Gillison's Variety Fabrication, Inc.

GVF 10,000 Sonic Spray

Owners Manual

Manual Part Number: GTS 11125

Model Number:
GVF 10,000

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Updated 1/12/23

INTRODUCTION

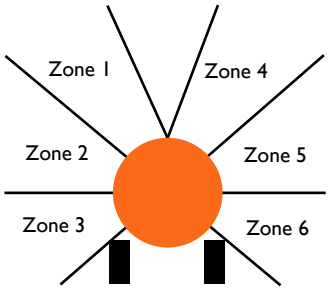
The information in this publication describes the parts of the GVF Sonic Spray, Model GVF 10,000. Every effort has been made to provide correct and concise information, as available at the date of publication. Your GVF dealer is available should items in this book or details of your machine not be understood.

Your GVF dealer can assist in areas concerning machine service. If the original book should become lost or damaged, consult your GVF dealer in regards to acquiring a replacement.

Customers are strongly advised to use an authorized GVF dealer in connection with any service problems and adjustments that may occur.

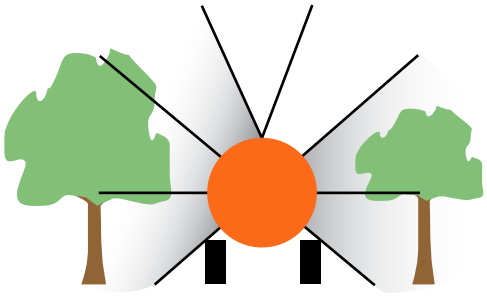
Use only parts from your GVF dealer for repairs and/or replacement.

ABOUT SONIC SPRAY'S ZONES



Rear view of Sonic Spray's zones.

Sonic Spray's Tree Detection System has a zone for each of the ultrasonic high speed sensors. The illustrated system above has 6 sensors & 6 zones.



Rear view.
Zones only turn on when a tree is detected by a sensor.

Once a tree or part of one is detected by a zone sensor, a signal is sent to turn on the spray in that respective zone. If no tree or part of a tree is sensed, no spray is turned on.

OPERATOR INTERFACE DISPLAY

OVERVIEW OF SONIC SPRAY'S OPERATOR INTERFACE

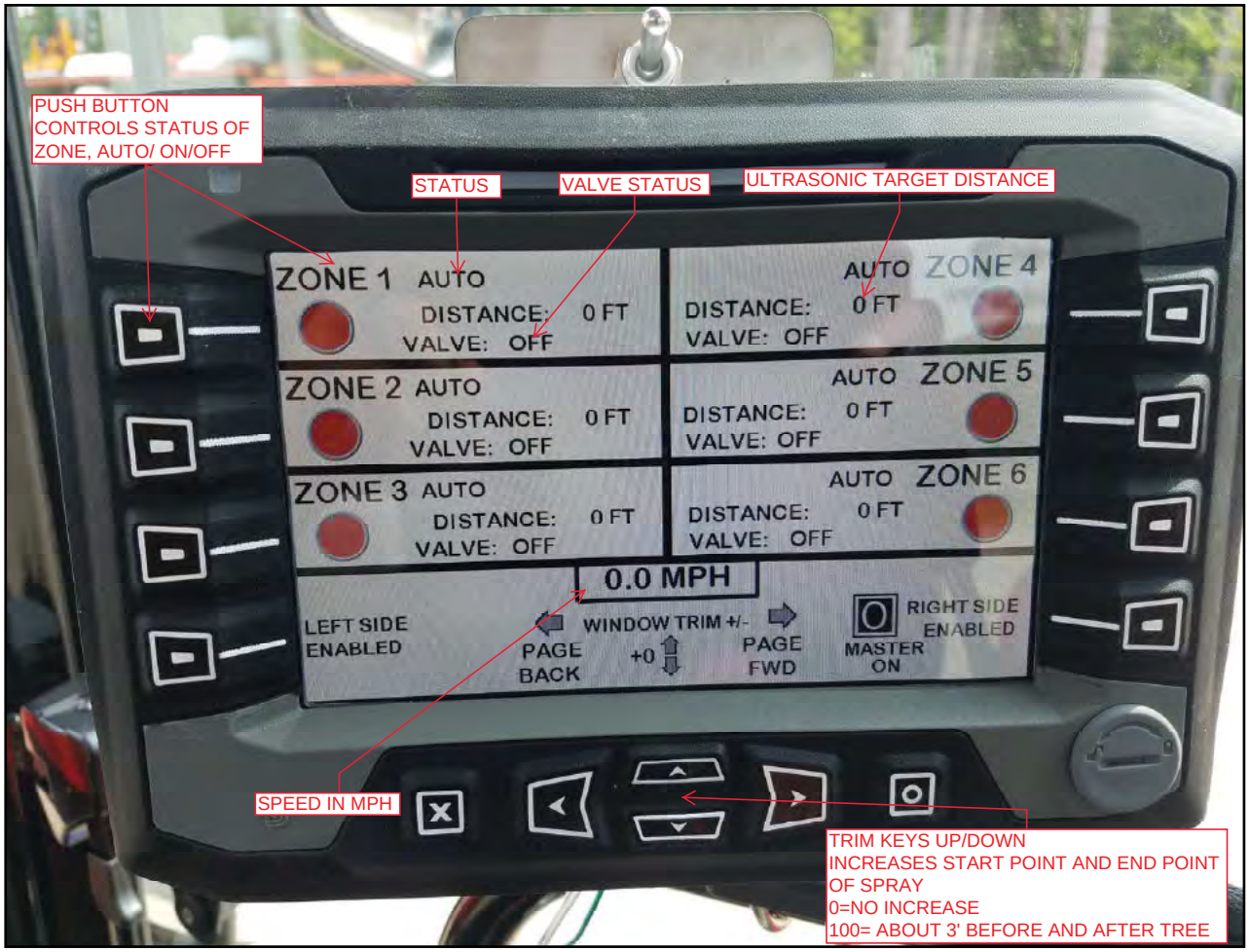
The Operator Interface is the display screen where all of the settings and adjustments are made concerning the operation of the GVF Sonic Spray.

Flip the power switch up on the Operator Interface to turn on and operate the GVF Sonic Spray.

Start Up Screen

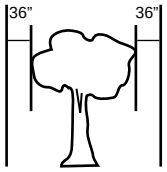
Main Screen

Main Screen

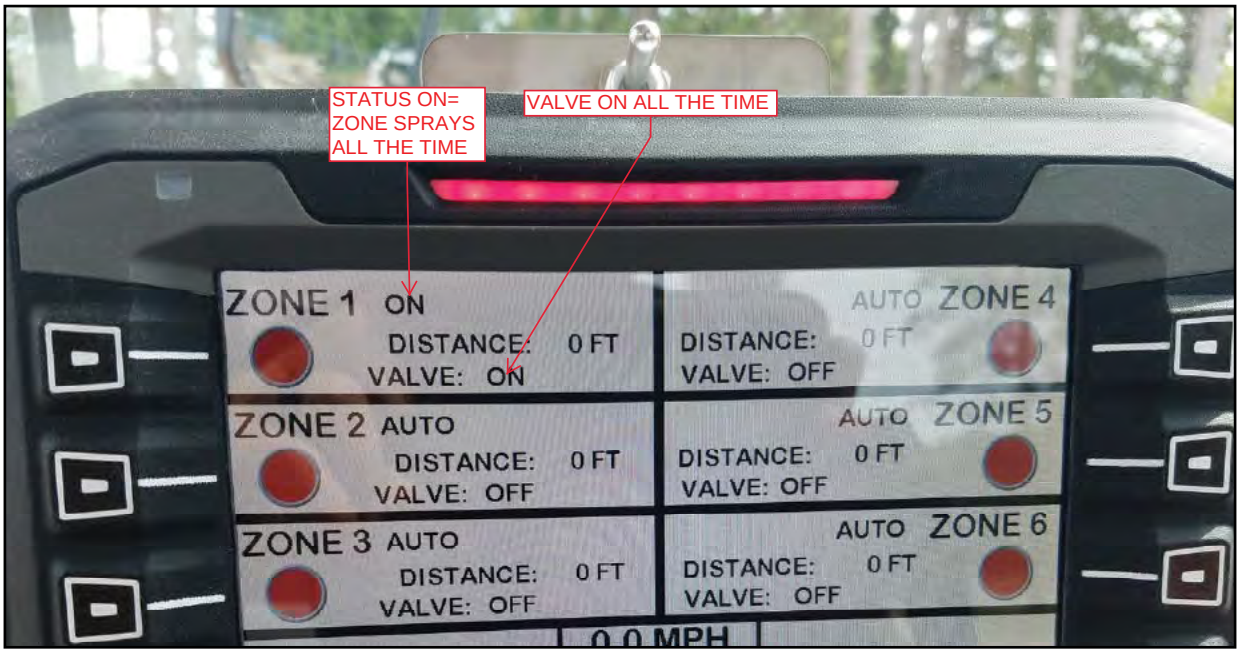


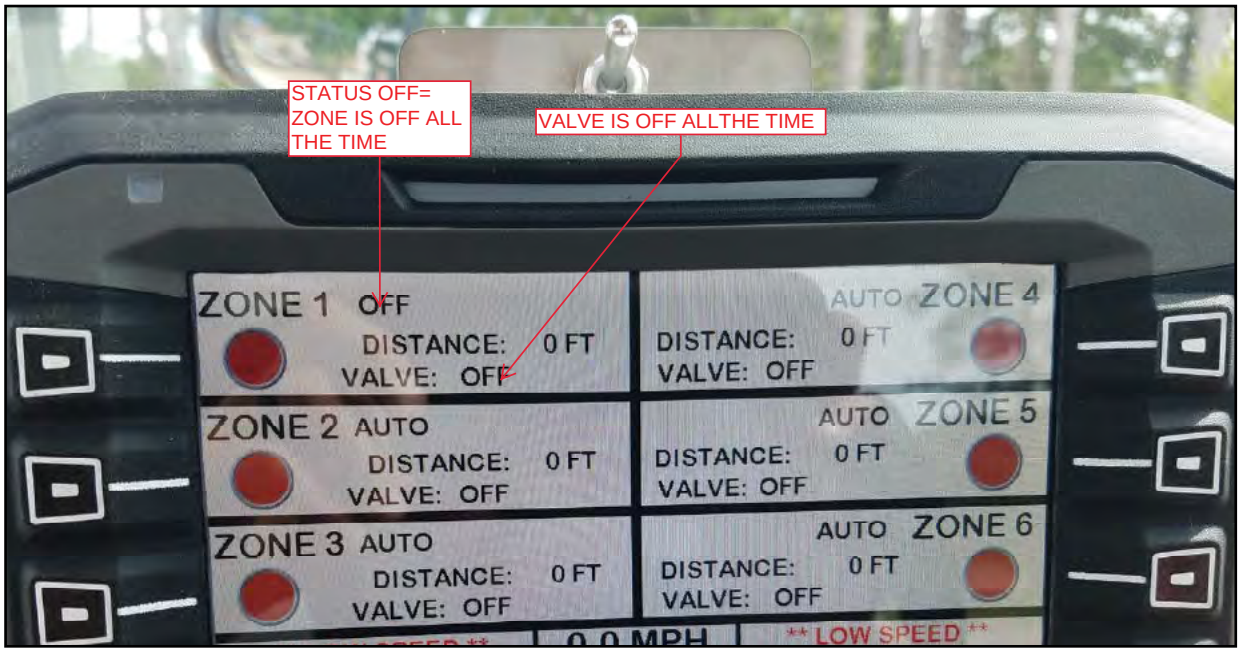
WINDOW TRIM +/-
Adjustable window 0 to 100
0 = no delays
100 = 36”
This is both before and after the object. (see diagram right)

A setting of 100 is equal to 36”. Spraying would start 36” before tree and end 36” after tree.



Ultrasonic Set-Up



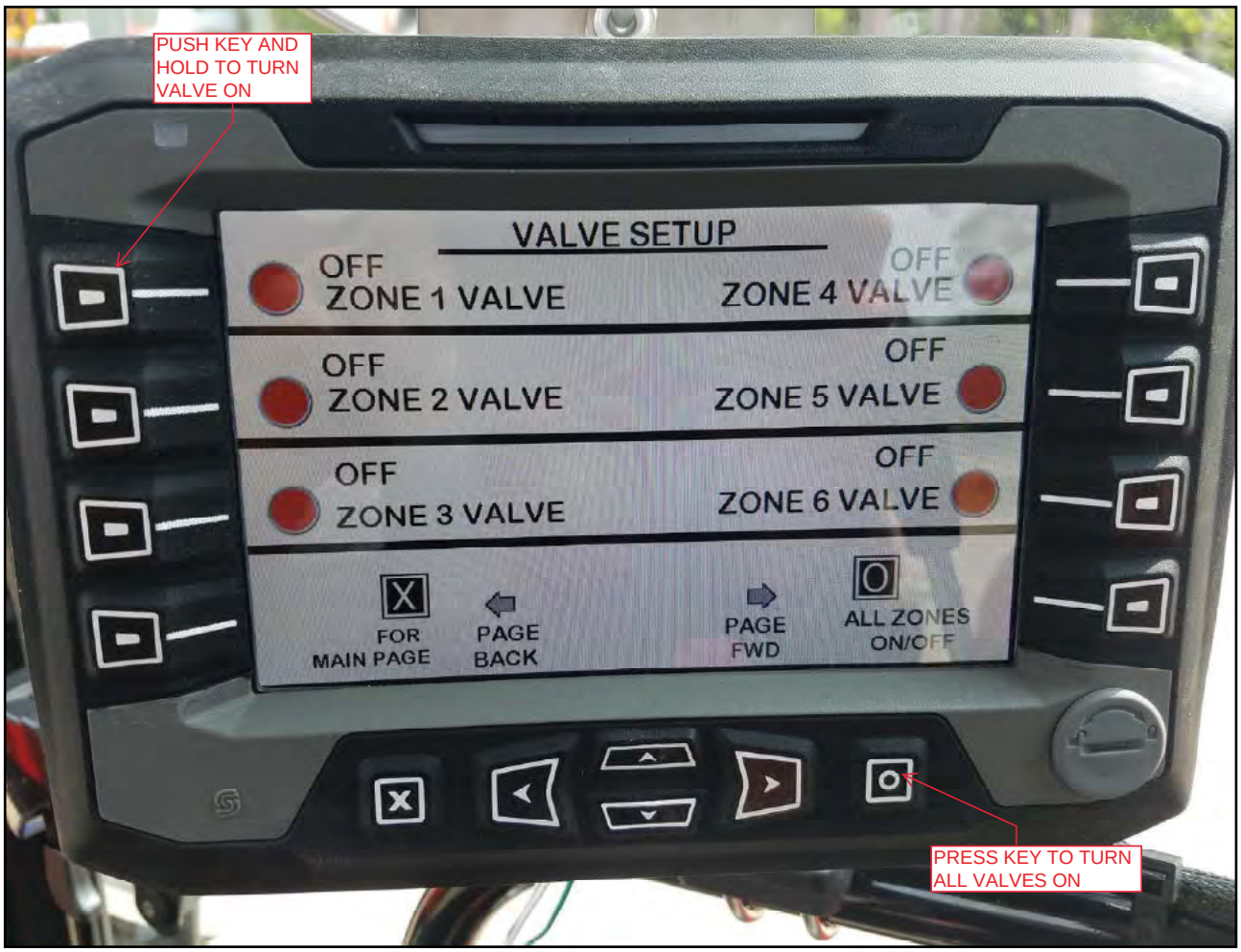


Ultrasonic Set-Up continued

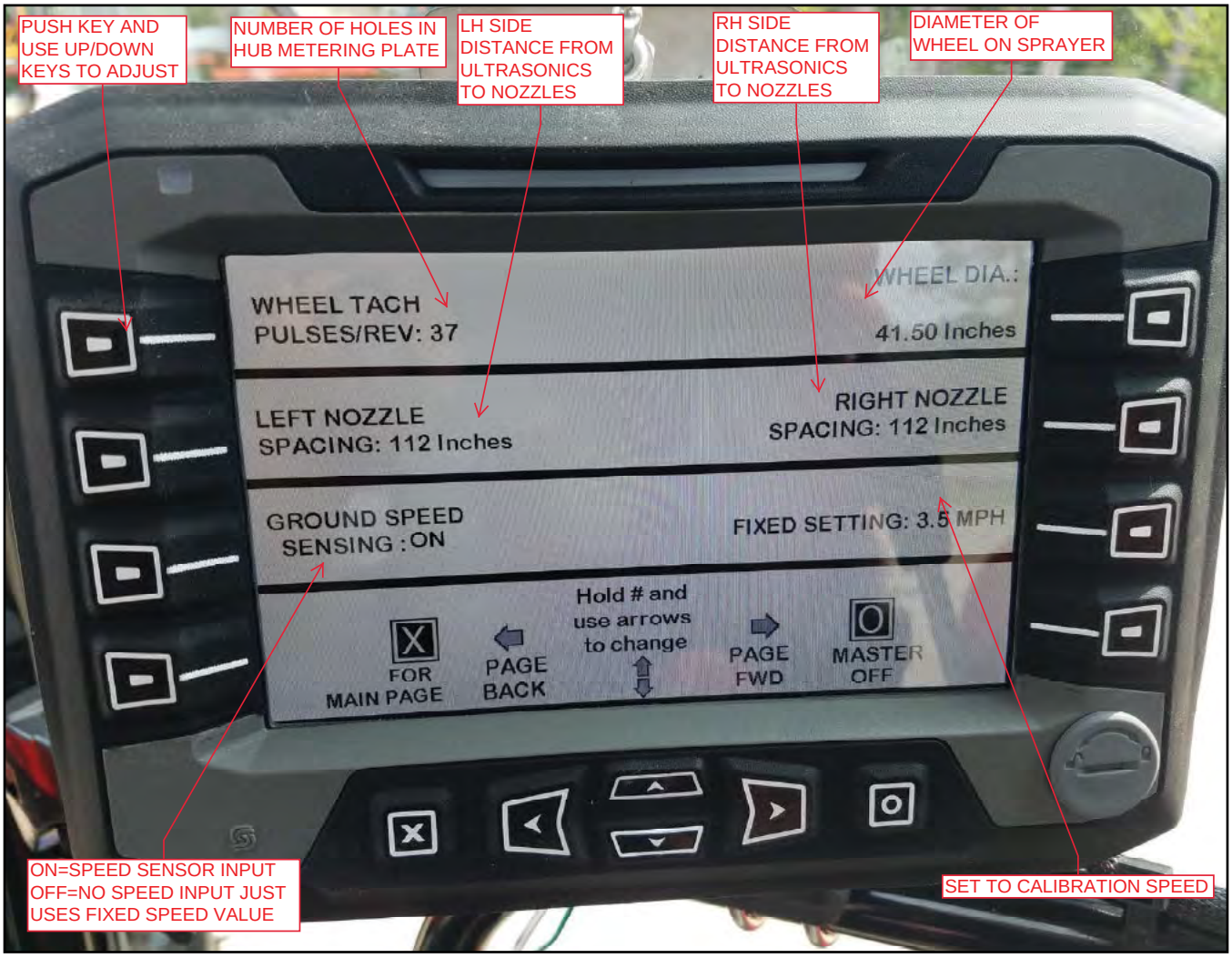
Adjust the maximum distance that the ultrasonic eye will detect.

