



GT18B01 HYDRAULIC POWER UNIT

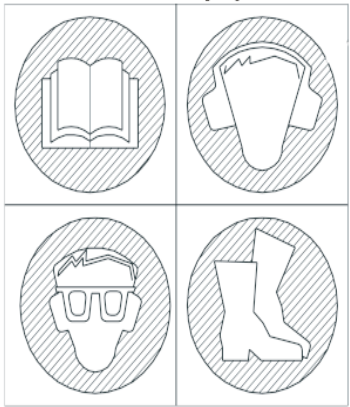
⚠ WARNING

SERIOUS INJURY OR DEATH
COULD RESULT FROM IM-
PROPER REPAIR OR SERVICE
OF THIS TOOL.

REPAIRS AND/OR SERVICE
TO THIS TOOL MUST ONLY
BE DONE BY AN AUTHORIZED
AND CERTIFIED DEALER.

⚠ WARNING

To avoid serious injury or death



SAFETY, OPERATION AND MAINTENANCE SERVICE MANUAL



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OPS/MAINT USA
65466 9/2004 Ver 1

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SERVICING THE STANLEY POWER UNIT: This manual contains safety, operation, and routine maintenance instructions. Stanley Hydraulic Tools recommends that servicing of hydraulic tools, other than routine maintenance, must be performed by an authorized and certified dealer. Please read the following warning.

⚠ WARNING

SERIOUS INJURY OR DEATH COULD RESULT FROM THE IMPROPER REPAIR OR SERVICE OF THIS TOOL.

REPAIRS AND / OR SERVICE TO THIS TOOL MUST ONLY BE DONE BY AN AUTHORIZED AND CERTIFIED DEALER.

For the nearest authorized and certified dealer, call Stanley Hydraulic Tools at the number listed on the back of this manual and ask for a Customer Service Representative.

CERTIFICATE OF CONFORMITY



I, the undersigned:

Burrows, James

Surname and First names

Hereby certify that the construction plant or equipment specified hereunder:

1. Manufacturer: Stanley Hydraulic Tools, 3810 Naef Road, Milwaukie, Oregon USA
2. Representative in the Union: Stanley Svenska AB, Box 9054, 400 92 Göteborg, SWEDEN
3. Category: Hydraulic Power Unit
4. Make: Stanley Hydraulic Tools
5. Type: GT18B01
6. Type serial number of equipment: ALL
7. Year of manufacture: 2004

Has been manufactured in conformity with the provisions of the Machinery Directive 98/37/EC

Harmonized standard applied: EN 3744

We also declare that it meets the specification of Noise Directive 2000/14/EC, measured in accordance to the Conformity Evaluation Method set out in Annex VI para. 5 and evaluated during production as in Annex VI para. 6, 2nd procedure.

8. Noise related value: 13.25 Kw/18 hp
9. Measured sound power on equipment representative of this type: 100 LwA
10. Guaranteed sound power level for this equipment: 104 LwA

11. Notified body for EC directive 2000/14/EC: 0404

SMP Svensk Maskinprovning AB
Fyrisborgsgatan 3
754 50 Uppsala, SWEDEN

12. Special Provisions: None

Issued at Stanley Hydraulic Tools, Milwaukie, Oregon USA
Date: 8/24/04

Signature

Position: Engineering Manager

P/N 65472 Rev.1, 8/24/04

SAFETY SYMBOLS

Safety symbols and signal words, as shown below, are used to emphasize all operator, maintenance and repair actions which, if not strictly followed, could result in a life-threatening situation, bodily injury or damage to equipment.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



This safety alert and signal word indicate an imminently hazardous situation which, if not avoided, will result in death or serious injury.



This safety alert and signal word indicate a potentially hazardous situation which, if not avoided, could result in death or serious injury.



This safety alert and signal word indicate a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



This signal word indicates a potentially hazardous situation which, if not avoided, may result in property damage.



This signal word indicates a situation which, if not avoided, will result in damage to the equipment.



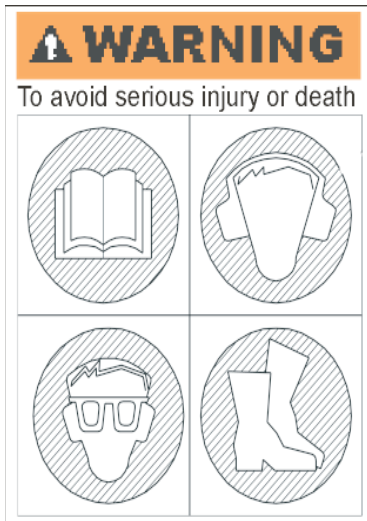
This signal word indicates a situation which, if not avoided, may result in damage to the equipment.

Always observe safety symbols. They are included for your safety and for the protection of the tool.

LOCAL SAFETY REGULATIONS

Enter any local safety regulations here. Keep these instructions in an area accessible to the operator and maintenance personnel.

SAFETY PRECAUTIONS



Tool operators and maintenance personnel must always comply with the safety precautions given in this manual and on the stickers and tags attached to the equipment.

These safety precautions are given for your safety. Review them carefully before operating the tool and before performing general maintenance or repairs.

Supervising personnel should develop additional precautions relating to the specific work area and local safety regulations. If so, place the added precautions in the space provided on page 5.

In addition to this manual, read and understand safety and operating instructions in the Engine Operation Manual furnished with the power unit.

The GT18B01 Hydraulic Power Unit will provide safe and dependable service if operated in accordance with the instructions given in this manual. Read and understand this manual and any stickers and tags attached to the Power Unit. Failure to do so could result in personal injury or equipment damage.

- Operator must start in a work area without bystanders. The operator must be familiar with all prohibited work areas such as excessive slopes and dangerous terrain conditions.
- Establish a training program for all operators to ensure safe operation.
- Do not operate the power unit unless thoroughly trained or under the supervision of an instructor.
- Always wear safety equipment such as goggles, ear, head protection, and safety shoes at all times when operating the power unit and a hydraulic tool.
- Do not inspect or clean the power unit while it is running. Accidental engagement of the unit can cause serious injury.
- Always use hoses and fittings rated at 2500 psi/172 bar with a 4 to 1 safety factor. Be sure all hose connections are tight.
- Be sure all hoses are connected for correct flow direction to and from the tool being used.
- Do not inspect hoses and fittings for leaks by using bare hands. "Pin-hole" leaks can penetrate the skin.
- NEVER OPERATE THE POWER UNIT IN A CLOSED SPACE. Inhalation of engine exhaust can be fatal.
- Do not operate a damaged, improperly adjusted power unit.
- Never wear loose clothing that can get entangled in the working parts of the power unit.
- Keep all parts of your body away from the working parts of the power unit.
- Keep clear of hot engine exhaust.
- Do not add fuel to the power unit while the power unit is running or is still hot.
- Do not operate the power unit if gasoline odor is present.
- Do not use flammable solvents around the power unit engine.
- Do not operate the power unit within 3.3 ft/1 m of buildings, obstructions or flammable objects.
- Do not reverse tool rotation direction by changing fluid flow direction.
- Allow power unit engine to cool before storing in an enclosed space.
- Always keep critical tool markings, such as labels and warning stickers legible.
- To avoid personal injury or equipment damage, all tool repair, maintenance and service must only be performed by authorized and properly trained personnel.

TOOL STICKERS & TAGS

62302
Power Unit Dash Decal

62300
Single Circuit



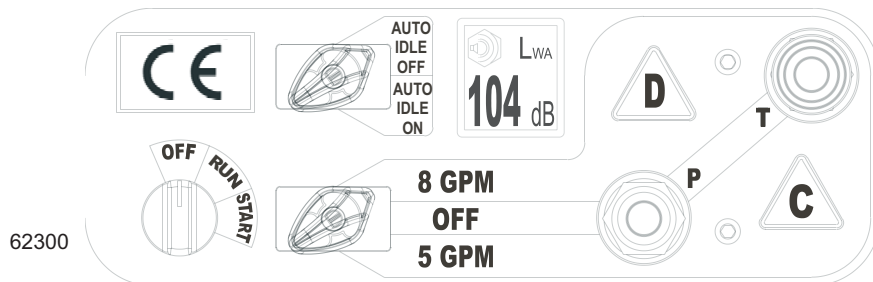
65458
Sound Power Decal



28322
CE Decal



62302



62300

HYDRAULIC HOSE REQUIREMENTS

HOSE TYPES

Hydraulic hose types authorized for use with Stanley Hydraulic Tools are as follows:

- 1 Certified non-conductive
- 2 Wire-braided (conductive)
- 3 Fabric-braided (not certified or labeled non-conductive)

Hose 1 listed above is the only hose authorized for use near electrical conductors.

