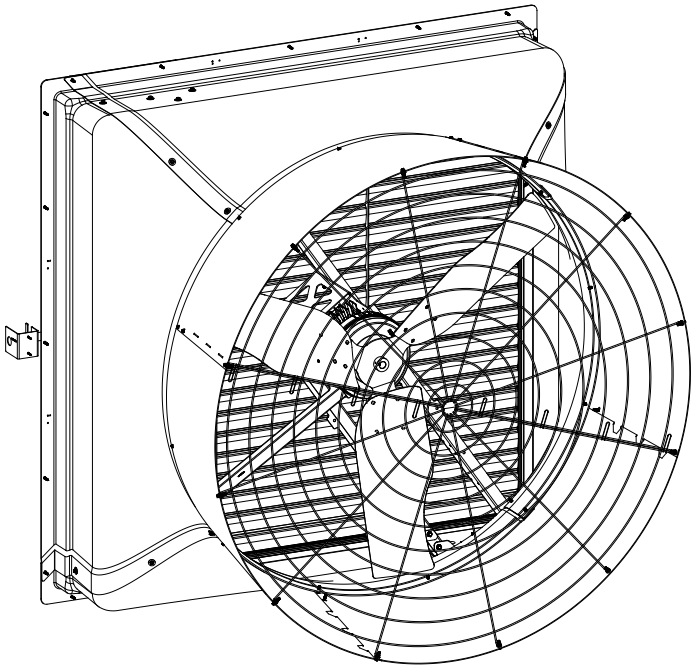
1 – Hardware Package As Follows:



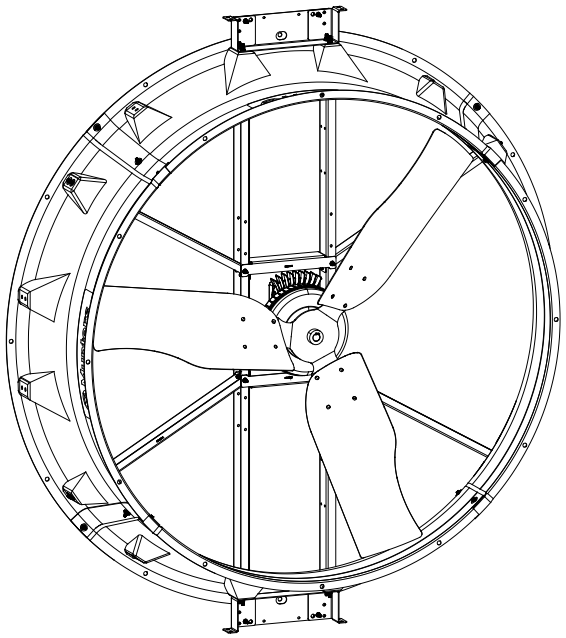
HP1346 – Hardware Package for "MD2" Kit

ID	Qty.	Cat. No.	Description
[A]	8	KS1959	M8-1.25 x 20mm, SRRTD HX, Bolt, ZP

If you are Installing this MD2 kit on an Atlas 74 Exhaust Fan, proceed to *Page 5 , Step 1.*
If you are installing this MD2 Kit on a CX74 Circulation Fan, proceed to *Page 15 , Step 13.*
See Figures below.



Atlas 74 Exhaust Fan
Proceed to Page 5, Step 1



CX74 Circulation Fan
Proceed to Page 15, Step 13

Installation Instructions

2.

2.1 MD2 Replacement for Atlas74 Fan

Step 1

Disconnect power from fan before continuing. Remove the shutter from the back of the fan and set safely aside to be reinstalled later. *See Figure 1.*

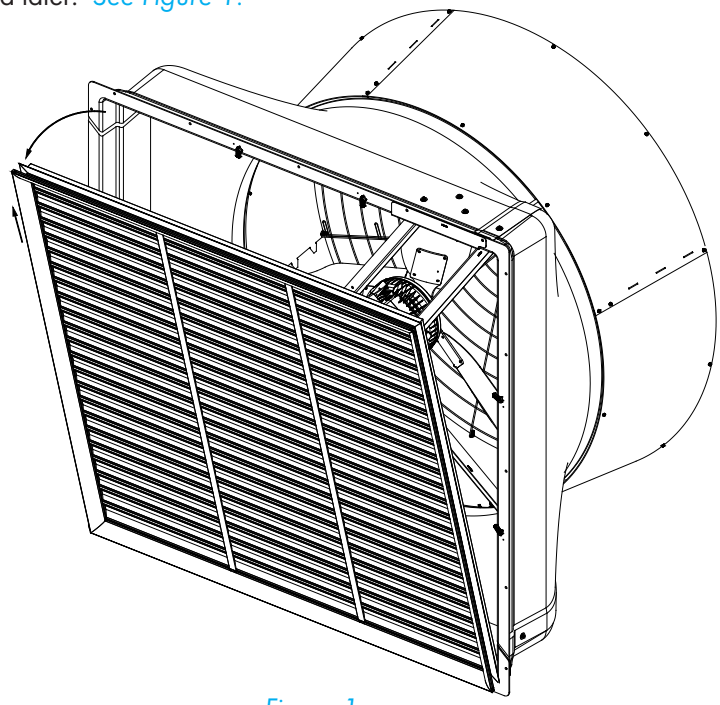


Figure 1

Step 2

For the Atlas 74 Fan it will be necessary to work from the front of the fan as well as the back of the fan, so remove the outlet guard and bottom cone section of the cone for easy access. Set the Guard and Cone Section and hardware aside to be reinstalled later. *See Figure 2.*

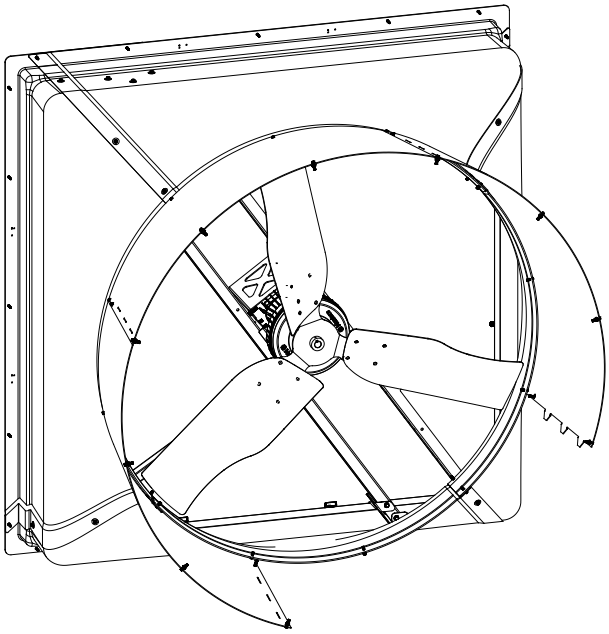


Figure 2

Step 3

Loosen the (4) captured screws in the Munters Drive Box cover to access the drive wiring. Make a note of or take a photo of the wiring. Disconnect 3 phase power and the control wires from the drive and from the box. Then replace the cover. *See Figure 3.*

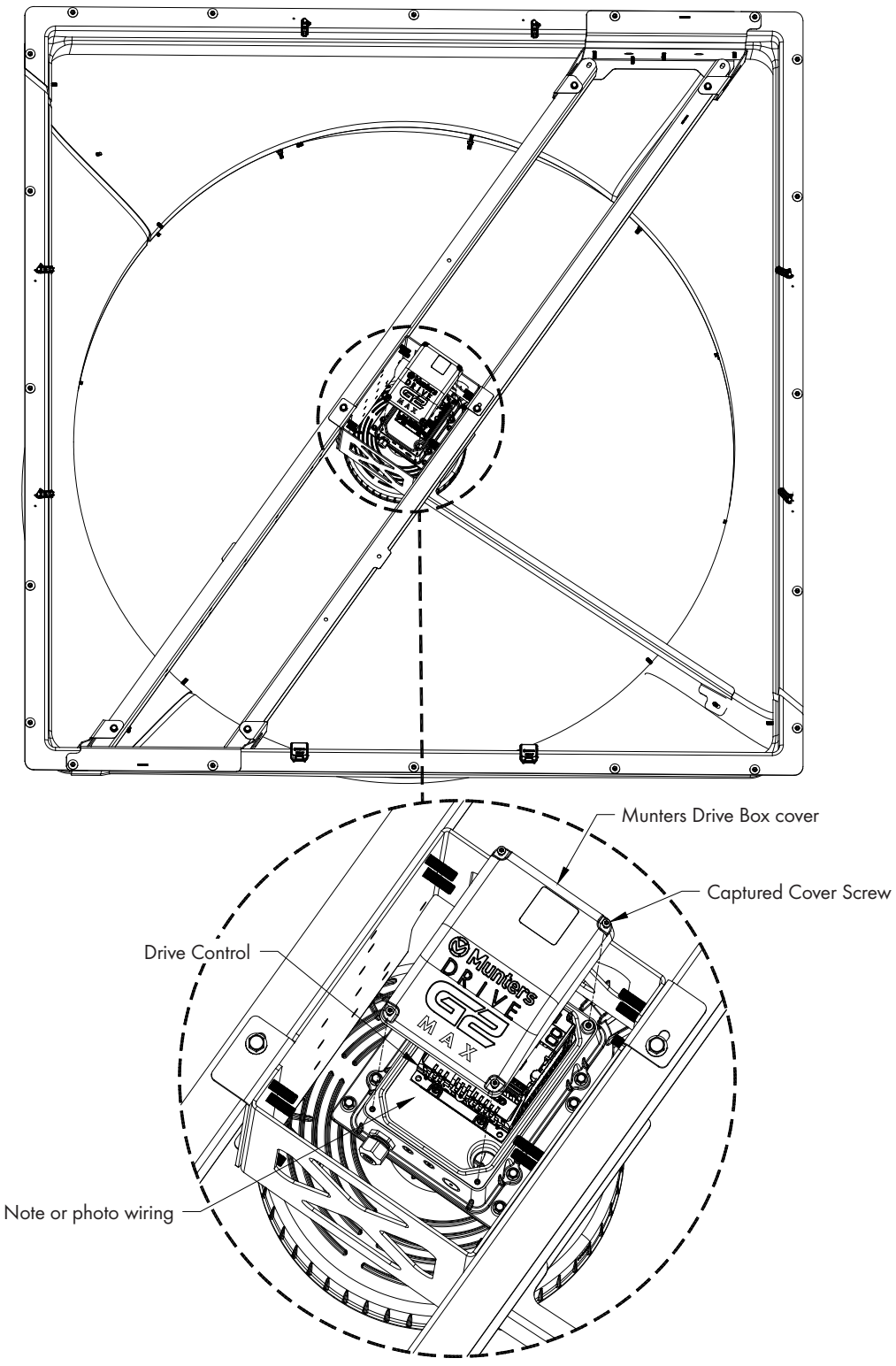


Figure 3

Step 4

Loosen the Set Screw holding the propeller to the shaft. Carefully remove the propeller from the fan and set safely aside to be reinstalled later. A gear puller or prop puller may need to be used. *See Figure 4.* Remove Key from Prop Adapter and keep with prop to be reused later.

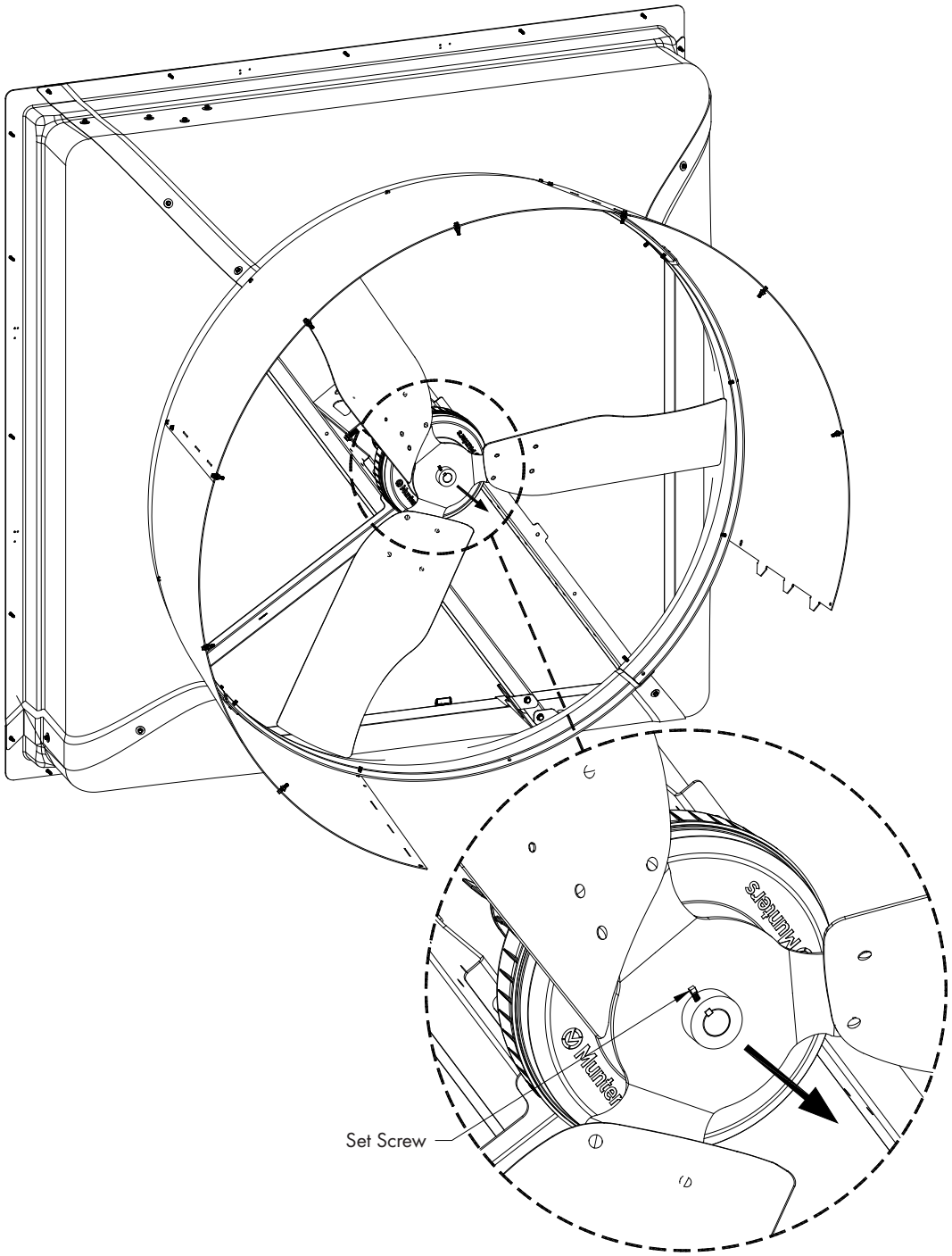


Figure 4

Step 5

Remove the (4) Bolts and Star Washers holding the Prop Adapter to the Motor. Save the Prop Adapter for reuse later, but discard the existing bolts and washers. *See Figure 5.*

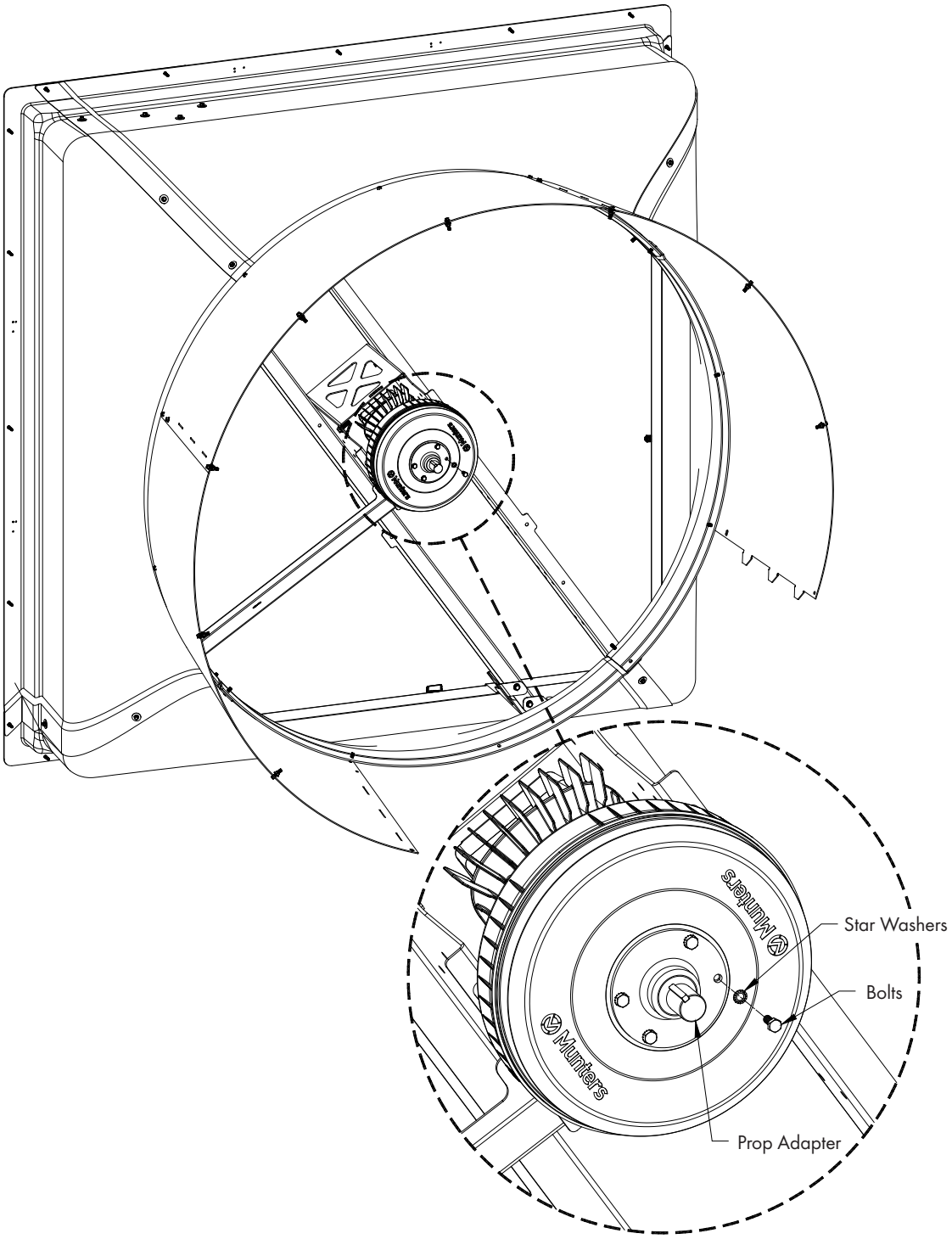


Figure 5

Step 6

Remove the Motor/Drive assembly from the mounting bracket by removing the (4) bolts and star washers holding the Motor/Drive to the brackets. Motor/Drive assembly, make sure to support it while removing bolts so it does not fall and damage the fan housing or Motor/Drive. *See Figure 6.* If you were instructed by Munters office to send the old Motor/Drive back to the office, repack it in the box that new Motor/Drive came in to send back.

