Quality Industries Marinator

Step-by-step Assembly Instructions

Quality Industries

Precision Metal Fabrication since 1972

CUT WIRES AND ASSEMBLE END CONNECTORS FOR THE FINAL ASSEMBLY AS FOLLOWS:

902416 Green/Yellow, **#16 stranded wire, copper.**

1.) 1 pc. 12in. with (1) R4B-14 & (1) A1440-ND Male Pin.

902604 Brown, **#16 stranded wire, copper.**

2.) 1 pc. 12 in. with (1) 82031120 Ferrule & (1) A1440-ND Male Pin.

902418 Blue, **#16 stranded wire, copper.**

3.) 1 pc. 8 in. with (2) 82031120 Ferrules.

4.) 1 pc. 3in. with (2) 82031120 Ferrules.

902419 Grey, **#16 stranded wire, copper.**

5.) 1 pc. 12in. with (1) 82031120 Ferrule & (1) A1440-ND Male Pin.

6.) 1 pc. 6 1/2in. with (2) 82031120 Ferrules.

7.) 5 pc. 3in. with (2) 82031120 Ferrules.

902420 Black, **#16 stranded wire, copper.**

8.) 1 pc. 12in. with (1) 82031120 Ferrule & (1) A1440-ND Male Pin.

902463 Black, **#16/3 power cable.**

9.) 1 pc. 16in. with (2) 82031120 Ferrules on black and white wires with (1) R4B-14 Ring Terminal on green/yellow wire on one end & (2) 902344 Flag Connectors on black and white wires with (1) 900103 Ring Terminal on green wire on opposite end.

8471 Grey, **#16/2 twisted conductor cable**.

10.) 1 pc. 12in. with (2) 82031120 Ferrules on one end & (2) A1440-ND Male Pin on opposite end.

CUT WIRES AND ASSEMBLE END CONNECTORS FOR THE MOTOR COVER AS FOLLOWS:

902416 Green/Yellow, **#16 stranded wire, copper.**
11.) 1 pc. 12in. with (1) R4B-14 ring terminal & (1) A1441-ND Female Pin.
902604 Brown, **#16 stranded wire, copper.**
12.) 1 pc. 12 in. with (1) 82031120 Ferrule & (1) A1441-ND Female Pin.
902419 Grey, **#16 stranded wire, copper.**
13.) 1 pc. 12in. with (1) 900120 Straight Connector & (1) A1441-ND Female Pin.
902420 Black, **#16 stranded wire, copper.**
14.) 1 pc. 12in. with (1) 901905 Flat Connector & (1) a1441-ND Female Pin.
8471 Grey, **#16/2 twisted conductor cable.**
15.) 1 pc. 12in. with (2) 82031120 Ferrule & (2) A1441-ND Female Pin.

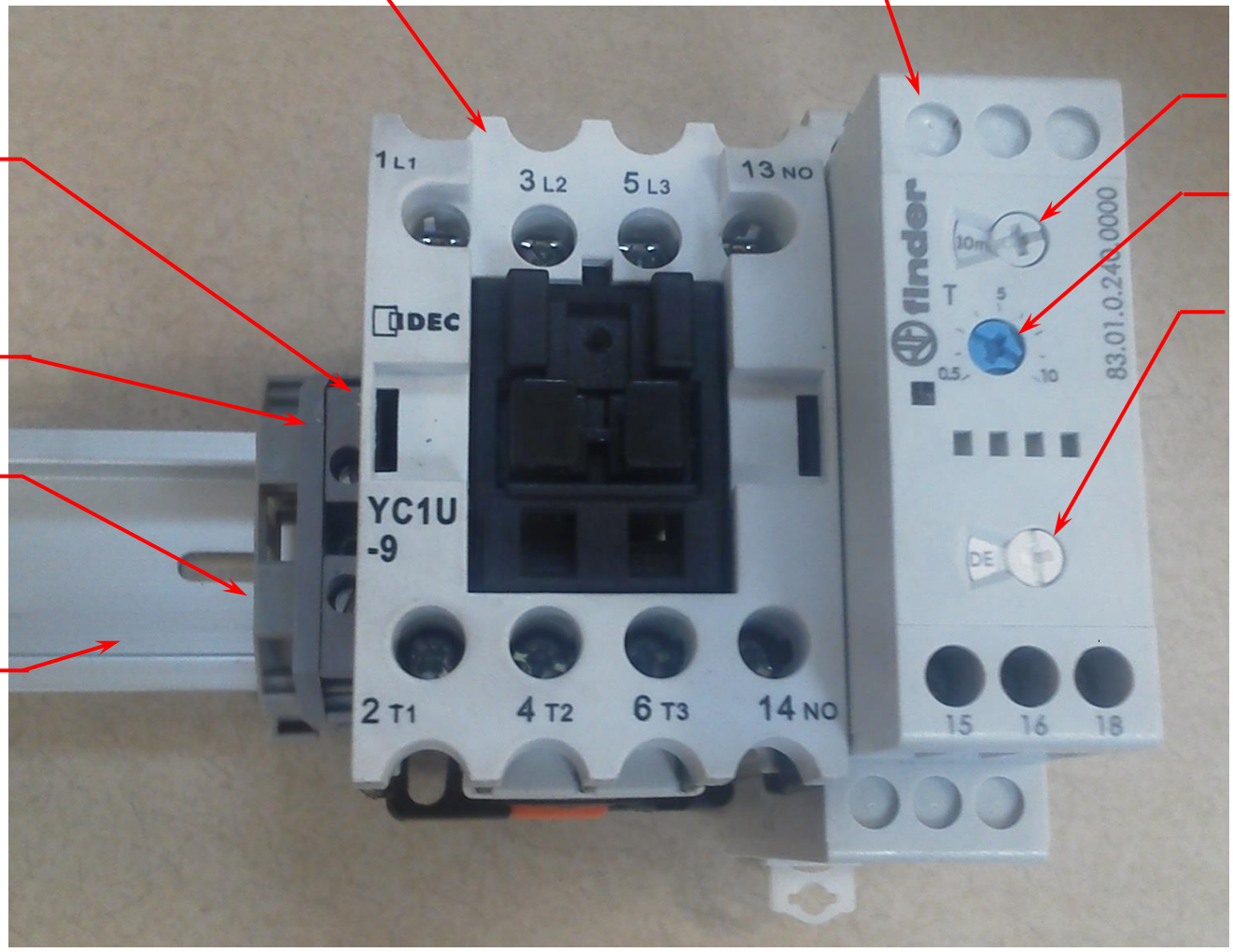
Contactor

(120V) YC1U-9A120

(240V) YC1U-9A240

Timer

(120V & 240V) 902436



902410
Din Terminal

11836816
Terminal Block Cover

902409
Din Rail Stop

(Typ. both ends)

202482
Din Rail

(Attach w/ (2) 91772A144 screws)

Timer Settings

Range = 10m

Time = 10

Setting = DE

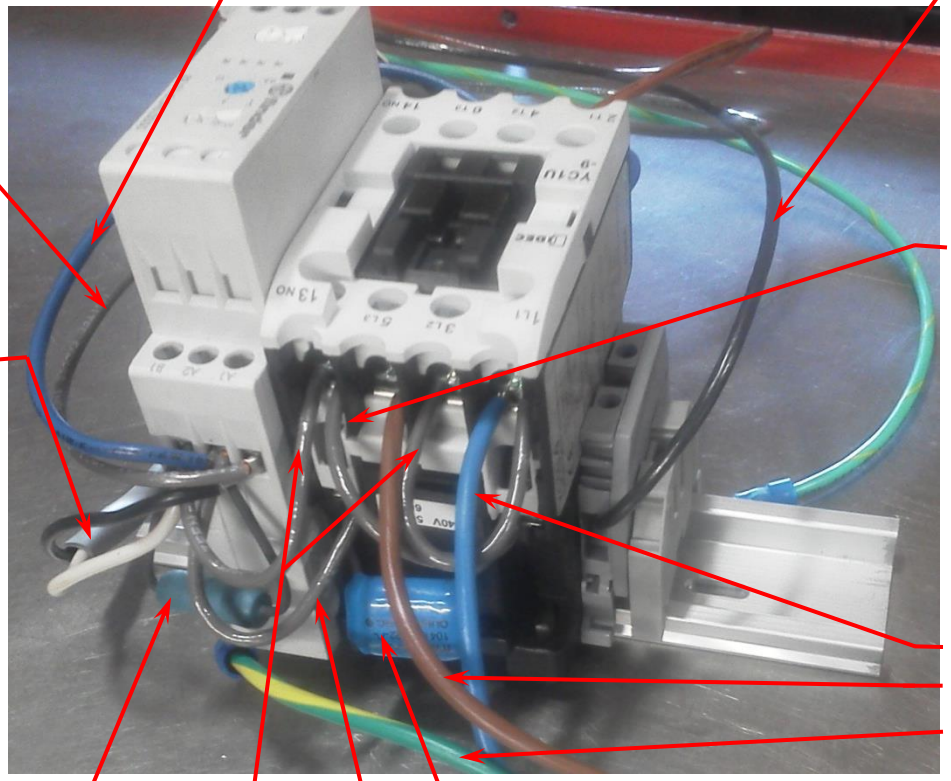
902418 Blue Wire 8" long,
82031120 Ferrules on both ends.
(A2 on Timer to T2 on Contactor)

902419 Grey Wire
6 1/2" long,
82031120 Ferrules
on both ends.
(Timer A1 to 18 on
Timer)

8471 Twisted Cable,
12" long,
(2) 82031120
ferrules on one end,
(2) A1440-ND
Male pins
on opposite end.
(White Wire to
B1 on Timer,
Black Wire to
A1 on Timer)

64K9105 Resistor
with 902415 Heat
Shrink tube,
1.25" long on each lead.
(A2 on Timer to B1 on Timer)

902419 Grey Wire 3" long, 82031120
Ferrules on both ends.
(L1 to L2 on Contactor)
(B1 to 13 on Contactor)



902420 Black Wire 12" long
82031120 Ferrule on one end
A1440-ND Male Pin on
opposite end.
(Din Term 1 to Male
Connector)

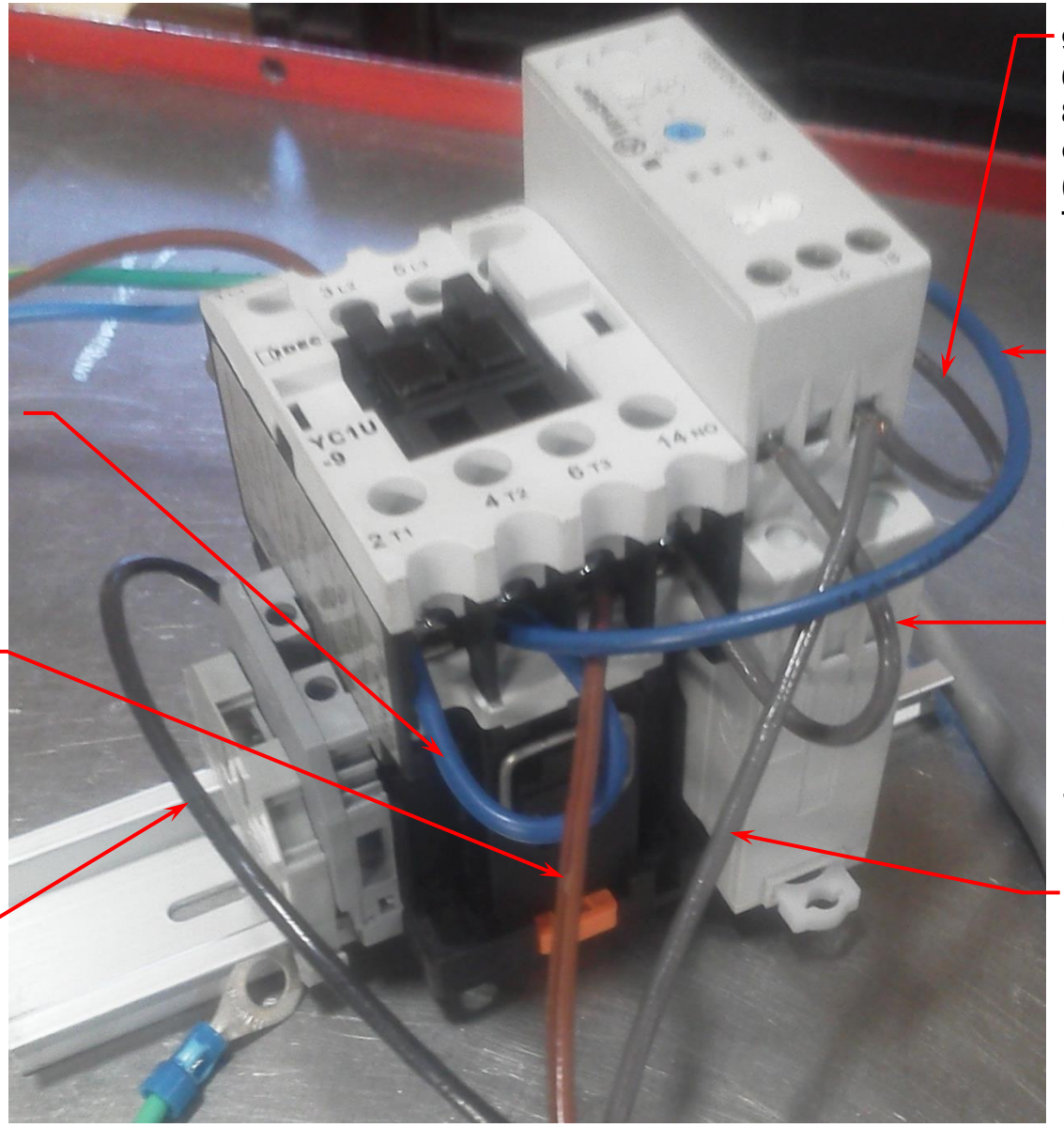
902419 Grey Wire 3" long,
82031120 Ferrules on both ends.
(A1 on Contactor to 13 on
Contactor)