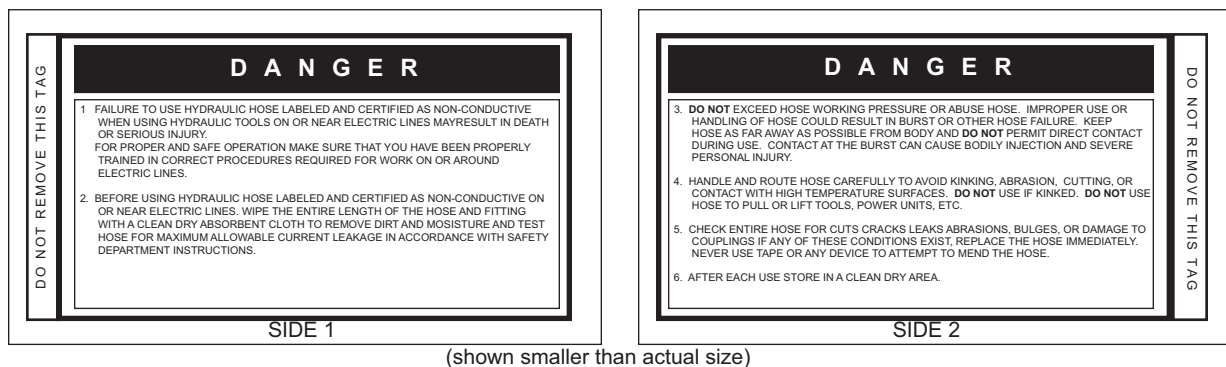
Hoses 2 and 3 listed above are **conductive** and **must never** be used near electrical conductors.

HOSE SAFETY TAGS

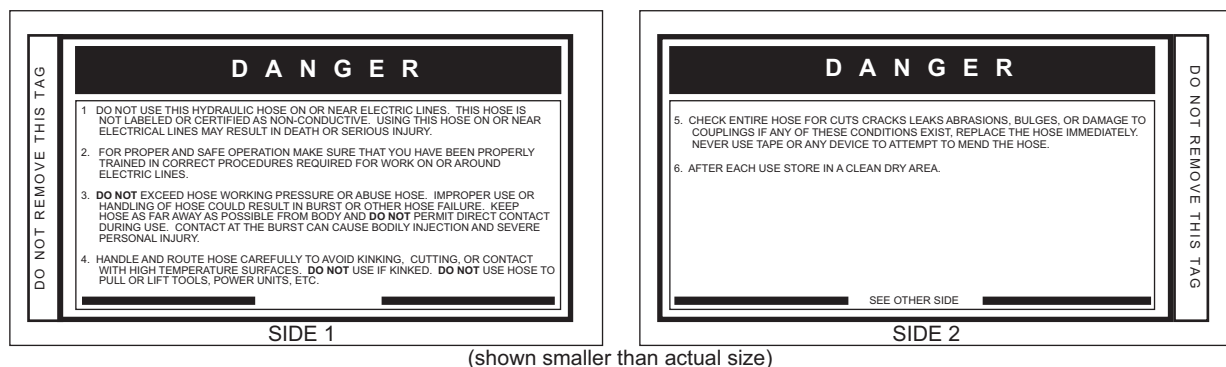
To help ensure your safety, the following DANGER tags are attached to all hose purchased from Stanley Hydraulic Tools. **DO NOT REMOVE THESE TAGS.**

If the information on a tag is illegible because of wear or damage, replace the tag immediately. A new tag may be obtained from your Stanley Distributor.

THE TAG SHOWN BELOW IS ATTACHED TO “CERTIFIED NON-CONDUCTIVE” HOSE



THE TAG SHOWN BELOW IS ATTACHED TO “CONDUCTIVE” HOSE.



HOSE PRESSURE RATING

The rated working pressure of the hydraulic hose **must be equal to or higher than** the relief valve setting on the hydraulic system.

HTMA REQUIREMENTS

TOOL CATEGORY



HYDRAULIC SYSTEM REQUIREMENTS

TYPE I

TYPEII

TYPEIII

TYPE RR

FLOW RATE	4-6 gpm (15-23 lpm)	7-9 gpm (26-34 lpm)	11-13 gpm (42-49 lpm)	9-10.5 gpm (34-40 lpm)
TOOL OPERATING PRESSURE (at the power supply outlet)	2000 psi (138 bar)	2000 psi (138 bar)	2000 psi (138 bar)	2000 psi (138 bar)
SYSTEM RELIEF VALVE SETTING (at the power supply outlet)	2100-2250 psi (145-155 bar)	2100-2250 psi (145-155 bar)	2100-2250 psi (145-155 bar)	2200-2300 psi (152-159 bar)
MAXIMUM BACK PRESSURE (at tool end of the return hose)	250 psi (17 bar)	250 psi (17 bar)	250 psi (17 bar)	250 psi (17 bar)
Measured at a max. fluid viscosity of: (at min. operating temperature)	400 ssu* (82 centistokes)	400 ssu* (82 centistokes)	400 ssu* (82 centistokes)	400 ssu* (82 centistokes)
TEMPERATURE Sufficient heat rejection capacity to limit max. fluid temperature to: (at max. expected ambient temperature)	140° F (60° C)	140° F (60° C)	140° F (60° C)	140° F (60° C)
Min. cooling capacity at a temperature difference of between ambient and fluid temps	3 hp (2.24 kW) 40° F (22° C)	5 hp (3.73 kW) 40° F (22° C)	7 hp (4.47 kW) 40° F (22° C)	6 hp (5.22 kW) 40° F (22° C)
NOTE: Do not operate the tool at oil temperatures above 140° F (60° C). Operation at higher temperatures can cause operator discomfort at the tool.				
FILTER Min. full-flow filtration Sized for flow of at least: (For cold temp. startup and max. dirt-holding capacity)	25 microns 30 gpm (114 lpm)	25 microns 30 gpm (114 lpm)	25 microns 30 gpm (114 lpm)	25 microns 30 gpm (114 lpm)
HYDRAULIC FLUID Petroleum based (premium grade, anti-wear, non-conductive) VISCOSITY (at min. and max. operating temps)	100-400 ssu*	100-400 ssu*	100-400 ssu* (20-82 centistokes)	100-400 ssu*
NOTE: When choosing hydraulic fluid, the expected oil temperature extremes that will be experienced in service determine the most suitable temperature viscosity characteristics. Hydraulic fluids with a viscosity index over 140 will meet the requirements over a wide range of operating temperatures.				

*SSU = Saybolt Seconds Universal

NOTE:

These are general hydraulic system requirements. See tool Specification page for tool specific requirements.

OPERATION

PREPARATION FOR USE

Do not operate the power unit until you have read the *engine* operating and maintenance instructions manual furnished with the unit.

1. ENGINE CRANKCASE OIL LEVEL

Always check the oil level before starting the engine. Make sure the oil level is at the FULL MARK on the dipstick. Do not overfill. Use detergent oil classified "For Service SE, SF, SG" as specified in the engine operating and maintenance manual. See engine manual for oil viscosity grade.

2. ENGINE FUEL LEVEL

Check the fuel level. If low, fill with un-leaded gasoline with a minimum of 85 octane.

3. HYDRAULIC FLUID

Check the dip stick in the hydraulic fluid reservoir for the proper fluid level. Use fluids meeting the following specifications.

Viscosity (Fluid Thickness)

U.S.	METRIC
50°F 450 SSU Maximum	10°C 95 C.S.
100°F 130-200 SSU	38°C 27-42 C.S.
140°F 85 SSU Minimum	60°C 16.5 C.S. Min

Pour Point -10°F/-23°C Minimum (for cold startup)

Viscosity Index (ASTM D-2220) 140 Minimum

Demulsibility (ASTM D-1401) 30 Minutes Maximum

Flash Point (ASTM D-92) 340°F/171°C Minimum

Rust Inhibition (ASTM D-665 A & B) Pass

Oxidation (ASTM D-943) 1000 Hours Minimum

Pump Wear Test (ASTM D-2882) 60 mg Maximum

The following fluids work well over a wide temperature range, allow moisture to settle out and resist biological growth that may occur in cool operating hydraulic circuits. These fluids are recommended by Stanley. Other fluids that meet or exceed the specifications of these fluids may also be used.

Chevron AW-MV-32
Exxon "Univis" J-26
Mobil D.T.E. 13
Gulf "Harmony" AW-HVI-150-32
Shell "Tellus" T-32
Texaco "Rando" HD-AZ
Union "Unax" AW-WR-32
Terresolve EnviroLogic 132

4. HYDRAULIC CONNECTIONS

The recommended hose length is 25 ft/8 m with a 1/2 inch/12.7 mm inside diameter. The hoses must have a working pressure rating of at least 2500 psi/175 bar. Each hose end must have male thread ends compatible with H.T.M.A. (HYDRAULIC TOOL MANUFACTURERS ASSOCIATION) quick disconnect fittings (NPT type threads). (See Figure 2.)



Figure 1. Panel Control Valve

Facing the panel control valve, the bottom male quick disconnect fitting is the PRESSURE FLUID OUT fitting. The top female quick disconnect fitting is the RETURN FLUID IN fitting.

QUICK DISCONNECT COUPLERS

H.T.M.A. approved quick disconnect couplings are installed to hydraulic hoses so that the direction of oil flow is always from the male to the female quick disconnect as shown in figure 2. Quick disconnect couplings and hose fittings are selected so that additional fittings such as reducer or adapter fittings are not required.