Valve Set-Up Screen

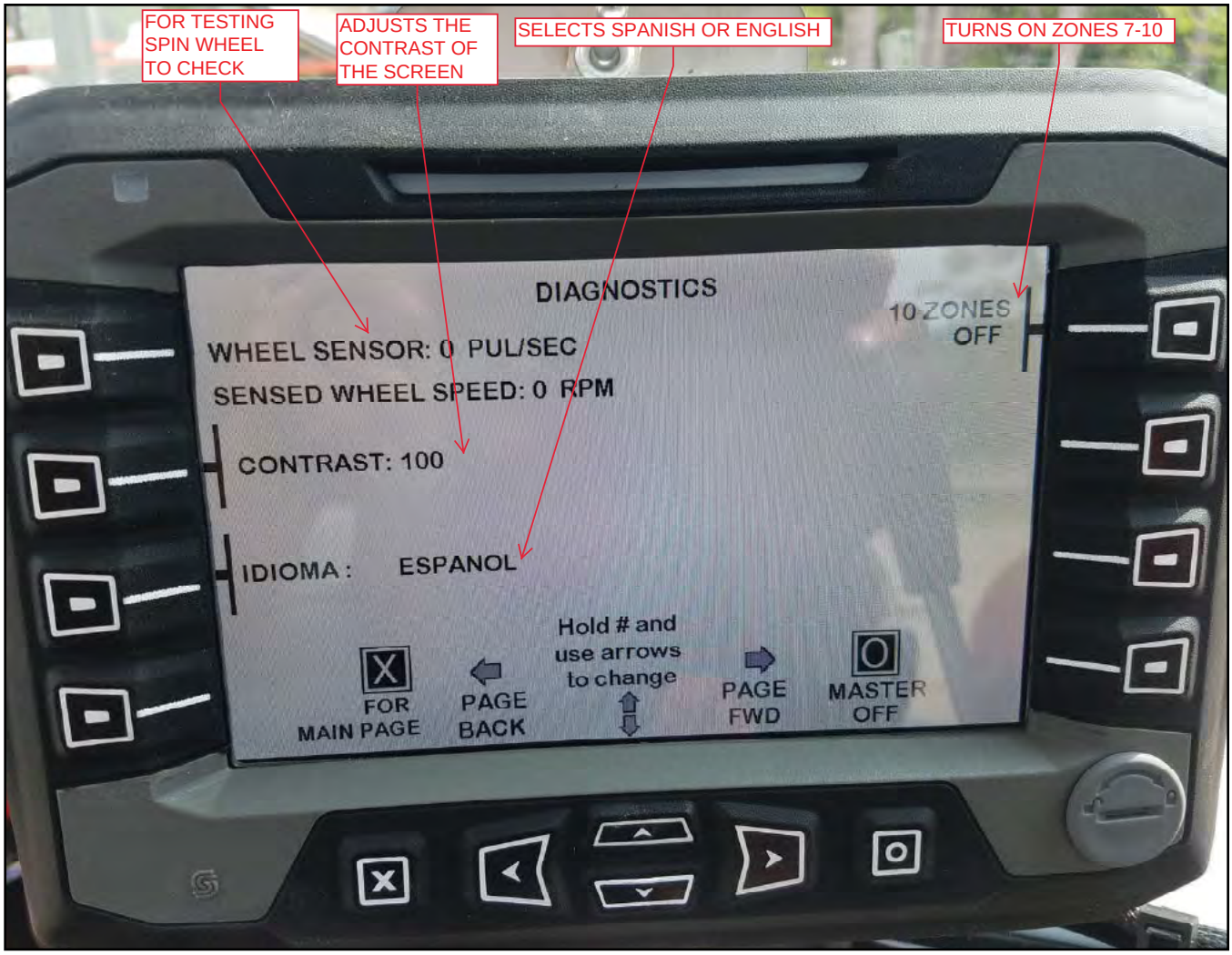
Push the corresponding button to test a valve.



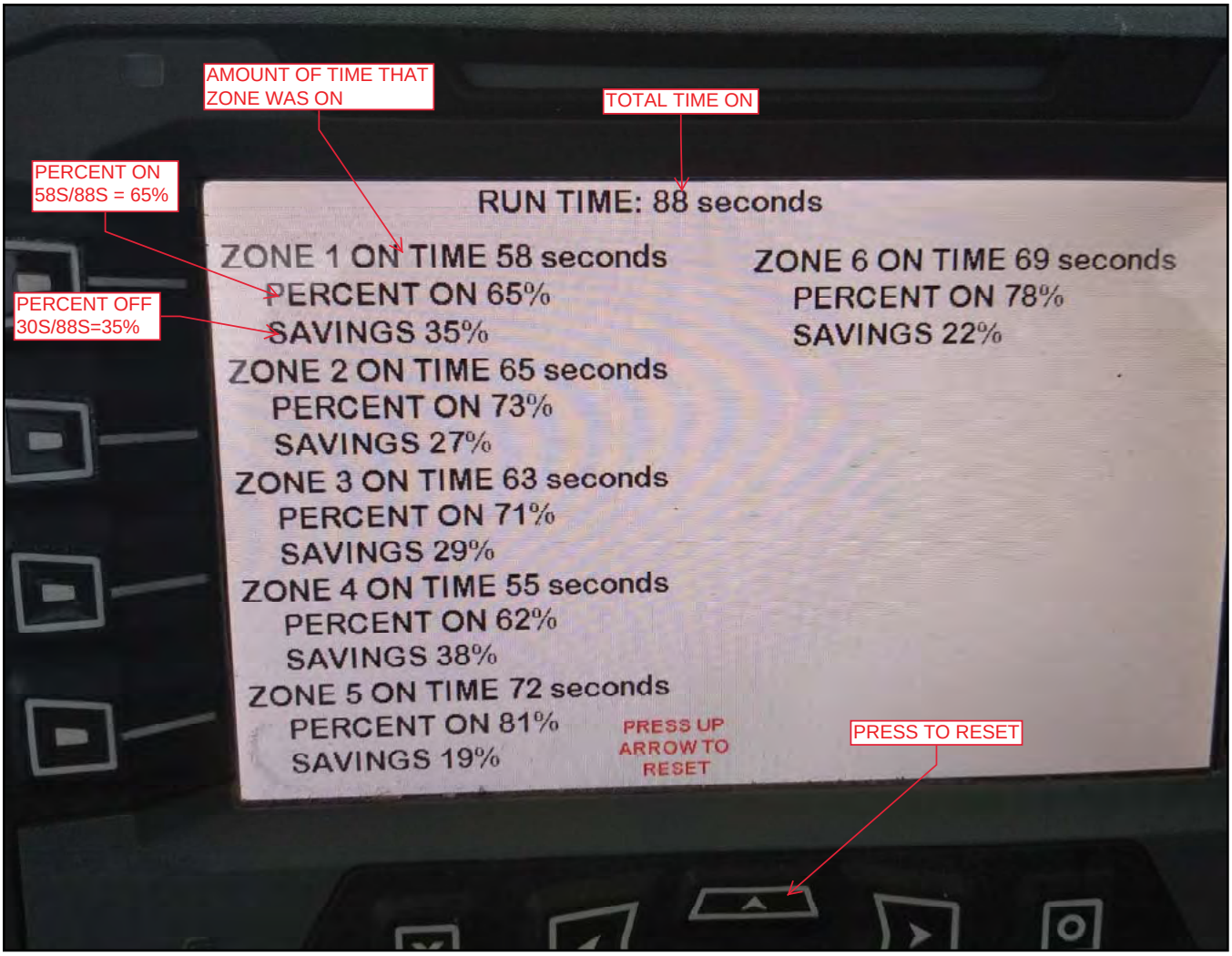
Set-Up Screen



Diagnostics Screen



Zone Savings Screen



INITIAL SET-UP

1) Pulses / Rev.: Number of holes in metering plate on wheel.

2) Nozzle Spacing: This is a distance setting, in inches, from the sprayer's nozzles to the ultrasonic eyes. This distance can be adjusted to accommodate different sprayer lengths.

3) Wheel Diameter: Diameter of wheel, in inches. Use directions below to achieve the most accurate wheel diameter.

1) Mark side wall of tire and the ground.

2) Rotate tire 3 revolutions until the mark lines up with ground again.

3) Measure linear distance traveled on the ground.

Diameter x pi (3.14) =
wheel circumference

Example: Distance = 368"

Divide by 3 revolutions: $\frac{368}{3} = \frac{122.46"}{3.14} = 39"$

Divide by pi (3.14) — Diameter

4) Turn on Ground Speed Sensing.

5) Set trip point distance for each eye. This is the maximum distance each eye will target.

OPERATION

1) Turn on sprayer.

2) Turn on sprayer valves.

3) Select the zones in Sonic Spray's Operator Interface Main Screen that are desired to run. Enable Master, enable RH zone + LH zone. Each zone 1-10 defaults to auto. If you want them on/off, push zone button to change. First start up after power down Master on/off turns all zones on/off. RH + LH side turn on/off corresponding sides.

4) Now ready for spraying. Select tractor speed where calibrated. Use Ground Speed in Sonic Spray's Operator Interface to maintain speed.

Turn off power switch when done with operation.

MAINTENANCE

BASIC

1) Eyes: Do not power wash tip of ultrasonic eyes/ sensors. Wash with soft, damp cloth only.

2) Valves: Partially fill tank with clean water. Run sprayer and operate valves on/off to clean out at the end of each day of use.

3) Wheels: Check wheel bearings to prevent wobble which could in turn effect proximity switch wheel speed.

4) Tire Inflation: Maintain constant pressure. Pressure change can affect tire diameter and ground speed.

WINTERIZING

1) Remove hoses going to each valve.

2) Energize each valve.

3) Turn on each valve and blow air through

until only air comes out of the nozzles.

MAINTENANCE OF SOLENOID VALVES

GTS 11005, GTS 11006

Cleaning

All solenoid valves should be cleaned periodically. The time between cleanings will vary depending on the medium and service conditions. In general, if the voltage to the coil is correct, sluggish valve operation, excessive noise or leakage will indicate that cleaning is required. In the extreme case, faulty valve operation will occur and the valve may fail to open or close. Clean strainer or filter when cleaning the valve.

Preventive Maintenance

- Keep medium flowing through the valve as free from dirt and foreign material as possible.
- Periodic exercise of the valve should be considered if ambient or fluid conditions are such that corrosion, elastomer degradation, fluid contamination build up, or other conditions that could impede solenoid valve shifting are possible. The actual frequency of exercise necessary will depend on specific operating conditions. A successful operating history is the best indication of a proper interval between exercise cycles.
- Depending on the medium and service conditions, periodic inspection of internal valve parts for damage or excessive wear is recommended. Thoroughly clean all parts. If parts are worn or damaged, install a complete rebuild kit.

Valve Disassembly

1. Disassemble valve in an orderly fashion using exploded views for identification and placement of parts.
2. Remove solenoid enclosure.
3. For standard construction, unscrew solenoid base sub−assembly from valve bonnet and remove core assembly with core spring attached and remove solenoid base gasket.

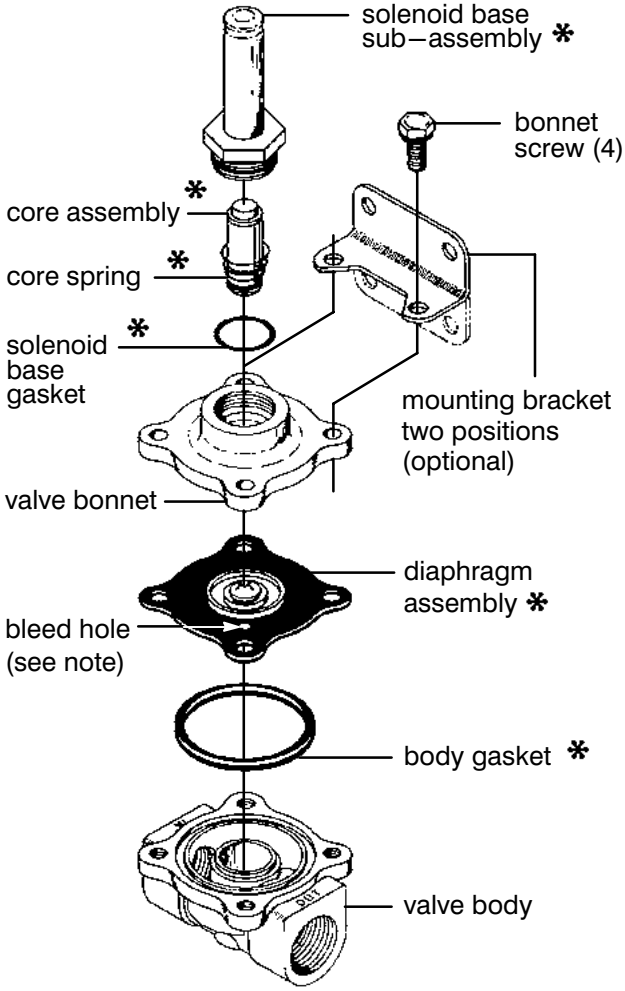
   All Parts are now accessible for cleaning or replacement. If parts are worn or damaged, install a complete ASCO Rebuild Kit.

Valve Reassembly

1. Lubricate body gasket and solenoid base gasket with DOW CORNING® 200 Fluid lubricant or an equivalent high−grade silicone fluid.
2. Replace body gasket and diaphragm assembly. Locate bleed hole in diaphragm assembly approximately 45° from valve outlet. Install valve bonnet and bonnet screws.
3. Install solenoid base gasket, core assembly with core spring and solenoid base sub−assembly.
4. Torque solenoid base sub−assembly to 175 ± 25 in−lbs [19,8 ± 2,8 Nm].
5. Install solenoid.

⚠ WARNING: To prevent the possibility of death, serious injury or property damage, check valve for proper operation before returning to service. Also perform internal seat and external leakage tests with a nonhazardous, noncombustible fluid.

6. Restore line pressure and electrical power supply to valve.
7. After maintenance is completed, operate the valve a few times to be sure of proper operation. A metallic *click* signifies the solenoid is operating.



INSTALLATION ON TRACTOR

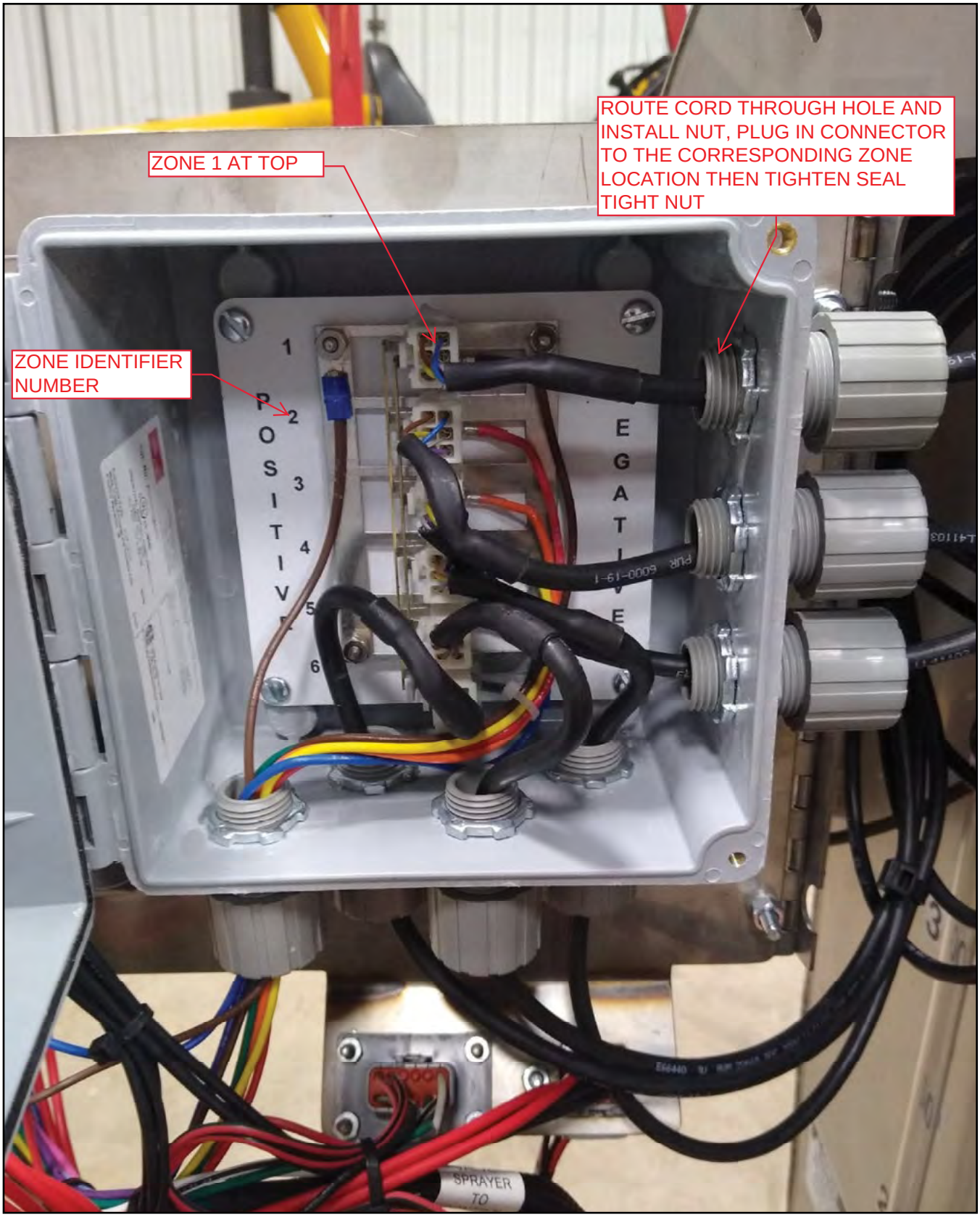
1) Route power supply harness to battery on tractor. Connect red wire to 12V post on battery. Connect black wire to ground post.

2) Route display harness into tractor cab and plug in corresponding connections.