(Power Cable From Motor)

902463 Black #16/3 Power Cable
80231120 Ferrules on blue and
brown wires on one end with
R4B-14 Ring Terminal on green wire.
Blue Wire to L1 on Contactor,
Brown Wire to L3 on Contactor,
Green/Yellow Wire to Ground Stud

16F3700 Surge Suppressor
with 902415 Heat Shrink tube,
1.25" long on each lead.
(A1 to A2 on Contactor)

902419 Grey Wire 3"
long,
82031120 Ferrules on
both ends.
(A2 on Contactor to
A2 on Timer)



902419 Grey Wire 6 1/2" long, 82031120 Ferrules on both ends. (Timer A1 to 18 on Timer)

902418 Blue Wire 8” long, 82031120 Ferrules on both ends. (T2 on Contactor to A2 on Timer)

902419 Grey Wire 3” long, 82031120 Ferrules on boh ends. (14 on Contactor to 15 on Timer)

902419 Grey Wire 12” long, 82031120 Ferrule on one end A1440-ND Male pins on opposite end. (18 on Timer to Male Connector)

902418 Blue Wire 3” long, 82031120 Ferrules on Both ends. (T1 on Contactor to T2 on Contactor)

902604 Brown Wire 12” long, 82031120 Ferrule on one end A1440-ND Male pins on opposite end. (T3 on Contactor to Male Connector)

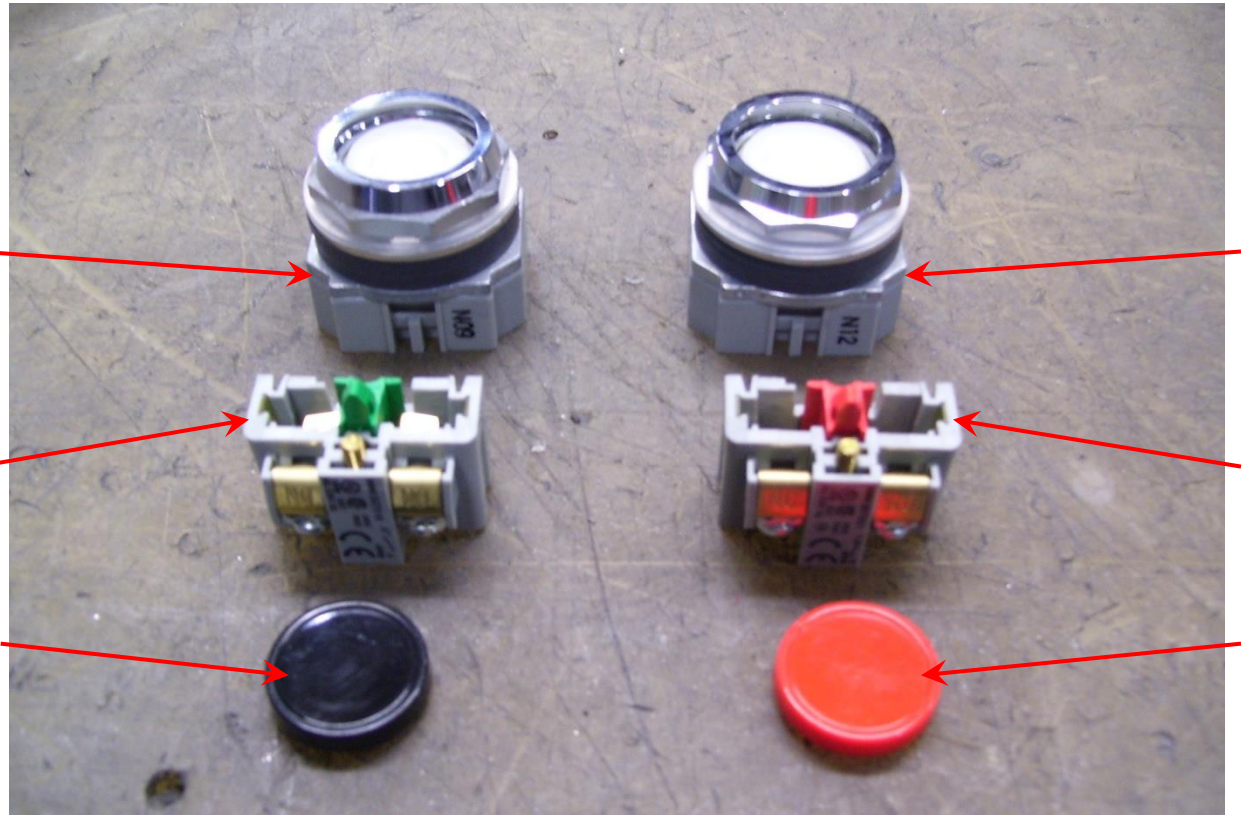
902420 Black Wire 12” long, 82031120 Ferrules on both ends. (Din Term 1 to Male Connector)

Button Assembly

900074 Switch, Elec. Push Button Operator

900083 Contactor, Normally Opened (labeled “NO” and has a green tab)

Black Switch Insert



900074 Switch, Elec. Push Button Operator

900052 Contactor, Normally Closed (labeled “NC” and has red tab)

Red Switch Insert

Align the tabs and press the red and black inserts in the top of the switches. You should hear a “click” once they are securely seated.

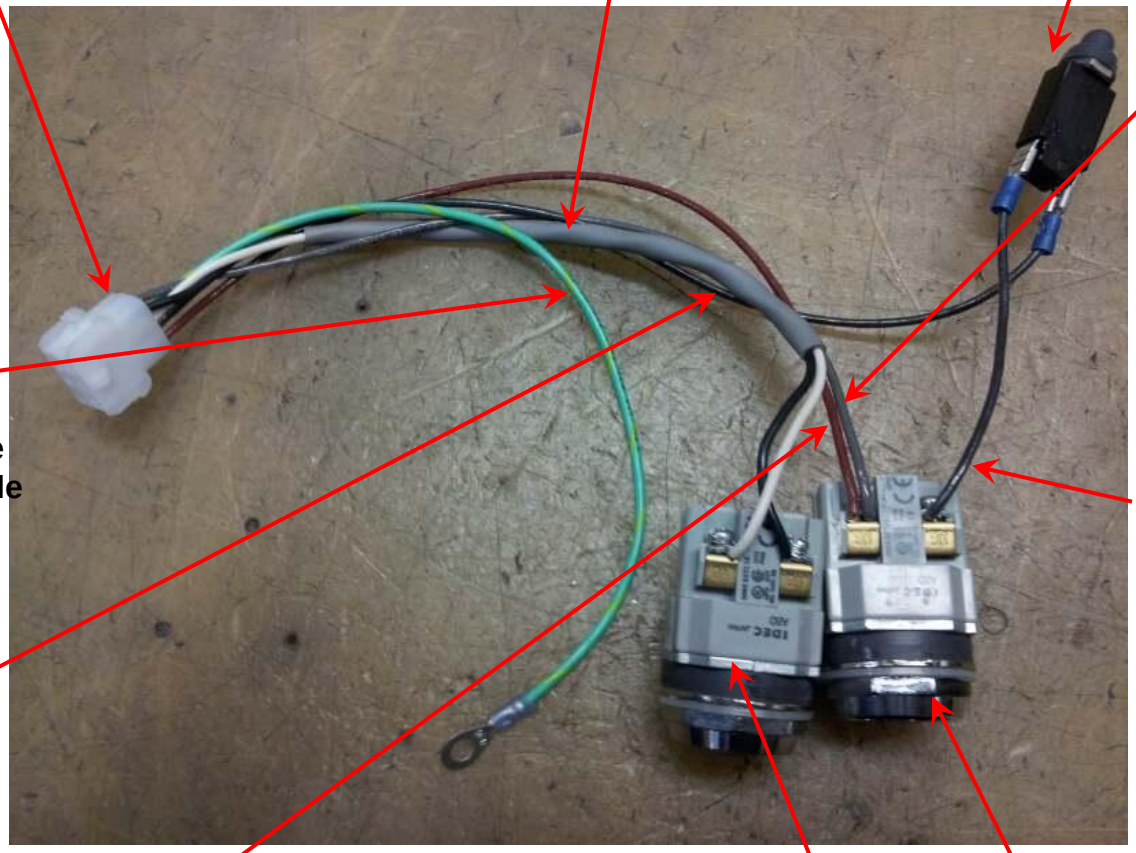
Screw the normally closed contact onto the button with the red insert.

Screw the normally open contact onto the button with the black insert.

A1457-ND Female Connector (refer to the next page for connector wiring diagram)

8471 Grey Twisted Cable. Cut 12” long, (2) 82031120 ferrules on one end, (2) A1441-ND Female pins on the opposite end.

T11-311-5A Breaker



902419 Grey Wire Cut 12” long, 82031120 Ferrule on one end, A1441-ND Female Pin on opposite end.

902416 Green Wire Cut 11” long, R4B-14 Ring Terminal on one end, A1441-ND Female Pin on the opposite end.

902420 Black Wire Cut 7” long, 901905 Flat Connector on one end, 82031120 Ferrule on opposite end.

902420 Black Wire Cut 13” long, 901905 Flat Connector on one end, A1441-ND Female Pin on opposite end.

902604 Brown Wire Cut 12” long, 82031120 Ferrule on one end, A1441-ND Female Pin on opposite end.

Start Button

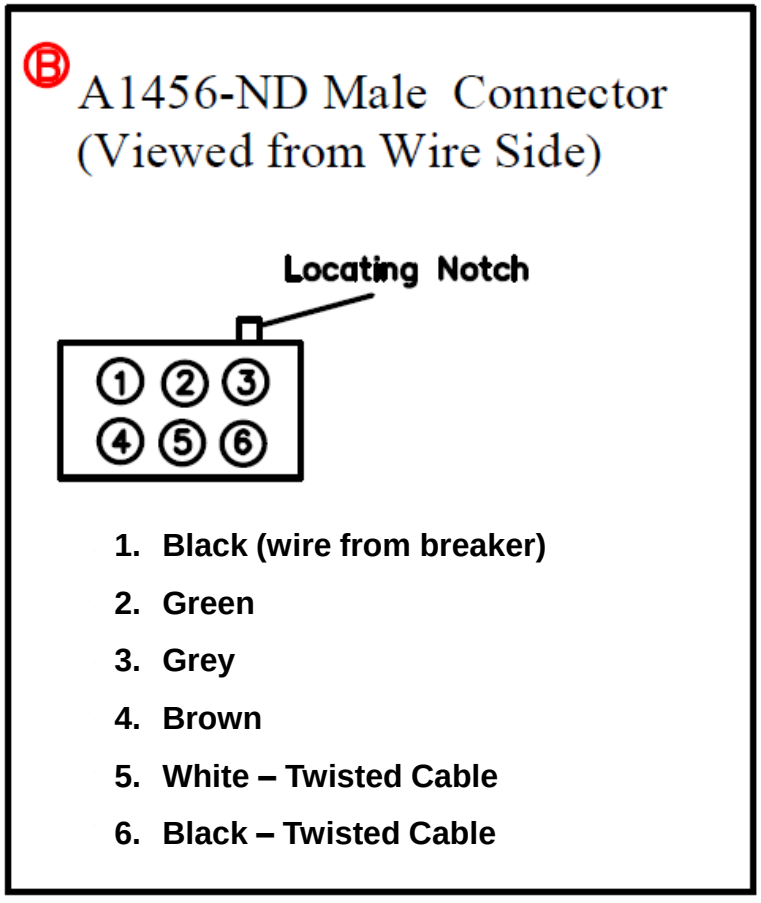
Stop Button

Connector Wiring Diagram

A1456-ND (Male)
A1457-ND (Female)

The diagram to the right is for both the A1456-ND (male) connector and the A1457-ND (female) connector.

All wires going into the connector (whether it be the male or female connector) must have a ferrule crimped on them.



1. **Black (wire from breaker)**
2. **Green**
3. **Grey**
4. **Brown**
5. **White – Twisted Cable**
6. **Black – Twisted Cable**

Caster Installation

900031 – (2x) Caster, 3” Brake, Stem Swivel

900032 – (2x) Caster, 3” Stem Swivel

Insert casters in the ends of the square tubing. The 900031 should go on the drum side (if you are looking at the front of the Marinator it will be the right side. Refer to the first slide for more clarification).

