
McLAUGHLIN®

**2006 Perimeter Road. Greenville, SC 29605**
**Toll Free: 800/435-9340 - Phone: 864/277-5870**
**Fax: 864/235-9661 - Website address: www.mclaughlinunderground.com**
**Email address: mmole@mightymole.com**

# Parts Manual
# Vermeer/ McLaughlin SKID V500
# Vacuum Machine
# Serial # Ending S5S121711702
# Part #E850604



**062612**

# Table of Contents


**PARTS**

**SPOIL TANK AND FILTRATION**

HYDRAULIC DOOR ..... 4
HYDRAULIC DOOR CYLNDER ..... 6
FILTRATION ..... 8

**ENGINE COMPARTMENT**

ENCLOSURE ..... 10
ENGINE ..... 14
BLOWER ..... 16
WATER PUMP ..... 22
REGULATOR ..... 26
ELECTRICAL ..... 28
HYDRAULIC PUMP ..... 32

**WATER TANK AND ACCESSORIES**

WATER TANKS - 125 GALLON SADDLE ..... 36
WATER TANKS - 205 GALLON SADDLE..... ..... 38
WATER TANKS - 230 GALLON ..... ..... 40
WATER TANKS - 410 GALLON ..... ..... 42
HOSE REEL ..... 44

**TRAILER AND SKID ASSEMBLY**

ANTI-FREEZE ..... 50
SKID ASSEMBLY ..... 52

**TOOLS**

TOOL RACK ..... 54
REDUCTION TOOL ..... 58
WASH WAND ..... 60
SUCTION TOOL ..... 62
LAWN SWEEPER ..... 64
VALVE BOX CLEANOUT TOOL ..... 66
SURFACE CLEANER ..... 68
ROTARY LANCE ..... 70

**OPTIONS**

STRONGARM ..... 74
HOT BOX ..... 76
ARROWBOARD ..... 78

**ELECTRICAL SCHEMATICS**

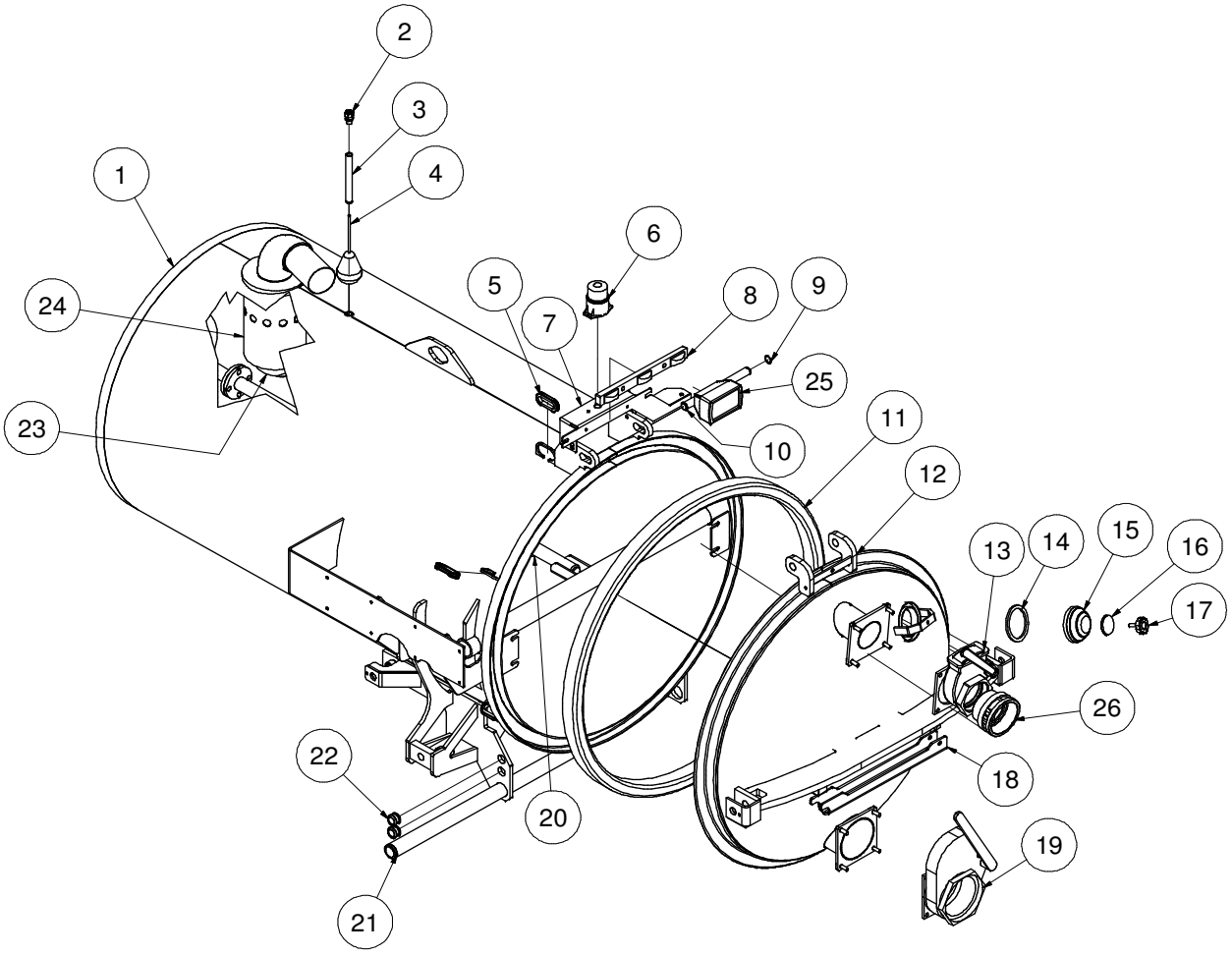
VACUUM DIESEL ENGINE ..... 80
HOT BOX ..... 87
ARROWBOARD ..... 89

**MAINTENANCE MANUALS**

ROOTS BLOWER ..... 91
HOT BOX ..... 101
ENGINE ..... 112

**WARRANTY**

# Tank and Door Assembly V500




030512-E

**VACASSY031**

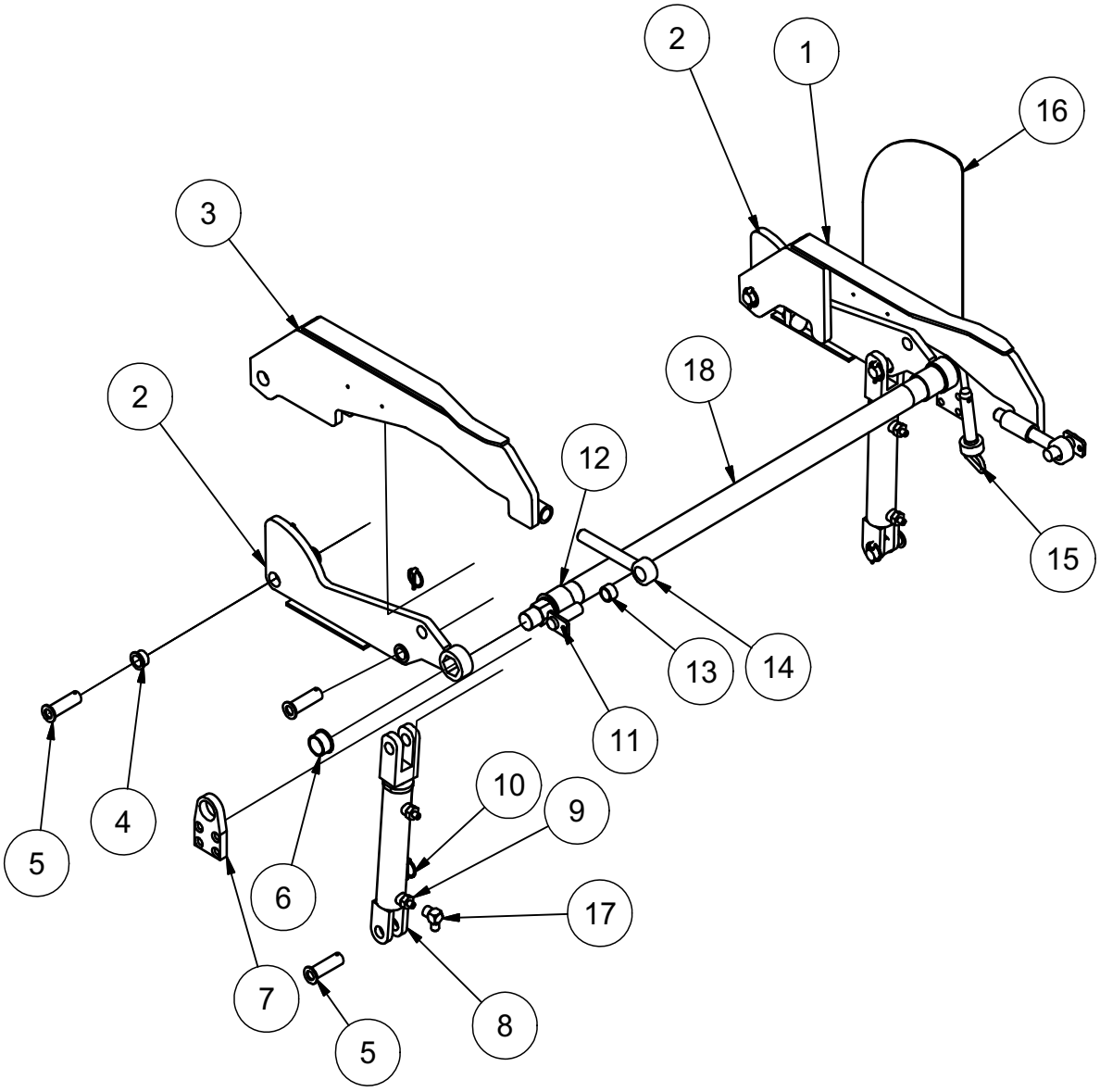
# Tank and Door Assembly V500

| ITEM | QTY | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8045737 | TANK WELDMENT - 500LE (42”DIA) |
| | 1 | T400310 | REDUCER, 1”MB - 3/8”MJ |
| 2 | 1 | X000113 | STRAIN RELIEF, 1/2” |
| 3 | 1 | 8040769 | HIGH LEVEL FLOAT SWITCH TUBE |
| | 1 | 8041291 | BUSHING, RUBBER |
| 4 | 1 | 8030531 | HIGH LEVEL FLOAT SWITCH |
| 5 | 4 | 8042812 | GROMMET 2”ID 3”OD 1/4”WOG TRAILER SLOT MODEL |
| 6 | 1 | 8043139 | STROBE LIGHT |
| | 3 | U010006 | SCREW, PHILLIPS #10 - 24 X 1” |
| | 3 | U210005 | WASHER, LOCK #10 |
| | 3 | U100010 | NUT, HEX #10 - 24 |
| 7 | 1 | 8046507 | STROBE LIGHT BRACKET |
| | 4 | X000343 | DT MOUNTING CLIP |
| | 4 | U000880 | SCREW, HC 1/2” - 13 X 2.00” |
| | 4 | U200100 | WASHER, FLAT 1/2” |
| | 4 | U210111 | WASHER, LOCK 1/2” |
| | 4 | U100200 | NUT, HEX 1/2” - 13 |
| 8 | 1 | 8041509 | LIGHT CLEARANCE 3 BAR |
| 9 | 2 | U500080 | RING,RET E-RING .375 SHAFT |
| 10 | 1 | 8040058 | DOOR HINGE ROD |
| 11 | 1 | 8041765 | DOOR SEAL 42” DIA TANK |
| 12 | 1 | 8047770 | DOOR WELDMENT - 500 (42” DIA) |
| 13 | 1 | 8046215 | VALVE, 4” GATE BRASS LEVER FLANGE (500LEHD/800LEHD) |
| * | 1 | 8046231 | O-RING, GATE VALVE FLANGE |
| * | 1 | 8042408 | VALVE, 3" GATE BRASS LEVEL TYPE (500LE/800LE) |
| * | 1 | 8046197 | GATE VALVE TANK FLANGE 3" |
| * | 1 | 8046191 | GASKET DOOR LE INLET/OUTLET |
| 14 | 1 | 8032007 | GASKET, 4” COUPLER |
| 15 | 1 | 8031048 | SIGHT GLASS |
| 16 | 1 | 8031047 | SIGHT GLASS PLATE |
| 17 | 1 | 8031046 | SIGHT GLASS HAND WHEEL |
| 18 | 1 | 8041212 | TANK SAFETY BRACE |
| 19 | 1 | 8046214 | VALVE, 6” GATE BRASS LEVER FLANGE |
| * | 1 | 8030849-50 | HANDLE,6"GATE VALVE(RIV MODEL) |
| * | 1 | 8046191 | GASKET DOOR LE INLET/OUTLET |
| 20 | 1 | 8043166 | 500HLD TANK ROD WELDMENT |
| * | 3 | 8030369 | NOZZLE, TANK CLEAN OUT |
| * | 1 | W200120 | O-RING 1 7/8” X 2 1/8” X 1/8” (225) |
| 21 | 1 | 8042648 | TANK PIVOT ROD |
| | 2 | U200180 | WASHER, FLAT 2” |
| | 2 | U120120 | LOCK NUT |
| | 2 | U000900 | SCREW, HC 1/2”-13 X 2 1/2”LG |
| 22 | 4 | 8041686 | GROMMET 1”I8D - 1 1/4”DOG - 1/4”WOG |
| 23 | 1 | 8043700 | BALLFLOAT SHUTOFF WELDMENT |
| | 2 | U000420 | SCREW, HC 3/8”-16 X 1.00” |
| | 2 | U210060 | WASHER, LOCK 3/8” |
| | 2 | U200600 | WASHER, FLAT 3/8” |
| | 1 | 8043571 | SEAT 4” RUBBER |
| | 1 | 8043572 | SEAT CLAMP 4” |
| 24 | 1 | 8043570 | BALL STRAINLESS FLOAT 6” |
| 25 | 1 | 8043138 | WORK LIGHT |
| 26 | 1 | 8046445 | CAMLOCK, 4” AL MCAM X MNPT |

* NOT SHOWN

030512-E **VACASSY031**

# Hyd. Door Cylinder Assembly



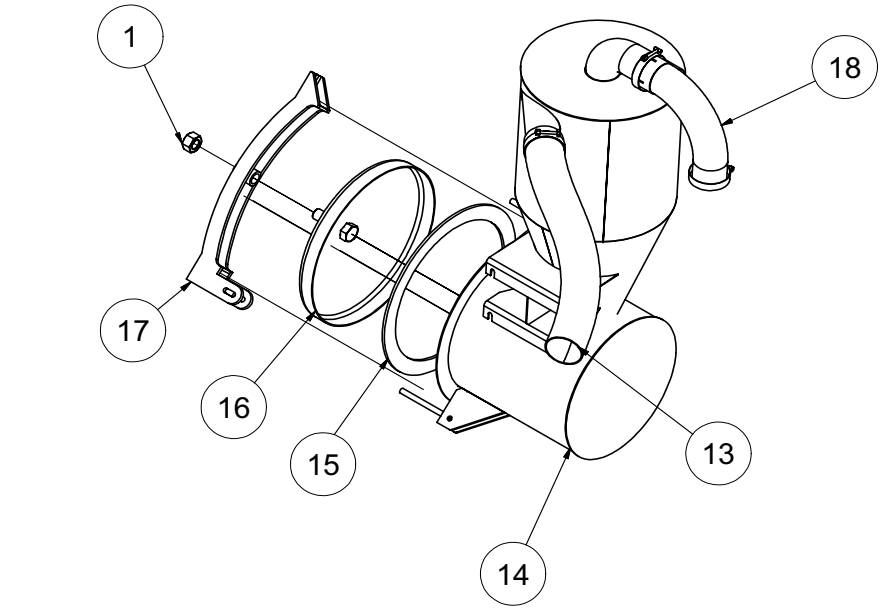

080311-E

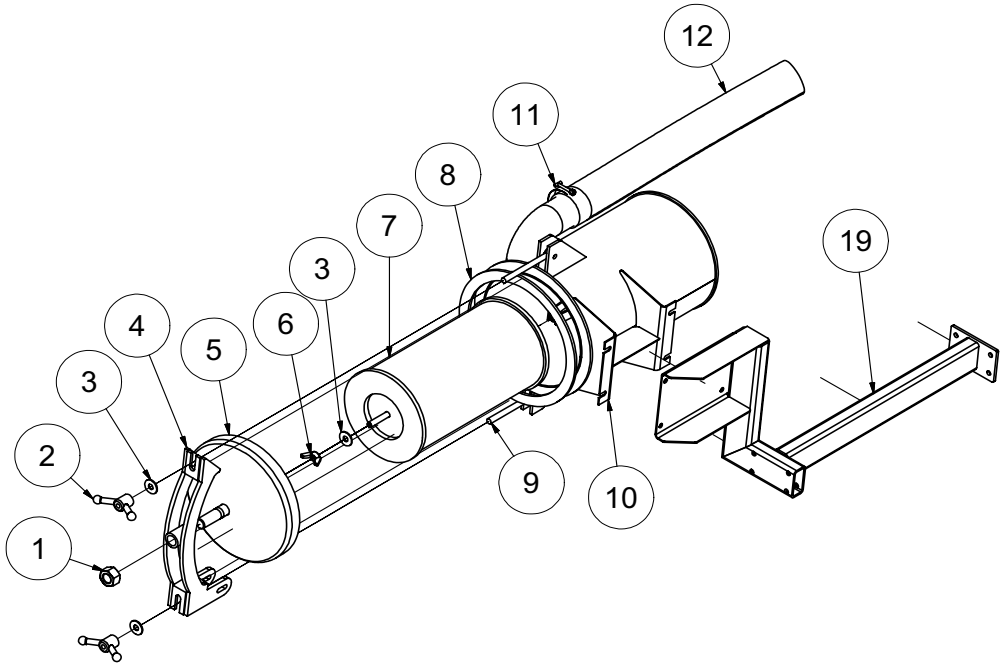
**VACASSY942**

# Hyd. Door Cylinder Assembly

| ITEM | QTY | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8041369 | DOOR HYD LONG LINKAGE WELDMENT |
| 2 | 2 | 8041604 | SHORT LINKAGE WELDMENT |
| 3 | 1 | 8041375 | DOOR HYD LONG LINKAGE SS WELDMENT |
| 4 | 6 | 8041883 | BUSHING BRONZE FLANGED 1” |
| 5 | 6 | 8042489 | HYD DOOR - PIN WELDMENT 1”DIA X 3” |
| 6 | 2 | 8041602 | BUSHING 1 1/4” MODIFIED |
| 7 | 1 | 8041783 | OUTER BEARING PLATE |
| 8 | 2 | 8041327 | HYD CYLINDER - 8” STROKE |
| 9 | 4 | T400611 | UNION 8MB - 4MJ |
| 10 | 6 | U340050 | PIN LINCH 3/16 X 1 9/16 |
| 11 | 2 | 8043844 | DOOR CAPTURE PIN |
| 12 | 2 | 8041602 | BUSHING BRONZE FLANGED 2” |
| 13 | 2 | 8041524 | BUSHING BRONZE 1 1/4” X 1.00 X 3/4”LG |
| 14 | 2 | 8043131 | ROD END 1” X 7 1/2” |
|  | 2 | U160025 | NUT, JAM 1.00” |
|  | 2 | U120060 | NUT, NY LOCK 1” |
|  | 4 | U200170 | WASHER, FLAT 1.00” |
| 15 | 1 | 8041626 | 1” X 4 1/2” HITCH PIN |
| 16 | 1 | 8041635 | HYD ARM GUARD |
| 17 | 1 | T401225 | ELBOW, 90 1/4MJ - 1/4FJ |
| 18 | 1 | 8041607 | LINKAGE CROSS TUBE V500 |
|  | 1 | 8046186 | LINKAGE CROSS TUBE V750 / V800LE |
|  | 1 | 8041663 | LINKAGE CROSS TUBE V800 / V1200 |

# Filtration 500/575




011112-E

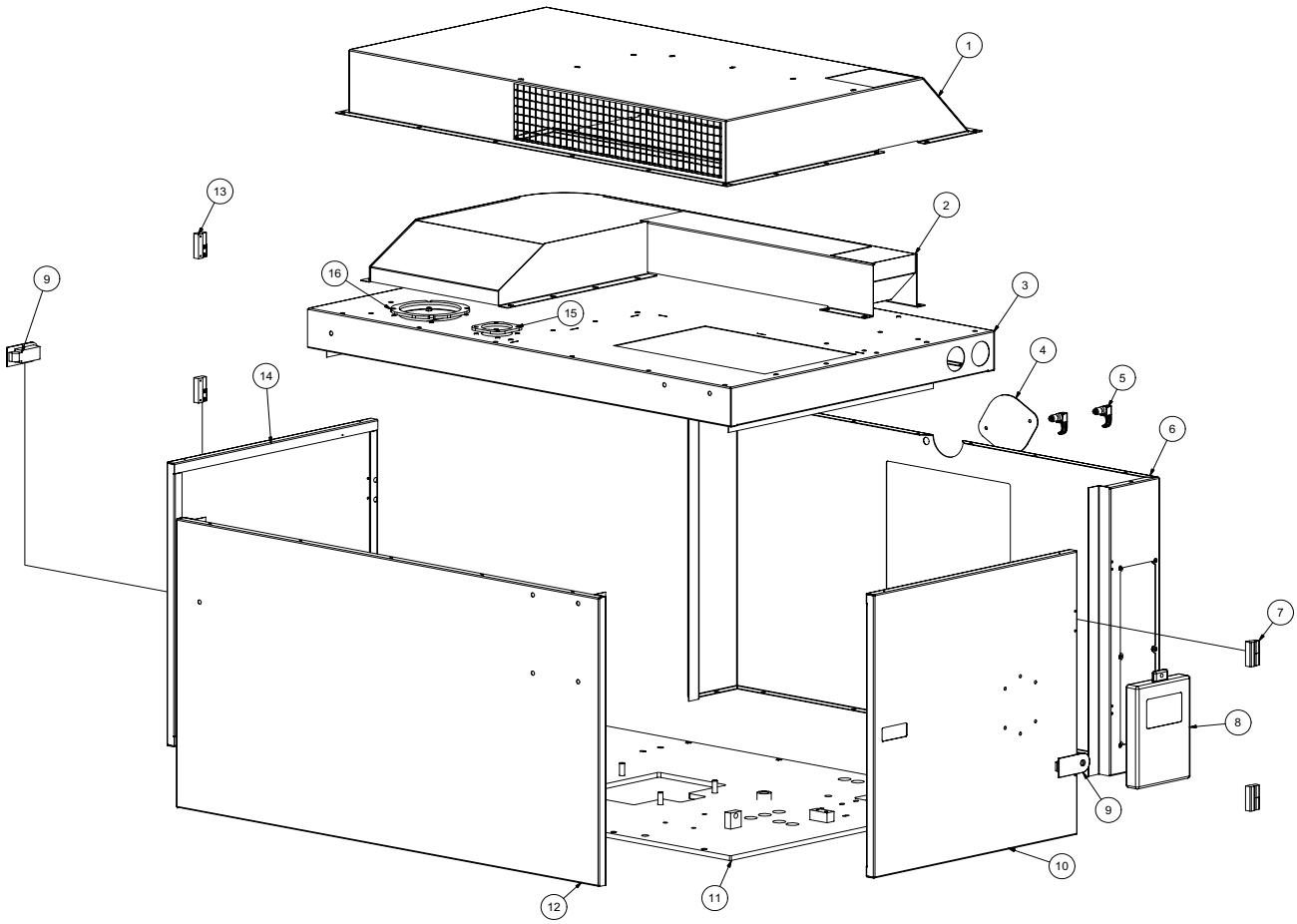
**VACASSY349**

# Filtration 500/575

| ITEM | QTY | PART # | DESCRIPTION |
|---|---|---|---|
| 1 | 2 | U120060 | NUT, LOCK NY 1" - 8 |
| 2 | 4 | 8041594 | Y - HANDLE |
| 3 | 5 | U200100 | WASHER, FLAT 1/2" |
| 4 | 1 | 8044622 | DOOR LATCH (AIR FILTER) WELDMENT |
| 5 | 1 | 8044620 | 575RF AIR FILTER DOME |
| 6 | 1 | 8041219 | NUT, WING 1/2-13 |
| 7 | 1 | 8031178 | FILTER, ELEMENT 575 CFM |
| 8 | 1 | 8044819 | GASKET, REV FLOW AIR FILTER 575 |
| 9 | 4 | 8041593 | EYE BOLT |
| 10 | 1 | 8046337 | FILTER HSG AIR 575RF |
| * | 1 | U000580 | SCREW, HC 3/8"-16 X 3.5" |
| * | 1 | U000520 | SCREW, HC 3/8"-16 X 2.25" |
| * | 10 | U200060 | WASHER, FLAT 3/8" |
| * | 2 | U210061 | NYLON LOCKNUT 3/8-16 |
| 11 | 4 | 8042605 | CLAMP T-BOLT 3" (350) |
| 12 | 1 | 8041325 | HOSE VAC KANAFLEX 3-185" |
| 13 | 1 | 8046825 | HOSE AG SUCTION 3-48" |
| 14 | 1 | 8044589 | CYCLONE 575 REV FLOW |
| * | 1 | U000580 | SCREW, HC 3/8"-16 X 3.5" |
| * | 1 | U000520 | SCREW, HC 3/8"-16 X 2.25" |
| * | 10 | U200060 | WASHER, FLAT 3/8" |
| * | 2 | U210061 | NYLON LOCKNUT 3/8"-16 |
| * | 8 | U000420 | SCREW, HC 3/8"-16 X 1.00" |
| * | 16 | U200060 | WASHER, FLAT 3/8" |
| * | 8 | U210061 | NYLON LOCKNUT 3/8"-16 |
| 15 | 1 | 8041612 | GASKET, REV FLOW CYCLONE |
| 16 | 1 | 8041402 | HD CYCLONE DOME DOOR ASSY |
| 17 | 1 | 8041552 | DOOR LATCH (CYCLONE WELDMENT) |
| 18 | 1 | 8040682 | 3IN ELBOW 90 8IN LEG |
| 19 | 1 | 8046243 | AIR FILTER BRACKET LE |
| * | 4 | U000420 | SCREW, HC 3/8"-16 X 1.00" |
| * | 8 | U200060 | WASHER, FLAT 3/8" |
| * | 4 | U210061 | NYLON LOCKNUT 3/8"-16 |

* NOT SHOWN

# Enclosure Assembly 31HP



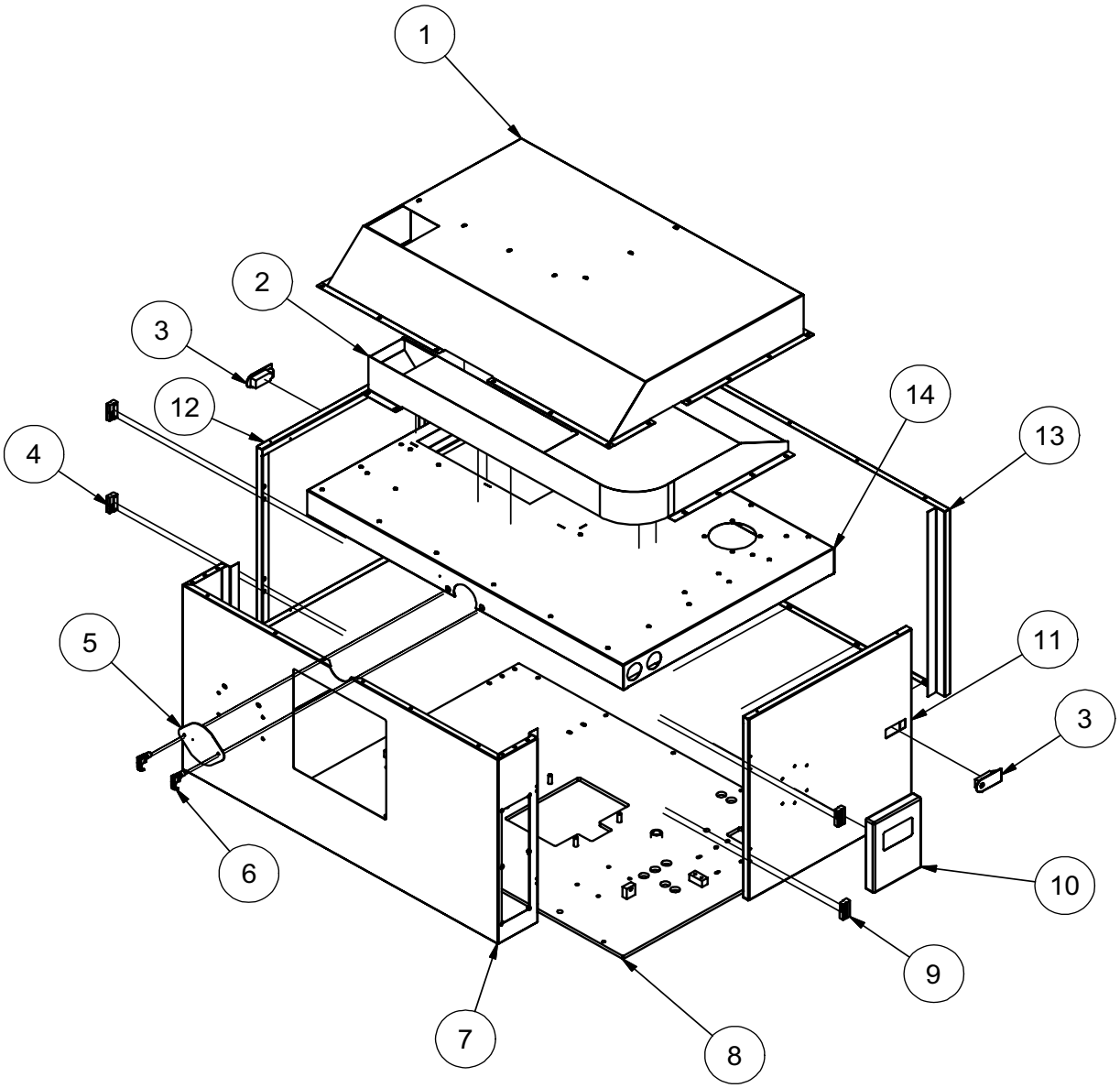

030712-E **VACASSY412**

# Enclosure Assembly 31HP

| ITEM | QTY | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8045125 | INTAKE BOX 31LE - WELDMENT |
| 2 | 1 | 8045096 | HEAT SHIELD 31LE - WELDMENT |
| 3 | 1 | 8045090 | 31LE PANEL TOP WELDMENT |
| 4 | 1 | 8040592 | ENCLOSURE RADIATOR COVER |
| 5 | 2 | 8040334 | SWELL LATCH |
| 6 | 1 | 8045086 | 31LE PANEL FRONT WELDMENT |
| * | 1 | 8045110 | SOUND INSULATION OPPOSITE CONTROL PANEL |
| * | 2 | 8045117 | SOUND INSULATION LEFT OR RIGHT SIDE RADIATOR |
| * | 1 | 8045118 | SOUND INSULATION BELOW RADIATOR |
| * | 1 | 8045115 | SOUND INSULATION ABOVE RADIATOR |
| * | 1 | 8045108 | SOUND INSULATION UPPER FRONT PANEL |
| * | 1 | 8045114 | SOUND INSULATION CONTROL PANEL TOP |
| * | 1 | 8045119 | SOUND INSULATION CONTROL PANEL BOTTOM |
| 7 | 2 | 8040588 | OFFSET HINGE TYPE “A” |
| 8 | 1 | E250210 | BOX, PLASTIC FOR SAFETY MANUAL |
| 9 | 2 | 8040586 | SEALED LEVER LATCH |
|  | 1 | 8041816 | KEY DOOR SOUTHCO LATCH |
| 10 | 1 | 8045091 | 31LE PANEL DOOR FOR MANUAL |
| * | 1 | 8045111 | SOUND INSULATION DOOR |
| * | 1 | 8045112 | SOUND INSULATION UPPER CURB SIDE |
| 11 | 1 | 8046549 | MAIN PLATE 31LE - WELDMENT |
| 12 | 1 | 8045088 | 31LE PANEL REAR WELDMENT |
| * | 2 | 8045107 | SOUND INSULATION BACK PANEL |
| * | 1 | 8045134 | SOUND INSULATION UPPER BACK PANEL |
| 13 | 2 | 8040589 | OFFSET HINGE TYPE “B” |
| 14 | 1 | 8045092 | 31LE PANEL DOOR |
| * | 1 | 8045111 | SOUND INSULATION DOOR |
| * | 1 | 8045109 | SOUND INSULATION UPPER STREET SIDE |
| 15 | 1 | 8045143 | FLANGE EXHAUST TOP PANEL WELDMENT |
| 16 | 1 | 8044223 | ENCLOSURE EXHAUST CLAMP PLATE |

* NOT SHOWN

# Enclosure Assembly 31HP RC



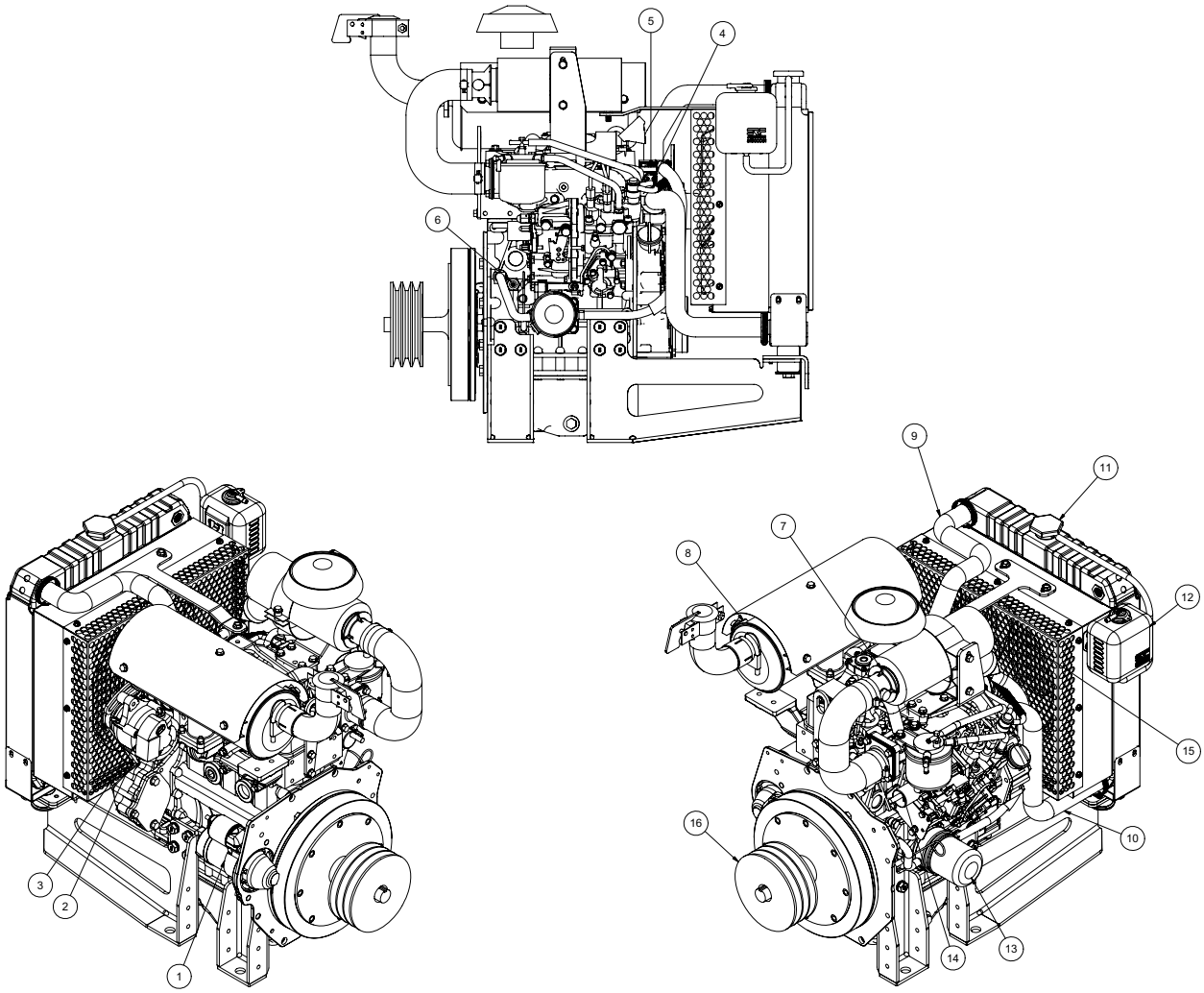

030712-E

**VACASSY413**

# Enclosure Assembly 31HP RC

| ITEM | QTY | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8045125 | INTAKE BOX 31LE - WELDMENT |
| 2 | 1 | 8045096 | HEAT SHIELD 31LE - WELDMENT |
| 3 | 2 | 8040586 | SEALED LEVER LATCH |
| | 1 | 8041816 | KEY DOOR SOUTHCO LATCH |
| 4 | 2 | 8040588 | OFFSET HINGE TYPE “A” |
| 5 | 1 | 8040592 | ENCLOSURE RADIATOR COVER |
| 6 | 2 | 8040334 | SWELL LATCH |
| 7 | 1 | 8045455 | 31LE PANEL FRONT WELDMENT |
| * | 1 | 8045110 | SOUND INSULATION OPPOSITE CONTROL PANEL |
| * | 2 | 8045117 | SOUND INSULATION LEFT OR RIGHT SIDE RADIATOR |
| * | 1 | 8045118 | SOUND INSULATION BELOW RADIATOR |
| * | 1 | 8045115 | SOUND INSULATION ABOVE RADIATOR |
| * | 1 | 8045108 | SOUND INSULATION UPPER FRONT PANEL |
| * | 1 | 8045114 | SOUND INSULATION CONTROL PANEL TOP |
| * | 1 | 8045119 | SOUND INSULATION CONTROL PANEL BOTTOM |
| 8 | 1 | 8046549 | MAIN PLATE 31LE-WELDMENT |
| 9 | 2 | 8040589 | OFFSET HINGE TYPE “B” |
| 10 | 1 | E250210 | BOX, PLASTIC FOR SAFETY MAIN |
| 11 | 1 | 8045091 | 31LE PANEL DOOR WELDMENT |
| * | 1 | 8045111 | SOUND INSULATION DOOR |
| * | 1 | 8045112 | SOUND INSULATION UPPER CURB SIDE |
| 12 | 1 | 8045092 | 31LE PANEL DOOR |
| * | 1 | 8045111 | SOUND INSULATION DOOR |
| * | 1 | 8045109 | SOUND INSULATION UPPER STREET SIDE |
| 13 | 1 | 8045088 | 31LE REAR WELDMENT |
| | 2 | 8045107 | SOUND INSULATION BACK PANEL |
| | 1 | 8045134 | SOUND INSULATION UPPER BACK PANEL |
| 14 | 1 | 8045524 | 31LE TOP WELDMENT(OPP) |

