



Gillison's Variety
Fabrication, Inc.



GVF Orbit Lift Pruning Tower with Hydro-Drive Owner's Manual

Manual Part Number: GO 13187-15

Model Numbers:

GVF 2025-15, 12'

GVF 2085-15, 16'

GVF 2110-15, 20'

GVF 2205-15, 25'

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INTRODUCTION

The information in this publication describes the safety requirements, operation, maintenance and servicing of the Gillison Orbit Lift. Every effort has been made to provide correct and concise information to you, the operator, as available at the date of publication. Your Gillison dealer is available should items in this book or details of your machine not be understood.

This book is supplied with each machine to familiarize the operator with proper instructions needed for operation and maintenance. Studying and adhering to these instructions will ensure optimum machine performance and longevity. A machine that is maintained properly and operated in the intended manner will provide greater dividends than one that is neglected and/or operated in a manner other than as intended. Design and servicing of this machine has been kept as simple as possible to permit maintenance operations to be carried out with tools normally available.

This book should be thoroughly read and understood prior to operation of this machine. Inexperienced operators should study contents of this publication and receive instruction from an experienced operator when possible. Your Gillison dealer can assist in areas concerning machine operation and provide details concerning safe operation. It is suggested that this booklet be kept readily accessible, preferably with the machine, for future reference if questions or concerns arise. If the original book should become lost or damaged, consult your Gillison dealer in regards to acquiring a replacement.

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



CAUTION: READ THIS BOOK IN ITS ENTIRETY PRIOR TO OPERATING THE MACHINE. Use only parts from your Gillison dealer for repairs and/or replacement.

SAFETY

INTRO TO SAFETY

The safety of the operator is one of the main concerns in designing a new piece of equipment. Designers build in as many safety features as possible. However, every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment. You, the operator, can avoid many accidents by observing the following precautions. To avoid personal injury, study the following precautions and insist those working with you or for you follow them.

In order to provide a better view, certain photographs or illustrations in this manual may show an assembly with a safety shield removed. However, the equipment should never be operated in this condition. Keep all shields in place. If shield removal becomes necessary for repairs, replace shield prior to further operation.

SAFETY ALERT SYMBOL

FIG. 1: This is the safety alert symbol. It means **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!** Look for it, both in this manual and on safety decals on the equipment. It will direct your attention to information that involves your safety and the safety of others.



FIG. 1

SIGNAL WORDS

FIG. 2: The words **DANGER**, **WARNING**, or **CAUTION** are used with the safety alert symbol. Learn to recognize these safety alerts, and follow the recommended precautions and safe practices.

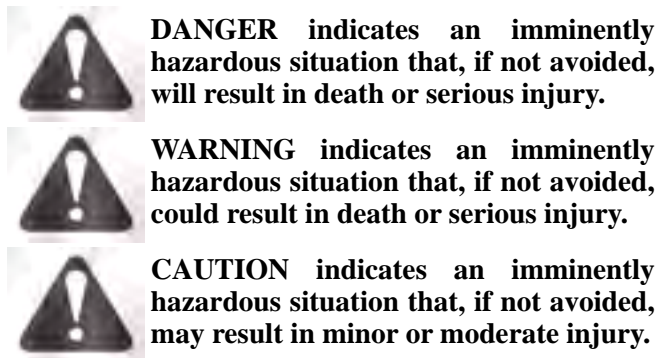


FIG. 2

Replace any **DANGER**, **WARNING**, **CAUTION** or instructional decal that is not readable or is missing. The locations and part numbers of these decals are identified later in this section of the manual.

GENERAL SAFETY RULES

FIG. 3: Always keep this manual with the machine.

This manual must be made available to the operator of the machine at all times. Special care must be taken to keep this manual safe from the weather and in readable condition.

Read this manual carefully and learn how to use the machine correctly.

Do not let anyone operate this machine without thorough instruction.

Beware of bystanders, particularly children! Always look around to make sure that everyone is clear before starting the engine or moving the machine. This is particularly important with higher noise levels as you may not hear people shouting.

FIG. 4: No passengers allowed. Do not carry passengers anywhere on the machine.

Dismount and park machine in the correct manner. When dismounting and/or leaving the operator's platform FOR ANY REASON always:

1. Lower boom completely.
2. Shut off engine.
3. Park on level ground.
4. Remove the key.



WARNING: An operator should not use alcohol or drugs which can affect their alertness or coordination. An operator on prescription or 'over the counter' drugs needs medical advice on whether or not he/she can properly operate equipment.

FIG. 5: Wear protective clothing. Do not wear loose clothing, as this may catch on moving parts of the machine causing injury.

Always wear protective clothing and appropriate safety equipment.

It is recommended that suitable protective hearing and safety glasses be worn.

Do not attempt to service machine, clear obstructions or unplug blockages with the engine running. Always shut off the engine first.

Keep all shields and guards in place.



FIG. 3



FIG. 4



FIG. 5

FIG. 6: Additional equipment: A fire extinguisher and first aid kit should be carried with the machine or be kept readily available at all times.

Keep emergency telephone numbers for immediate access.

SAFETY WHILE OPERATING



CAUTION: READ THIS BOOK IN ITS ENTIRETY PRIOR TO OPERATING MACHINE.

Keep the machine properly maintained. Do not operate a machine when it is broken or has missing parts. Make sure that the maintenance procedures in this operator's manual are completed before using the machine.

Check all controls regularly and adjust where necessary.

Periodically check all nuts and bolts for tightness, especially wheel hub and rim nuts.

Clear the area. Ensure that all bystanders, particularly children, are in a safe position before starting the engine.



FIG. 7: Be aware of electrocution hazards. To prevent injury or death from electrocution:

Stay away from overhead power lines when operating pruning tower in raised position. This machine is not grounded. Electrocution can occur without direct contact.

Be observant of the operating area and terrain. Watch for holes, rocks or other hidden hazards. ALWAYS inspect area prior to operation.



FIG. 8: Be aware of side hill hazard. To prevent serious injury or death:

Do not operate pruning tower on 5° or greater side hill with bucket raised.

DO NOT operate near edge of banks. Setback distance from bank should equal or exceed the overall height of the bank.

DO NOT operate on steep slopes as overturning may result.

If necessary to cross a steep slope, avoid turning uphill. Slow down and make a wide turn. Travel directly up or down the slope, never cross it. Keep the heavy end of the machine on the uphill side.

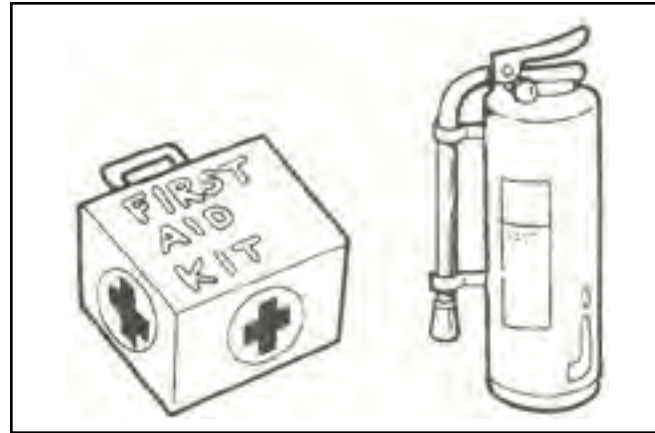


FIG. 6

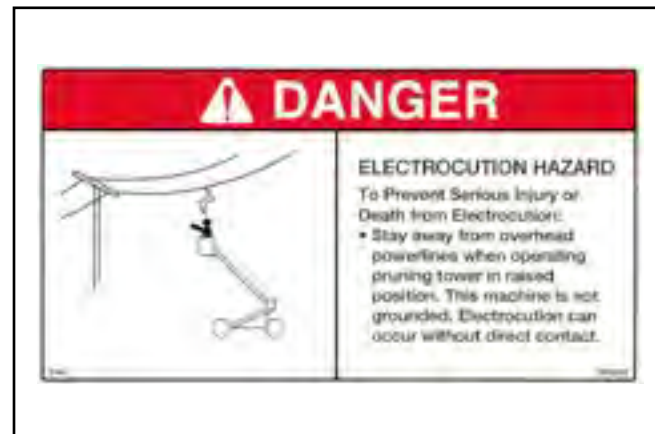


FIG. 7



FIG. 8

FIG. 9: Do not use starting fluid. Starting fluid must only be used when an ether-start aid is fitted as original equipment by the manufacturer or when installed by a dealer as an approved accessory.