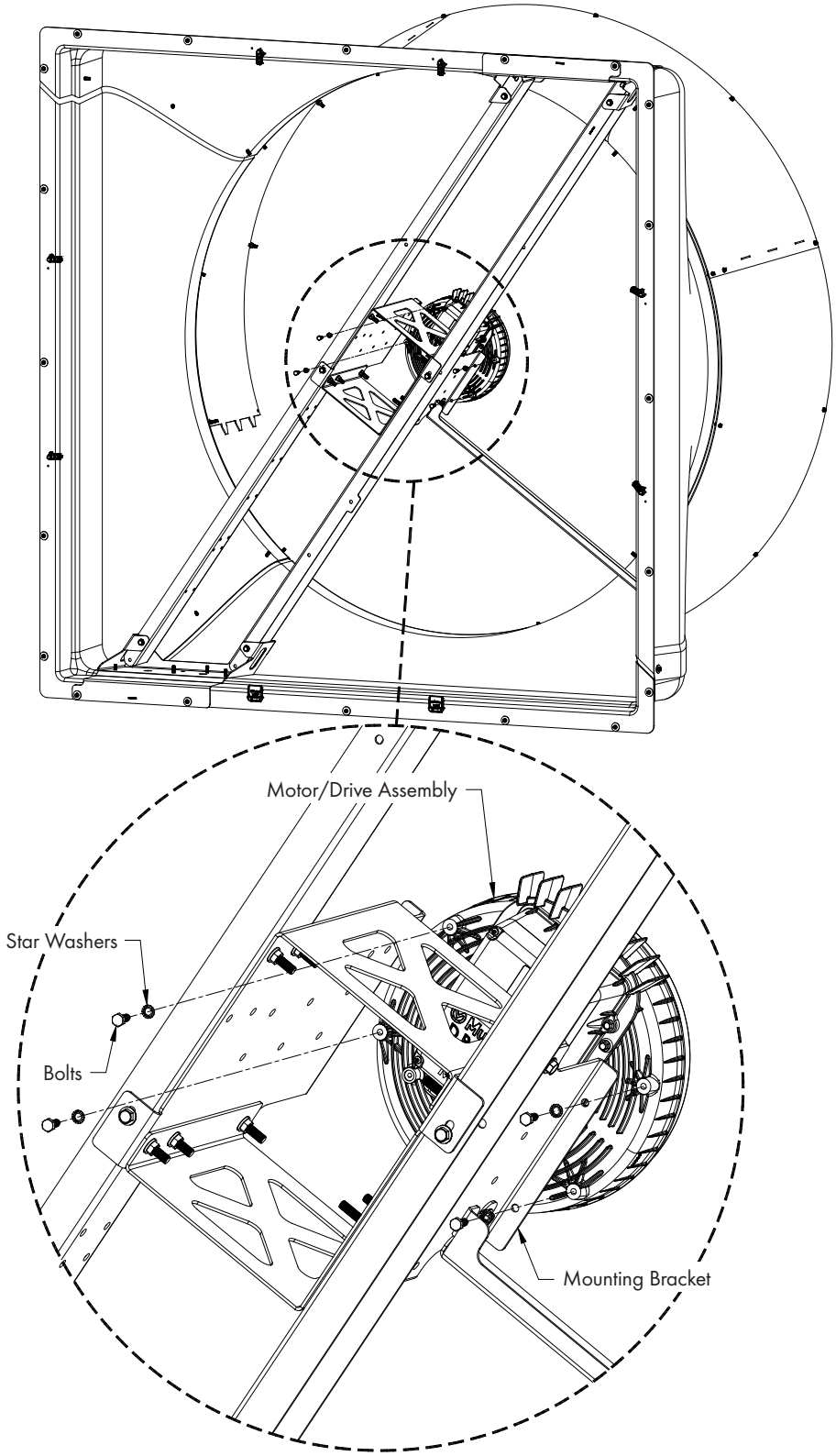


Figure 6

Step 7

Carefully lift Motor/Drive into place and secure in place using (4) Bolts [A]. Tighten Bolts to 60 in-lbs. [6.8 Nm] of torque. *See Figure 7.*

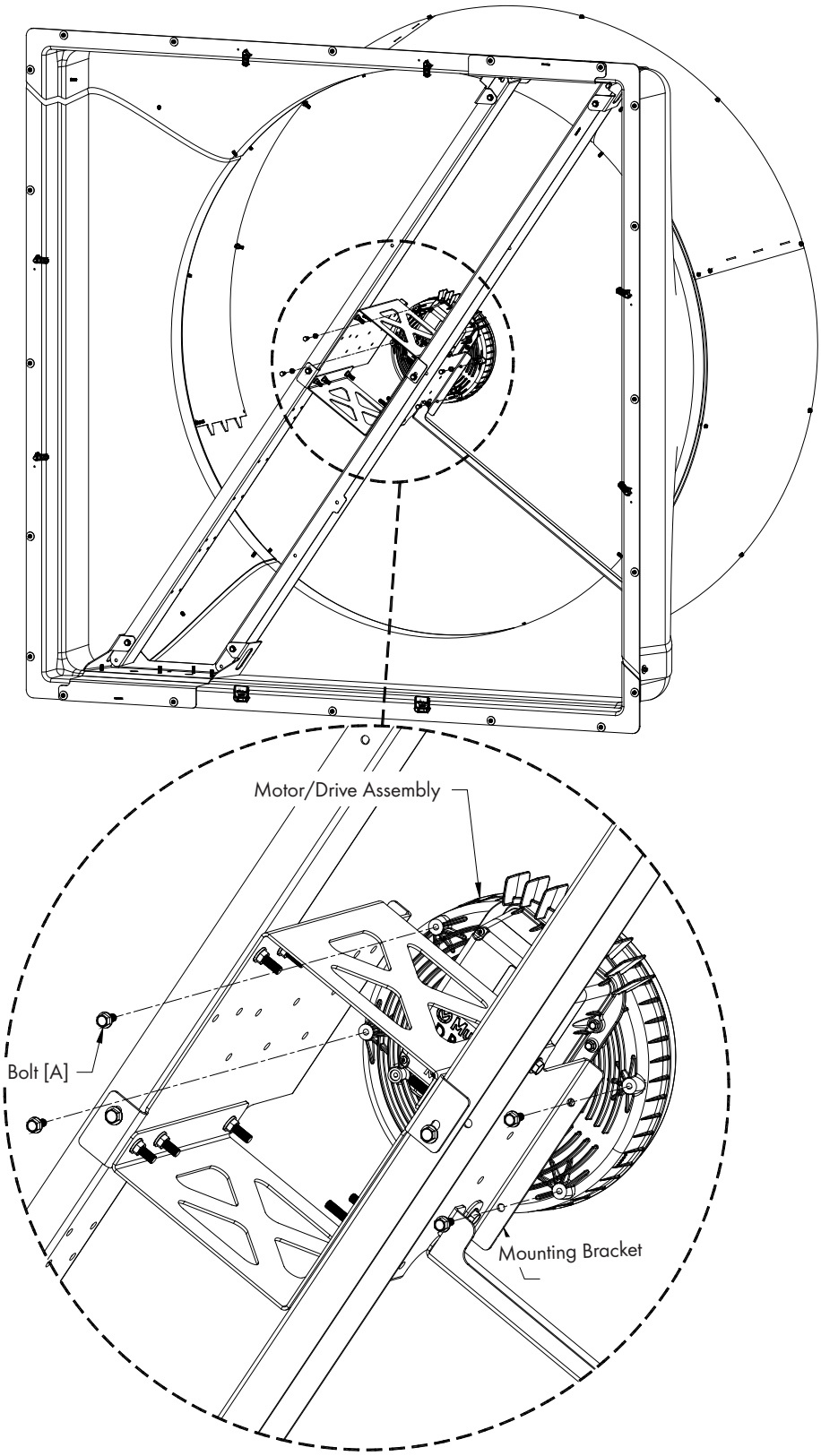


Figure 7

Step 8

Attach the Prop Adapter removed in Step 5 to new Motor/Drive using (4) new Bolts [A]. Tighten Bolts to 60 in-lbs. [6.8 Nm] of torque. *See Figure 8.*

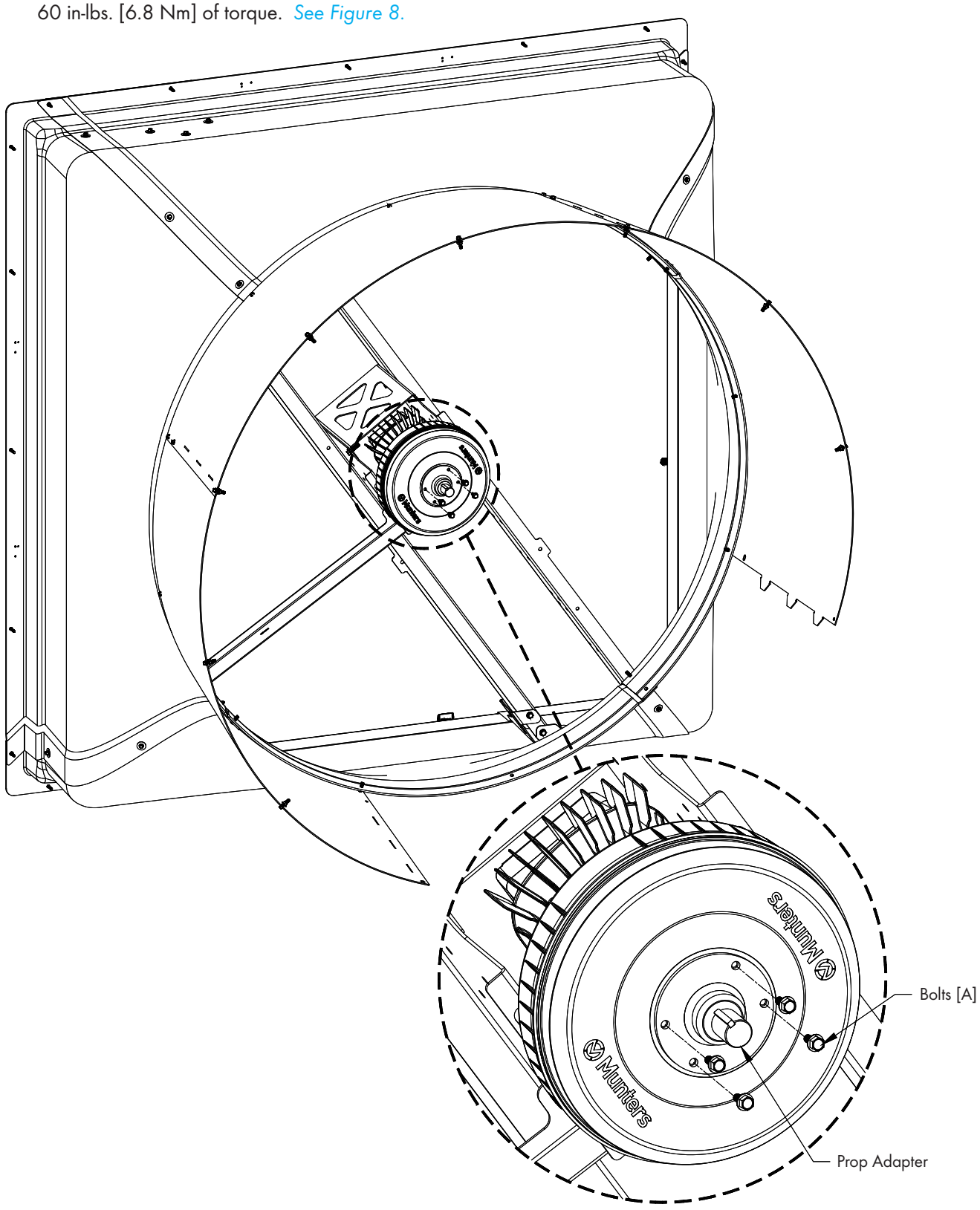


Figure 8

Step 9

Reinstall propeller onto the reinstalled Prop Adapter, replacing the key removed in Step 5. Tighten the Set Screw to 80 in-lbs. [9.0 Nm] of torque. *See Figure 9.*

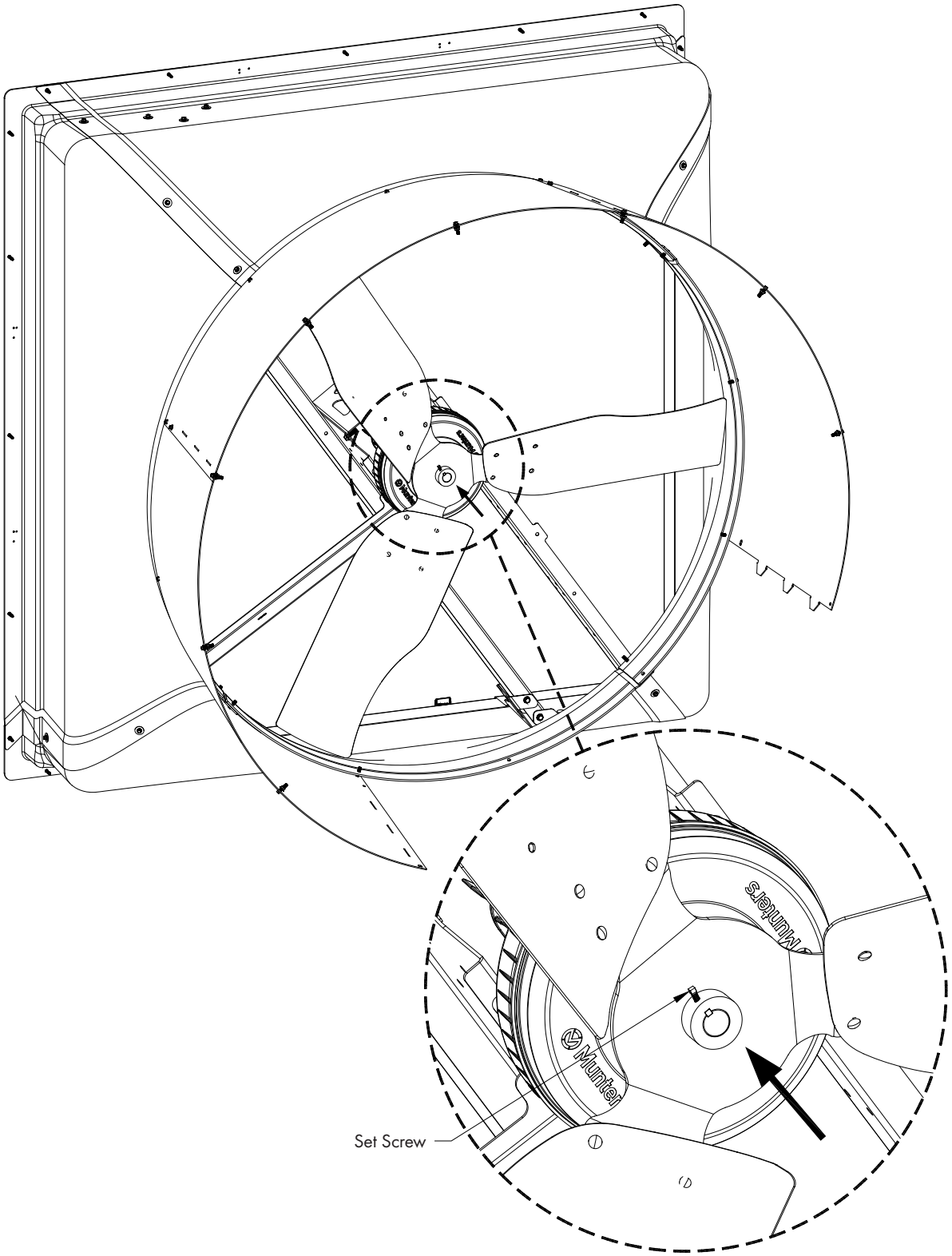


Figure 9

Step 10

Loosen the (4) captured screws in the Munters Drive Box cover to access the drive terminals. Reconnect the 3 phase power and the control wires per the note or photo taken in Step 3. *See Figure 10.* If needed refer to Chapter 3, Page 24, Atlas 74 wiring section for wiring options.