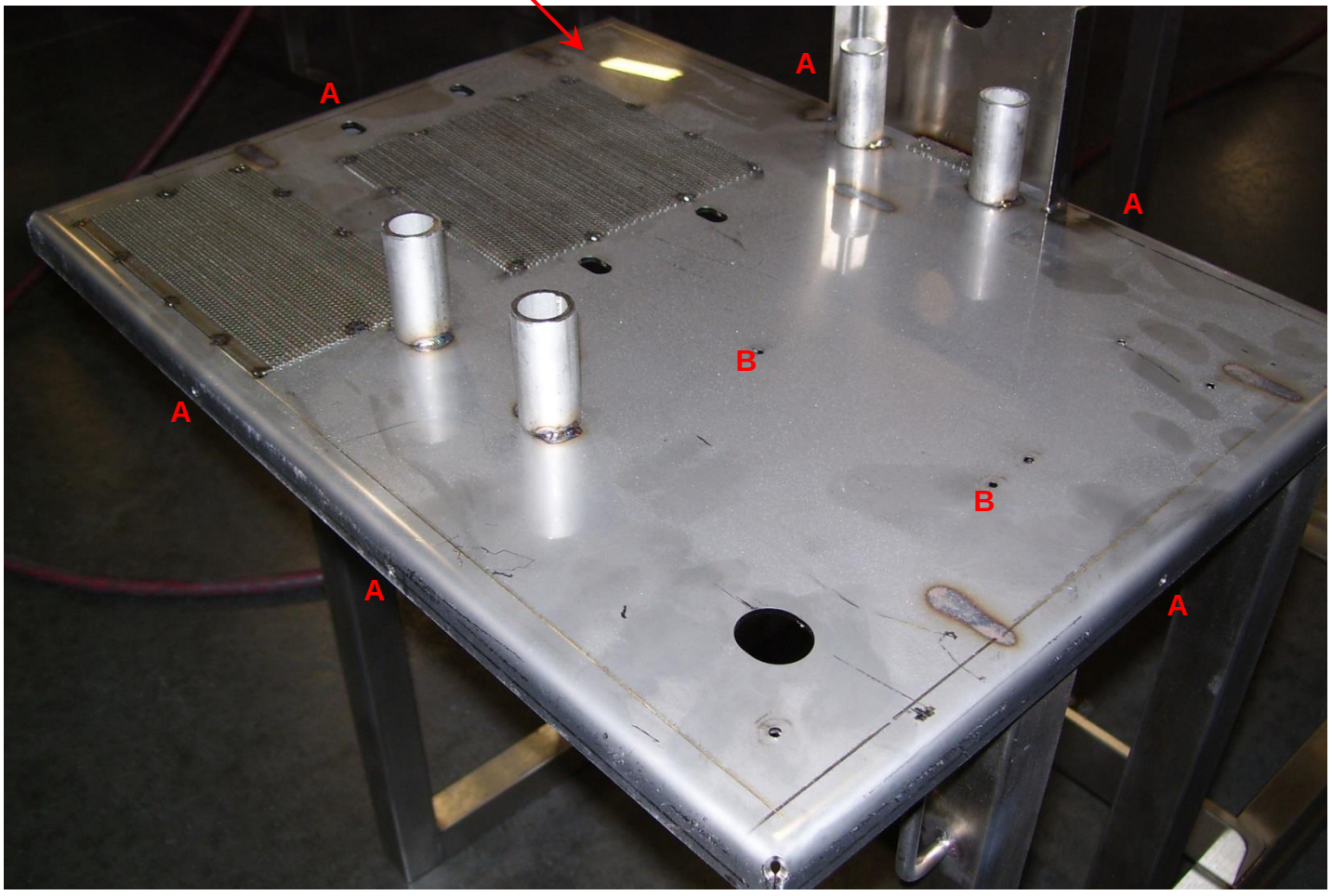
Underneath of the caster you will notice a Allen head screw (depending on the vendor for the casters this screw could have a hex head as shown). Tighten this screw which compresses the rubber piece and in return locks the caster in the frame.

Check by pulling on the caster and ensure that it will not come out.

A. Tap Holes (6x) with a 10-32 tap

B. Tap Holes (2x) with a 8-32 tap

**** Be sure to use tapping oil on every hole to prevent the tap from breaking ****



Note: Mount the bearings with the direction as shown below

Test alignment of the bearing by using test fixture #TL03-00565 (Pillow Block Alignment Bar)

Test with 200108 Bearing Delrin Marinator

900042 (2x) Bearing Pillow Block 3/4 Bore

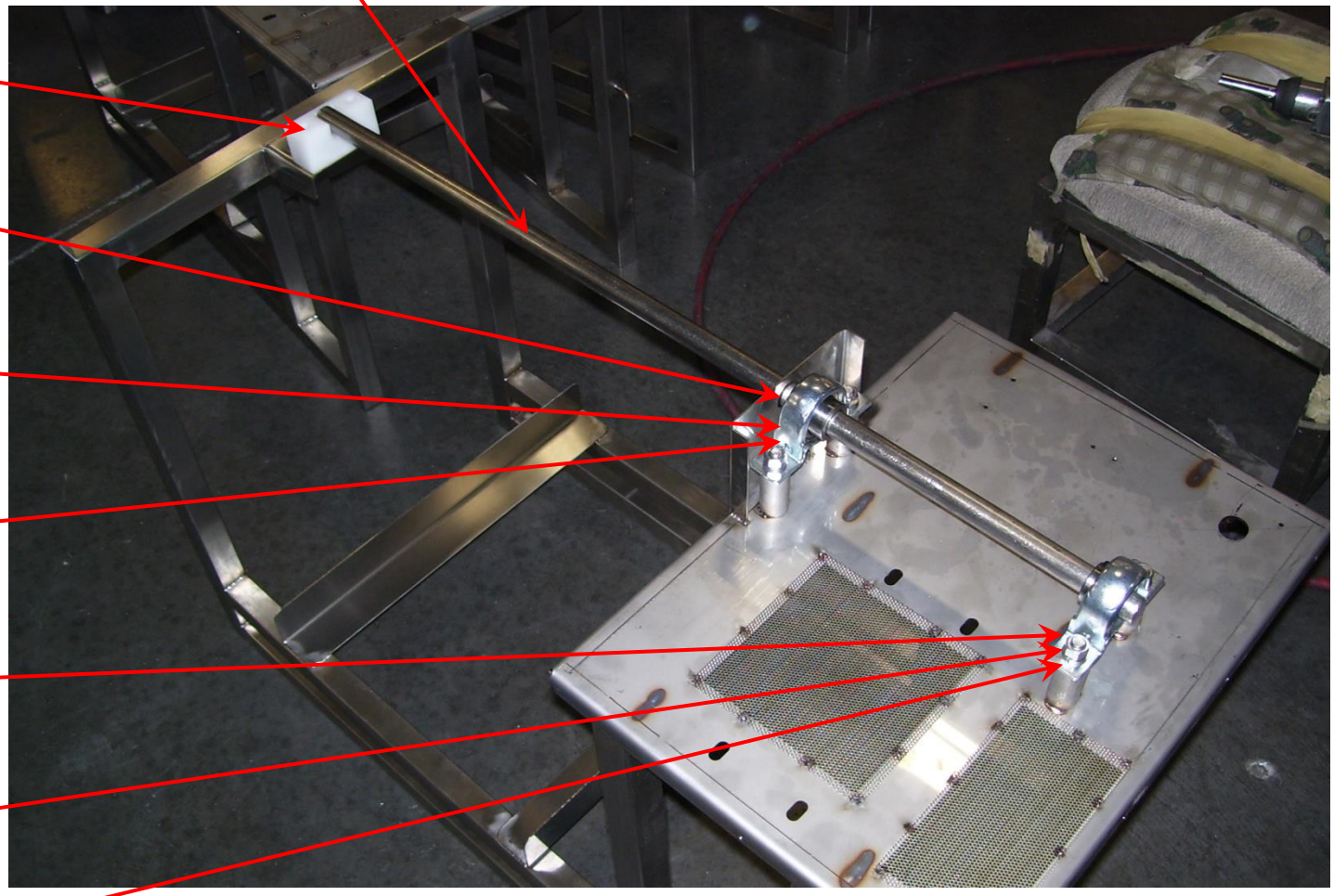
900042-1 (2x) Housing Pillow Block, Inner

900042-1 (2x) Housing Pillow Block, Outer

902433 (4x) Bolt Hex, SS 3/8-16 x 2-1/2 long

902460 (4x) Nut Hex, SS 3/8-16

902459 (4x) Washer Split Lock, SS 3/8



Check that the test fixture does not rub anywhere. If it does the weldment will need to be rejected and reworked.

If no interference on the test fixture, tighten all (4) bolts with a 9/16 socket on an impact and a 9/16 wrench

900042 (2x) Bearing Pillow Block 3/4 Bore

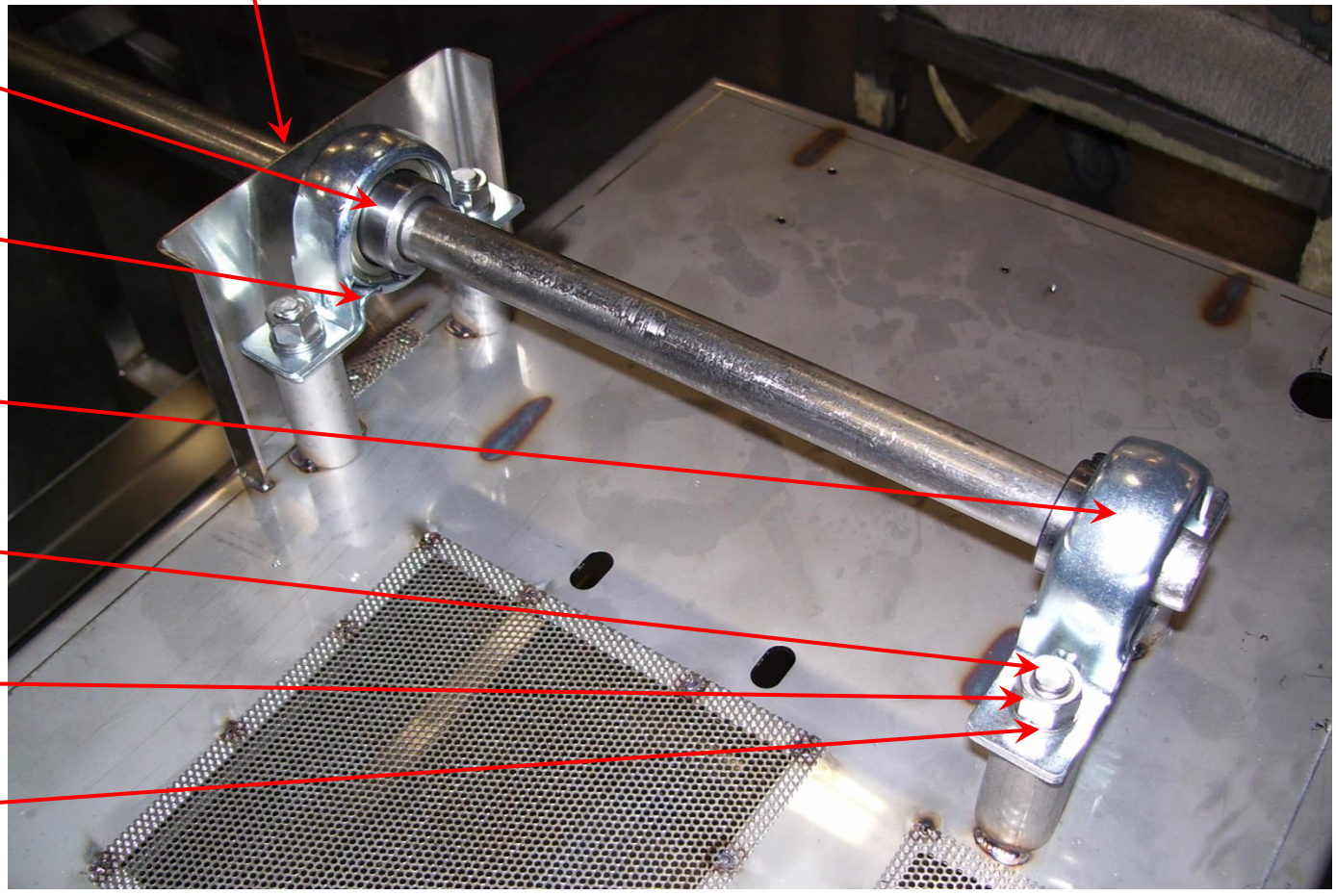
900042-1 (2x) Housing Pillow Block, Inner