The orbit lift is equipped with glow plugs. These must be removed prior to the use of starting fluid or ether aid.

Use of starting fluid on engine equipped with glow plugs can result in severe engine damage.

Make sure there is plenty of ventilation. Never operate the engine in a closed building.

Always start and operate engine in a well-ventilated area.

If in an enclosed area, vent the exhaust to the outside.

Do not tamper with or modify the exhaust system with unapproved extensions.



FIG. 9

USE OF A BODY RESTRAINT SYSTEM

While in the operator's platform, a person shall use a body restraint system to prevent falling out of the operator's platform. The use of a proper, certified body restraint system is the responsibility of the user. See FIG. 8A for where to attach a body restraint system lanyard.



FIG. 8A

SAFETY WHILE SERVICING THE MACHINE

Stop the machine. DO NOT service the machine while the engine is running or hot, or if the machine is in motion.

NOTE: When making major repairs or complicated adjustments, it is recommended that you consult your Gillison Dealer and have the work carried out by trained personnel.

The following precautions should be observed. These have been arranged by machine area or component.

Cooling System

FIG. 10: DO NOT remove the radiator cap (see 1) when the engine is running or hot.

DO NOT add coolant to the radiator while the engine is running.

Before removing the radiator cap, turn the cap slowly to relieve the pressure.

When adding coolant, make sure the coolant being

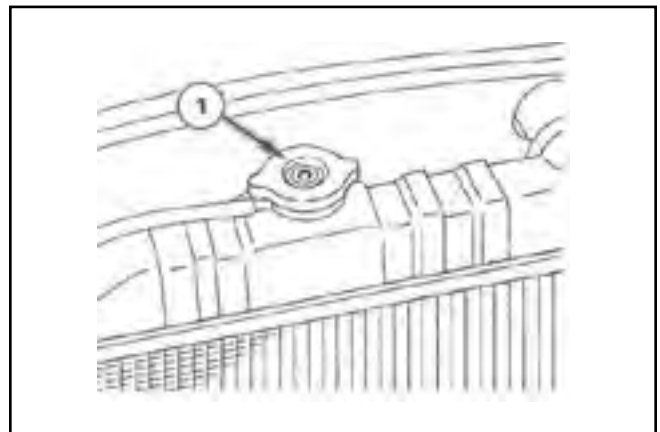


FIG. 10

Electrical System

FIG. 11: To prevent serious injury or death from exploding gases:



Do not work on batteries without proper instruction and training.

FIG. 12: Before making adjustments or servicing the electrical system, disconnect the battery negative (-) cable (see 1) first to prevent short circuits.

Keep sparks, flames and cigarettes away. Use a flashlight to check the battery electrolyte level if necessary.

Do not produce sparks with cable clamps when charging the battery or starting the machine engine with a slave (jumper) battery.

Batteries contain sulfuric acid electrolyte. Always wear protective clothing and eye protection when servicing.

In case of electrolyte contact, rinse area with plenty of water and seek medical attention.

Batteries produce explosive hydrogen gas when charged. Charge in area with adequate ventilation. Halt charging if battery temperature exceeds 52°.

Wash hands after handling battery.

Hydraulic System

FIG. 13: High pressure fluid hazard. To prevent serious injury or death:



Relieve pressure on system before repairing or adjusting or disconnecting.

Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.

Keep all components in good repair.

Ensure that all hydraulic connections are tight.

Relieve all pressures before disconnecting hoses or lines. Escaping oil under pressure can cause serious injury.

All fluids should be handled with care. If you are injured by or swallow any fluid, seek medical attention immediately and show the label on the product.

Fluid escaping from a very small hole can be almost invisible and can penetrate the skin causing serious injury. Keep hands and body away from pin holes and nozzles which eject fluids under high pressure. When



FIG. 11



FIG. 12



FIG. 13

checking for leaks always use a piece of cardboard or wood. Never use your hands to find a pressure leak.

If ANY fluid is injected into the skin, it must be attended to by a doctor immediately.

Fuel System

FIG. 14: Diesel fuel is flammable and must be handled with care.

Never refuel or service the fuel system on the machine while smoking or when near open flames or sparks.

Never refuel the machine while the engine is running.

DO NOT use a fuel can unless necessary.

Always clean up any spilled fuel.

Fuel system components rely upon clean fuel for lubrication and optimum performance. Extreme care must be taken to prevent contamination from dirt and moisture to prevent damage.

Fuel injection system servicing must be referred to your Gillison Dealer. Unauthorized servicing may void all warranties.

Wheels and Tires

Do not attempt to service a tire unless you have the proper equipment and experience to perform the job. Have the work carried out by your Gillison Dealer or a qualified repair service.

The machine must be supported on suitable blocks or stands, NOT a hydraulic jack.

When seating tire beads onto rims, never exceed 2.4 bar (35 psi) or the maximum inflation pressure specified on the tire. Inflation beyond this maximum pressure may break the bead, or even the rim, with dangerous, explosive force.

When preparing a calcium chloride solution for fluid blasting the tires, NEVER pour water onto the calcium chloride. A chlorine gas can be generated which is poisonous and explosive. This can be avoided by slowly adding calcium chloride flakes to water and stirring until they are dissolved.

Wear suitable protective clothing, gloves, and eye/face protection.

Replacement Parts

FIG. 15: Where replacement parts are necessary for periodic maintenance and servicing, replacement parts from Gillison's must be used to restore your equipment to original specifications.