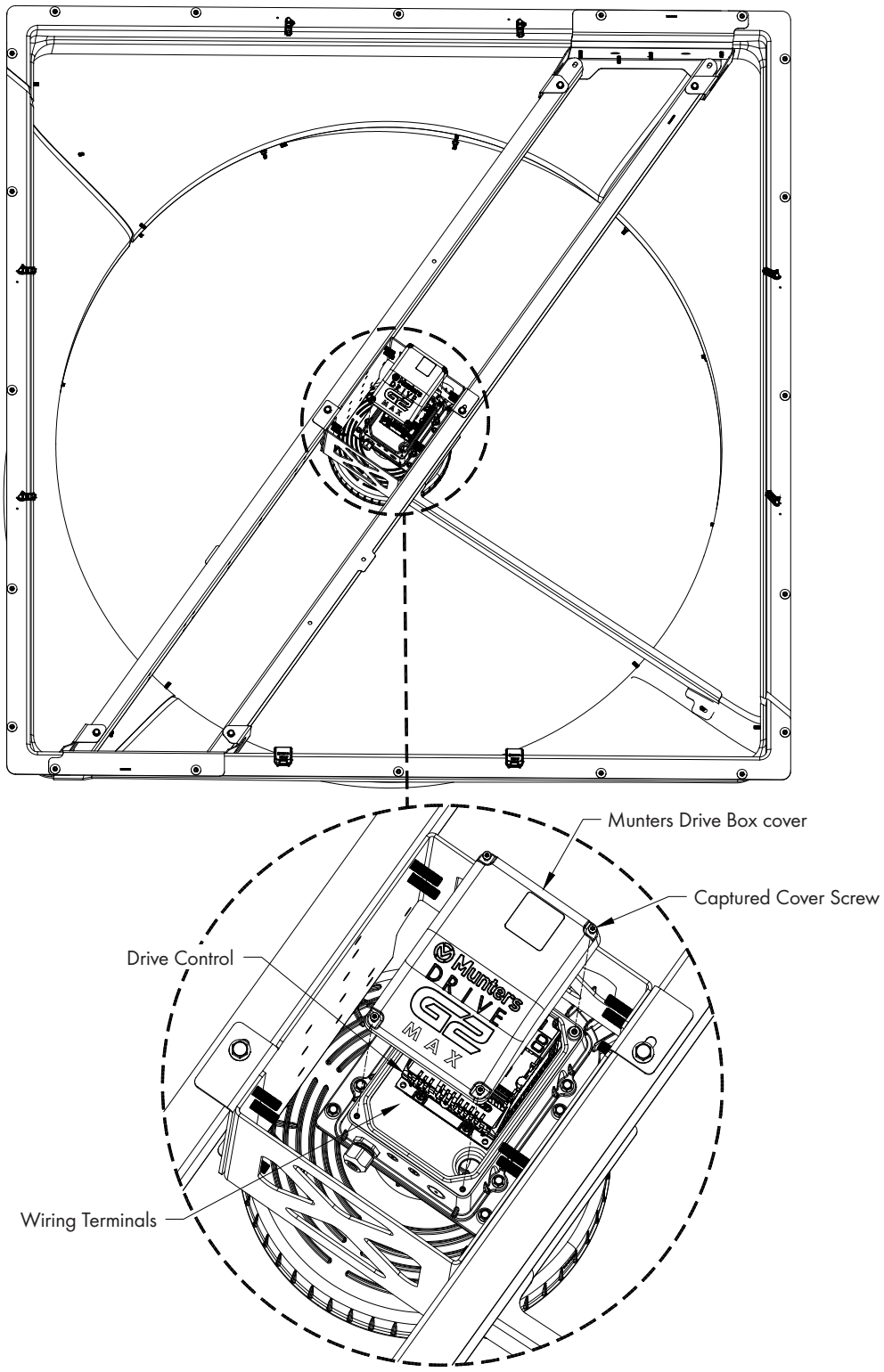


Figure 10

Step 11

Reinstall the bottom cone section and outlet guard to the fan and cone. *See Figure 11.*

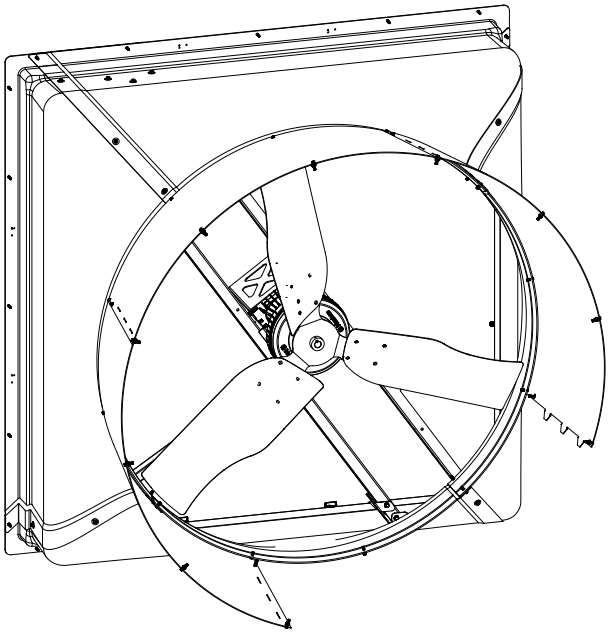


Figure 11

Step 12

Reinstall the shutter in the back of the fan and secure in place with the shutter clips. *See Figure 12.*
Reconnect the power to the fan and make sure the fan operates properly.

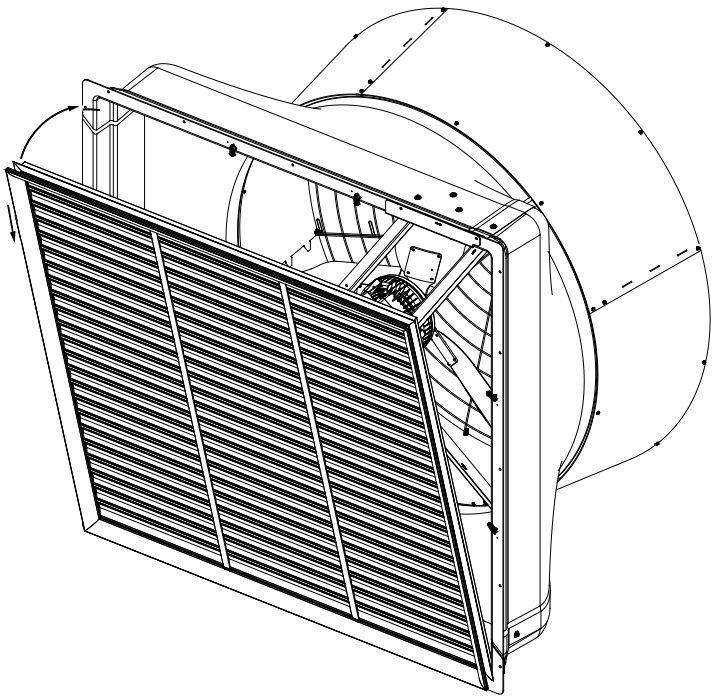


Figure 12

2.2 MD2 Replacement for CX74 Fan

Step 13

Disconnect power from fan before continuing. Remove the front and rear guards from the fan and set safely aside to be reinstalled later. *See Figure 13.*

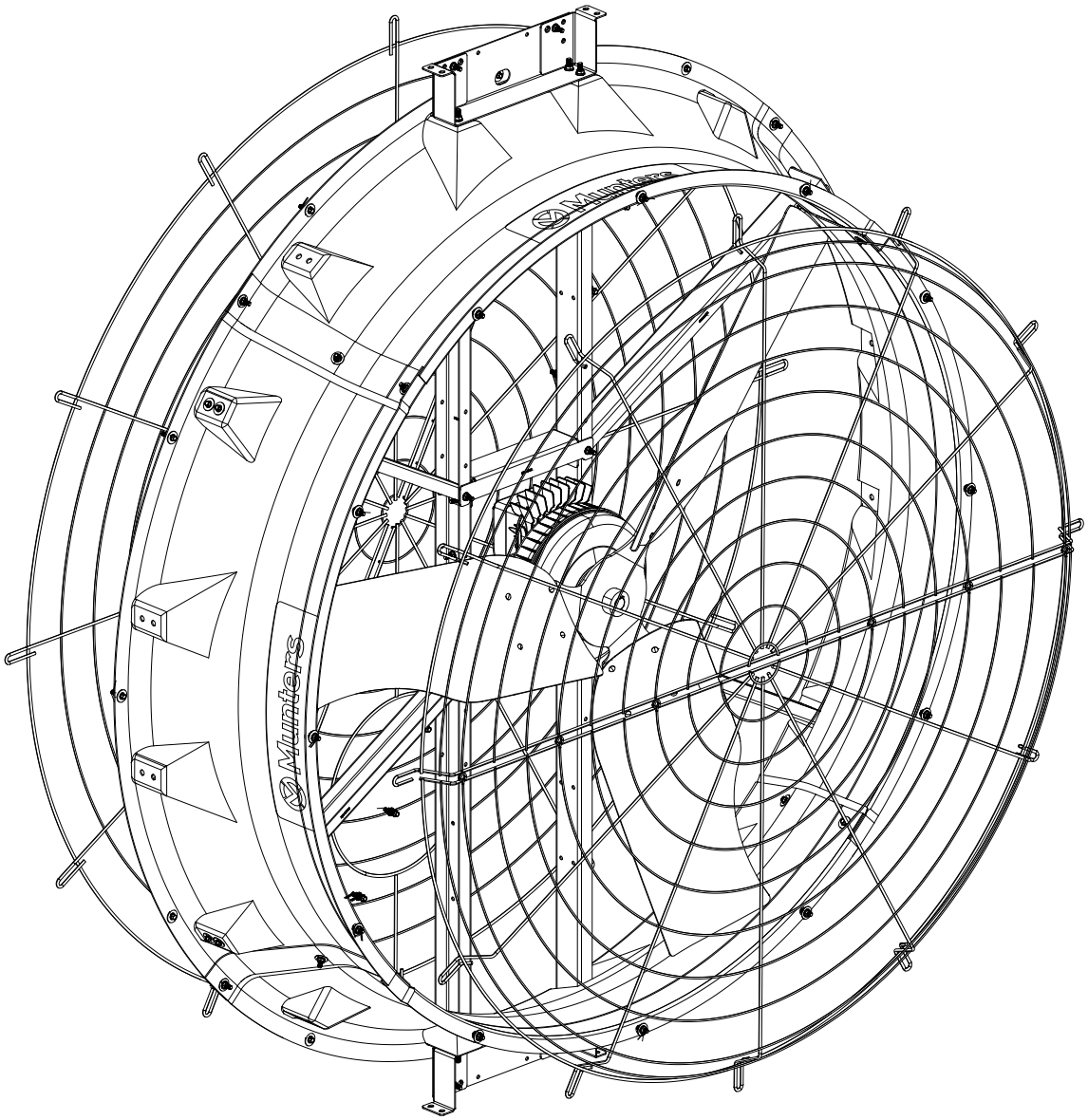


Figure 13

Step 14

Loosen the (4) captured screws in the Munters Drive Box cover to access the drive wiring. Make a note of or taking a photo of the wiring. Disconnect 3 phase power and the control wires from the drive from the and from the box. Then replace the cover. *See Figure 14.*

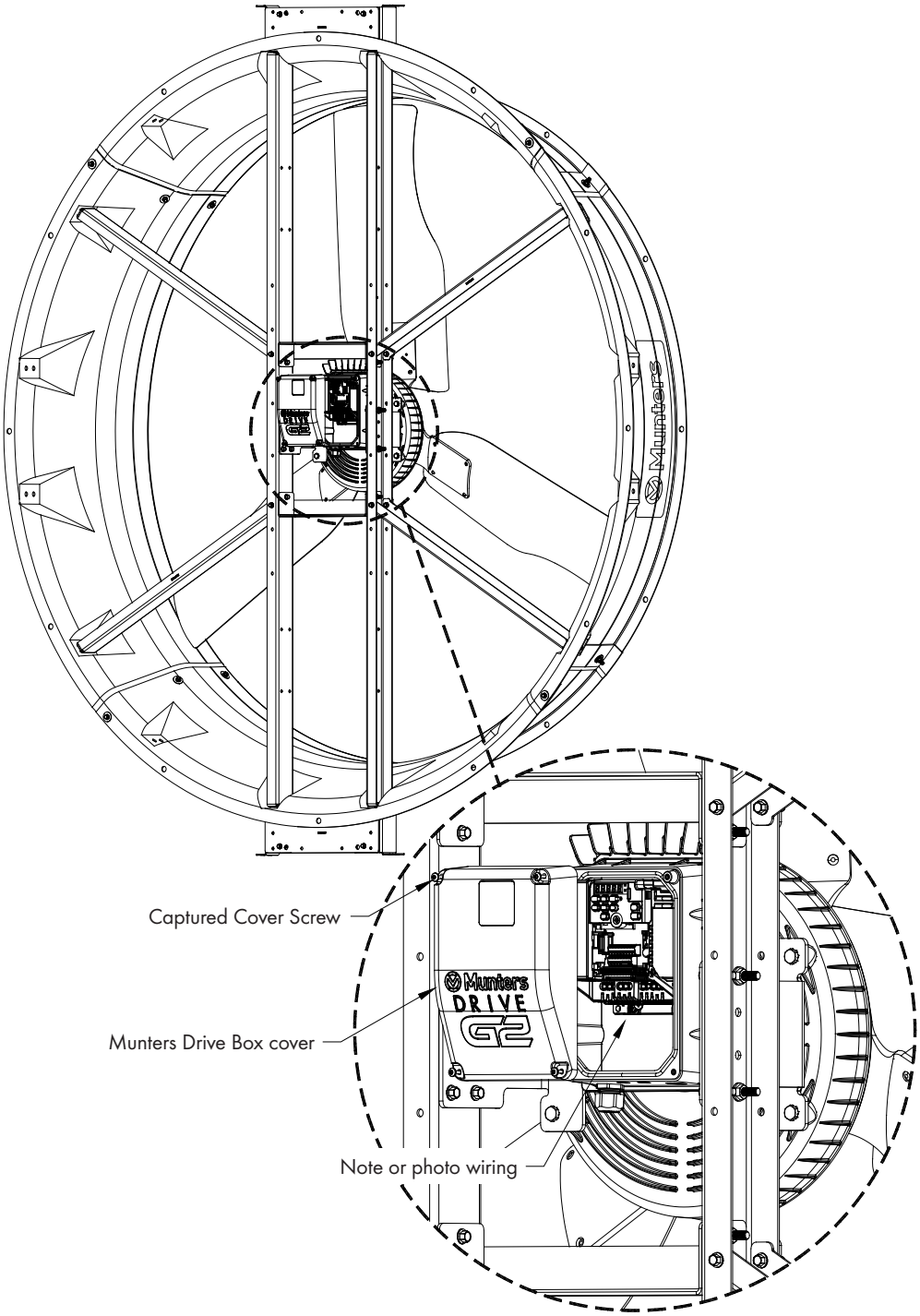


Figure 14

Step 15

Loosen the Set Screw holding the propeller to the shaft. Carefully remove the propeller from the fan and set safely aside to be reinstalled later. A gear puller or prop puller may need to be used. *See Figure 15.* Remove Key from Prop Adapter and keep with prop to be reused later.