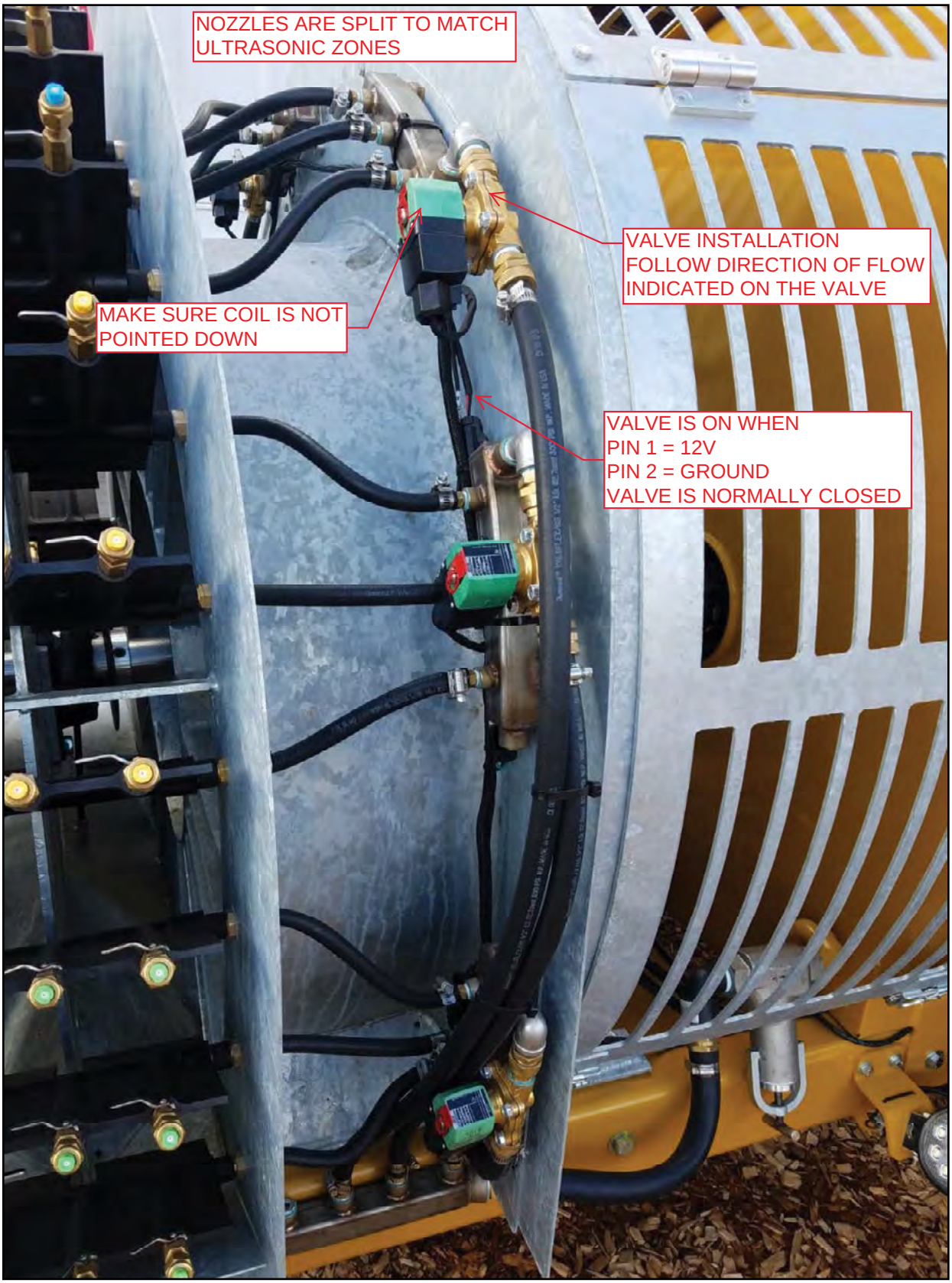
KIT INSTALLATION ON SPRAYER

ZONE DIAGRAM

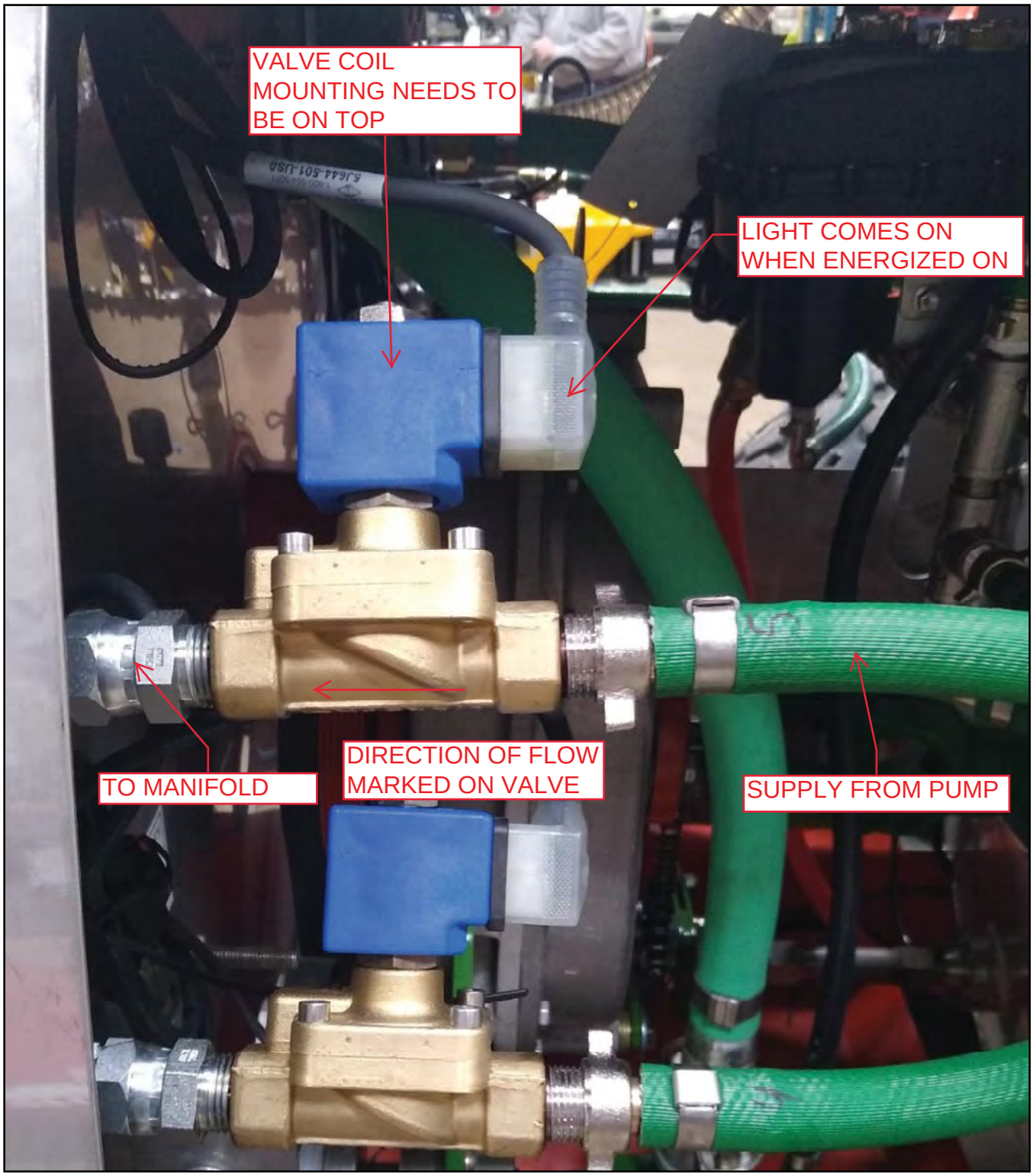
ULTRASONIC ELECTRICAL CONNECTIONS



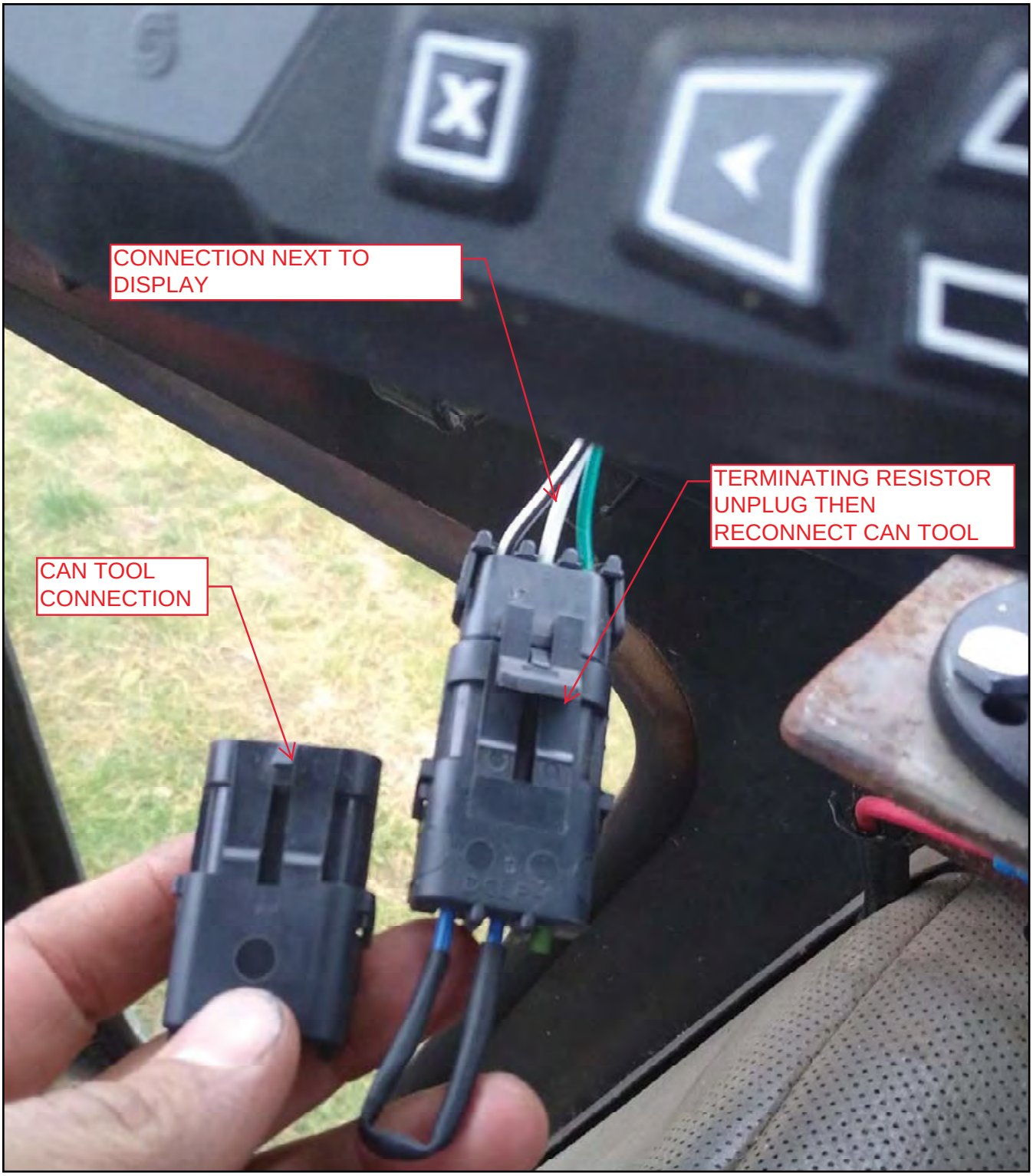
VALVE MOUNTING REFERENCE



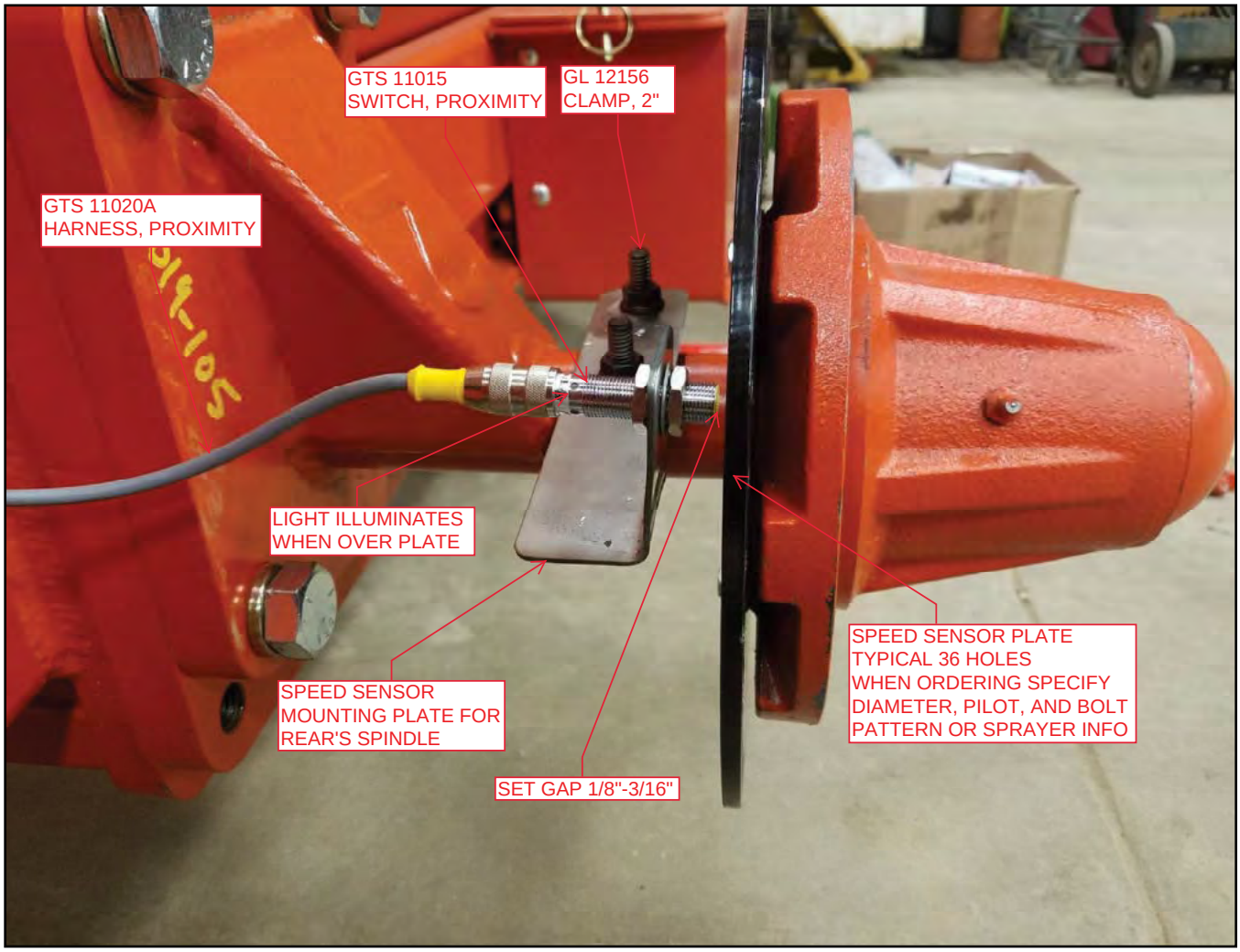
VALVE INSTALLATION



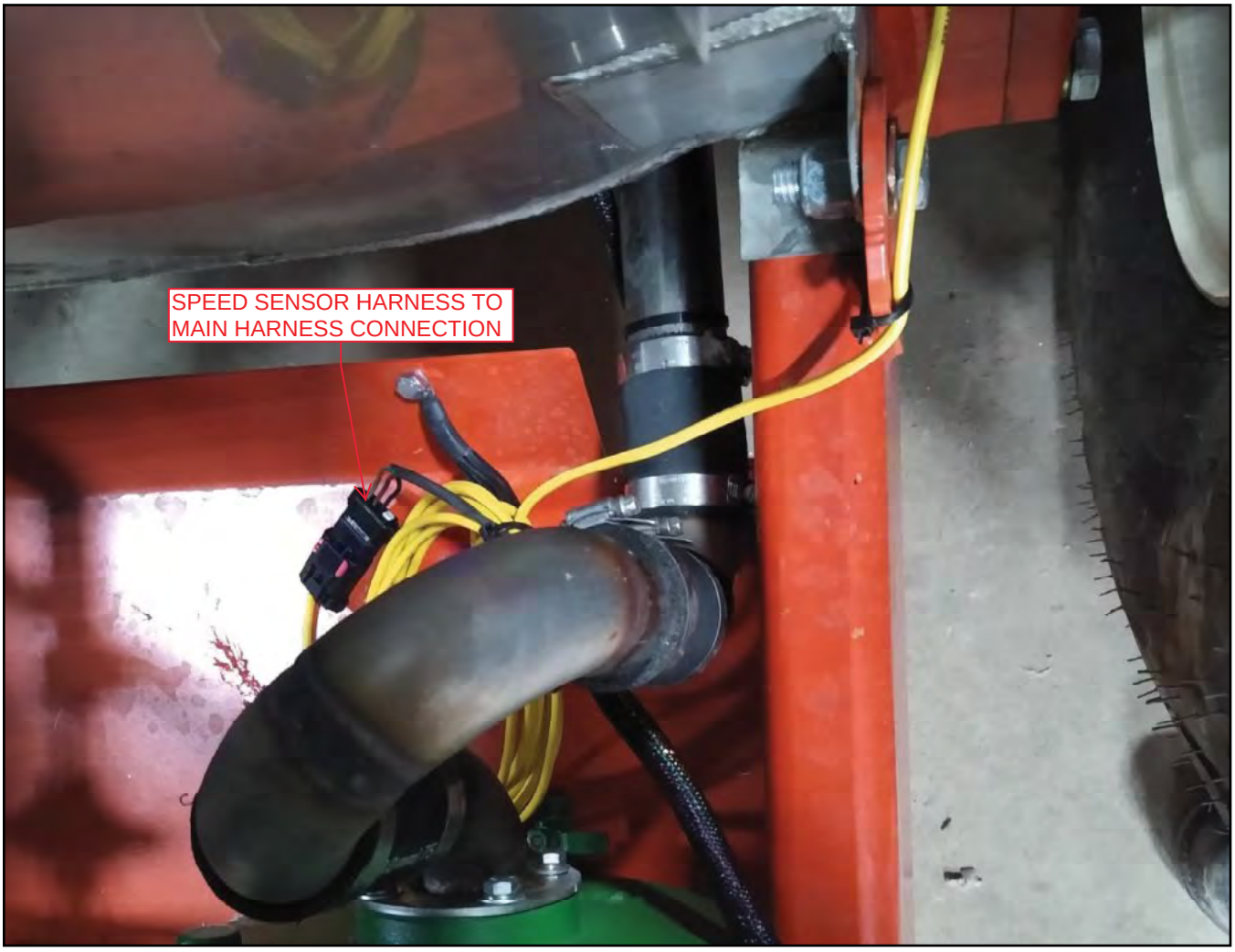
DISPLAY CONTROLLER CAN TOOL



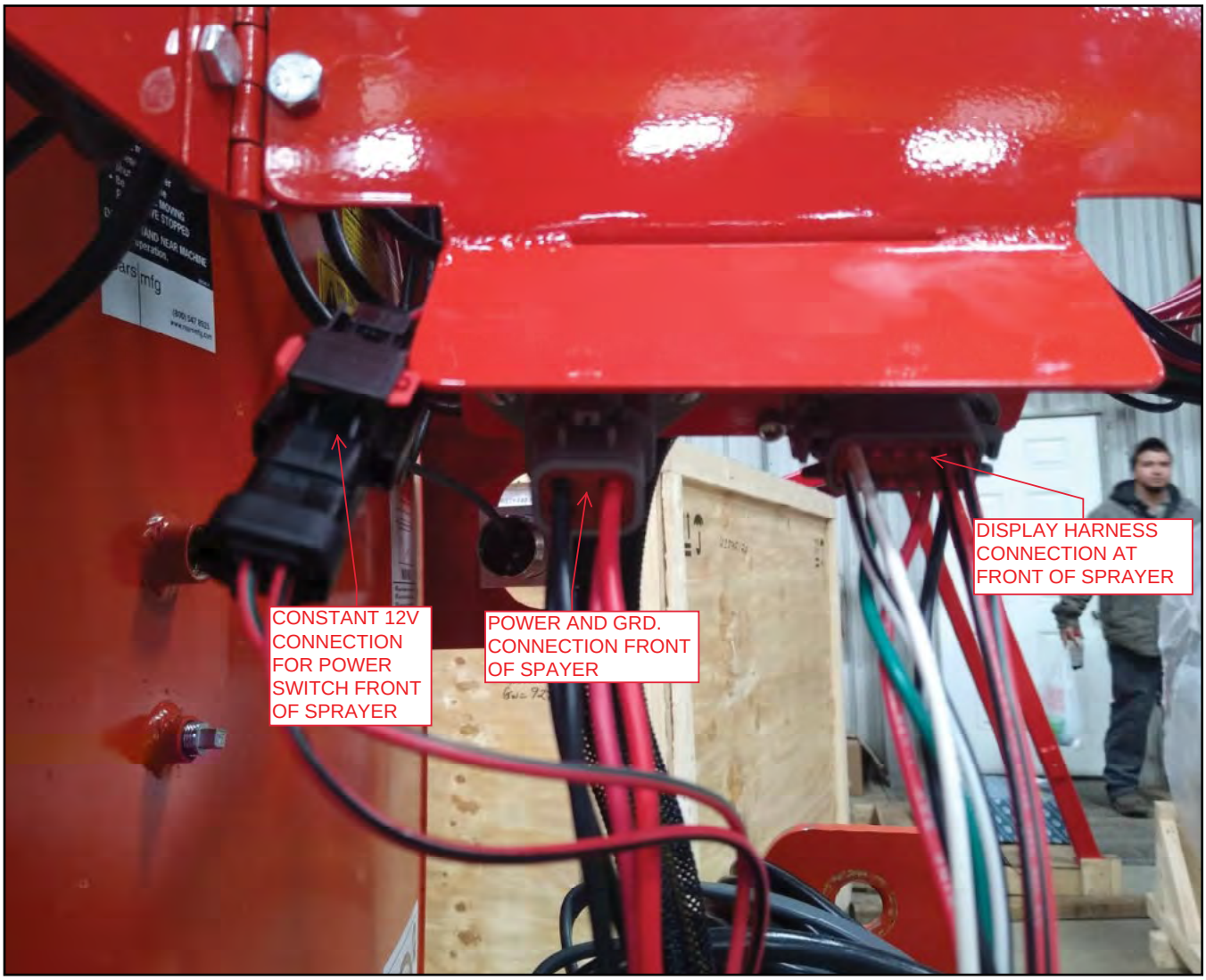
SPEED SENSOR AND PARTS



SPEED SENSOR HARNESS TO MAIN CONNECTION



FRONT OF SPRAYER ELECTRICAL CONNECTIONS



TROUBLESHOOTING

SONIC SPRAY WILL NOT POWER UP

1) Check 50 & 20 amp fuse in PRM located at battery. Replace if necessary.

2) Check power switch.

3) Check Power Relay Module.

4) Check harnesses and make sure everything is plugged in.

POWER TO CONTROL ON GREEN LIGHT ILLUMINATED BUT DISPLAY NOT WORKING

1) Check 5 amp fuse located by control.

2) Check connections to display.

3) Check 3 way weather pack plug in harness next to display. It has a 100 OHM resistor located between terminals A & B must be in circuit for display to work.

GROUND SPEED NOT WORKING

1) Check 10 amp fuse by control.

2) Check to make sure that the wheel speed sensor is plugged in. LED light will pulse when wheel is rotated.

3) Check clearance between tip of sensor and metering plate max distance .185”

VALVE NOT OPENING

1) Check for 12V to valve connection pin 1 turn on in manual operation on display.

2) Check for ground pin 2.

3) Switch coil with another valve.

4) Use procedure for disassembling valve.

VALVE NOT SHUTTING OFF

1) Unplug electrical connection.

2) Use procedure for dissassembling valve. Check diaphragm seat.

ULTRASONIC 1 NOT WORKING

1) Check status lights on back of eye.

2) Use display to check output of eye. Hold cardboard in front of eye and check distance on display.

3) Check 12V power on brown wire.

Check for ground on blue wire.

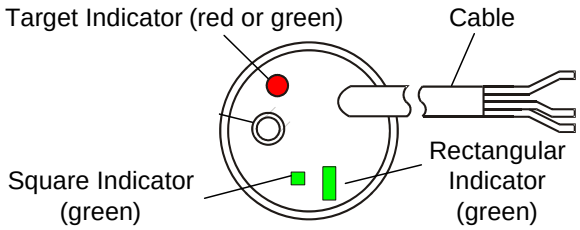
Check 0-10V output on violet wire.

0V= No Target

10V = 25’

ULTRASONICS

Rear Features



The target indicator (round) shows the target status and other conditions. It is always ON when power is applied and will be either RED or GREEN.