# Engine Yanmar 3TNV82A




060611-E

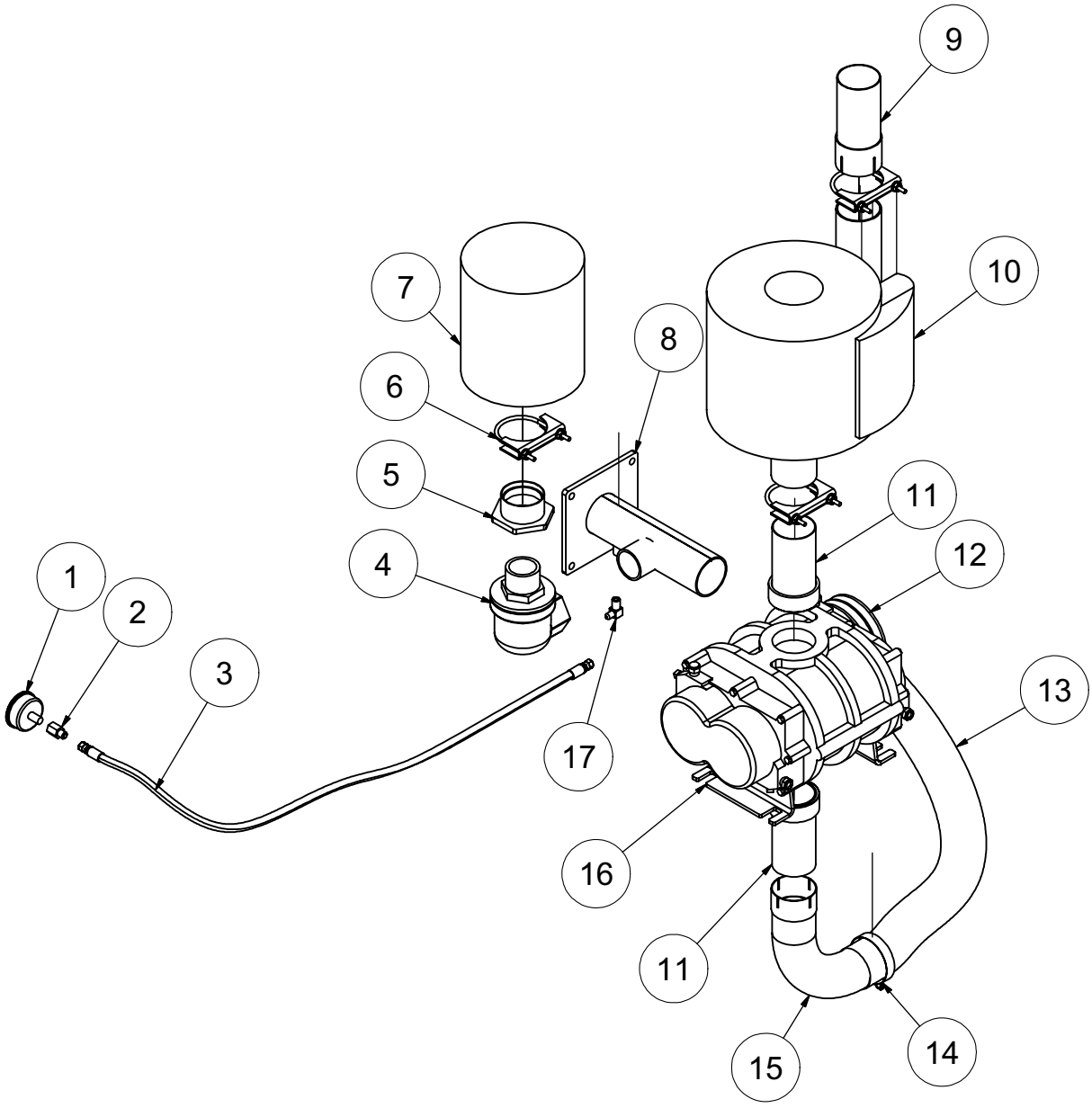
**VACASSY857**

# Engine Yanmar 3TNV82A

| ITEM | QTY | NUMBER | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8045083-1 | STARTER |
| 2 | 1 | 8045083-2 | FAN BELT |
| 3 | 1 | 8045083-3 | ALTERNATOR |
| 4 | 1 | 8045083-4 | WATER TEMPERTURE SWITCH |
| 5 | 1 | 8045083-5 | THERMOSTAT |
| 6 | 1 | 8045083-6 | OIL PRESSURE SWITCH |
| 7 | 1 | 8045083-7 | AIR FILTER HOUSING |
| * | 1 | 8045277 | AIR FILTER ELEMENT |
| 8 | 1 | 8045083-8 | MUFFLER |
| * | 1 | 8045278 | MUFFLER GASKET |
| 9 | 1 | 8045083-9 | UPPER RADIATOR HOSE |
| 10 | 1 | 8045083-10 | LOWER RADIATOR HOSE |
| 11 | 1 | 8045083-11 | RADIATOR CAP |
| 12 | 1 | 8045083-12 | OVERFLOW TANK (SOLD WITH CAP) |
| 13 | 1 | 8045083-13 | OIL FILTER |
| 14 | 1 | 8045083-14 | FUEL SHUTOFF SOLENOID |
| 15 | 1 | 8045083-15 | FAN |
| 16 | 1 | 8044548 | SHEAVE, 7.75” OD SK 3-GROOVE |
|  | 1 | 8044516 | BUSHING, 1 1/8” SK |
| * | 1 | 8045279 | THROTTLE SOLENOID |
| * | 1 | 8045280 | FUEL FILTER |
| * | 1 | 8045281 | FUEL PUMP |
| * | 1 | 8045282 | MURPHY SWITCH |
| * | 1 | 8045283 | KEY SWITCH |
| * | 1 | 8045617 | KEY |
| * | 1 | 8045287 | SOLENOID SPRING |
| * | 1 | 8047108 | BRACKET, WATER SEPARATOR |
| * | 1 | 8047265 | OIL / WATER SEPARATOR |

* NOT SHOWN

# Blower Assembly 31HP




122310-E

**VACASSY225**

# Blower Assembly

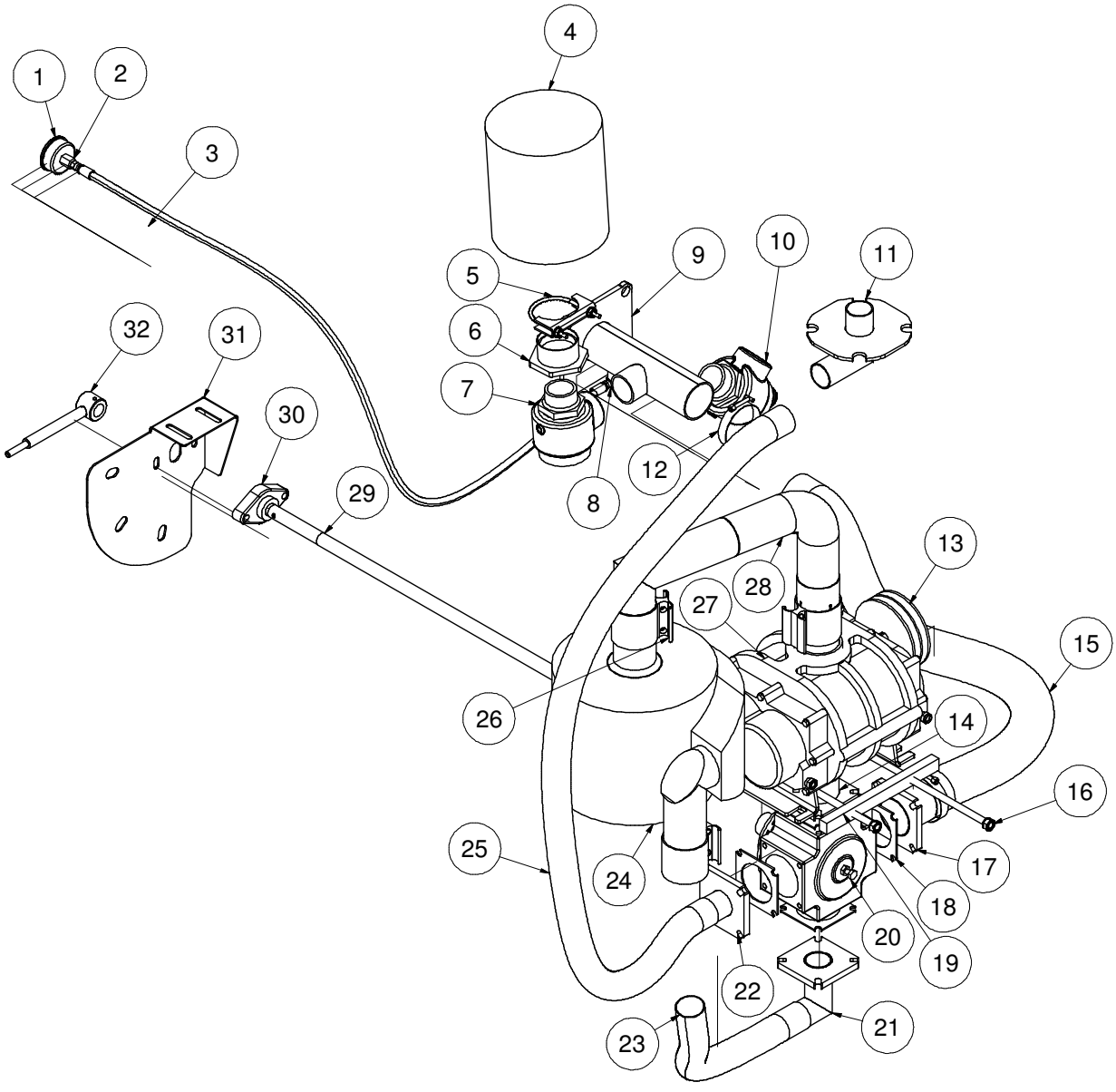
# 31HP

| ITEM | QTY | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8041074 | GAUGE COMPOUND PRESSURE/VACUUM |
| 2 | 1 | T400110 | UNION, 4FP - 4MJ |
| 3 | 1 | 8042355 | HOSE ASSY VAC 4 - 60 ST-ST |
| 4 | 1 | 8030337 | BAYCO VALVE 575 CFM |
| 5 | 1 | 8044951 | VACUUM, RELIEF FILTER BUSHING |
| 6 | 3 | 8030395 | 3" U-BOLT CLAMP |
| 7 | 1 | 8043553 | FILTER, AIR 3" 245 CFM |
| 8 | 1 | 8046519 | 3" HEADER AIR FILTER HDRF |
| | 1 | 8046191 | GASKET, HEADER AIR FILTER |
| 9 | 1 | 8045205 | BLOWER EXHAUST EXTENSION |
| 10 | 1 | 8030332 | SILENCER, 500CFM, COWL |
| 11 | 2 | 8045238 | UNION, EXHAUST 3"OD - MNPT |
| 12 | 1 | 8040945 | 5.95"OD SDS 2-GROOVE |
| | 1 | 8040642 | BUSHING, 7/8" SDS |
| | 1 | U410042 | KEY, 3/16" X 3/16" X 2" |
| | 1 | 8041797 | RETAINER |
| | 1 | 8030379 | BX 51, BELT |
| 13 | 1 | 8046811 | HOSE VAC KANAFLEX 3-46" |
| 14 | 2 | 8042605 | CLAMP, T-BOLT 3" (350) |
| 15 | 1 | 8040682 | ELBOW, 3" (6" RAD, ID - OD) |
| 16 | 1 | 8041250 | BLOWER (MODEL 47) |
| | 4 | U000817 | SCREW, HC 1/2"-13 X 1" |
| | 4 | U210100 | WASHER, LOSK 1/2" |
| | 4 | U200100 | WASHER, FLAT 1/2" |
| 17 | 1 | T401100 | ELBOW, 4MP - 4MJ 90 |

122310-E

**VACASSY225**

# Blower Assembly 31LE RF



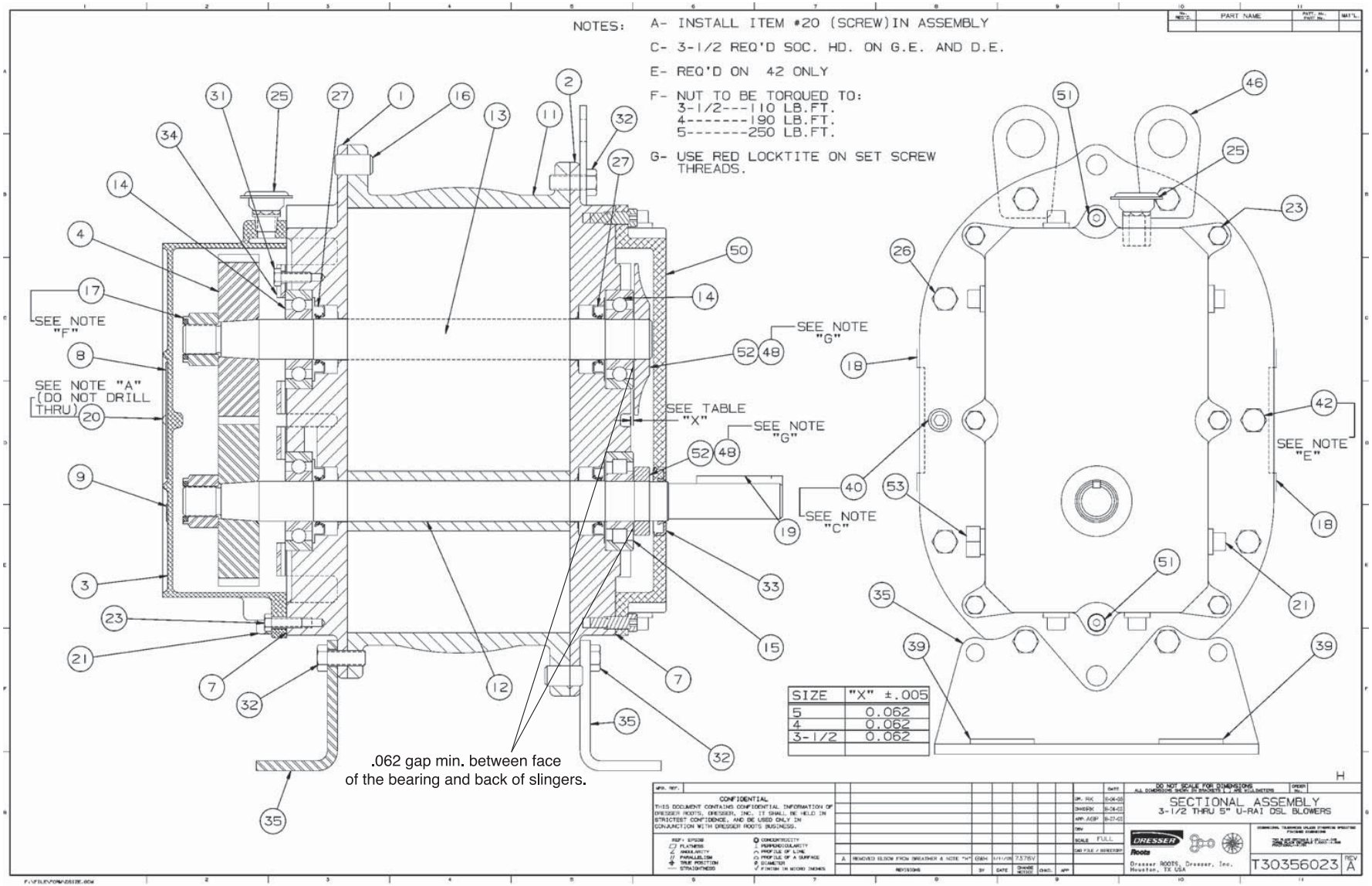

062512-E

**VACASSY233**

# Blower Assembly 31LE RF

| ITEM | QTY | NUMBER | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8041074 | GAUGE COMPOUND PRESSURE/VACUUM |
| 2 | 1 | T400110 | UNION 4FP-4MJ |
| 3 | 1 | 8045870 | HOSE ASSY VAC 4-41" ST-ST |
| 4 | 1 | 8043553 | FILTER, AIR 3" 245CFM |
| 5 | 1 | 8030395 | 3" U-BOLT CLAMP |
| 6 | 1 | 8044951 | VACUUM RELIEF FILTER BUSHING |
| 7 | 1 | 8030337 | KUNKLE VALVE, 575CFM |
| 8 | 1 | T401100 | ELBOW 4MP-4MJ, 90 |
| 9 | 1 | 8048125 | 3" HEADER AIR FILTER HDRF |
| 10 | 2 | 8042605 | CLAMP, T-BOLT 3" (350) |
| 11 | 1 | 8046558 | EXHAUST ELBOW 2" OD-FLANGE WELDMENT |
| 12 | 1 | 8041034 | PRESSURE RELIEF, 575 |
| 13 | 1 | 8040945 | SHEAVE 5.95DIA 2-GROOVE |
| | 1 | 8040642 | BUSHING, 7/8" SDS |
| | 2 | 8030379 | BELTS, BX51 |
| | 1 | 8044986 | RETAINER |
| 14 | 1 | 8044905 | ADAPTER 4-WAY VALVE 3" TO BLOWER |
| 15 | 1 | 8046578 | HOSE VAC AG SUCTION 3-41" |
| 16 | 2 | 8040751 | ROD TIGHTENER WELDMENT |
| 17 | 1 | 8046504 | EXHAUST 3" FLANGE X 3" TUBE WELDMENT |
| 18 | 4 | 8044792 | GASKET, 4-WAY VALVE 3" |
| 19 | 1 | 8040702 | TENSION BLOCK 575CFM |
| 20 | 1 | 8041030 | VALVE, 4-WAY 3"NPT THREADS |
| 21 | 1 | 8046557 | EXHAUST ELBOW 2"OD - FLANGE |
| 22 | 1 | 8046555 | 2" EXHAUST TUBE W/FLANGE WELDMENT |
| 23 | 1 | 8046579 | HOSE VAC AG SUCTION 2-19" |
| 24 | 1 | 8030332 | SILENCER, 500CFM, COWL |
| 25 | 1 | 8046580 | HOSE VAC AG SUCTION 2-63" |
| 26 | 3 | 8044914 | 3" BAND CLAMP |
| 27 | 1 | 8041250 | BLOWER (MODEL 47) |
| | 4 | U000817 | SCREW, HC 1/2" - 13 X 1" |
| | 4 | U210100 | WASHER, LOCK 1/2" |
| | 4 | U200100 | WASHER, FLAT 1/2" |
| 28 | 1 | 8046570 | EXHAUST U-PIPE 3" OD-ID W/COUPLING |
| 29 | 1 | 8046358 | REV FLOW SHAFT 31LE |
| 30 | 1 | W030080 | FLANGE BEARING - 2 BOLT (1" BORE) |
| 31 | 1 | 8046202 | BRACKET REV FLOW CONTROL LE |
| 32 | 1 | 8041617 | REV FLOW HANDLE, TRAILER UNIT |

062512-E **VACASSY233**



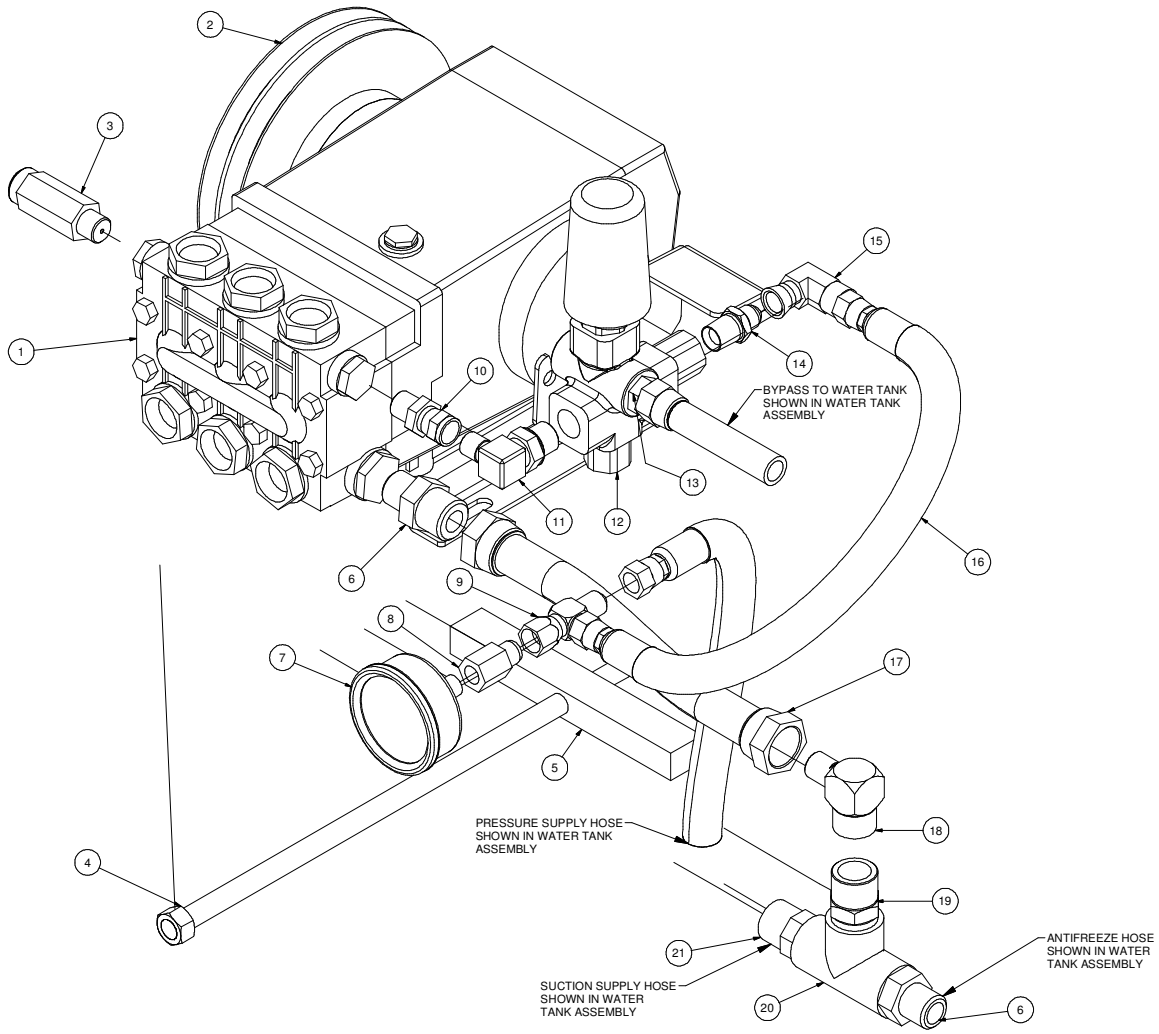

**Assembly of URAI DSL Blowers with Splash Lubricated Drive End 3-5" Gear Diameter**

## URAI-DSL Splash Lubricated Blowers
## 4" Gear Diameter

| Item # | Qty | Part # | Description |
|---|---|---|---|
| 1 | 1 | 8041250-1 | Headplate Gear End |
| 2 | 1 | 8041250-2 | Headplate Drive End |
| 3 | 1 | 8041250-3 | Gearbox |
| 4 | 2 | 8041250-4 | Timing Gears |
| 7 | 1 | 8041250-7 | Gasket, Gear Box, DE Cover |
| 11 | 1 | 8041250-11 | Cylinder |
| 12 | 1 | 8041250-12 | Impeller & Shaft Drive |
| 13 | 1 | 8041250-13 | Impeller & shaft Driven |
| 14 | 3 | 8041250-14 | Bearing, Ball |
| 15 | 1 | 8041250-15 | Bearing, Roller |
| 16 | 4 | 8041250-16 | Pin, Dowel |
| 17 | 2 | 8041250-17 | Gear Nut |
| 19 | 1 | 8041250-19 | Key |
| 21 | 3 | 8041250-21 | Plug, Pipe |
| 23 | 6 | 8041250-23 | Screw Hex |
| 25 | 1 | 8041250-25 | Breather (Plug Vent) |
| 26 | * | 8041250-26 | Screw, Hex |
| 27 | 4 | 8041250-27 | Seal, Lip Bearing |
| 31 | 4 | 8041250-31 | Screw, Hex, Nylock |
| 32 | 6 | 8041250-32 | Screw, Hex |
| 33 | 1 | 8041250-33 | Seal Lip-Drive |
| 34 | 2 | 8041250-34 | Clamp Plate |
| 35 | 2 | 8041250-35 | Foot |
| 39 | 4 | 8041250-39 | Washer Mounting |
| 40 | 2 | 8041250-40 | Screw Socket |
| 42 | 2 | 8041250-42 | Screw Hex |
| 48 | 4 | 8041250-48 | DE Oil Slinger Set Screw |
| 50 | 1 | 8041250-50 | Drive End Cover |
| 52 | 2 | 8041250-52 | Drive End Oil Slinger |
| 53 | 2 | 8041250-53 | Oil Sight Glass |

*Quantities vary by blower.

# Water Pump Assembly TS2021




062012-E

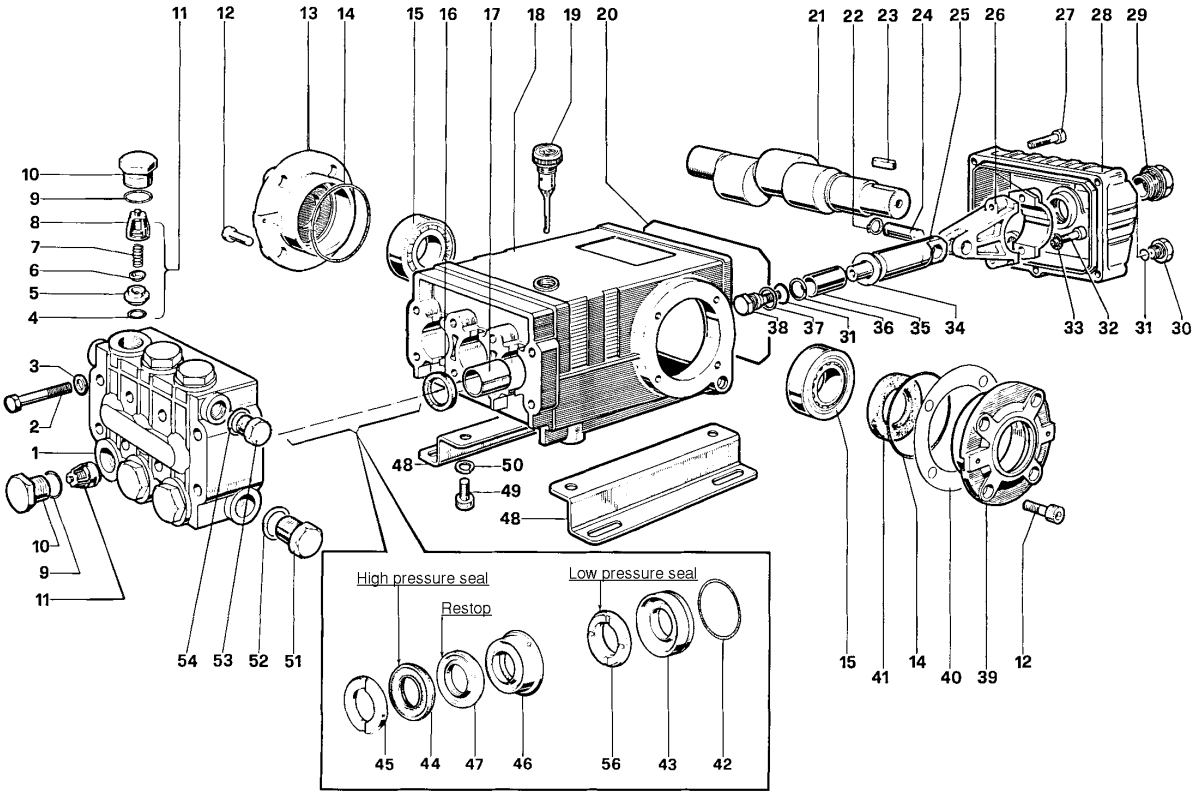
**VACASSY302**

# Water Pump Assembly TS2021

| ITEM | QTY | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8031279 | WATER PUMP |
| | 4 | U000420 | SCREW, HC 3/8"-16 X 1" |
| | 4 | U210060 | WASHER, LOCK 3/8" |
| | 4 | U200600 | WASHER, FLAT 3/8" |
| 2 | 1 | 8030961 | WATER PUMP CLUTCH |
| | 1 | U410094 | KEY 5/16" X 5/16" X 1 3/8" |
| 3 | 1 | 8030340 | SAFETY RELIEF VALVE 6GPM |
| 4 | 1 | 8040751 | ROD TIGHTENER WELD'T |
| 5 | 1 | 8040893 | TENSIONER BLOCK, ADJUSTING |
| 6 | 2 | T400080 | REDUCER, 12MP-8MJ |
| 7 | 1 | 8030372 | WATER PRESSURE GAUGE 1/4"NPT |
| 8 | 1 | 8031126 | REDUCER, 1/4"FP - 3/8"FJ |
| 9 | 1 | T402153 | TEE, 6MJ - 6MJ - 6FJ |
| 10 | 1 | T401125 | REDUCER, 3/8"MP - 1/2"FJ |
| 11 | 1 | T401120 | ELBOW, 90 3/8"MP - 1/2"MJ |
| 12 | 1 | 8040177 | VALVE, UNLOADER PULSAR 3 |
| 13 | 1 | T400030 | REDUCER, 6MP - 8MJ |
| 14 | 1 | T400028 | ADAPTER,STR 6MP - 6MJ, STEEL |
| 15 | 1 | T401228 | ELBOW, 90 3/8"FJ - 3/8"MJ |
| 16 | 1 | 8046817 | HOSE ASSY VAC 6-32" ST-ST |
| 17 | 1 | 8040972 | HOSE VAC PUSH 12 - 8 1/2"LG |
| | 2 | 8030525 | FITTING, HOSE #12FJ PUSHLOCK |
| 18 | 1 | T401160 | ELBOW,90 3/4"MJ - 1/2"MJ |
| 19 | 1 | T400080 | REDUCER, 12MP - 8MJ |
| 20 | 1 | T402160 | TEE, 3/4"FP - 3/4"FP - 3/4"FP |
| 21 | 1 | T400100 | UNION, 12MP - 12MJ |
| | | | |
| * | 2 | 8041803 | BELT, AX 47 (67/73HP) |
| | 2 | 8034157 | BELT, AX 39 (36HP) |
| | 2 | 8041082 | BELT, AX 48 (99HP COMP 1025 CFM) |
| | 2 | 8040876 | BELT, AX 45 (49HP) |

* NOT SHOWN

# Water Pump TS2021




## TORQUE SPECS*

*Decrease torque by 20%
if threads are lubricated

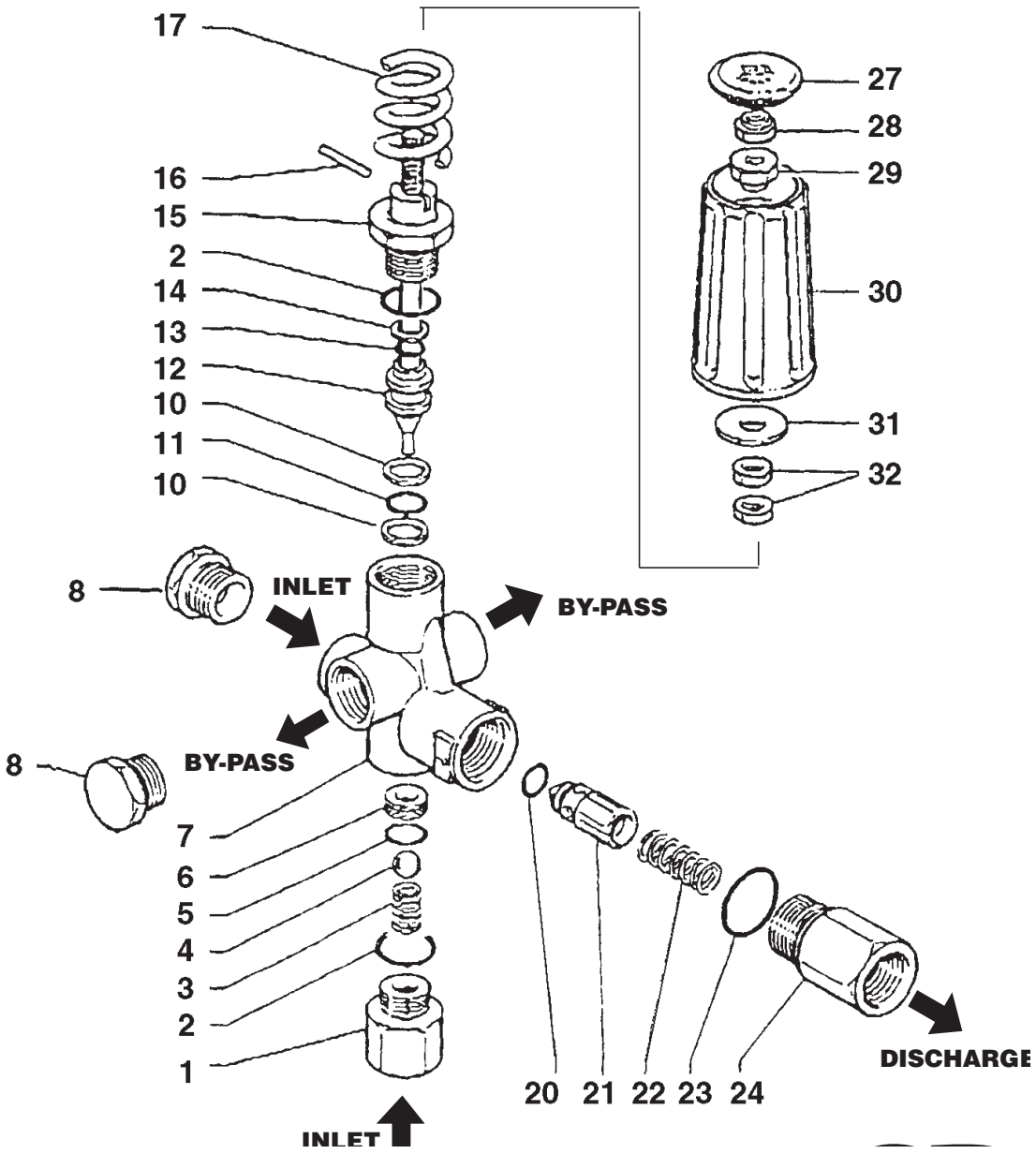
| Position | Ft. Lbs. | N-M |
|---|---|---|
| 2 | 22.1 | 29.9 |
| 10 | 73.7 | 99.9 |
| 12 | 14.7 | 19.2 |
| 27 | 7.3 | 9.9 |
| 29 | 13.2 | 17.9 |
| 30 | 14.7 | 19.2 |
| 32 | 14.7 | 19.2 |
| 38 | 14.7 | 19.2 |
| 49 | 29.4 | 39.8 |
| 51 | 29.4 | 39.8 |
| 53 | 29.4 | 39.8 |