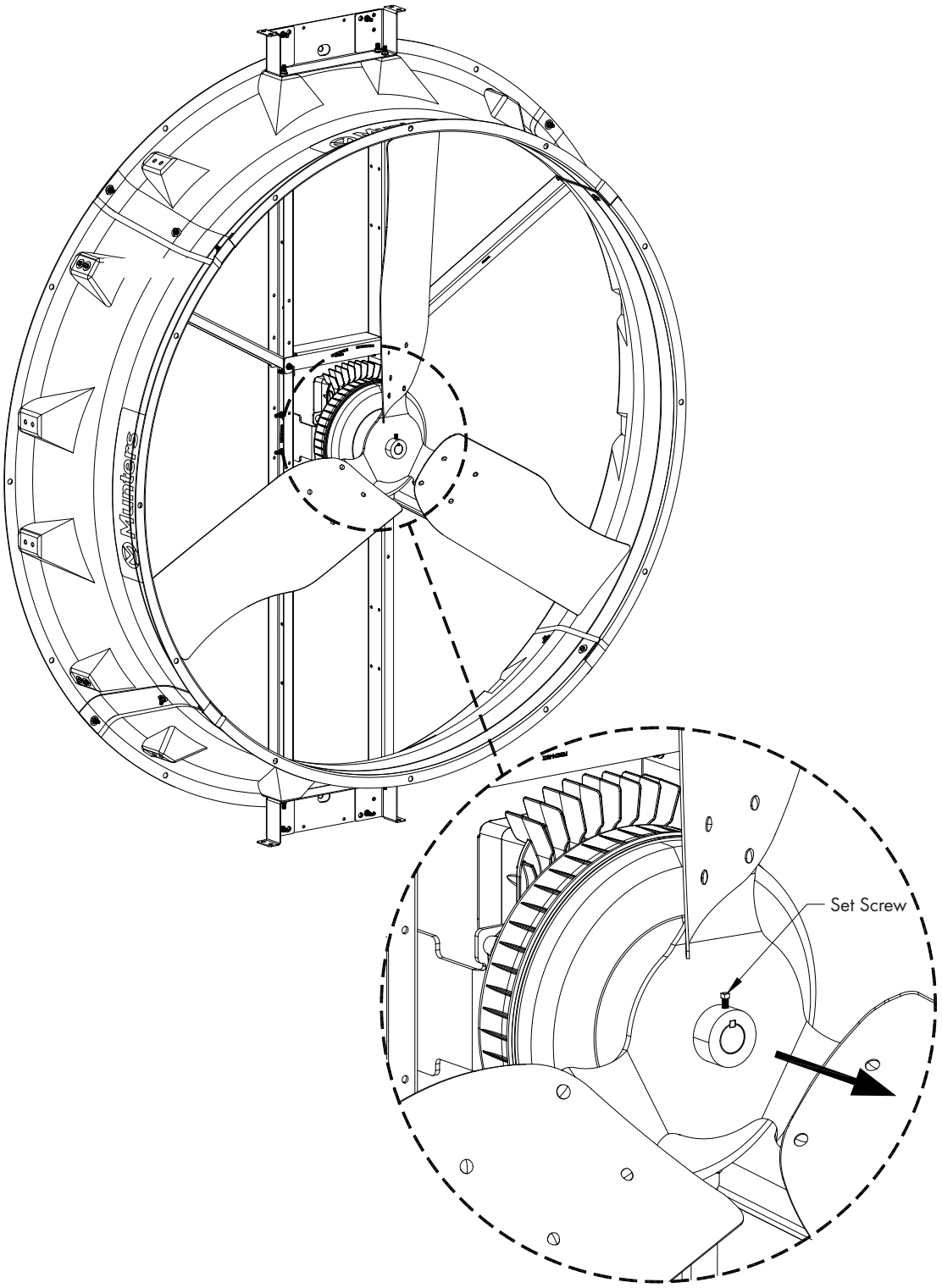


Figure 15

Step 16

Remove the (4) Bolts and Star Washers holding the Prop Adapter to the Motor. Save the Prop Adapter for reuse later, but discard the existing bolts and washers. *See Figure 16.*

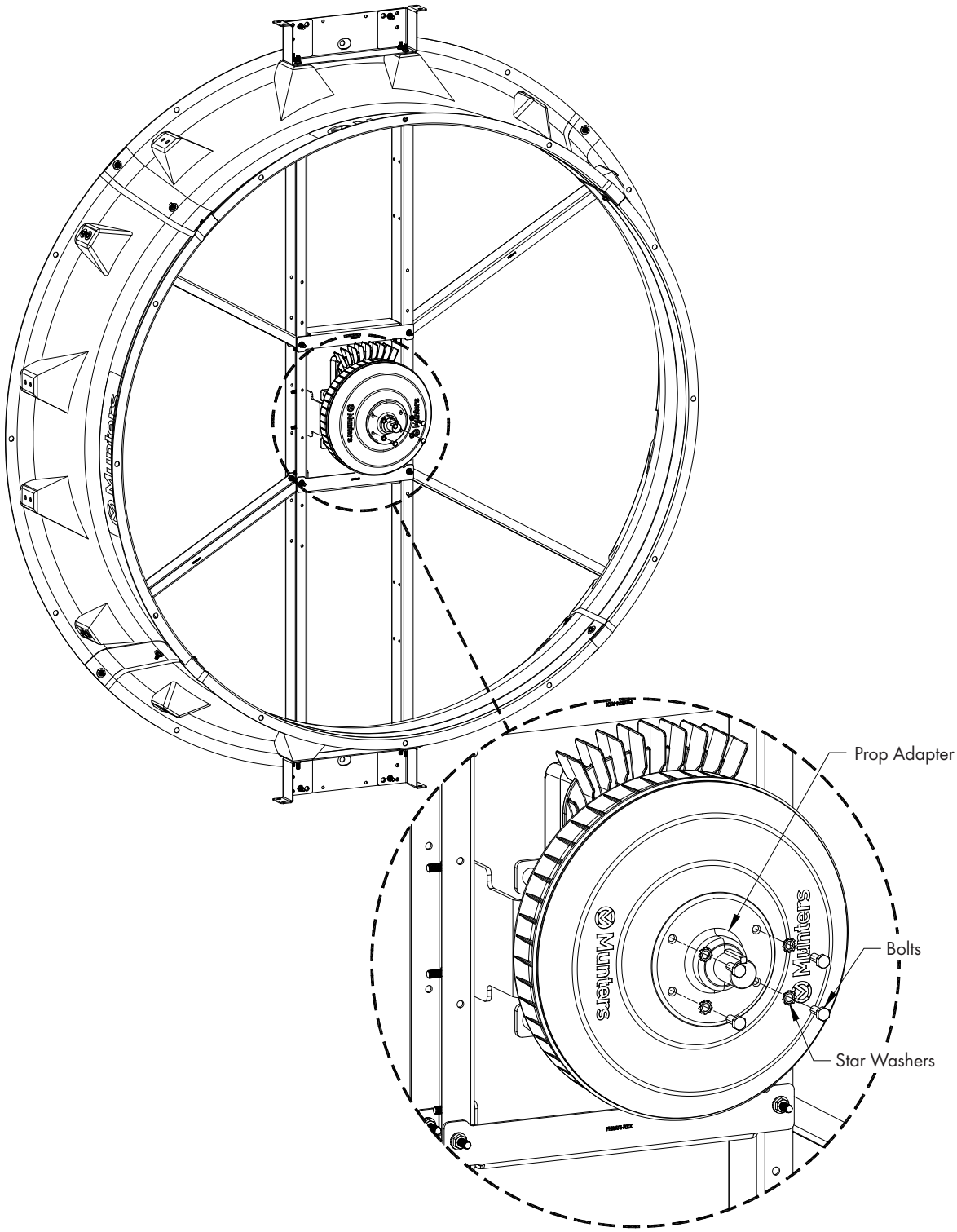


Figure 16

Step 17

Remove the Motor/Drive assembly from the mounting bracket by removing the (4) bolts and star washers holding the Motor/Drive to the brackets. Motor/Drive assembly, make sure to support it while removing bolts so it does not fall and damage the fan housing or Motor/Drive. *See Figure 17.* If you were instructed by Munters office to send the old Motor/Drive back to the office, repack it in the box that new Motor/Drive came in to send back.

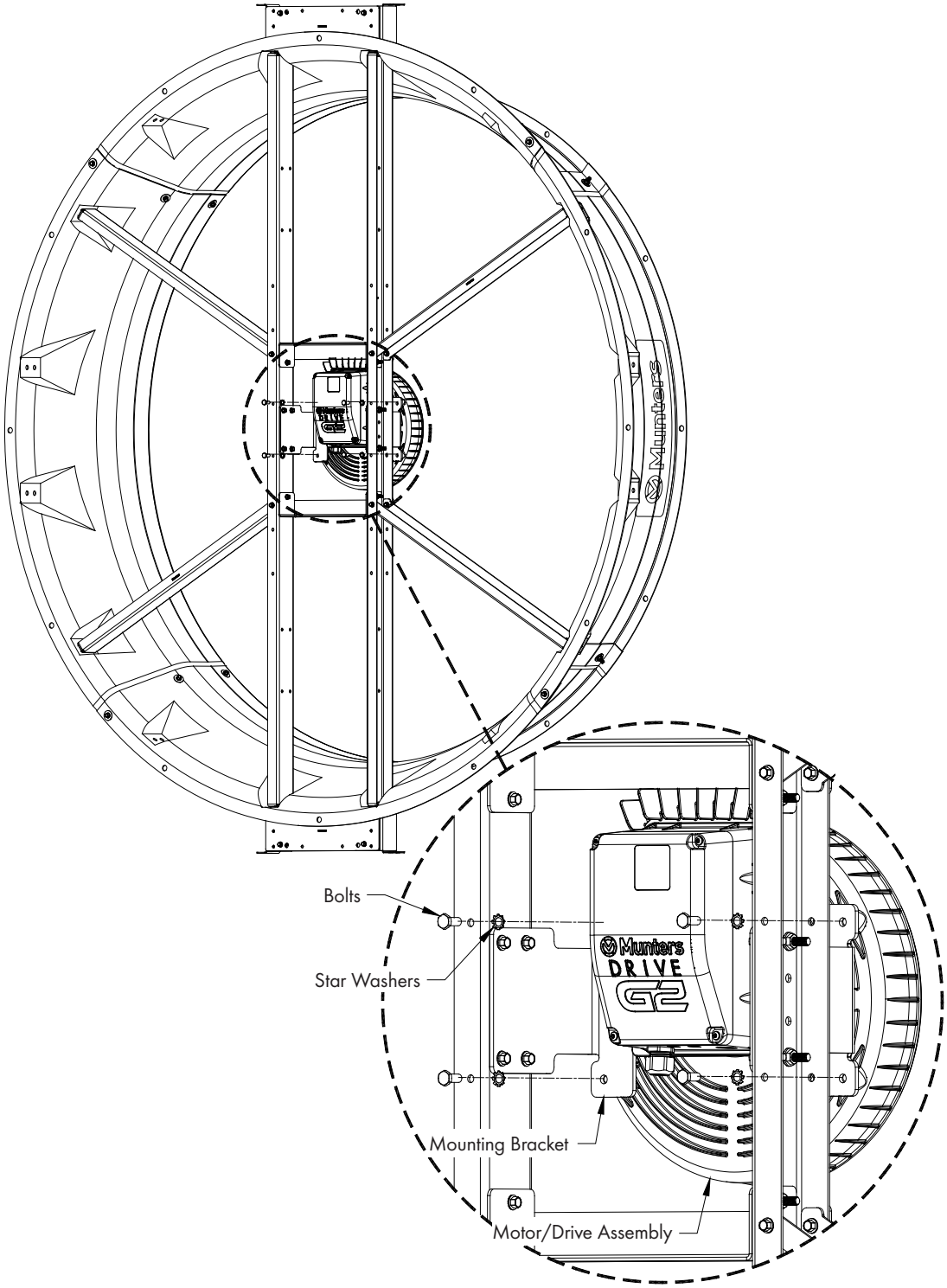


Figure 17

Step 18

Carefully lift Motor/Drive into place and secure in place using (4) Bolts [A]. Tighten Bolts to 60 in-lbs. [6.8 Nm] of torque. *See Figure 18.*

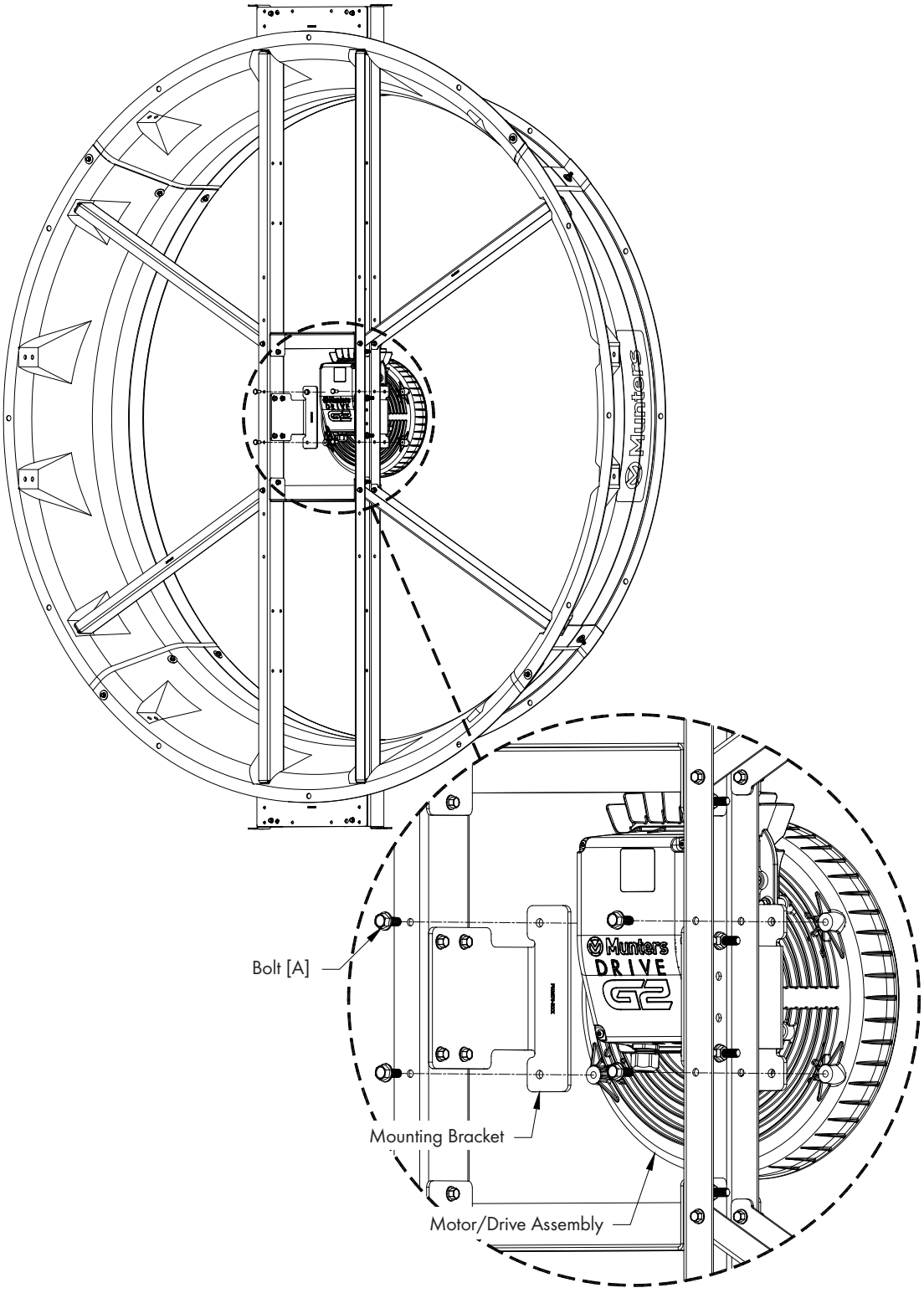


Figure 18

Step 19

Attach the Prop Adapter removed in Step 16 to new Motor/Drive using (4) new Bolts [A]. Tighten Bolts to 60 in-lbs. [6.8 Nm] of torque. *See Figure 19.*

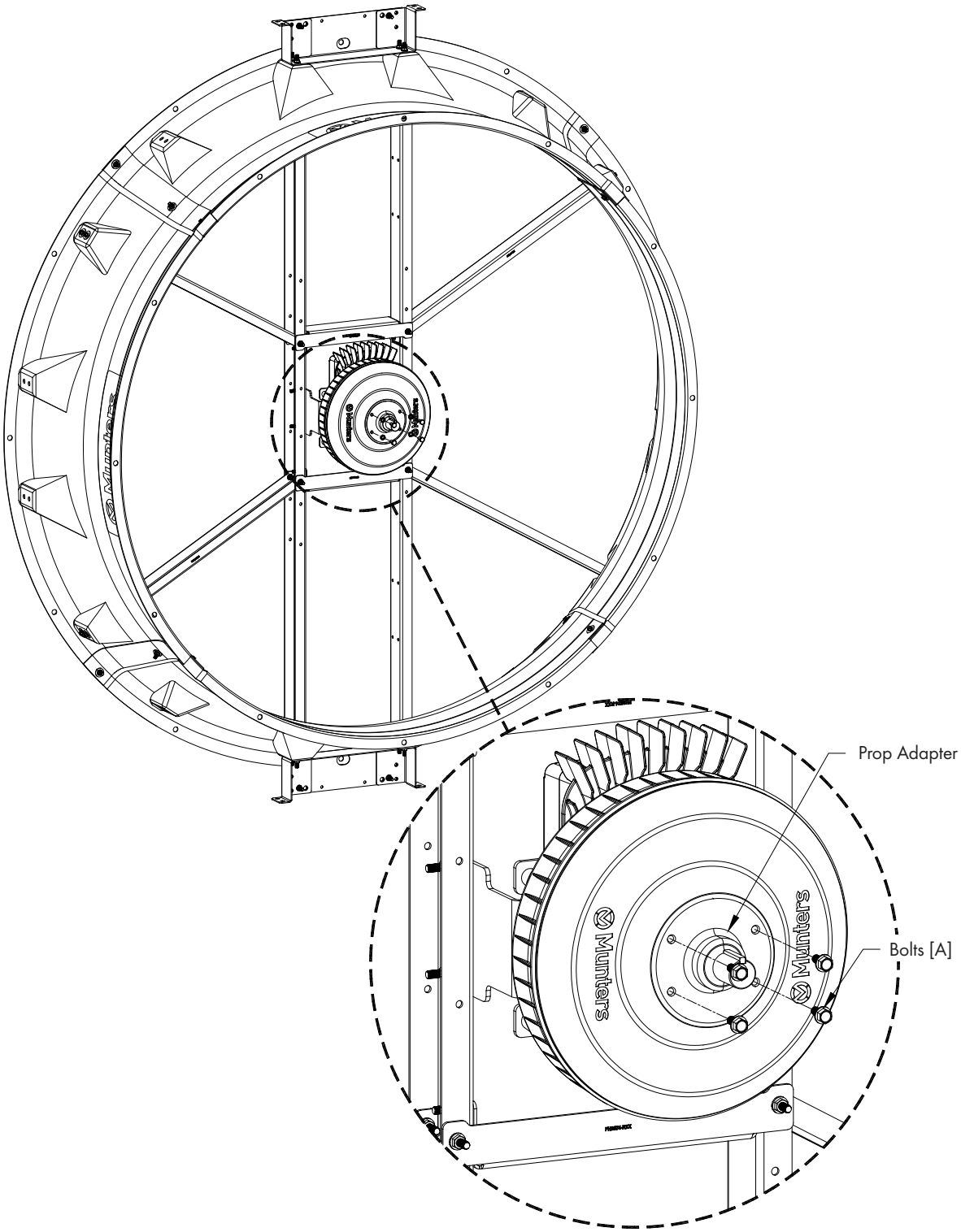


Figure 19

Step 20

Reinstall propeller onto the reinstalled Prop Adapter, replacing the key removed in Step 5. Tighten the Set Screw to 80 in-lbs. [9.0 Nm] of torque. *See Figure 20.*