900042-1 (2x) Housing Pillow Block, Outer

902433 (4x) Bolt Hex, SS 3/8-16 x 2-1/2 long

902460 (4x) Nut Hex, SS 3/8-16

902459 (4x) Washer Split Lock, SS 3/8

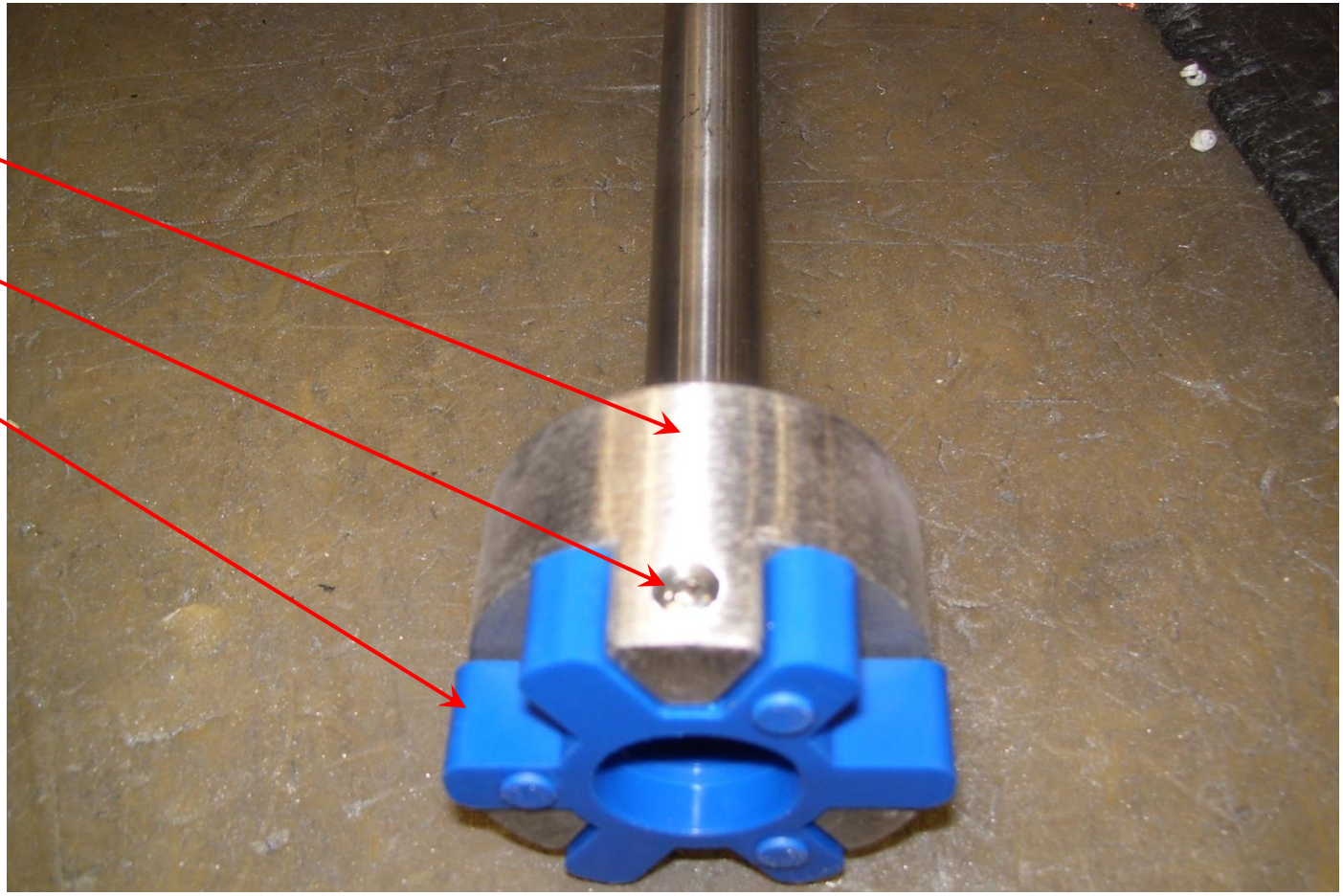


200122 Assy, Coupling & Shaft

900086 Screw PH Pan Head, SS 8-32 x 3/4 long

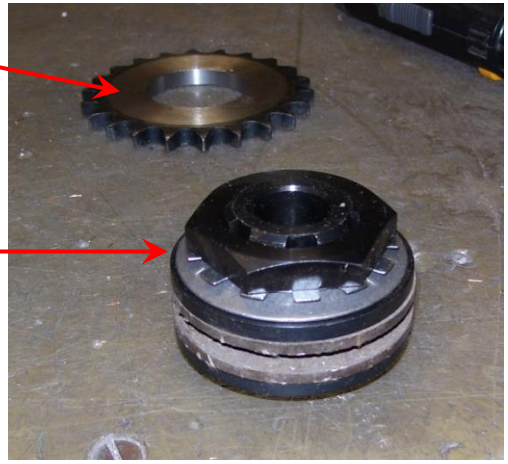
900061 Spider Urethane Marinator

Insert the Spider in the Coupling (200122). Drill a hole with a 1/16" diameter drill bit through the hole in the Coupling (200122) and the Spider. Insert Philips head screw (900086).



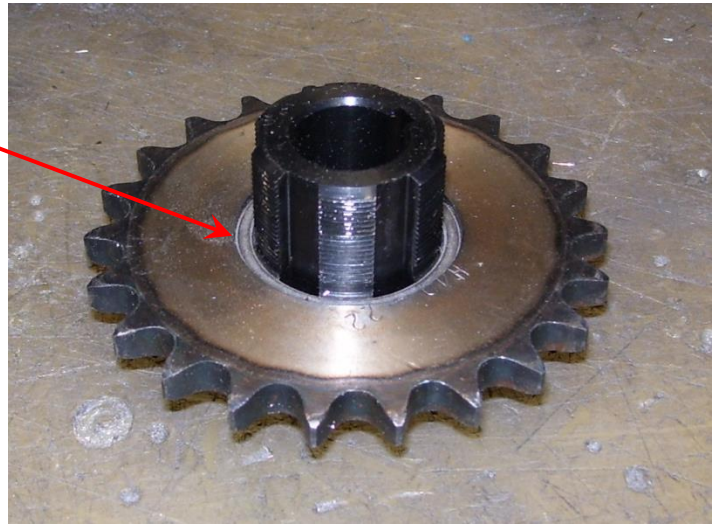
202508 Sprocket #40 1-5/8 Bore, 22T

900039 Bearing, Torque Limiter w/Set Screw



Breakdown of Bearing (900039) with addition of Sprocket (202508) . These parts are shown from left to right which parts are next to go back on the bearing when assembling back together.

Make sure that the sprocket (202508) seats completely on the bearing (900039)



Completed view with sprocket (202508) assembled with the bearing (900039)

Gear Shafts

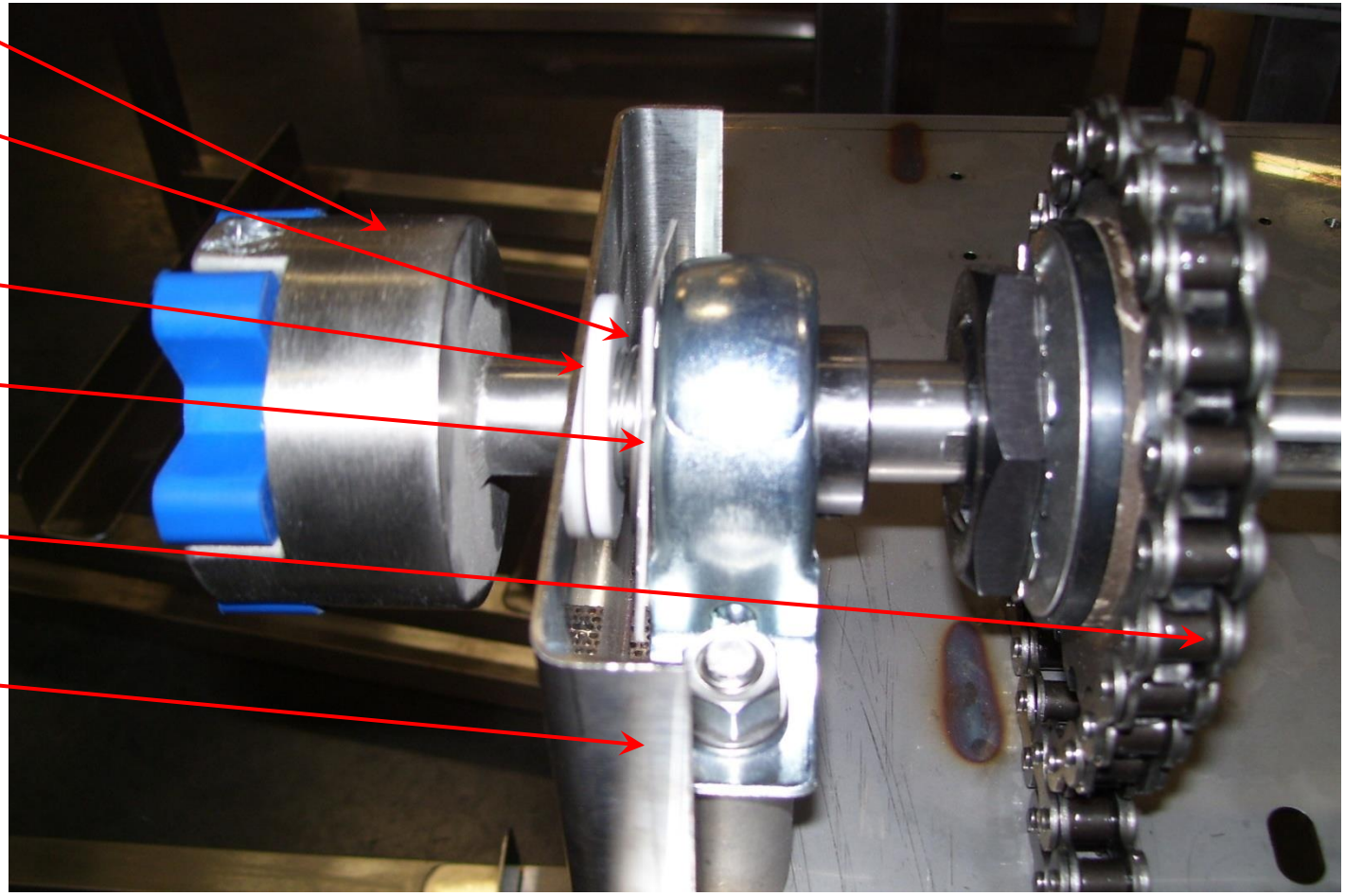
900033 Spring Marinator. The small end of the spring must face the seal shaft.

200126 Seal Shaft Marinator

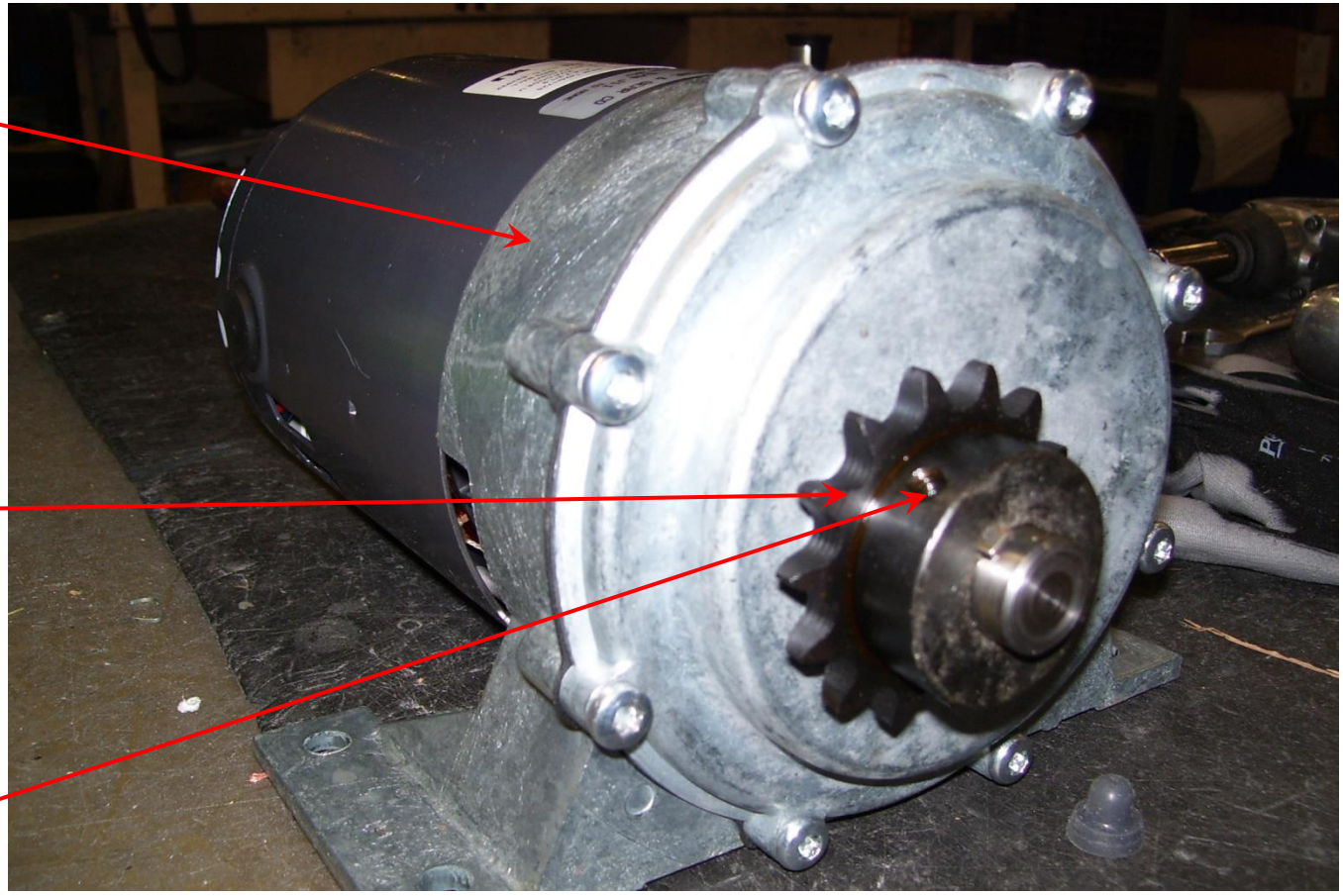
200127 Plate Spring Marinator

900041 Roller Chain #40 (1/2 Pitch)

Main Body Weldment



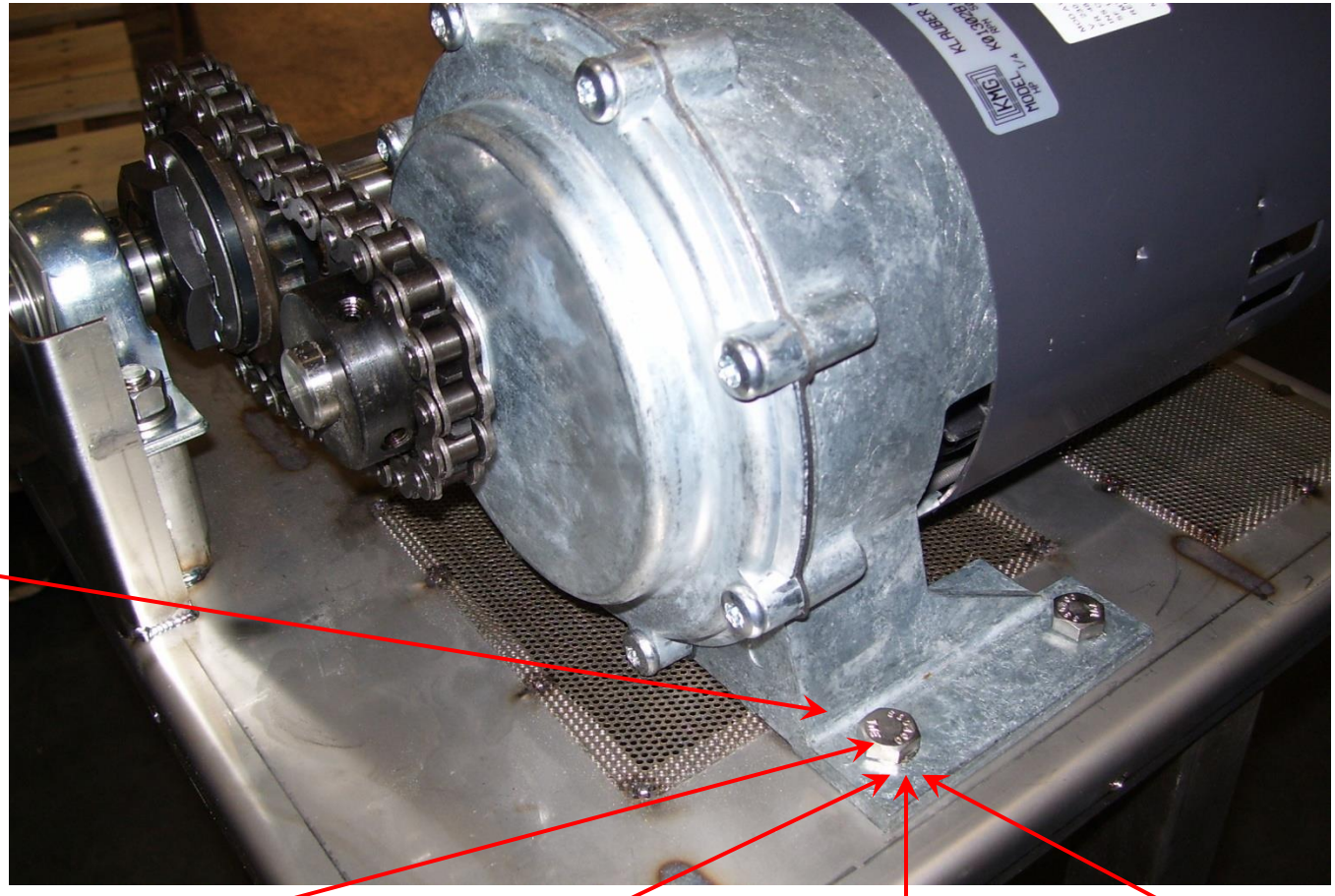
900063 **Motor, 1/4 hp – 115V AC OR**
910210 **Motor, 1/4 hp – 230V AV depending on customer order**



900058 **Sprocket, 3/4 Plated w/Set Screw**

Once sprocket is on the shaft of the motor as shown in the picture, tighten the (2) set screws on the sprocket with an Allen wrench.