# Water Pump TS2021

| ITEM | QTY. | PART # | DESCRIPTION | KIT # | ITEM #'S INCL'D IN KIT | NO. OF ASSY IN KIT | NO. OF CYL KIT WILL SERVICE |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 8031280-1 | Manifold | 8031280-KIT1 | 4, 5, 6, 7, 8 (11) | 6 | 3 |
| 2 | 8 | 8031280-2 | Screw, M8 x 70 | 8031280-KIT2 | 16 | 3 | 3 |
| 3 | 8 | 8031280-3 | Washer, M8 x 4 | 8031280-KIT3 | 41 | 2 | 0 |
| 4 | 8 | 8031280-4 | O-ring, .674 x .103 | 8031280-KIT4 | 9, 10 | 6 | 3 |
| 5 | 6 | 8031280-5 | Seat, Valve | 8031280-KIT5 | 9, 10 | 6 | 3 |
| 6 | 6 | 8031280-6 | Plate, Valve | 8031280-KIT6 | 31, 34 | 3 | 3 |
| 7 | 6 | 8031280-7 | Spring | | 36, 37, 38 | | |
| 8 | 6 | 8031280-8 | Guide, Valve | 8031280-KIT7 | 45 | 6 | 3 |
| 9 | 6 | 8031280-9 | O-ring,.797x.103 | 8031280-KIT10 | 42, 43 | 3 | 3 |
| 10 | 6 | 8031280-10 | Cap | 8031280-KIT28 | 42, 43, 44, | 1 | 1 |
| 11 | 6 | 8031280-11 | Valve Assembly | | 45, 45, 47, 56 | | |
| 12 | 8 | 8031280-12 | Screw, M8 x 16 | 8031280-KIT69 | 44, 47, 56 | 3 | 3 |
| 13 | 1 | 8031280-13 | Cover, Crankcase | 8031280-KIT71 | 46, 47 | 3 | 3 |
| 14 | 2 | 8031280-14 | O-ring, 2.675 x .103 | | | | |
| 15 | 2 | 8031280-15 | Bearing, Roller | | | | |
| 16 | 3 | 8031280-16 | Seal, Oil | | | | |
| 17 | 3 | 8031280-17 | Bushing | | | | |
| 18 | 1 | 8031280-18 | Crankcase | | | | |
| 19 | 1 | 8031280-19 | Oil Dip Stick | | | | |
| 20 | 1 | 8031280-20 | O-ring, Cover | | | | |
| 21 | 1 | 8031280-21 | Crankshaft | | | | |
| 22 | 6 | 8031280-22 | Ring, Snap | | | | |
| 23 | 1 | 8031280-23 | Key | | | | |
| 24 | 3 | 8031280-24 | Pin, Wrist | | | | |
| 25 | 3 | 8031280-25 | Guide, Plunger | | | | |
| 26 | 3 | 8031280-26 | Rod, Connecting | | | | |
| 27 | 5 | 8031280-27 | Screw, M6 x 30 | | | | |
| 28 | 1 | 8031280-28 | Cover, Crankcase | | | | |
| 29 | 6 | 8031280-29 | Oil Indicator | | | | |
| 30 | 1 | 8031280-30 | Cap | | | | |
| 31 | 4 | 8031280-31 | O-ring,.426x.070 | | | | |
| 32 | 6 | 8031280-32 | Screw, M8 x 35 | | | | |
| 33 | 6 | 8031280-33 | Washer, M8.4 | | | | |
| 34 | 3 | 8031280-34 | Washer, M14 | | | | |
| 35 | 3 | 8031280-35 | Plunger (20 mm) | | | | |
| 37 | 3 | 8031280-37 | Washer | | | | |
| 38 | 3 | 8031280-38 | Screw, Plunger | | | | |
| 39 | 1 | 8031280-39 | Cover, Crankcase | | | | |
| 40 | 2 | 8031280-40 | Shim | | | | |
| 41 | 1 | 8031280-41 | Seal, Oil | | | | |
| 42 | 3 | 8031280-42 | O-ring, 1.364x.070 | | | | |
| 43 | 3 | 8031280-43 | Retainer, Packing | | | | |
| 44 | 3 | 8031280-44 | Packing | | | | |
| 45 | 3 | 8031280-45 | Ring, Head, M20 | | | | |
| 46 | 3 | 8031280-46 | Intermed. Ring | | | | |
| 47 | 3 | 8031280-47 | Testop Ring | | | | |
| 48 | 2 | 8031280-48 | Pump Feet | | | | |
| 49 | 4 | 8031280-49 | Screw, M10 x 18 | | | | |
| 50 | 4 | 8031280-50 | Washer, M10.2 | | | | |
| 51 | 1 | 8031280-51 | Cap | | | | |
| 52 | 1 | 8031280-52 | Washer, M21.5 | | | | |
| 53 | 1 | 8031280-53 | Cap | | | | |
| 54 | 1 | 8031280-54 | Washer, M17.5 | | | | |
| 56 | 3 | 8031280-56 | Seal,Low Press,20mm | | | | |

**VACASSY325**

# Unloader Valve PULSAR3KHP




050409

VACASSY328

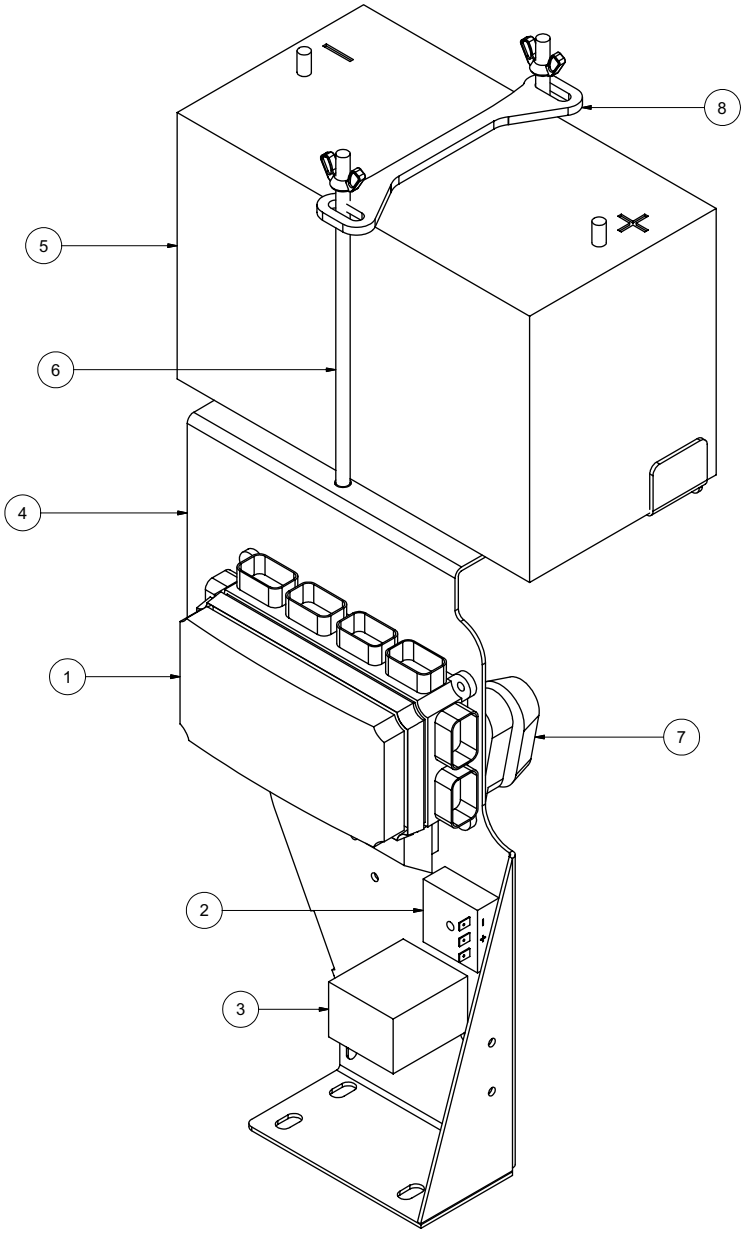
# Unloader Valve PULSAR3KHP

| ITEM | QTY | PART # | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8040177-1 | INLET FITTING, 3/8 NPT-F |
| 2 | 2 | 8040177-2 | O-RING, .676ID X .070CS |
| 3 | 1 | 8040177-3 | BALL SPRING |
| 4 | 1 | 8040177-4 | SS BALL, 13/32 |
| 5 | 1 | 8040177-5 | O-RING, .437ID X .070CS |
| 6 | 1 | 8040177-6 | SS SEAT, .551OD X .335ID |
| 7 | 1 | 8040177-7 | BRASS BODY, 3/8 NPT |
| 8 | 2 | 8040177-8 | PLUG, 3/8"NPT |
| 10 | 2 | 8040177-10 | BACKUP RING |
| 11 | 1 | 8040177-11 | O-RING, .424ID X .103CS |
| 12 | 1 | 8040177-12 | SS PISTON |
| 13 | 1 | 8040177-13 | O0RING, .299ID X .103CS |
| 14 | 1 | 8040177-14 | BACKUP RING |
| 15 | 1 | 8040177-15 | PISTON HOUSING |
| 16 | 1 | 8040177-16 | LOCKING PIN |
| 17 | 1 | 8040177-17 | BLUE SPRING |
| 20 | 1 | 8040177-20 | O-RING, .236ID X .118CS |
| 21 | 1 | 8040177-21 | CHECK VALVE |
| 22 | 1 | 8040177-22 | SS SPRING |
| 23 | 1 | 8040177-23 | O-RING, .739ID X .070CS |
| 24 | 1 | 8040177-24 | OUTLET FITTING, 3/8NPT-F |
| 27 | 1 | 8040177-27 | PLASTIC PLUG for KNOB |
| 28 | 1 | 8040177-28 | ZINC NUT, M8 |
| 29 | 1 | 8040177-29 | INSERT M8 |
| 30 | 1 | 8040177-30 | PLASTIC KNOB |
| 31 | 1 | 8040177-31 | WASHER, 9mm X 24mm |
| 32 | 2 | 8040177-32 | BRASS NUT, M8 |

050409

**VACASSY328**

# Electrical Control Bracket




041112-E

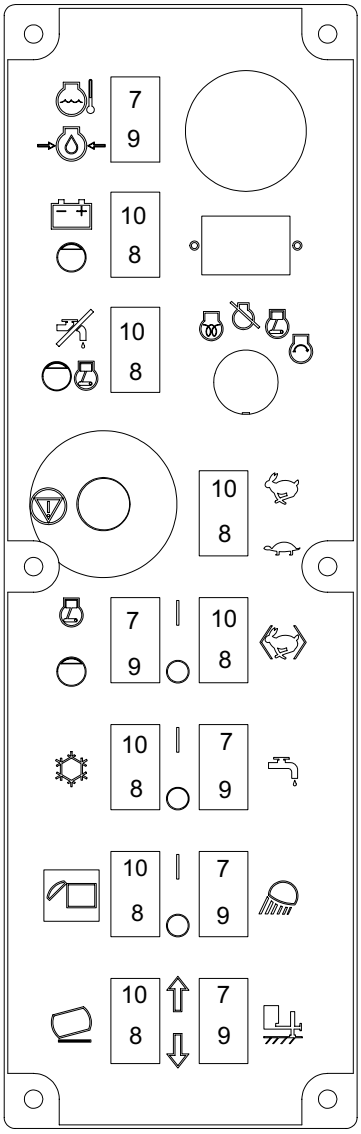
**VACASSY550**

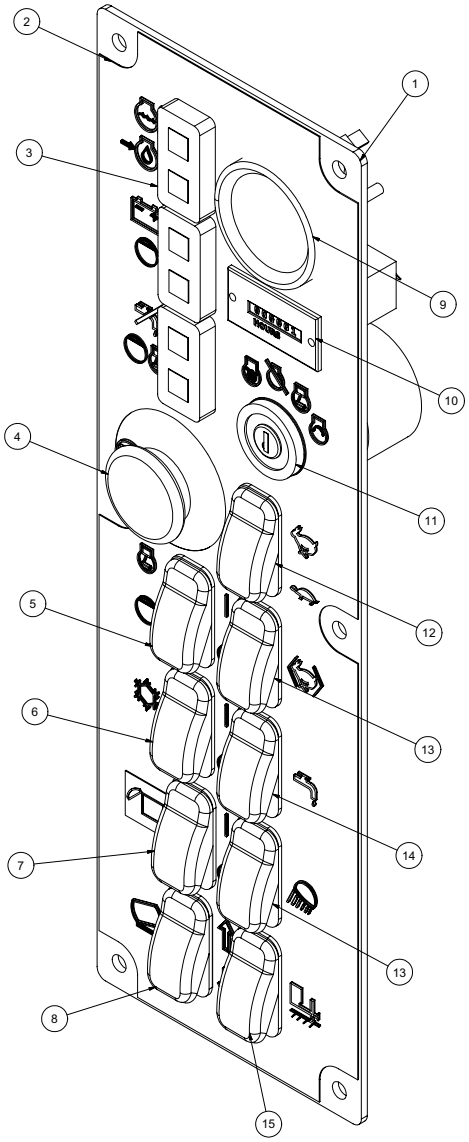
# Electrical Control Bracket

| ITEM | QTY | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | X000239 | BUSSMAN VEC |
| | 7 | X000205 | FUSE 5A |
| | 2 | X000206 | FUSE 10A |
| | 2 | X000207 | FUSE 20A |
| | 3 | X000237 | FUSE 30A |
| | 1 | X000236 | CIRCUIT BREAKER 20A |
| | 1 | X000210 | CIRCUIT BREAKER 30A |
| | 6 | X000209 | RELAY 35A/25A |
| | 5 | X000208 | DIODE 6A |
| * | 4 | U000040 | SCREW, HC 1/4" - 20 X .750 |
| * | 4 | U200020 | WASHER, FLAT 1/4" |
| * | 4 | U210020 | WASHER, LOCK 1/4" |
| * | 4 | U100020 | NUT, HEX 1/4"-20 |
| 2 | 1 | 8042282 | SWITCH, DELAY RELAY |
| * | 1 | U100020 | NUT, HEX 1/4"-20 |
| | 1 | U200020 | WASHER, FLAT 1/4" |
| | 1 | U210020 | WASHER, LOCK 1/4" |
| | 1 | U000080 | SCREW, HC 1/4"-20 X 1.25 ZP G5 |
| 3 | 1 | X000241 | RELAY TIMER 15 SEC SHUTDOWN |
| * | 1 | U100020 | NUT, HEX 1/4"-20 |
| | 1 | U200020 | WASHER, FLAT 1/4" |
| | 1 | U210020 | WASHER, LOCK 1/4" |
| | 1 | U000080 | SCREW, HC 1/4"-20 X 1.25 ZP G5 |
| 4 | 1 | 8043127 | CONTROL PANEL - HARNESS MTG PLATE |
| 5 | 1 | X400050 | BATTERY, 31-MHD WORKAHOLIC |
| 6 | 2 | 8043742 | BATTERY HOLD DOWN ROD ASSY |
| 7 | 1 | 8043800 | FUSE HOLDER AMG |
| | 1 | 8043801 | FUSE 250A AMG |
| * | 2 | U000060 | SCREW, HC 1/4"-20 X 1.00 |
| * | 2 | U200020 | WASHER, FLAT 1/4" |
| * | 2 | U210020 | WASHER, LOCK 1/4" |
| * | 2 | U100020 | NUT, HEX 1/4"-20 |
| 8 | 1 | 8050016 | BATTERY HOLD DOWN |
| | | | |
| * | 1 | X200005 | HARNESS VAC CONTROL |
| * | 1 | X300222 | BATTERY GROUND CABLE |
| * | 1 | X300219 | BATTERY HOT CABLE 18" |
| * | 1 | X300220 | ENGINE TO FUSE HOT 1GA 60" |
| * | 1 | X300221 | HYD PUMP TO FUSE HOT 1GA 36" |
| * | 1 | X300221 | ELEC CONTROL BOX TO FUSE HOT 1GA 36" |
| * | 1 | X300222 | ELEC CONTROL BOX GROUND 1GA 18" |
| * | 1 | X300224 | ENGINE GROUND 1GA 21" |
| * | 1 | X300225 | HYD PUMP GROUND 1GA 24" |

* NOT SHOWN

# Control Panel




061412-E

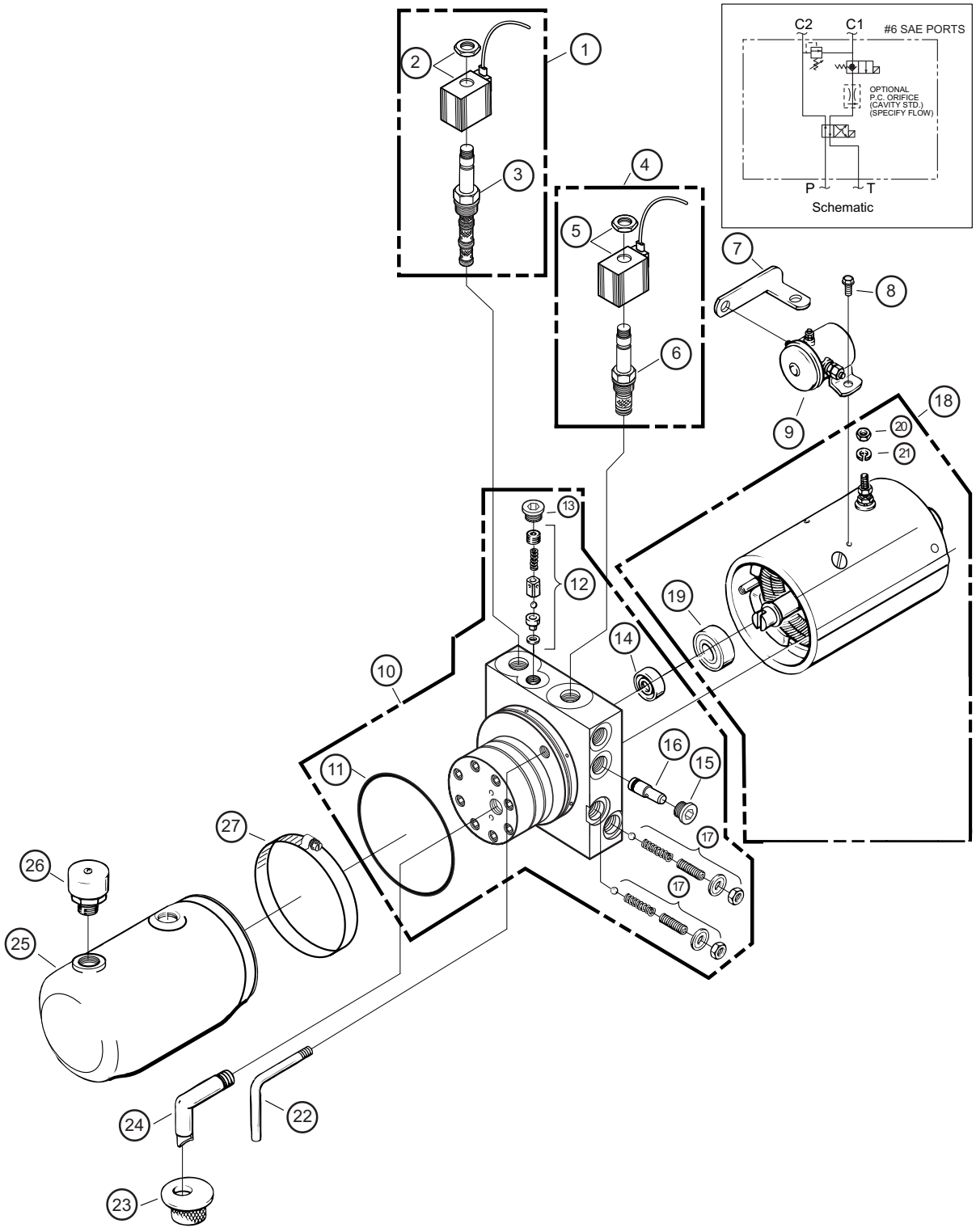
**VACASSY504**

# Control Panel

| ITEM | QTY | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8043128 | CONTROL PANEL - MAIN PLATE |
| 2 | 1 | J200031 | DECAL - CONTROL PANEL |
| 3 | 3 | X000260 | LIGHT LED DUAL PANEL |
| 4 | 1 | X000280 | E-STOP |
| 5 | 1 | X000273 | ROCKER SWITCH SPST (ON) NONE -OFF |
| 6 | 1 | X000272 | ROCKER SWITCH DPST (ON) NONE -ON |
| 7 | 1 | X000274 | ROCKER SWITCH DPST (ON) OFF (ON) |
| 8 | 1 | X000274 | ROCKER SWITCH DPDT (ON) OFF (ON) |
| 9 | 1 | X100001 | FUEL GAUGE |
| 10 | 1 | X000300 | HOUR METER |
| 11 | 1 | 8030458 | IGNITION SWITCH |
| 12 | 1 | X000271 | ROCKER SWITCH DPST ON - ON |
| 13 | 2 | X000270 | ROCKER SWITCH SPST ON -OFF |
| 14 | 1 | X000270 | ROCKER SWITCH SPST ON -OFF |
| | 1 | X000271 | ROCKER SWITCH DPST ON -ON |
| 15 | 1 | X000290 | ROCKER SWITCH PLUG |
| | 1 | X000274 | ROCKER SWITCH DPDT (HYD. JACK OPTION) |
| * | 1 | 8030829 | KEY, IGNITION - KUBOTA |

* NOT SHOWN

# Hydraulic Pump w/ Bracket




033110-E

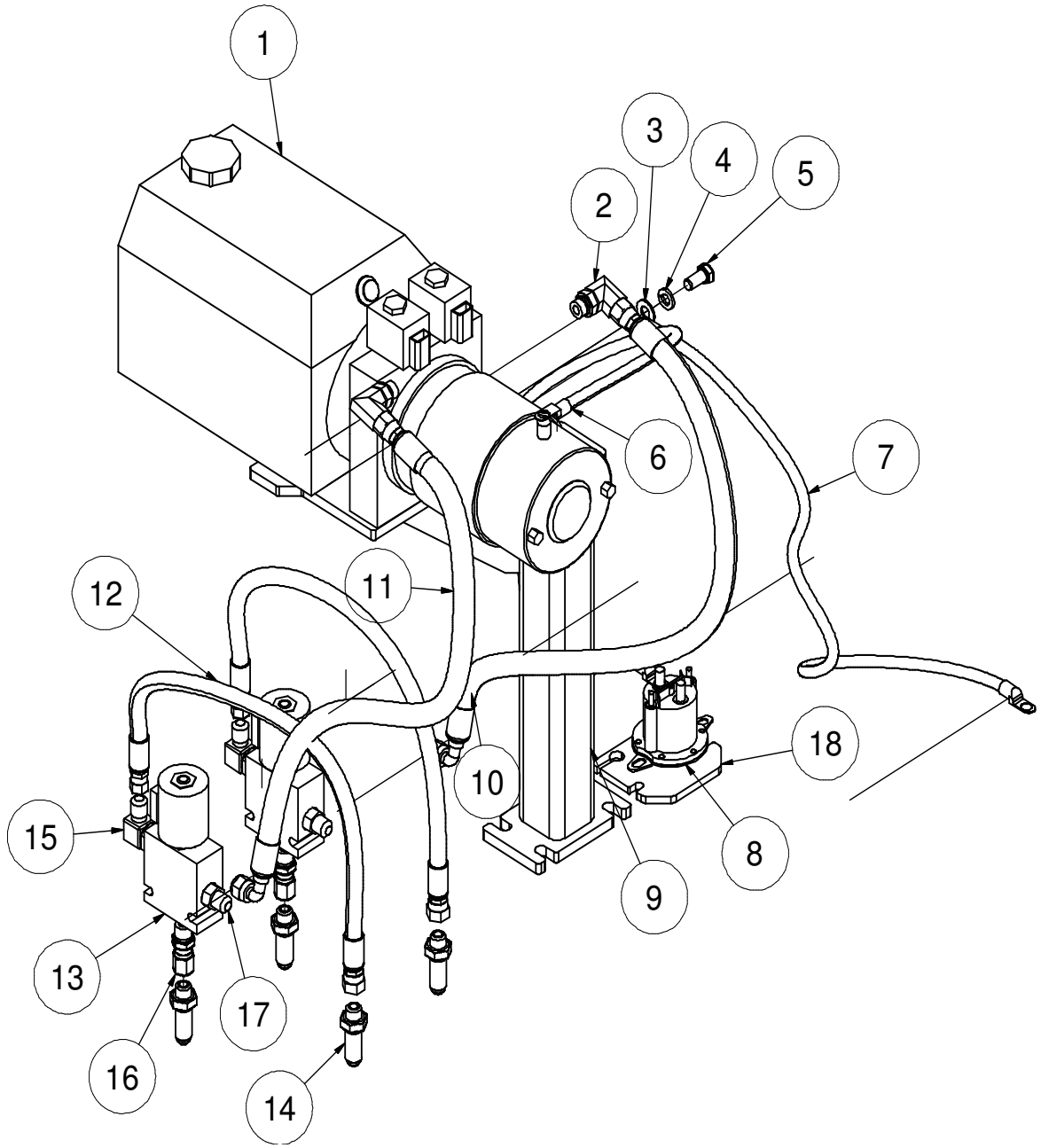
**VACASSY250**

# Hydraulic Pump w/ Bracket

| ITEM | QTY | NUMBER | DESCRIPTION |
|---|---|---|---|
| | 1 | 8046300 | PUMP,HYD 12V VAC 4.5QT |
| | 2 | U000420 | SCREW, HC 3/8”-16 X 1” |
| | 2 | U210060 | WASHER, LOCK 3/8” |
| | 2 | U200600 | WASHER, FLAT 3/8” |
| | 2 | T400037 | UNION 6MB - 6MJR |
| | 2 | 8040973 | HOSE ASSY VAC 6-20 ST-90 |
| | 2 | T400391 | BULKHEAD 6MP - 6MP |
| 1 | 1 | 8046300-14 | VALVE, 4-WAY - 2 POSITION |
| 2 | 1 | 8046300-15 | COIL, 10 VDC GROUNDED W/ DEUTSCH CONN |
| 3 | 1 | 8046300-16 | CARTRIDGE, 4-WAY 2 POSITION |
| 4 | 1 | 8046300-17 | VALVE, 2-WAY 2 POSITION (12V) GROUNDED |
| 5 | 1 | 8046300-18 | COIL, 10VDC 2-WAY 2 POS GRND W/DEUTSCH CONN |
| 6 | 1 | 8046300-19 | VALVE, 12V HYD 2-WAY 2 POSITION |
| 7 | 1 | 8046300-23 | PUMP ASSEMBLY |
| 8 | 1 | 8046300-24 | O-RING INDUST 3 5/8” X 3 7/8” X 1/8” |
| 9 | 1 | 8046300-25 | PARTS KIT - VALVE ASSY, POPPET/BALL CHECK |
| 10 | 1 | 8046300-26 | PLUG |
| 11 | 1 | 8046300-27 | SEAL |
| 12 | 1 | 8046300-28 | PLUG, #8 SAE |
| 13 | 2 | 8046300-30 | PARTS KIT, RELIEF VALVE |
| 14 | 1 | 8046300-31 | MOTOR, ELECTRIC 12VDC |
| 15 | 1 | 8046300-32 | BEARING, BASE MOTOR |
| 16 | 1 | 8046300-33 | NUT, HEX 5/16 -24 |
| 17 | 1 | 8046300-34 | WASHER, LOCK 5/16” |
| | 2 | 8046300-38 | SCREW, HEX HEAD 1/4”-20 X 1 3/8” |
| | 1 | 8046300-41 | PLUG, 3/8”NPTF |
| 18 | 1 | 8046300-42 | TUBE, RETURN (1/8”) |
| 19 | 1 | 8046300-43 | SCREEN, FILTER (SUCTION) |
| 20 | 1 | 8046300-44 | TUBE, FILTER SUCTION 3/8”NPT 90 DEG |
| 21 | 1 | 8046300-45 | 6QT RESEVOIR POLY |
| | * | 8040486-45 | 3QT RESEVOIR POLY |
| | * | 8046300-48 | 4.5QT RESEVOIR POLY |
| 22 | 1 | 8046300-46 | PLUG, VENT 3/8”NPT |
| 23 | 1 | 8046300-47 | CLAMP, HOSE WORM GEAR (IN SERIES) |
| 24 | 1 | 8046258 | SWITCH HYD PUMP 12V |
| | | | |
| * | 1 | X200002 | HYDRAULIC PUMP WIRE HARNESS |
| * | 1 | 8043499 | HYDRAULIC PUMP MOUNT |
| | | 8044297 | HYDRAULIC PUMP MOUNT (REVERSE FLOW) |
| | | 8045336 | HYDRAULIC PUMP MOUNT (412 BLOWER) |

* NOT SHOWN

# Hydraulic Pump Assembly




041212-E

**VACASSY251**

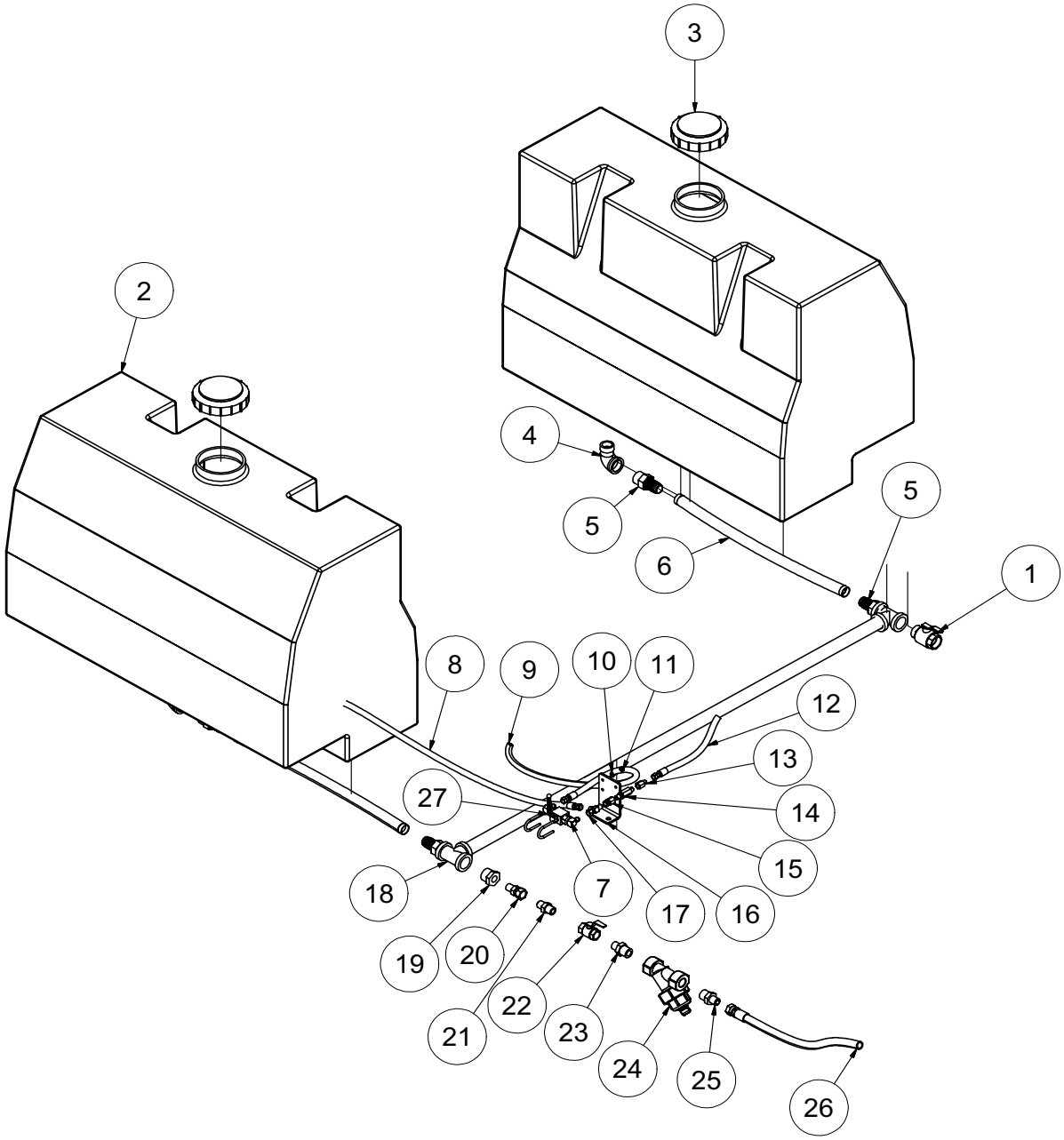
# Hydraulic Pump Assembly

| ITEM | QTY | PART | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8046300 | PUMP, HYD 12V 6QT |
| 2 | 2 | T401250 | ELBOW, 90 3/8" MB-MJ |
| 3 | 1 | U200600 | WASHER, FLAT 3/8" |
| 4 | 1 | U210060 | WASHER, LOCK 3/8" |
| 5 | 1 | U200400 | SCREW, HC 3/8"-16 X .750 |
| 6 | 1 | X300233 | CABLE, BATTERY HOT 1GA 26" |
| | 2 | X300251 | LUG, CABLE 1GA 3/8" HOLE |
| 7 | 1 | X300224 | CABLE, BATTERY GROUND 1GA 21" |
| | 2 | X300251 | LUG, CABLE 1GA 3/8" HOLE |
| 8 | 1 | 8046258 | SWITCH HYD PUMP 12V RELOCATE |
| | 2 | U000040 | SCREW, HC 1/4"-20 X .75 ZP G5 |
| | 2 | U200020 | WASHER, FLAT 1/4" ZP |
| | 2 | U210020 | WASHER, LOCK 1/4" ZP |
| | 2 | U100020 | NUT, HEX 1/4"-20 |
| 9 | 1 | 8043499 | BRACKET 36/49 12V HYD PUMP |
| | 1 | 8047283 | BRACKET 99AW HYD PUMP |
| * | 2 | U000460 | SCREW, HC 3/8"-16 X 1.50 ZP G5 |
| * | 2 | U000480 | SCREW, HC 3/8"-16 X 1.75 ZP G5 |
| * | 5 | U200060 | WASHER, FLAT 3/8" |
| * | 5 | U210060 | WASHER, LOCK 3/8" |
| * | 4 | U100060 | NUT, HEX 3/8"-16 |
| * | 1 | U000441 | SCREW, HC 3/8"-16 X 1.25 ZP G8 |
| 10 | 1 | 8046685 | HOSE ASSY VAC 6-25" ST-90 (500LE/LEHD) |
| | 1 | 8046686 | HOSE ASSY VAC 6-22" ST-90 (800LE/LEHD) |
| | 1 | 8040973 | HOSE ASSY VAC 6-20" ST-90 (73/99) |
| 11 | 1 | 8046687 | HOSE ASSY VAC 6-23" ST-90 (500LE/LEHD) |
| | 1 | 8040973 | HOSE ASSY VAC 6-20" ST-90 (800LE/LEHD) |
| | 1 | 8040973 | HOSE ASSY VAC 6-20" ST-90 (73/99) |
| 12 | 2 | 8040971 | HOSE ASSY VAC 4-19" ST-ST6FJ (LE/LEHD) |
| 13 | 2 | 8041788 | VALVE, SOLENOID 3-WAY W/ INT C4K |
| 14 | 4 | T400391 | BULKHEAD 3/8"MJ - 3/8"MJ |
| 15 | 2 | T401250 | ELBOW, 90 3/8"MB - 3/8"MJ |
| 16 | 2 | T400036 | UNION, 3/8"MB - 3/8"FJ |
| 17 | 2 | T400037 | UNION, 3/8"MB - 3/8"MJ |
| 18 | 1 | 8046127 | BRACKET PUMP SOLENOID |