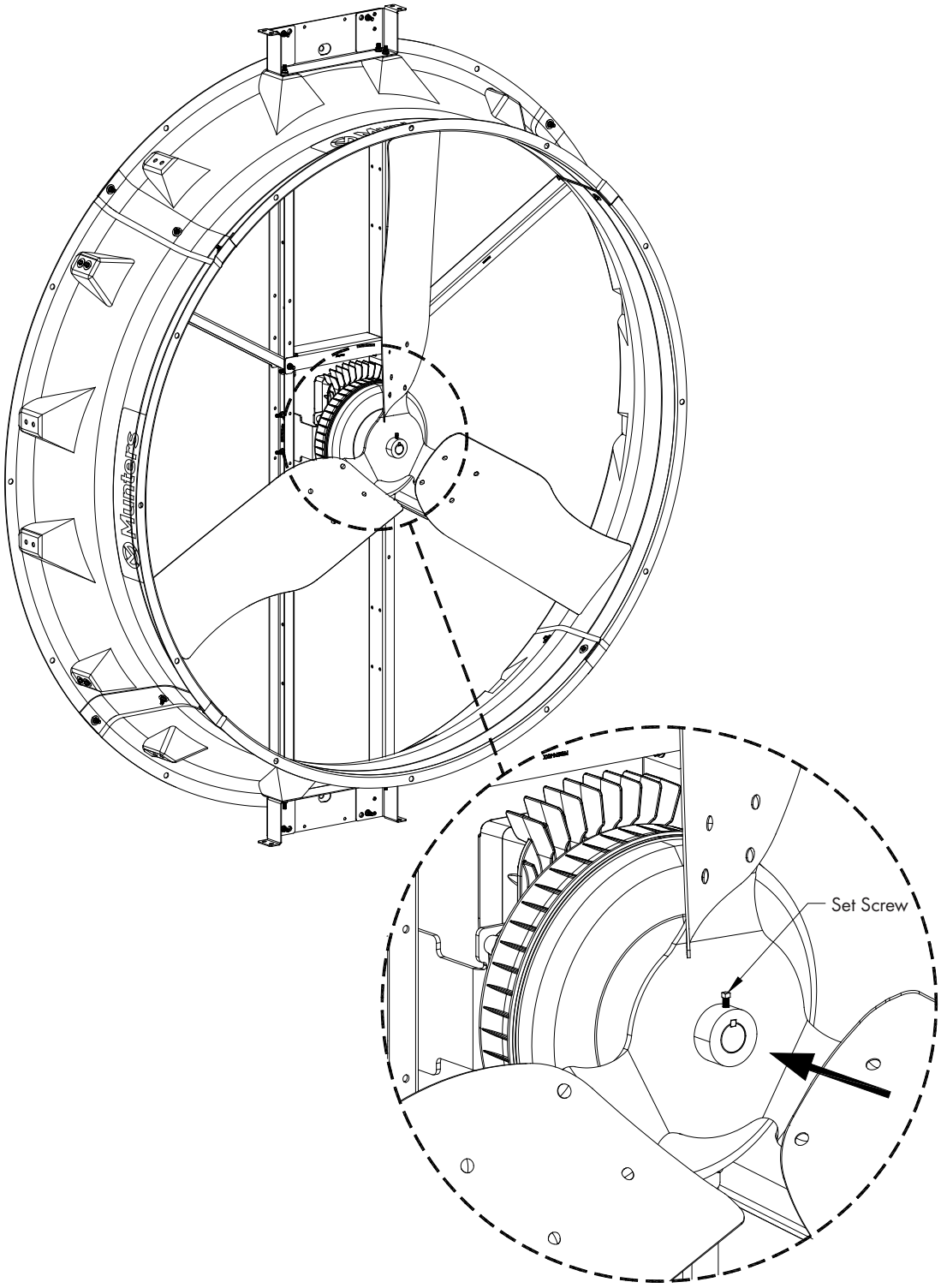


Figure 20

Step 21

Loosen the (4) captured screws in the Munters Drive Box cover to access the drive terminals. Reconnect the 3 phase power and the control wires per the note or photo taken in Step 3. *See Figure 21.* If needed refer to Chapter 3, Page 27, CX74 wiring section for wiring options. If the guards were removed in Step 13, reinstall them at this time.

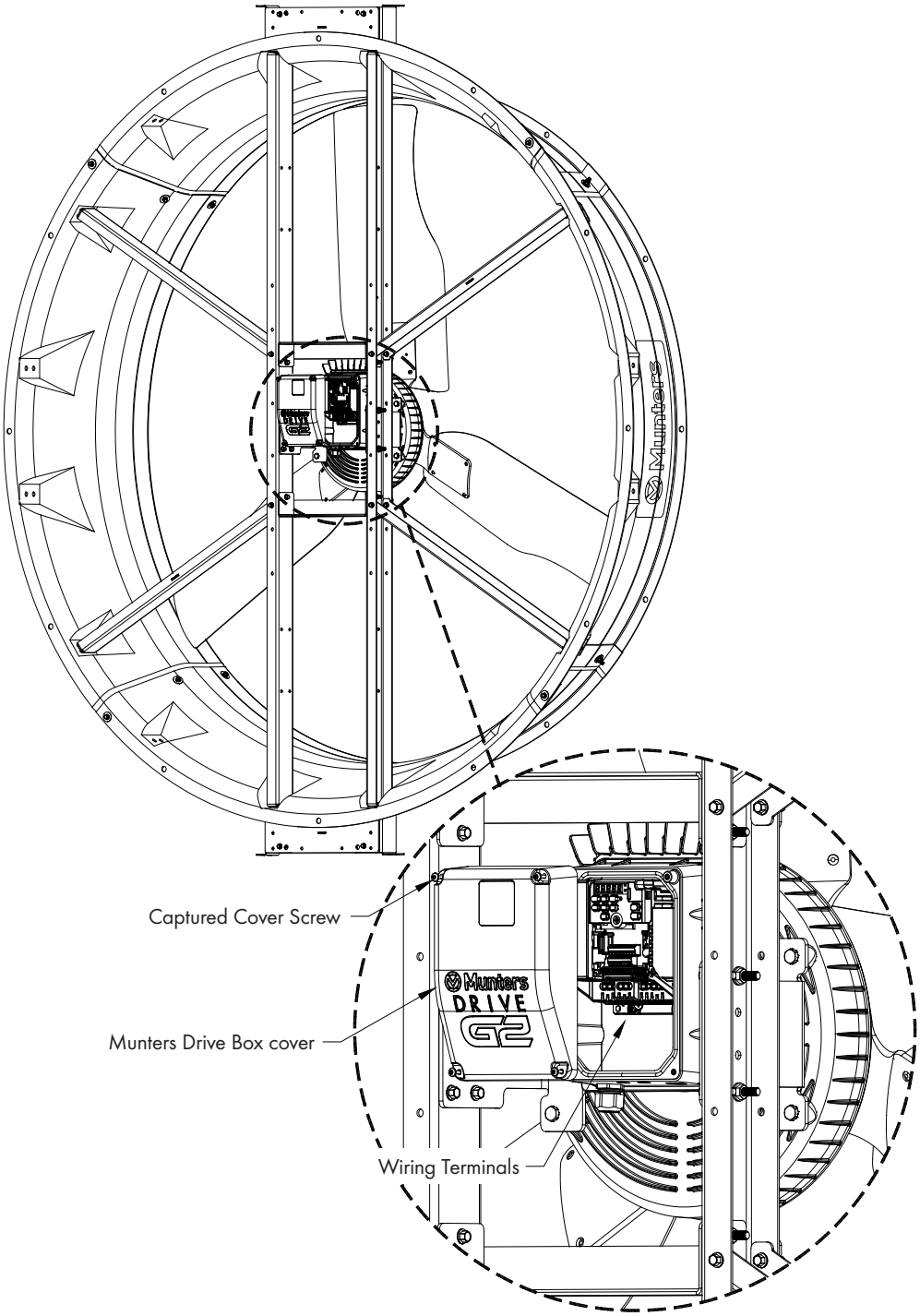


Figure 21

Electrical Wiring

3.

3.1 Atlas 74 GA500 Drive Wiring

Reconnect the 3 phase power to the drive as shown in *Figure 22.* Then using *Figures 23 - 29,* rewire the control terminals as they were previously wired.

Three Phase Power connection:

Run the 3 phase power cable through watertight fitting into the Munters Drive box and connect to the terminals "R/L1, S/L2, T/L3" and Ground in the box. *See Figure 22.* The Munters Drive is prewired to the Motor.

******* NOTE *******

Power to the Drive must be within -4%, +8% of nominal voltage.

Munters Recommended;
Absolute Minimum Voltage = 440V
Absolute Maximum Voltage = 500V

Munters Recommends Line to Line Voltage Unbalance to be 1% or less per NEMA MG-1-1998. Absolute maximum unbalance is 1.5%.

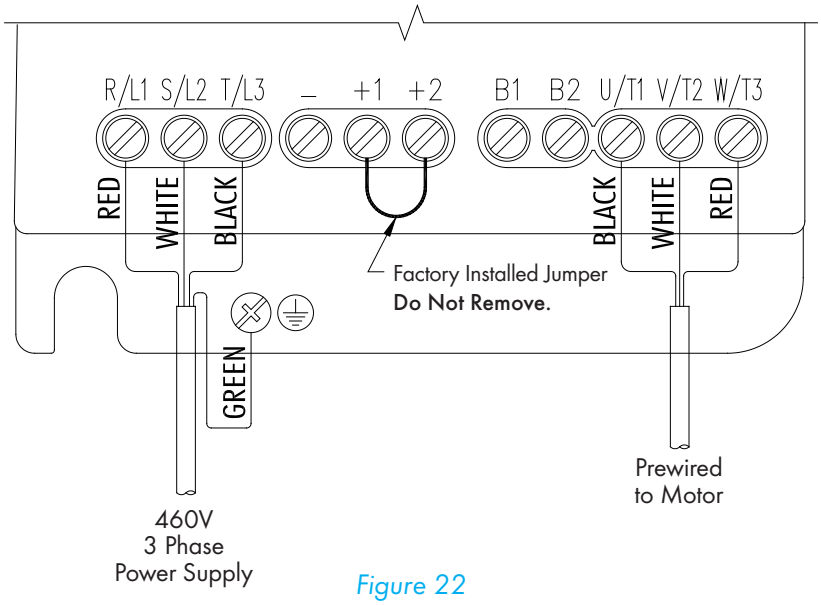


Figure 22

Fan Operation with No Control - GA500

To operate the fan continuously with no control, provide a Jumper wires between terminals 'S1' and 'SN'. *See Figure 23.* Do not remove the Factory Installed Jumpers.

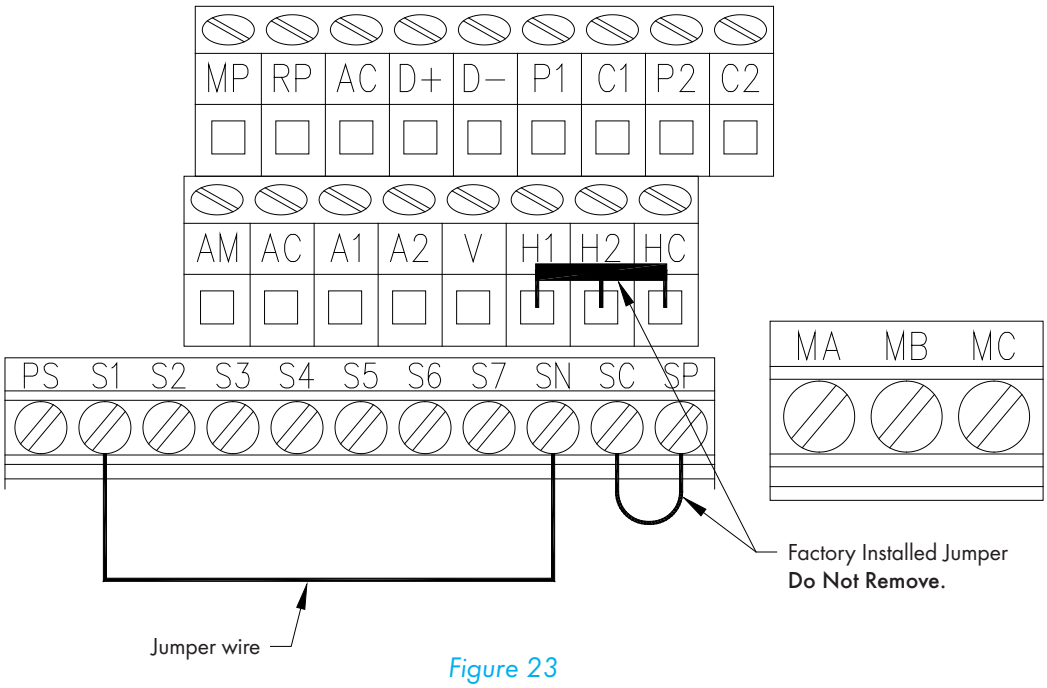


Figure 23

Fan Operation On/Off with Control - GA500

To operate the fan On/Off with a control, wire an 'ON' command from the 'SN' terminal to the input relay in the control and from the output of the control relay to the 'S1' terminal. *See Figure 24.* Do not remove the Factory Installed Jumpers.

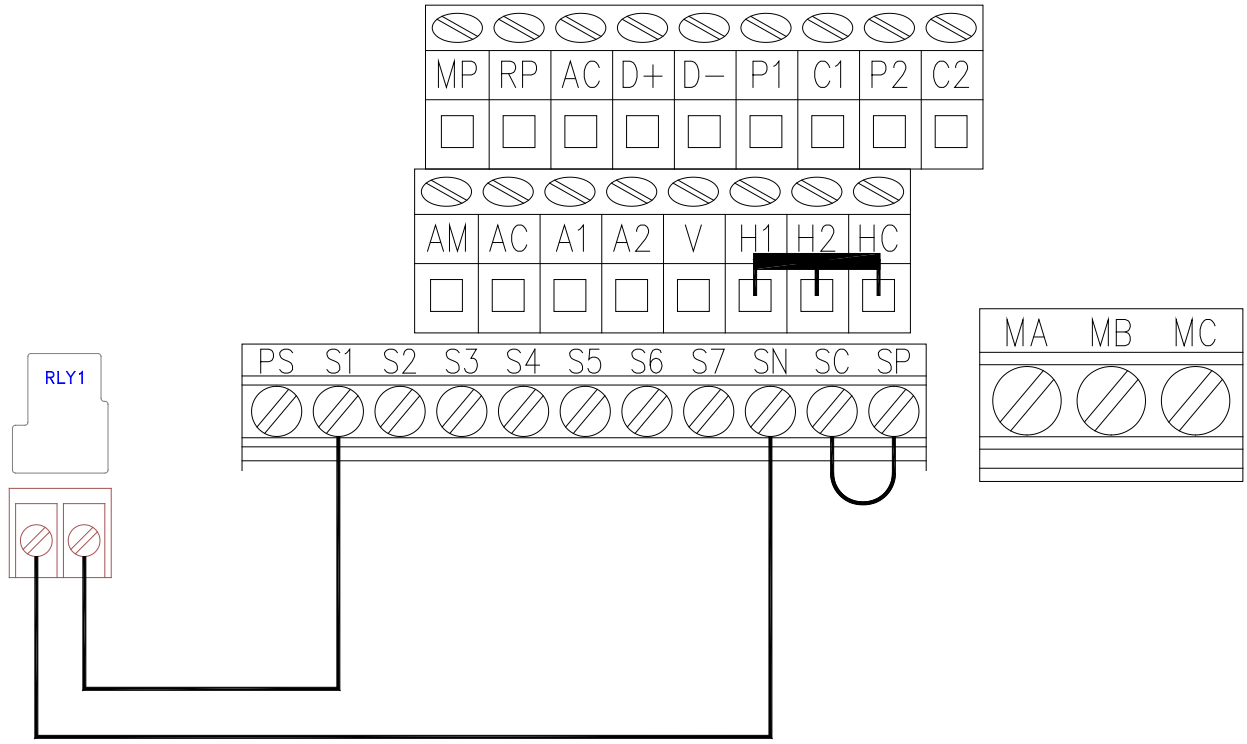


Figure 24

Fan Operation Off/Low/High - GA500

To operate the fan Off/Low/High with a control, connect a wire from 'SN' terminal to the input side of the 'ON' relay in the control, then install a jumper from the input side of the 'ON' relay to the input side of the 'LOW' relay in the control. Then connect a wire from 'S1' terminal to the output side of the 'ON' relay and then connect a wire from the 'S7' terminal to the ouput side of the 'LOW' relay. *See Figure 25.* Do not remove the Factory Installed Jumper.