If adapter fittings are used, they must be approved steel hydraulic fittings meeting a minimum operating pressure rating of 2500 psi/172 bar. Do not use galvanized pipe fittings or black pipe fittings.

Use thread tape or pipe joint compound when installing quick disconnect couplings to hose or tool fittings. Follow the instructions furnished with the selected thread sealant.

OPERATION

DO NOT OVERTIGHTEN THE FITTINGS.

5. BATTERY

The supplied 12 Volt DC battery is a non-spillable, maintenance-free battery and is fully charged.

Make sure the battery cables are tight and charging circuit functions are operating properly.

NOTICE

Do not charge the battery with a standard automotive battery charger. This type of charger produces a charging amperage higher than 2 amps. Charging the battery at higher than 2 amps will damage the battery.

NOTICE

If the engine runs out of gas or dies during operation and the ignition switch is left in the ON or RUN position, this could drain the battery. Make sure the ignition switch is returned to the OFF position.

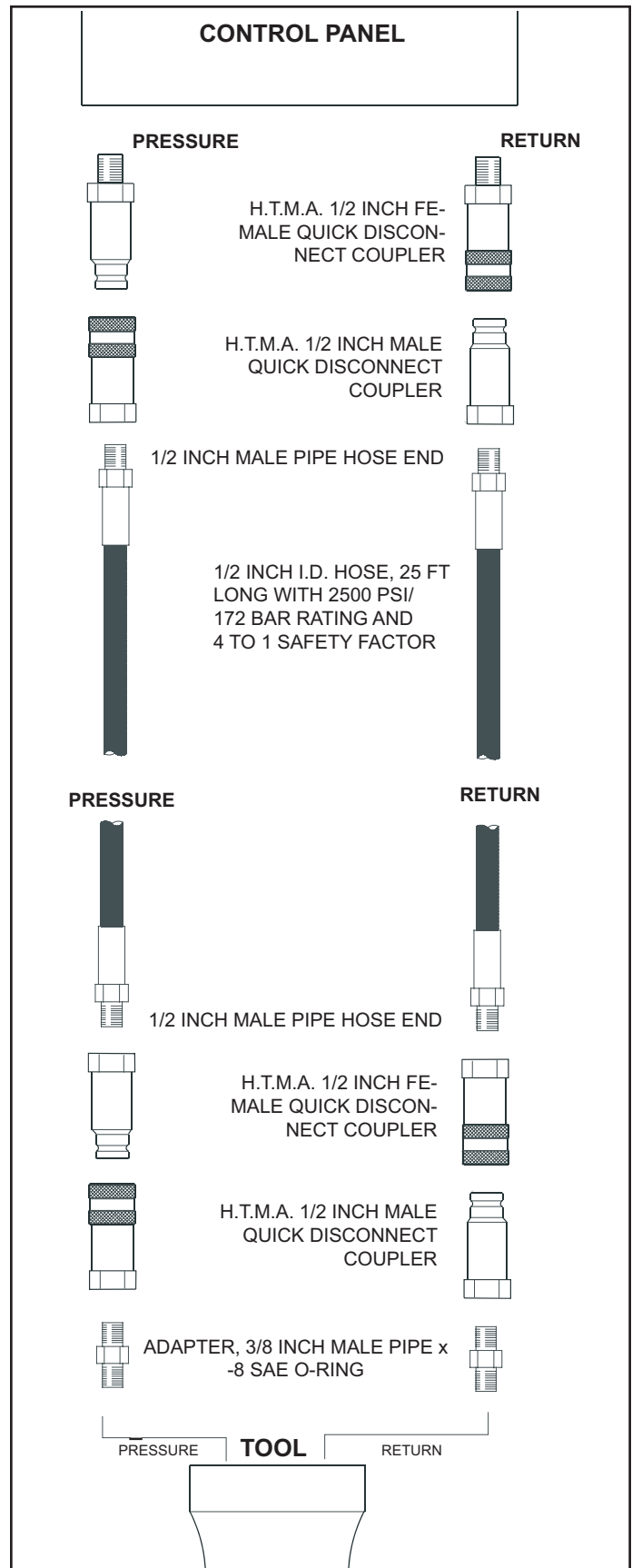


Figure 2. Hydraulic Connections

OPERATION

CONTROLS

This unit is equipped with an advanced proportional engine control system. It provides a means of controlling engine speed by adjusting the fuel control lever with an actuator. The Power Unit provides one circuit, with an oil flow of 5 gpm/19 lpm up to 2000 psi/140 bar or 8 gpm/30 lpm up to 2000 psi/140 bar with a factory-programmed electronic governed engine throttle.



Figure 3. Panel Control Valve

One hydraulic tool can be connected to the tool circuit. The circuit is activated by turning the flow control switch to either the 5 gpm/19 lpm or 8 gpm/30 lpm setting.

THROTTLE CONTROL

The throttle control permits the operator to select one of 2 operating modes after the engine has warmed up. When starting the engine, make sure the flow selector switch is in the OFF position. The throttle control switch can be set in either the AUTO-IDLE-OFF or AUTO-IDLE-ON positions.

AUTO-ON

When the throttle control switch is in the "AUTO-ON" position, the oil flow is regulated automatically when the trigger on the tool is activated. When the tool is not being used the engine will return to idle automatically, after a 10 second delay.

This setting will produce 5 gpm/19 lpm or 8 gpm/30 lpm depending on which position the operator has selected with the flow selector switch.

AUTO-OFF

When the throttle control switch is in the "AUTO-OFF" position, the engine speed is held to maintain 5 gpm/19 lpm or 8 gpm/30 lpm depending on which position the operator has selected with the flow selector switch. When a tool is not being used the engine will not return to idle until either the flow selector switch is turned to the OFF position or the throttle control switch is turned to AUTO-ON.

Note:

It may be necessary to reset the Controller.

At times it may be necessary to reset the controller. This could happen if a fault occurs in the controller. For example, excessive engine speed. If a fault does occur the power unit will return to an idle and the operator will have no control of the unit. To reset the controller, simply turn off the power unit and restart it.

STARTUP

Before starting the engine make sure the flow selector switch is in the OFF position.

Note:

The power unit will not start if the flow control switch is not in the "OFF" position.

Pull choke knob out and move the Throttle Control Switch to the auto-idle-off or the auto-idle-on position, whichever mode of operation the operator prefers. Ensure the flow selector switch is in the OFF position.

Turn the Ignition Switch to the START position. After the engine starts, release the switch.

Gradually push in the choke knob as the engine begins to idle smoothly.

Allow the engine to warm up.

Connect hoses and the tool as described on pages 9 and 10.

FOR 5 GPM OPERATION

For 5 gpm operation, select mode of operation with the Throttle Control switch, either auto-idle-on or the auto-idle-off position. Move the flow selector switch to the 5 gpm position.

When finished operating the tool, move the flow selector switch to the OFF position.

FOR 8 GPM OPERATION

For 8 gpm operation, select mode of operation with the Throttle Control Switch, either auto-idle-on or the auto-idle-off position. Move the flow selector switch to the 8 gpm position.

When finished operating the tool, move the flow selector switch to the OFF position.

OPERATION

COLD WEATHER STARTUP

1. Use the procedures described under "STARTUP" and then follow the procedure below.
2. Hydraulic fluids are thicker in cold weather. Therefore, it is recommended that the engine be run at low idle long enough to bring the fluid temperature up to a minimum of 50°F/10°C.
3. If the tools and tool hoses are cold, it is recommended to allow hydraulic fluid to circulate through the tool hoses until warm before using the tool.

SHUTDOWN

1. Ensure the flow selector switch in the OFF position (center position).
2. Unless already at idle the power unit should return to idle. This may take a few seconds for the unit to react due to a built-in program delay.
3. Allow the engine to idle for approximately one minute and move the Ignition Switch to the OFF position.

ROUTINE MAINTENANCE

ENGINE MAINTENANCE

Follow the maintenance schedule and general maintenance instructions in the engine maintenance and operation manual furnished with the power unit.

HYDRAULIC SYSTEM MAINTENANCE

- Check hydraulic fluid level daily. Add fluid per specifications in this manual. (See "HYDRAULIC FLUID" under the section titled "OPERATING INSTRUCTIONS").
- Remove condensed moisture from the hydraulic fluid by pumping the hydraulic fluid into a 5 gal/20 l container through the pressure hose. Make sure the engine is at idle when performing this procedure. When the hydraulic reservoir is empty turn the engine off immediately.
- Allow the fluid to sit long enough for the water to settle to the bottom of the container. Slowly pour the fluid back into the hydraulic tank, avoiding the water at the bottom of the container.
- Each day, check hydraulic lines and fittings for leaks, kinks, etc. Do not use your hand to perform this check.
- Change the hydraulic filter element every 200 hours of operation. Change more often if cold, moist or dusty conditions exist.
- Check oil cooler for debris. Remove debris with air pressure.