The square status indicator and rectangular status indicator show sensor outputs status.

POWER ON STATUS

When sensor power is ON, the target indicator will be RED or GREEN. It may also be flashing at a slow or fast rate under other conditions described below.

TARGET STATUS & NEAR MIN

This is the primary operational purpose of the target indicator. The target status displays follows:

• GREEN is a normal indication, indicating a target is detected within the sensor’s operating range.

• RED indicates no target is detected within the sensor’s operating range.

• FAST FLASH GREEN warns that the target is within 0.25 in. (6.4 mm) of range MIN.

When unlocked the sensor’s target indicator continues to operate but slowly alternates on and off to indicate TEACH readiness.

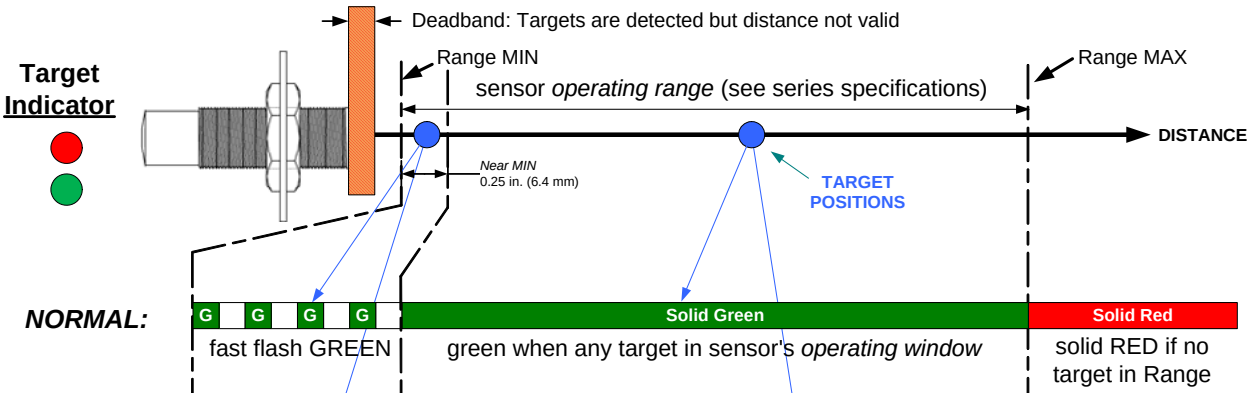
Troubleshooting Continued

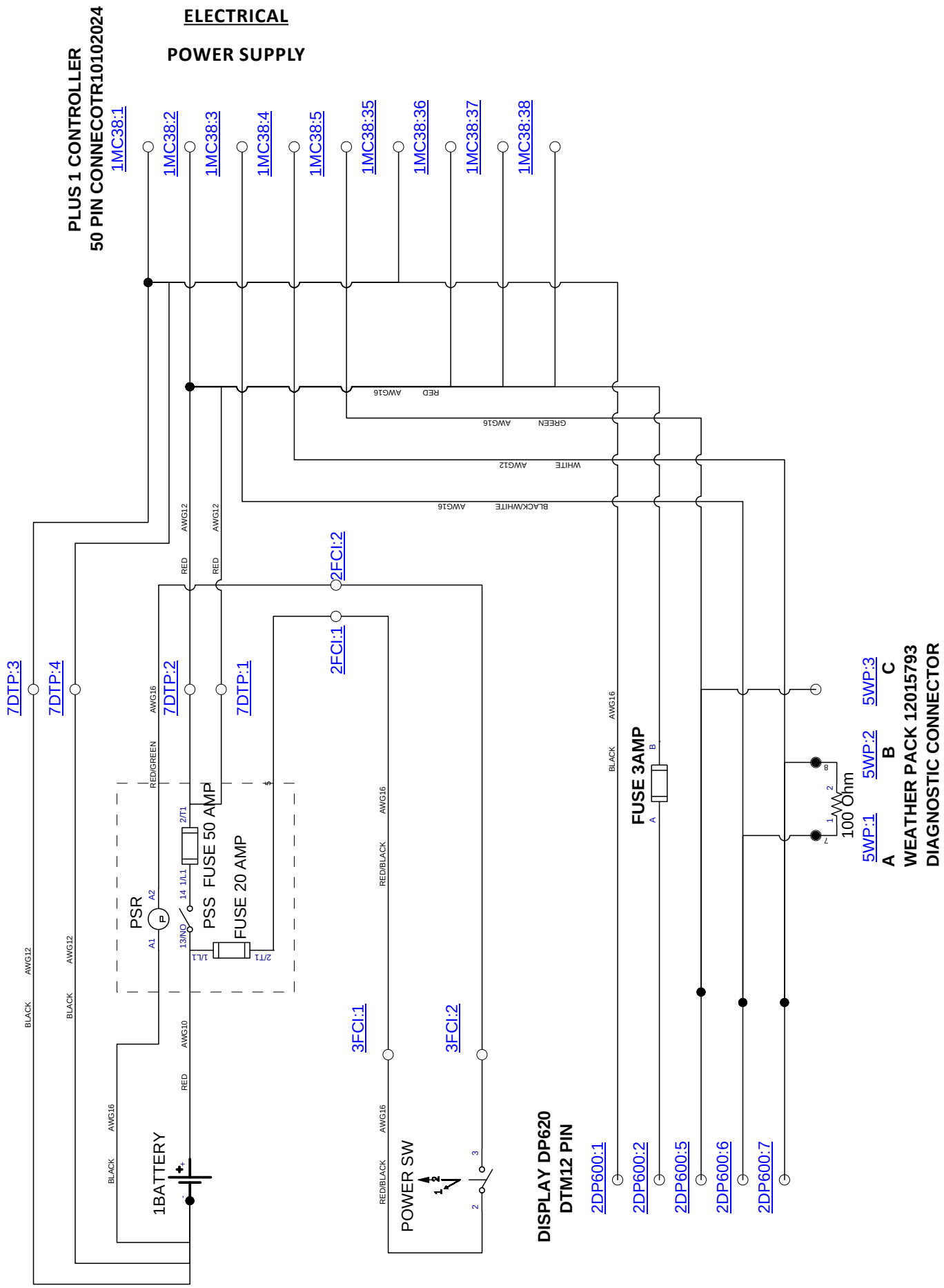
NO SYNC WARNING

The SYNC feature is used and a slave sensor does not detect a master SYNC input, the slave will stop measuring and the Target Status indicator will slowly alternate between RED and GREEN until SYNC is restored.

TARGET INDICATOR FUNCTIONS

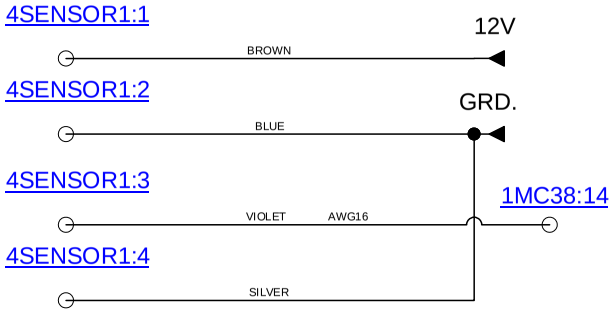
Figure Below.



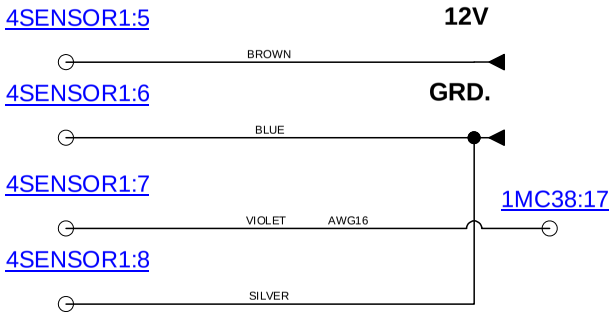

ELECTRICAL
POWER SUPPLY
PLUS 1 CONTROLLER
50 PIN CONNECOTR10102024
1MC38:1
1MC38:2
1MC38:3
1MC38:4
1MC38:5
1MC38:35
1MC38:36
1MC38:37
1MC38:38
RED AWG16
GREEN AWG16
WHITE AWG12
BLACK/WHITE AWG16
2FCI:2
2FCI:1
7DTP:3
7DTP:4
7DTP:2
7DTP:1
PSR
PSS FUSE 50 AMP
FUSE 20 AMP
1BATTERY
3FCI:1
3FCI:2
POWER SW
FUSE 3AMP
DISPLAY DP620
DTM12 PIN
2DP600:1
2DP600:2
2DP600:5
2DP600:6
2DP600:7
100 Ohm
5WP:1
5WP:2
5WP:3
A
B
C
WEATHER PACK 12015793
DIAGNOSTIC CONNECTOR

ULTRASONICS

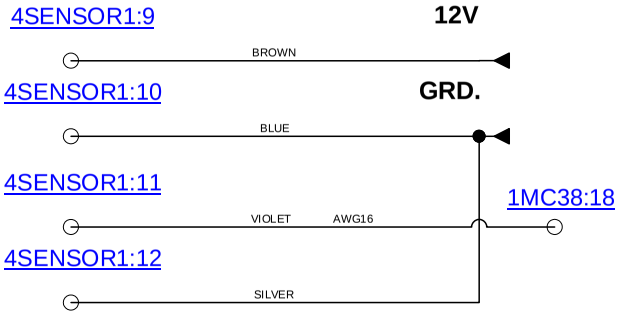
ULTRA SONIC SENSOR LH ZONE 1



ULTRA SONIC SENSOR LH ZONE 2



ULTRA SONIC SENSOR LH ZONE 3



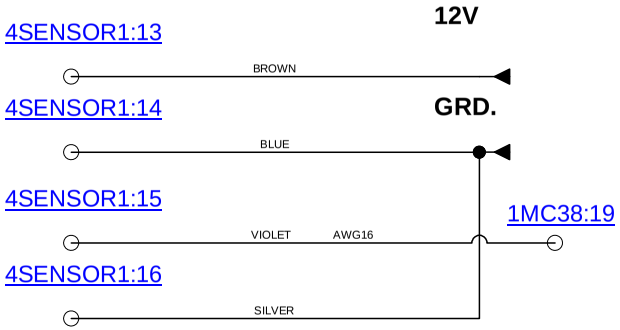
CONNECT ALL GRAY WIRES TOGETHER

CONNECT ALL YELLOW WIRES TOGEHTER

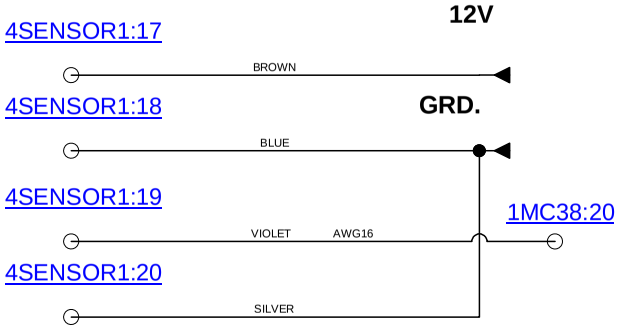
VIOLET WIRES ARE OUTPUTS TO CONTROL 0-10V OUTPUT
0V=NO TARGET
10V=TARGET AT 25'