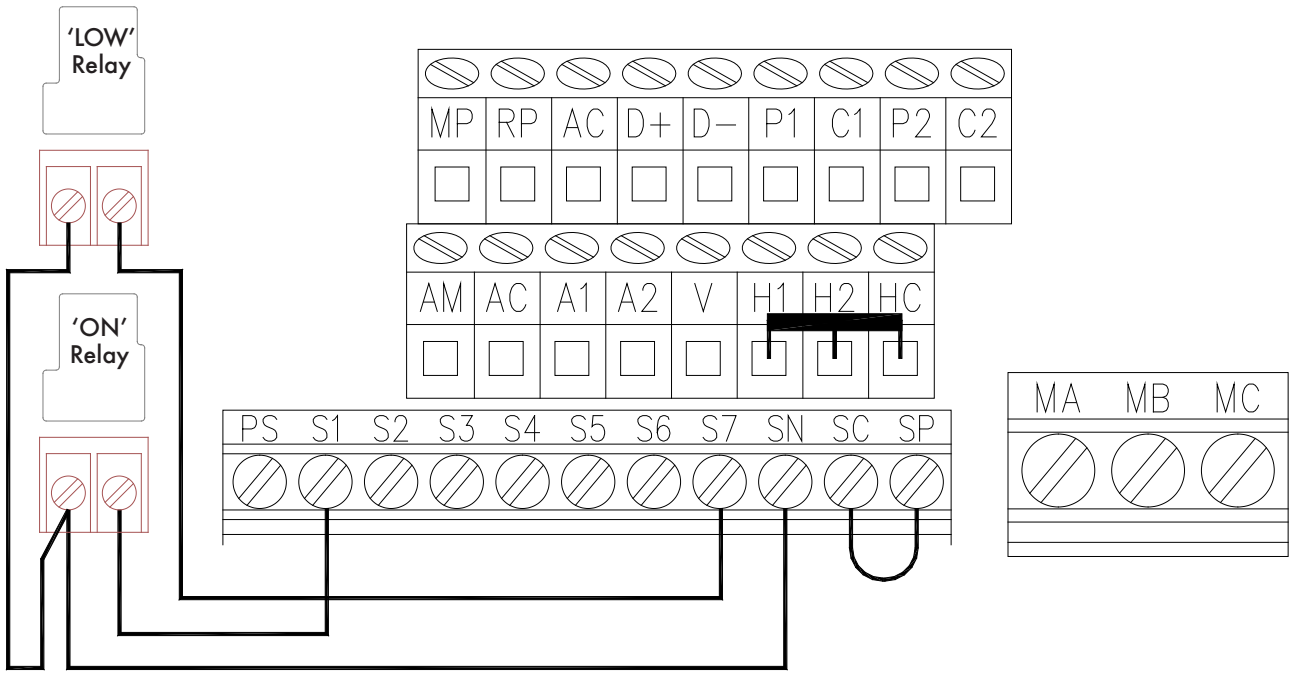
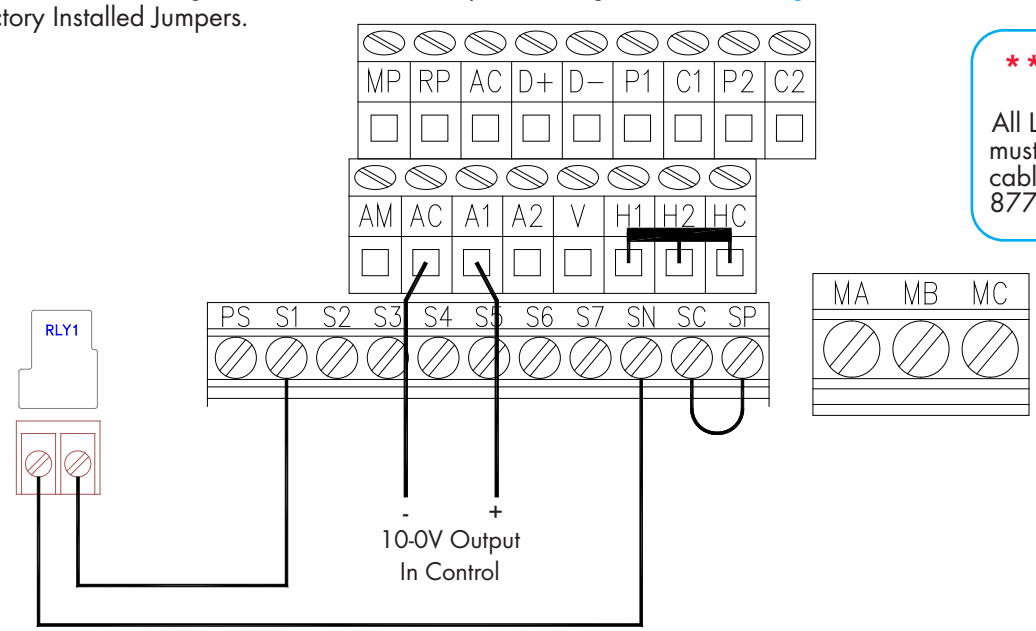


Figure 25

Fan Operation Off/Variable with 10-0V Signal - GA500

To operate the fan Off/Variable with a 10-0V Signal, wire an 'ON' command from the 'SN' terminal to the input relay in the control and from the output of the control relay to the 'S1' terminal. Then connect wires from the 10-0V output in the control to the 'A1' and 'AC' terminals in the Munters Drive Box. The '+' output in the control shoud go to 'A1' and the ' - ' output should go to 'AC'. *See Figure 26.* Do not remove the Factory Installed Jumpers.



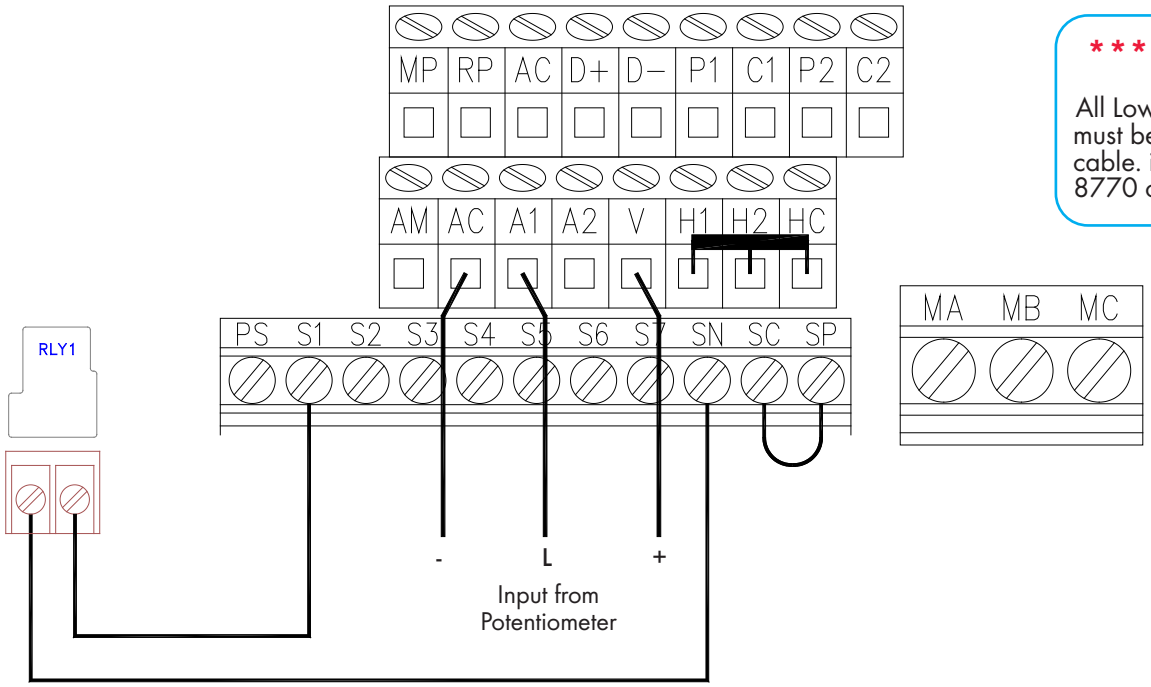
NOTE

All Low Voltage wire must be shielded cable. i.e. Belden 8770 or equivalent.

Figure 26

Fan Operation Off/Variable with Potentiometer - GA500

To operate the fan Off/Variable with a signal from a potemtiometer, wire an 'ON' command from the 'SN' terminal to the input relay in the control and from the output of the control relay to the 'S1' terminal. Then connect wires from the Potentiometer as follows, connect ' - ' to 'AC', connect 'L' to 'A1' and connect '+' to 'V'. *See Figure 27.* Do not remove the Factory Installed Jumpers.



NOTE

All Low Voltage wire must be shielded cable. i.e. Belden 8770 or equivalent.

Figure 27

Alarm Connections - GA500

The Munters Drive uses a Normally Closed circuit for alarm connections. To connect a control to the Normally Closed output make appropriate connecions from the control to 'MB' and 'MC' terminals. *See Figure 28.* Do not remove the Factory Installed Jumbers.

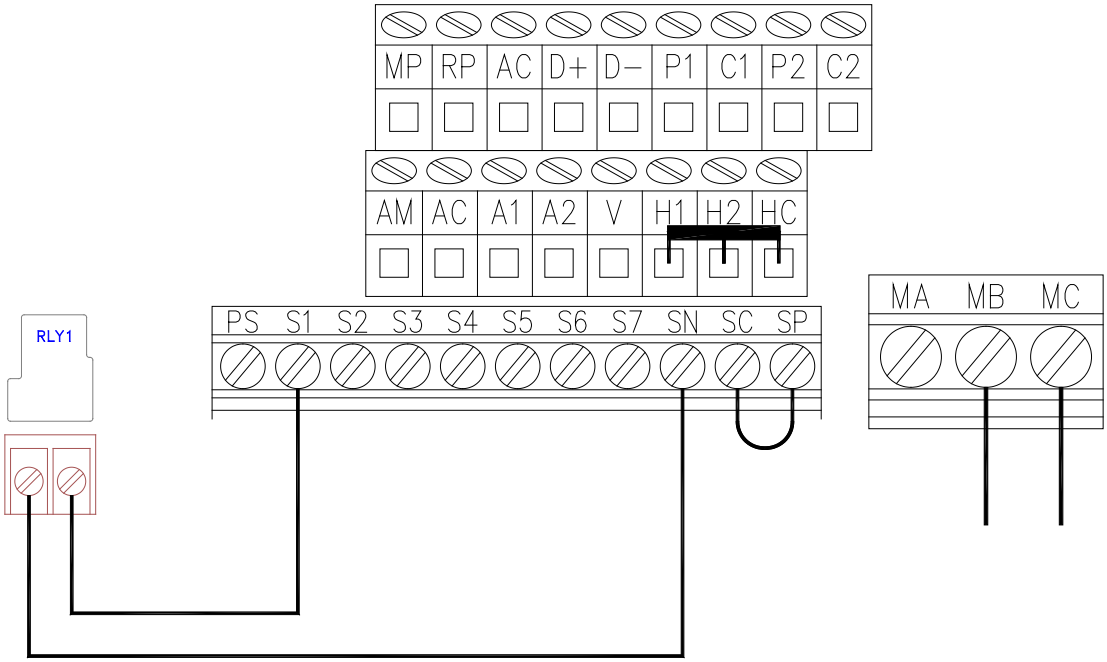


Figure 28

3.2 CX74 Drive Wiring

Determining Drive type for wiring

To access the Drive, loosen the (4) screws in the cover of the Munters Drive box to access the terminals inside to connect power and other cables. If your drive looks like *Figure 29A*, then proceed to the wiring section starting on **Page 28**. *See Figure 29A.* If your drive looks like *Figure 29B*, then proceed to the wiring section starting on **Page 31**. *See Figure 29B.*

Figure 29A
V1000 Drive proceed to Page 28

Figure 29B
GA500 Drive proceed to Page 31

Three Phase Power connection - V1000:

Run the 3 phase power cable through watertight fitting into the Munters Drive box and connect to the terminals "R/L1, S/L2, T/L3" and Ground in the box. *See Figure 30.* The Munters Drive is prewired to the Motor.

******* NOTE *******

Power to the Drive must be within -4%, +8% of nominal voltage.

Munters Recommended;
Absolute Minimum Voltage = 440V
Absolute Maximum Voltage = 500V

Munters Recommends Line to Line Voltage Unbalance to be 1% or less per NEMA MG-1-1998. Absolute maximum unbalance is 1.5%.

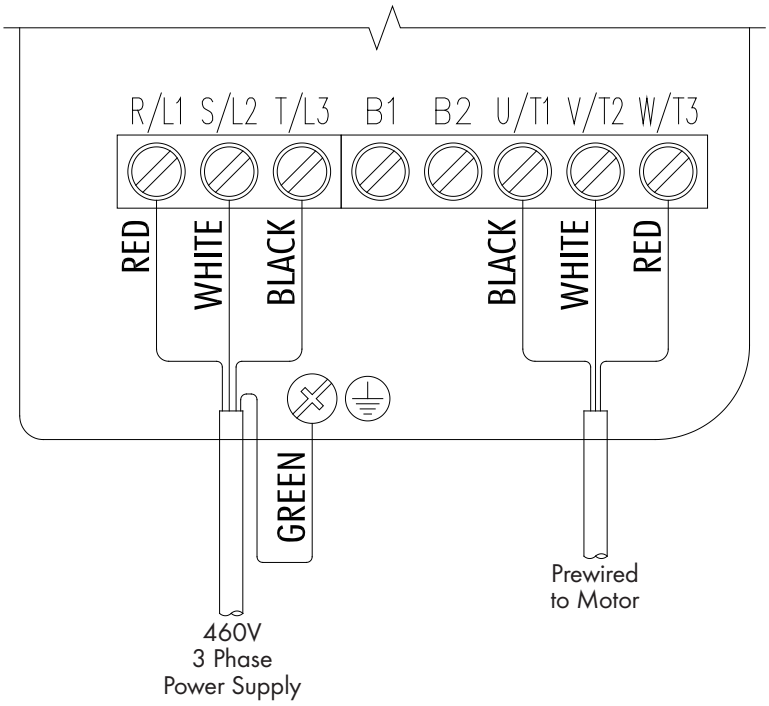


Figure 30

Fan Operation with No Control - V1000

To operate the fan continuously with no control, provide a Jumper wires between terminals 'S1' and 'SC'. *See Figure 31.* Do not remove the Factory Installed Jumper.

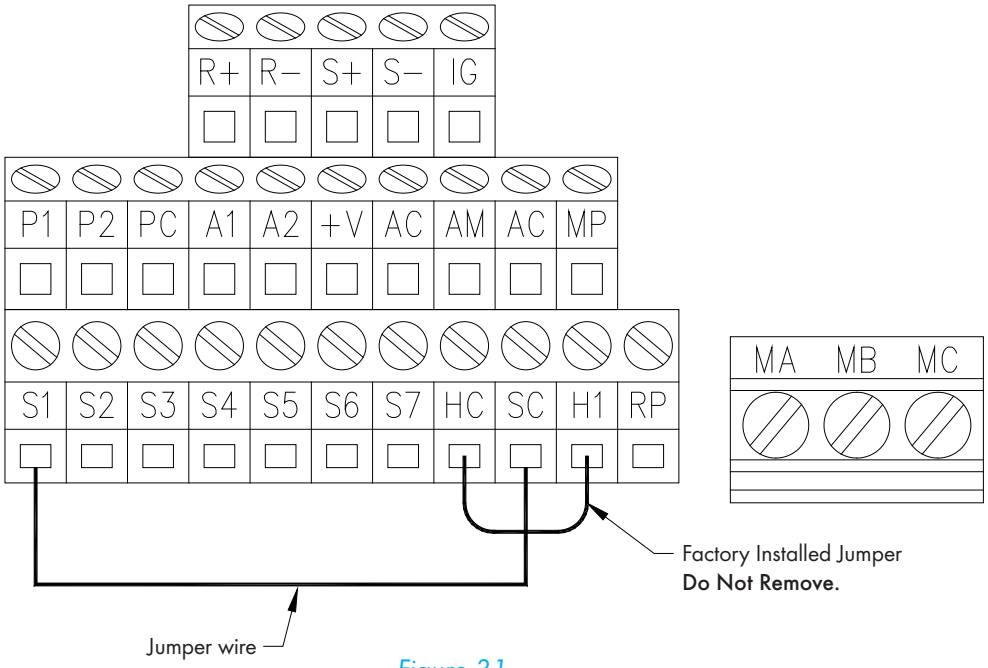


Figure 31

Fan Operation On/Off with Control - V1000

To operate the fan On/Off with a control, wire an 'ON' command from the 'SC' terminal to the input relay in the control and from the output of the control relay to the 'S1' terminal. *See Figure 32.* Do not remove the Factory Installed Jumper.