* NOT SHOWN

# Water Tank Assembly

# 125 Gallon Saddle Tanks (Skid)




112910-E

**VACASSY615**

# Water Tank Assembly

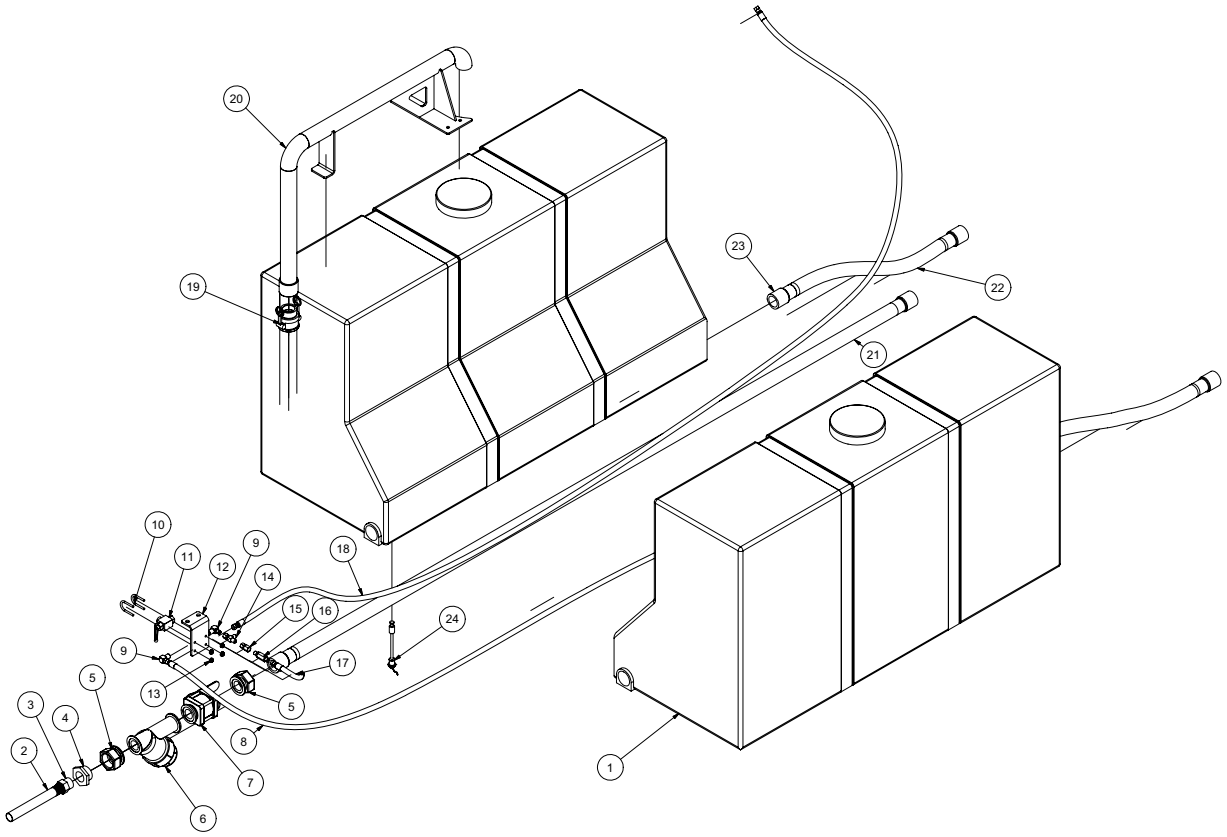
# 125 Gallon Saddle Tanks (Skid)

| ITEM | QTY | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8045813 | VALVE,BALL 1 1/4" M X F BRASS |
| 2 | 1 | 8046162 | TANK, WATER 125GAL (CURB SIDE) |
| | 1 | 8045093 | BULKHEAD 1 1/4" BOTTOM FEED |
| | 1 | 8040782 | TANK, WATER 125GAL (STRRET SIDE) |
| | 1 | 8045093 | BULKHEAD 1 1/4" BOTTOM FEED |
| 3 | 2 | 8041119 | WATER TANK LID |
| 4 | 2 | 8041311 | ELBOW, STREET 1 1/4" |
| 5 | 4 | 8041312 | FITTING, HOSE BARB 1 1/4" |
| 6 | 2 | 8041523 | HOSE, VAC CLEAR VINYL 1 1/4" - 24 |
| 7 | 2 | T401102 | ELBOW, 6MJ - 6MP |
| 8 | 1 | 8041477 | HOSE REEL TO BALL VALVE 6 -140 ST-ST |
| 9 | 1 | 8043949 | BALL VALVE TO TANK CLEANOUT 6-215 ST-90 |
| 10 | 4 | U200020 | WASHER, FLAT 1/4" |
| 11 | 4 | U120100 | NUT, LOCK 1/4"-20 |
| 12 | 1 | 8043664 | BALL VALVE TO WATER PUMP 6-36 ST-90 |
| 13 | 1 | 8031126 | UNION, 4FP - 6MJ |
| 14 | 1 | 8030923 | FILTER, WATER HIGH PRESSURE |
| 15 | 1 | 8031125 | REDUCER, 1/4"FP - 3/8"FJ |
| 16 | 1 | 8040670 | BALL VALVE BRACKET |
| 17 | 1 | T402153 | TEE, 6MJ - 6MJ - 6FJ |
| 18 | 2 | 8041310 | TEE, 1 1/4"FP - 1 1/4"FP - 1 1/4"FP |
| 19 | 1 | T403100 | REDUCER, 20MP - 12FP |
| 20 | 1 | T400101 | UNION, 12FJ - 12MP |
| 21 | 1 | T400100 | UNION, 12MJ - 12MP |
| 22 | 1 | T000185 | BALL VALVE, BRASS 3/4"FP |
| 23 | 1 | T404060 | REDUCER, 16MP - 12MP |
| 24 | 1 | 8040186 | STRAINER |
| | 1 | 8040186-1 | END CAP |
| | 1 | 8040186-2 | GASKET |
| | 1 | 8040186-3 | STRAINER PLUG |
| | 1 | 8040186-4 | FKM O-RING |
| | 1 | 8040186-5 | STRAINER MESH SCREEN 80 |
| | 1 | 8040186-6 | Y-BODY |
| | 1 | 8040186-7 | EPDM O-RING |
| 25 | 1 | T400450 | REDUCER, 12MJ - 16MP |
| 26 | 1 | 8041058 | HOSE VAC PUSH 12-36 |
| | 2 | 8030525 | FITTING HOSE 12FJ PUSHLOCK |
| 27 | 1 | 8030351 | BALL VALVE 3/8" |
| | 2 | U010017 | U-BOLT .250 - 20 |
| | | | |
| * | 1 | 8043806 | SWITCH, WATER TANK BOTTOM SHORT |
| * | 1 | 8046803 | HOSE VAC PUSH 8-79 |
| * | 2 | 8030524 | FITTING, PUSH LOCK #8 |
| * | 1 | 8030518 | ELBOW, 45 1/2"MJ BULKHEAD |

* NOT SHOWN

# Water Tank Assembly

# 205 Gallon Saddle Tanks (Skid)




110311-E

**VACASSY616**

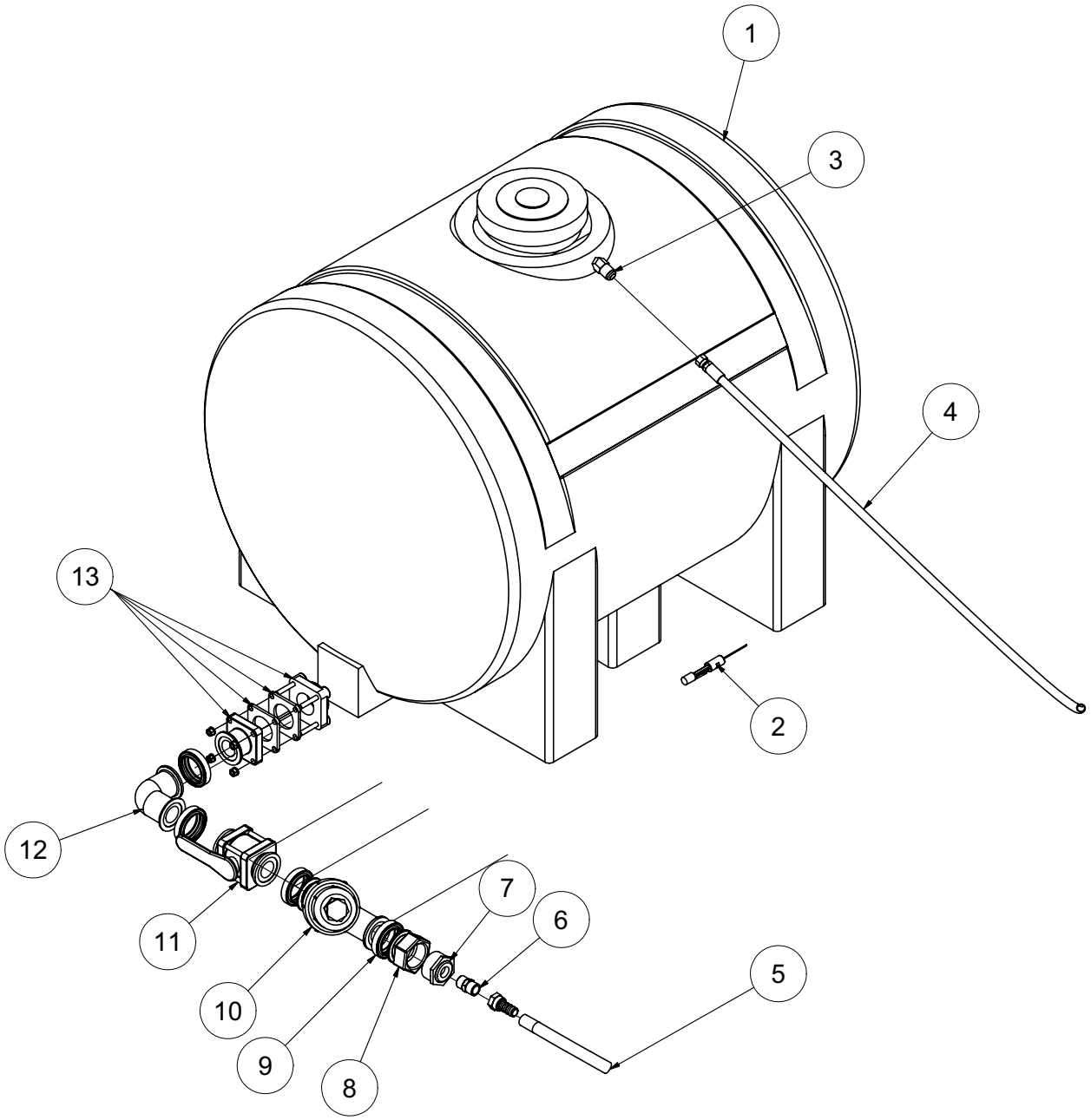
# Water Tank Assembly

# 205 Gallon Saddle Tanks (Skid)

| ITEM | QTY | NUMBER | DESCRIPTION |
|---|---|---|---|
| 1 | 2 | 8043805 | TANK, WATER 205 GAL. POLY. |
| | 2 | 8043805-3 | TANK, WATER LID 205GAL |
| * | 1 | 8030518 | 1/2" BULKHEAD 45 DEG |
| 2 | 1 | 8043076 | HOSE VAC CLEAR VINLY 1 1/4-37" |
| 3 | 1 | 8041312 | FITTING HOSE BARB 20HB-20MP |
| 4 | 1 | 8043843 | REDUCER, 1 1/4"MP - 1/2"FP GALV |
| 5 | 2 | 8030996 | ADAPTER, FEMALE 2" |
| 6 | 1 | 8031001 | Y-STRAINER, 2" |
| | 1 | 8031001-1 | 2" SP MANIFOLD BODY |
| | 1 | 8031001-2 | STRAINER CAP |
| | 1 | 8031001-3 | PLUG |
| | 1 | 8031001-4 | O-RING |
| | 1 | 8031001-5 | 2" SP EPDM GASKET |
| | 1 | 8031001-6 | 2" SP VITON GASKET |
| | 1 | 8031001-7 | EPDM O-RING |
| | 1 | 8031001-8 | 2" 80 MESH SCREEN |
| 7 | 1 | 8030998 | BALL VALVE, BANJO 1 1/2"ID |
| 8 | 1 | 8043949 | BALL VALVE TO TANK CLEAN OUT HOSE #6-215 ST-90 |
| | 2 | T320040 | FITTING, HOSE 6HO-6FJ |
| 9 | 2 | T401102 | ELBOW, 6MJ-6MP |
| 10 | 2 | U010017 | 1 1/2" CLAMP HOOK 1/4-20 THD |
| 11 | 1 | 8030351 | STEEL BALL VALVE, 3/8" NPT |
| 12 | 1 | 8040670 | BALL VALVE BRACKET |
| 13 | 8 | U120142 | NUT, LOCK FLANGED .250-20 G2 |
| | 8 | U200020 | WASHER, FLAT 1/4" |
| 14 | 1 | T402153 | TEE, 6MJ-6MJ-6FJ |
| 15 | 1 | 8031125 | UNION, 4FP-6FJ |
| 16 | 1 | 8030923 | FILTER, WATER HIGH PRESSURE |
| 17 | 1 | 8043664 | BALL VALVE TO WATER PUMP HOSE #6-36 ST-90 |
| 18 | 1 | 8041477 | HOSE REEL TO BALL VALVE HOSE #6-140 ST-ST |
| | 2 | T320040 | FITTING, HOSE 6HO-6FJ |
| 19 | 1 | 8031219 | COUPLING, 2" ALUM MP X FCAMLOCK |
| 20 | 1 | 8046528 | QUICK FILL 205 GAL |
| 21 | 1 | 8045635 | HOSE VAC CLEAR VINLY 2"-122 |
| | 2 | 8043397 | CLAMP VAC CLEAR HOSE 2" |
| 22 | 2 | 8045636 | HOSE VAC CLEAR VINLY 2"-36 |
| | 2 | 8043397 | CLAMP VAC CLEAR HOSE 2" |
| 23 | 6 | T410115 | HOSE BARB 2" |
| 24 | 1 | 8045386 | SWITCH, WATER TANK BOTTOM LONG |

* NOT SHOWN

# Water Tank Assembly 230 GAL




110311-E

**VACASSY604**

# Water Tank Assembly 230 GAL

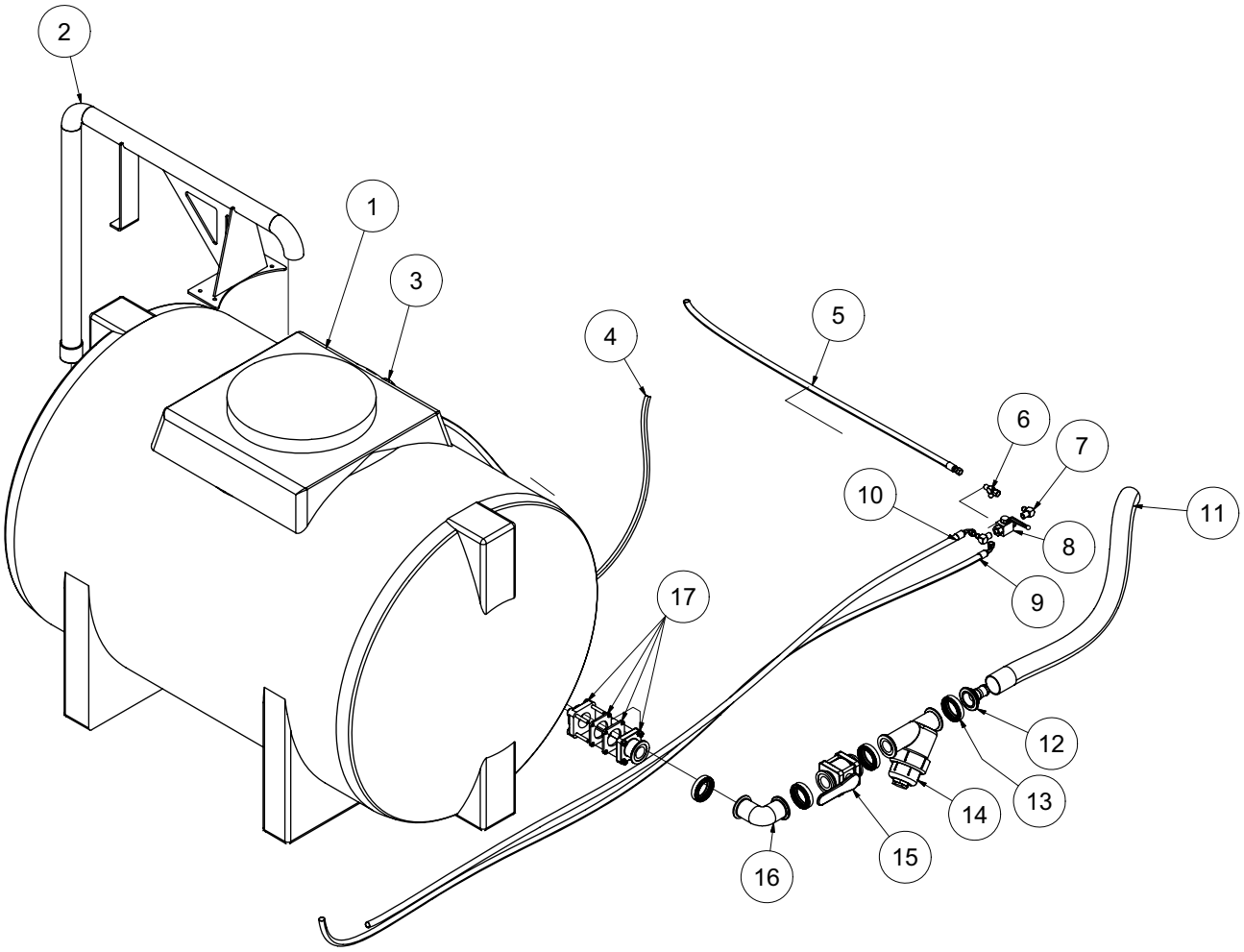
| ITEM | QTY | NUMBER | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8030338 | 230 GALLON WATER TANK |
| | 2 | 8040084 | WATER TANK STRAP |
| | 1 | 8030931 | WATER TANK LID |
| 2 | 1 | 8030343 | LOW WATER LEVEL SWITCH |
| 3 | 1 | 8030518 | BULKHEAD 45 DEG, 8MJ |
| 4 | 1 | 8041465 | HOSE, BYPASS 230 WATER TANK |
| | 2 | 8030524 | PUSH LOCK HOSE FITTING 8FJ |
| 5 | 1 | 8041467 | HOSE, SUCTION |
| | 2 | 8030524 | PUSH LOCK HOSE FITTING 12FJ |
| 6 | 1 | T400100 | UNION, 12MP - 12MJ |
| 7 | 1 | 8031134 | BUSHING, 2” X 3/4”NPT BANJO |
| 8 | 1 | 8030996 | ADAPTER, FEMALE 2” BANJO |
| 9 | 4 | 8031000 | CLAMP, WATER MANIFOLD |
| 10 | 1 | 8031001 | Y-STRAINER, 2” BANJO |
| | 1 | 8031001-1 | SP MANIFOLD BODY |
| | 1 | 8031001-2 | STRAINER CAP |
| | 1 | 8031001-3 | PLUG |
| | 1 | 8031001-4 | O-RING |
| | 1 | 8031001-5 | 2” SP EPDM GASKET |
| | 1 | 8031001-6 | 2” SP VITON GASKET |
| | 1 | 8031001-7 | EPDM O-RING |
| | 1 | 8031001-8 | 2” 80 MESH SCREEN |
| 11 | 1 | 8030998 | BALL VALVE, 1 1/2” ID BANJO |
| 12 | 1 | 8030995 | ELBOW, 2” BANJO |
| 13 | 1 | 80309971 | FLANGE, 2” BANJO |
| | 1 | 80309972 | FLANGE GASKET, 2” BANJO |
| | 1 | 80309972 | FLANGE GASKET, 2” BANJO |
| | 1 | 80309973 | FLANGE BOLTED, 2” BANJO |
| | 4 | U100060 | NUT, HEX 3/8-16 |
| | 4 | U210060 | WASHER, LOCK 3/8 |

110311-E

**VACASSY604**

# Water Tank Assembly

# 410 TANK




110311-E

**VACASSY605**

# Water Tank Assembly 410 TANK

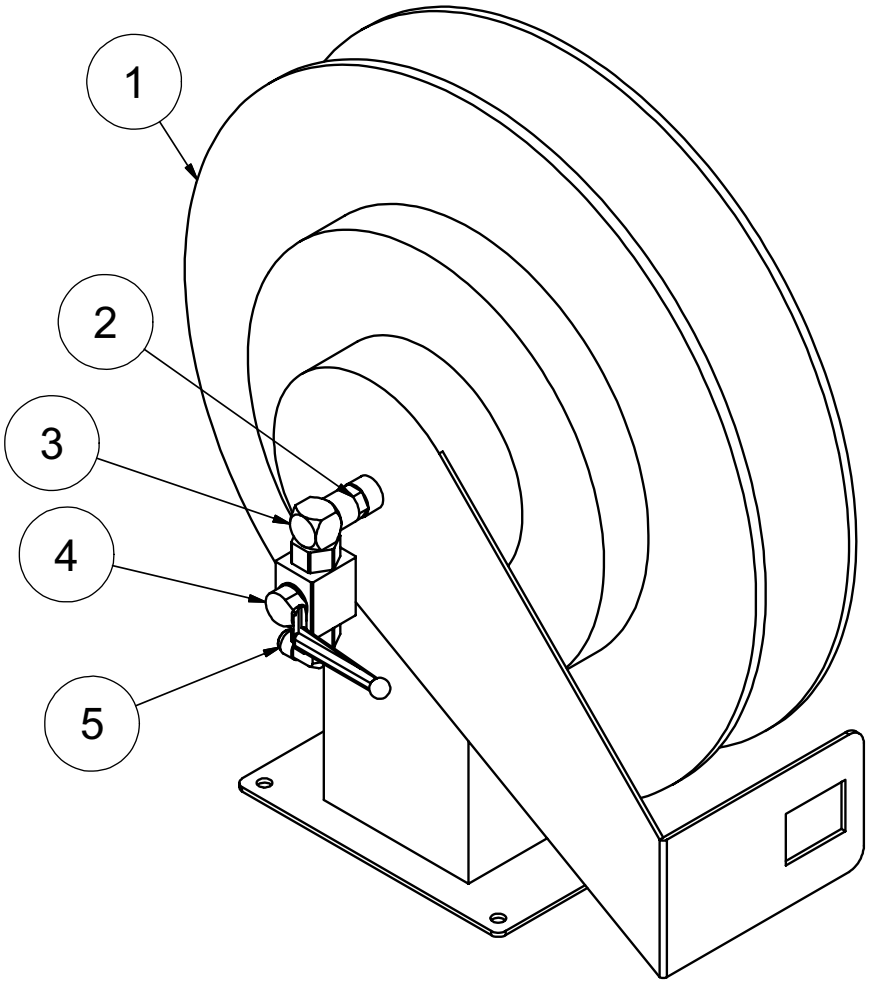
| ITEM | QTY | NUMBER | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8031121 | 410 GALLON WATER TANK |
| | 2 | 8041535 | WATER TANK STRAP |
| | 1 | 8031121-1 | 410 GALLON WATER TANK LID |
| 2 | 1 | 8041067 | QUICK FILL |
| | 4 | U000425 | SCREW HC 3/8"-16 X 1" |
| | 8 | U200600 | WASHER FLAT 3/8" |
| | 4 | U210060 | WASHER, LOCK 3/8" |
| | 4 | U100060 | NUT, HEX 3/8"-16 |
| 3 | 1 | 8030518 | 1/2” BULKHEAD 45 DEG. |
| 4 | 1 | 8042184 | HOSE ASSY VAC 8-80 ST-ST |
| 5 | 1 | 8042179 | HOSE ASSY VAC 6-36 ST-ST |
| 6 | 1 | T402153 | TEE #6MJ - #6MJ - #6FJ |
| 7 | 2 | T401102 | ELBOW, #6MJ - 3/8"MP |
| 8 | 1 | 8030351 | 3/8" BALL VALVE |
| 9 | 1 | 8042178 | HOSE ASSY VAC 6-155 ST-90 |
| 10 | 1 | 8042177 | HOSE ASSY VAC 6-254 ST - ST |
| 11 | 1 | 8042189 | HOSE VAC CLEAR VINYL 1 1/4-36 |
| 12 | 1 | 8041999 | FLANGED HOSE BARB 1 1/4" - 2" |
| 13 | 4 | 8031000 | CLAMP, WATER MANIFOLD |
| 14 | 1 | 8031001 | Y-STRAINER, 2” BANJO |
| | 1 | 8031001-1 | 2” SP MANIFOLD BODY |
| | 1 | 8031001-2 | STRAINER CAP |
| | 1 | 8031001-3 | PLUG |
| | 1 | 8031001-4 | O-RING |
| | 1 | 8031001-5 | 2”SP EPDM GASKET |
| | 1 | 8031001-6 | 2” SP VITON GASKET |
| | 1 | 8031001-7 | EPDM O-RING |
| | 1 | 8031001-8 | 2” 80 MESH SCREEN |
| 15 | 1 | 8030998 | BALL VALVE, 1-1/2 ID BANJO |
| 16 | 1 | 8030995 | ELBOW, 2” BANJO |
| 17 | 1 | 80309971 | FLANGE, 2” BANJO |
| | 1 | 80309972 | FLANGE GASKET, 2” BANJO |
| | 1 | 80309972 | FLANGE GASKET, 2” BANJO |
| | 1 | 80309973 | FLANGE BOLTED, 2” BANJO |
| | 4 | U100060 | NUT, HEX 3/8-16 |
| | 4 | U210060 | WASHER, LOCK 3/8 |
| * | 1 | 8030343 | SWITCH, WATER SHUTOFF |

* NOT SHOWN

110311-E

**VACASSY605**

# Hose Reel Assembly



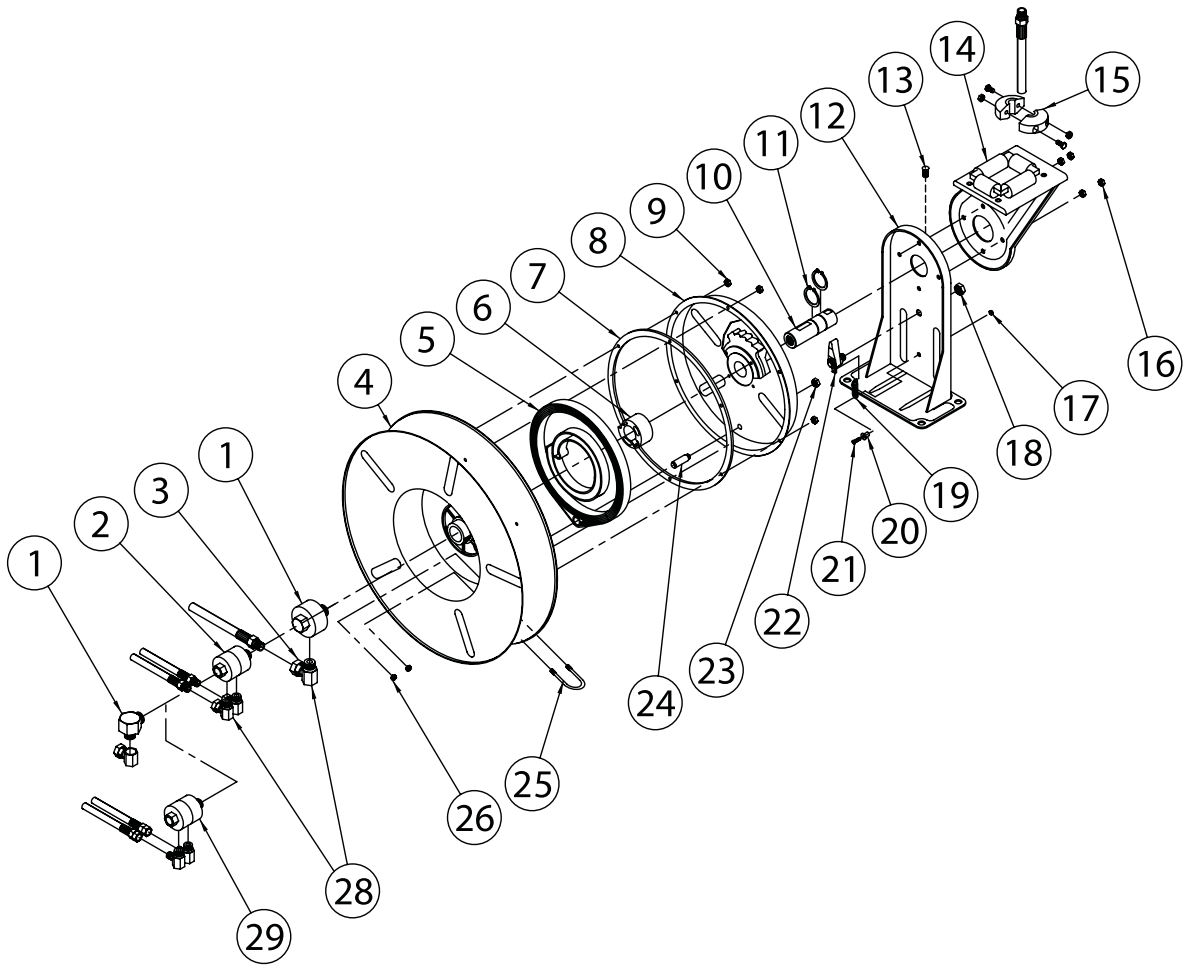

081010-E

**VACASSY763**

# Hose Reel Assembly

| ITEM | QTY | NUMBER | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8031240 | REEL with HOSE SPRINGDRIVEN 3/8” X 50’ |
| 2 | 1 | 8031269 | UNION, 1/2”MP - 3/8”MP |
| 3 | 1 | T401065 | ELBOW, 3/8”MP - 3/8”FP |
| 4 | 1 | 8030351 | STEEL BALL VALVE - 3/8”NPT |
| 5 | 1 | 8030498 | ELBOW, 3/8”MP - 3/8”MJ 90 |

# Hose Reel Components




081010-E

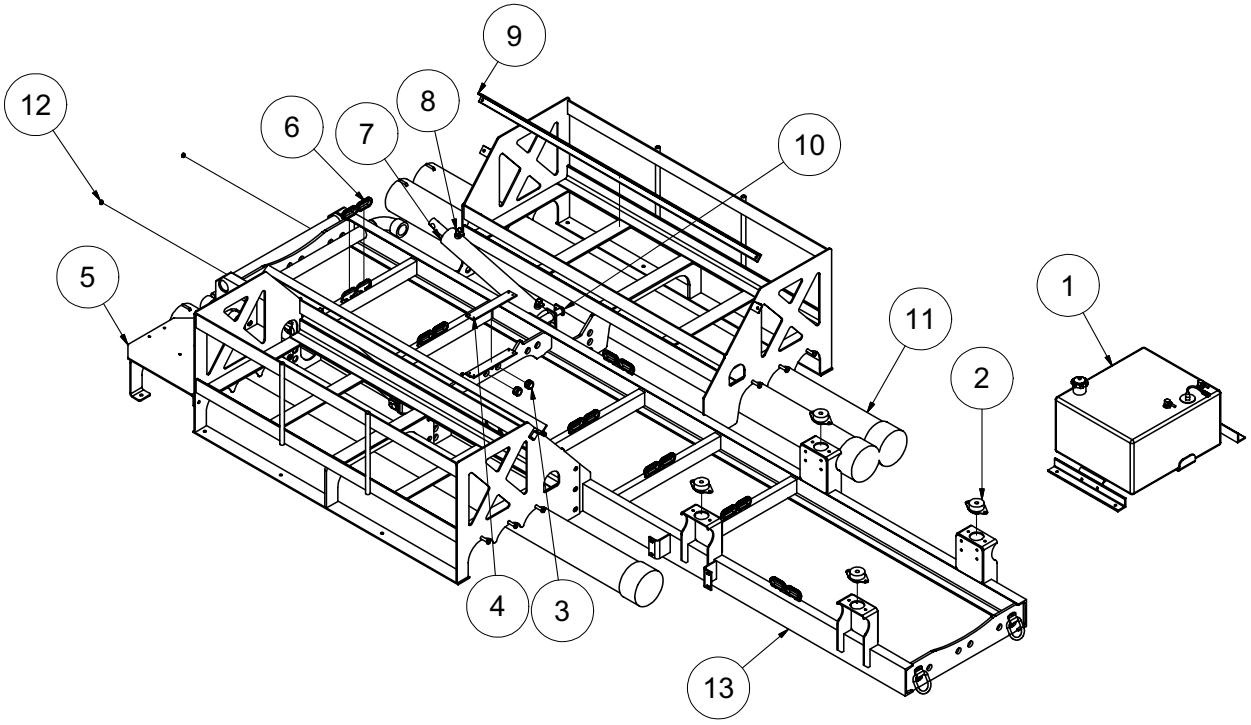
**VACASSY764**

# Hose Reel Components

| ITEM | QTY | NUMBER | DESCRIPTION |
|---|---|---|---|
| | | 8031240 | REEL with HOSE SPRINGDRIVEN 3/8" X 50' |
| 1 | 1 | 8031240-1 | SWIVEL ASSEMBLY |
| 2 | 1 | 8031240-2 | SWIVEL & ELL ASSEMBLY |
| 3 | 1 | 8031240-3 | 90 DEG ELL |
| 4 | 1 | 8031240-4 | SHEAVE ASSEMBLY |
| 5 | 1 | 8031240-5 | DRIVE SPRING ASSEMBLY |
| 6 | 1 | 8031240-6 | SPRING ARBOR ASSEMBLY |
| 7 | 1 | 8031240-7 | GASKET |
| 8 | 1 | 8031240-8 | SPRING CASE ASSEMBLY |
| 9 | 6 | 8031240-9 | 10-32 HEX LOCKNUT |
| 10 | 1 | 8031240-10 | MAIN SHAFT |
| 11 | 2 | 8031240-11 | 1 1/4" SNAP RING |
| 12 | 1 | 8031240-12 | BASE ASSEMBLY |
| 13 | 1 | 8031240-13 | 1/2"-13 SET SCREW |
| 14 | 1 | 8031240-14 | GUIDE ARM W/ ROLLERS |
| 15 | 1 | 8031240-15 | HOSE BUMPER ASSEMBLY |
| 16 | 4 | 8031240-16 | 5/16"-18 LOCKNUT |
| 17 | 1 | 8031240-17 | 10-32 X 3/8" NYLOCK NUT |
| 18 | 1 | 8031240-18 | 1/2"-20 X 5/8" HEX NUT |
| 19 | 1 | 8031240-19 | LATCH SPRING |
| 20 | 1 | 8031240-20 | BUSHING |
| 21 | 1 | 8031240-21 | 10-32 X 7/8" SCREW |
| 22 | 1 | 8031240-22 | LATCH PAWL ASSEMBLY |
| 23 | 1 | 8031240-23 | 3/8"-24 JAM NUT |
| 24 | 1 | 8031240-24 | SPRING CASE STUD |
| 25 | 1 | 8031240-25 | U-BOLT |
| 26 | 4 | 8031240-26 | 1/4"-20 X 3/8" LOCKNUT |
| 28 | 1 | 8031240-28 | SWIVEL UNION |

# Skid Assembly

# V500/800HD
# 205 SADDLE
# TANKS




010411-E

**VACASSY922**

# Skid Assembly

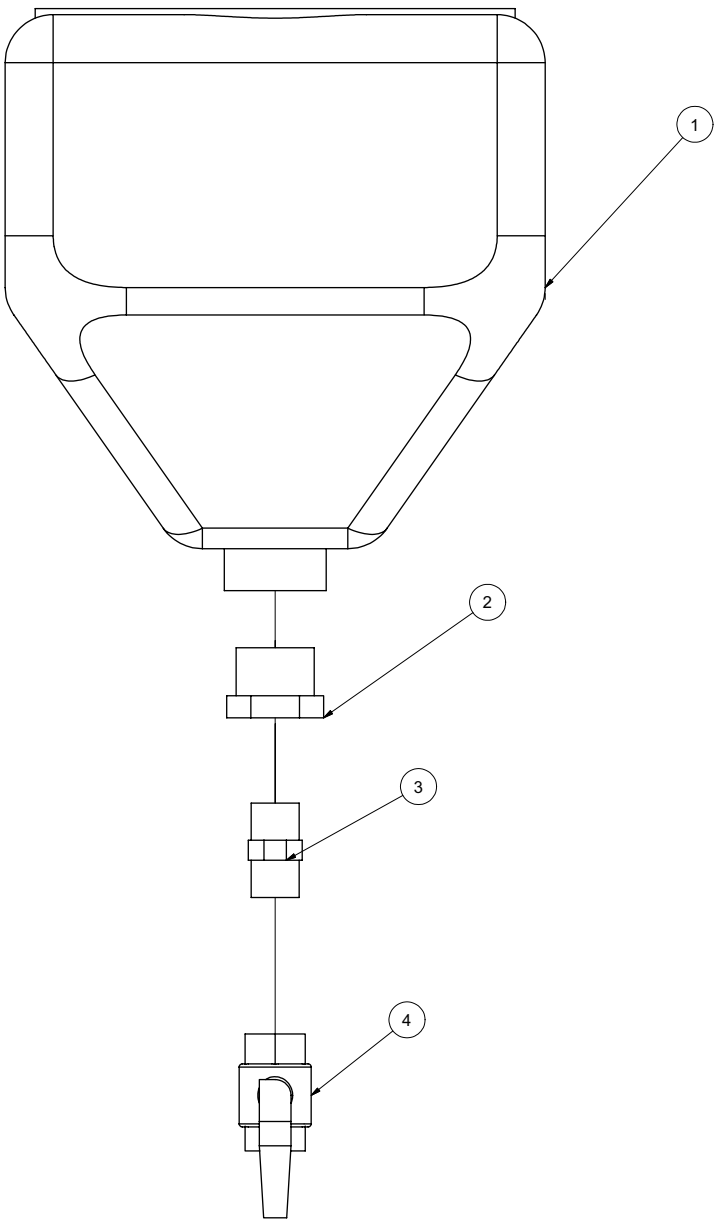
# V500/800HD 205 SADDLE TANKS

| ITEM | QTY | PART # | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8042380 | FUEL TANK 22GAL |
| | 1 | 8043359 | STRAP W/ EYEBOLT |
| | 1 | 8042380-1 | FUEL TANK CAP |
| | 1 | 8041725 | FUEL SENDING UNIT |
| | 1 | 8041725-1 | SENDING UNIT GASKET |
| | 1 | 8045686 | FUEL LINE SUPPLY 30” |
| | 2 | 8043665 | FUEL TANK MTG FOOT |
| | 1 | 8045507 | PLATE FUEL TANK HOLDER |
| 2 | 4 | 8030904 | ISOLATOR 840LB |
| | 4 | U000560 | SCREW, HC 3/8”-16 X 3” |
| | 4 | 8030851 | WASHER, SNUBBLING |
| | 4 | U120110 | NUT, LOCK 3/8” |
| | 8 | U000420 | SCREW, HC 3/8”-16 X 1” |
| | 24 | U200060 | WASHER, FLAT 3/8”-16 |
| | 8 | U210060 | WASHER, LOCK 3/8” |
| | 8 | U100060 | NUT, HEX 3/8”-16 |
| 3 | 2 | 8041686 | GROMMET 1”ID - 1 1/4”DOG - 1/4”WO |
| 4 | 1 | 8045787 | STRIP PLASTIC TANK FOOT LE |
| 5 | 1 | 8046823 | BRACKET, HOSE REEL SKID |
| 6 | 14 | 8042812 | GROMMET 2”ID - 3”OD - 1/4”WOG TRAILER SLOT MODEL |
| 7 | 2 | 8030359 | CYLINDER, HYD 3.0” X 20” |
| 8 | 4 | T401270 | ELBOW, 90 1/2”MB - 3/8”MJ |
| 9 | 2 | 8044390 | WATER TANK ANGLE HOLDER |
| 10 | 2 | 8043844 | PIN CYLINDER |
| 11 | 3 | 8041102 | HOSE STORAGE 6” X 10’ |
| | 3 | 8030925 | END CAP 6” |
| | 3 | 8041485 | LANYARD CABLE |
| | 3 | 8041101 | HOSE STORAGE RETAINING ROD |
| 12 | 2 | T500060 | FITTING, GREASE .125 90DEG |
| 13 | 1 | 8046784 | SKID WELD'T VSK500/800HD 205ST |
| | | | |
| DOOR HOSES | | | |
| * | 2 | 8045870 | HYD HOSE TO DOOR CYLINDER BASE END 4-41” ST-ST |
| * | 2 | 8042927 | HYD HOSE TO DOOR CYLINDER ROD END 4-50” ST-ST |
| * | 1 | 8046936 | HYD HOSE, DOOR CYLINDER SUPPLY 4-158” ST-90 |
| * | 1 | 8046936 | HYD HOSE, DOOR CYLINDER RETURN 4-158” ST-90 |
| * | 2 | T402035 | TEE, 1/4”MJ - 1/4”MJ - 1/4”MJ |
| | | | |
| TANK HOSES | | | |
| * | 2 | 8042948 | HYD HOSE TO TANK CYLINDER BASE END 6-36” ST-ST |
| * | 2 | 8046933 | HYD HOSE TO TANK CYLINDER ROD END 6-57” ST-ST |
| * | 1 | 8046935 | HYD HOSE, TANK CYLINDER SUPPLY 6-94” ST-90 |
| * | 1 | 8046935 | HYD HOSE, TANK CYLINDER RETURN 6-94” ST-90 |
| * | 2 | T402154 | TEE, 3/8”MJ - 3/8”MJ - 3/8”MJ |