WIRING PIN OUTS
1. 12V BROWN
2. YELLOW
3. GRAY
4. GROUND BLUE
5. SHIELD "BARE WIRE"
6. OUTPUT PURPLE

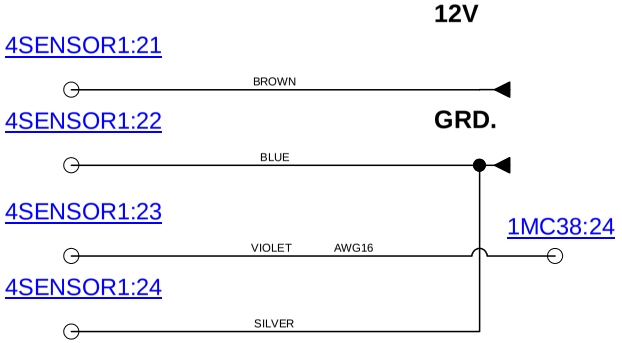
ULTRA SONIC SENSOR RH ZONE 1



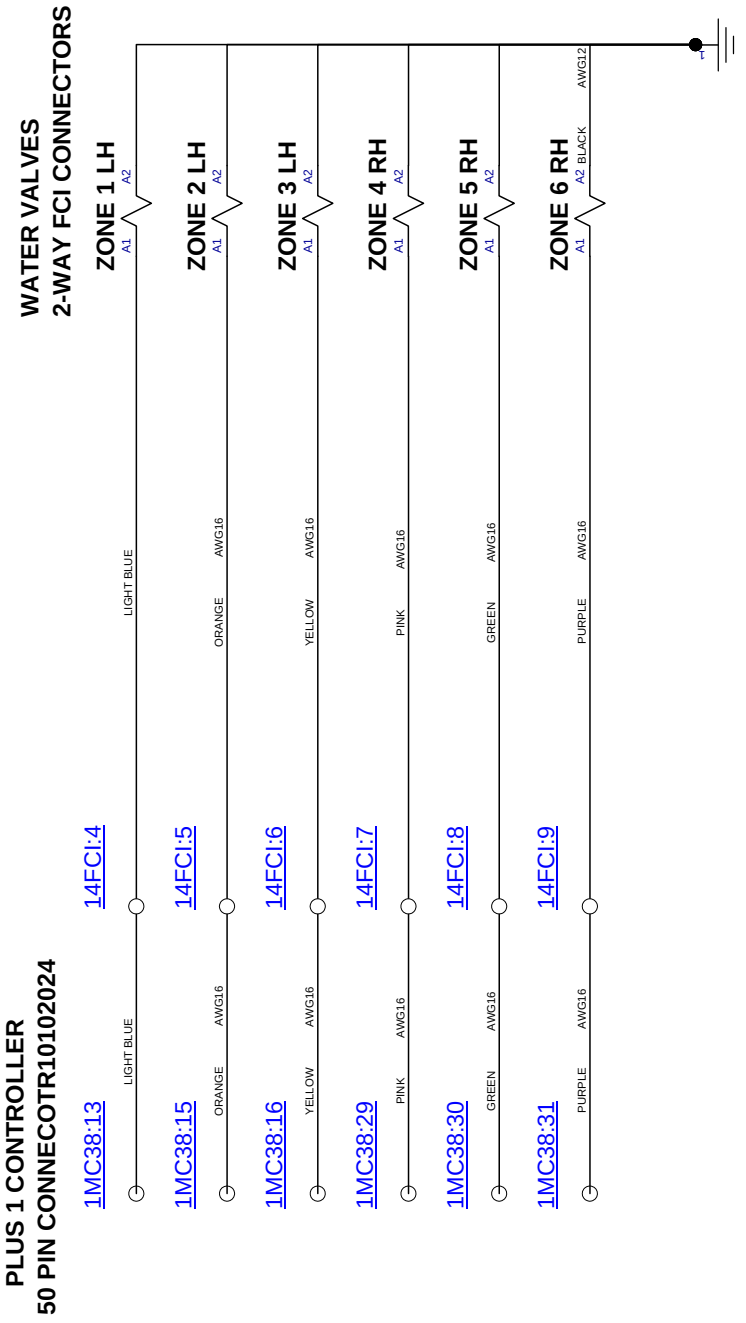
ULTRA SONIC SENSOR RH ZONE 2



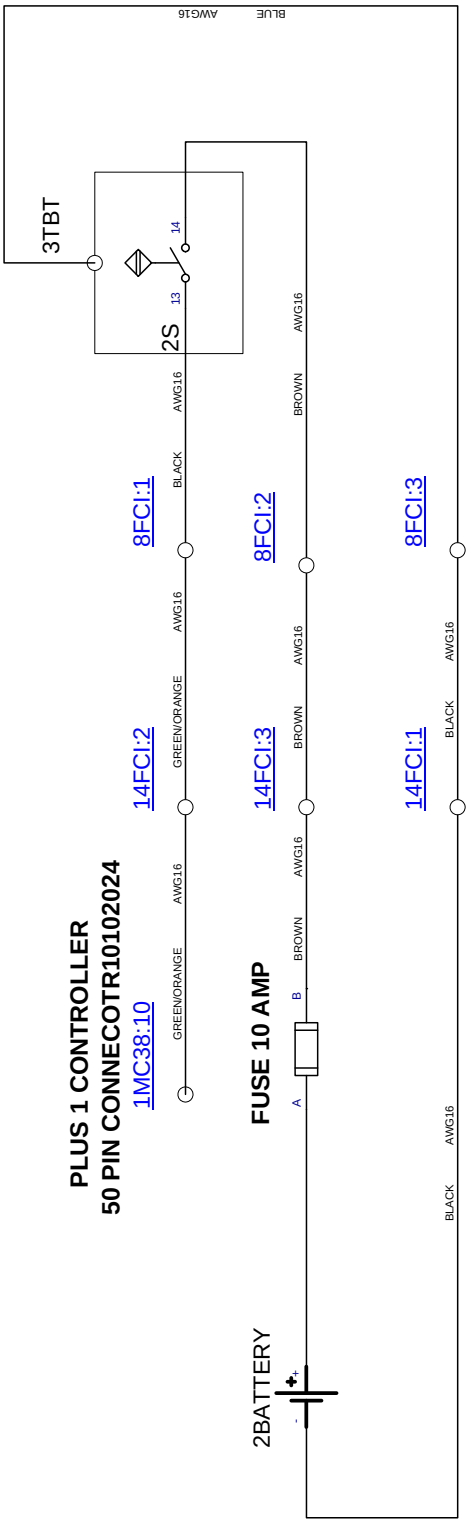
ULTRA SONIC SENSOR RH ZONE 3



VALVES

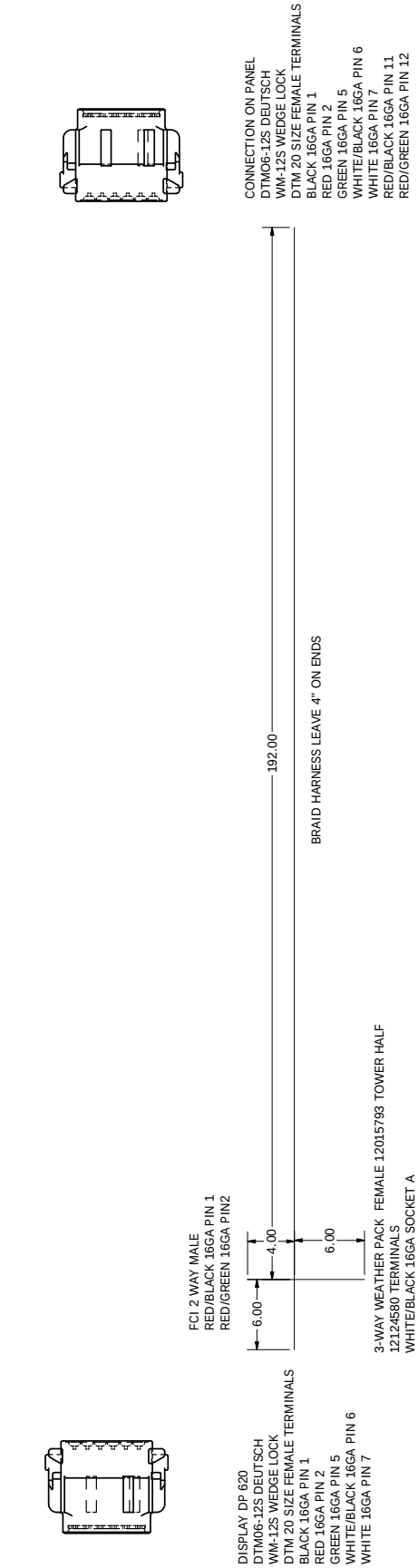

PLUS 1 CONTROLLER
50 PIN CONNECOTR10102024
1MC38:13
LIGHT BLUE
AWG16
1MC38:15
ORANGE
AWG16
1MC38:16
YELLOW
AWG16
1MC38:29
PINK
AWG16
1MC38:30
GREEN
AWG16
1MC38:31
PURPLE
AWG16
WATER VALVES
2-WAY FCI CONNECTORS
14FCI:4
LIGHT BLUE
AWG16
14FCI:5
ORANGE
AWG16
14FCI:6
YELLOW
AWG16
14FCI:7
PINK
AWG16
14FCI:8
GREEN
AWG16
14FCI:9
PURPLE
AWG16
ZONE 1 LH
A1
A2
ZONE 2 LH
A1
A2
ZONE 3 LH
A1
A2
ZONE 4 RH
A1
A2
ZONE 5 RH
A1
A2
ZONE 6 RH
A1
A2
BLACK
AWG12

SPEED SENSOR



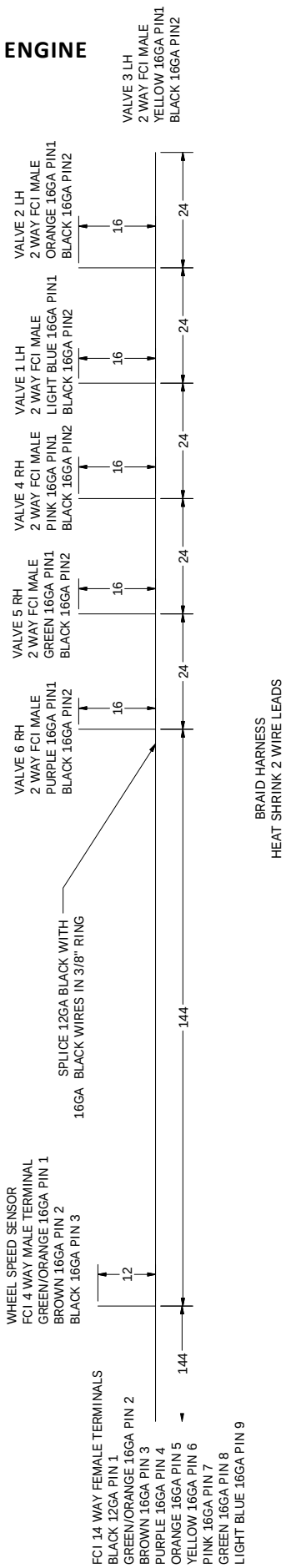
HARNESS DISPLAY TO CONTROLLER

GTS 10050A



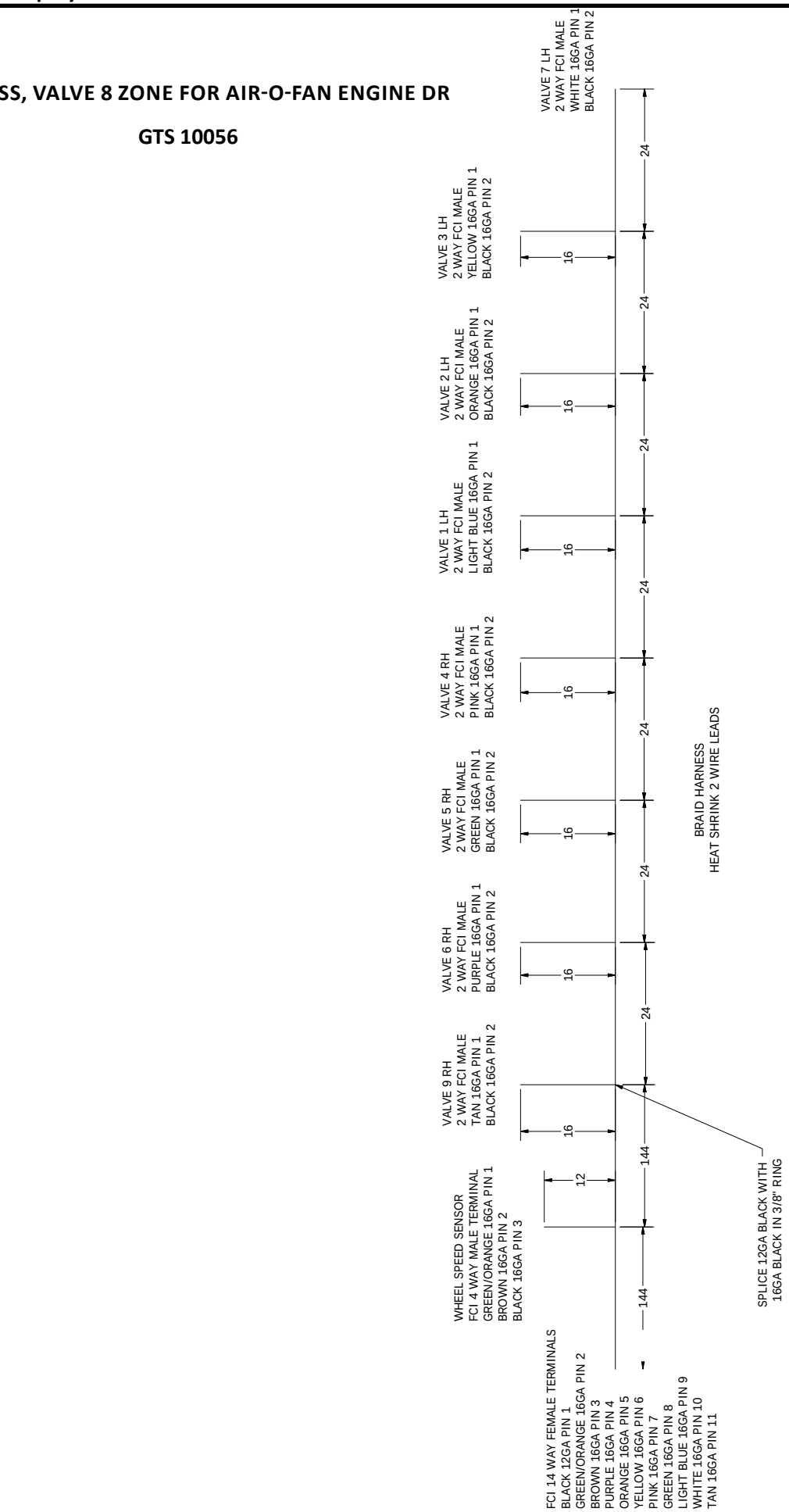
HARNESS, VALVE 6 ZONE FOR AIR-O-FAN ENGINE DR

GTS 10055



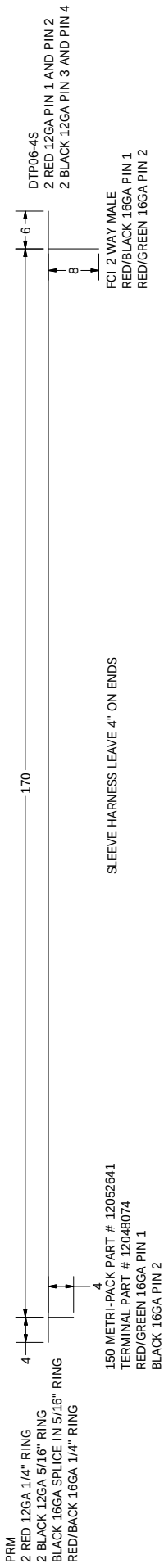
HARNESS, VALVE 8 ZONE FOR AIR-O-FAN ENGINE DR