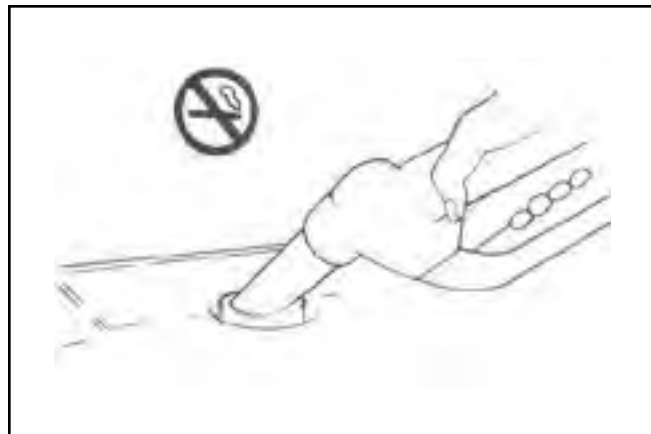


FIG. 14



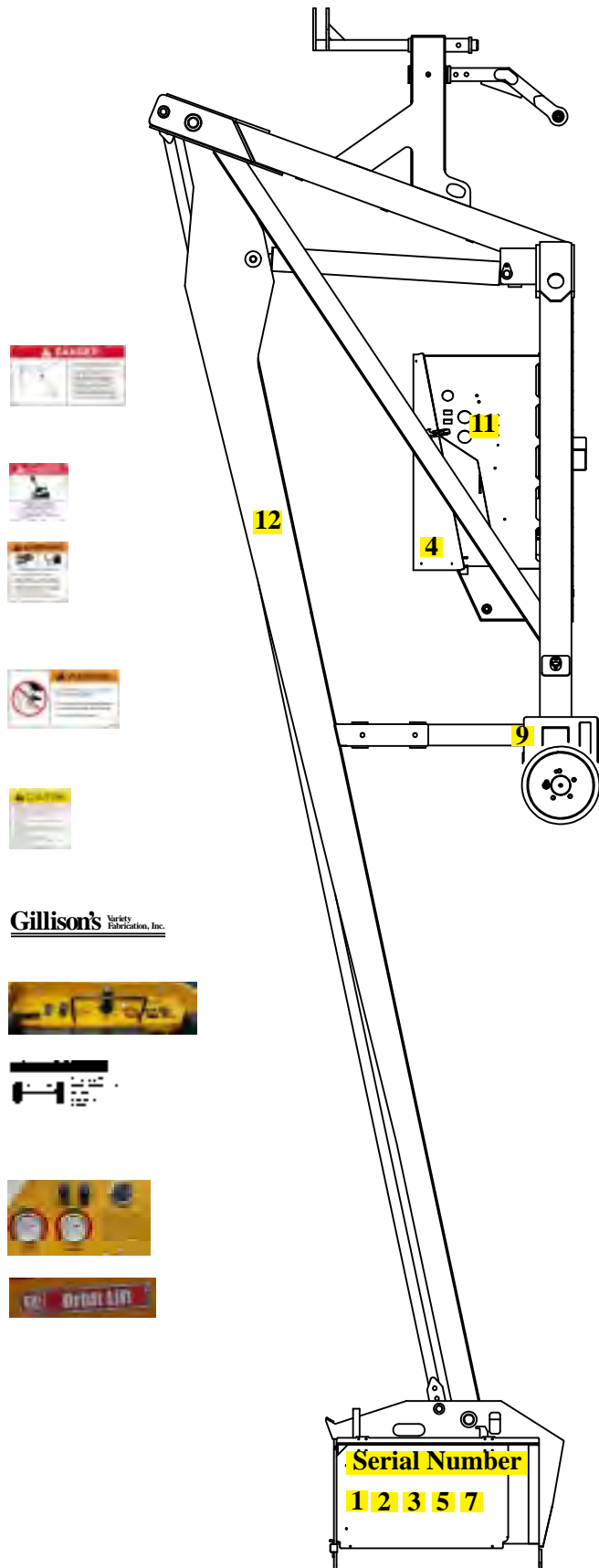
FIG. 15

Gillison's will not claim responsibility for installation of unapproved parts and/or accessories and damages as a result of their usage.

INSTRUCTION DECALS

FIG. 16: Location of all instruction decals are provided as a reference. Corresponding numbers show where decals belong on the machine. Replace any decals that are damaged, missing or are not readable. Consult your dealer.

- 1) SP 6205, qty 1 - Decal, Orbit Lift Electrocution Hazard
- 2) SP 6206, qty 1 - Decal, Orbit Lift Side Hill Hazard
- 3) SP 6210, qty 1 - Decal, (SW700) High Pressure Fluid Hazard
- 4) SP 6211, qty 1 - Decal, (SW500) Exploding Gases Warning
- 5) SP 6212, qty 1 - Decal, (SW4) Caution - Read Manual
- 6) SP 6223, qty 2 - Decal, Gillison's logo 2x12
- 7) SP 6231, qty 1 - Decal, Orbit Lift Control Panel
- 9) SP 6245, qty 1 - Decal, Wheel Extension
- 10) SP 6250, qty 1 - Decal, Citgo A/W46 Hyd Oil
- 11) SP 6236, qty 1 - Decal, Gauges & Lift Switch
- 12) SP 6232, qty 2 - Decal, Orbit Lift w/ GVF Logo
- 13) SP 6221, qty 1 - Decal, (Omeda 18) Diesel Fuel



SERIAL NUMBER

Location of serial number (located on bucket) provided as a reference.

FIG. 16

MODIFICATIONS

Modification or alteration of the orbit lift shall be made only with prior written consent from Gillison's Variety Fabrication Inc.

Altering safety devices shall be prohibited.

CAPACITY LIMITATION

The orbit lift operator's platform is rated for 300 lbs. This excludes a standard hydraulic pruner, saw and harness for fall protection.

MISUSE AS A CRANE

The Orbit Lift shall not be used as a crane. This is not the intended use of the machine. Use of the machine in this manner could result in injury.

RECORD RETENTION

The owner shall retain the following records for at least 3 years:

A. Purchase Information

B. Records of persons trained upon delivery of the Orbit Lift

C. Written records of frequent inspections, maintenance performed and parts replaced

OWNERSHIP RECORDS

When a change of ownership of an Orbit Lift occurs, it is the responsibility of the seller to notify Gillison's Variety Fabrication Inc. with the following information within 60 days of the sale:

A. Serial number of machine

B. Name & address of new owner

OPERATION

Prior to operating be sure to read this entire manual especially the sections containing safety information and operation information.

STARTING

Turn ignition CCW to operate glow plugs then wait for 15 seconds.

Turn ignition switch CW to crank and start the engine.

Allow time for the engine and hydraulic oil temperature to warm before operation.

INSTRUMENTS AND CONTROLS

Joystick

Enable switch must be depressed for joystick to be operational. If moving and enable switch is released, the orbit lift will stop, as if joystick was released to neutral.

Move joystick in the direction intended to move. See **FIG. 17**

The farther the direction that the joystick is moved in, the faster the travel speed. The joystick is proportional with travel speed. When trying to slow and stop, move joystick to neutral.

Emergency Lower

There is an emergency lower knob on the hydraulic manifold located by the engine. Pull and turn either way 90 degrees. Once the tower is lowered, fit the knob back into the groove as it was. See **FIG. 18**

Throttle

The throttle switch is located in operators platform at joystick controls. Throttle switch, normally at idle when turned on, increases engine RPM to working speed. See **FIG. 19**

Axle Slide Switch

Depress switch to slide axles out, depress opposite side to slide in. Axles must be completely extended during operation. See **FIG. 19**

Pruner / Saw Selector

Pruner / saw selector switch selects hydraulic valve to power either the saw or pruner. See **FIG. 19** Center position is off. Turn off when not using the pruner or saw. If either the pruner or the saw is left on while not in



FIG. 17

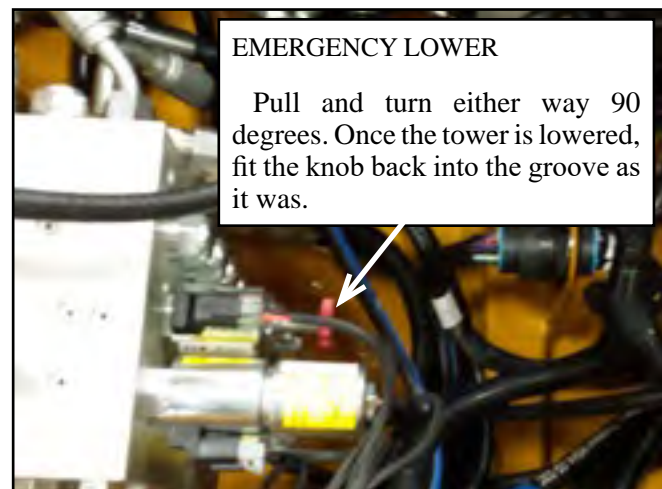


FIG. 18

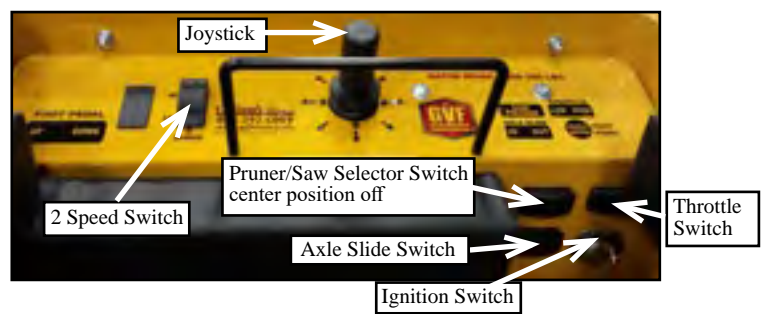


FIG. 19

use, excessive heat is created and could cause damage to the hydraulic system.

Pruner and saw are automatically turned off when joystick is moved from neutral to preserve power.

Foot Controls

Step on one side of lift pedal to raise operators platform and the other side to lower operators platform. Lowering can be accomplished at anytime as long as the key is on. See **FIG. 20**

Enable Pedal: This pedal must be depressed to move the machine. See **FIG. 20**

Instruments

If there is a loss of oil pressure or high water temperature, the Murphy system will automatically shut down the engine.

Hour Meter (measures hours of engine operation. Refer to meter for maintenance schedule) See **FIG. 21**

Boom Raise/Lower Switch (toggle up to raise boom, toggle down to lower boom) See **FIG. 21**

Engine

Labeled: mechanical shut off, throttle solenoid and shut off solenoid. See **FIG. 22**

LOWEREDBOOMDRIVINGREQUIREMENTS

Under all travel conditions, the operator shall use careful discretion to gauge a safe travel speed. Take into consideration conditions of ground surface, congestion of area, visibility, slope, location of personnel, and other factors that could cause a hazardous situation.