010411-E

**VACASSY922**

# Antifreeze Assembly




060309

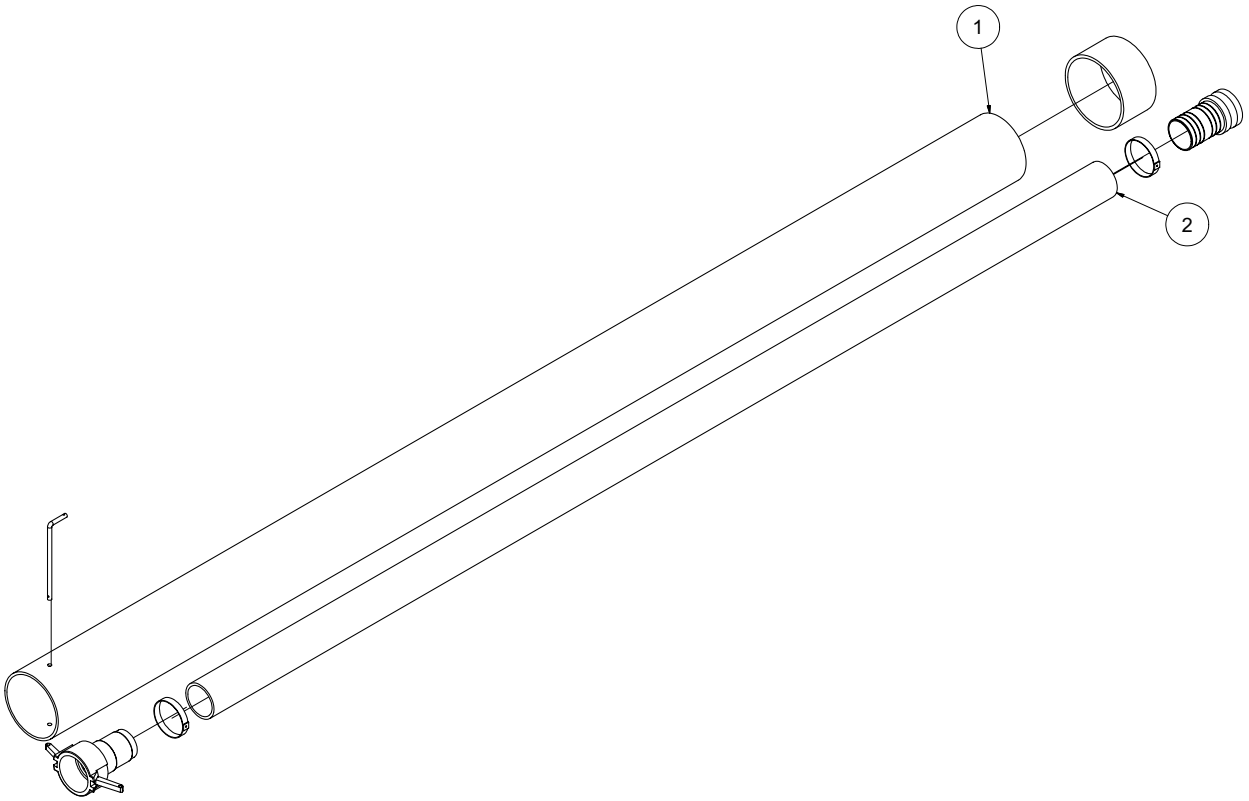
**VACASSY943**

# Antifreeze Assembly

| ITEM | QTY | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8030394 | ANTI-FREEZE TANK 4 GAL. |
| | 4 | U000180 | SCREW, HC .312 -18 X .750 |
| | 4 | U200040 | WASHER, FLAT 5/16” |
| | 4 | U210040 | WASHER, LOCK 5/16” |
| 2 | 1 | T400585 | REDUCER, 20MP-12FP |
| 3 | 1 | T400800 | UNION, 12MP-12MP |
| 4 | 1 | T000185 | BALL VALVE, BRASS 3/4” FP |

# HOSES

## 3”




030314-E

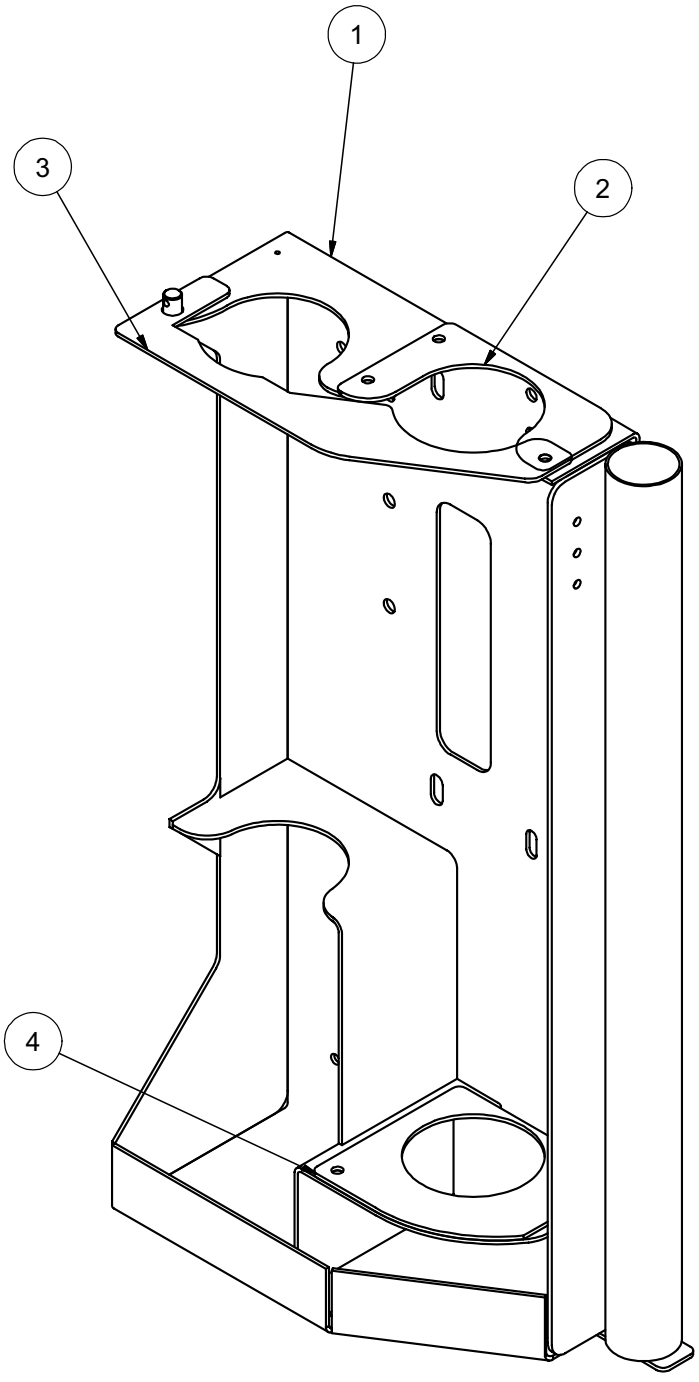
**VACASSY938**

# HOSES 3”

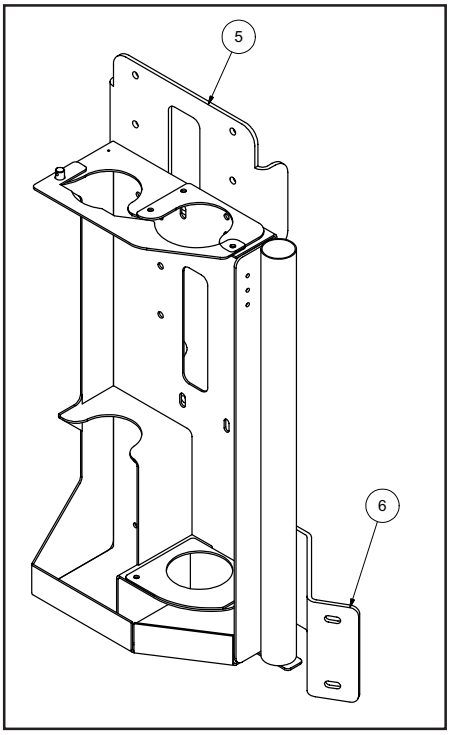
| ITEM | QTY | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8041102 | 6”PVC STORAGE TUBE 10’LG |
| | 1 | 8030925 | END CAP 6” |
| | 1 | 8041485 | LANYARD CABLE |
| | 1 | 8043198 | HOSE STORAGE CLAMP |
| | 2 | U200060 | WASHER. FLAT 3/8” |
| | 2 | U100060 | NUT, HEX 3/8” |
| | 1 | 8041101 | HOSE STORAGE RETAINING ROD |
| | 1 | R700170 | R-CLIP, 1/2 - 5/8 SHANK |
| 2 | 1 | 8040338 | HOSE VAC KANAFLEX 3-110” |
| | 1 | 8046441 | CAMLOCK, 3” AL FCAM X MBARB |
| | 1 | 8046440 | CAMCOCK, 3” AL MCAM X MBARB |
| | 2 | 8030356 | CLAMP, 4.5” PUNCHLOCK P18-S |

# Tool Rack Assembly

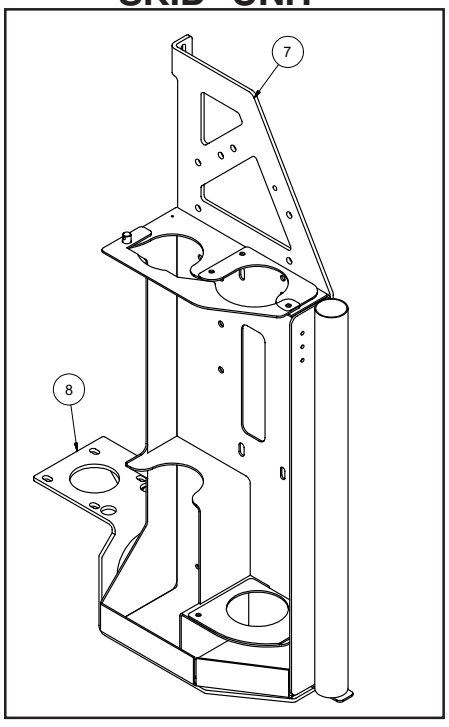
**STD**




**I-BEAM TRAILER**




**SKID UNIT**



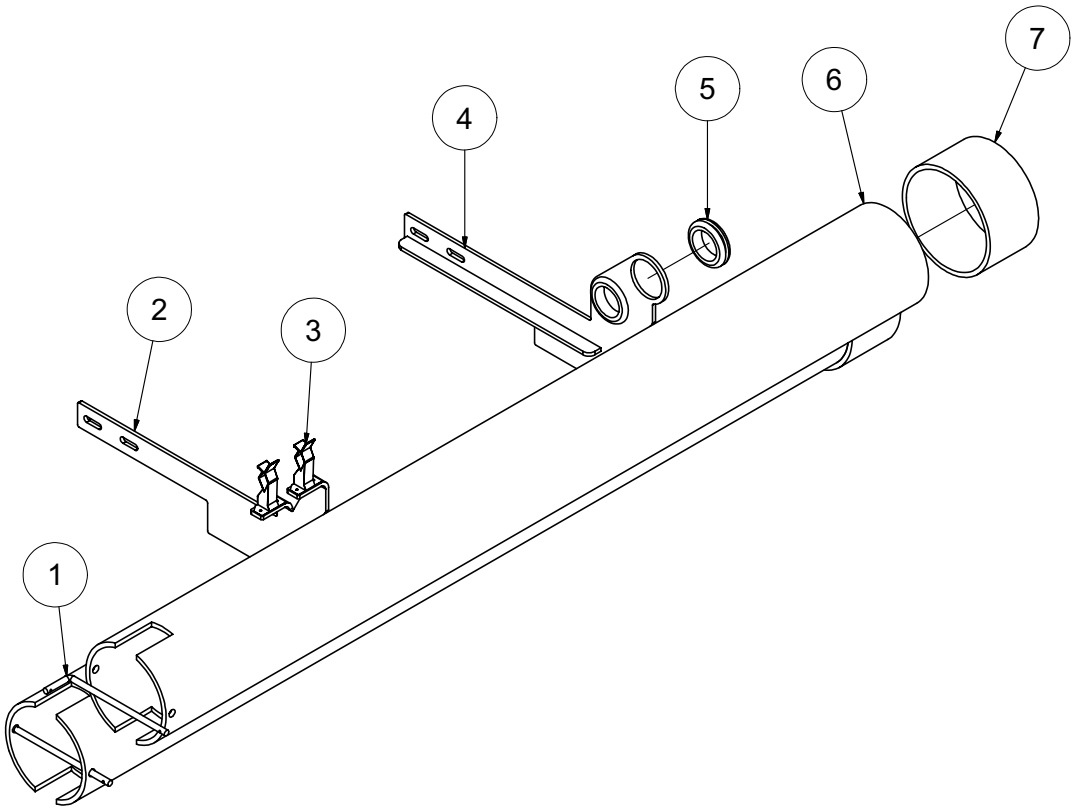

090909-E

**VACASSY757**

# Tool Rack Assembly

| ITEM | QTY | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8040985 | TOOL RACK WELDMENT |
| 2 | 1 | 8045610 | TOOL RACK 3" TOP INSERT |
| 3 | 1 | 8040884 | TOOL RACK CLOSURE |
| | 1 | R700175 | R CLIP 7/8" |
| | 1 | 8041259 | STRAP, 10" |
| | 1 | 8041485 | LANYARD CABLE |
| | 1 | 8041244 | CLEVIS PIN 1/2" DIA. 3/4" |
| 4 | 1 | 8045609 | TOOL RACK BOTTOM INSERT |
| 5 | 1 | 8044818 | ANTIFREEZE BRACKET (I-BEAM TRAILER) |
| | 4 | U000020 | SCREW, HC 5/16"-18 X 1.00" |
| | 4 | U000180 | SCREW, HC 5/16"-18 X .750" |
| | 16 | U200040 | WASHER, FLAT 5/16" |
| | 8 | U210041 | NUT, LOCK NY 5/16" |
| 6 | 1 | 8044817 | TOOL RACK BRACKET (I-BEAM TRAILER) |
| | 3 | U000420 | SCREW, HC .375"-16 X 1.00" |
| | 3 | U120110 | NUT, LOCK .375"-16 |
| | 6 | U200600 | WASHER, FLAT .375" |
| 7 | 1 | 8041780 | ENCLOSURE STIFFENER BRACE (SKID UNITS) |
| | 4 | U000040 | SCREW, HC 1/4"-20 X .750" |
| | 8 | U200020 | WASHER, FLAT .250" |
| | 4 | U120100 | NUT, LOCK .250" |
| 8 | 1 | 8043601 | TOOL RACK BRACKET (SKID UNITS) |
| | 4 | U000420 | SCREW, HC .375"-16 X 1.00" |
| | 8 | U200060 | WASHER, FLAT .375" |
| | 4 | U120110 | NUT, LOCK .375-16 |
| | 2 | U000040 | SCREW, HC 1/4"-20 X .750" |
| | 4 | U200020 | WASHER, FLAT .250" |
| | 2 | U120100 | NUT, LOCK .250" |

# Tool Rack Assembly Horizontal




082410-E

**VACASSY767**

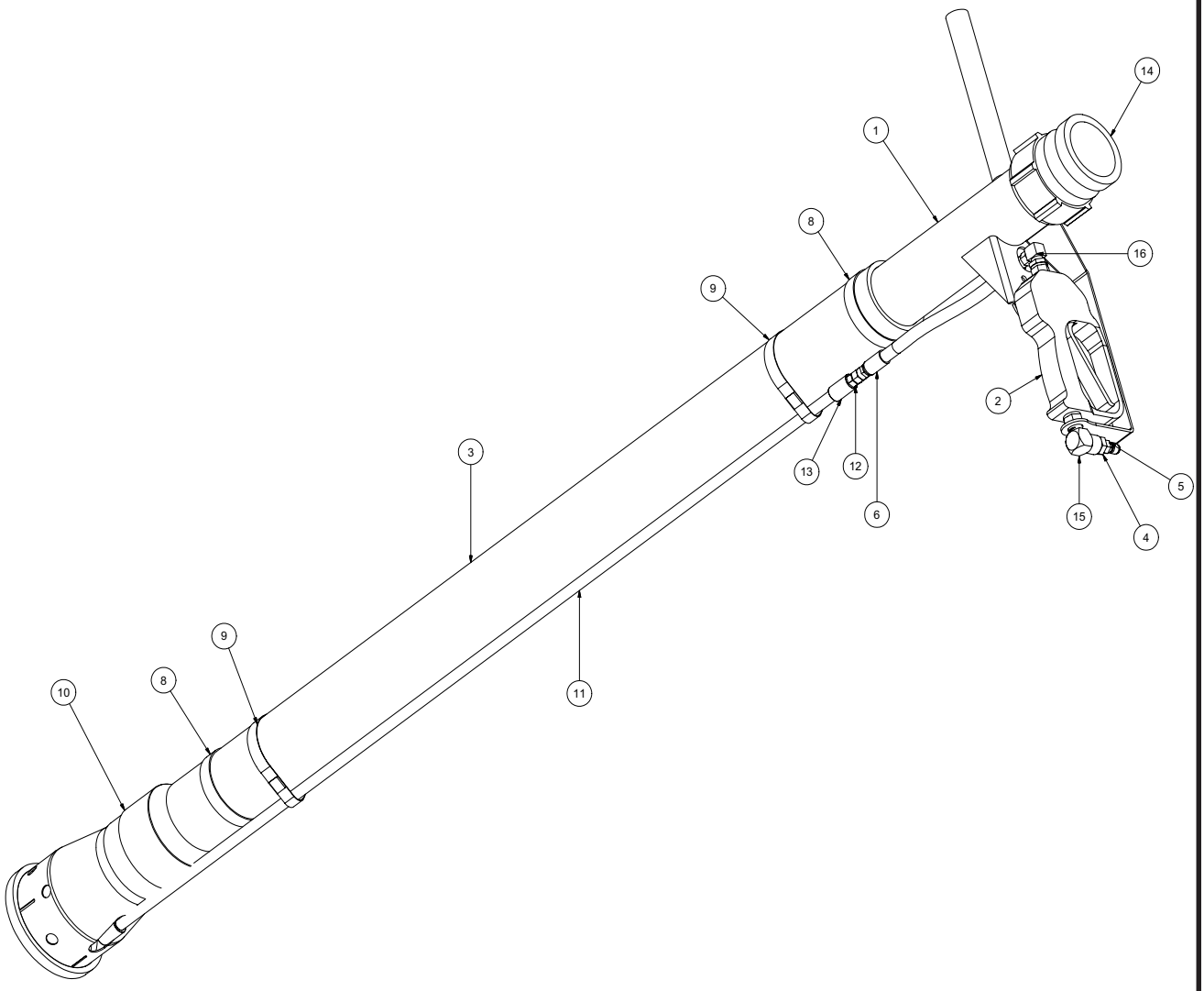
# Tool Rack Assembly — Horizontal

| ITEM | QTY | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 2 | 8041101 | HOSE STORAGE RETAINING ROD |
| | 2 | 8041485 | LANYARD CABLE |
| | 2 | R700160 | R-CLIP |
| 2 | 1 | 8046722 | HOSE STORAGE BRACKET |
| 3 | 2 | 8040899 | CLIP, TOOL HOLDER |
| 4 | 1 | 8046724 | HOSE STORAGE BRACKET |
| 5 | 2 | 8042812 | GROMMET 2”ID 1/4”WOG |
| 6 | 2 | 8042222 | BOOM EXT. HOSE STORAGE |
| 7 | 2 | 8030925 | END CAP 6” |

082410-E

**VACASSY767**

# Tools (Option) Reduction Tool STD




101310-E

**VACASSY706**

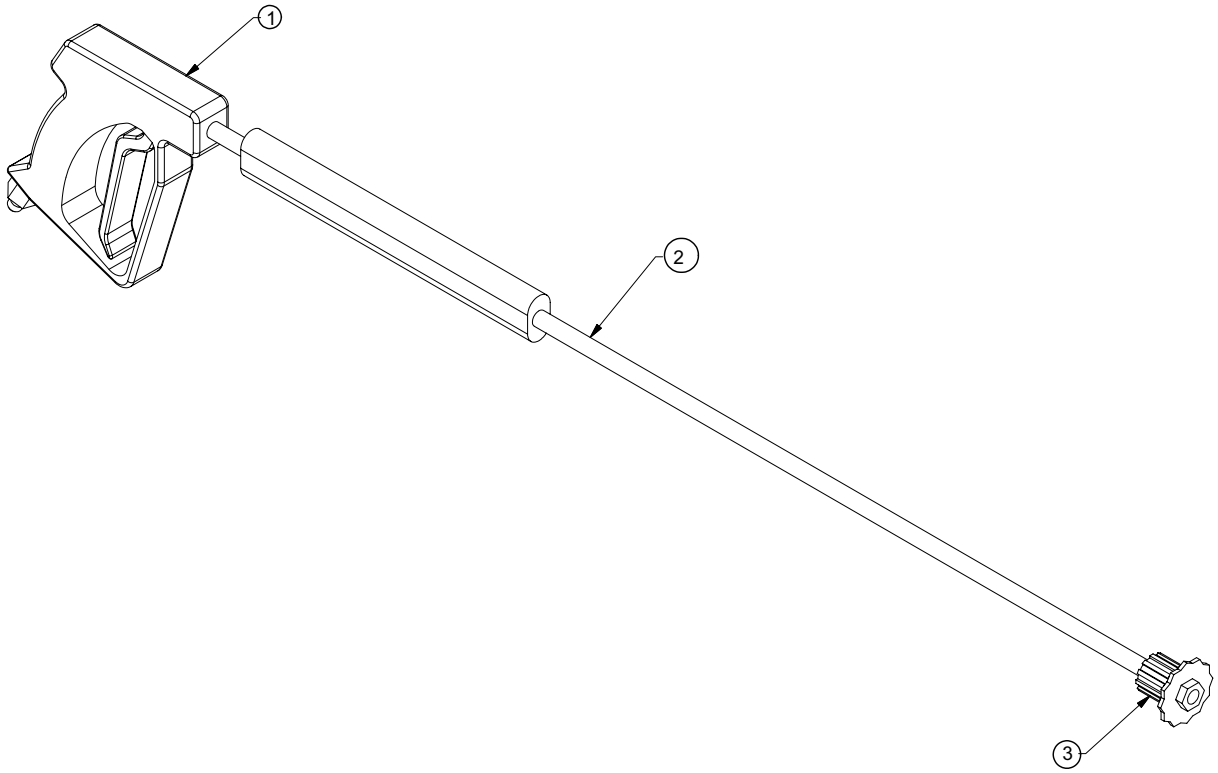
# Tools(Option) Reduction Tool STD

| ITEM | QTY | PART NO. | DESCRIPTION |
|---|---|---|---|
| - | - | 8043115 | TOOL VAC REDUCTION STD COMPLETE |
| 1 | 1 | 8042862 | TOOL VAC HEAD ASSY 3” |
| 2 | 1 | 8042026 | STRAIGHT SPRAY GUN |
| 3 | 1 | 8042811 | TOOL VAC REDUCTION PVC 3" X 48" |
| 4 | 1 | T400023 | UNION 6MP 4FP |
| 5 | 1 | 8030486 | WATER QD 1/4 MNPT SS |
| 6 | 2 | T320030 | FITTING, HOSE 4HO 4FJ |
| 7 | 1 | 8031278 | HOSE ASSEMBLY REDUCTION TOOL |
| 8 | 2 | 8042605 | CLAMP HOSE T BOLT 350 |
| 9 | 2 | 8042855 | CLAMP HOSE T BOLT 375 |
| 10 | 1 | 8030627 | TOOL VAC REDUCTION LOWER ASSY |
| 11 | 1 | 8043764 | VAC WATER SUPPLY TUBE CHROME 1/4NPT |
| 12 | 1 | T400020 | UNION 1/4" MP-1/4" MJ STRAIGHT |
| 13 | 2 | T422010 | COUPLING,PIPE 1/4"FP |
| 14 | 1 | 8030391 | BANJO 3" MALE 3" FNPT |
| 15 | 1 | T401065 | ELBOW, 3/8 MP - 3/8 FP |
| 16 | 1 | T401100 | ELBOW 4MP 4MJ 90 |
| * | 2 | 8030370 | REDUCTION TOOL NOZZLE |
| * | 2 | 8031268 | REDUCTION TOOL NOZZLE 45 DEG |

* NOT SHOWN

# Tools

# Wash Wand




042610-E

**VACASSY711**

# Tools

# Wash Wand

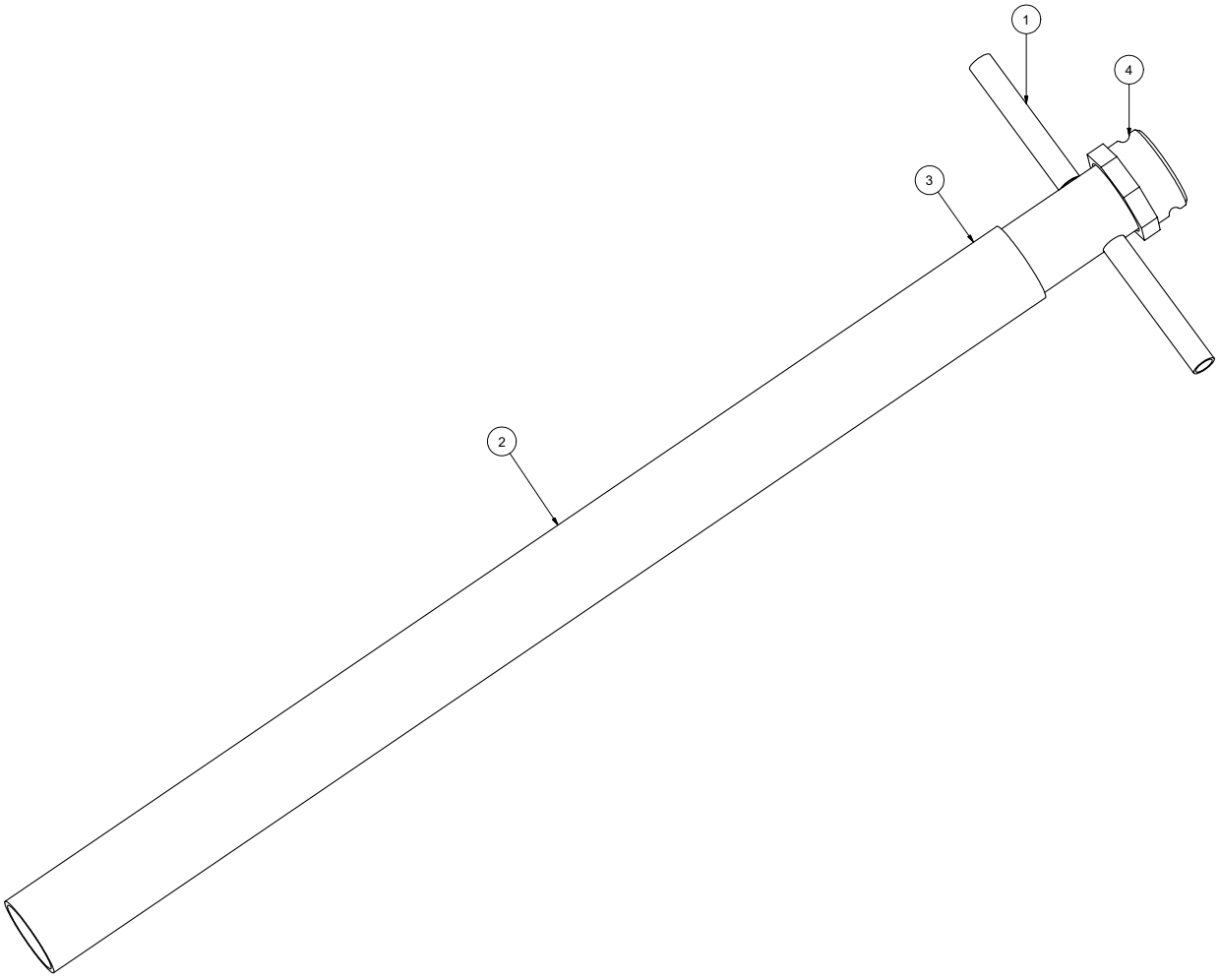
| Item | Qty | Number | Description |
|---|---|---|---|
| | 1 | 8030348 | TOOL VAC SPRAY WAND COMPLETE |
| 1 | 1 | 8030928 | TRIGGER ASSEMBLY |
| 2 | 1 | 8030847 | WAND |
| 3 | 1 | 8031308 | NOZZLE,#6 40 DEGREE FOR WAND |

042610-E

**VACASSY711**

# Tools

# 3” Suction Tool




111210-E

**VACASSY712**

# Tools

# 3” Suction Tool

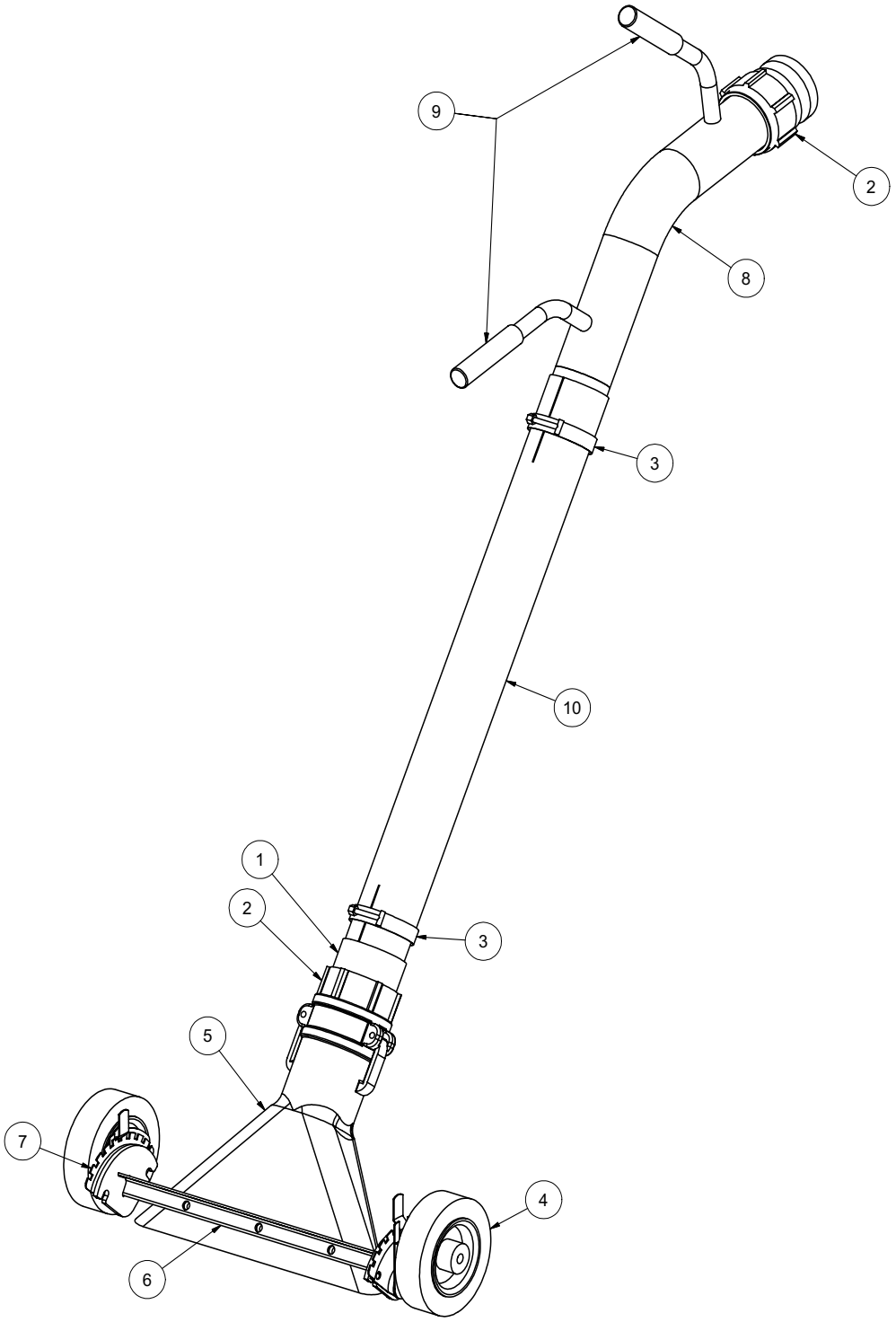
| ITEM | QTY | NUMBER | DESCRIPTION |
|---|---|---|---|
| | 1 | 8030215 | TOOL VAC SUCTION 3" COMPLETE |
| 1 | 1 | 8030317 | TOOL VAC HANDLE ASSEMBLY 3" |
| 2 | 1 | 8030313 | PVC VACUUM TUBE 3" |
| 3 | 1 | 8030356 | CLAMP,4"PUNCHLOCK P16-S |
| 4 | 1 | 8030391 | COUPLING, 3" BANJO |

111210-E

**VACASSY712**

# Tools

# Lawn Sweeper 3”




071708

**VACASSY713**

# Tools

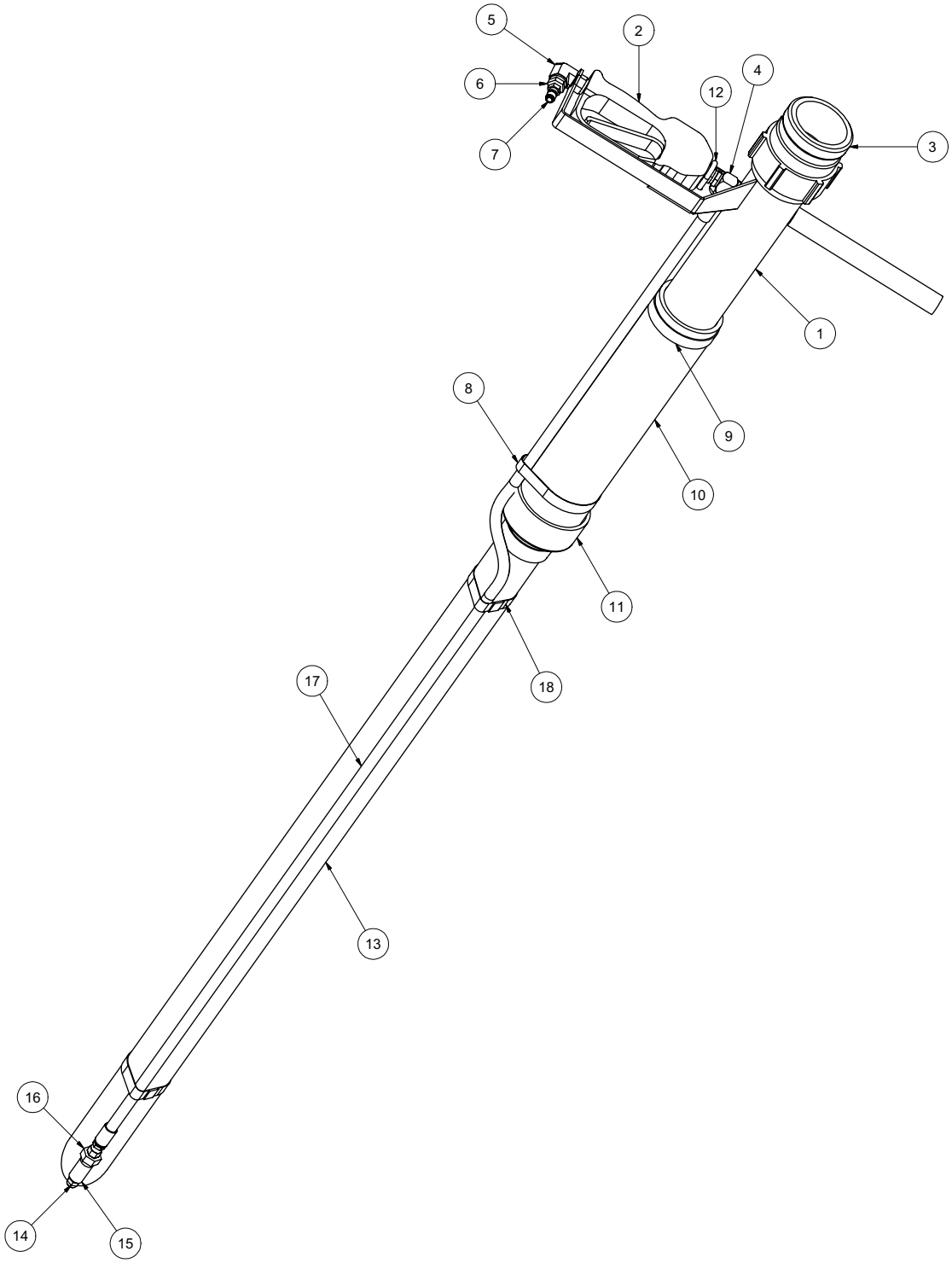
# Lawn Sweeper 3”

| ITEM | QTY | PART # | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8030287 | 3" HOSE X 3" MNPT ADAPTER |
| 2 | 2 | 8030391 | BANJO 3" MALE 3" FNPT |
| 3 | 2 | 8042605 | CLAMP T-BOLT 3" (350) |
| 4 | 2 | 8043887 | WHEEL 6" PNEUMATIC |
| 5 | 1 | 8043925 | DUCKBILL 3" ALUMINUM |
| 6 | 1 | 8043928 | LS WHEEL WELDMENT |
| 7 | 1 | 8043931 | WHEEL ADJUSTERS (1 LEFT/1 RIGHT) |
| 8 | 1 | 8043933 | LS HANDLE WELDMENT |
| 9 | 2 | J300080 | HANDLE GRIP |
| 10 | 1 | 8043932 | PVC 3” X 30” |