GTS 10056



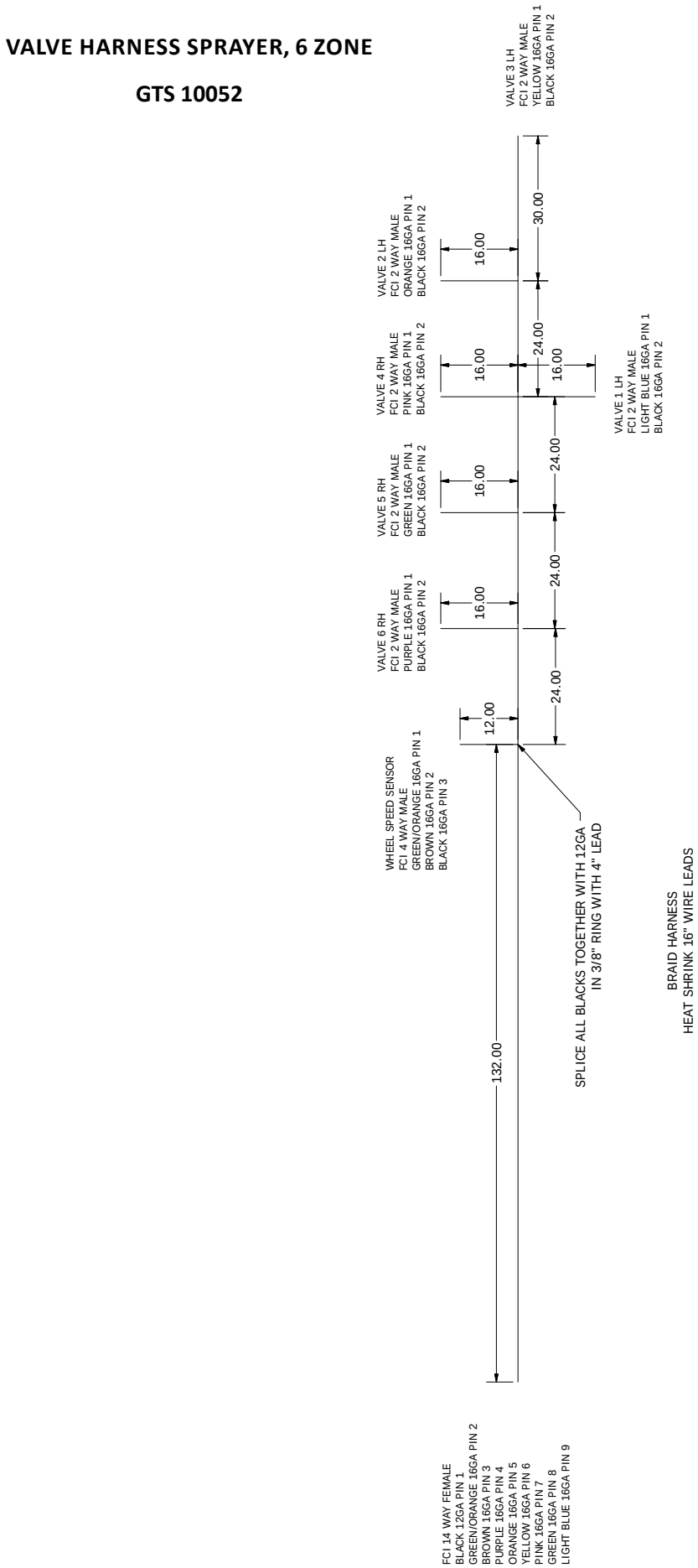
BATTERY TO CONTROLLER

GTS 10051A



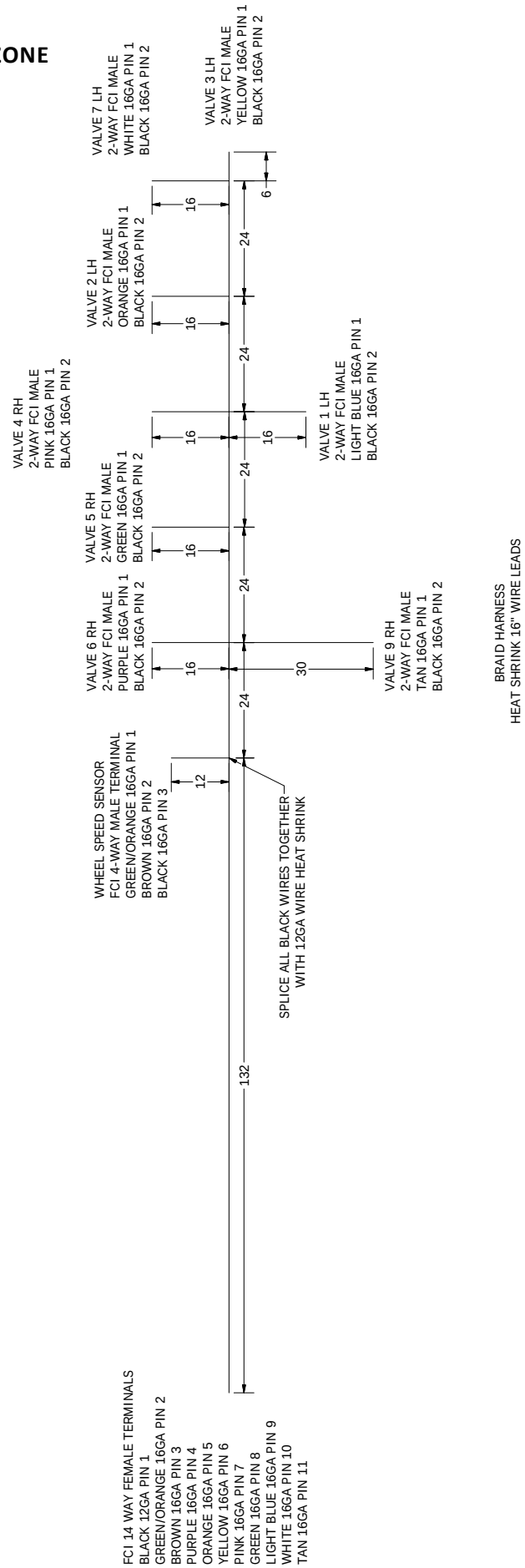
VALVE HARNESS SPRAYER, 6 ZONE

GTS 10052



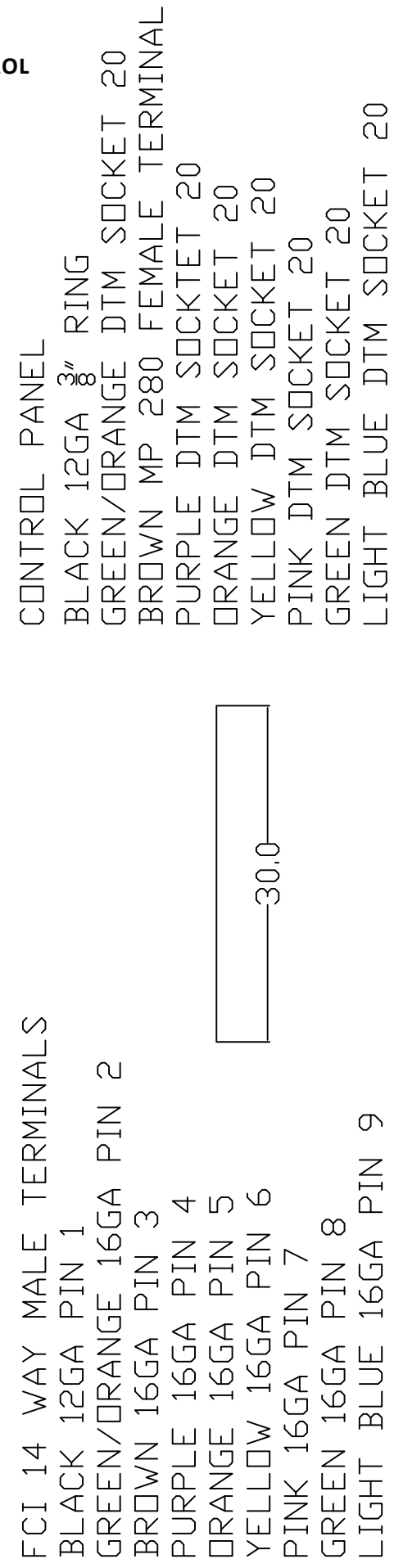
VALVE HARNESS SPRAYER, 8 ZONE

GTS 10052-8



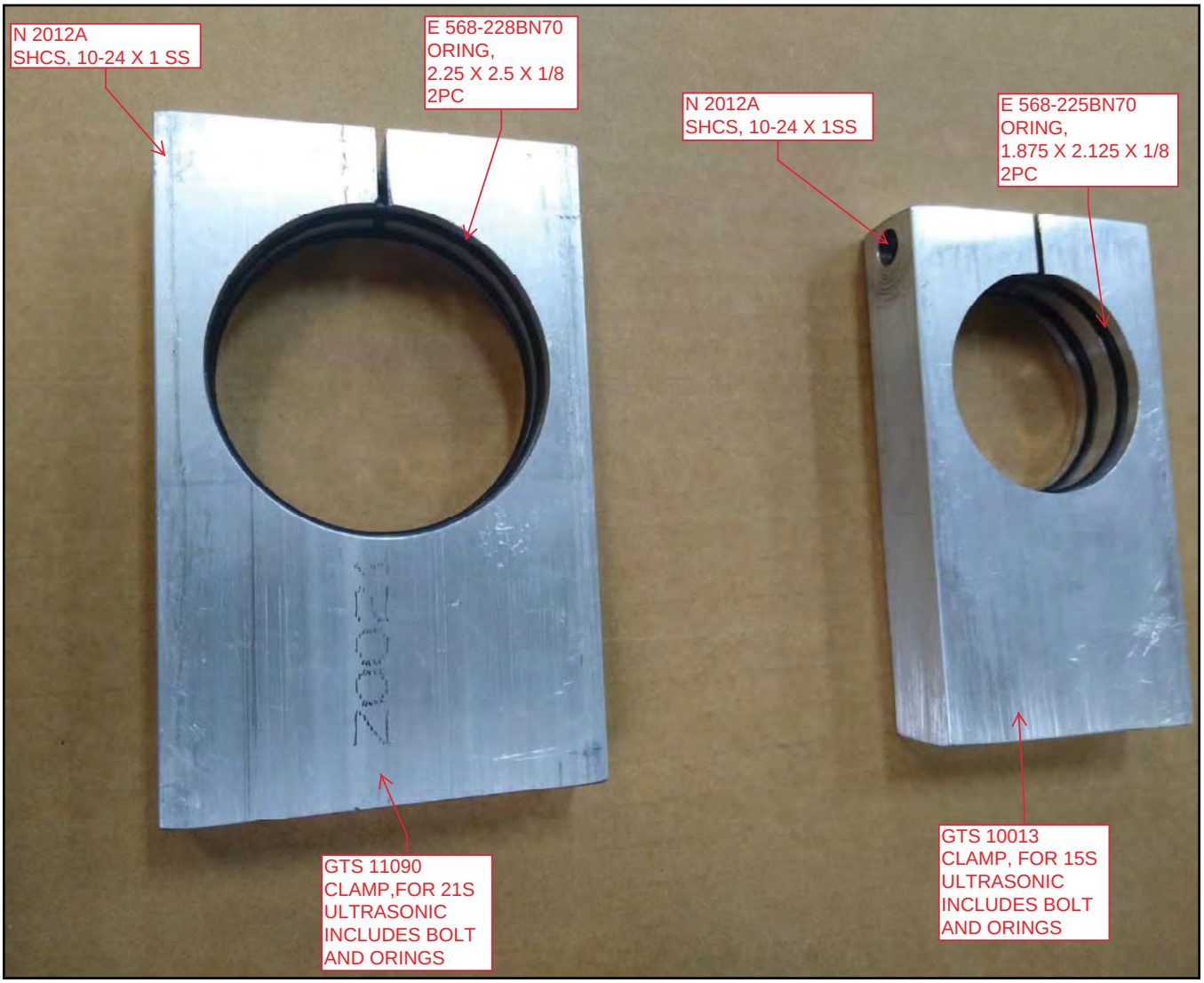
VALVE HARNESS SPRAYER TO CONTROL

GTS 10053

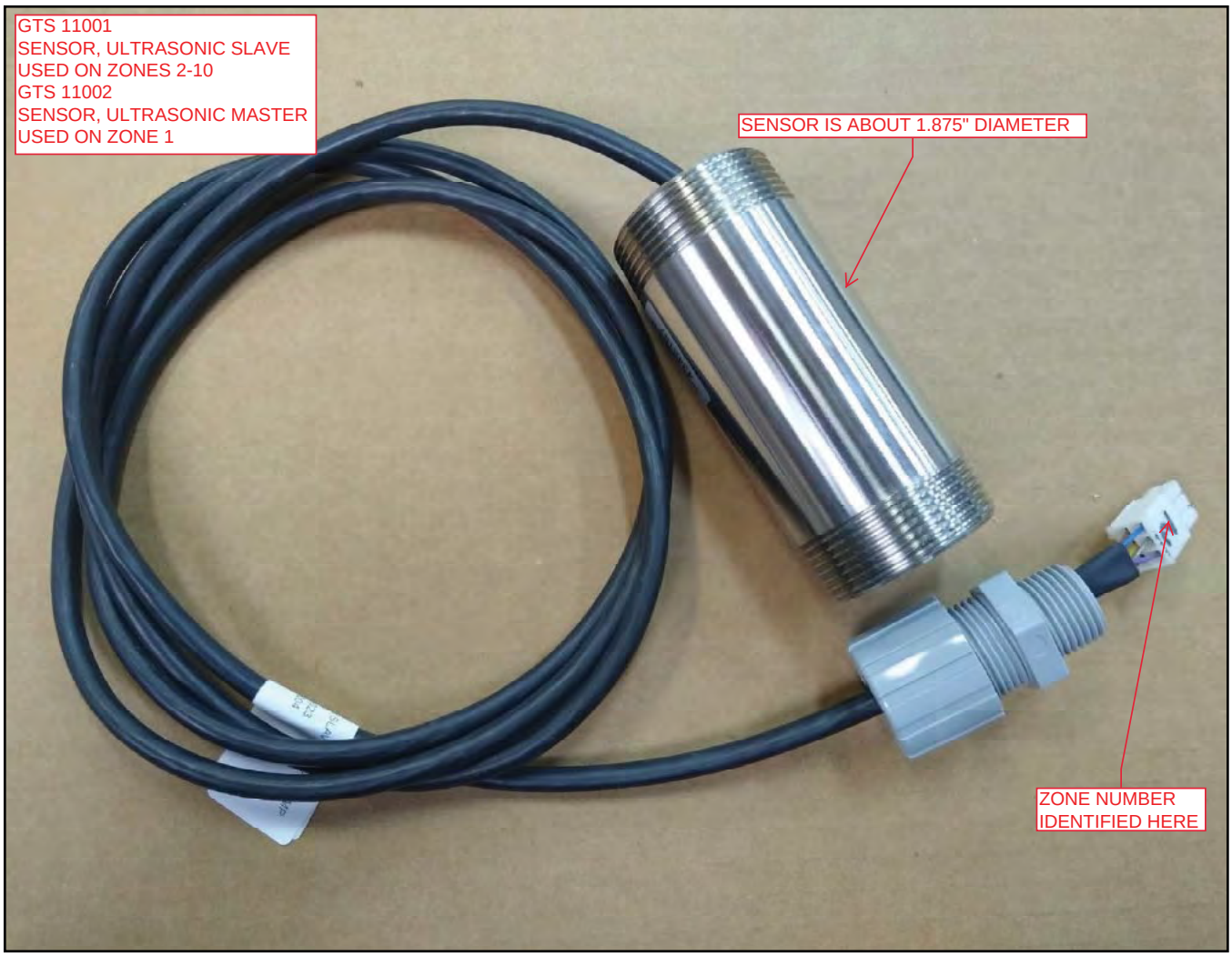


PARTS

CLAMPS



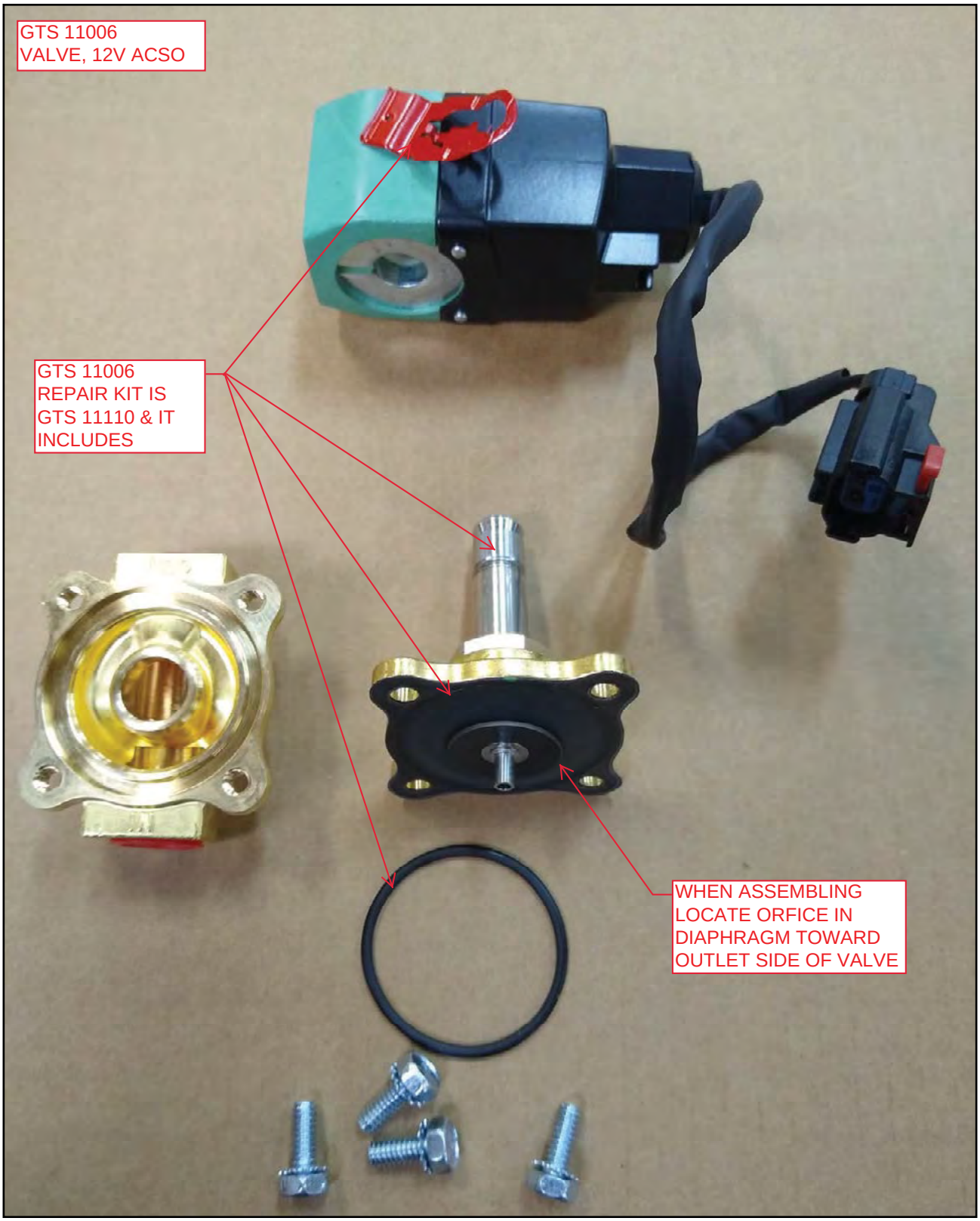
SENSORS FOR STANDARD RANGE SONIC SPRAY



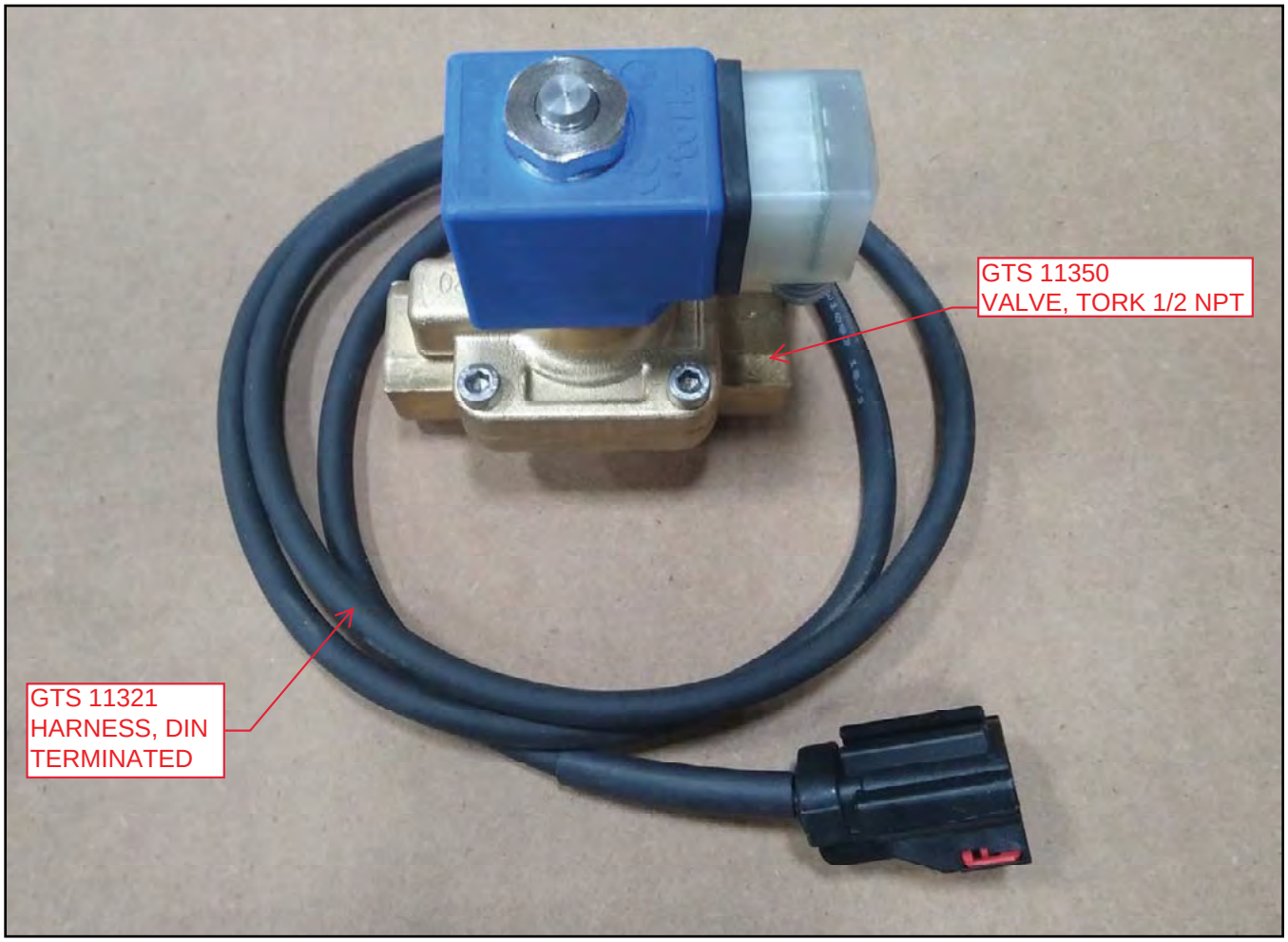
SENSORS FOR 50 FT LONG RANGE SONIC SPRAY