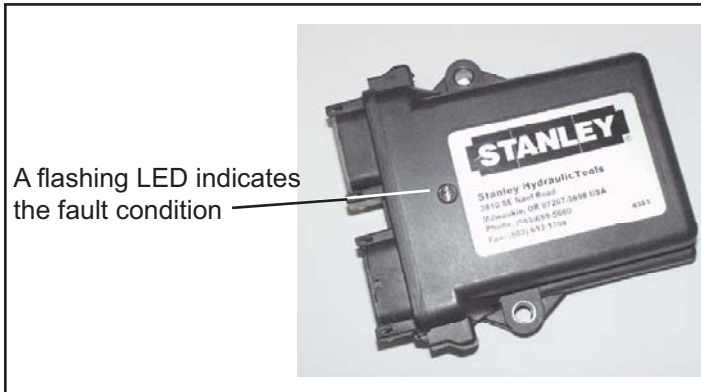
STORAGE

- Clean the unit thoroughly before storage. Do not use water pressure.
- Always store the unit in a clean and dry facility.
- If the unit will be stored for a prolonged period (over 30 days), add a fuel additive to the fuel tank to prevent the fuel from gumming. Run engine for a short period to circulate the additive.
- Replace crankcase oil with new oil.
- Remove spark plugs and pour approximately 1 ounce (30 ml) of engine oil into each cylinder. Replace spark plugs and crank the engine slowly to distribute the oil.
- Check hydraulic reservoir for water. If water is found, change the oil and circulate it through the tool hose and tool. (See "HYDRAULIC SYSTEM MAINTENANCE" earlier in this section).
- Disconnect tool hoses.

PROGRAMMABLE CONTROLLER

The Stanley programmable controller is an electronic engine governor that provides a means of controlling and limiting engine speed by adjusting the fuel control lever with a proportional actuator.

The controller is software programmable and has no manual adjustments.



CALIBRATION

ACT is a PC (personal computer) based software calibration and monitoring tool. ACT is designed specifically for use with engines equipped with the Stanley controller. Stanley Hydraulic Tools recommends that an authorized and certified dealer perform calibration of this unit.

Once the controller has been programmed, ACT may be disconnected. The Stanley controller will continue to operate normally with ACT either connected or disconnected.

TROUBLESHOOTING GUIDELINES

Please follow the checklist below to troubleshoot your Stanley controller.

1. Check battery voltage for stability and correct value. The LED will turn on for one second when the controller 4500 is first powered up.
2. Check the actuator linkage for binding and backlash.

CHECKING PERFORMANCE CONTROL™ (ELECTRONIC GOVERNOR-STATIC CHECK)

To determine whether a governor problem is being caused by the actuator or the control module, perform the following static check exactly in order shown.

A pair of jumper wires and a known good 12-volt battery is required.

1. Disconnect red and green wires from the control module to actuator.

2. Attach jumper wires from battery to RED and GREEN wires to actuator.

- a. Attach 12 volt + (positive) to RED wire.
- b. Attach 12 volt – (negative) to GREEN wire.

3. Actuator should move throttle lever to wide open position.

- a. If actuator does not move it is defective. (Replace).
- b. If actuator moves throttle to wide-open position, the module is defective. (Replace).

FAULT CODES

The Stanley controller is capable of identifying certain fault conditions and alerting the user to them. A flashing LED indicates the fault conditions. The current fault code list is shown on the following page. Please note the following:

1. When power is first applied to the controller, the LED will flash just once for one second to indicate that the LED is working.
2. If there are multiple faults, the LED will flash them all in sequence. Count the flash codes to determine the fault conditions or connect the Calibration Tool to observe the fault conditions. (Use the "Display Faults" option under the Monitor Menu.)
3. If there are no faults, the LED will flash once at reset and from then on indicate the detection of engine speed. A continuous ON LED indicates that a valid engine speed is being sensed.
4. The controller will attempt to shut down for some faults and will not permit starting after reset with faults 1, 5 and 8.

FAULT CODES

FLASH CODE	FAULT	ENGINE SHUTDOWN	CORRECTIVE ACTION
1	APECS unit not calibrated	yes	Have engine serviced by an Authorized Stanley Dealer.
2	Engine speed excessive	yes	Have engine serviced by an Authorized Stanley Dealer.
3	Engine speed unusually low	yes	Have engine serviced by an Authorized Stanley Dealer.
4	Engine shutdown due to engine protection input	yes	Have engine serviced by an Authorized Stanley Dealer.
5	Factory settings lost	yes	Have engine serviced by an Authorized Stanley Dealer.
6	External pot out-of-range	no	Have engine serviced by an Authorized Stanley Dealer.
7	Accelerator position / idle switch conflict	no	Have engine serviced by an Authorized Stanley Dealer.
8	Controller unit failed	yes	Have engine serviced by an Authorized Stanley Dealer.
9	Limiting excessive actuator current	no	Have engine serviced by an Authorized Stanley Dealer.
10	Engine speed input signal missing	no	(Active only in Auto crank mode). Check speed sensor wiring. Check starter motor.
11	Auto crank unable to start engine	no	Check fuel.
12	Auxiliary output is shorted	no	Check the lamp or relay hooked to the output. If fault is still present, have engine serviced by an authorized Stanley Dealer.
13	Auxiliary output #2 is shorted	no	Check the lamp or relay hooked to the output. If fault is still present, have engine serviced by an authorized Stanley dealer.
14	Actuator disconnected or open circuit	no	Check actuator wiring and actuator resistance. Resistance should be less than 10 ohms.

TESTING & TROUBLESHOOTING

GENERAL

Tests and adjustments should be performed periodically to ensure the power unit is operating at maximum efficiency. Stanley Circuit Tester (part number 04182) is recommended. This tester can be used to isolate problems in both the engine and hydraulic system prior to any power unit disassembly.

TESTING THE HYDRAULIC CIRCUIT

The following tests can be performed to ensure that the hydraulic pump is supplying the correct flow and pressure and that the system relief valve is operating properly.

During these tests, make sure the engine is warm and operating smoothly. If test results are not as specified, refer to the troubleshooting table in this section for possible causes.

TESTING THE 5 GPM HTMA TYPE 1 CIRCUIT OR THE 8 GPM TYPE II CIRCUIT

To test the circuit, proceed as follows:

1. Set the flow selector switch to the OFF (center) position.
2. Set the throttle control switch to AUTO-OFF position.
3. Connect the Stanley Circuit Tester across two hose ends (where the tool would normally be connected).
4. Fully open the tester restrictor valve (counterclockwise).
5. Start the engine and allow it to run until warm.
6. Switch the flow selector switch to 5 or 8 gpm depending on which flow you are testing.
7. With the engine at the programmed speed, the test flow gauge should read 4-6 gpm/15-23 lpm or 7-9 gpm/26.5-34 lpm.
8. Slowly turn the restrictor valve clockwise while watching the pressure gauge. The flow rate should stay at 4-6 gpm/15-23 lpm or 7-9 gpm/26.5-34 lpm as the pressure gauge reaches 2100-2200 psi/148-155 bar.
9. At 2100-2200 psi/148-155 bar, the relief valve should begin to open. The pressure at which the relief valve just

begins to open is commonly referred to as the "cracking pressure". At the "cracking pressure," the flow rate should start to drop because the relief valve is allowing fluid to bypass to the hydraulic reservoir. The "cracking pressure" is preset at the factory and if it is not within the above range, the relief valve must be re-set as follows:

- a. The relief valve is located on the right side of the unit just behind the dash panel. It protrudes out from the manifold assembly. Use an open end or box end wrench to loosen the nut on the relief valve.
- b. Use an Allen wrench to adjust the relief valve. Turn clockwise to raise the pressure and counterclockwise to reduce the pressure.

TROUBLESHOOTING

PROBLEM	CAUSE	REMEDY
Engine will not start.	Flow selector switch not in the OFF position.	Make sure the flow selector switch is in the OFF position when starting.
	Battery not connected.	Attach battery cables, check wires.
	Weak battery.	Test battery, charge or replace.
	No fuel.	Add Fuel.
	Fuel filter plugged.	Replace fuel filter.
	Defective spark plugs.	Remove plugs, check gap, clean or replace.
Fluid blowing out of fluid reservoir vent.	Hydraulic tank overfilled.	Correct the fluid level.
	Pump suction leak.	Check suction connections. Tighten if necessary.
Hydraulic tool won't operate.	Flow selector switch not switched ON.	Check that the flow selector switch is set to 5 or 8 gpm.
	Incorrect hose connection to tool.	Make sure the tool hose circuit goes from left (pressure) fitting to tool and back to the right fitting (return). Fluid always flows from the male to female fittings.
	Quick disconnect fittings defective.	Detach from hose, connect set together and check for free flow.
	Hydraulic fluid level low.	Check for correct fluid level. Fill using the recommended fluid.
	Pump coupling defective.	With the engine not running. Check the coupling between the pump and engine that it is engaged and is not damaged. Caution: Keep hands clear of rotating objects.
	Relief valve stuck open.	Adjust or replace valve.
	Suction hose kinked.	Make sure suction hose from fluid reservoir to pump inlet has a smooth curve.
	Solenoid not working.	Check solenoid operation and electrical connections.
	Tool is defective.	Refer to tool manual.