902463 Black #16/3 Power Cable,
(2) 80231120 Ferrules on brown and blue wires on one end with
(1) R4B-14 Ring Terminal on green wire,
& (2) 902344 Flag Connectors on brown and blue wires on opposite end with
(1) 900103 Ring Terminal on green wire.
(Blue Wire to L1 on Contactor,
Brown Wire to L3 on Contactor,
Green Wire to Ground Stud)



Start all (4) bolts and get hand tight.

902434 (4x) Bolt 5/16-18 x 3/4 SS Hex Head

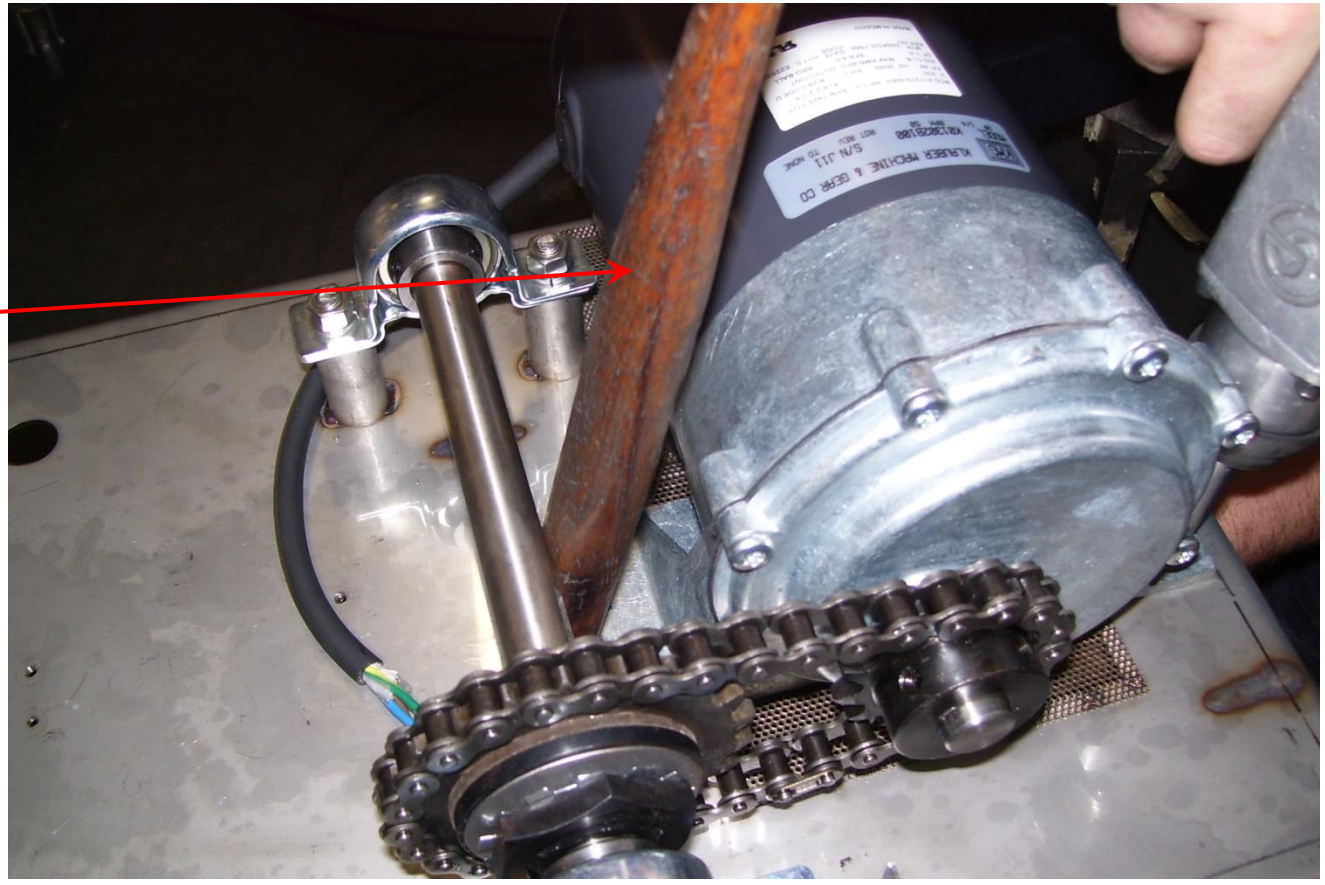
902450 (4x) Washer 5/16 SS Split Lock (not seen) underneath

902451 (4x) Washer 5/16 SS Flat (not seen) underneath

902449 (4x) Nut 5/16-18 SS Hex (not seen) underneath

Using something to pry with, (hammer or mallet handle) pry against the shaft and the motor to move the motor over to tighten the chain. Once the chain is to the desired tension tighten the bolts. Ensure that the center line between the motor and sprocket has not changed. If it has moved you will need to loosen the bolts, move the sprocket and re-tension the chain.

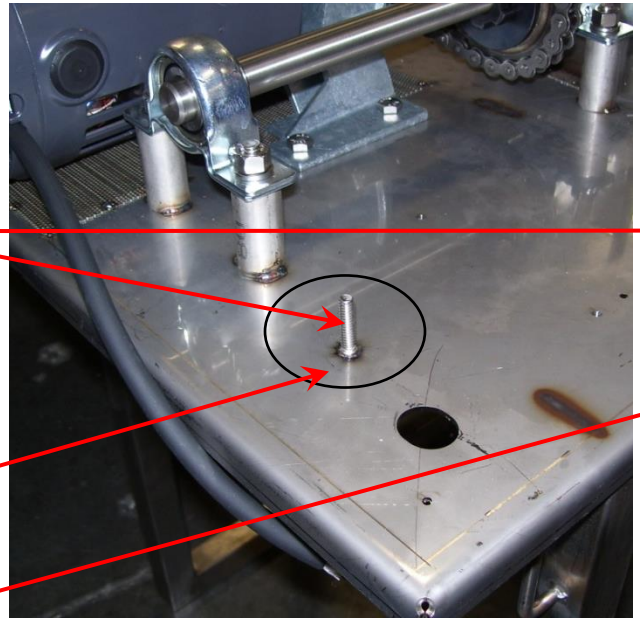
Finish by tightening all bolts with a 1/2 socket on an impact and a 1/2 wrench.

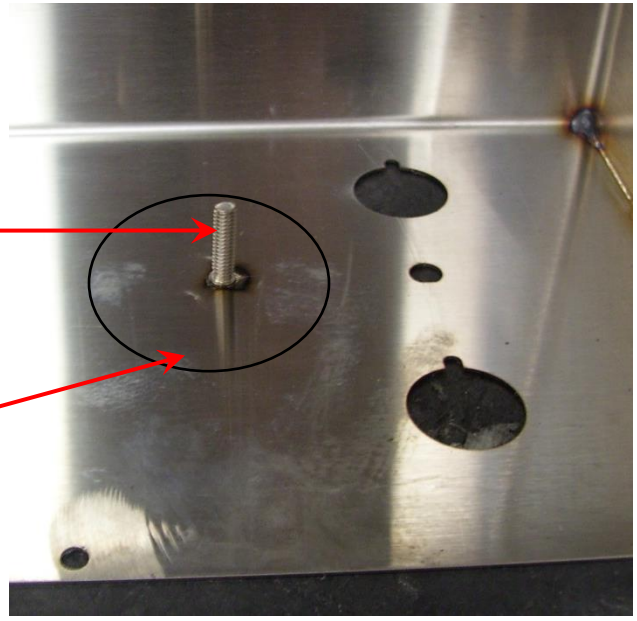


Insert the key into the keyway on the shaft (200122). Apply Loc-Tite 242 to the set screw on the Bearing, Torque Limiter (900039) before tightening

200125 Key, Marinator Shaft

TFTS-305-101-208-378 Stud 1/4-20 SS Weld. Must be placed here on cover to ensure cover weld burn with sticker.

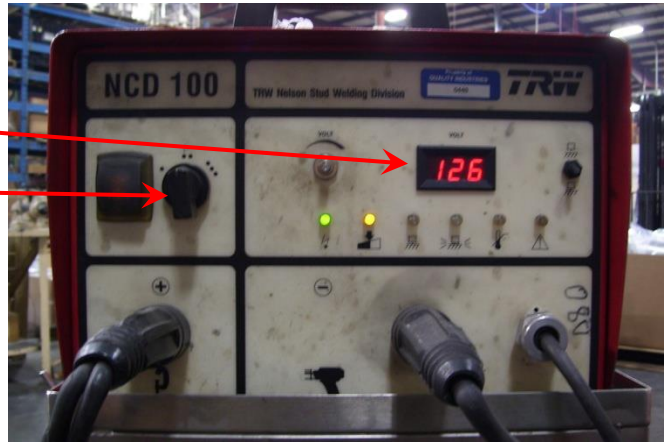




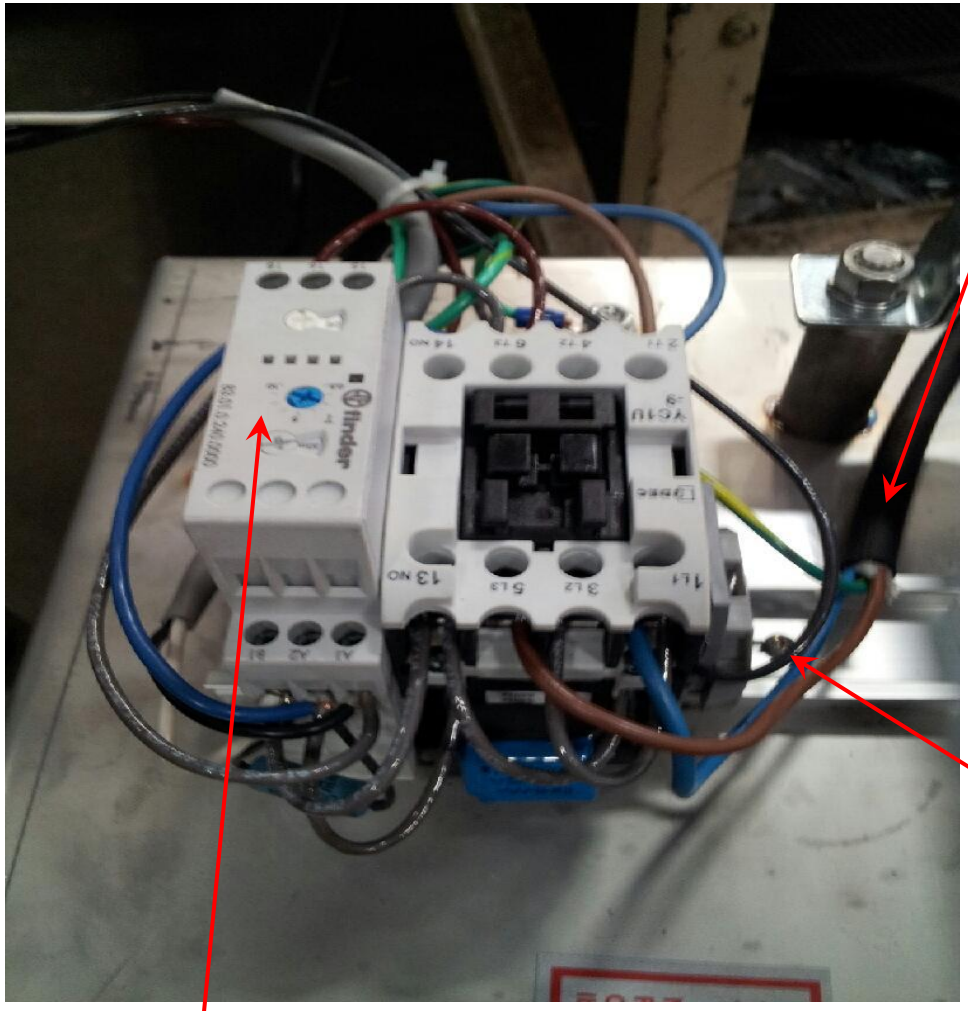
Weld the 1/4-20 Stud in this general area on the frame.

Weld the 1/4-20 Stud in this general area on the cover.

Have the welder set on 125-126 Volts and on the 2nd resistor.



Connect the ground of the welder to the Marinator frame. Place the 1/4-20 stud in the stud weld gun and weld to the frame once location is confirmed.