ELEVATEDBOOMDRIVINGREQUIREMENTS

Before and during driving while the platform is elevated, the operator shall:

- A. Maintain a clear view of the path of travel.**
- B. Maintain a safe distance from obstacles, debris, drop-offs, holes and other hazards to ensure safe elevated travel.**
- C. Maintain a safe distance from overhead obstacles especially power lines.**

At no time shall the operator climb to an elevated position in the platform to increase reach. The operator must maintain firm footing on the platform floor while

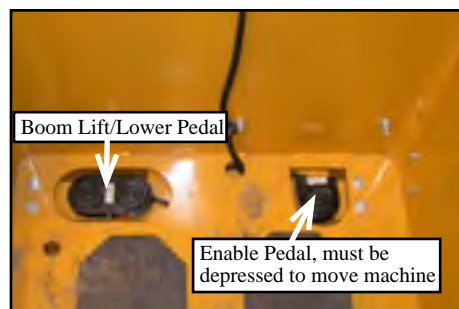


FIG. 20

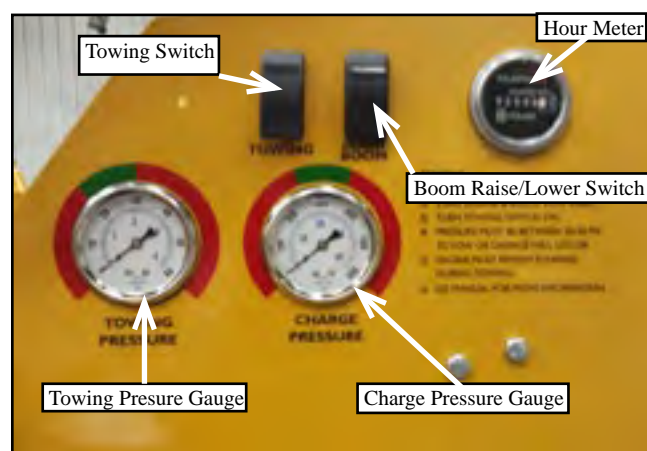


FIG. 21

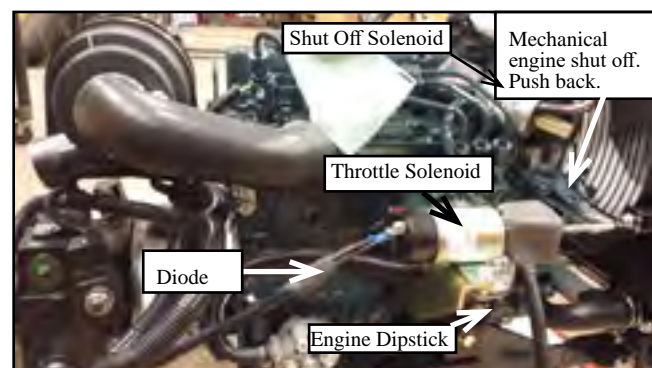


FIG. 22

working.

The operator must report immediately any problems or malfunctions of the orbit lift to a supervisor. If the problem concerns safety it shall be repaired prior to continued operation.

TOWING THE ORBIT LIFT

Raise back of orbit lift with provided jack.

Install hitch to correct height so pivot wheels are off the ground.

Use hardened pin to hook up to towing vehicle.

Always use a safety chain.

- 1) **Start engine and run at low speed.**
- 2) **Turn Towing Switch on. It can take up to 30 seconds for pressure to come up.**
- 3) **Pressure must be between 20-30 psi or damage will occur.**
- 4) **Engine MUST remain running while towing.**

The orbit lift is now ready for towing. Maximum speed 25 MPH.

See **FIG.23**

UNAUTHORIZED USE

Means shall be used to prevent use of machine by unauthorized persons.

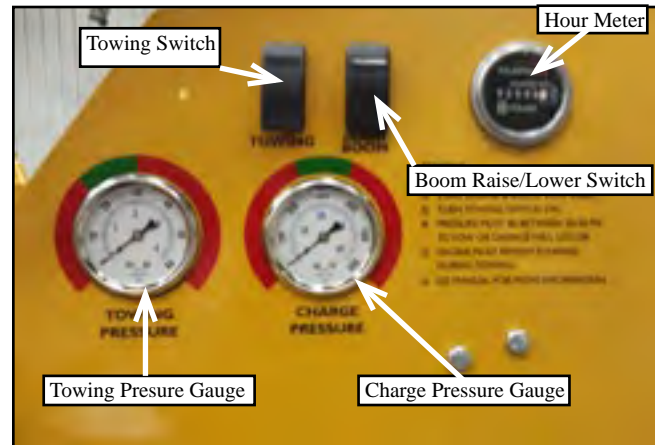


FIG. 23

LUBRICATION & MAINTENANCE

ENGINE LUBRICATION & MAINTENANCE

Follow recommendations of engine manufacturer. Refer to engine manual. Refer to FIG.22 for dipstick location on engine.

GENERAL MACHINE LUBRICATION & MAINTENANCE

All pivots with grease fittings should be greased weekly or every 50 hours of operation, whichever is met first. See **FIG. 24**

Check tire air pressure monthly. Refer to tire specifications for proper inflation.

Check wheel nut torque monthly.

Use the Orbit Lift Pruning Tower Inspection Form on the following page and at the end of this manual for detailed inspection and schedule.

HYDRAULIC SYSTEM

Fluid level must be checked daily. Reservoir must be kept full and free of contaminants.

Refer to hydraulic schematic for hydraulic oil specifications, part numbers and filters.

If filter indicator shown in **FIG 25A** turns red, replace immediately or damage to system could occur.

GO 13655

Filter Assy., W/ element

GO 13656

Element, Replacement

MAINTENANCE CHART

ITEM	Daily	50 hrs	200 hrs	500 hrs	1000 hrs
Check Oil Level and Cleanliness SEE FIG.25A	●				
Change Oil Filter				●	
Change Hydraulic Oil					●
Grease Lubrication Points		●			

REFER TO ENGINE MANUAL FOR SERVICE INTERVALS AND DETAILED INFORMATION.