SPECIFICATIONS

Engine: 18 hp Briggs

Capacity One 5 gpm/19 lpm Circuit or One 8 gpm/30 lpm Circuit

Length:36 in. / 91.4 cm

Width:23 in. / 58.4 cm

Height:29.5 in. / 74.9cm

Weight (Wet): Single Circuit Briggs330 lbs / 149.6 kg



Fuel Tank Capacity: 7 gal. / 26.5 ltr

Estimated Gas Consumption Per Hour 1.3 gal / 4 ltr

Hydraulic Reservoir Capacity:3 gal. / 11 ltr

Relief Valve "crack" setting 2100 psi / 145 bar

Full relief setting 2500 psi / 172 bar

 OR  HTMA Category "C" (20 lpm @ 138 bar) or "D" (30 lpm @ 138 bar)

Sound Power Level104 dBA

Vibration Level N/A

SERVICE

GENERAL

Service instructions in this section are limited to parts and components other than the engine and hydraulic pump. Other major components should be serviced by representatives of the respective manufacturers as follows:

ENGINE -

Briggs and Stratton Vanguard OHV
Model-356447-0115-E1

The Briggs engine should be serviced only by *Briggs & Stratton Industrial and Construction Equipment Dealers*. *Lawn and Garden Dealers* may not be able to offer warranty work for this application. It is recommended to contact a *Central Sales & Service Distributor* for the nearest authorized Briggs and Stratton representative or contact Briggs and Stratton at 1-800-233-3723.
www.briggsandstratton.com

DASH PANEL & MANIFOLD ASSEMBLY

(See Figure 2 and 3)

If it is necessary to remove the manifold assembly, the manifold (7, fig. 2) has no internal parts and it would be a rare case that the manifold would need replacing. The parts attached to the manifold are as follows Directional valve (27, fig. 2), Pressure switch (26, fig. 2), Relief valve (24, fig. 2), Coil (29, fig. 2) and attached hoses, couplers and plugs.

NOTE:

Disconnect the battery terminals before servicing the manifold assembly or any dash panel components.

MANIFOLD ASSEMBLY REMOVAL

1. Remove hose clamp (3, fig. 3) from the hose near the manifold assembly, then remove the hose (10, fig. 3).
2. Remove hose (7, fig. 3) from the manifold assembly, again hydraulic oil will drain from this hose.

⚠ CAUTION

Hydraulic oil will drain from this hose, take steps to clamp off hose or drain the hydraulic tank.

3. Disconnect the wiring harness plugs from the pressure switch (26, fig. 2) and from the directional valve (27, fig. 2).
4. While holding the manifold assembly in one hand, remove the 2 capscrews (6, fig. 2) and remove the manifold out through the back of the dash panel.
5. Reinstall in the reverse order.

RELIEF VALVE (See Figure 2, Item 24).

DESCRIPTION: The relief valve allows oil to by-pass to the reservoir when the system pressure reaches a pre-set setting. The relief valve is set to by-pass at a "cracking" pressure of 2100-2300 psi/145-158 bar.

While adjustments can be made to the relief setting (see TESTING and TROUBLESHOOTING), the parts of the relief valve are not serviceable.

To adjust or remove the relief valve, follow the steps under "Testing the Hydraulic Circuit" in the TESTING and TROUBLE SHOOTING section of this manual.

DASH PANEL SWITCH REMOVAL

1. Disconnect the battery.
2. Disconnect the wire harness plugs from the back of the switches before removing them.
3. To remove the switches from the dash panel, push in on the sides of the switch from the inside or back of the dash panel. You will find four plastic narrow strips that must be pushed in while the switch is being pulled out from the front of the dash panel.
4. Reinstall in reverse order.

ENGINE & RELATED COMPONENTS

ENGINE

Most engine servicing can be performed without removing the engine. Consult with your Briggs and Stratton Dealer regarding engine repairs.

1. To remove the engine, follow steps 1 through 4 under "Fuel Tank Removal".

SERVICE

2. Disconnect the wiring harness (See Figure 4, Wiring Diagrams for the correct connections).
3. Follow steps 1 through 4 under "Manifold Assembly Removal".
4. Remove the RED wire attached to the starter solenoid and the BLACK wire to ground.
5. Follow steps 1 through 3 under "Choke Cable Assembly Removal".
6. Follow steps 1 through 6 under "Hydraulic Tank, Cooler and Filter Removal".
7. Follow steps 1 through 5 under "Blower Housing, Blower Hub & Bushing Removal".

From this point there are two options, to remove the engine with the pump and pump mount attached

A) Lift straight up after removing the frame weldment.

or

B) Remove the wheel from one side of the unit and slide the engine out the side of the unit.

⚠ CAUTION

Make sure the frame base is on blocks or supported before removing the wheel.

OPTION A

Remove the frame weldment by removing the two hex flange bolts (17, fig. 2) and two hex flange bolts (47, fig. 1).

⚠ CAUTION

Make sure the frame base is on blocks or supported before removing the wheel.

Remove the two capscrews (21, fig. 1) that hold the cooler guard (20, fig. 2). Lift off the frame weldment.

OPTION B

Block up the unit to keep it from tipping over.

Remove the handle bumper (42, fig. 1 Briggs) from one end of the axle.

Remove the retaining ring and washer (48, 49, fig. 1) and remove the wheel. The engine and hydraulic tank can now be removed from the side of the unit.

ELECTRICAL

Refer to the wiring diagram in this manual for the correct connections, wire sizes and colors.

IMPORTANT

Never change any wiring connections. If wires are not connected correctly, components could be damaged.

BLOWER HOUSING, BLOWER HUB AND BUSHING REMOVAL (SEE FIGURE 1)

1. Follow steps 1 through 6 of the Hydraulic Tank, Cooler and Filter Assembly removal procedure.
2. Follow steps 1 through 4 of the Blower Wheel removal procedure.
3. Remove one hex flange bolt (30, fig. 1 Briggs), from the bottom of the blower housing.
4. The blower housing can now be removed.
5. To remove the blower hub and bushing, remove the 3 capscrews (14, fig. 1).

NOTE:

This hub as well as the bushing each have 6 holes (3 drilled and three tapped).

Reinstall the 3 capscrews back into the 3 tapped holes in the blower hub. Screw all 3 down until they touch the bushing. Screw in one at a time in rotation until the tapered bushing releases from the blower hub. If installed, loosen the set-screw in the bushing flange, then slide both from the shaft.

6. Reverse the above procedure to reinstall the blower housing, blower hub and bushing.

⚠ CAUTION

Be sure the tapered cone surfaces of the bushing and blower hub are clean and free of anti-seize lubricants.

SERVICE

Assemble the bushing and blower hub with the bolts inserted (but not tightened) through the drilled holes in the blower hub and into the tapped holes in the bushing.

With the key in the shaft, slide assembly into position on the shaft and tighten the setscrew over the key (if equipped). Tighten the 3 capscrews (14, fig. 1) alternately and evenly to 60-inch pounds. There should be a gap between the face of the bushing and hub.

BLOWER WHEEL REMOVAL

(see figure 1)

1. To remove the blower wheel, first follow steps 2 through 5 of the Hydraulic Tank Removal.

Note:

Do not remove the hose at the bottom of the hydraulic tank (11, fig. 3).

It is not necessary to drain the hydraulic tank when only removing the blower wheel.

2. Remove the front grille (22, fig. 1) by removing the 4 button-head screws (19, fig. 1).

3. Remove the 4 hex flange bolts (28, fig. 1) that hold the blower wheel on.

4. The blower wheel can now be removed by lifting it out through the top opening of the blower housing.

5. Replace the blower wheel by reversing the above procedures.

CHOKE CABLE ASSEMBLY REMOVAL

(see figure 1 & 2)

1. The choke cable assembly can be removed by removing 1 screw (57, fig. 1 Briggs).

2. Disconnect cable from carburetor linkage.

3. Remove hex nut from back of dash panel and pull choke cable assembly out through the hole in dash panel

4. Reinstall in reverse order.

CONTROLLER REMOVAL (see figure 1)

Refer to the wiring diagram in this manual for the correct connections.

IMPORTANT

Never change any wiring connections. If wires are not connected correctly, components could be damaged.

1. Unplug the 2 12-pin Deutsch connectors attached to the controller.

2. Remove the 2 hex washer head screws (56, fig. 1).

Note:

The controller is software programmable and has no manual adjustments. The controller must be loaded with the proper program (Briggs) to operate the unit correctly. Without the controller programmed, the power unit will not start. Refer to the "Programmable Controller" section in this manual.

FRAME ASSY & RELATED COMPONENTS

FUEL TANK (see figure 1)

If the fuel tank contains fuel, take extreme precautions to remove the fuel into approved containers. Do not attempt to service the fuel tank in unventilated areas or in areas containing electric or natural gas appliances which may start-up unexpectedly or in shop areas where grinding or welding is present, all of which can ignite the fuel vapors.