(Power Cable From Motor)

902463 Black #16/3 Power Cable
80231120 Ferrules on blue and brown wires on one end with R4B-14 Ring Terminal on green wire.
Green/Yellow Wire to Ground Stud
Blue Wire to L1 on Contactor,
Brown Wire to L3 on Contactor

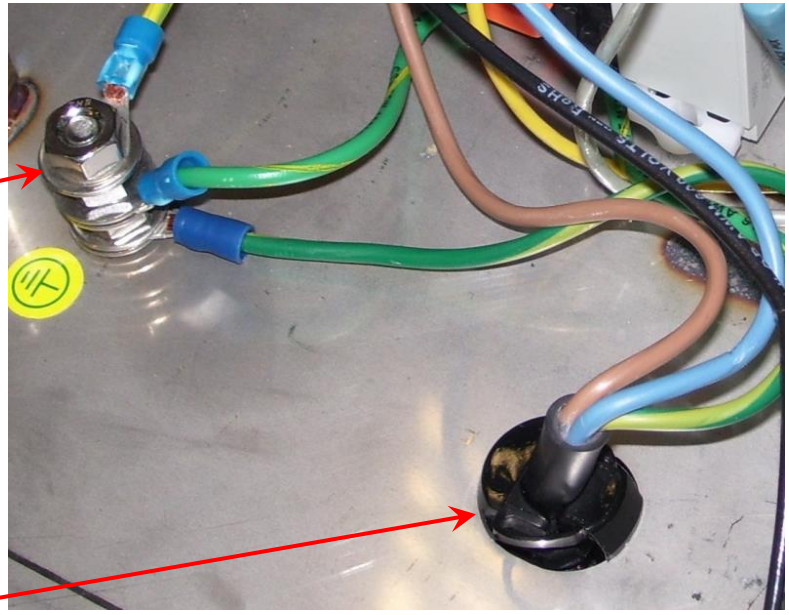
91772A144 (2x)
Screw 6-32 x 1/4 SS Machine

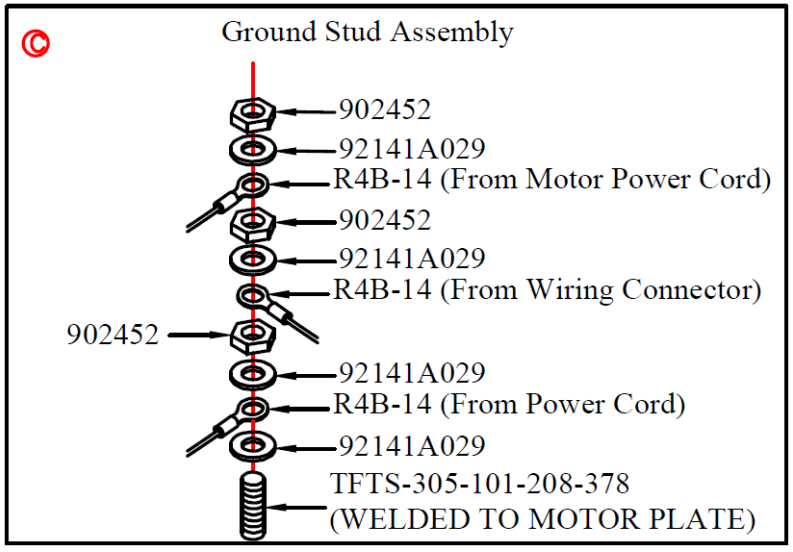
Mount the pre-assembled electrical components with (2x) 91772A144 screws. Components should include Contactor, Timer, Din Rail, Terminal (2x), and Stop (2x). Refer to page 2 if assembly of electrical components is needed.

Ground Stud Assembly

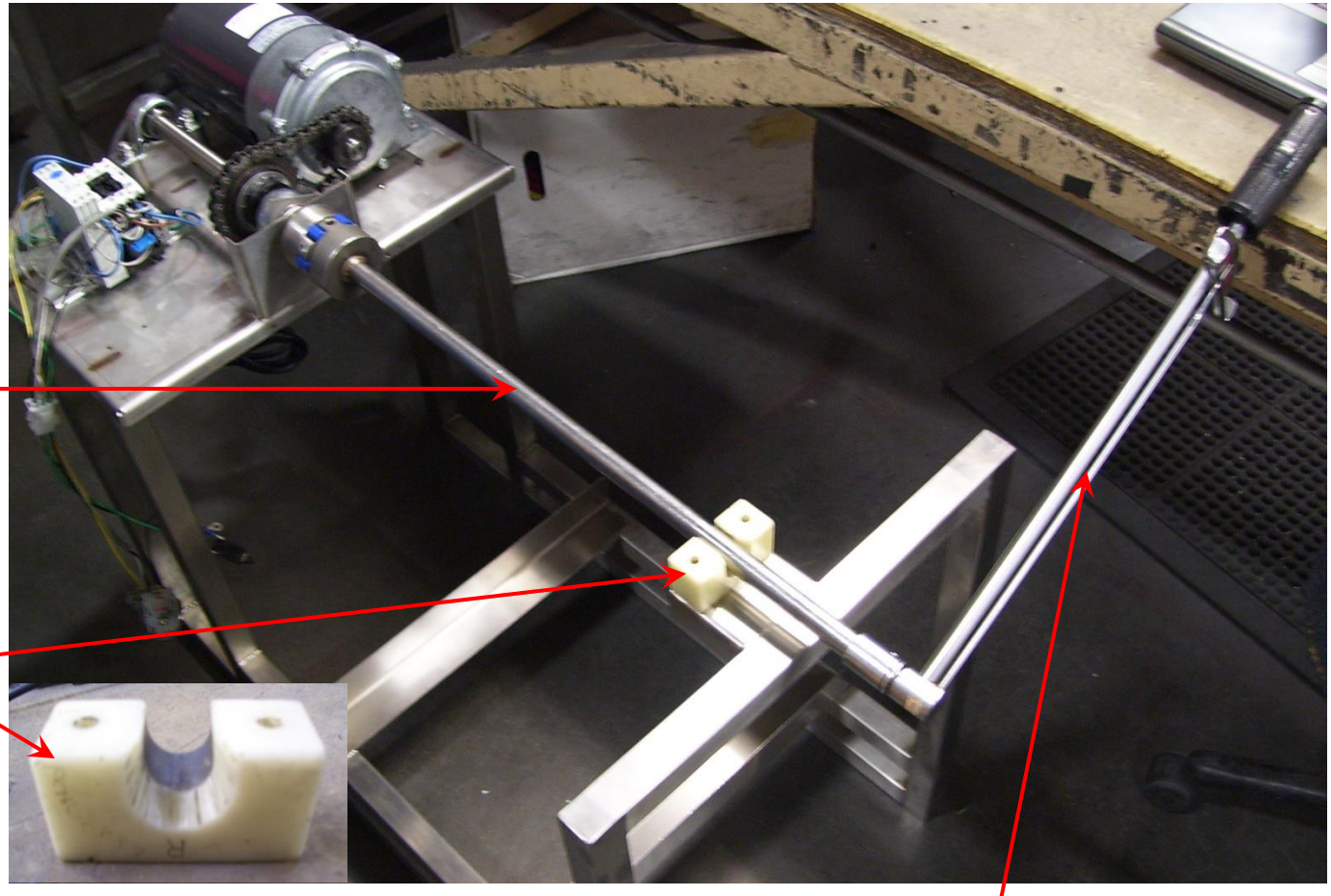
The following weld stud must be assembled in the exact following order as shown in the diagram below. Be sure to apply a ground sticker beside every ground stud that is welded on (SL-01).

900053, Bushing, Electric Restrainer. Apply by wrapping around the wire and then pinching closed with a pair of pliers. While you hold the bushing together with the pliers, press it through the obround hole in the motor plate. Once it is completely seat, release the pliers and check to make sure that the bushing is securely in place.





Torque Test Setup



Torque test fixture TL03-00568

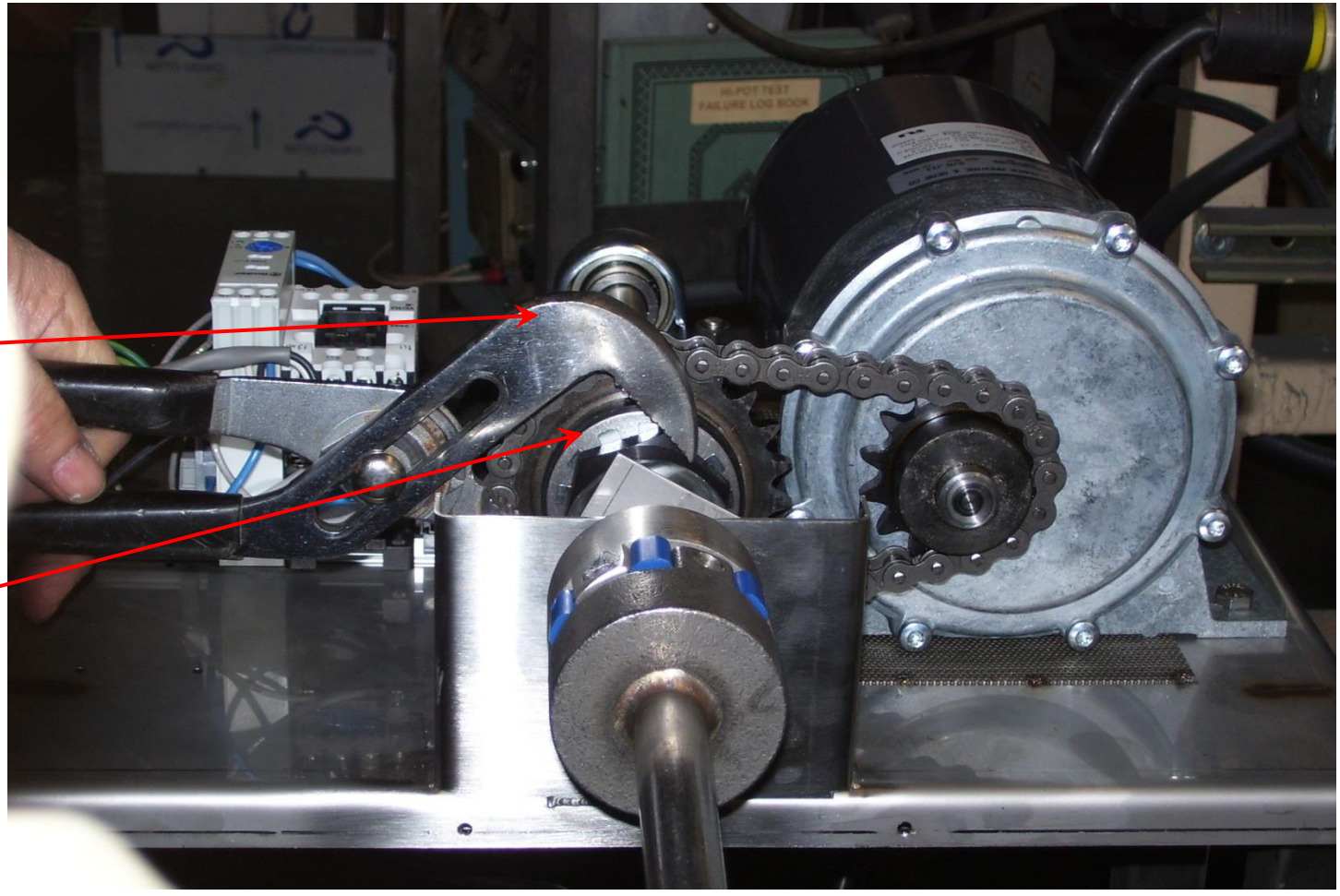
Test Delrin Bearing that is cut all the way through.

Notes:

For 230 Volt motors be sure to use the 230 Volt plug on the workstation along with the plug converter.

Torque Wrench set to 150 in/lbs resting against the table and attached to TL03-00568

Torque Adjustment Procedure



Adjustable Pump Pliers

900039 Bearing, Torque Limiter Nut

Notes:

Let the torque wrench rest against the table. Turn the power on and the motor will start rotating. Take a pair of adjustable pump pliers and gradually tighten the nut on the Torque Limiter Bearing (900039) until the torque wrench reads 150 in/lbs. Once bearing is set at proper torque, bend over 3 tabs on the washer around the nut with a screwdriver to maintain nut does not spin and in a result change the torque on the bearing.