071708

**VACASSY713**

# Valve Box Cleanout Tool




050709

**VACASSY714**

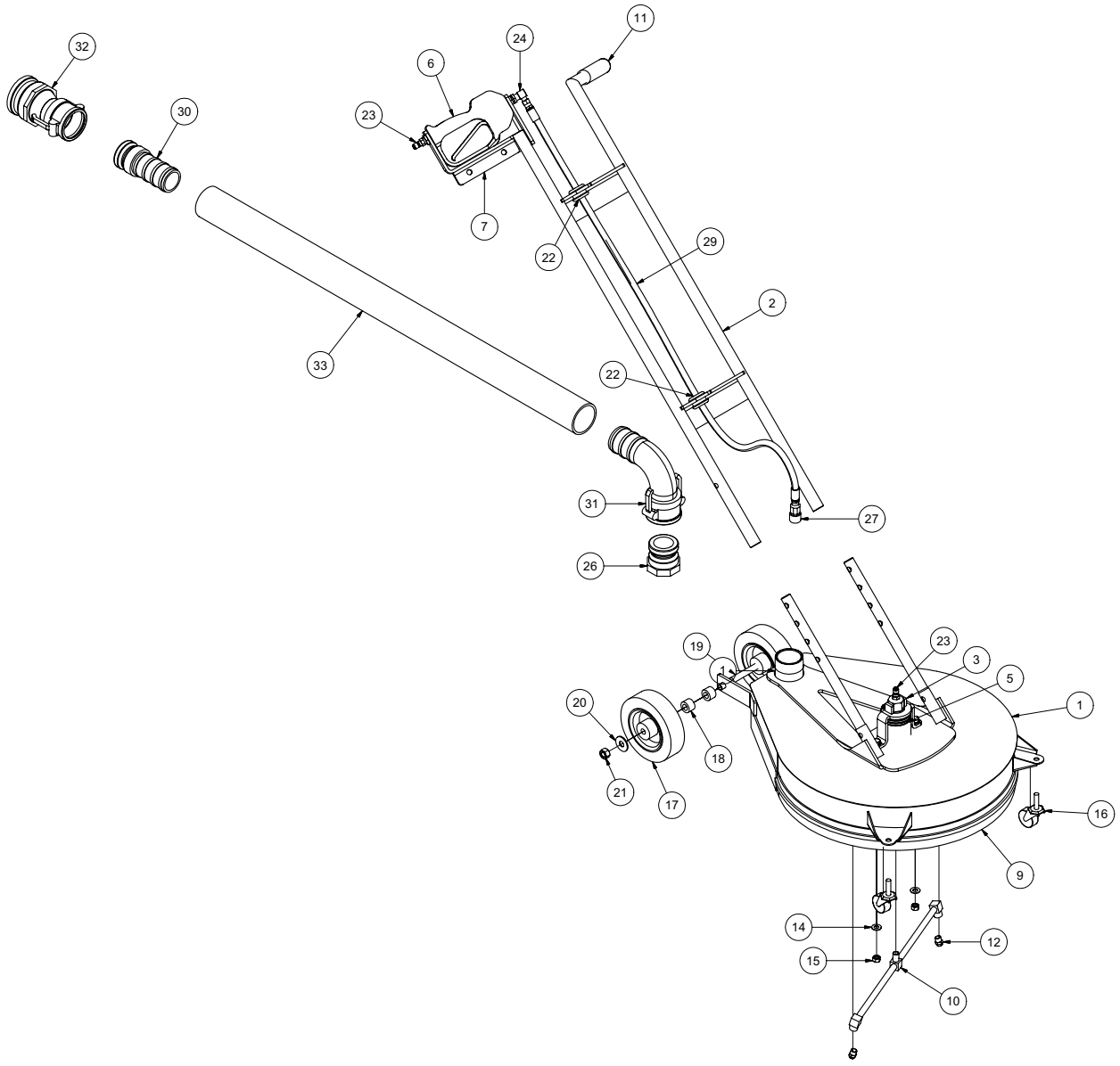
# Valve Box Cleanout Tool

| ITEM | QTY | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8042862 | REDUCTION TOOL HEAD WELD'T |
| 2 | 1 | 8042026 | STRAIGHT SPRAY GUN |
| 3 | 1 | 8030391 | BANJO 3" MALE FNPT |
| 4 | 1 | T401100 | ELBOW 4MP 4MJ 90 |
| 5 | 1 | T401065 | ELBOW, 3/8 MP - 3/8 FP |
| 6 | 1 | T400023 | REDUCER 6MP 4FP |
| 7 | 1 | 8030486 | WATER QD 1/4 MNPT SS |
| 8 | 1 | 8042855 | CLAMP HOSE T-BOLT 375 |
| 9 | 1 | 8042605 | CLAMP HOSE T-BOLT 350 |
| 10 | 1 | 8044096 | PVC 3" DIA X 9" LONG |
| 11 | 1 | 8030669 | REDUCER PVC 3" TO 2" SLIP ON |
| 12 | 1 | U010019 | U-BOLT 1_4-20 X 3_4 WIDE X 2 1_4 LONG |
| 13 | 1 | 8044097 | PVC 2" DIA X 42.5" LG |
| 14 | 1 | 8031246 | NOZZLE, .100 X 0 DEG |
| 15 | 1 | T422010 | COUPLING 1/4"FP |
| 16 | 1 | U400020 | UNION, 1/4" MP - 1/4" MJ |
| 17 | 1 | 8044098 | HOSE ASSY VALVE BOX CLEANOUT TOOL |
| 18 | 2 | 8045316 | CLAMP, HOSE T-BOLT 275 |

050709

**VACASSY714**

# Surface Cleaner




091710-E

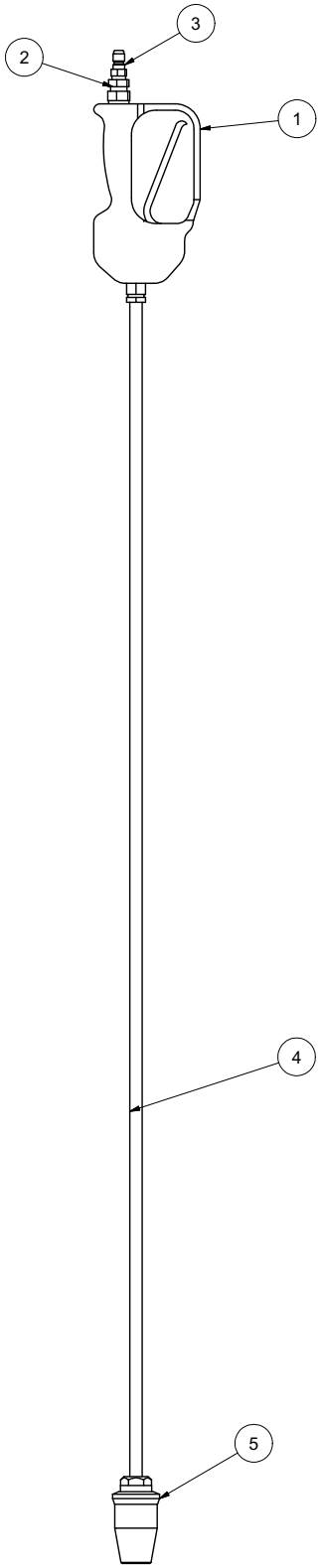
**VACASSY715**

# Surface Cleaner

| ITEM | QTY | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8041887 | SURFACE CLEANER - HEAD ASSY |
| 2 | 1 | 8042019 | HANDLE ASSY |
| 3 | 1 | 8041890 | ROTARY RETAINER |
| 4 | 2 | 8042022 | HANDLE ADJ. TUBE |
| 5 | 1 | 8042027 | ROTARY HEAD |
| 6 | 1 | 8042026 | STRAIGHT SPRAY GUN |
| 7 | 1 | 8042020 | GUN CAPTURE BRACKET |
| 8 | 1 | 8043467 | SQUEEGEE |
| 9 | 1 | 8042030 | FLEXIBLE BRUSH |
| 10 | 1 | 8042028 | ROTARY ARM |
| 11 | 1 | J300080 | GRIPHANDLE |
| 12 | 2 | 8031419 | NOZZLE, #4.0 25 DEG |
| 13 | 2 | U000420 | SCREW, HC 3/8-16 X 1.00 |
| 14 | 4 | U200600 | WASHER, FLAT 3/8" |
| 15 | 2 | U100060 | NUT, HEX 3/8-16 |
| 16 | 2 | 8043387 | SWIVEL CASTER 1 5/8" |
| 17 | 2 | 8043887 | WHEEL 6" PNEUMATIC |
| 18 | 2 | 8043591 | SURFACE CLEANER REAR WHEEL SPACER |
| 19 | 1 | U001060 | SCREW, HC 1/2-13 X 6.0 |
| 20 | 2 | U200100 | WASHER, FLAT 1/2" |
| 21 | 1 | U120120 | NUT, LOCK 1/2-13 |
| 22 | 2 | 8041686 | GROMMET 1"ID- 1 1/4"DOG-1/4"WO |
| 23 | 2 | 8030486 | WATER QD 1/4 MNPT SS |
| 24 | 1 | T401100 | ELBOW 4MP 4MJ 90 |
| 25 | 1 | T320030 | FITTING, HOSE 4HO 4FJ |
| 26 | 1 | 8043389 | ADAPTER M2" F THREAD |
| 27 | 1 | 8030526 | FITTING, QD WATER 1/4"F-1/4"FP |
| 28 | 1 | T320300 | FITTING, HOSE 4HO 4MP |
| 29 | 1 | 8044108 | HOSE VAC SURFACE CLEANER |
| 30 | 1 | 8043392 | ADAPTER M2" F THREAD |
| 31 | 1 | 8043391 | REDUCER COUPLER 2"F 90 DEG - 3"M |
| 32 | 1 | 8043395 | REDUCER COUPLER 2" X 3" ADAPTER |
| 33 | 1 | 8043398 | HOSE VAC CLEAR 2" |
| * | 2 | 8043397 | CLAMP VAC CLEAR HOSE 2" |
| * | 4 | U360020 | PIN, U-LOCK 3/8 X 1.5 |

# Tools

# Rotary Lance




061212-E

**VACASSY716**

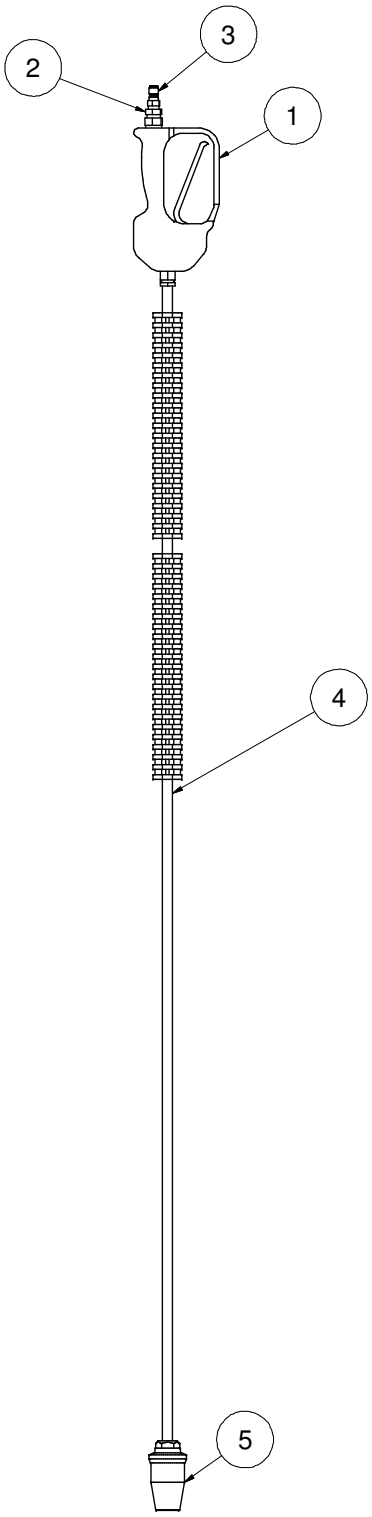
# Tools

# Rotary Lance

| ITEM | QTY | PART NO. | DESCRIPTION |
|---|---|---|---|
| * | | 8042082 | TOOL VAC ROTARY LANCE COMPLETE |
| 1 | 1 | 8042026 | STRAIGHT SPRAY GUN |
| 2 | 1 | T400023 | UNION 6MP-4FP |
| 3 | 1 | 8030486 | WATER QD 1/4MNPT SS |
| 4 | 1 | 8043765 | TUBE,CHROME 1/4NPT ENDS 60" |
| 5 | 1 | 8042691 | ROTARY WOBBLE NOZZLE .085 |

# Tools

# Hot Box Rotary Lance




061212-E

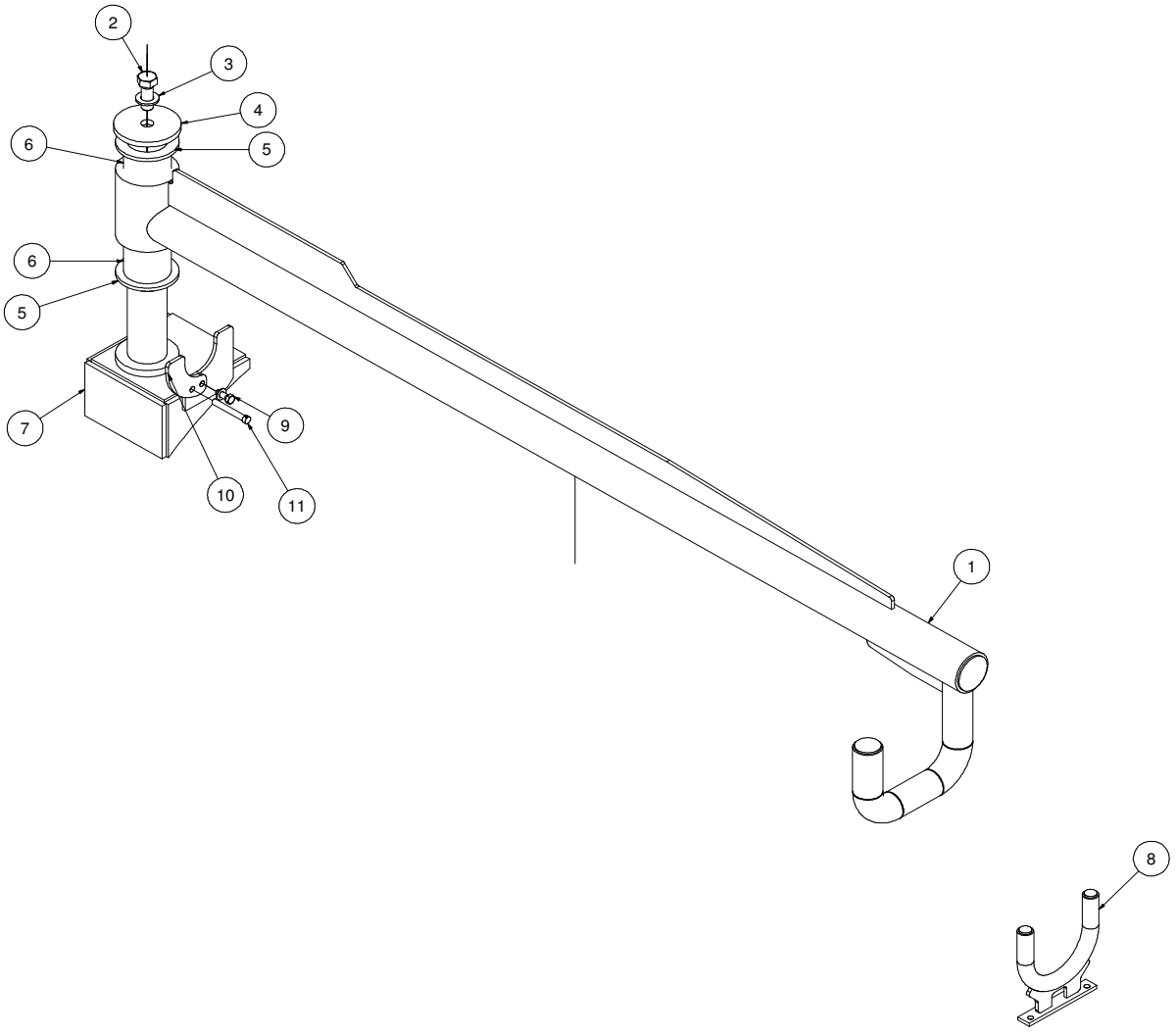
**VACASSY718**

# Tools

# Hot Box Rotary Lance

| ITEM | QTY | PART NO. | DESCRIPTION |
|---|---|---|---|
| * | | 8048192 | TOOL VAC ROTARY LANCE for HOT BOX COMPLETE |
| 1 | 1 | 8042026 | STRAIGHT SPRAY GUN |
| 2 | 1 | T400023 | UNION 6MP-4FP |
| 3 | 1 | 8030486 | WATER QD 1/4MNPT SS |
| 4 | 1 | 8031394 | WAND, 59" LONG |
| 5 | 1 | 8042691 | ROTARY WOBBLE NOZZLE .085 |

# STRONGARM




121911-E

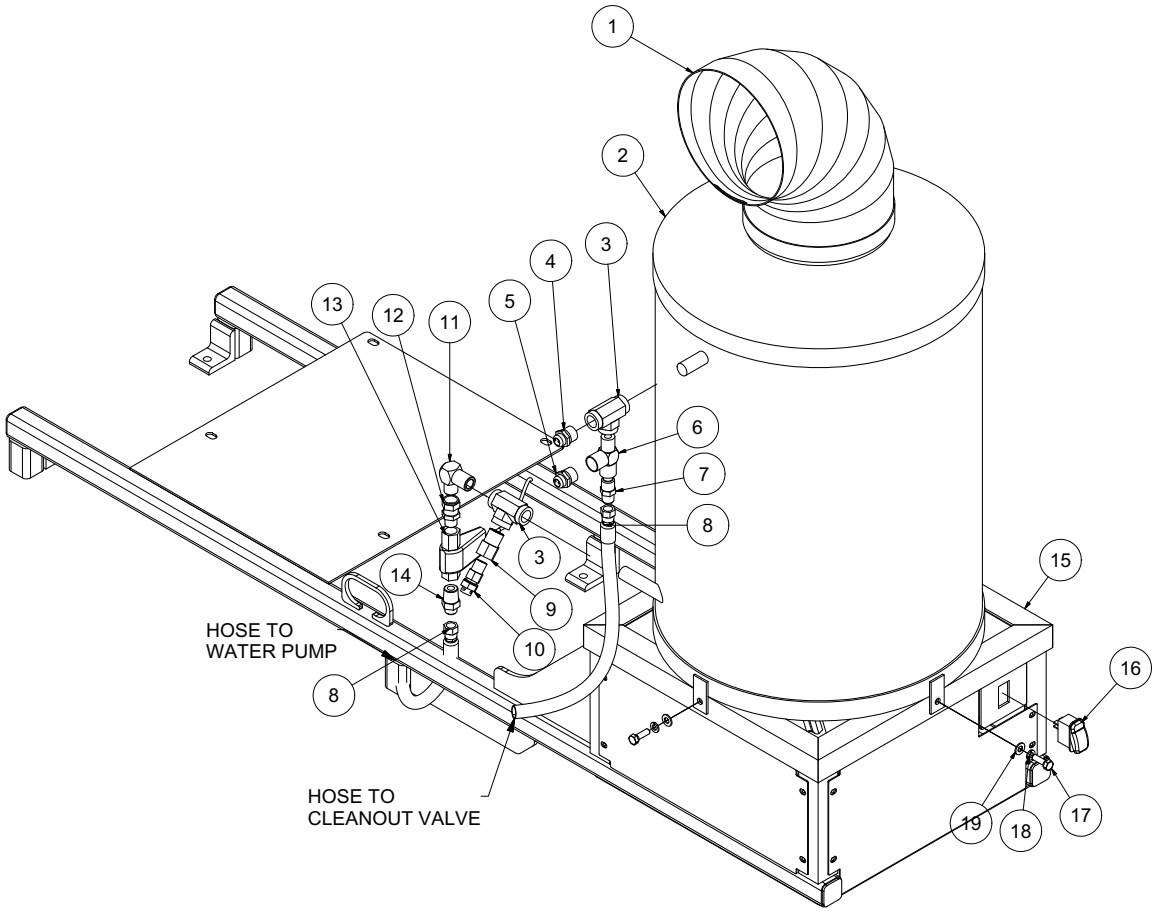
**VACASSY990**

# STRONGARM

| ITEM | QTY | NUMBER | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8047181 | STRONG ARM |
| 2 | 1 | U001355 | SCREW, HC .750 10 X 1.25 |
| | 1 | U210160 | WASHER, LOCK .750 |
| 3 | 1 | U200160 | WASHER, FLAT 3/4” |
| 4 | 1 | 8047085 | END CAP, SA |
| 5 | 2 | 8047077 | WEAR FLANGE, UHMW |
| 6 | 2 | 8047076 | BEARING, NYLON |
| 7 | 1 | 8047098 | STRONG ARM BASE (500) |
| | 1 | 8047258 | STRONG ARM BASE (800) |
| 8 | 1 | 8047194 | STRONGARM HOLDER WELDMENT |
| 9 | 1 | U000445 | SCREW,HC 3/8”-16 X 1.25 |
| | 1 | U210061 | NUT, LOCK, NY, .375 |
| | 1 | U200060 | WASHER, FLAT 3/8” |
| 10 | 1 | 8047089 | RETAINER, FRONT PLATE |
| 11 | 1 | 8041213 | SAFETY SNAP PIN |
| * | 1 | J200114 | DECAL, I.D. STRONGARM |

* NOT SHOWN

# Hot Box Assembly




061912-E

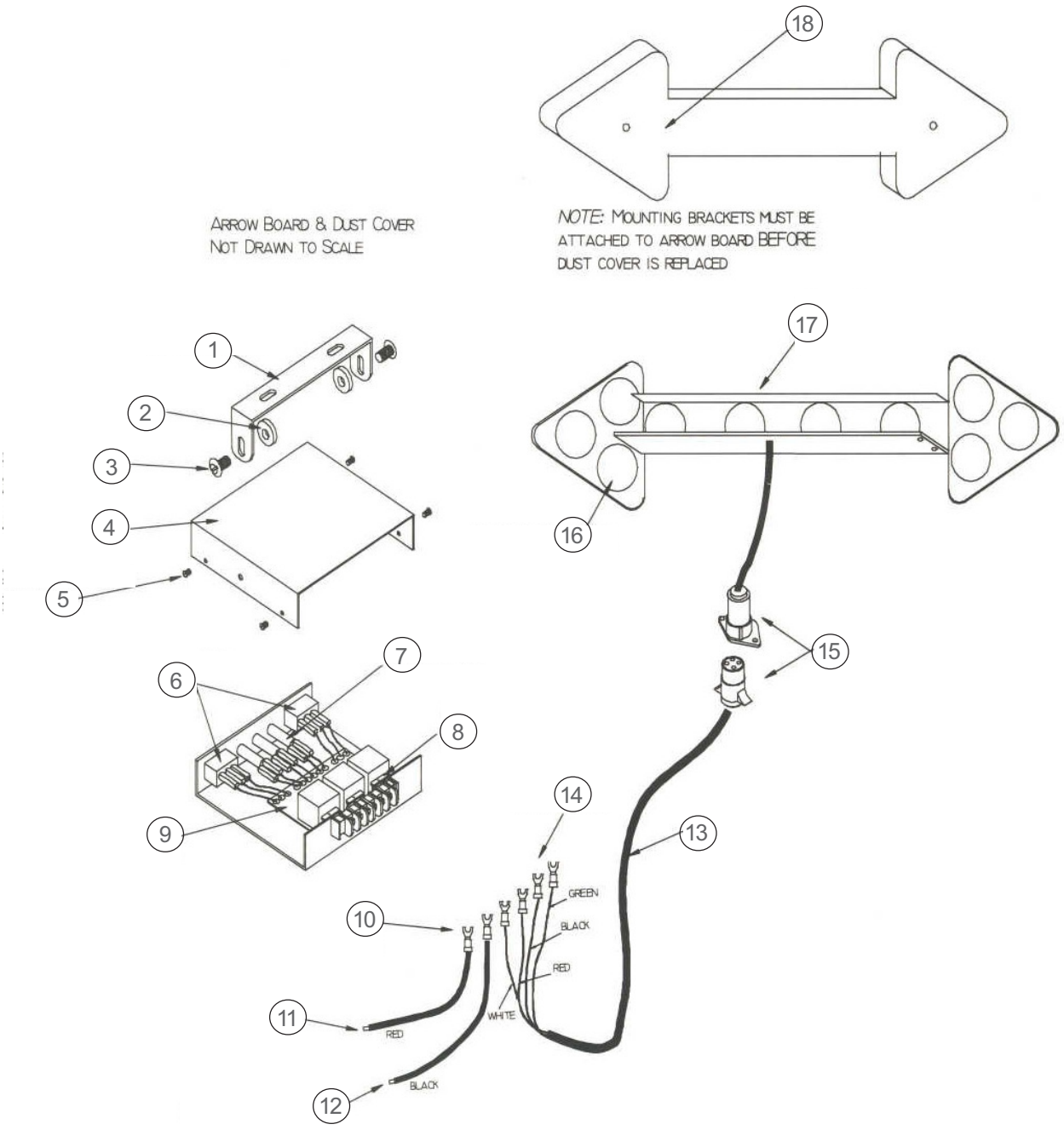
**VACASSY988**

# Hot Box Assembly

| ITEM | QTY | NUMBER | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8046535 | 8” ELBOW EXHAUST (AQUA-BLAST) |
| 2 | 1 | 8046448 | HOT BOX, VERTICAL |
| 3 | 2 | T402130 | TEE, 1/2”FP - 1/2FP - 1/2FP |
| 4 | 1 | 8046536 | 120 TEMP. SWITCH NORM CLOSRD |
| 5 | 1 | 8046537 | 165 TEMP. SWITCH NORM CLOSED |
| 6 | 1 | T402156 | TEE, 1/2MP - 1/2FP - 1/2FP |
| 7 | 1 | T400029 | REDUCER, 1/2”MP - 3/8”MJ |
| 8 | 2 | T320040 | FITTING, HOSE 6HO - 6FJ |
| 9 | 1 | T400024 | REDUCER, 1/2MP - 3/8FP |
| 10 | 1 | 8046976 | TEMPERTURE RELIEF |
| 11 | 1 | T401140 | ELBOW 8MP - 8MJ |
| 12 | 1 | T401125 | REDUCER 3/8MP - 1/2FJ |
| 13 | 1 | 8047724 | FLOW SWITCH |
| 14 | 1 | T400028 | UNION 3/8MP - 3/8MJ |
| 15 | 1 | 8046664 | AIR FILTER HOT BOX BRACKET LE |
| 16 | 1 | X000271 | SWITCH HIGH / LOW |
| 17 | 3 | U200020 | SCREW, HC 5/16-18 X 1.00 |
| 18 | 3 | U210040 | WASHER, LOCK 5/16 |
| 19 | 3 | U200040 | WASHER, FLAT 5/16 |

* ITEM NOT SHOWN

# Arrow Board Option




111110-E

**VACASSY947**

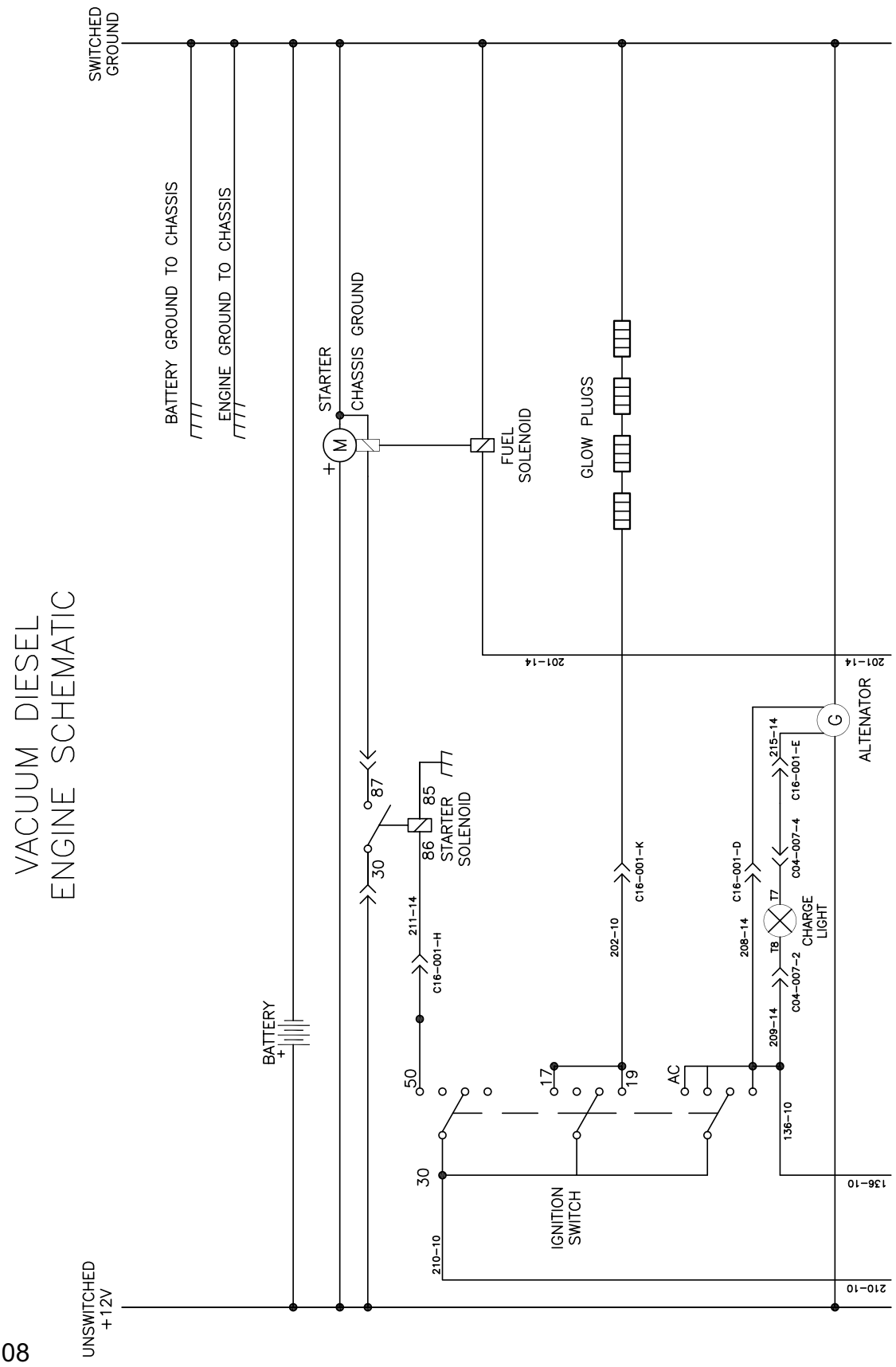
# Arrow Board Option

| ITEM | QTY | PART # | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8042197-1 | MOUNTING BAIL |
| 2 | 2 | 8042197-2 | WASHER |
| 3 | 2 | 8042197-3 | BOLT |
| 4 | 1 | 8042197-4 | COVER |
| 5 | 4 | 8042197-5 | MACHINE SCREW |
| 6 | 2 | 8042197-6 | SPDT SWITCH |
| 7 | 3 | 8042197-7 | RED PILOT LAMP |
| 8 | 1 | 8042197-8 | 15 AMP FUSE |
| 9 | 1 | 8042197-9 | CIRCUIT BOARD ASSY |
| 10 | 2 | 8042197-10 | #6 BLUE SPADE CONNECTOR |
| 11 | 4’ | 8042197-11 | RED |
| 12 | 4’ | 8042197-12 | BLACK |
| 13 | 20’ | 8042197-13 | CABLE HARNESS |
| 14 | 4 | 8042197-14 | #6 BLUE SPADE CONNECTOR |
| 15 | 1 | 8042197-15 | 4-WAY CONNECTOR |
| 16 | 1 | 8042197-16 | STANDARD LAMP ASSY |
| 17 | 1 | 8042197-17 | ARROWBOARD FRAME |
| 18 | 1 | 8042197-18 | DUST COVER |
| * | 1 | 8045830 | ARROWBOARD BRACKET |
| * | 1 | 8046526 | ARROWBOARD MOUNT PLATE |