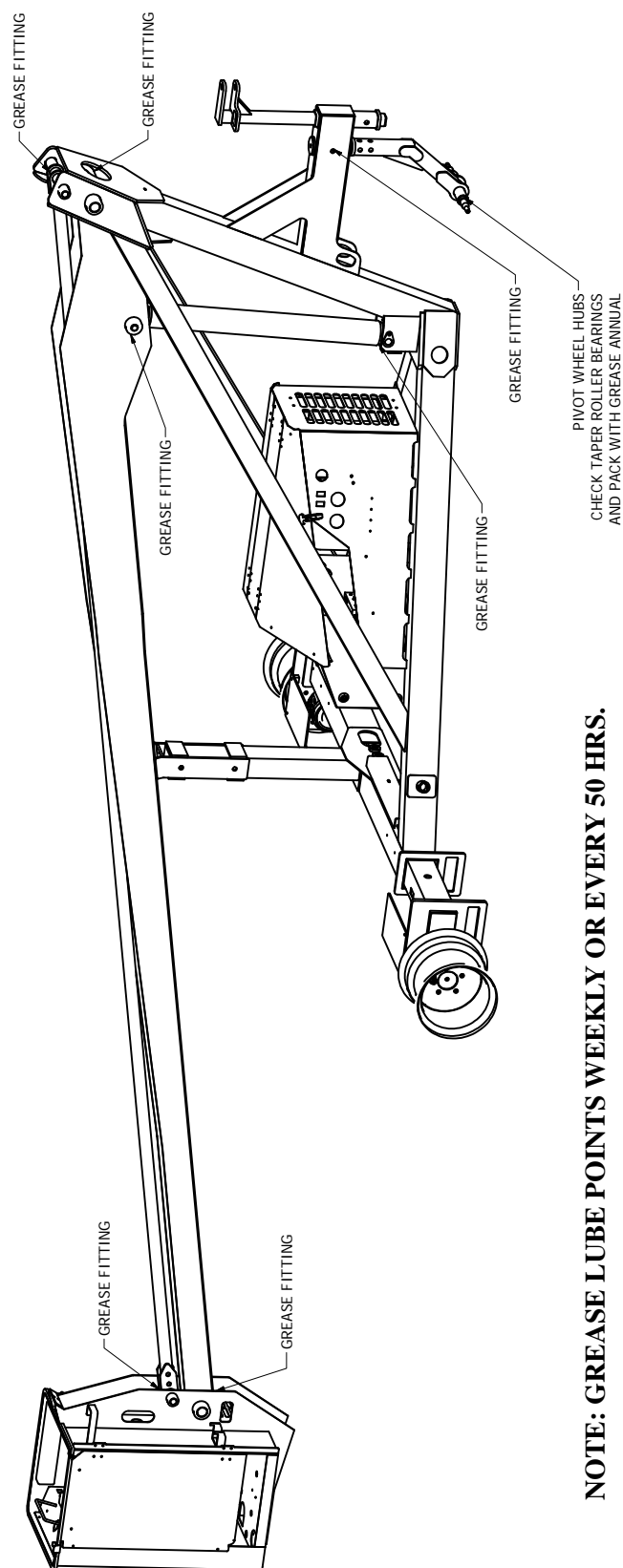


FIG. 24

Gillison's Variety Fabrication, Inc. 3033 Benzie Hwy. Benzonia, MI 49616 231-882-5921 Fax 231-882-5637 www.gvffab.com 800-392-6059		Orbit Lift Pruning Tower Inspection Form	
Name, phone number and address of equipment inspector:		Name, phone number and address of equipment owner:	
Serial Number:			
Model:			
Hourmeter:			
Date:			
All inspections are to be performed by a qualified individual with knowledge of the orbit lift pruning tower. <input type="checkbox"/> PRE-DELIVERY: Must be performed prior to each delivery by sale, lease, or rental. <input type="checkbox"/> FREQUENT: Must be performed every three months or 150 hours of operation, whichever comes first. <input type="checkbox"/> ANNUAL INSPECTION: Must be performed no later than 13 months from the date of the prior Annual Inspection.			
P=Pre-Delivery, F=Frequency, A=Annual Mark as: Y=Yes (passed) N=No (Failed) C=Corrected N/A=Not Applicable P/F A		P=Pre-Delivery, F=Frequency, A=Annual Mark as: Y=Yes (passed) N=No (Failed) C=Corrected N/A=Not Applicable P/F A	
GENERAL, PLATFORM AND BOOM INSPECTION		FUNCTIONS AND CONTROLS	
1) Ensure that operator's manual is on the lift.		1) All joystick/toggle controls return to neutral/off position when released.	
2) Check lift for visible damage. Inspect boom, stabilizer arm and chassis including all welds.		2) Check that enable foot switch operates properly, not modified, disabled or blocked. Should not drive unless depressed.	
3) Boom sections and related weldments free of damage, distortion and excessive wear.		3) Check all functions of movement by driving and operating the machine including the boom moving up and down, propelling in all directions. Check speed and smoothness.	
4) Inspect all pivot pins, cylinder pins, attaching and retention hardware, connections and fasteners for damage, distortion and excessive wear.		4) Check that all other machine controls, gauges operate properly at both platform and ground control stations.	
5) Check for fluid leaks.		5) Make sure boom up/down switch at engine compartment is operational.	
6) Inspect tires and wheel nuts. Ensure proper wheels/tires installed. Inspect for excessive damage wear and corrosion. Tires properly mounted. Inflate front drive tires to 30 lbs, fill rear tires with liquid ballast to 30 psi.		6) Make sure emergency lower valve is operational.	
7) Check drive hubs for proper fluid level.		7) Test the tilt alarm.	
POWER SYSTEM		HYDRAULIC / ELECTRIC SYSTEM	
8) Inspect platform and ensure mounting hardware free of damage and secure. Door is secure and opens and latches properly.		1) All cylinders free of damage with no evidence of leaks.	
9) Platform guardrail and floor in place, secure and free of damage.		2) All areas around hydraulic components have no evidence of leaks.	
10) Lanyard anchorage points secure and free of damage.		3) Hydraulic oil system properly serviced and free of contaminants.	
11) Read all decals and ensure that they are present and legible.		4) All hydraulic hoses, fittings and lines secure and free of damage. Check for chafing and leaks.	
12) Caster (pivot) wheel swivels freely.		5) All electrical connections tight, no corrosion or abrasions.	
13) Machine is free of unauthorized modifications or additions.		6) Pump and motor secure, free of damage and leaks.	
14) Grease and lubricate per service maintenance manual.		COMMENTS:	
Inspector Name:		Owner Name:	
Date:		Date:	

Owner ensures all discrepancies have been corrected prior to placing the machine back into service.

THROTTLE SPEED ADJUSTMENT

Factory set speeds: 1200 RPMs low, 2500 RPMs high

See FIG. 25

- 1 - Loosen jam nut.
- 2 - Remove arm from pump.
- 3 - Lengthen to decrease engine speed.
- 4 - Re-install arm and tighten jam nut.

FREQUENT INSPECTIONS

The Orbit Lift requires frequent inspections to be performed:

- A. Every 150 hours of service or every 3 months, which ever is met first.
- B. Before putting into service a machine which has been out of service for a period longer than 3 months of time.

The inspections must be made by a qualified Orbit Lift technician. The inspections shall include the following:

A. All functions of movement including the boom moving up and down, propelling in all directions, and checking for speed and smoothness.