Determining Serial Number

Look at the master catalog and determine what the next serial number is to be used. Fill out the line in the catalog with all the required information. This information should be in the following order:

Serial #:

Volts:

Part #:

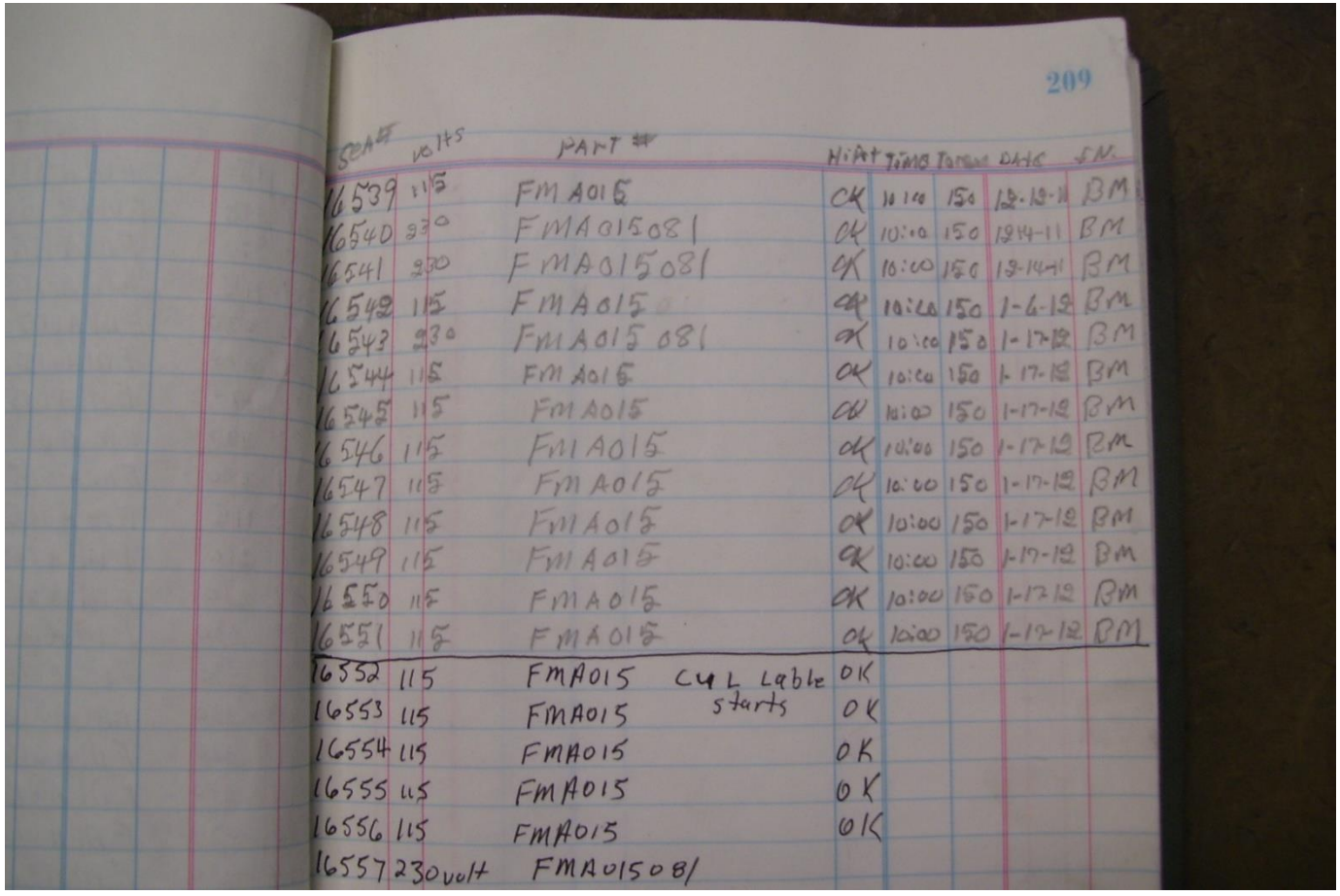
HiPot: (test results)

Time

Torque:

Date:

Initials:



Making & Placing Serial Number

Using the label maker, make a label that has the serial number on it. First 4 digits should be the month and year it was built. Always use 2 digits for the month and the last 2 digits of the year.

In this example the Marinator was built in February of 2012 results in the first 4 digits being "0212".

Apply this to the back of the label that is going to be placed on that unit through the clear window next to the text stating "Serial No."

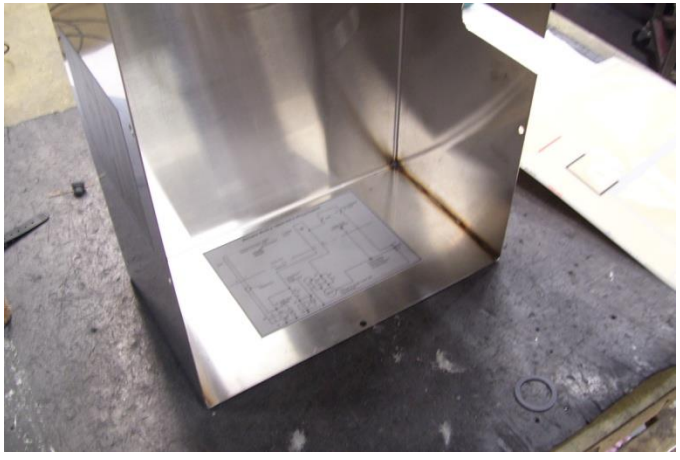
Peal the white backing off of the label. Refer to the next page to determine where the main sticker is to be placed on the unit.

Remove the outer nut on all of the buttons. Remove the first washer and the first seal. Push the button through the proper hole and then put the first seal on, followed by the washer. Thread the nut on and tighten by hand while holding the contact on the back side inside the lid.

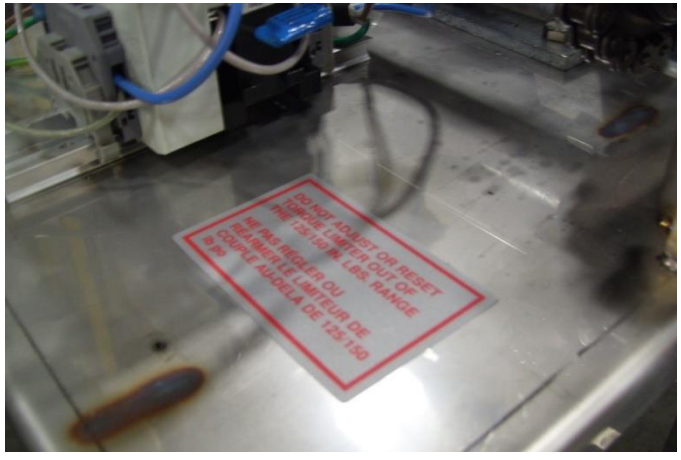
For the reset button, unscrew the acorn nut, push through the lid and then rethread the nut back on.

Apply stickers to match the following below.

Apply "Cleaning and Sanitizing Instructions" sticker on side.



Apply the wire schematic sticker.



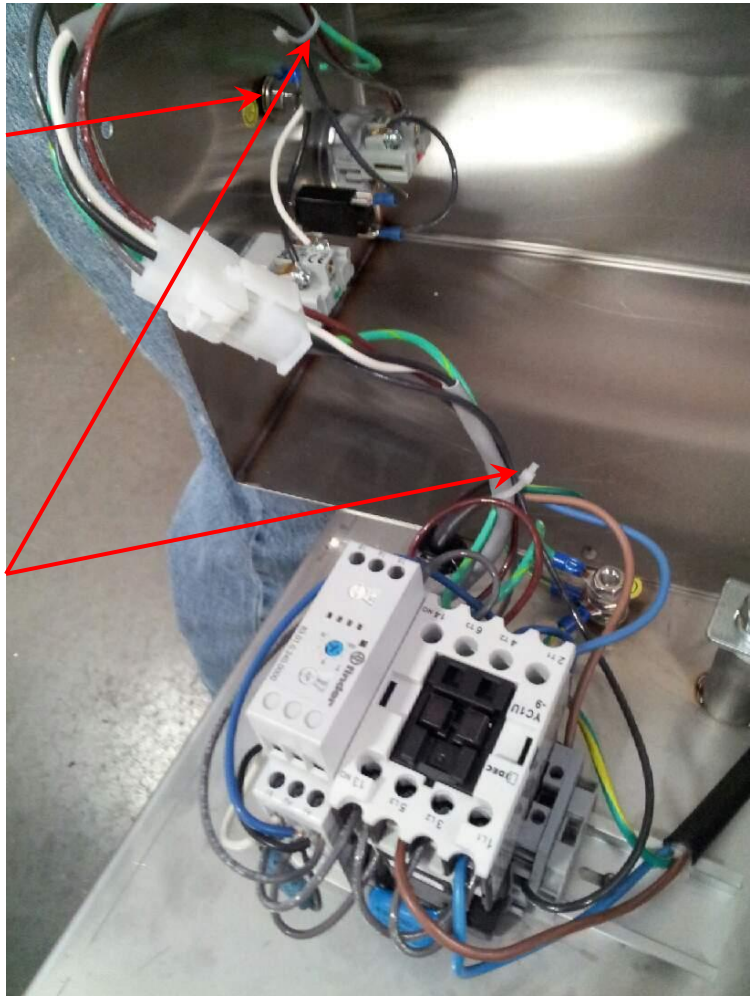
Apply "Do not adjust or reset torque limiter out of the 125/150 in. lbs. range" sticker.

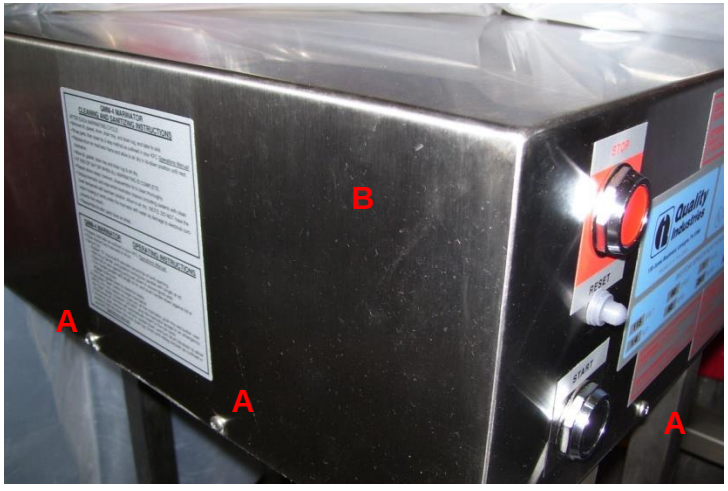
Connect the ground wire to the ground stud on the cover. Refer to the diagram at the bottom on proper sequence of hardware. Apply ground sticker (SL-01) beside the ground stud.

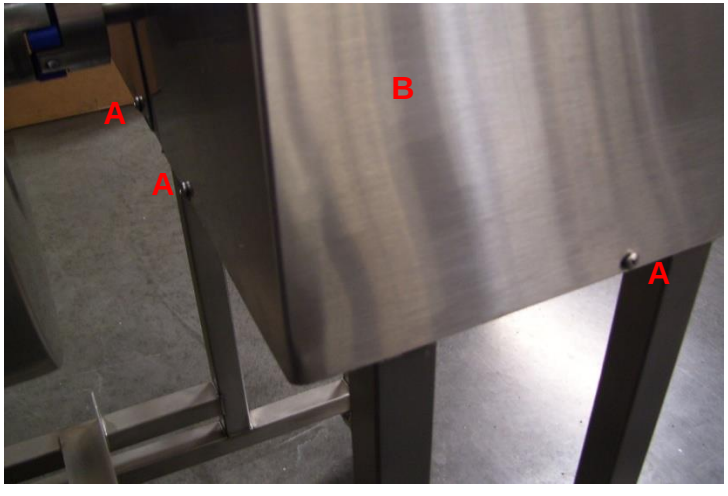
Wire tie (4x) to tidy up all the wires and prevent them from getting caught in rotating parts.

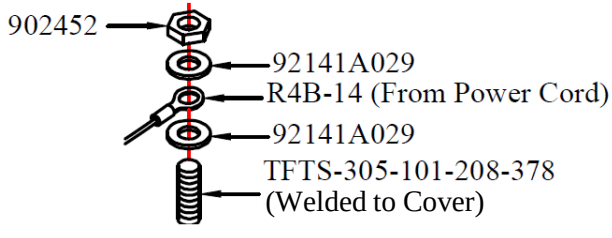
Set the cover on with the cutout in the cover going over the shaft. Once it is in place start all the screws.

Note: It will be easier to start all the screws and then go back and tighten each individually.









A. 902431 (6x) Screw 10-32 x 3/16 SS Machine

B. 202381 Motor Cover Housing

Lid Assembly

202414 Door, Marinator

202420 Latch Assy, Marinator (post)

902338 O-Ring, New Style

Start the post of the Latch through the hole in the Door. Push the O-Ring on the post.

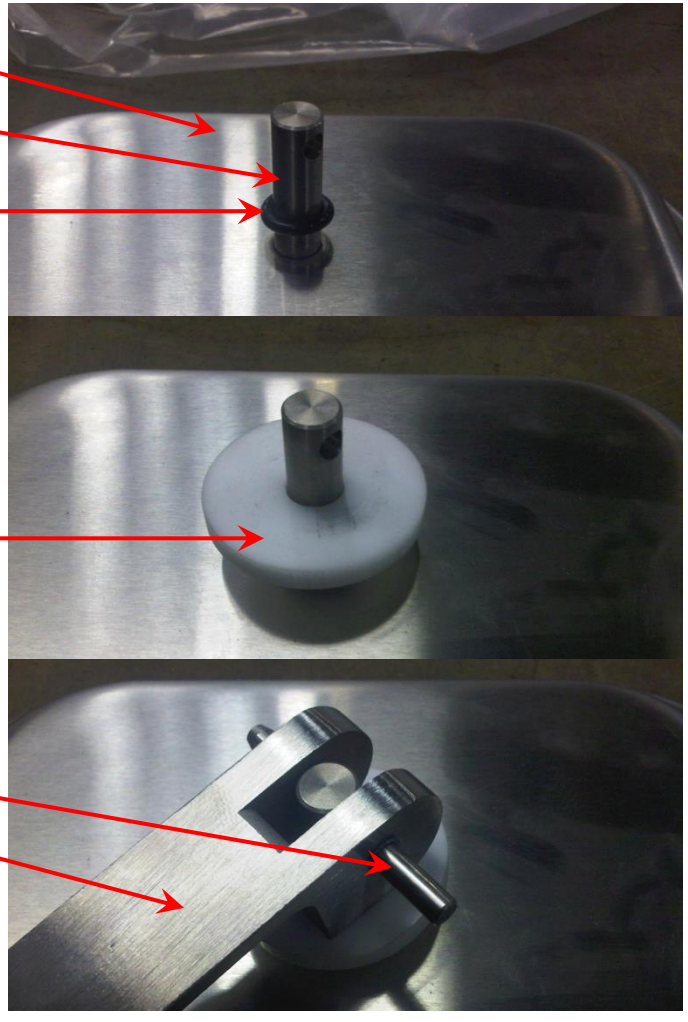
200089 Washer, Handle Delrin

Push the Washer on the post and on-top of the O-ring

12SS-07 Pin, SS Quick Release

200225 Handle, CAM

Push the pin through the holes in the handle and the hole in the post until the ball-lock passes through the last hole on the handle.