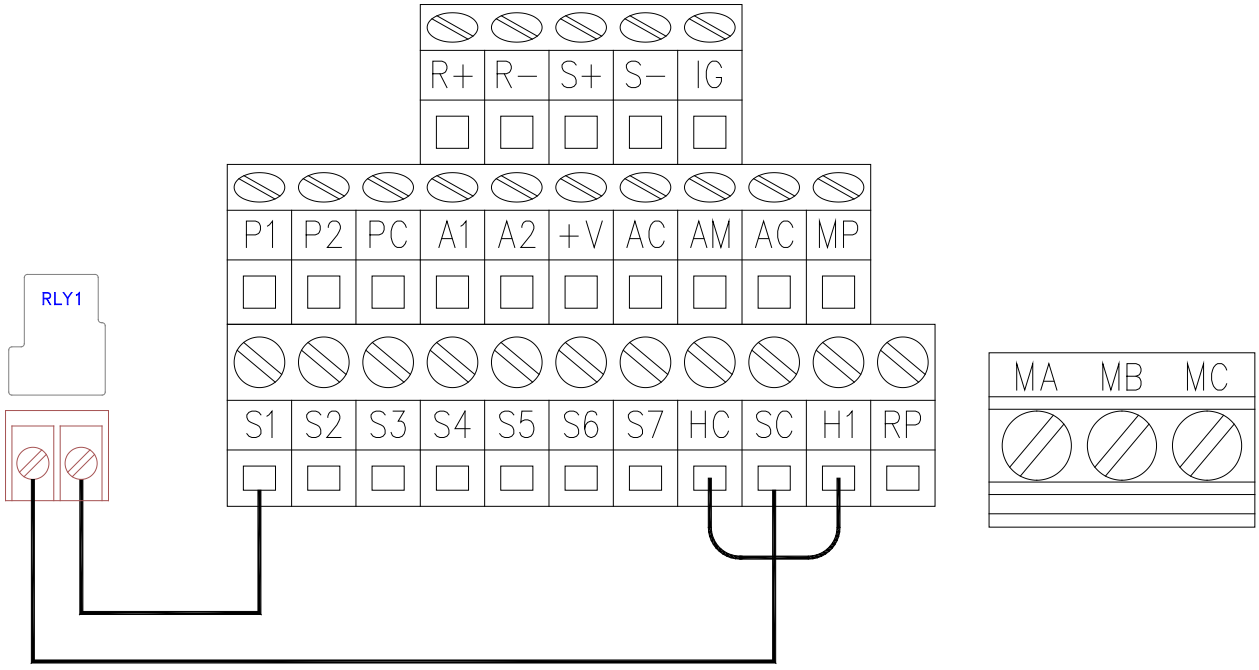


Figure 32

Fan Operation Off/Low/High - V1000

To operate the fan Off/Low/High with a control, connect a wire from 'SC' terminal to the input side of the 'ON' relay in the control, then install a jumper from the input side of the 'ON' relay to the input side of the 'LOW' relay in the control. Then connect a wire from 'S1' terminal to the output side of the 'ON' relay and then connect a wire from the 'S7' terminal to the ouput side of the 'LOW' relay. *See Figure 33.* Do not remove the Factory Installed Jumper.

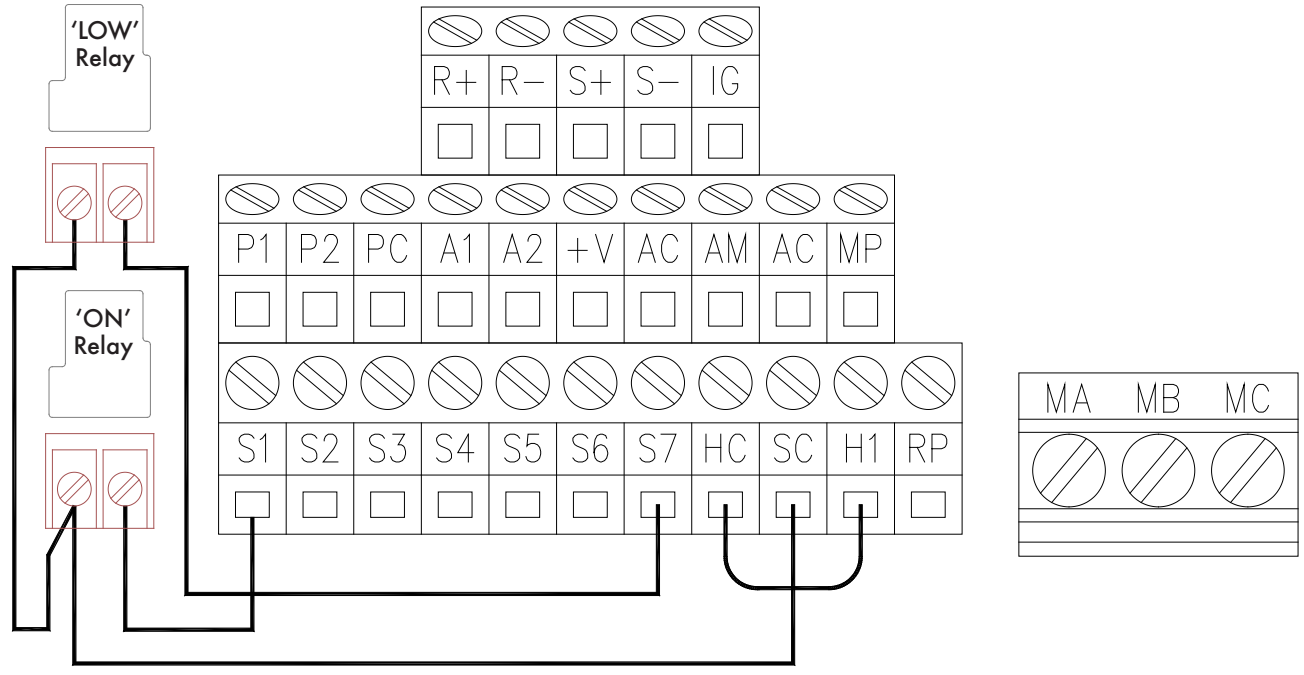


Figure 33

Fan Operation Off/Variable with 10-0V Signal - V1000

To operate the fan Off/Variable with a 10-0V Signal, wire an 'ON' command from the 'SC' terminal to the input relay in the control and from the output of the control relay to the 'S1' terminal. Then connect wires from the 10-0V output in the control to the 'A1' and 'AC' terminals in the Munters Drive Box. The '+' output in the control shoud go to 'A1' and the ' - ' output should go to 'AC'. *See Figure 34.* Do not remove the Factory Installed Jumpers.

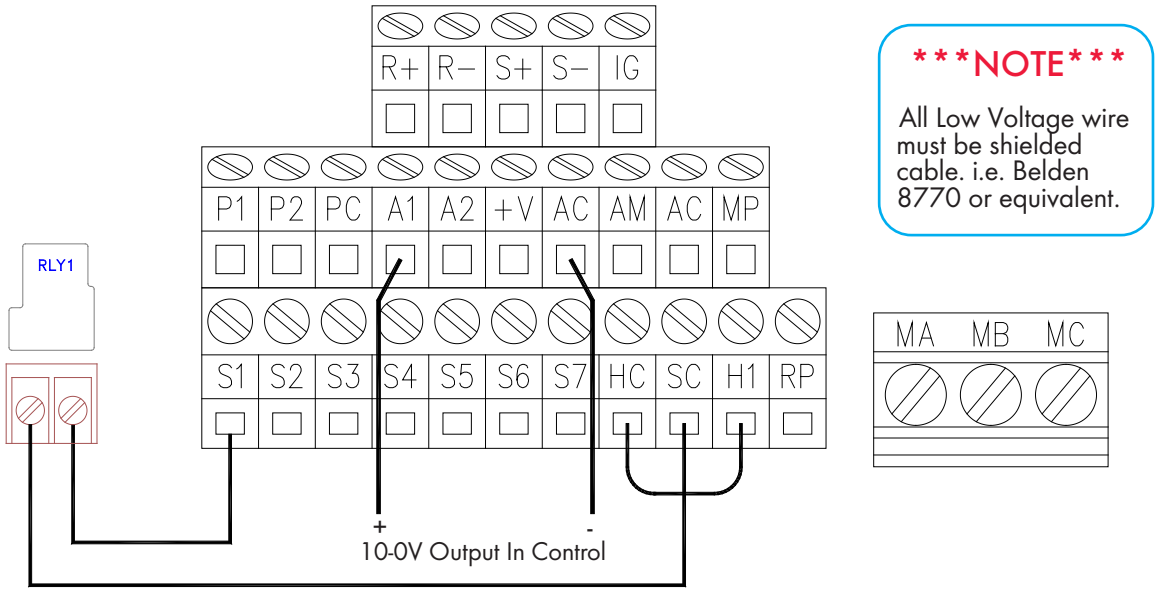


Figure 34

Fan Operation Off/Variable with Potentiometer - V1000

To operate the fan Off/Variable with a signal from a potemtiometer, wire an 'ON' command from the 'SC' terminal to the input relay in the control and from the output of the control relay to the 'S1' terminal. Then connect wires from the Potentiometer as follows, connect ' - ' to 'AC', connect 'L' to 'A1' and connect '+' to '+V'. *See Figure 35.* Do not remove the Factory Installed Jumpers.

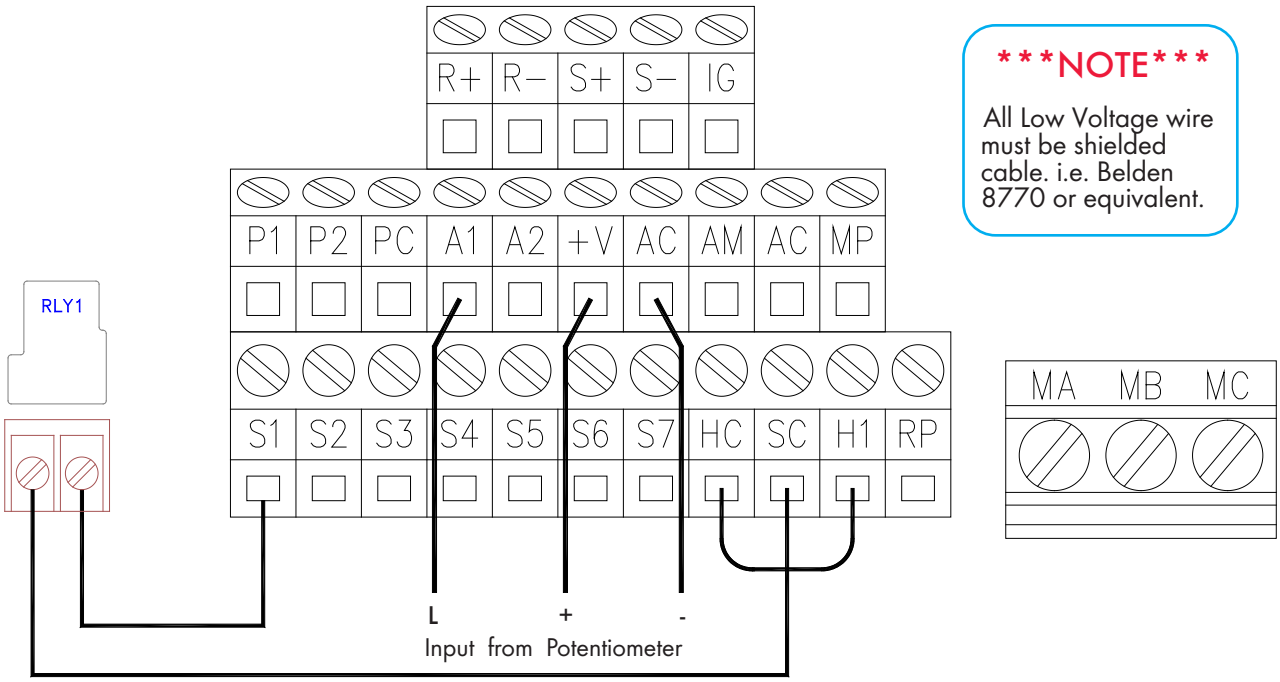


Figure 35

Alarm Connections - V1000

The Munters Drive uses a Normally Closed circuit for alarm connections. To connect a control to the Normally Closed output make appropriate connecions from the control to 'MB' and 'MC' terminals. *See Figure 36.* Do not remove the Factory Installed Jumbers.

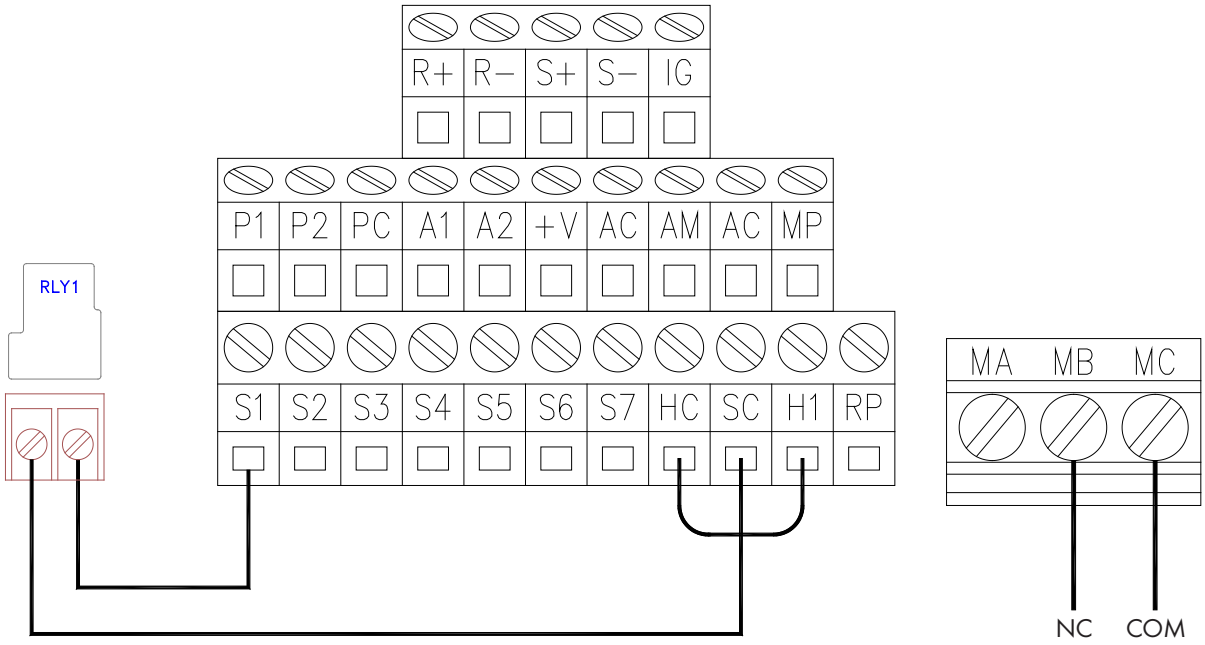


Figure 36

Three Phase Power connection - GA500:

Run the 3 phase power cable through watertight fitting into the Munters Drive box and connect to the terminals "R/L1, S/L2, T/L3" and Ground in the box. *See Figure 37.* The Munters Drive is prewired to the Motor.

******* NOTE *******

Power to the Drive must be within -4%, +8% of nominal voltage.

Munters Recommended;
Absolute Minimum Voltage = 440V
Absolute Maximum Voltage = 500V

Munters Recommends Line to Line Voltage Unbalance to be 1% or less per NEMA MG-1-1998. Absolute maximum unbalance is 1.5%.

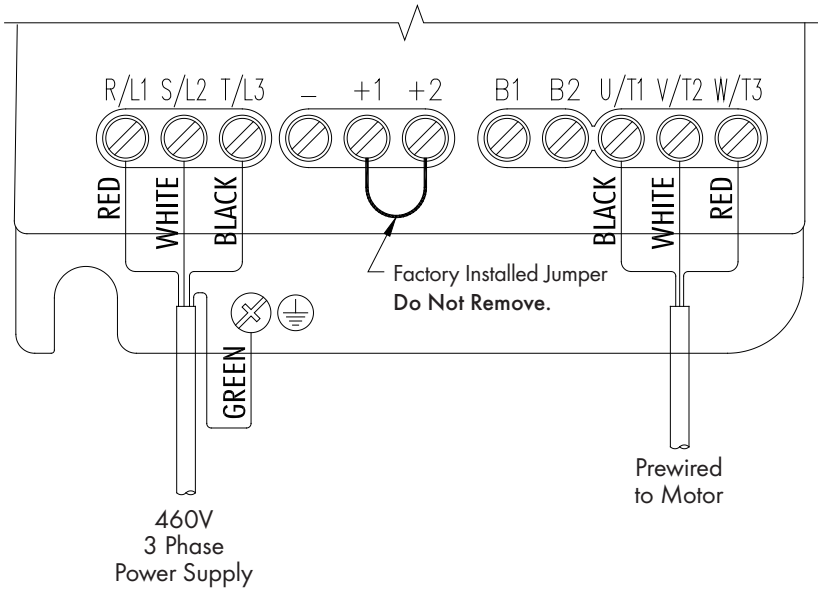


Figure 37

Fan Operation with No Control - GA500

To operate the fan continuously with no control, provide a Jumper wires between terminals 'S1' and 'SN'. *See Figure 38.* Do not remove the Factory Installed Jumpers.

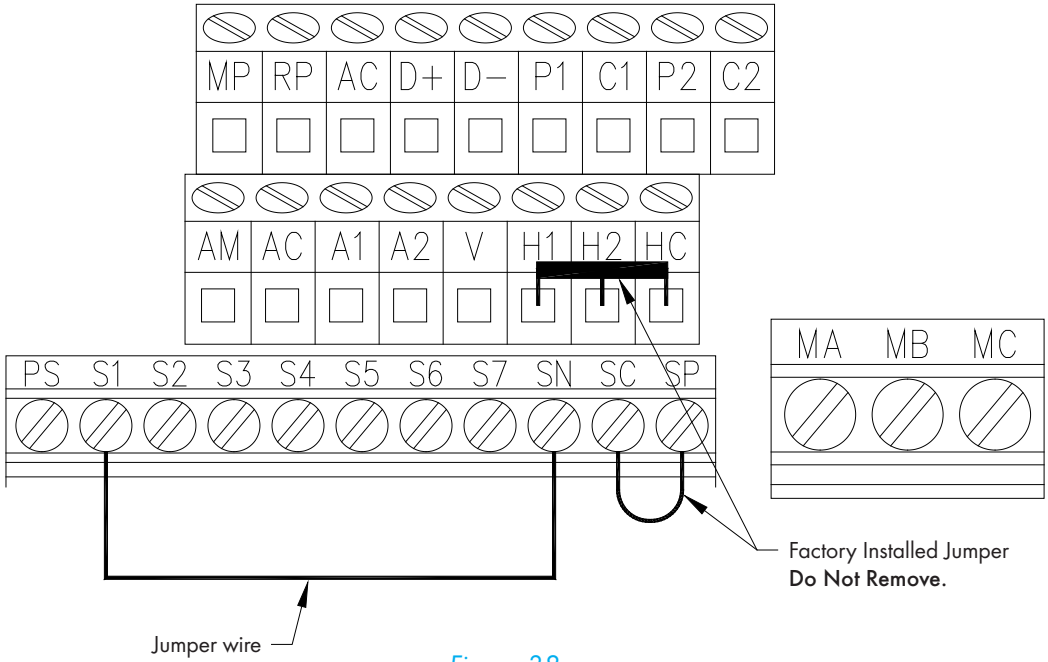


Figure 38

Fan Operation On/Off with Control - GA500

To operate the fan On/Off with a control, wire an 'ON' command from the 'SN' terminal to the input relay in the control and from the output of the control relay to the 'S1' terminal. *See Figure 39.* Do not remove the Factory Installed Jumpers.