1. Remove both battery connections and remove the battery.

2. Remove the fuel line from the tank by pulling it off the fuel pump end.

3. Remove the 4 hex flange bolts (30, fig. 1) under the fuel tank that hold it to the frame base weldment.

4. The tank can now be removed.

Note:

The positive and negative battery cables must be fed through the fuel tank as it is removed.

5. Thoroughly clean the tank and replace the fuel filter.

6. Use the reverse procedure to reinstall the fuel tank.

SERVICE

HYDRAULIC TANK, COOLER & FILTER ASSEMBLY (see figure 1, 2 & 3)

1. First remove the hydraulic fluid from the tank by either pumping it out with a portable drill pump or draining it into a container.
2. Remove the cooler guard (20, fig. 2) by removing the 2 hex flange bolts (9, fig. 2) and 2 capscrews (21, fig. 1). Remove the remaining 2 capscrews on the back side of the cooler.
3. Remove the hose clamps (3, fig. 3) from the cooler and the button of the hydraulic tank.

Note:

It is not necessary to remove the hose at the bottom of the hydraulic tank if you are only removing the cooler or filter.

Pull the hoses (10, 11, fig. 3) off the elbow (9, 12, fig. 3).

⚠ CAUTION

Oil will drain from cooler and hoses when removed.

4. Remove the dip stick from the filter assembly and remove the 2 hex nuts that hold on the filter assembly. Do not remove the filter assembly at this time.
5. The cooler and filter assembly can now be removed together as a unit.
6. To remove the hydraulic tank, remove the 4 hex flange bolts (30, fig. 1). The hydraulic tank can now be removed.
7. With the cooler and filter assembly removed, the cooler and filter assembly can be separated by removing the threaded union (18, fig. 1).
8. The cooler or filter assembly can now be replaced if necessary.

Note:

Check the under-side of the cooler for debris and clean if necessary.

HYDRAULIC PUMP, COUPLING AND PUMP MOUNT (see figure 1)

1. Drain the hydraulic tank.
2. Follow steps 1 through 4 of the fuel tank removal procedures.
3. Remove the inlet and outlet hoses from the hydraulic pump.

⚠ CAUTION

Hydraulic oil will drain out from both the pump and hoses when removed.

4. Remove the 2 capscrews (7, fig. 1). Pull the hydraulic pump out from pump mount.

Note:

Part of the coupling (5, fig. 1 & 1A) is attached to the shaft of the hydraulic pump and will come off with the pump. Loosen the setscrew on the coupling to remove it from the pump shaft.

5. To remove remaining half of the coupling from the engine shaft, loosen the setscrew on the coupling and slide off the shaft.
6. Remove 2 screws from the top of the muffler that hold on the heat shield.
7. To remove the pump mount (51, fig 1), remove the 2 capscrews (24, fig. 1) and remove the nuts (54, fig. 1).
8. Reverse the above procedure to reinstall the pump mount, coupling and hydraulic pump.

FIGURE 1. BRIGGS ENGINE ASSEMBLY

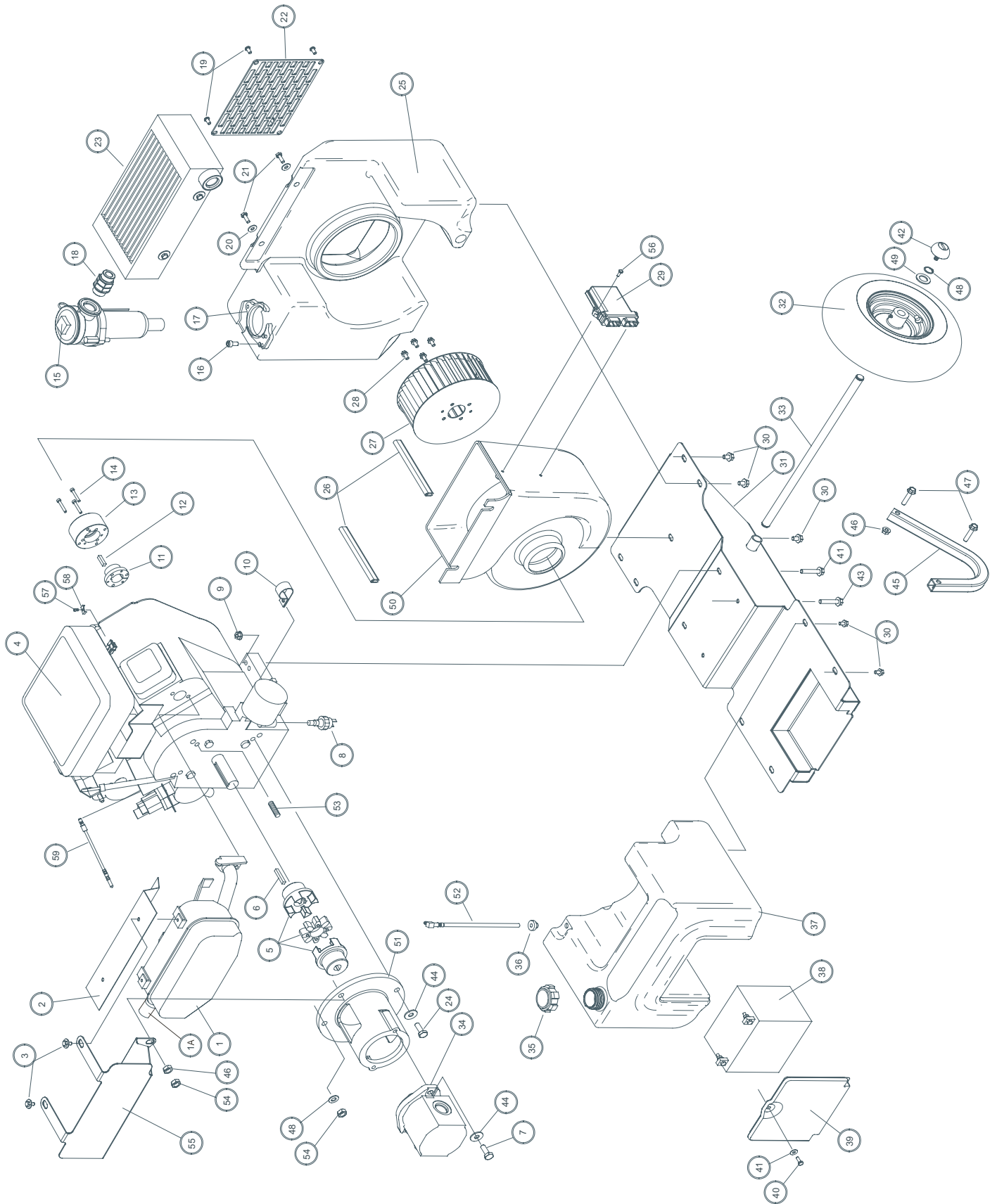
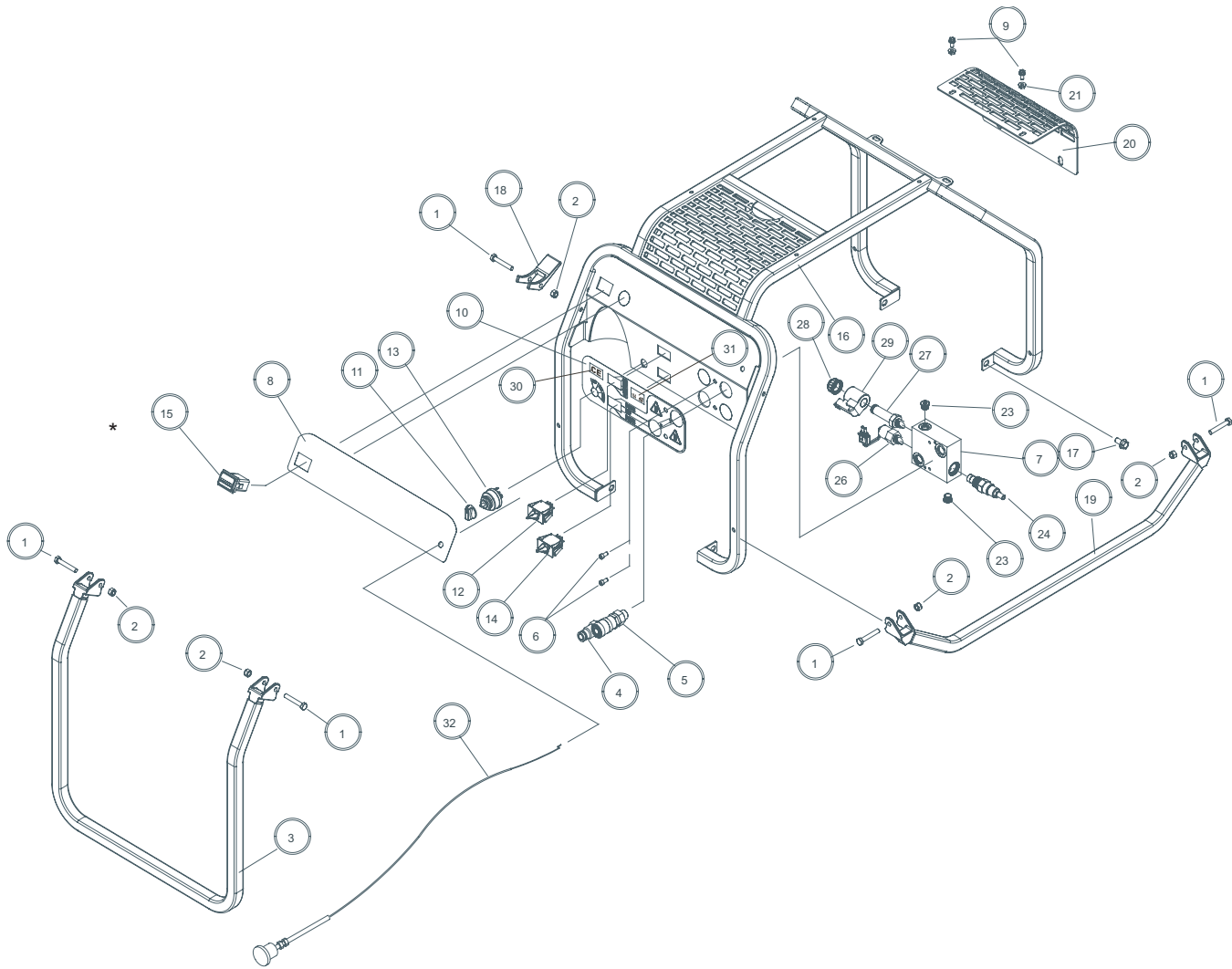