B. Make sure enable switch for directional controls is operational.

C. Make sure boom up/down switch at engine component is operational.

D. Make sure emergency lower valve is operational.

E. Lubrication of all pivot points.

F. Check hydraulic fluid level, cleanliness, filter element, and look for hydraulic leaks.

G. Visual inspection of structural components: boom, stabilizer arm, fasteners, cotter pins and machine chassis.

H. Make sure all warning decals and operation insignia are in place.

I. Use the Orbit Lift Pruning Tower Inspection Form included in this manual for detailed inspection and schedule.

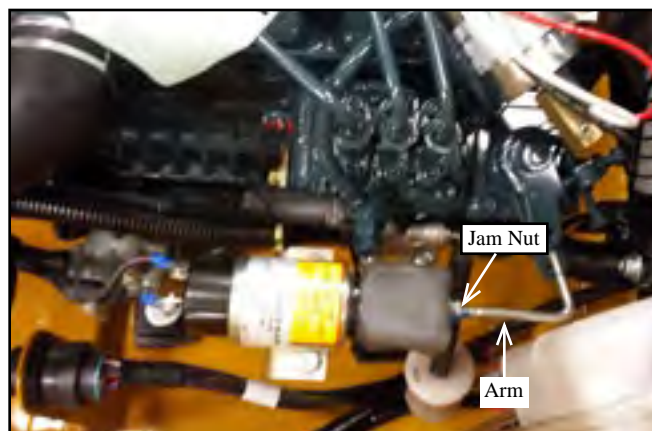


FIG. 25

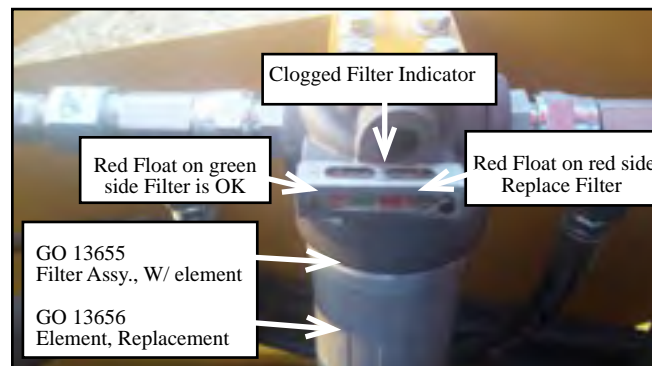
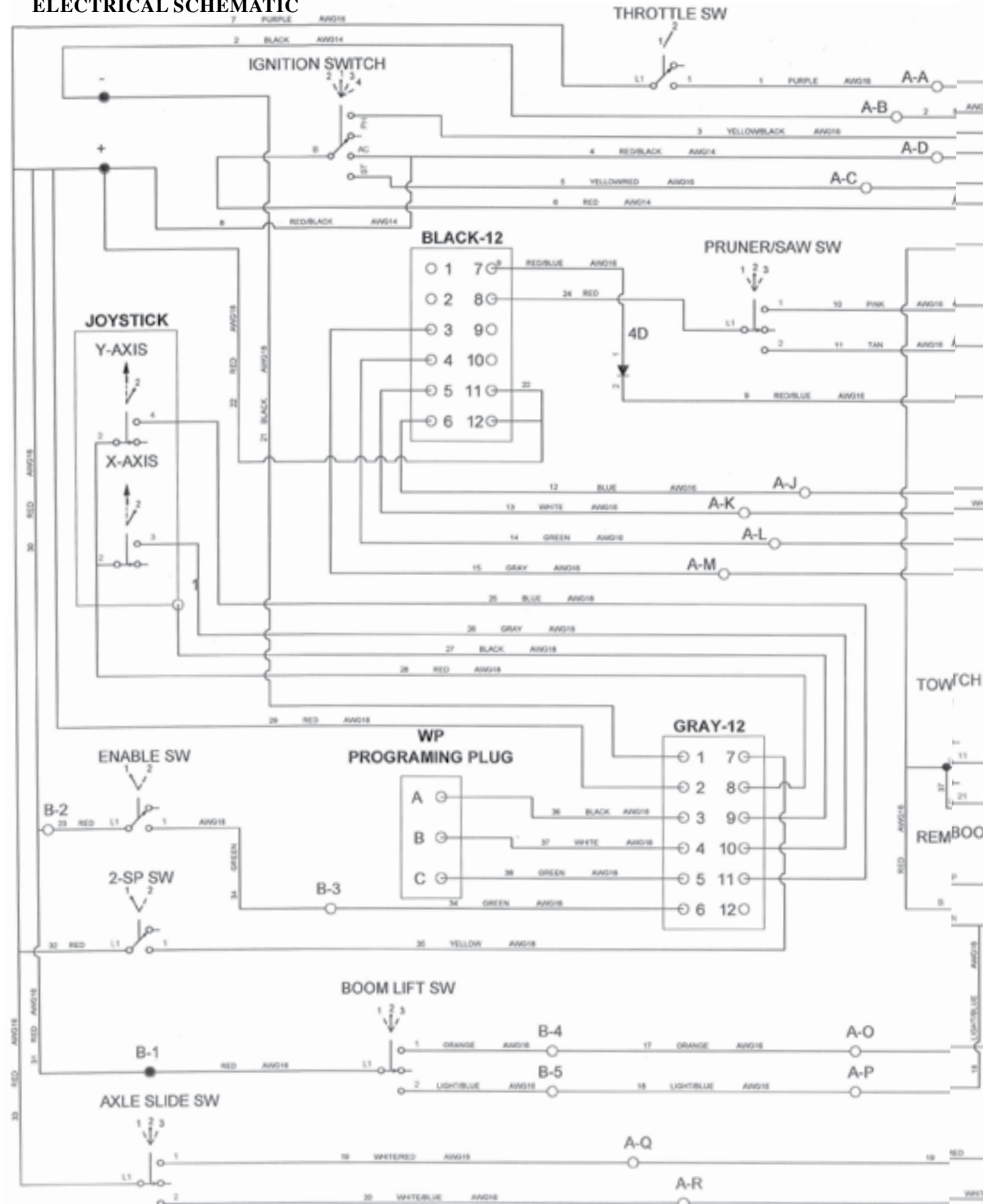
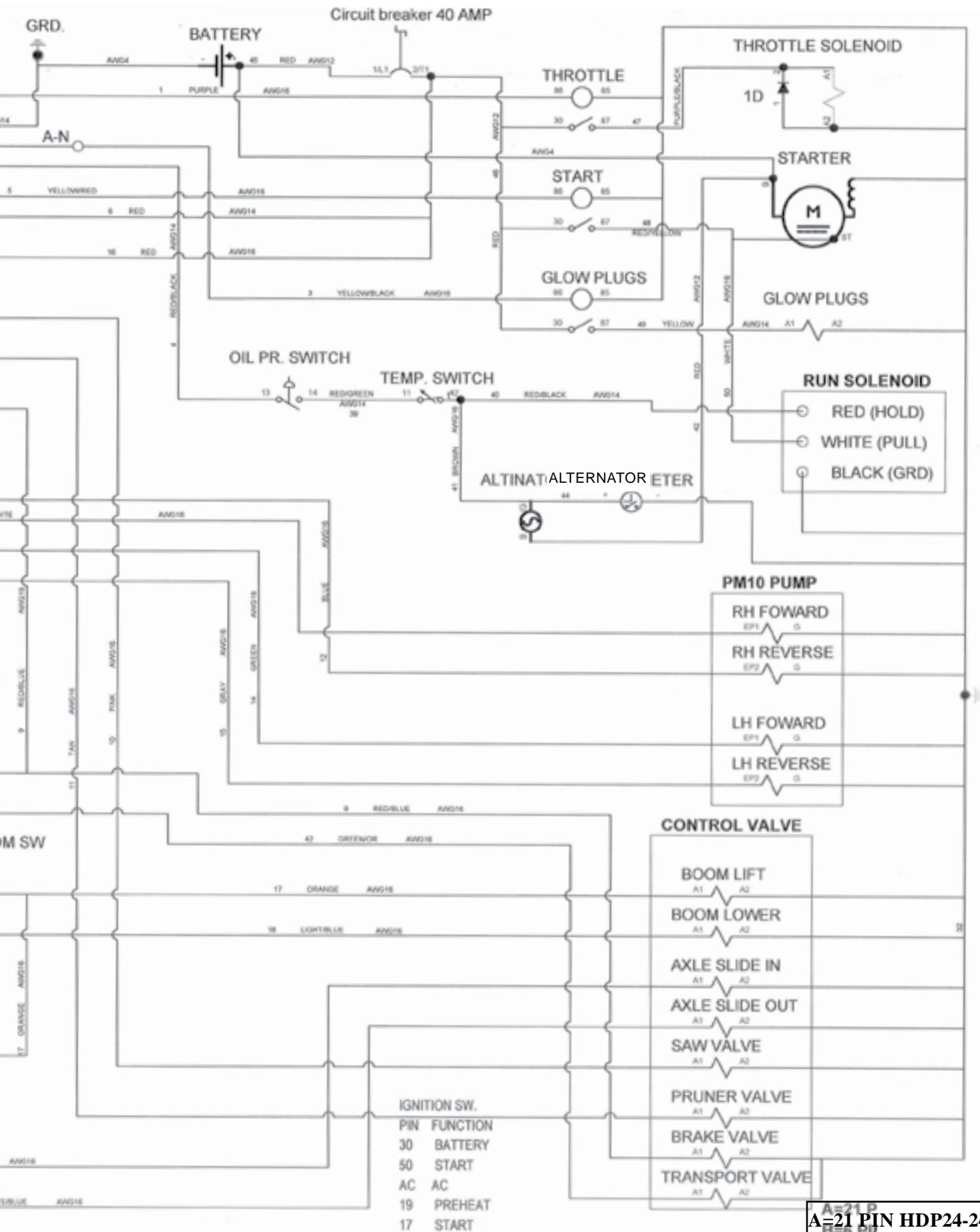
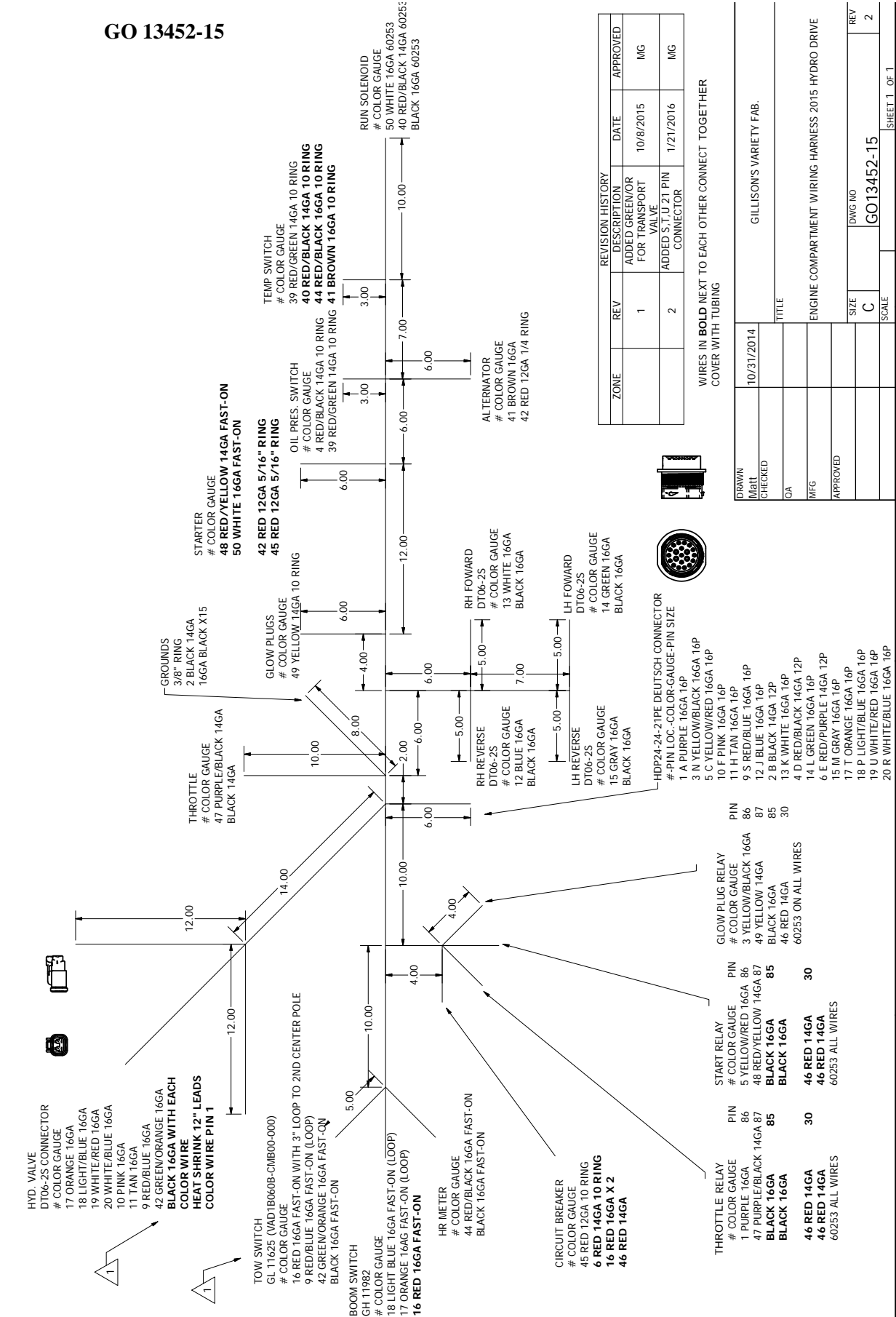