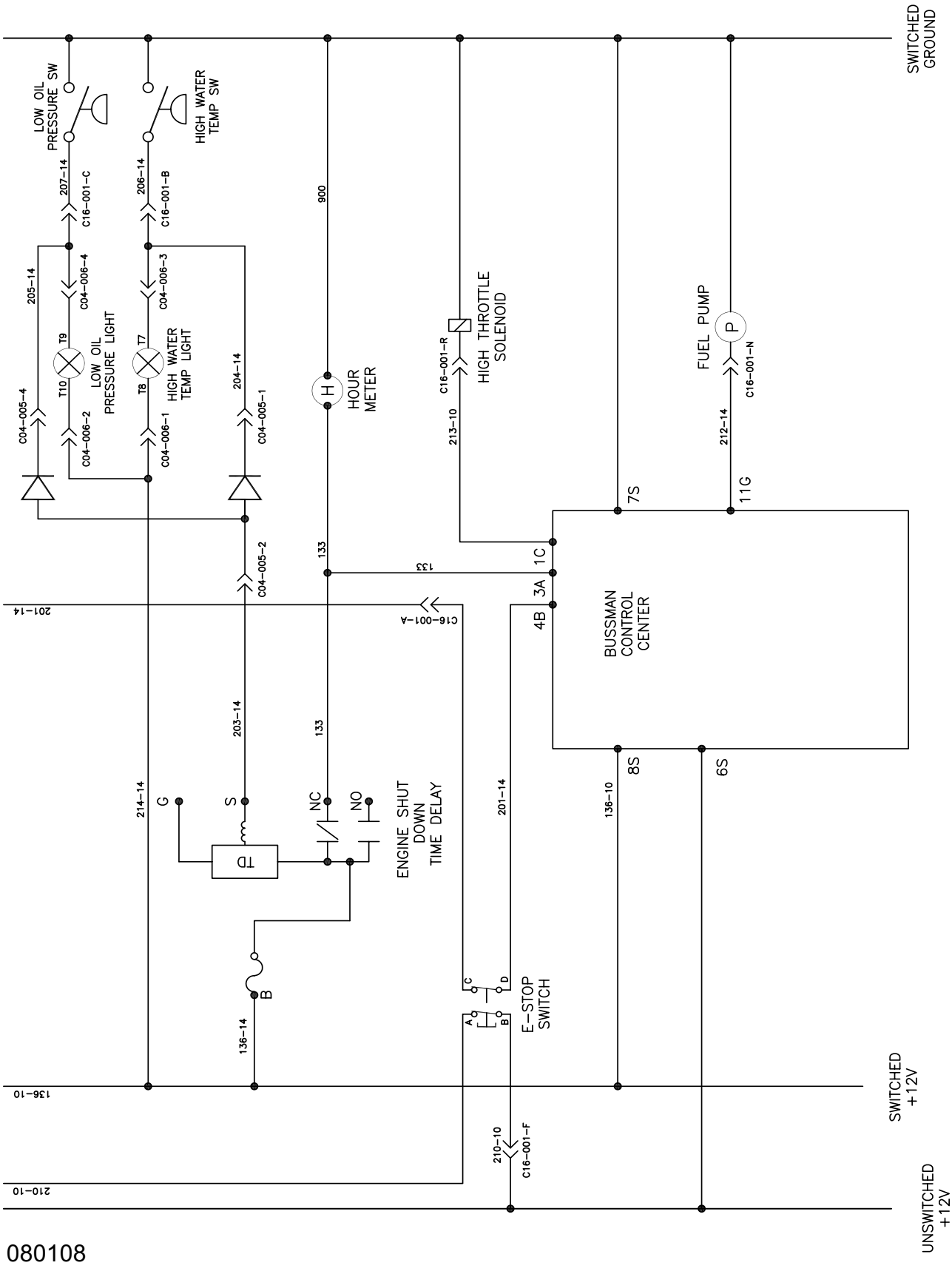
111110-E

**VACASSY947**

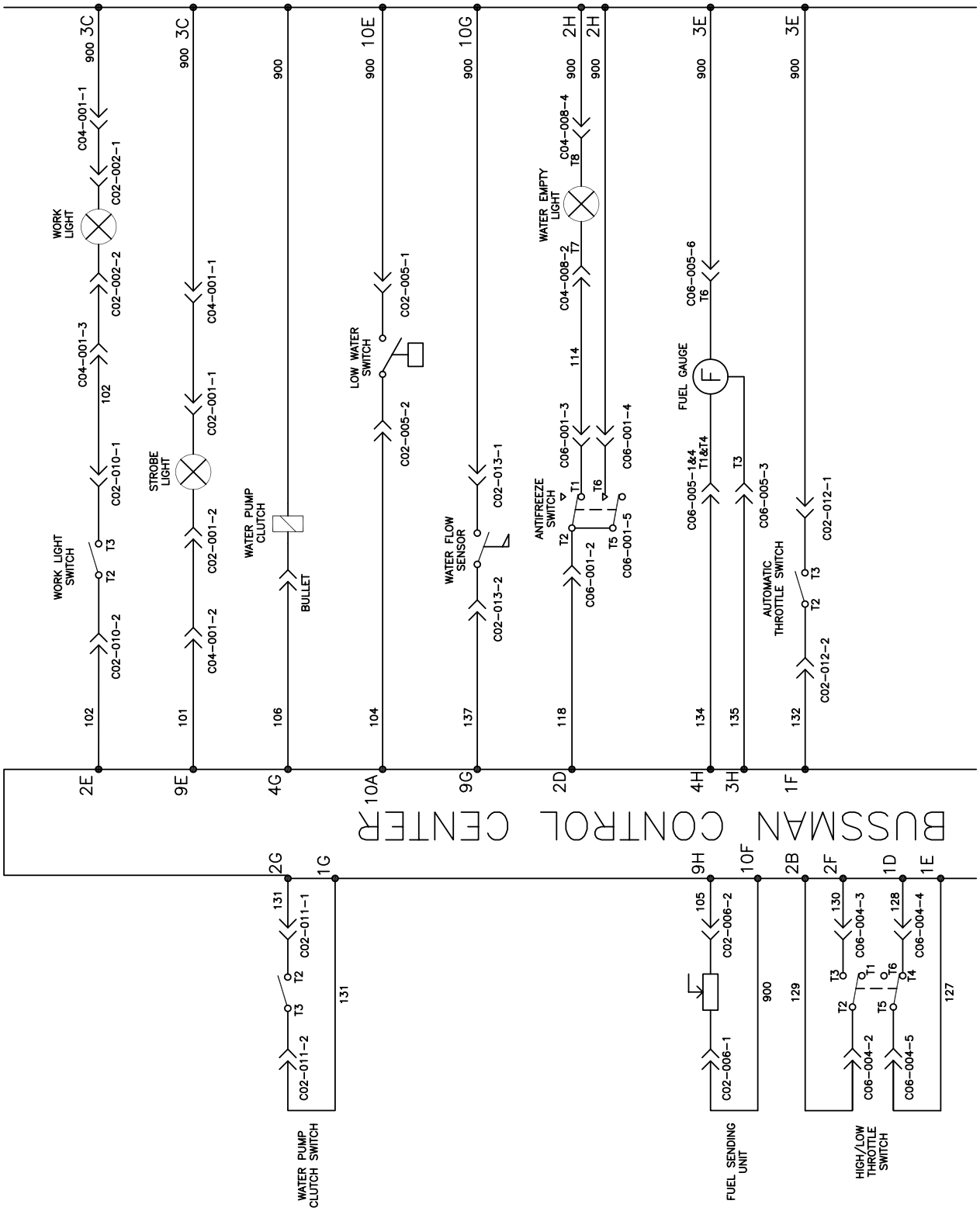
# Vacuum Diesel Engine Schematic



# Vacuum Diesel Engine Schematic

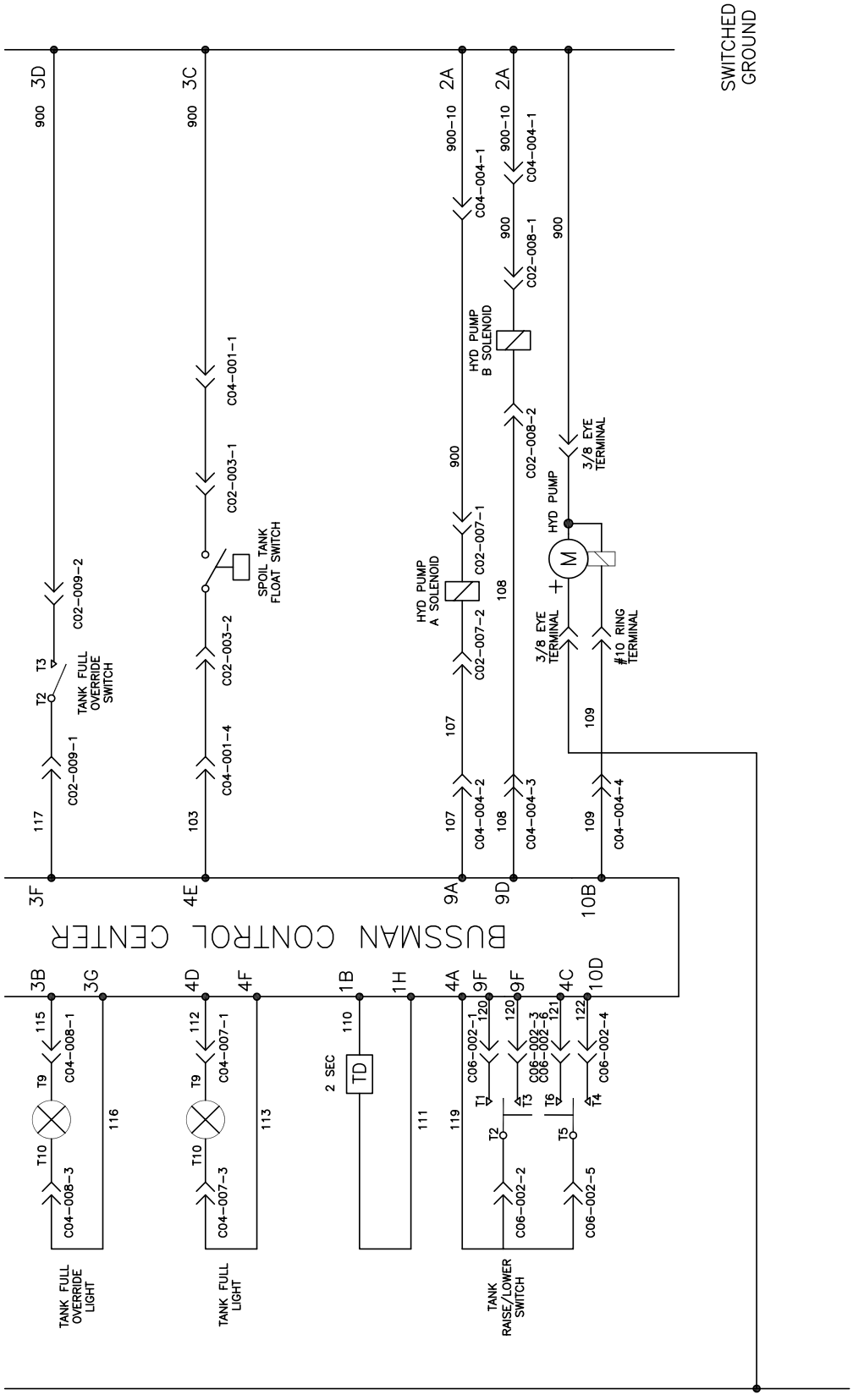


# Vacuum Diesel Engine Schematic



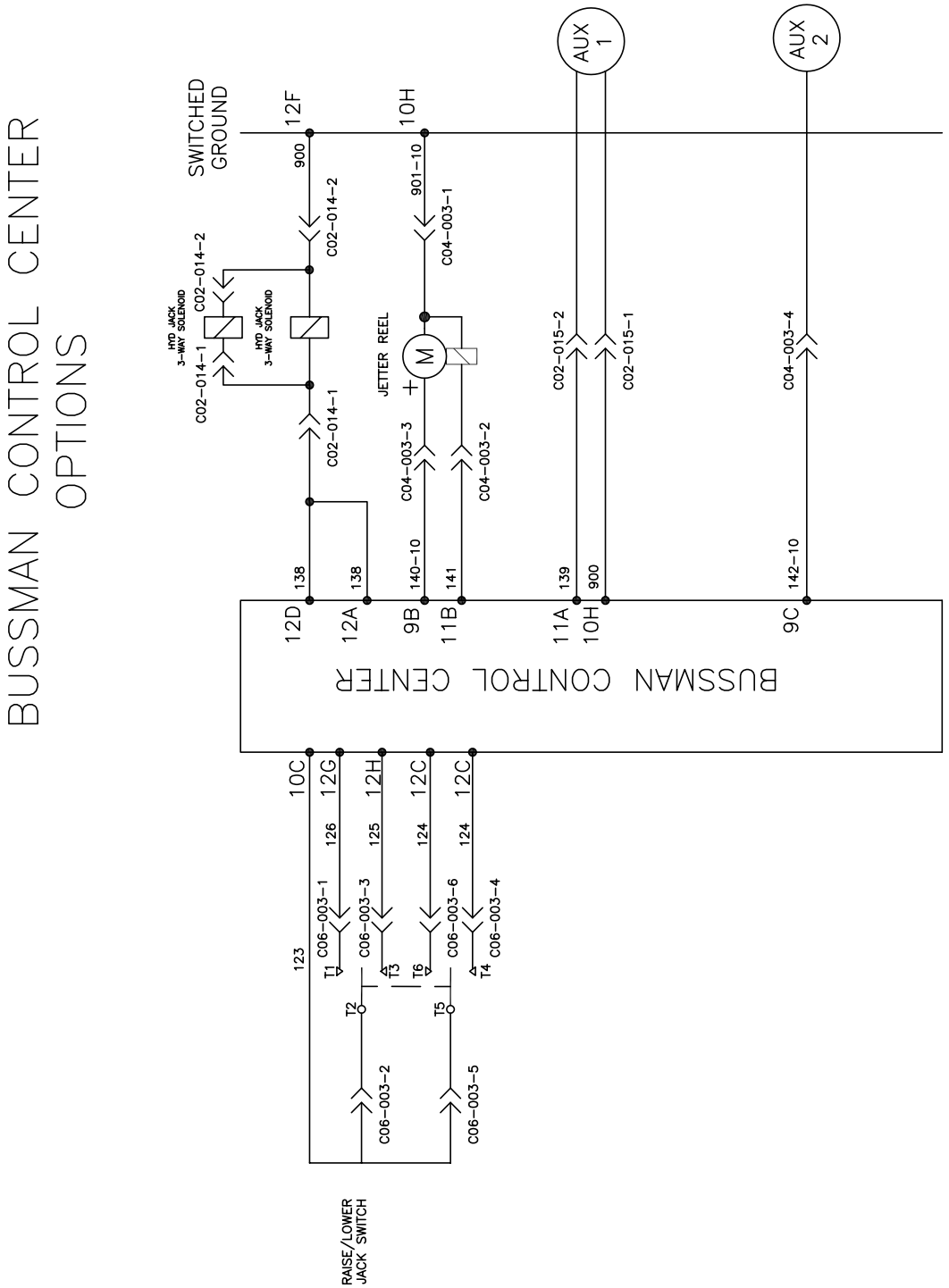

080108

# Vacuum Diesel Engine Schematic




080108

# Vacuum Diesel Engine Schematic




080108

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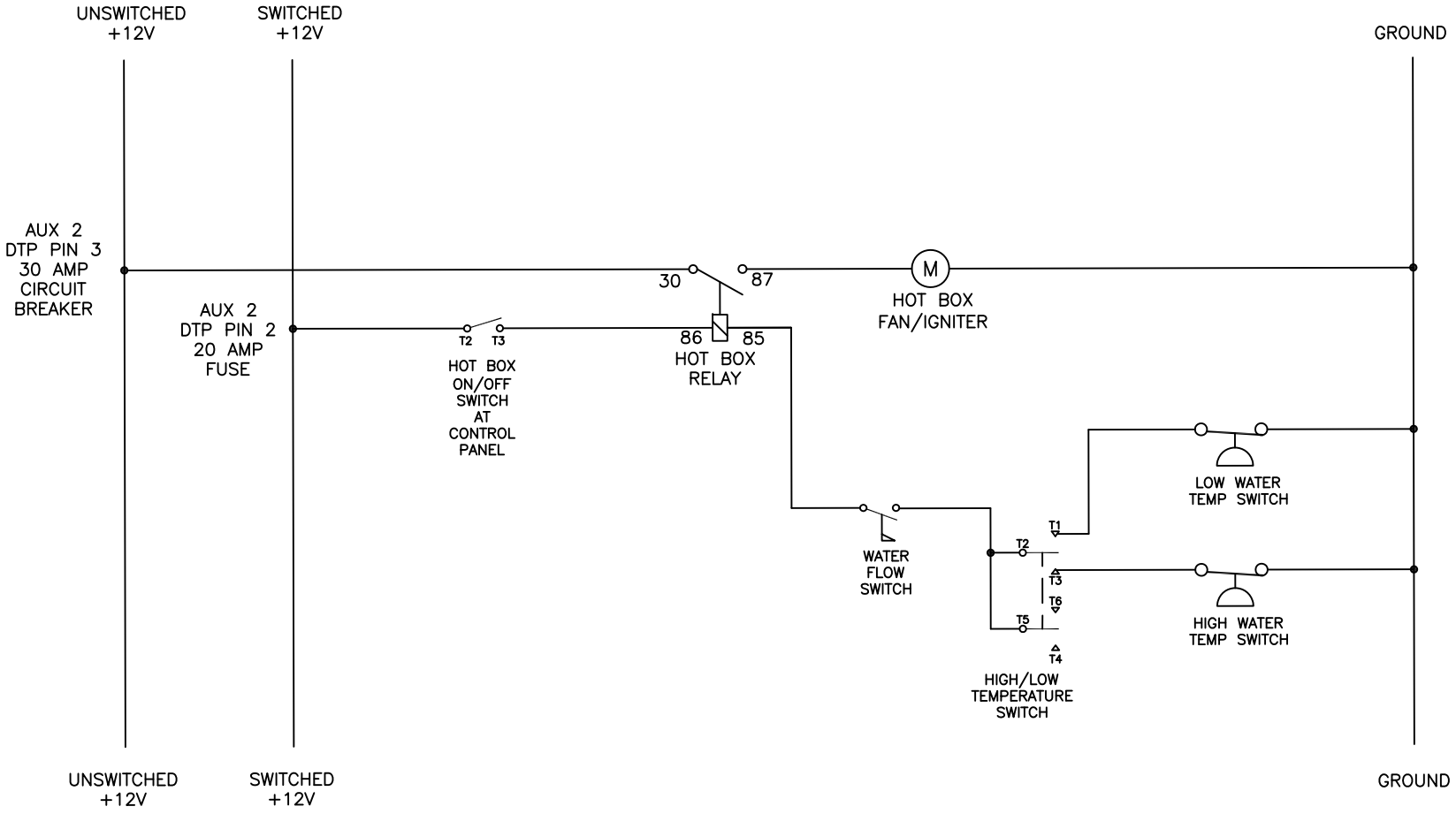
# MCLAUGHLIN – HOT BOX WIRING SCHEMATIC



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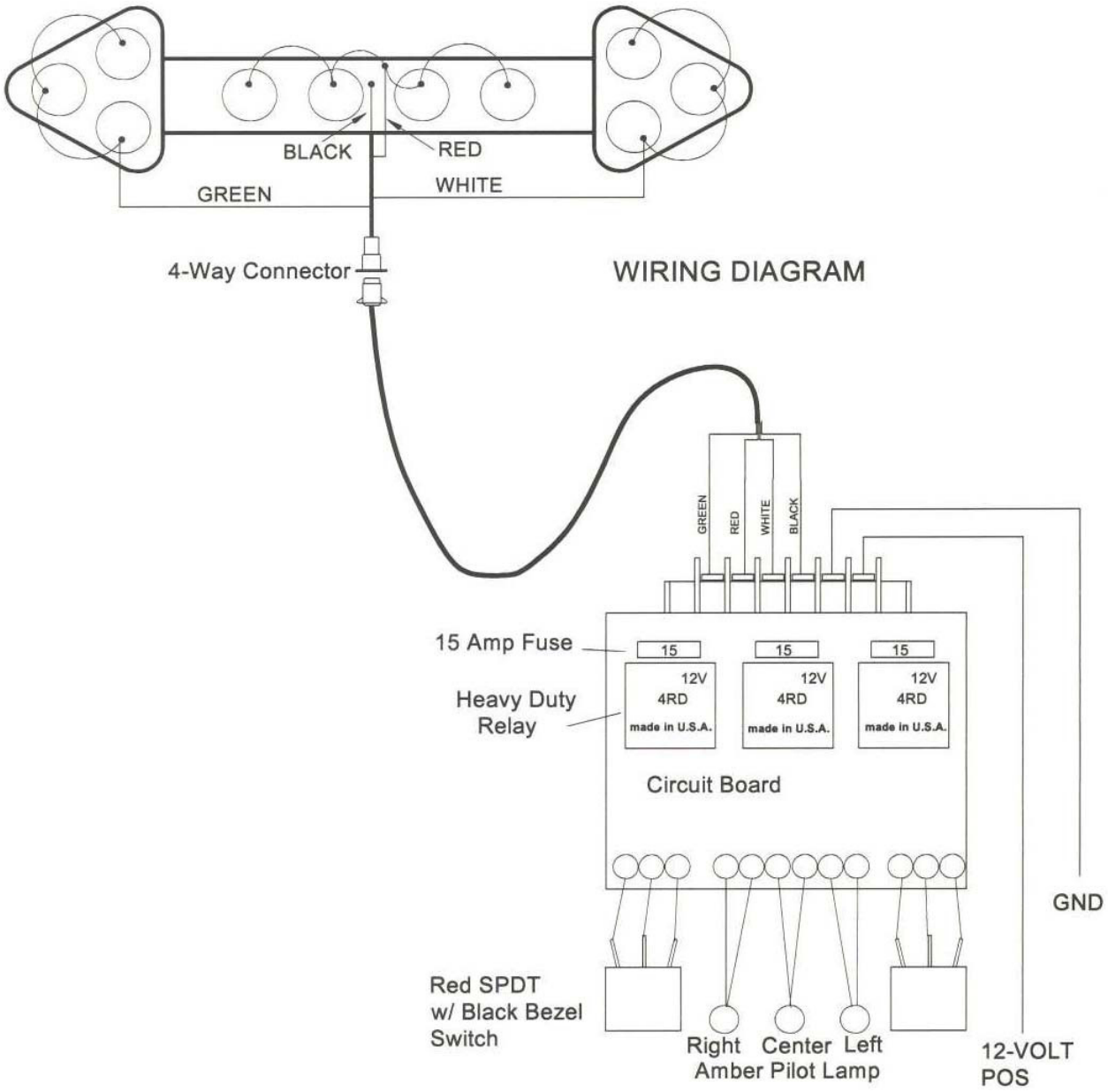
# Arrow Board Option




073008

**VACASSY947**

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ROOTS Blowers Compressors Exhausters

# Universal URAI-DSL

## Contents


Information Summary
Safety Precautions
Operating Limitations
Lubrication
Operatioin
Troubleshooting
Inspection & Maintenance
Data
Assembly Drawings
Parts List


## Do These Things To Get The Most From Your ROOTS™ blower

- **Make sure both driving and driven equipment is correctly lubricated before start-up. See LUBRICATION.**

- In event of trouble during installation or operation, do not attempt repairs of ROOTS furnished equipment. Notify ROOTS, giving all nameplate information plus an outline of operating conditions and a description of the trouble. Unauthorized attempts at equipment repair may void ROOTS warranty.

- Units out of warranty may be repaired or adjusted by the owner. Good inspection and maintenance practices should reduce the needs for repairs.

**NOTE:** Information in this manual is correct as of the date of publication. ROOTS reserves the right to make design or material changes without notice, and without obligation to make similar changes without notice, and without obligation to make similar changes on equipment of prior manufacture.

DRESSER Roots

## Safety Precautions

It is important that all personnel observe safety precautions to minimize the chances of injury. Among many considerations, the following should be particularly noted:

- Blower casing and associated piping or accessories may become hot enough to cause major skin burns on contact.
- Internal and external rotating parts of the blower and driving equipment can produce serious physical injuries. Do not reach into any opening in the blower while it is operating, or while subject to accidental starting. Protect external moving parts with adequate guards.
- Disconnect power before doing any work, and avoid bypassing or rendering inoperative any safety or protective devices.
- If blower is operated with piping disconnected, place a strong coarse screen over the inlet and avoid standing in the discharge air stream. **CAUTION: Never cover the blower inlet with your hand or other part of body.**
- Stay clear of the blast from pressure relief valves and the suction area of vacuum relief valves.
- Use proper care and good procedures in handling, lifting, installing, operating and maintaining the equipment.
- Casing pressure must not exceed 25 PSI (1725 mbar) gauge. Do not pressurize vented cavities from an external source, nor restrict the vents without first consulting Roots.
- Do not use air blowers on explosive or hazardous gases.
- Other potential hazards to safety may also be associated with operation of this equipment. All personnel working in or passing through the area should be trained to exercise adequate general safety precautions.

## Operating Limitations

A ROOTS blower or exhauster must be operated within certain approved limiting conditions to enable continued satisfactory performance. Warranty is contingent on such operation.

Maximum limits for pressure, temperature and speed are specified in TABLE 1 for various models & sizes of blowers & exhausters. These limits apply to all units of normal construction, when operated under standard atmospheric conditions. Be sure to arrange connections or taps for instruments, thermometers and pressure or vacuum gauges at or near the inlet and discharge connections of the unit. These, along with a tachometer, will enable periodic checks of operating conditions.

**PRESSURE –** The pressure rise, between inlet and discharge, must not exceed the figure listed for the specific unit frame size concerned. Also, in any system where the unit inlet is at a positive pressure above atmosphere a maximum case rating of 25 PSI gauge (1725 mbar) should not be exceeded without first consulting Roots. Never should the maximum allowable differential pressure be exceeded.

On vacuum service, with the discharge to atmospheric pressure, the inlet suction or vacuum must not be greater than values listed for the specific frame size.

**TEMPERATURE –** Blower & exhauster frame sizes are approved only for installations where the following temperature limitations can be maintained in service:

- Measured temperature rise must not exceed listed values when the inlet is at ambient temperature. Ambient is considered as the general temperature of the space around the unit. This is not outdoor temperature unless the unit is installed outdoors.
- If inlet temperature is higher than ambient, the listed allowable temperature rise values must be reduced by 2/3 of the difference between the actual measured inlet temperature and the ambient temperature.
- The average of the inlet and discharge temperature must not exceed 250°F. (121°C).
- The ambient temperature of the space the blower/motor is installed in should not be highter than 120°F (48.8°C).

**SPEED –** These blowers & exhausters may be operated at speeds up to the maximum listed for the various frame sizes. They may be direct coupled to suitable constant speed drivers if pressure/temperature conditions are also within limits. At low speeds, excessive temperature rise may be a limiting factor.

**Special Note:** The listed maximum allowable temperature rise for any particular blower & exhauster may occur well before its maximum pressure or vacuum rating is reached. This may occur at high altitude, low vacuum or at very low speed. The units' operating limit is always determined by the maximum rating reached first. It can be any one of the three: Pressure, Temperature or Speed.

## For Units with Splash Lubrication on Both Ends

Bearings and oil seals are lubricated by the action of the timing gears or oil slingers which dip into the main oil sumps

causing oil to splash directly on gears and into bearings and seals. A drain port is provided below each bearing to prevent an excessive amount of oil in the bearings. Seals located inboard of the bearings in each headplate effectively retain oil within the sumps. Any small leakage that may occur should the seals wear passes into a cavity in each vented headplate and is drained downward.

Oil sumps on each end of the blower are filled by removing top vent plugs, Item (25), and filling until oil reaches the middle of the oil level sight gauge when the unit is not operating, Item (45 or 53), DO NOT FILL PAST THE MIDDLE OF THE SIGHT GLASS.

Initial filling of the sumps should be accomplished with the blower not operating, in order to obtain the correct oil level. Approximate oil quantities required for blowers of the various models and configurations are listed in Table 3. Use a good grade of industrial type non-detergent, rust inhibiting, anti-foaming oil and of correct viscosity per Table 2. ***ROOTS synthetic oil (Roots P/N 813-106-) is specified and recommended.** Roots does not recommend automotive type lubricants, as they are not formulated with the properties mentioned above.

The oil level may rise or fall on the gauge during operation, to an extent depending somewhat on oil temperature and blower speed.

Proper lubrication is usually the most important single consideration in obtaining maximum service life and satisfactory operation from the unit. Unless operating conditions are quite severe, a weekly check of oil level and necessary addition of lubricant should be sufficient. During the first week of operation, check the oil levels in the oil sumps about once a day, and watch for leaks. Replenish as necessary. Thereafter, an occasional check should be sufficient. It is recommended that the oil be changed after initial 100 hours of operation. Frequent oil changing is not necessary unless the blower is operated in a very dusty location.

Normal life expectancy of petroleum based oils is about 2000 hours with an oil temperature of about 180°F (82°C). As the oil temperature increases by increments of 15-18°F (8°C - 10°C), the life is reduced by half. Example: Oil temperatures of 210-216°F (99°C - 102°C) will produce life expectancy of 1/4 or 500 hours. Therefore, it is considered normal to have oil change periods of 500 hours with petroleum based oils.

Normal life expectancy of ROOTS™ Synthetic Oil is about 4000 to 8000 hours with an oil temperature of about 180°F (82°C). As the oil temperature increases by increments of 15-18°F (8°C - 10°C), the life is reduced by half. Example: Oil temperatures of 210-216°F (99°C - 102°C) will produce life expectancy of 1/4 or 1000 to 2000 hours.

NOTE: To estimate oil temperature, multiply the discharge temperature of the blower by 0.80. Example: if the discharge air temperature of the blower is 200° F, it is estimated that the oil temperature is 160° F.

*ROOTS™ Synthetic Oil & Grease is superior in performance to petroleum based products. It has high oxidation stability, excellent corrosion protection, extremely high film strength and low coefficient of friction. Typical oil change intervals are increased 2-3 times over petroleum based lubricants. Also, ROOTS™ Synthetic Oil is 100% compatible with petroleum based oils. Simply drain the oil in the blower and refill the reservoirs with ROOTS™ Synthetic Oil to maintain optimum performance of your ROOTS™ blower.

## Operation

Before operating a blower under power for the first time, recheck the unit and the installation thoroughly to reduce the likelihood of avoidable troubles. Use the following procedure check list as a guide, but consider any other special conditions in the installation.

- ❑ Be certain that no bolts, tools, rags, or debris have been left in the blower air chamber or piping.
- ❑ If an outdoor intake without filter is used, be sure the opening is located so it cannot pick up dirt and is protected by a strong screen or grille. Use of the temporary protective screen as described under INSTALLATION is strongly recommended.
- ❑ Recheck blower leveling, drive alignment and tightness of all mounting bolts if installation is not recent. If belt drive is used, adjust belt tension correctly.
- ❑ Turn drive shaft by hand to make sure impellers still rotate without bumping or rubbing at any point.
- ❑ Ensure oil levels in the main oil sumps are correct.
- ❑ Check lubrication of driver. If it is an electric motor, be sure that power is available and that electrical overload devices are installed and workable.
- ❑ Open the manual unloading valve in the discharge air line. If a valve is in the inlet piping, be sure it is open.
- ❑ Bump blower a few revolutions with driver to check that direction of rotation agrees with arrow near blower shaft, and that both coast freely to a stop.

After the preceding points are cleared, blower is ready for trial operation under "no-load" conditions. The following procedure is suggested to cover this initial operation test period.

a. Start blower, let it accelerate to full speed, then shut off. Listen for knocking sounds, both with power on and as speed slows down.

b. After blower comes to a complete stop, repeat above, but let blower run 2 or 3 minutes. Check for noises, such as knocking sounds.

c. After blower comes to a complete stop, operate blower for about 10 minutes unloaded. Check oil levels. Observe cylinder and headplate surfaces for development of hot spots such as burned paint, indicating impeller rubs. Be aware of any noticeable increase in vibration.

Assuming that all trials have been satisfactory, or that necessary corrections have been made, the blower should now have a final check run of at least one hour under normal operating conditions. After blower is restarted, gradually close the discharge unloading valve to apply working pressure. At this point it is recommended that a pressure gauge or manometer be connected into the discharge line if not already provided, and that thermometers be in both inlet and discharge lines. Readings from these instruments will show whether pressure or temperature ratings of the blower are being exceeded.

During the final run, check operating conditions frequently and observe the oil levels at reasonable intervals. If excessive noise or local heating develops, shut down immediately and determine the cause. If either pressure rise or temperature rise across the blower exceeds the limit specified in this manual, shut down and investigate conditions in the piping system. Refer to the TROUBLESHOOTING CHECKLIST for suggestions on various problems that may appear.

The blower should now be ready for continuous duty operation at full load. During the first few days make periodic checks to determine whether all conditions remain steady, or at least acceptable. This may be particularly important if the blower is supplying air to a process system where conditions can vary. At the first opportunity, stop the blower and clean the temporary inlet protective screen. If no appreciable amount of debris has collected, the screen may be removed. See comments under INSTALLATION. At this same time, verify leveling, coupling alignment or belt tension, and mounting bolt tightness.

Should operating experience prove that blower capacity is a little too high for the actual air requirements, a small excess may be blown off continuously through the manual unloading or vent valve. Never rely on the pressure relief valve as an automatic vent. Such use may cause the discharge pressure to become excessive, and can also result in failure of the valve itself. If blower capacity appears to be too low, refer to the TROUBLESHOOTING CHECKLIST.

### Vibration Assessment Criteria

With measurements taken at the bearing locations on the housings, see chart below for an appropriate assessment guide for rotary lobe blowers rigidly mounted on stiff foundations.

In general, blower vibration levels should be monitored on a regular basis and the vibration trend observed for progressive or sudden change in level. If such a change occurs, the cause should be determined through spectral analysis.

As shown on the chart below, the level of all pass vibration will determine the need to measure discrete frequency vibration levels and the action required.

| All Pass Vibration (in/sec) | Discrete Frequency Vibration (in/sec) | Action |
|---|---|---|
| 0.45 or less | N/R | Acceptable |
| Greater than 0.45 but 1.0 or less | 0.45 or less @ any frequency | Acceptable |
| | Greater than 0.45 @ any frequency | Investigate |
| Greater than 1.0 | Less than 1.0 | Investigate |
| | Greater than 1.0 | Investigate |

## Troubleshooting Checklist

| Trouble | Item | Possible Cause | Remedy |
|---|---|---|---|
| No flow | 1 | Speed too low | Check by tachometer and compare with published performance |
| | 2 | Wrong rotation | Compare actual rotation with Figure 1<br>Change driver if wrong |
| | 3 | Obstruction in piping | Check piping, valves, silencer to assure open flow path |
| Low capacity | 4 | Speed too low | See item 1, If belt drive, check for slippage and readjust tension |
| | 5 | Excessive pressure rise | Check inlet vacuum and discharge pressure and compare with Published performance |
| | 6 | Obstruction in piping | See item 3 |
| | 7 | Excessive slip | Check inside of casing for worn or eroded surfaces causing excessive clearances |
| Excessive power | 8 | Speed too high | Check speed and compare with published performance |
| | 9 | Excessive pressure rise | See Item 5 |
| | 10 | Impeller rubbing | Inspect outside of cylinder for high temperature areas, then check for impeller contact at these points. Correct blower mounting, drive alignment |
| | 11 | Scale, sludge, rust or product build up | Clean blower appropriately |
| Damage to bearings | 12 | Inadequate lubrication | Check oil sump levels in gear and drive end headplates |
| or gears | 13 | Excessive lubrication | Check oil levels. If correct, drain and refill with clean oil of recommended grade |
| | 14 | Excessive pressure rise | See Item 5 |
| | 15 | Coupling misalignment | Check carefully. Realign if questionable |
| | 16 | Excessive belt tension | Readjust for correct tension |
| Vibration | 17 | Misalignment | See Item 15 |
| | 18 | Impellers rubbing | See Item 10 |
| | 19 | Worn bearings/gears | Check gear backlash and condition of bearings, and replace as indicated |
| | 20 | Unbalanced or rubbing impeller | Scale or process material may build up on casing and impellers, or inside impellers. Remove build-up to restore original clearances and impeller balance |
| | 21 | Driver or blower loose | Tighten mounting bolts securely |
| | 22 | Piping resonances | Determine whether standing wave pressure pulsations are present in the piping |
| | 23 | Scale/sludge build-ups | Clean out interior of impeller lobes to restore dynamic balance |
| | 24 | Casing strain | Re-work piping alignment to remove excess strain |
| Driver stops, or will not start | 25 | Impeller stuck | Check for excessive hot spot on headplate or cylinder. See item 10. Look for defective shaft bearing and/or gear teeth |
| | 26 | Scale, sludge, rust or product build-up | Clean blower appropriately |
| Excessive breather | 27 | Broken seal | Replace seals |
| Blow-by or excessive oil leakage to vent area | 28 | Defective O-ring | Replace seals and O-ring |
| Excessive oil leakage in vent area | 29 | Defective/plugged breather | Replace breather and monitor oil leakage |
| | 30 | Oil level too high | Check sump levels in gear and drive headplates. |
| | 31 | Oil type or viscosity incorrect | Check oil to insure it meets recommendations. Drain then fill with clean oil of recommended grade. |
| | 32 | Blower running hot | Check blower operating conditions to ensure they are within the operating limitations defined in this manual. |

## Inspection & Maintenance: Universal RAI® series blowers

A good program of consistent inspection and maintenance is the most reliable method of minimizing repairs to a blower. A simple record of services and dates will help keep this work on a regular schedule. Basic service needs are:

- Lubrication
- Checking for hot spots
- Checking for increases or changes in vibration and noise
- Recording of operating pressures and temperatures

Above all, a blower must be operated within its specified rating limits, to obtain satisfactory service life.

A newly installed blower should be checked often during the first month of full-time operation. Attention there after may be less frequent assuming satisfactory performance. Lubrication is normally the most important consideration and weekly checks of lubricant levels in the gearbox and bearing reservoirs should be customary. Complete oil change schedules are discussed under **LUBRICATION.**

Driver lubrication practices should be in accordance with the manufacturer's instructions. If direct connected to the blower through a lubricated type coupling, the coupling should be checked and greased each time blower oil is changed. This will help reduce wear and prevent unnecessary vibration. In a belted drive system, check belt tension periodically and inspect for frayed or cracked belts.

In a new, and properly installed, unit there is no contact between the two impellers, or between the impellers and cylinder or headplates. Wear is confined to the bearings (which support and locate the shafts) the oil seals, and the timing gears. All are lubricated and wear should be minimal if clean oil of the correct grade is always used. Seals are subject to deterioration as well as wear, and may require replacement at varying periods.

Shaft bearings are designed for optimum life under average conditions with proper lubrication and are critical to the service life of the blower. Gradual bearing wear may allow a shaft position to change slightly, until rubbing develops between impeller and casing. This will cause spot heating, which can be detected by observing these surfaces. Sudden bearing failure is usually more serious. Since the shaft and impeller are no longer supported and properly located, extensive general damage to the blower casing and gears is likely to occur.

Oil seals should be considered expendable items, to be replaced whenever drainage from the headplate vent cavity becomes excessive or when the blower is disassembled for any reason. Some oil seal leakage may occur since an oil film under the lip is required for proper operation. Periodically leaked oil should be wiped off from surfaces. Minor seal leakage should not be considered as indicating seal replacement.