FIGURE 1. BRIGGS ENGINE PARTS LIST

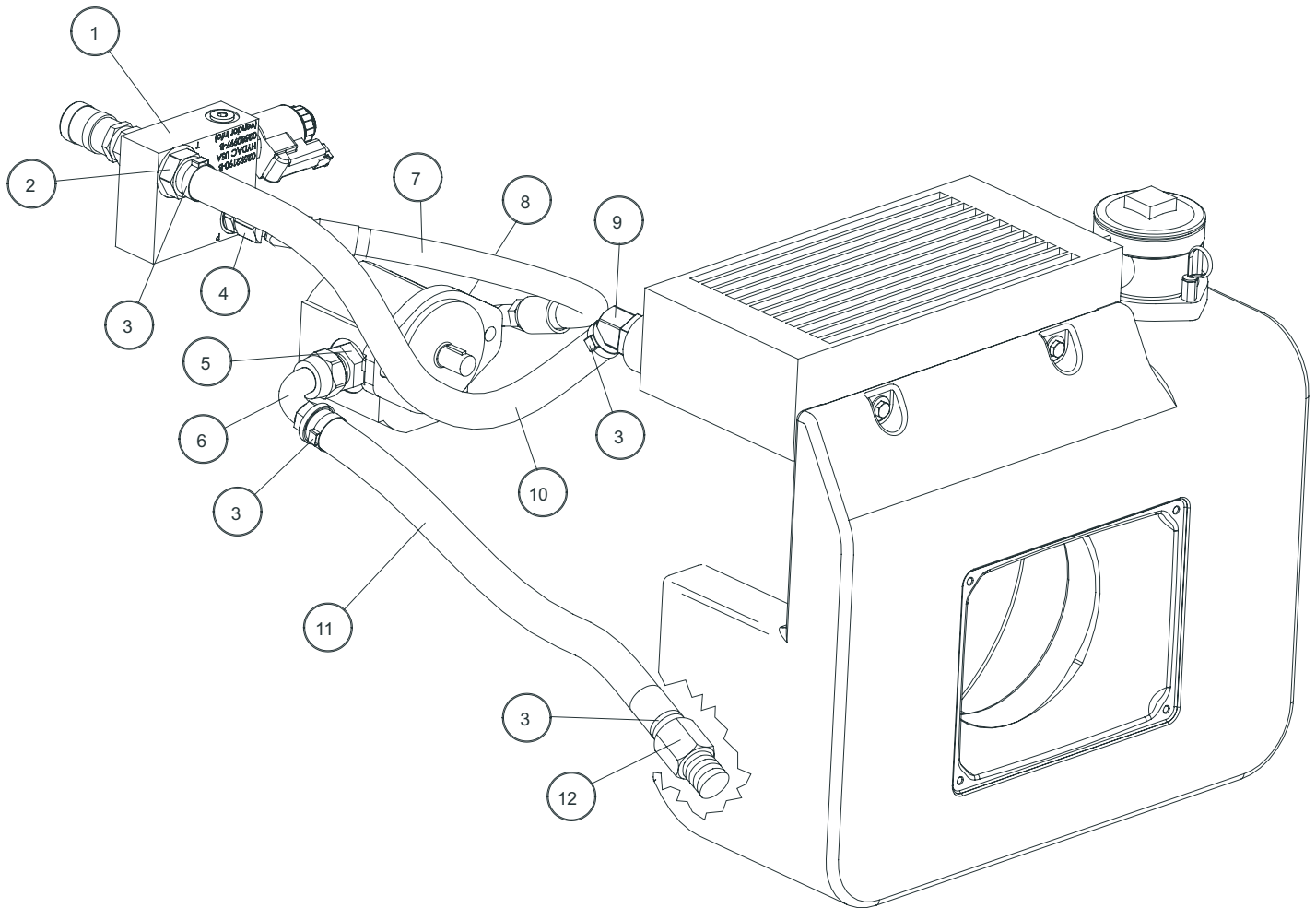
ITEM	P/N	QTY	DESCRIPTION	ITEM	P/N	QTY	DESCRIPTION
1	36150	1	Muffler	29	65467	1	Engine Controller
1A	65456	1	Spark Arrester	30	40433	9	Hex Flange Bolt 5/16-18 x 1/2
2	36151	1	Heat Shield	31	58897	1	Frame Base Weldment
3	36152	2	Screw, Hex Washer	32	58918	2	Wheel & Tire
4	59007	1	Briggs Engine	33	58917	1	Axle
5	56656	1	Coupling	34	04134	1	Pump, Single
6	07819	1	Square Key	35	07810	1	Fuel Cap
7	07860	2	Capscrew, 3/8-16 x 1-1/4	36	60920	1	Grommet
8	31765	1	Pressure Switch	37	59078	1	Fuel Tank
9	12787	4	Flange Nut	38	04303	1	Battery
10	24287	1	Clamp	39	60921	1	Battery Cover
11	59076	1	Bushing	40	15476	1	Capscrew, 1/4-20 x 3/4
12	20990	1	Key	41	65058	1	Hex Flange Bolt
13	59103	1	Blower Hub	42	21714	2	Handle Bumper
14	00111	3	Capscrew	43	58942	3	Hex Flange Bolt, 5/16 x 1-3/4
15	40080	1	Filter Assy	44	01459	4	Lockwasher, 3/8
16	43687	1	Capscrew	45	58975	2	Foot
17	64937	1	Grip Plate	46	18893	4	Flang Nut, 3/8-16
18	51292	1	Std Thread Union	47	58976	4	Hex Flange Bolt, 3/8-16
19	17821	4	Button Head HS	48	31240	2	Retaining Ring
20	60945	2	Washer, 1/4 in. ID	49	21318	2	Washer, 3/4
21	15476	2	Capscrew, 1/2 -20 UNC	50	59083	1	Blower Housing
22	59080	1	Front Grille	51	56655	1	Pump Mount
23	59091	1	Cooler	52	60919	1	Fuel Elbow
24	07860	2	Capscrew, 3/8	53	62385	2	Stud
25	59077	1	Hydraulic Tank	54	371503	1	Nut
26	62296	2	Weather Strip	55	62324	1	Heat Shield
27	62303	1	Blower Wheel	56	62292	2	Hex Washer Head Screws
28	59074	4	Hex Flange Bolt, 1/4 -20	57	64991	1	Screw
				58	56709	1	Cable Clamp
				59	65042	1	Rectifier Wire

FIGURE 2. FRAME PARTS



ITEM	P/N	QTY	DESCRIPTION	ITEM	P/N	QTY	DESCRIPTION
1	370502	7	Capscrew, 5/16 in. -18 UNC	28	---	1	Cap (Included with Item 27)
2	03906	7	Nylock Nut, 5/16 in. -18 UNC	29	60958	1	Coil
3	62270	1	Handle, Rear Lift	30	28322	1	CE Decal
4	58857	1	Coupler, Male 3/8 in., -8 SAE	31	65458	1	Sound Power Decal
5	58856	1	Coupler, Female 3/8 in., -8 SAE	32	62298	1	Choke Cable Assy
6	60962	2	Capscrew, 1/4 in. -20				
7	59130	1	Manifold Assy, Single Circuit				
8		1	Dash Decal				
9	59074	6	Hex Flange Bolt, 1/4 in. -20				
10		1	Decal, Single Circuit				
11	60963	1	Knob				
12	60955	1	2-Way Switch				
13	60954	1	Rotary Switch				
14	60956	1	3-Way Switch				
15	60946	1	Hour Meter				
16	62272	1	Frame Weldment				
17	23530	2	Hex Flange Bolt, 3/8 in. -16				
18	58916	1	Handle Lock				
19	62271	2	Lift Handle				
20	59079	1	Cooler Guard				
21	59095	2	Flange Nut, 1/4 in. -20				
22			No Item				
23	350045	2	Hollow Hex Plug 6 SAE				
24	59131	1	Relief Valve				
25	--	-	No Item				
26	59128	1	Pressure Switch Assy				
27	60959	1	Directional Valve				