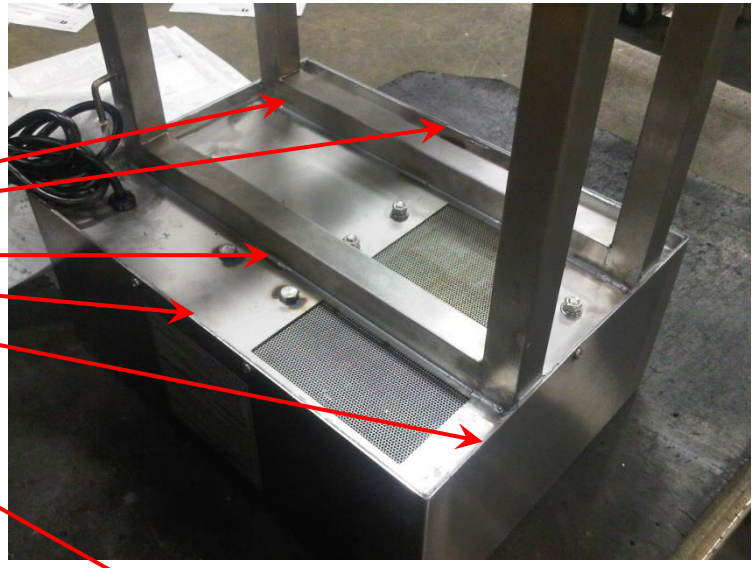
900035 Washer, Rubber 1/2 ID

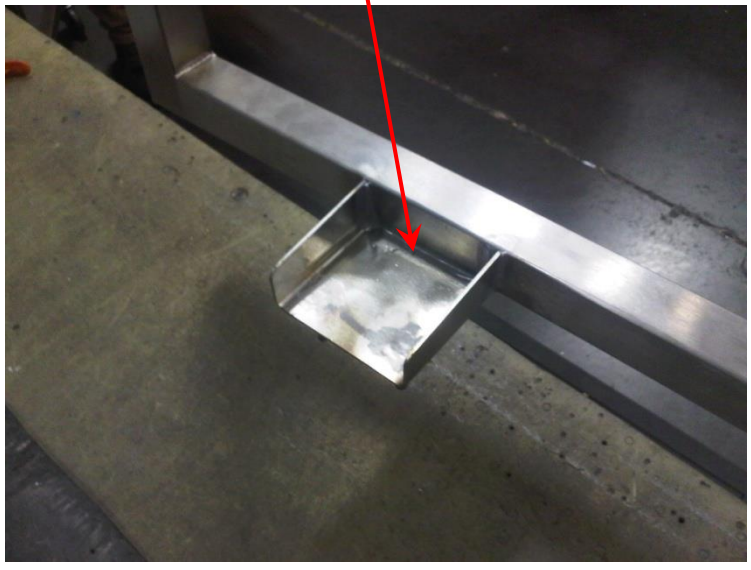
Check inside the drum and opening for any burrs or sharp edges. Remove as necessary.

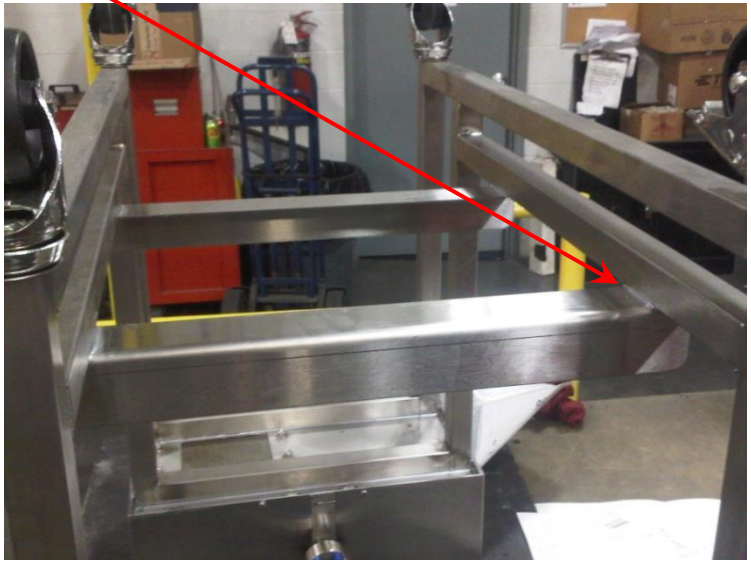
Sealing

Caulking must be used to cover all of the joints and seems on the entire Marinator.

All of the following areas need to have caulk applied and smoothed. Any thru hole on the bottom also needs to be plugged with caulk.







Water Test

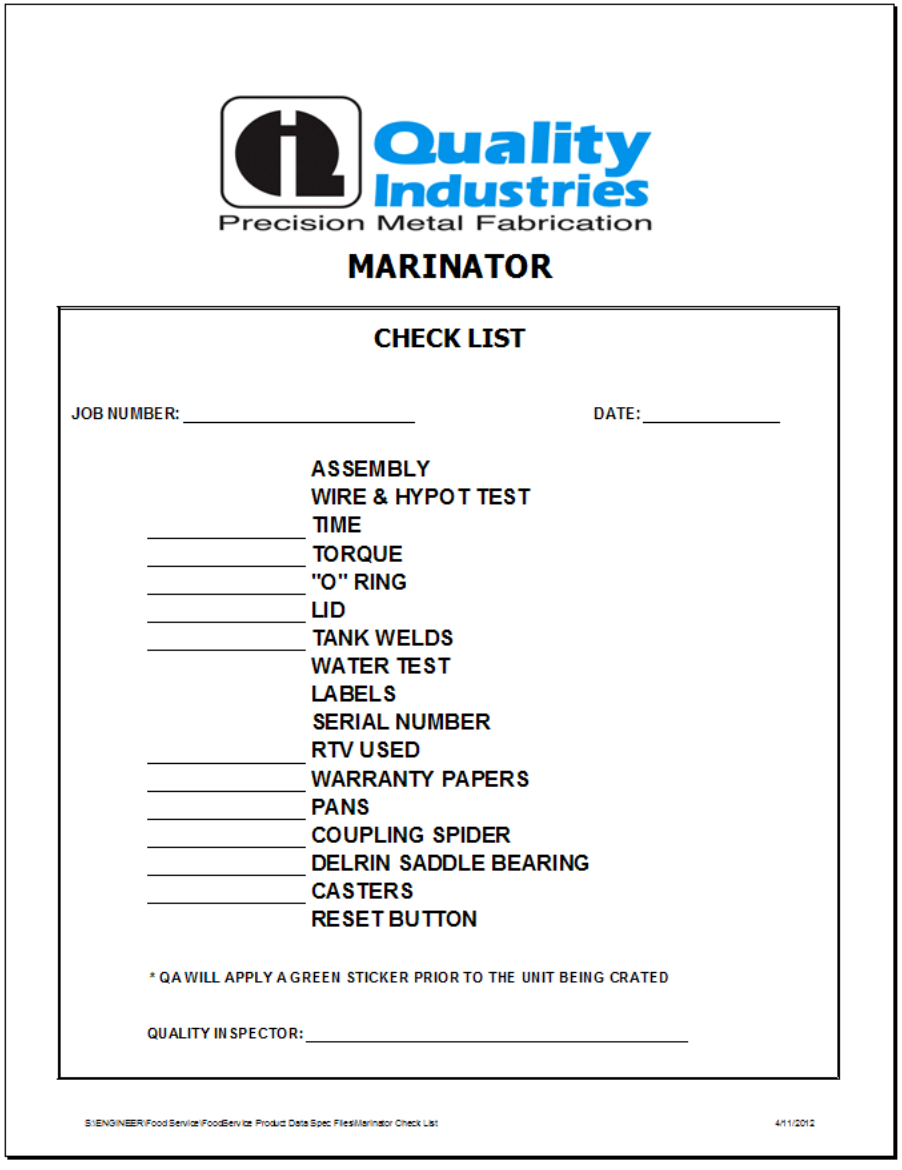
Using roughly 2 gallons of water, fill up the drum. Put the door on the Marinator and lock the handle. Place a white plastic tub under the Marinator to catch and water. Turn the Marinator on and let run for 1-2 minutes. Stop after 1-2 minutes. If no water leaked out then turn the drum upside down and drain all the water out. If water does leak out then you will need to determine where the water is leaking from and make the necessary adjustments. If drum leaks on a seam the drum will need to be sent back to weld and re-worked.

Cleanup

Use a rag to apply the metal cleaner as shown in the figure to the right. Follow the directions on the can for the best results. Once the Marinator is completed, cover in plastic to keep from getting dirty or spotted from finger prints again .

Check List

Once the Marinator is built, complete the document shown to the right in its entirety. As noted at the bottom, "*QA WILL APPLY A GREEN STICKER PRIOR TO THE UNIT BEING CRATED."



Quality Industries
Precision Metal Fabrication

MARINATOR

CHECK LIST

JOB NUMBER: _____ DATE: _____

	ASSEMBLY
	WIRE & HYPOT TEST
_____	TIME
_____	TORQUE
_____	"O" RING
_____	LID
_____	TANK WELDS
	WATER TEST
	LABELS
	SERIAL NUMBER
_____	RTV USED
_____	WARRANTY PAPERS
_____	PANS
_____	COUPLING SPIDER
_____	DELRIN SADDLE BEARING
_____	CASTERS
	RESET BUTTON

* QA WILL APPLY A GREEN STICKER PRIOR TO THE UNIT BEING CRATED

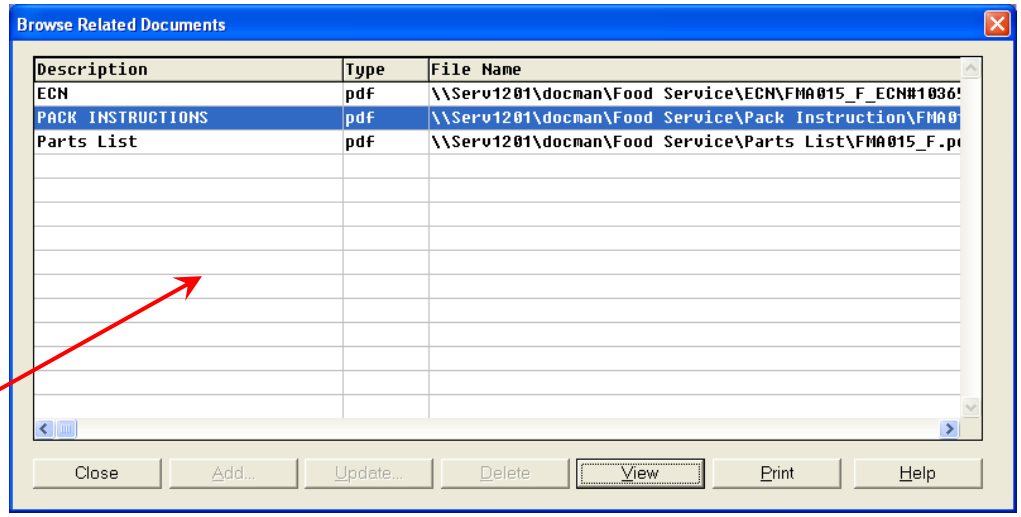
QUALITY INSPECTOR: _____

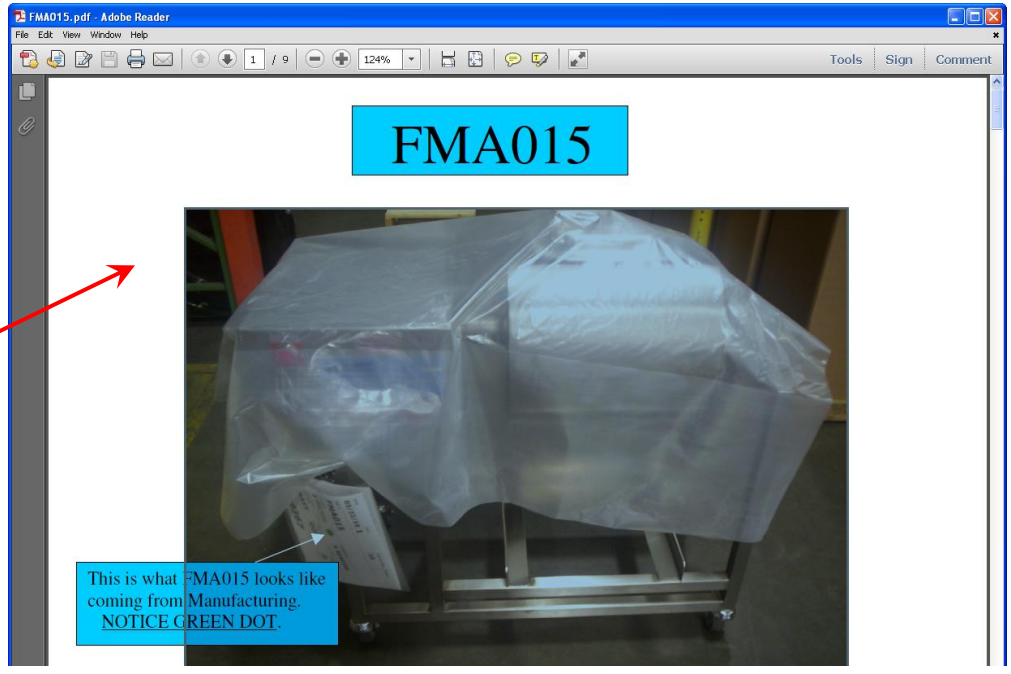
S:\ENGINEER\Food Service\FoodService Product Data Spec Files\Marinator Check List 4/11/2012

Refer to PD drawings in Vantage for proper packing instructions based on exact order and part number.

Figure to the right shows the related documents for FMA015. To get to this point click “Revisions” button in Vantage and then “Drawings” button. Select the option that says “Packing Instructions” then select “View”.

These instructions should show up. Follow these instructions and complete entirely.





Revisions / Releases

Date	Rev.	ECN	Engineer	Description
2/10/2012	A		Ben Risner	Released