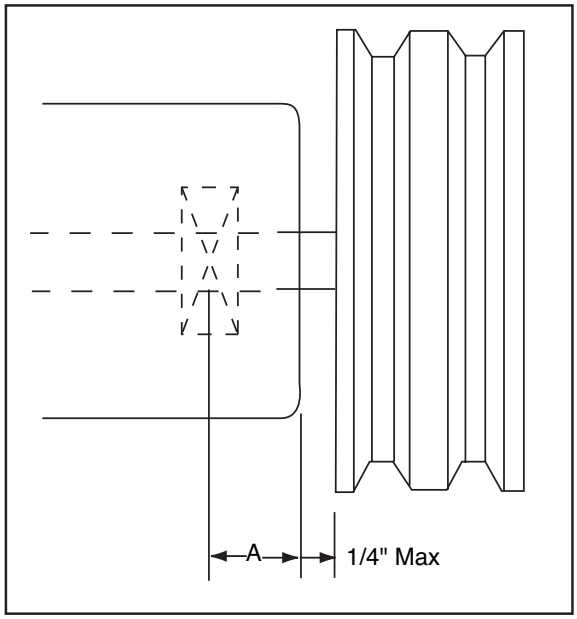
Timing gear wear, when correct lubrication is maintained, should be negligible. Gear teeth are cut to provide the correct amount of backlash, and gears correctly mounted on the shafts will accommodate a normal amount of tooth wear without permitting contact between lobes of the two impellers. However, too high an oil level will cause churning and excessive heating. This is indicated by unusually high temperature at the bottom of the gear housing. Consequent heating of the gears will result in loss of tooth-clearance , backlash and rapid wear of the gear teeth usually will develop. Continuation of this tooth wear will eventually produce impeller contacts (knocking), and from this point serious damage will be unavoidable if blower operation is continued. A similar situation can be produced suddenly by gear tooth fracture, which is usually brought on by sustained overloading or momentary shock loads.

Problems may also develop from causes other than internal parts failure. Operating clearances within a blower are only a few thousandths of an inch. This makes it possible for impeller interference or casing rubs to result from shifts in the blower mounting, or from changes in piping support. If this type of trouble is experienced, and the blower is found to be clean, try removing mounting strains. Loosen blower mounting bolts and reset the leveling and drive alignment. Then tighten mounting again, and make sure that all piping meets blower connections accurately and squarely Foreign materials in the blower will also cause trouble, which can only be cured by disconnecting the piping and thoroughly cleaning the blower interior.

A wide range of causes & solutions for operating troubles are covered in the **TROUBLE SHOOTING CHECKLIST.** The remedies suggested should be performed by qualified mechanics with a good background. Major repairs generally are to be considered beyond the scope of maintenance, and should be referred to an authorized Roots distributor.

Warranty failures should not be repaired at all, unless specific approval has been obtained through Roots before starting work. Unauthorized disassembly within the warranty period may void the warranty.

**Figure 2 - Allowable Overhung Loads for V-Belt Drives Universal RAI®/URAI®-DSL Units**




$$\text{Belt Pull lbs} = \frac{252100 \bullet \text{Motor HP}}{\text{Blower RPM} \bullet \text{Sheave Diameter}}$$

$$\text{Shaft Load (lb.in)} = \text{Belt Pull} \bullet \left(A + 1/4\text{"} + \frac{\text{Sheave Width}}{2}\right)$$

| Frame Size | Dimension "A" | Max Allowable Shaflt Load (lb-in) | Min Sheave Diameter |
|---|---|---|---|
| 47 | 1.02 | 650 | 5.00 |

**NOTE:**
Arc of sheave belt contact on the smaller sheave not to be less than 170°
Driver to be installed on the inlet side for vertical units, and on the drive shaft side for horizontal units.
Roots recommends the use of two or more 3V, 5V or 8V matched set or banded belts and sheaves.

**Specified Lubricants**

**ROOTS Synthetic Oil: ISO-VG-320 Grade**

| | Part Number |
|---|---|
| Quart | 13106004 |
| Gallon | 13106005 |
| Case (12 qts) | 13106007 |

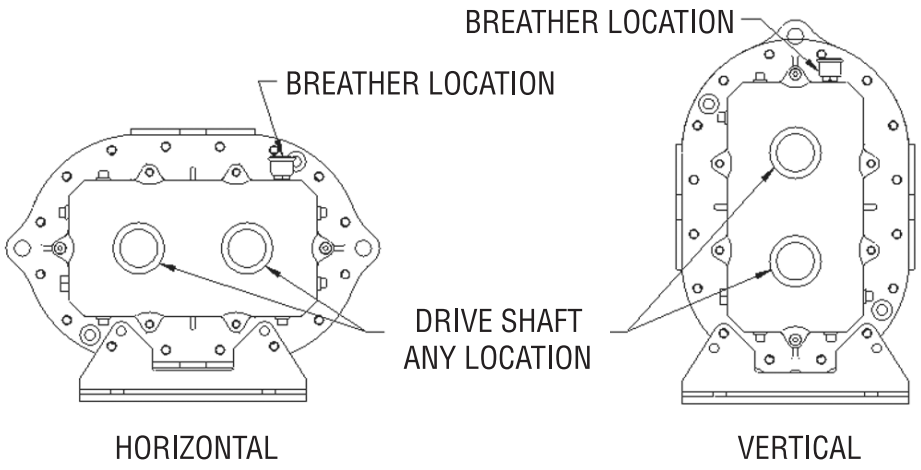
**ROOTS Synthetic Oil: ISO-VG-220 Grade**

| | Part Number |
|---|---|
| Quart | 13106001 |
| Gallon | 13106002 |
| Case (12 qts) | 13106008 |

**ROOTS Synthetic Oil: ISO-VG-150 Grade**

| | Part Number |
|---|---|
| Quart | 13106020 |
| Gallon | 13106021 |
| Case (12 qts) | 13106023 |
| 5 Gallon Pail | 13106022 |
| 55 Gallon Drum | 13106025 |

**Drive End Breather Orientation for URA-DSL blowers with Oil Lube**




**URAI DSL BREATHER ORIENTATION**

**Table 1 - URAI, URAI-DSL Blowers,**
**Maximum Allowable Operating Conditions**

| Frame Size | Gear Diameter (Inch) | Speed RPM | Temp. Rise Deg F (Deg C) | Delta Pressure PSI (mbar) | Inlet Vacuum INHG (mbar) |
|---|---|---|---|---|---|
| 47 | 4 | 3,600 | 225 (125) | 7 (483) | 15 (500) |

**Table 2 - Recommended Oil Grades**

| Ambient Temperature °F (°C) | ISO Viscosity No. |
|---|---|
| Above 90° (32°) | 320 |
| 32° to 90° (0° to 32°) | 220 |
| 0° to 32° (-18° to 0°) | 150 |
| Below 0° (-18°) | 100 |

Ambient temperature is defined as the temperature of the space in which the blower and drive are located.

**Table 3 - Approximate Oil Sump Capacities**

**These capacities are provided to assist in stocking the correct amount of oil. Exact sump capacities may differ slightly. See "Lubrication" section for proper filling instructions.**

## URAI-DSL Splash Lubricated Blowers

| Frame Size | Gear End Capacity Fl. Oz (Liters) | Drive End Capaicty Fl. Oz. (Liters) |
|---|---|---|
| 47 | 22.8 (.67) | 10.8 (.32) |

Basic Connection & Drive Shaft Information

**URAI DSL AIR BLOWERS (with Dual Splash Lubrication DSL)**

| BOM# | FRAME SIZE | INLET/DISCHARGE CONN. | SHAFT DIAMETER | BARE WEIGHT |
|---|---|---|---|---|
| T30354020 | 47 | 3" NPT | .0875" | 132 |

**Universal RAI** air blowers include detachable mounting feet which permit vertical or horizontal installation. The units are center timed for rotation in either direction. The bearings on the URAI are grease lubricated on the drive end and splash lubricated on the gear end. The URAI-DSL is splash lubricated on BOTH ends.

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# MODEL MSR-DC OIL BURNER

## MODEL MSR-DC SPECIFICATIONS

### FIRING CAPACITIES - MODEL MSR-DC

0.50 To 2.75 GALLONS PER HOUR

70,000 TO 385,000 BTU/HR INPUT

### FUELS - MODEL MSR-DC

Use No. 1 or No. 2 Heating Oil (ASTM D-396), Kerosene, Diesel or Jp8 Jet Fuel.

NEVER attempt to use gasoline as a fuel for your burner, as it is more combustible and could result in a serious explosion.

NEVER burn garbage or refuse in the heating unit.

NEVER try to ignite by tossing burning paper or other materials into the heating unit.

NEVER burn waste or crankcase oil in the heating unit.

### ELECTRICAL - MODEL MSR-DC

| | |
|---|---|
| Power supply | 13.0VDC Minimum (at Battery) |
| Motor | 4500 RPM (Std) or 3950 RPM (low RPM), Ball Bearing, Permanent Magnet |
| Ignition | 20,000V/28MA/50VA Secondary, Intermittent Duty Electronic Ignitor |

### DIMENSIONS - MSR-DC (Standard

Height.....12½"

Width .....13"

Depth .....6⅞"

### FUEL UNIT

Suntec and DanFoss brands

### MOUNTING

Rigid Flange, Adjustable Flange or Base mount.

### DC OIL BURNER ELECTRICAL CONSIDERATIONS

* Not all generators are equally capable. A minimum of 13.0 volts must be provided at the battery.
* Generators should be operated at the maximum rated RPM during burner operation.
* Good quality batteries are strongly suggested. Batteries with higher Cold Cranking Amp (CCA) rating and deep draw/marine type batteries are recommended.
* Use automotive rated battery cabling. All other wiring should be OEM suggested wire type and gauge.
* Protect all wiring connection points with dielectric grease.
* Ambient temperature impacts electrical requirements. Higher temperatures will result in higher amp draws.
* Increased pump operating pressure settings will increase amp draw.
* Higher gallon rate nozzles and accompanying wider air band openings will increase amp draw.

## INSTALLATION OF BURNER

**INSTALLATION OF THE BURNER MUST BE DONE BY A QUALIFIED INSTALLER IN ACCORDANCE WITH REGULATIONS OF THE NATIONAL FIRE PROTECTION STANDARD FOR OIL-BURNING EQUIPMENT, NFPA NO. 31, AND IN COMPLETE ACCORDANCE WITH ALL LOCAL CODES AND AUTHORITIES HAVING JURISDICTION.**

**A QUALIFIED INSTALLER IS THE PERSON WHO IS RESPONSIBLE FOR THE INSTALLATION AND ADJUSTMENT OF THE EQUIPMENT AND WHO IS LICENSED TO INSTALL OIL-BURNING EQUIPMENT IN ACCORDANCE WITH ALL CODES AND ORDINANCES. WARRANTY IS VOIDED IF NOT INSTALLED BY SERVICE PERSON.**

**THESE INSTRUCTIONS SHOULD BE AFFIXED TO THE BURNER OR ADJACENT TO THE HEATING APPLIANCE.**

## TO THE CLEANING EQUIPMENT OWNER

Since 1970, Wayne has supplied the hot water pressure washer cleaning equipment industry with oil burners. You are obtaining a quality burner unsurpassed in engineering design and product development. It will provide you with many years of efficient trouble-free operation, if properly installed and serviced. Please read this manual carefully.

Wayne warrants its burners specifically to those who have purchased it for resale, including your dealer. If, in any case, you have a problem with your burner, or its installation, you should contact your dealer or the cleaning equipment manufacturer for assistance.

## FUEL UNITS AND OIL LINES

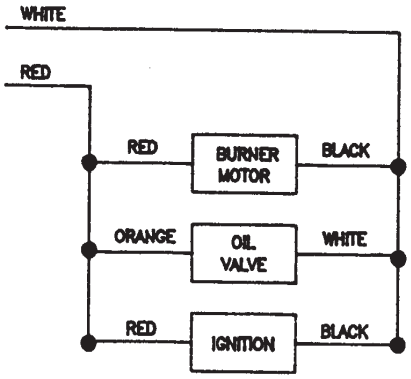
The model MSR-DC oil burner is provided with a single stage 3450 RPM fuel unit with by-pass plug removed for a single pipe installation; the by-pass plug for two pipe (inlet and return) is provided in the plastic bag attached to the fuel unit.

The installation of fuel filters are recommended. Check supply tank for sludge accumulation and leakage. Use only flare fittings on all piping and connections since compression fittings will eventually leak. With the system running, the vacuum should not exceed 12" mercury for single stage units. For ease of servicing, install a shut off valve near burner.

## WIRING

The MSR-DC oil burner must be electrically wired and GROUNDED in accordance with local codes or in their absence, with National Electric Code ANS/NFPA No. 70-latest edition.

This oil burner requires a 12-volt DC power source. Use copper wire only not lighter than #12 awg. If a fused disconnect is used, it should be fused for a minimum of 20 amps. Refer to the wiring diagram in this manual or cleaning equipment manufacturers manual making sure the burner and controls are wired correctly.




## AIR SUPPLY FOR COMBUSTION

The oil burner fired hot water pressure washer shall not be installed in an area where facilities for normal air circulation or infiltration are so limited as to interfere with ready attainment of all necessary for proper combustion and venting. When the heating appliance is installed in a confined space, two permanent openings shall be provided. One near the top of the enclosure and one near the bottom. Each opening shall have a free area of not less than one square inch per 1000 BTU per hour (140 square inch per gph) of the total input rating of all the appliances in the enclosure. When the building is of unusually tight construction, has an air ventilating system, exhaust fans, process dryer or vented fireplaces, it is recommended that combustion air be supplied through two permanent openings. The openings shall communicate directly, or by means of ducts, with outdoors or such spaces (attic or crawl) that freely communicate with outdoors. Avoid linty environments. For additional venting information, refer to the regulations of the National Fire Protection Standard for oil burning equipment, ANSI/NFPA N0. 31-latest edition, or the cleaning equipment manufacturers recommendations.

## NOZZLE AND AIR HANDLING PARTS SELECTION

IMPORTANT: Thorough combustion and performance testing was done to establish the correct nozzle type and air handling parts on this MSR-DC oil burner. Under circumstance attempt to replace or alter the oil burner nozzle type or air handling parts (stainless steel flamelock, air cone, electrode support style static disc, blower wheel or slotted air circumstances attempt to fire the MSR-DC oil burner under its 1.00 gph minimum or over its 2.75 gph maximum input rating.

To remove the gun assembly once the burner has been installed on the appliance remove the ignitor/housing cover screw and loosen the screw in the hold-down clip and swing open the transformer. Next, disconnect the copper oil line where it attaches with a 7/16" hex flare nut on the gun assembly oil line adapter fitting and remove the 9/16" hex gun assembly locknut. Now, grasp the rear of the gun assembly where the oil line fitting adapter exits through the housing and pull oil line fitting adapter to the right out of the housing slot and slot plate cover. Gently lift, do not force, the rear of the gun assembly, rotating the oil line fitting adapter up a 45 degrees pulling the entire gun assembly out of the air tube and housing opening.

The recommended can be installed into the nozzle body adapter using the following steps. With the gun assembly removed from the burner, loosen the electrode clamp screw and rotate the electrodes up, out of the way of a nozzle wrench. Now, thread the nozzle into the adapter finger tight then tighten securely with a nozzle wrench. **CAUTION:** Do not over tighten. Next, reposition the electrodes as shown in figure 1. At this time reinstall the gun assembly into the burner using the preceding steps in reverse order. Position the nozzle face forward to a 5/16" setting behind the stainless steel air cone as shown in figure 1. Once in the required position, replace the 9/16" hex lock nut and the 7/16" hex flare nut on the gun assembly and tighten the slot cover screw (see figure 2).

**CAUTION:** Close the ignitor and observe for spring contact with the brass buss bars, taking care not to pinch the ignition transformer lead wires between the housing and cover plate. Reinstall the ignitor/housing cover screw and tighten the screw in the hold down clip (see figure 2).

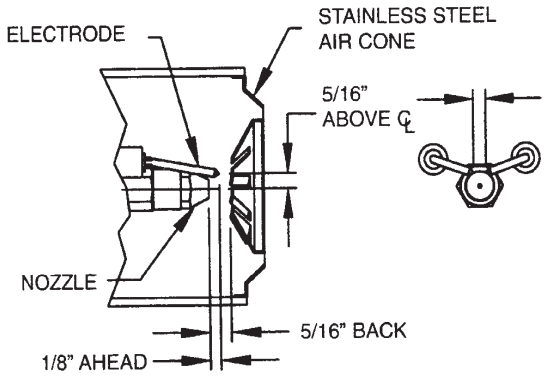


FIGURE 1

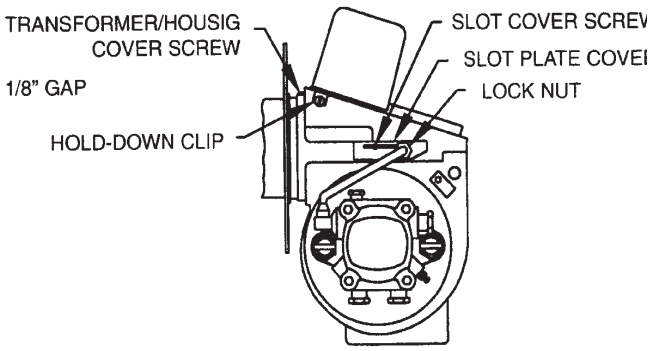


FIGURE 2

# STARTING PROCEDURE

## PREPARATION STEPS

1. Calibrate and check operation of combustion analysis equipment, $CO_2$ (carbon dioxide) or $O_2$ (oxygen) analyzer, smoke pump tester, fuel gas thermometer and oil pressure/vacuum gages. Follow the manufacture recommendation for proper calibration and check out.
2. Install oil pressure gage and vacuum gage in the outlet pressure and inlet ports of the fuel unit.
3. Set oil burner slotted air band shutter 25% open.

## STARTING BURNER

1. Turn off the main power switch to the burner and appliance.
2. Be sure main fuel tank is filled and all manual valves are open between the fuel tank and the burner.
3. Turn on the main power switch to the burner and appliance.
4. Prime the fuel pump per its manufacturers recommendations, check fuel unit for 100 psi delivery pressure and check system vacuum (see paragraphs under Fuel Units and Oil Lines).

   **CAUTION:** Do not run fuel unit dry for more than five minutes or damage to the fuel unit could result.

5. Once the fuel unit is primed (no signs of air in oil bleeder port discharge), close the bleed port. Burner will ignite.
6. When flame is established, make a temporary air adjustment to the slotted air band for a visually clean combustion smoke observed from the appliance vent. Allow the appliance to warm up approximately five minutes or until the water temperature reaches that recommended by the cleaning equipment manufacture.
7. Adjust the slotted air band shutter until a #1 to #2 smoke (Shell Bacharach scale) is obtained at the appliance vent.
8. Check $CO_2$ (carbon dioxide) and/or $O_2$ (oxygen) percentages and smoke in the flue gas at the appliance vent. In general, $CO_2$ readings should be in the 10% to 12% range and $O_2$ readings in the 7.4% to 4.7% range.
9. Once the desired combustion results are attained, securely tighten slotted air band screw and check that controls on the appliance are adjusted per the cleaning equipment manufactures instruction sheets. Remove oil pressure and vacuum gages from the fuel unit and reinstall pipe plug fittings.
10. Check burner lighting with hot chamber, then allow burner and appliance to sufficiently cool. Then check burner lighting with a cold chamber.

SUGGESTION: all new installations should be reinspected after one or two weeks of normal operation.

## MAINTENANCE

**OILING MOTOR** – The MSR_DC oil burner is provided with a ball bearing shaft motor. Ball-bearing motors do not require oiling under normal service conditions.

**FILTER** – The oil filter cartridge should be replaced, or sediment cleaned, periodically so the fuel oil will not become contaminated and plug up the fuel pump and nozzle of oil burner.

**NOZZLE** – The nozzle should be changed at least once each year or twice a year if the cleaning equipment is used daily through the year and should poor combustion occur. Replace with the proper nozzle.

**COMPONENTS** – If for any reason any of the burner parts have to be replaced, always use parts recommended by the manufacturer. Specify part numbers and description when ordering. (IN ALL COMMUNICATIONS STATE BURNER MODEL AND SIX DIGIT SPECIFICATION NUMBER).

**ELECTRODE SETTINGS** – This is very important for reliable ignition of the oil; check these once a year in accordance with the instructions provided in this manual. Replace electrodes if worn excessively or if porcelain insulator is oil soaked or cracked (See Figure 1).

**FAN & BLOWER HOUSING** – This must be kept clean, free of dirt and lint; open transformer to check fan blades from above. Be sure the electric power is off on burner when the transformer is opened up for this inspection. Should the blower wheel be removed for replacement or cleaning, reinstall as shown in figure 3.

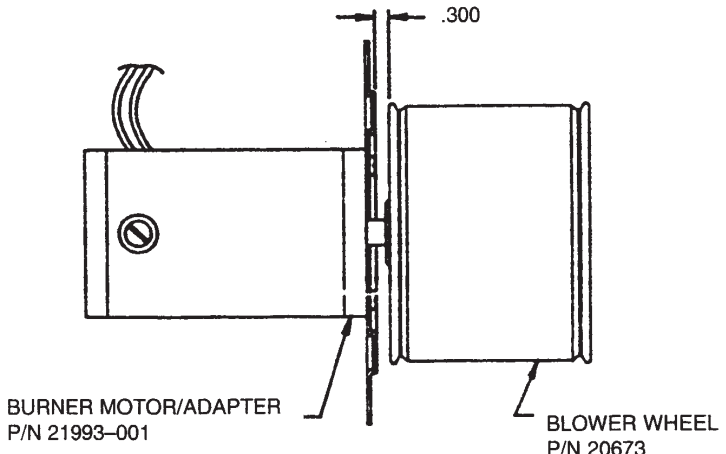
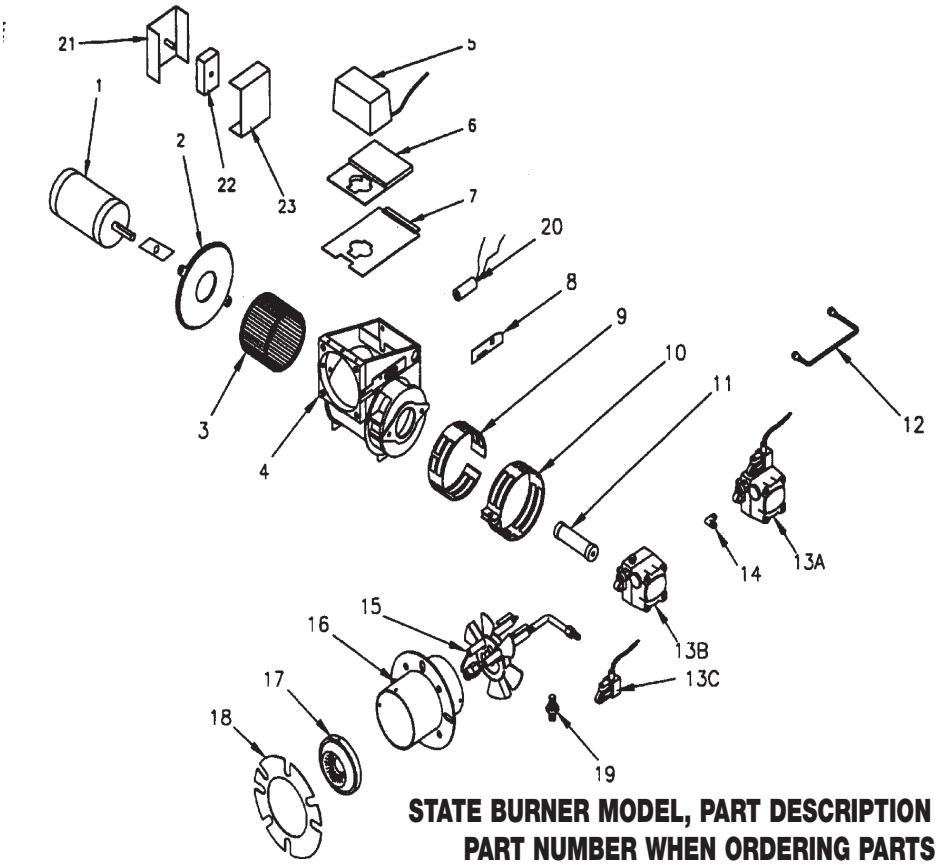


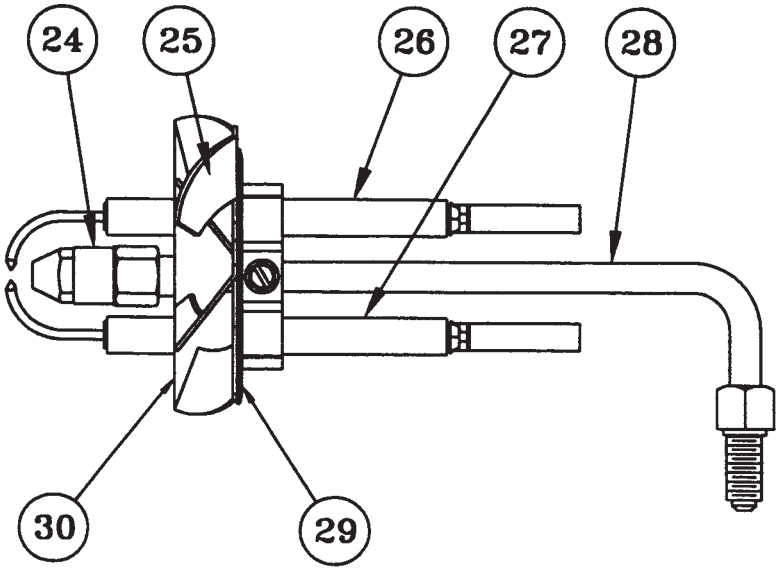

FIGURE 3

## BURNER COMPONENTS - MODEL MSR-DC




**STATE BURNER MODEL, PART DESCRIPTION AND PART NUMBER WHEN ORDERING PARTS**

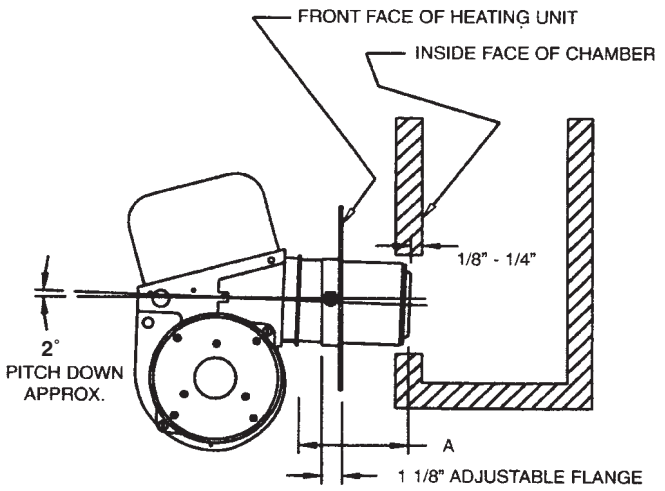
## AIR TUBE & GUN ASSEMBLY DETAILS MODEL MSR-DC



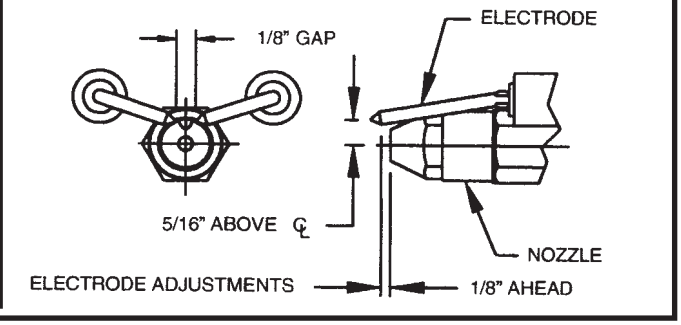
| ITEM | QTY | PART # | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | 8046448-1 | MOTOR 1/8 STANDARD |
| | 1 | | MOTOR 1/8 LOW AMP |
| 2 | 1 | 8046448-2 | MOTOR ADAPTER |
| 3 | 1 | 8046448-3 | BLOWER WHEEL 3 1/2 X 4 1/4 |
| 4 | 1 | 8046448-4 | BURNER HOUSING |
| 5 | 1 | 8046448-5 | IGNITOR - 12VDC |
| 6 | 1 | 8046448-6 | MOUNTING BASE |
| 7 | 1 | 8046448-7 | HOUSING COVER |
| 8 | 1 | 8046448-8 | SLOT COVER PLATE |
| 9 | 1 | 8046448-9 | INNER AIR BAND |
| 10 | 1 | 8046448-10 | OUTER AIR BAND |
| 11 | 1 | 8046448-11 | COUPLING |
| 12 | 1 | 8046448-12 | OIL LINE ASSEMBLY 6” |
| | 1 | | OIL LINE ASSEMBLY 8” |
| 13 | 1 | 8046448-13A | FUEL UNIT: SUNTEC COMBO |
| | 1 | 8046448-13B | FUEL UNIT: SUNTEC |
| | 1 | 8046448-13C | FUEL SOLENOID |
| 14 | 1 | 8046448-14 | ELBOW (USE WITH 13A) |
| 15 | 1 | 8046448-15 | GUN ASSEMBLY |
| 16 | 1 | 8046448-16 | AIR TUBE/FLANGE ASM |
| 17 | 1 | 8046448-17 | AIR CONE - #3A |
| | 1 | | AIR CONE - #4A |
| 18 | 1 | 8046448-18 | GASKET |
| 19 | 1 | 8046448-19 | CONNECTOR (USE WITH 13B, 13C) |
| 20 | 1 | 8046448-20 | CAD CELL |
| 21 | 1 | 8046448-21 | CONTROL BOX |
| 22 | 1 | 8046448-22 | TIMER, DROP OUT |
| 23 | 1 | 8046448-23 | COVER, CONTROL BOX |
| 24 | 1 | 8046448-24 | ADAPTOR, NOZZLE SUPPORT |
| 25 | 1 | 8046448-25 | ELECTRODE SUPPORT ASM |
| 26 | 1 | 8046448-26 | ELECTRODE (RH) |
| 27 | 1 | 8046448-27 | ELECTRODE (LH) |
| 28 | 1 | 8046448-28 | OIL PIPE/FITTING |
| 29 | 1 | 8046448-29 | DISC/BAFFLE PLATE |
| 30 | 1 | 8046448-30 | CAST STABILIZER |
| | 1 | | STAMPED STABILIZER |

| Suggested Combustion Chamber Dimensions Conversion or Upgrading Chamber Dimensions (In Inches) | | | | | |
|---|---|---|---|---|---|
| Firing Rate (G.H.P) | Square | | Round | Height | Floor to Nozzle |
| | Width | Length | | | |
| 0.85 | 8.5 | 8.5 | 8.5 | 8.5 | 8.5 |
| 1.00 | 9 | 9 | 10⅛ | 12½ | 5-6 |
| 1.25 | 10 | 10 | 11¼ | 12½ | 5-6 |
| 1.35 | 10½ | 10½ | 11¾ | 12¾ | 5-6 |
| 1.50 | 11 | 11 | 12⅜ | 13 | 5-6 |
| 1.65 | 11½ | 11½ | 13 | 13¼ | 5-6 |
| 2.00 | 12⅝ | 12⅝ | 14¼ | 13½ | 6-7 |
| 2.50 | 14¼ | 14¼ | 16 | 14 | 7-8 |
| 3.00 | 15½ | 15½ | 17½ | 15 | 7-8 |

## TO DETERMINE THE AIR TUBE LENGTH




THE AIR TUBE LENGTH (DIM A) IS THE DISTANCE FROM THE FRONT OF AIR TUBE RETAINER FLANGE TO FACE OF AIR CONE. NOTE ADJUSTABLE FLANGE WIDTH.



# Notes

## Notes

**WAYNE COMBUSTION SYSTEMS**
801 GLASGOW AVE.
FORT WAYNE, IN 48803

# LIMITED WARRANTIES FOR OIL AND GAS BURNERS, MADE BY WAYNE AND USED IN RESIDENTIAL INSTALLATIONS

**WAYNE COMBUSTION SYSTEMS ("WAYNE")** warrants to those who purchase its **Oil Burner Models** for resale or for incorporation into a product of resale, that its burner is free from defects in material and workmanship under normal use and service for thirty-six (36) months from the date of manufacture. **ALL GAS BURNERS** manufactured by **"WAYNE"** will be similarly warranted for eighteen(18) months from date of manufacture except where original manufacture offers a greater warranty. (Reference #6 below) THESE LIMITED WARRANTIES DO NOT APPLY UNLESS THE BURNER COVERED BY IT **IS PROPERLY INSTALLED BY A QUALIFIED, COMPETENT TECHNICIAN**, WHO IS LICENSED WHERE STATE AND/OR LOCAL CODES PREVAIL, AND **WHO IS EXPERIENCED IN MAKING SUCH INSTALLATIONS**, IN ACCORDANCE WITH NFPA #31 OF THE NATIONAL FIRE PROTECTION ASSOCIATION AND IN ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES.

Any **IN-WARRANTY** burner component which is defective in material or workmanship will be either repaired or replaced as follows:

1. Fuel units, motors, transformers, gas valves, and controls should be returned to an authorized service station or distributor of WAYNE for determination of applicability of this LIMITED WARRANTY as to either repair or replacement, where said service station or distributor is reasonably available in the customer's locality. The manufacturers of burner components regularly publish and distribute listings showing the locations of their network of service stations. Where such local service is NOT available for the burner components described above or other burner parts are involved, these items should be returned, freight prepaid, to WAYNE Service Department, 801 Glasgow Ave, Fort Wayne, Indiana 46803.
2. Burners and/or component(s) determined to be covered under this LIMITED WARRANTY by WAYNE shall be repaired or replaced at WAYNE's sole option.
3. WAYNE is not responsible for any labor cost for the removal and replacement of said burner or burner components and equipment associated therewith.
4. A burner so repaired will then carry the LIMITED WARRANTY equal to the unexpired portion of the original burner LIMITED WARRANTY.
5. If inspection by WAYNE does **NOT** disclose any defect covered by this LIMITED WARRANTY, the burner or burner component(s) will be either repaired or replaced at the expense of the customer and WAYNE's regular charges will apply.
6. If the original manufacturer of a burner component offers a warranty greater than either of our LIMITED WARRANTIES described above, then this portion will be added to our LIMITED WARRANTY.

This LIMITED WARRANTY does **NOT** cover products which have been damaged as the result of accident, abuse, misuse, neglect, improper installations, improper maintenance or failure to operate in accordance with WAYNE's written instructions.

These LIMITED WARRANTIES do not extend to anyone except the first purchaser at retail and only when the burner is in the original installation site.

**IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE SHALL BE LIMITED TO THE DURATION OF THE LIMITED EXPRESS WARRANTIES CONTAINED HEREIN. WAYNE EXPRESSLY DISCLAIMS AND EXCLUDES ANY LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES OF ANY NATURE FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY.**

Some states do not allow limitation on how long an implied warranty lasts, so the above limitation may not apply to you. Also, some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. WAYNE neither assumes or authorizes any person to assume for WAYNE any other liability or obligation in connection with the sale of these products. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

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# WARRANTY
# RETURN GOODS POLICY

LIMITED WARRANTY

The Manufacturer warrants its products to be free from defects in material and workmanship for a period of twelve months from the date of shipment from the factory. The Manufacturer shall not be responsible for any damage resulting to or caused by its products by reason of installation, improper storage, unauthorized service, alteration of the products, neglect or abuse, or use of the product in a manner inconsistent with its design. The warranty does not extend to any component parts not manufactured by Manufacturer; however, Manufacturer's warranty herein shall not limit any warranties made by manufacturers of component parts which extend to Buyer.

Claims for defects in material and workmanship shall be made in writing to Manufacturer within ten days of discovery of defect. Manufacturer may either send a service representative or have the product returned to its factory at Buyer's expense for inspection. Upon notification of defect, Manufacturer will issue a return goods authorization number to Buyer. The return goods authorization number must accompany the product returned. If judged by the Manufacturer to be defective in material or workmanship, the product will be replaced or repaired at the option of the Manufacturer, free from all charges except authorized transportation. Buyer shall be responsible for all maintenance services consisting of lubrication and cleaning of equipment, replacing expandable parts, making minor adjustments, and performing operating checks, all in accordance with procedures outlined in Manufacturer's maintenance literature.

THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES AND NO REPRESENTATIONS, GUARANTEES, OR WARRANTIES, EXPRESS OR IMPLIED, (INCLUDING BUT NOT LIMITED TO A WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE), ARE MADE BY THE MANUFACTURER IN CONNECTION WITH THE MANUFACTURE OR SALE OF ITS PRODUCTS. NO EMPLOYEE, DISTRIBUTOR, OR REPRESENTATIVE IS AUTHORIZED TO CHANGE THIS WARRANTY ON BEHALF OF MANUFACTURER. THE REMEDIES OF BUYER SET FORTH HEREIN ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER REMEDIES. THE LIABILITY OF MANUFACTURER WHETHER IN CONTRACT, TORT, UNDER ANY WARRANTY, OR OTHERWISE SHALL NOT EXTEND BEYOND ITS OBLIGATION TO REPAIR OR REPLACE, AT ITS OPTION ANY PRODUCT OR PART FOUND BY MANUFACTURER TO BE DEFECTIVE IN MATERIAL OR WORKMANSHIP. MANUFACTURER SHALL NOT BE LIABLE FOR COST OF INSTALLATION AND/OR REMOVAL OR BE RESPONSIBLE FOR DIRECT, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE.

**GENERAL RETURNS OF MERCHANDISE**

1. All returns must be pre-authorized
   A. Please call our parts department for an RGA number
   B. Please include RGA number on the outside of box
   C. Include any required paper work or special instructions
   D. Items returned without an RGA number will not be accepted
2. All returns are subject to a 20% restock charge.
3. Special items are non-returnable
   A. Non-stock parts
   B. Custom parts
   C. If you are unsure about a parts status when ordering, ask your McLaughlin representative if the item fits on of the above conditions.
4. Items must be returned within thirty days of original order date.
5. Items not returned within 30 days from the date of RGA is issued will not be accepted.
6. The item(s) must be in new condition. Used item(s) are not returnable.

# Maintenance Record

| DATE | SERVICE PERFORMED | BY |
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# Notes