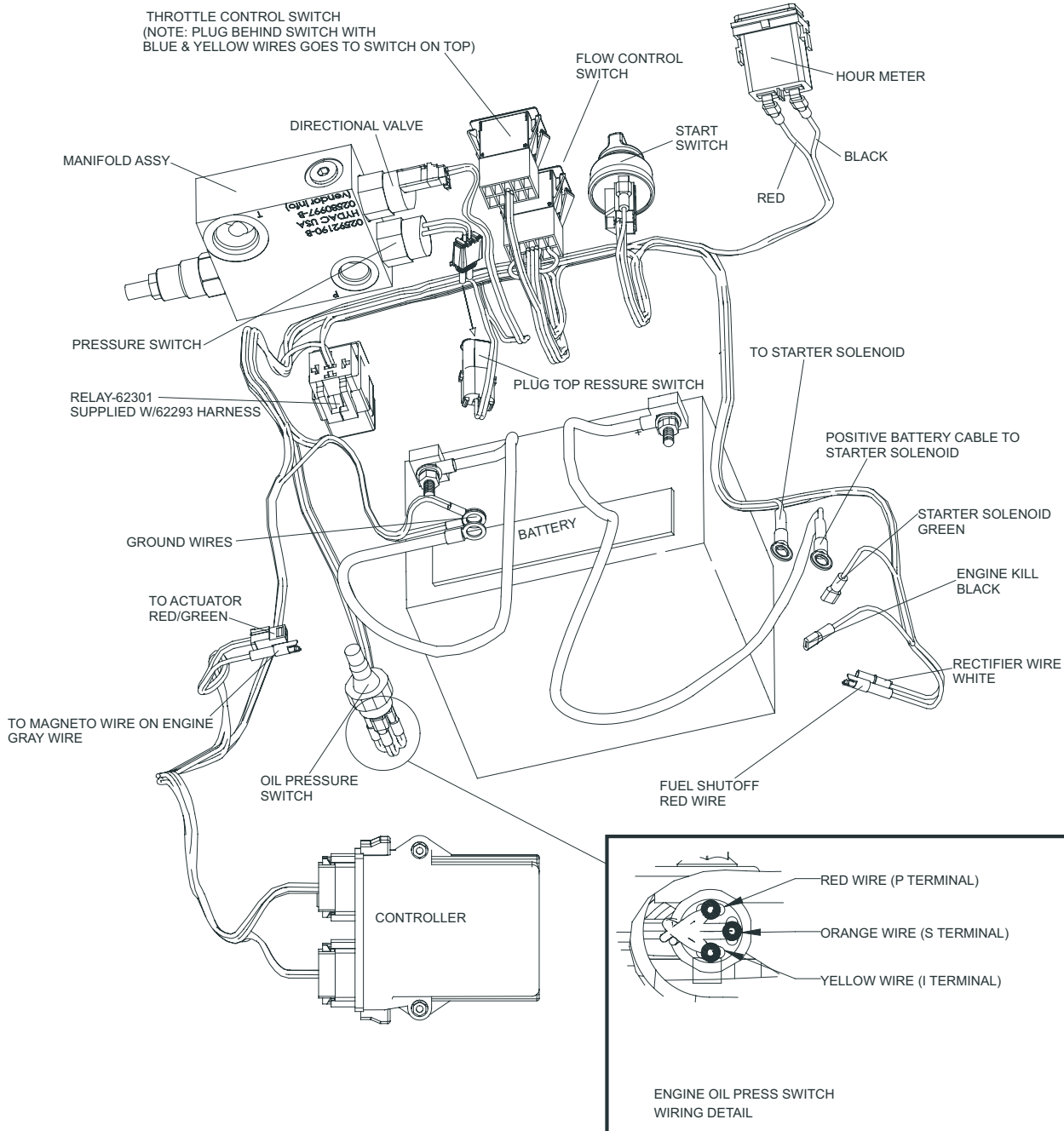
FIGURE 3. HOSES, FITTINGS & CLAMPS



ITEM	P/N	QTY	DESCRIPTION
1	59130	1	Manifold Assy, Single Circuit
2	59104	1	Hose Barb, 3/4 in. Hose x 3/4 in. Pipe
3	62199	4	Hose Clamp
4	350000	1	Elbow, 45° Straight Thread
5	02773	1	Adapter
6	58569	1	Elbow, 90°
7	58943	1	Hose
8	350104	1	Connector, Straight Thread
9	40364	1	Elbow, 45°
10	59088	1	Hose
11	59089	1	Hose
12	59105	1	Hose Barb, 3/4 in. Hose x 3/4 in. Pipe

FIGURE 4B. MAIN POWER UNIT WIRING HARNESS

HARNESS PART NUMBER 65147



WARRANTY

Stanley Hydraulic Tools (hereinafter called "Stanley"), subject to the exceptions contained below, warrants new hydraulic tools for a period of one year from the date of sale to the first retail purchaser, or for a period of 2 years from the shipping date from Stanley, whichever period expires first, to be free of defects in material and/or workmanship at the time of delivery, and will, at its option, repair or replace any tool or part of a tool, or new part, which is found upon examination by a Stanley authorized service outlet or by Stanley's factory in Milwaukie, Oregon to be DEFECTIVE IN MATERIAL AND/OR WORKMANSHIP.

EXCEPTIONS FROM WARRANTY

FREIGHT COSTS: Freight costs to return parts to Stanley, if requested by Stanley for the purpose of evaluating a warranty claim for warranty credit, are covered under this policy if the claimed part or parts are approved for warranty credit. Freight costs for any part or parts which are not approved for warranty credit will be the responsibility of the individual.

SEALS & DIAPHRAGMS: Seals and diaphragms installed in new tools are warranted to be free of defects in material and/or workmanship for a period of 6 months after the date of first usage, or for a period of 2 years from the shipping date from Stanley, whichever period expires first.

CUTTING ACCESSORIES: Cutting accessories such as breaker tool bits are warranted to be free of defects in material and or workmanship at the time of delivery only.

ITEMS PRODUCED BY OTHER MANUFACTURERS: Components which are not manufactured by Stanley and are warranted by their respective manufacturers.

a. Costs incurred to remove a Stanley manufactured component in order to service an item manufactured by other manufacturers.

ALTERATIONS & MODIFICATIONS: Alterations or modifications to any tool or part. All obligations under this warranty shall be terminated if the new tool or part is altered or modified in any way.

NORMAL WEAR: any failure or performance deficiency attributable to normal wear and tear such as tool bushings, retaining pins, wear plates, bumpers, retaining rings and plugs, rubber bushings, recoil springs, etc.

INCIDENTAL/CONSEQUENTIAL DAMAGES: To the fullest extent permitted by applicable law, in no event will STANLEY be liable for any incidental, consequential or special damages and/or expenses.

FREIGHT DAMAGE: Damage caused by improper storage or freight handling.

LOSS TIME: Loss of operating time to the user while the tool(s) is out of service.

IMPROPER OPERATION: Any failure or performance deficiency attributable to a failure to follow the guidelines and/or procedures as outlined in the tool's operation and maintenance manual.

MAINTENANCE: Any failure or performance deficiency attributable to not maintaining the tool(s) in good operating condition as outlined in the Operation and Maintenance Manual.

HYDRAULIC PRESSURE & FLOW: Any failure or performance deficiency attributable to excess hydraulic pressure, excess hydraulic back-pressure, or excess hydraulic flow.

REPAIRS OR ALTERATIONS: Any failure or performance deficiency attributable to repairs by anyone which in Stanley's sole judgement caused or contributed to the failure or deficiency.

MIS-APPLICATION: Any failure or performance deficiency attributable to mis-application. "Mis-application" is defined as usage of products for which they were not originally intended or usage of products in such a manner which exposes them to abuse or accident, without first obtaining the written consent of Stanley.

WARRANTY REGISTRATION: STANLEY ASSUMES NO LIABILITY FOR WARRANTY CLAIMS SUBMITTED FOR WHICH NO TOOL REGISTRATION IS ON RECORD. In the event a warranty claim is submitted and no tool registration is on record, no warranty credit will be issued without first receiving documentation which proves the sale of the tool or the tools' first date of usage. The term "DOCUMENTATION" as used in this paragraph is defined as a bill of sale, or letter of intent from the first retail customer. A WARRANTY REGISTRATION FORM THAT IS NOT ALSO ON RECORD WITH STANLEY WILL NOT BE ACCEPTED AS "DOCUMENTATION".

NO ADDITIONAL WARRANTIES OR REPRESENTATIONS

This limited warranty and the obligation of Stanley thereunder is in lieu of all other warranties, expressed or implied including merchantability or fitness for a particular purpose except for that provided herein. There is no other warranty. This warranty gives the purchaser specific legal rights and other rights may be available which might vary depending upon applicable law.



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