FIG. 25 A

ELECTRICAL**ELECTRICAL SCHEMATIC**

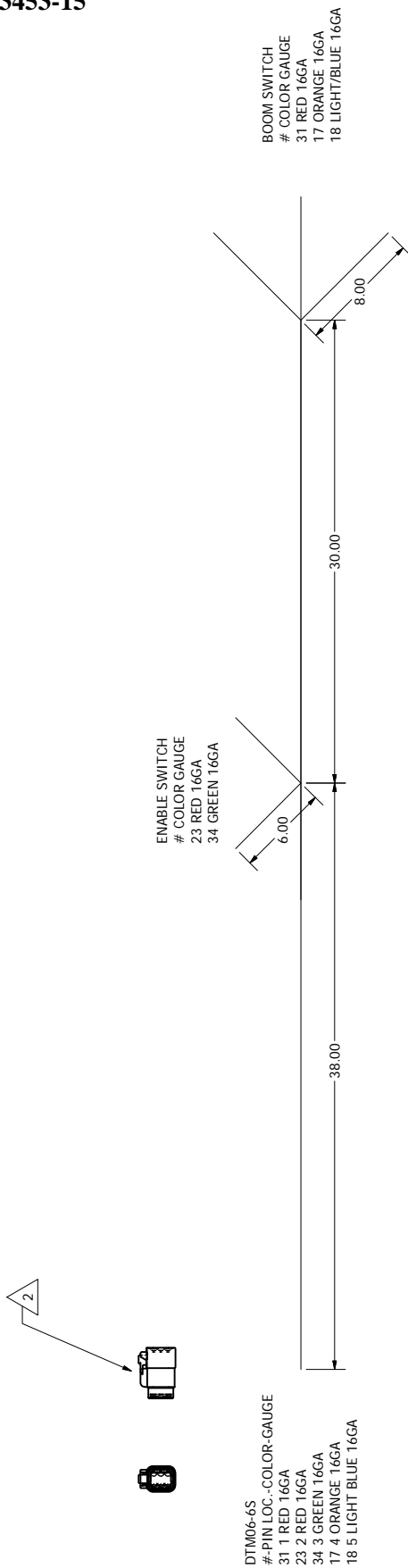


GO 13452-15



ENABLE AND BOOM SWITCH HARNESS

GO 13453-15



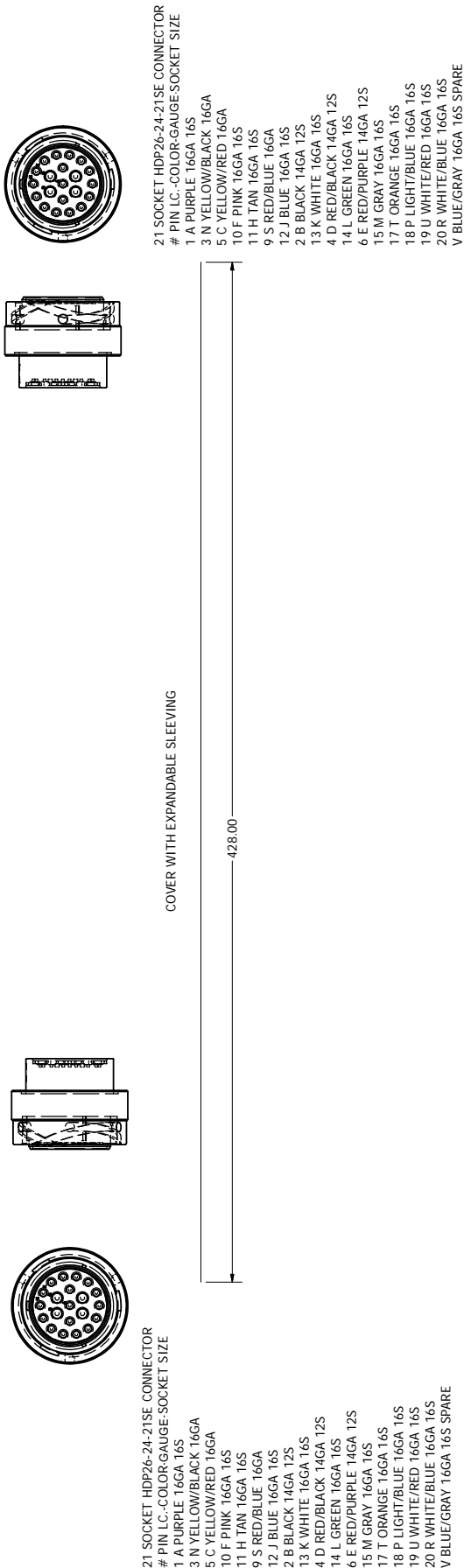
BRAID HARNESS

DRAWN Matt	11/4/2014	GILLISON'S VARIETY FAB.	
		TITLE	
		ENABLE AND BOOM SWITCH HARNESS	
		DWG NO GO13453-15	
CHECKED QA		SIZE C	REV 2
MFG		SCALE	
APPROVED		SHEET 1 OF 1	

REVISION HISTORY			
ZONE	REV	DESCRIPTION	DATE
	1	SHORTENED HARNESS 2"	10/8/2015
	2	CORRECTED CONNECTOR	1/21/2016
		APPROVED	MG
		MG	