ASCO VALVES & REPAIR KIT GTS 11006

GTS 11006 can be replaced with GTS 11350 Tork Valve
& GTS 11321 DIN Harness



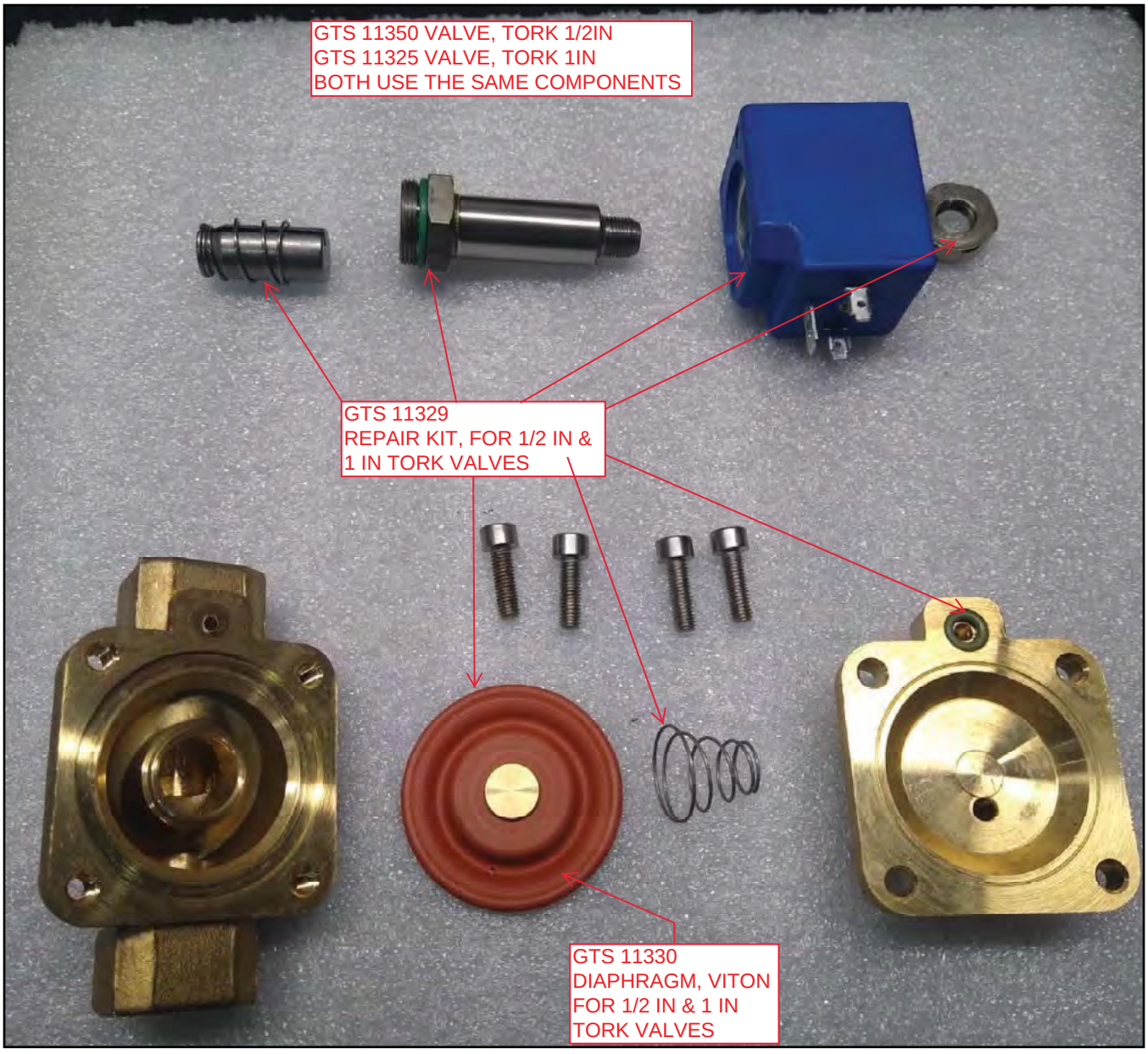
TORK VALVE & DIN HARNESS GTS 11350



TORK VALVE REPAIR KIT

GTS 11350, valve, 1/2” Tork

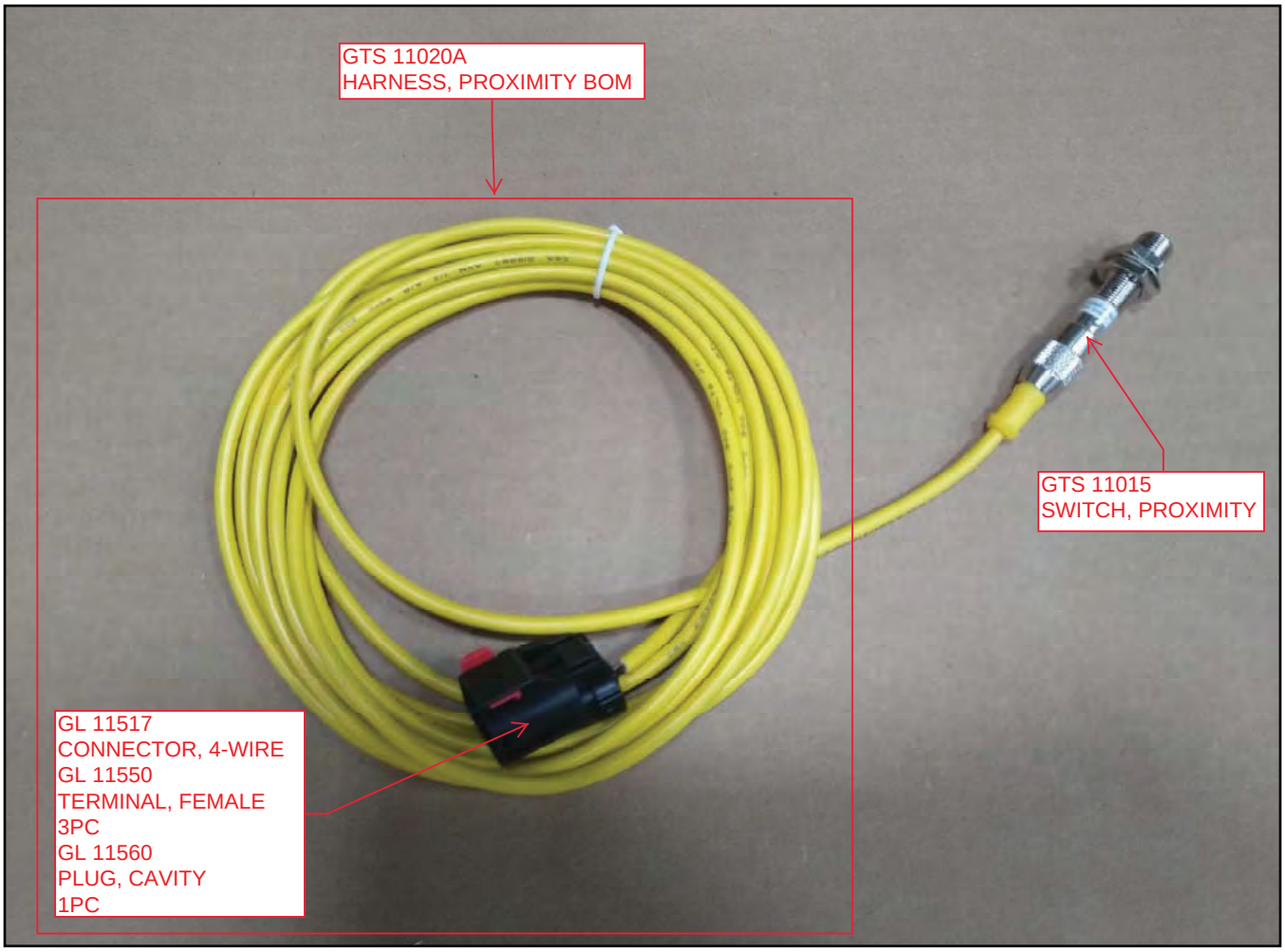
GTS 11325, Valve 1” Tork (ARG Sonic sprays)



HARNESSES

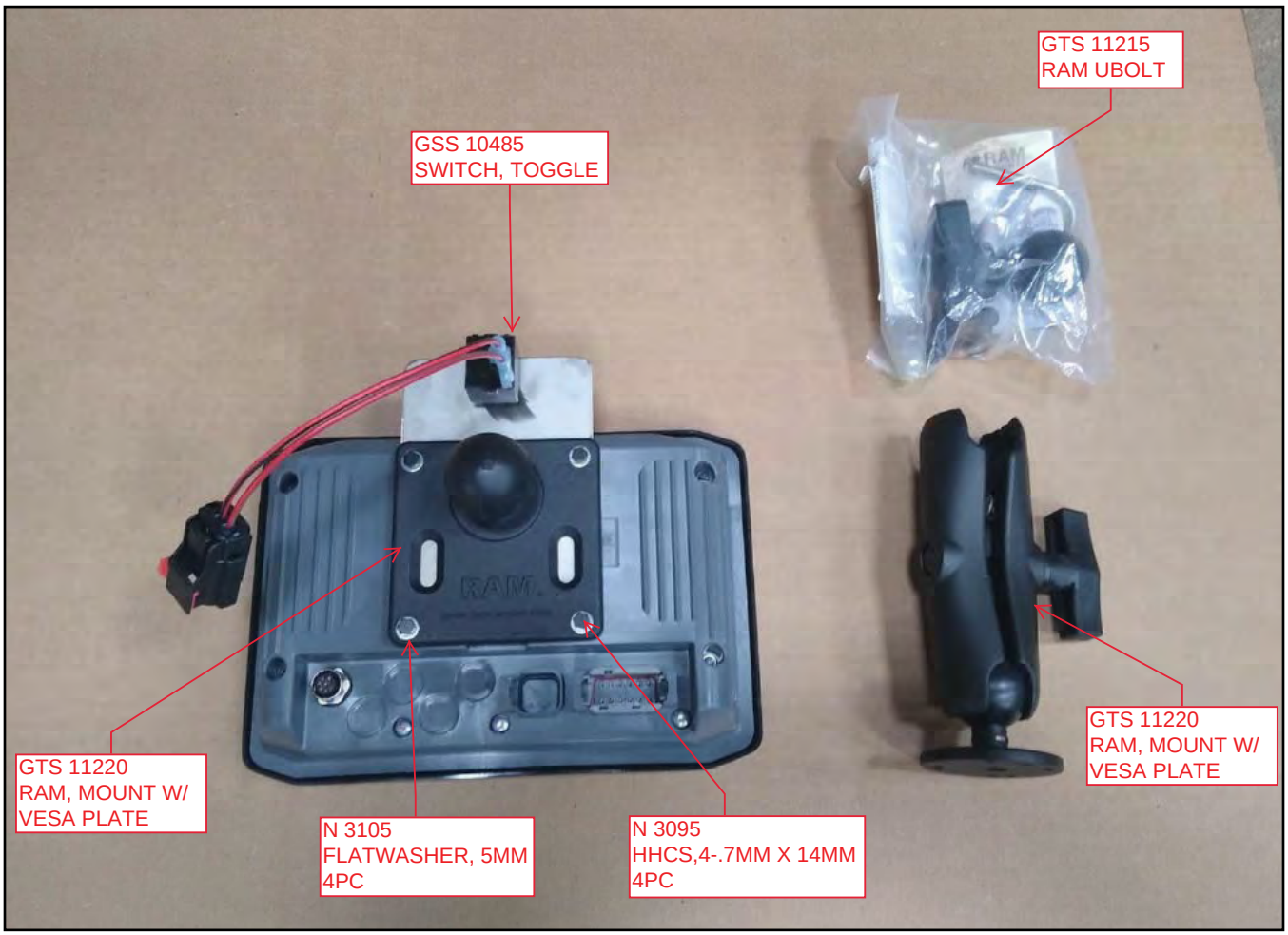

GL 11960
MODULE, POWER RELAY
GTS 10051A
HARNESS, BATTERY TO CON
GTS 10052
HARNESS, VALVE TO SPRAYER
USED ON PTO SPRAYERS
GTS 10052-8
USED ON PTO SPRAYER 8 ZONE
GTS 10055
HARNESS,VALVE 6 ZONE AOF
ENGINE DRIVE
GTS 10056
HARNESS, VALVE 8 ZONE AOF
ENGINE DRIVE
GTS 10050A
HARNESS, DISPLAY TO CON 16'
GTS 10050-20A
HARNESS, DISPLAY TO CON 20'
GTS 11265
RESISOR, TERMINATING
100 OHM
INCLUDED WITH HARNESS