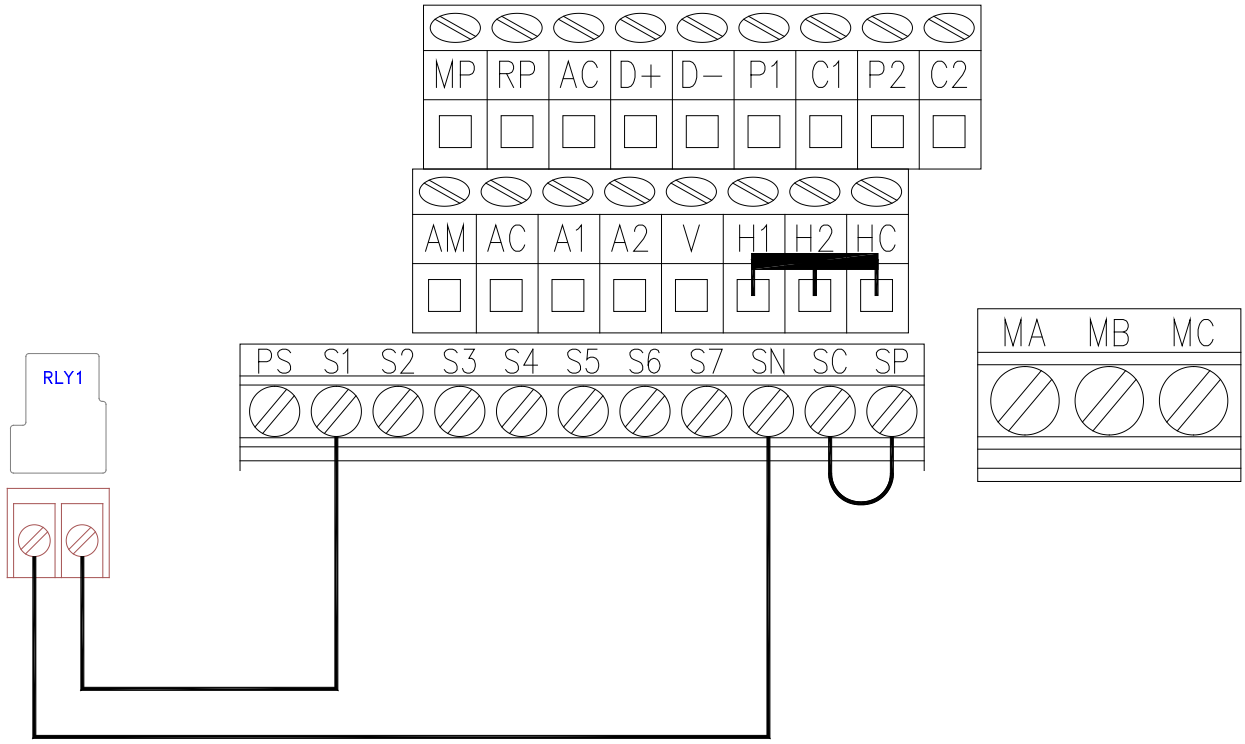


Figure 39

Fan Operation Off/Low/High - GA500

To operate the fan Off/Low/High with a control, connect a wire from 'SN' terminal to the input side of the 'ON' relay in the control, then install a jumper from the input side of the 'ON' relay to the input side of the 'LOW' relay in the control. Then connect a wire from 'S1' terminal to the output side of the 'ON' relay and then connect a wire from the 'S7' terminal to the ouput side of the 'LOW' relay. *See Figure 40.* Do not remove the Factory Installed Jumper.

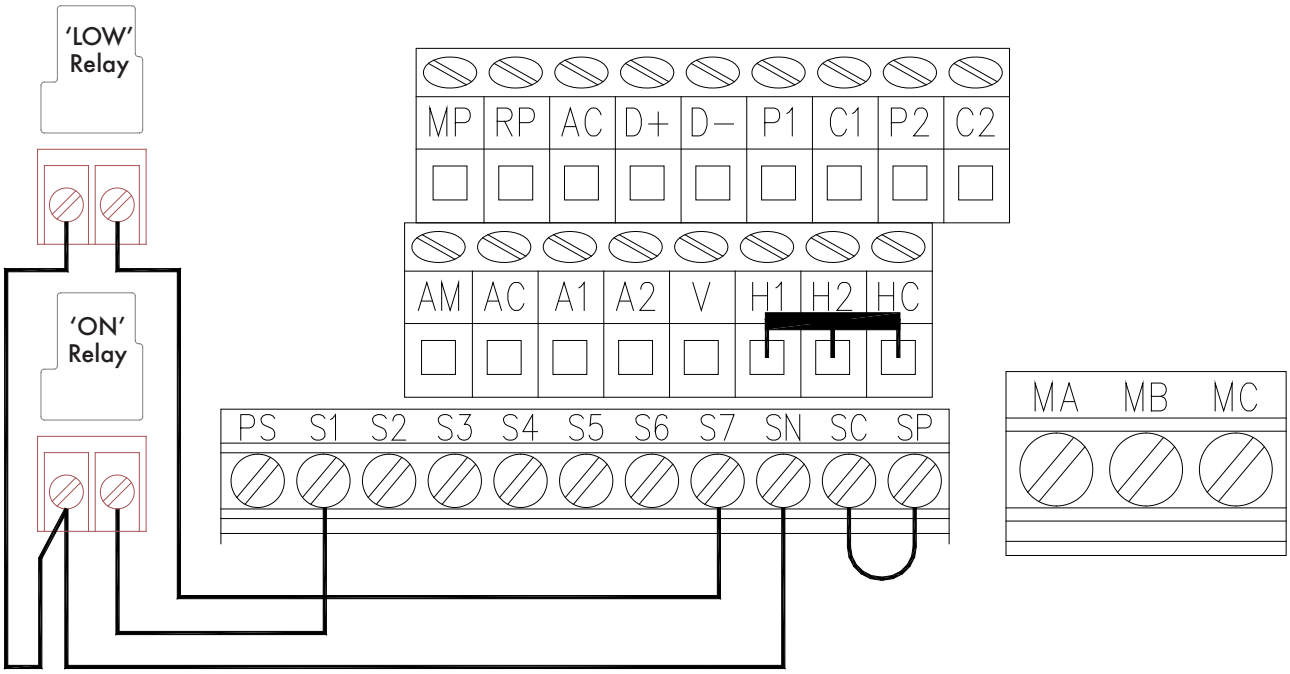
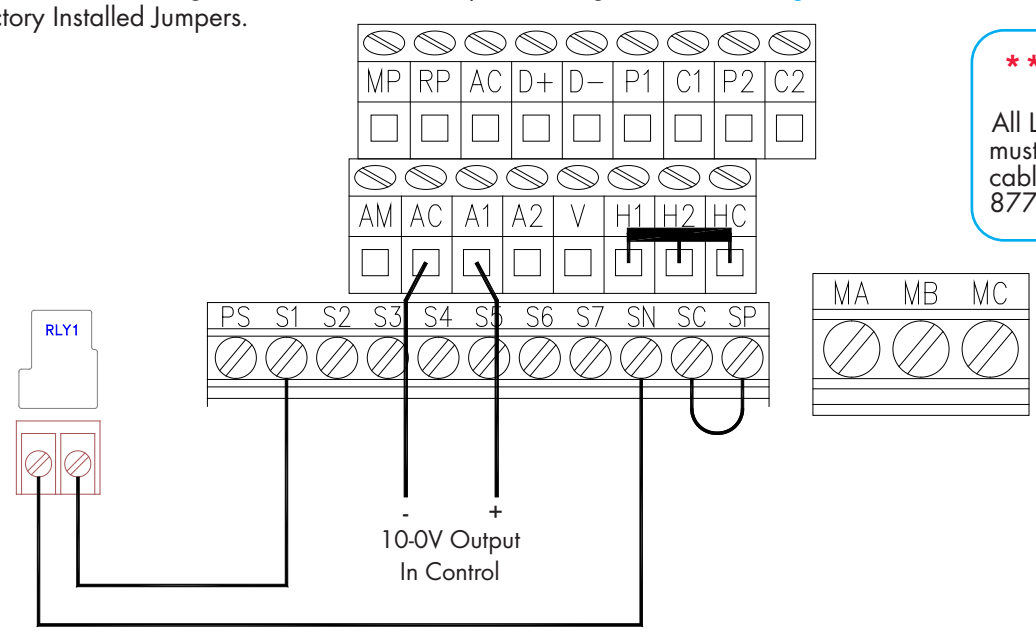


Figure 40

Fan Operation Off/Variable with 10-0V Signal - GA500

To operate the fan Off/Variable with a 10-0V Signal, wire an 'ON' command from the 'SN' terminal to the input relay in the control and from the output of the control relay to the 'S1' terminal. Then connect wires from the 10-0V output in the control to the 'A1' and 'AC' terminals in the Munters Drive Box. The '+' output in the control shoud go to 'A1' and the ' - ' output should go to 'AC'. *See Figure 41.* Do not remove the Factory Installed Jumpers.



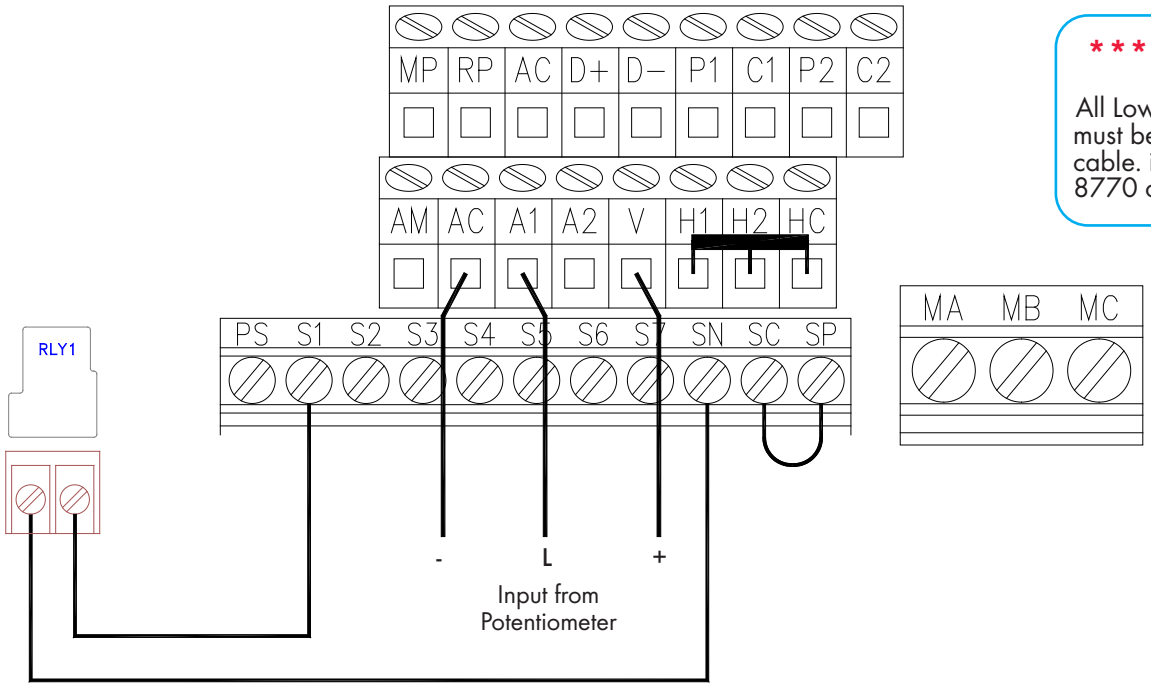
NOTE

All Low Voltage wire must be shielded cable. i.e. Belden 8770 or equivalent.

Figure 41

Fan Operation Off/Variable with Potentiometer - GA500

To operate the fan Off/Variable with a signal from a potemtiometer, wire an 'ON' command from the 'SN' terminal to the input relay in the control and from the output of the control relay to the 'S1' terminal. Then connect wires from the Potentiometer as follows, connect ' - ' to 'AC', connect 'L' to 'A1' and connect '+' to 'V'. *See Figure 42.* Do not remove the Factory Installed Jumpers.



NOTE

All Low Voltage wire must be shielded cable. i.e. Belden 8770 or equivalent.

Figure 42

Alarm Connections - GA500

The Munters Drive uses a Normally Closed circuit for alarm connections. To connect a control to the Normally Closed output make appropriate connecions from the control to 'MB' and 'MC' terminals. *See Figure 43.* Do not remove the Factory Installed Jumbers.

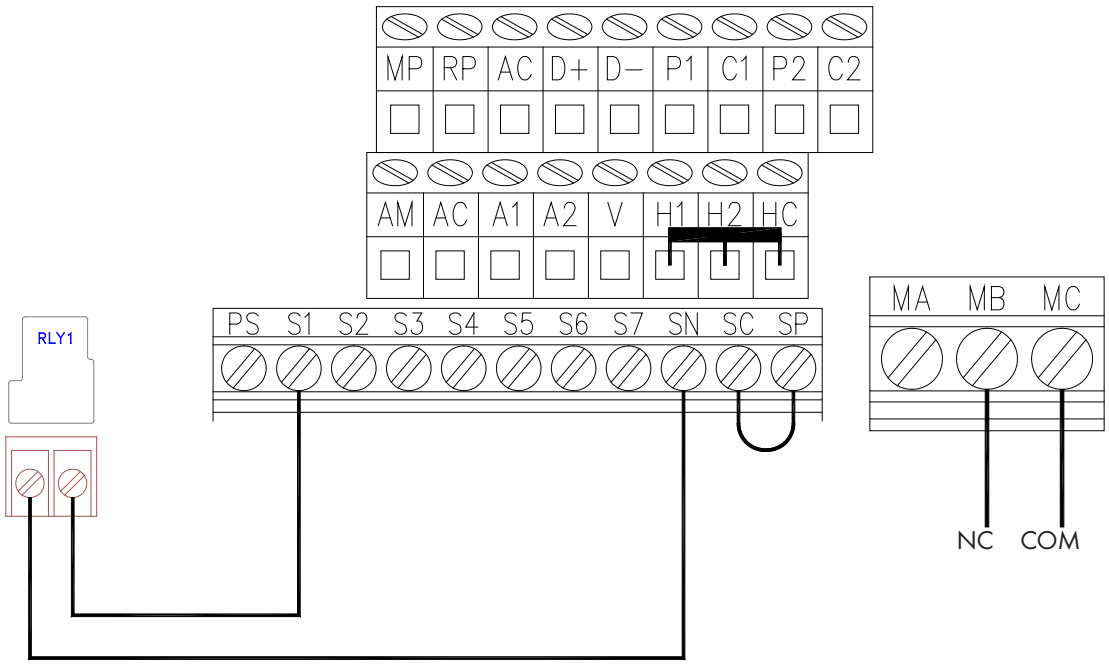


Figure 43

Troubleshooting

4.

4.1 Troubleshooting

SYMPTOM	POSSIBLE CAUSES	CORRECTIVE ACTION
• Fan Not Operating	• Fan control set above room temperature	• Set to a lower temperature
	• Blown Fuse or open circuit breaker	• Replace fuse or reset breaker
	• Propeller blade contacting fan housing	• Realign motor in fan housing
	• Fan control defective (i.e. environmental control, etc.)	• Repair or replace control
• Fan Does Not Start Caution: There is a 10 second delay for the fan to start when an 'On' command is present.	• Munters Drive motor/controller issue	1. Verify AC voltage is present at fan. 2. Turn AC power off to fan for 1 minute 3. Verify Prop turns freely a. If not contact Munters Product Support b. If it turns freely go to next step 4. Turn AC power back on to fan a. If starts up and runs, fan OK • Periodically observe fan to verify it is still running • If it continues to run, fan is OK • If fan stops, look through clear window in drive cover to check what drive display reads. Contact Munters Product Support b. If fan tries to start but stops, look through clear window in drive cover to check what drive display reads. Contact Munters Product Support c. If fan doesn't try to start, verify 'On' command signal is present at circuit board. Also, slide the switch on the circuit board to the 'On' position.
• Fan Operating - Insufficient Airflow	• Shutter or Damper door jammed	• Clean shutter or damper door
	• Guard dirty/clogged	• Clean guard
	• 10-0V signal set incorrectly	• Check and adjust 10-0V signal
• Excessive Noise	• Propeller blade contacting fan housing	• Sand fan housing to remove high spot
• Excessive Vibration	• Motor loose on mount	• Tighten fasteners
	• Propeller damaged	• Replace propeller

Munters Drive replacement kit is developed and produced by Munters Corporation, Lansing, Michigan U.S.A. 1-800-227-2376

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