HARNESS, PROXIMITY & PARTS

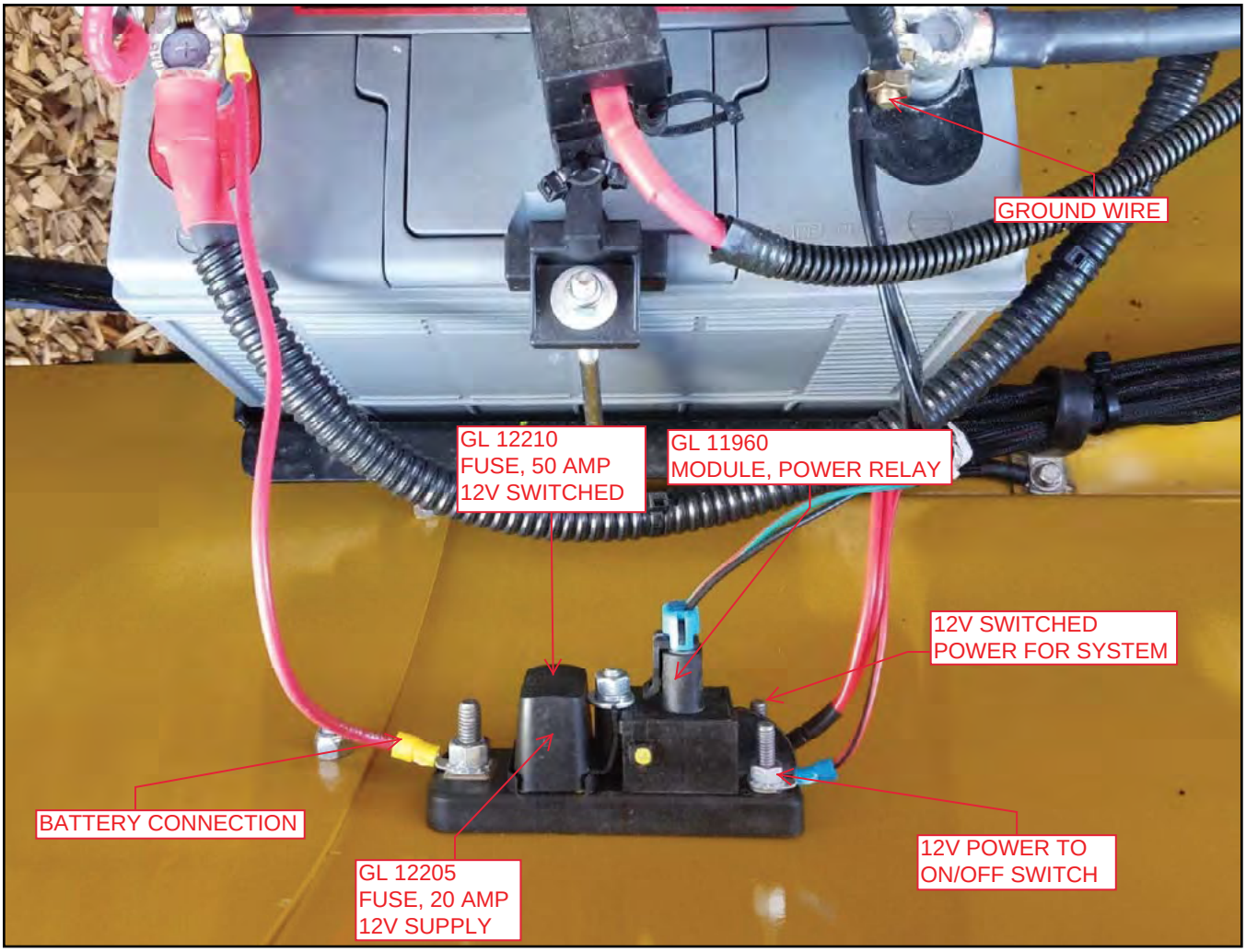


DISPLAY CONTROLLER AND PARTS

MOUNT FOR DISPLAY CONTROLLER AND PARTS

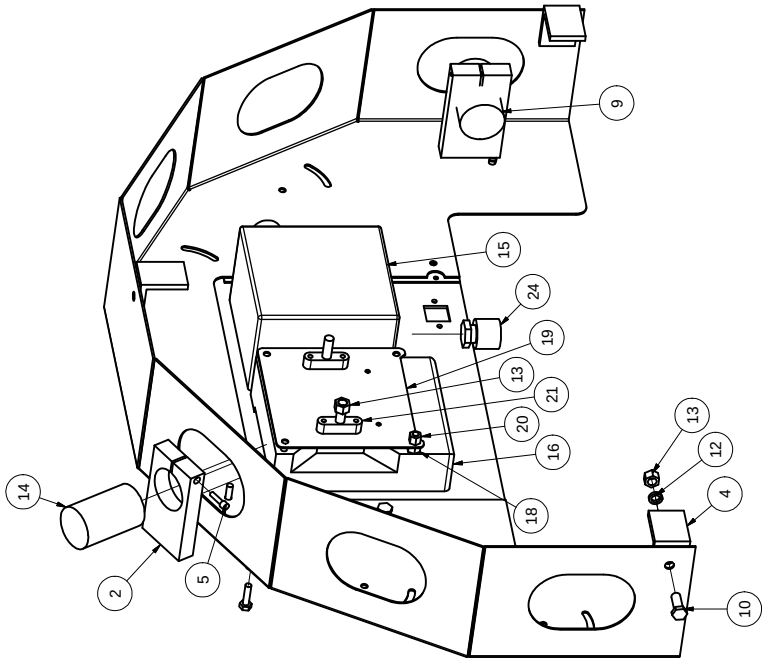


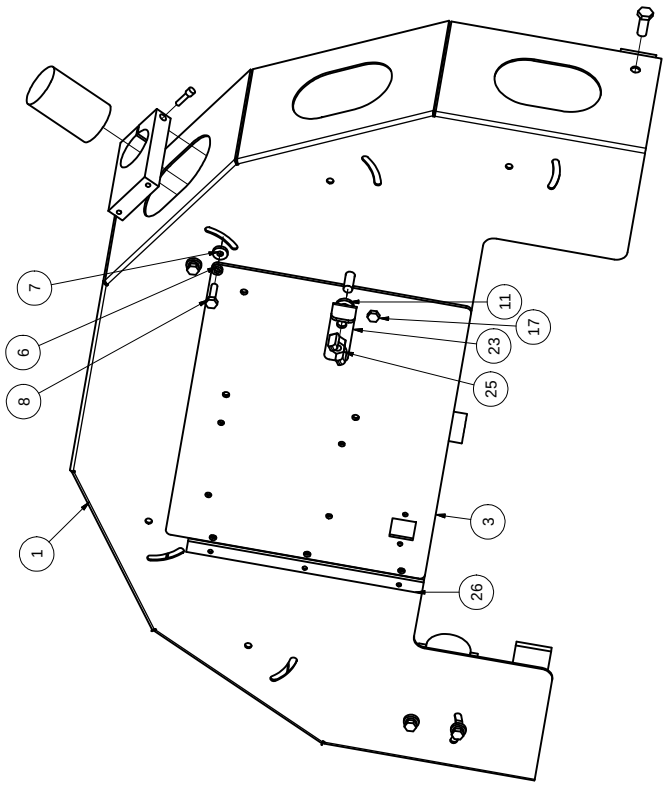
BATTERY CONNECTION PARTS



SONIC SPRAY MAIN ENCLOSURE

GVF 10019



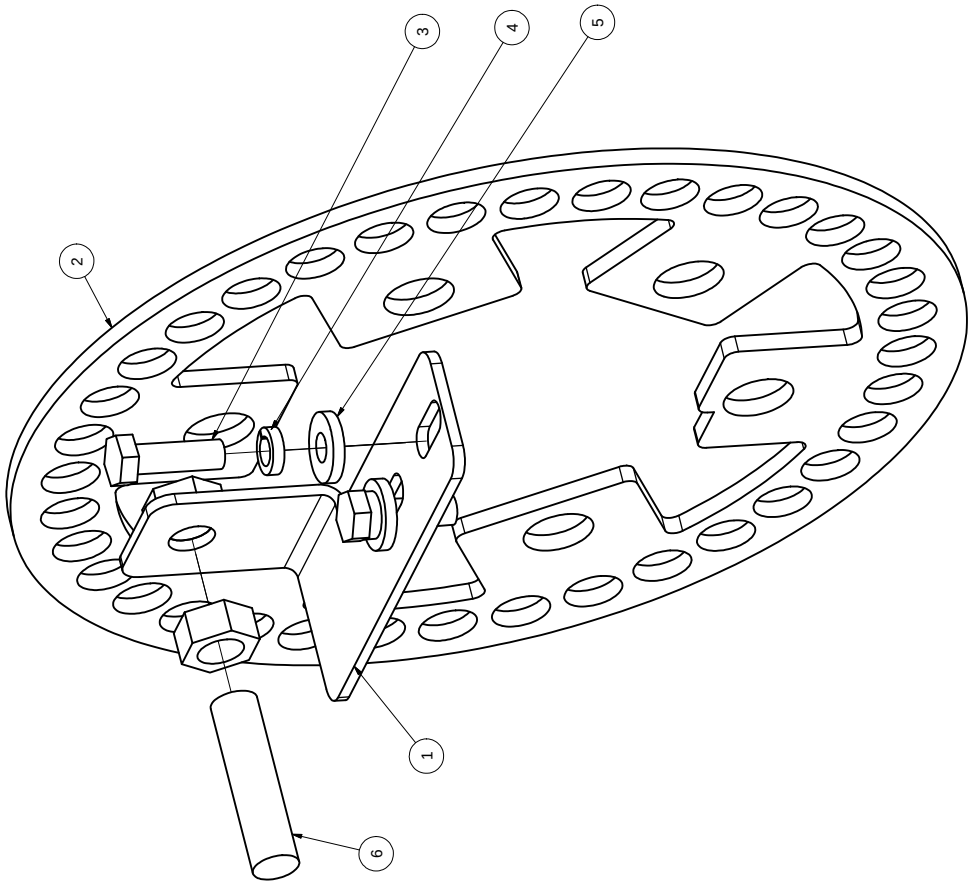


Parts List

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	GTS10019	MAIN ENCLOSER
2	6	GTS10013	CLAMP FOR ULTRASONIC
3	1	GTS10012	DOOR
4	3	GTS10020	1/4" SS MOUNT
5	6	N2012	SHCS 10-24 X 1"
6	12	N1020	LOCKWASHER 1/4"
7	12	N1015	FLATWASHER 1/4"
8	12	N1035	HHCS 1/4"-20 X 1"
9	5	GTS11001	SENSOR, ULTRASONIC SLAVE
10	5	N1300	HHCS 3/8"-16 X 1"
11	3	N1275	FLATWASHER 3/8"
12	3	N1280	LOCKWASHER 3/8"
13	3	N1270	HEX NUT 3/8"-16
14	1	GTS11002	SENSOR, ULTRASONIC MASTER
15	1	GTS11075	ENCLOSURE, HOFFMAN SOLID COVER 6X6X4
16	1	GTS11315	CONTROLLER
17	4	N1060	HHCS 1/4"-20 X 3"
18	4	N1111002	HEX NUT 5/16"-18
19	1	GTS10017	PLATE
20	4	N1005	LOCKNUT 1/4"-20 NYLON INSERT
21	1	GTS11030	TERMINAL STUD, POSITIVE
22	1	GTS11035	TERMINAL STUD, NEGATIVE
23	1	GTS10021	LATCH
24	7	GL11070	STRAIN RELIEF CONNECTOR
25	1	RM037NW	NUT, WING 3/8" SS
26	1	GO11808	HINGE SS

WHEEL SPEED ASSEMBLY

GTS 10000

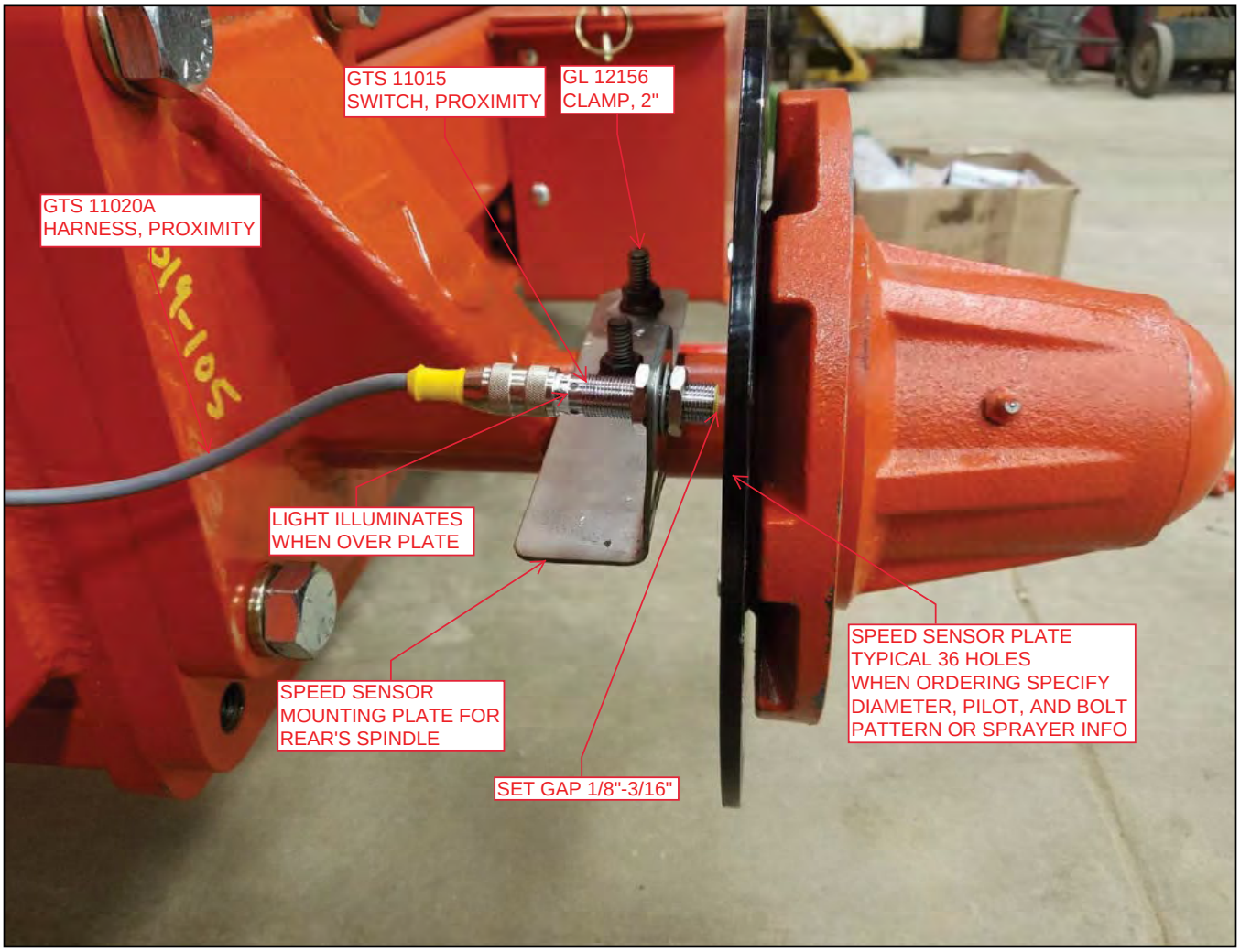


PROXIMITY SWITCH SET UP
GAP BETWEEN TIP ON SENSOR AND WHEEL METERING PLATE MAX DISTANCE 0.157"

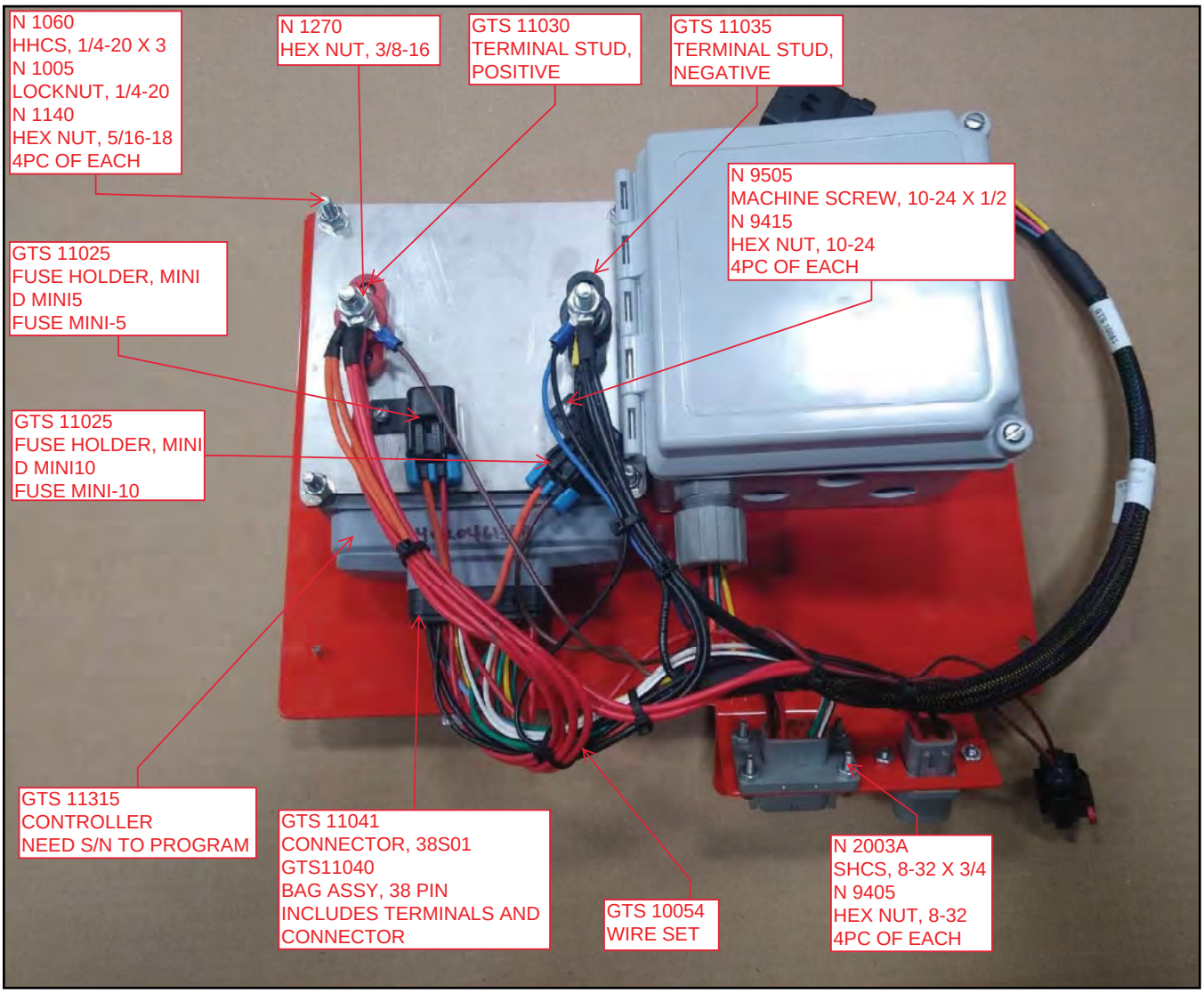
Parts List

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	GTS10000	SPEED SENSOR MT.
2	1	GTS10001	HUB METERING PLATE
3	2	N1170	HHCS 5/16"-18 X 1"
4	2	N1150	LOCKWASHER 5/16"
5	2	N1145	FLATWASHER 5/16"
6	1	GTS11015	SWITCH, PROXIMITY
7	1	GTS11020A	HARNESS, PROXIMITY SWITCH NOT SHOWN

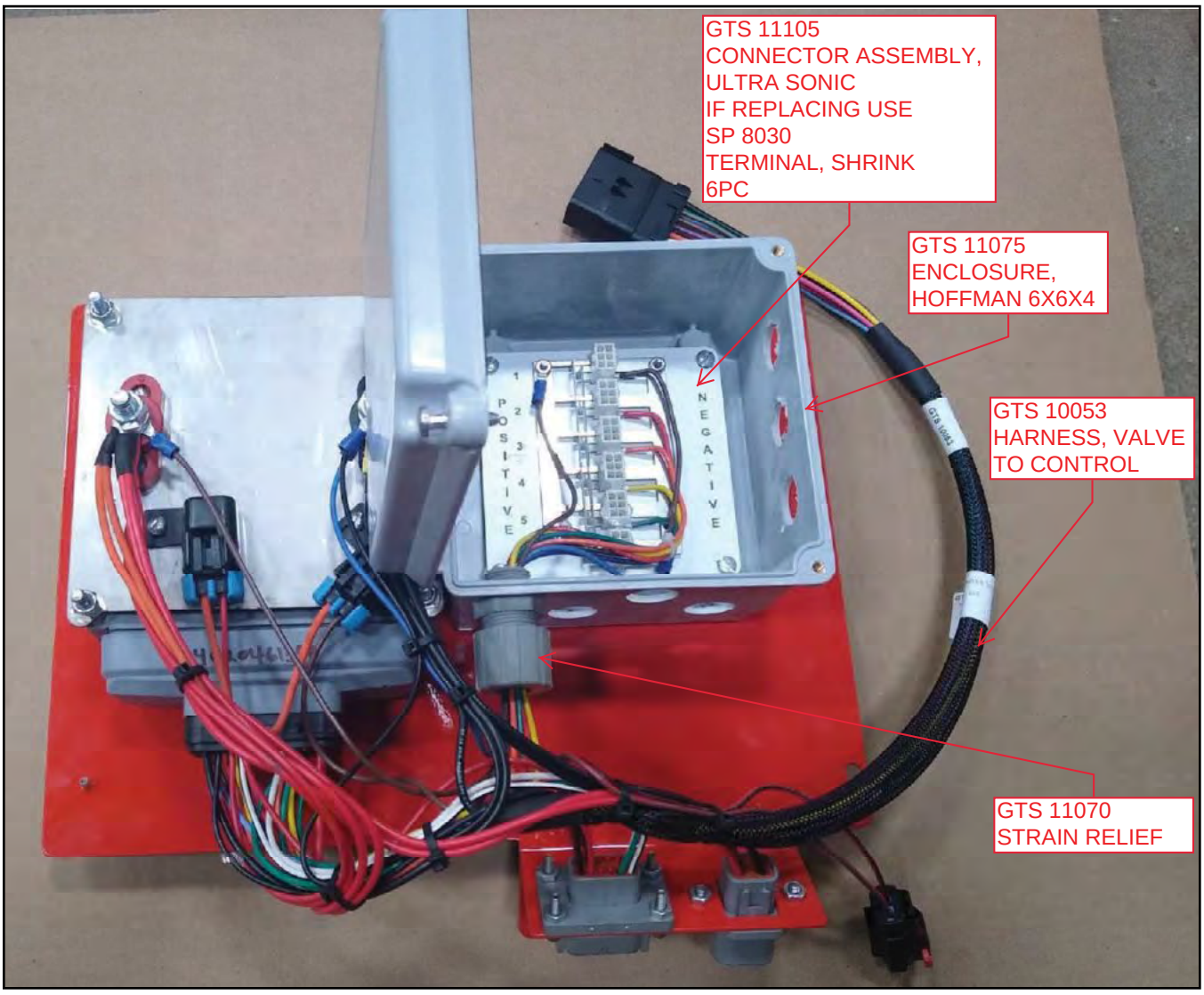
SPEED SENSOR AND PARTS



REARS FRONT PANEL AND PARTS REFERENCE



REARS FRONT PANEL AND PARTS REFERENCE CONTINUED



GVF WARRANTY

Gillison's Variety Fabrication, Inc. will replace or repair at GVF option, any GVF manufactured item that is, in the opinion of GVF, defective in material or workmanship for a period of 1 year from the date of purchase, and is returned to the GVF plant or service center at the expense of the customer. This warranty is made expressly in lieu of all other warranties expressed or implied. **The Warranty Registration card must be completed in full and returned to GVF within thirty (30) days of date of delivery to qualify for this warranty.**

The owner is specifically responsible for the operation and service of the machine. This warranty shall not apply to any product that has been subject to misuse, negligence or accident. In the event of a defect in material or workmanship, GVF sole responsibility is to the repair or replacement of the defective part and is not responsible for lost time or any other expenses incurred due to lost time.

All OEM items such as Tires, Batteries, Engines and Hydraulic components are warranted by the original equipment manufacturer. GVF controls the installation of these products but not the manufacture; therefore, GVF warranty applies to the proper installation but not the OEM component itself.

Retail Customer Responsibility: It is the Retail Customer and/or Operator's responsibility to read the Operator's/Owner's Manual to operate, lubricate, maintain, and store the product in accordance with all instructions and safety procedures. Failure of the operator to read the Operator's/Owner's Manual is misuse of this equipment. It is the Retail Customer and/or Operator's responsibility to inspect the product and to have any part(s) repaired or replaced when continued operation would cause damage or excessive wear to other parts or cause a safety hazard.

It is the Retail Customer's responsibility to deliver the product to the authorized GVF dealer, from whom he purchased it, for service or replacement of defective parts, which are covered by warranty. Repairs to be submitted for warranty consideration must be made within 45 days of failure. The Retail Customer is responsible for any cost incurred by the Dealer for traveling to or hauling of the product for the purpose of performing a warranty obligation or inspection.