BOOM HARNESS 25' ORBIT LIFT

GO 13451-15

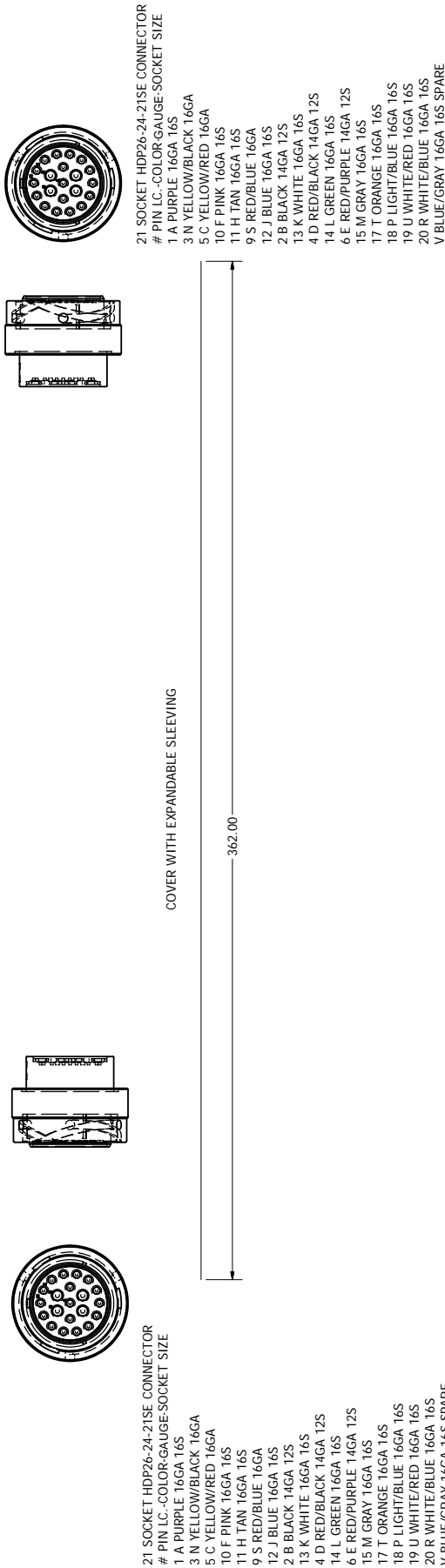


DRAWN Matt	10/30/2014	GILLISON'S VARIETY FAB.	
	CHECKED	TITLE	
	QA	BOOM HARNESS 25' ORBIT LIFT 2015	
	MFG	TANDEM HYDRO	
	APPROVED		
		SIZE	REV
		C	2
		DWG NO	
		GO13451-15	
		SCALE	SHEET 1 OF 1

ZONE	REV	REVISION HISTORY	DATE	APPROVED
	1	SHORTENED HARNESS 24" CHANGED PIN OUT S,T,U,V	3/27/2015	MG
	2		1/21/2016	MG

BOOM HARNESS 20' ORBIT LIFT

GO 13735-15

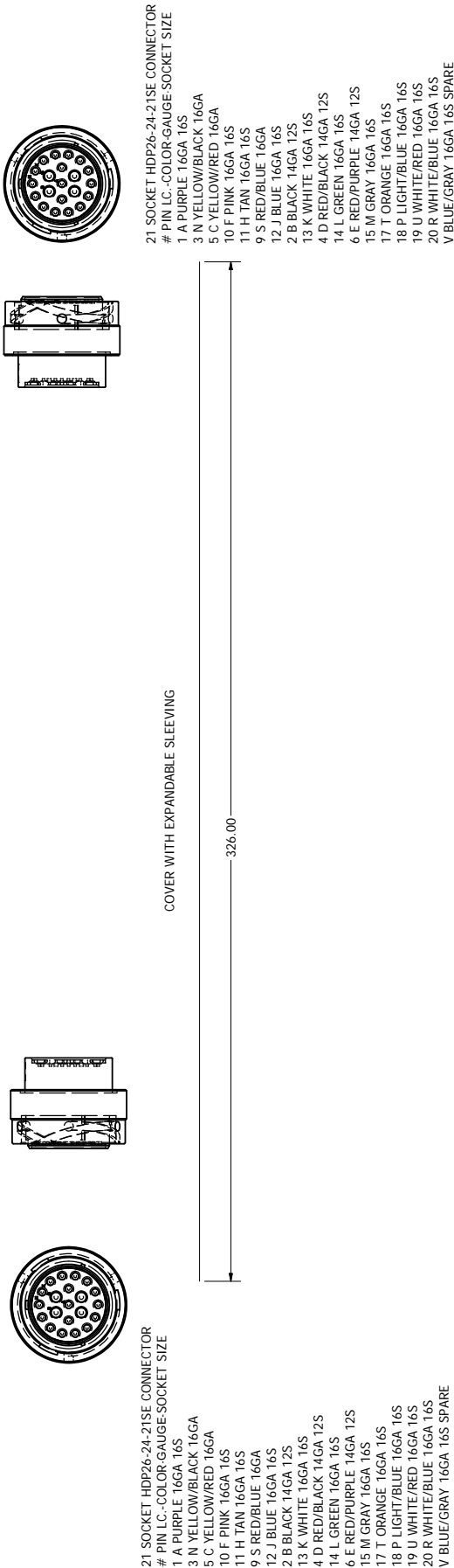


DRAWN Matt	10/30/2014	GILLISON'S VARIETY FAB.	
CHECKED		TITLE	
QA		BOOM HARNESS 20' ORBIT LIFT 2015	
MFG		TANDEM HYDRO	
APPROVED			
		SIZE C	REV 1
		DWG NO GO13735-15	
		SCALE	SHEET 1 OF 1

REVISION HISTORY			
ZONE	REV	DESCRIPTION CHANGED LETTERS S.T.U.V	DATE APPROVED MG
	1		1/21/2016 MG

BOOM HARNESS 16' ORBIT LIFT

GO 13740-15



DRAWN	10/30/2014	GILLISON'S VARIETY FAB.	
MADE		TITLE	
CHECKED		BOOM HARNESS 16' ORBIT LIFT 2015	
QA		TANDEM HYDRO	
MFG			
APPROVED			
		SIZE	REV
		C	1
		SCALE	
		GO13740-15	
		SHEET 1 OF 1	

REVISION HISTORY			
ZONE	REV	DESCRIPTION	DATE
	1	CHANGED LETTERS S.T.U.V	1/21/2016
			MG

TROUBLESHOOTING

PLUS 1 ECU

When troubleshooting the Plus 1 ECU, use the diagnostic tool. The diagnostic tool is a “window” into the controller showing all inputs, outputs and the current status of the controller. (An example of an input would be the analog signal from the joystick. An example of an output would be the PWM signals to the hydraulic manifold to drive the wheels.) The diagnostic tool shows any active fault codes with the description of the code. All set ups and calibrations for the Plus 1 are done with the diagnostic tool. The tool is easily navigated with specific headings.

The items needed in order to troubleshoot the Plus 1 ECU are the Can link and software. The software is loaded onto a laptop computer and the Can link connects the computer to the Plus 1. Tool part number: GO 13160 For connector location. **See FIG. 26**

If the diagnostic tool is unavailable, the Plus 1 also will flash error codes with the LED status lights located on the controller. **See FIG. 26**

JOYSTICK REPLACEMENT

When replacing the joystick, be sure the indentation is pointed as indicated in **FIG. 26A**.

ERROR CODE CHART

Below is the error chart for the KSD1006_01_G2 red LED flash codes:

FLASH CODE	COMPONENT	ERROR
Constant ON	JOYSTICK	Error on both axis
Constant Flash	JOYSTICK	Joystick not calibrated
1	JS Y AXIS	Input value too low
2	JS Y AXIS	Input value too high
3	JS Y AXIS	Input value is at zero
4	JS Y AXIS	Input value at sensor power
5	JS X AXIS	Input value too low
6	JS X AXIS	Input value too high
7	JS X AXIS	Input value is at zero
8	JS X AXIS	Input value at sensor power
9	“Left Front” coil	coil/wiring error
10	“Left Rear” coil	coil/wiring error
11	“Right Front” coil	coil/wiring error
12	“Right Rear” coil	coil/wiring error

The red LED on the controller will flash according to the error that is being received, with joystick errors taking priority over coil errors.

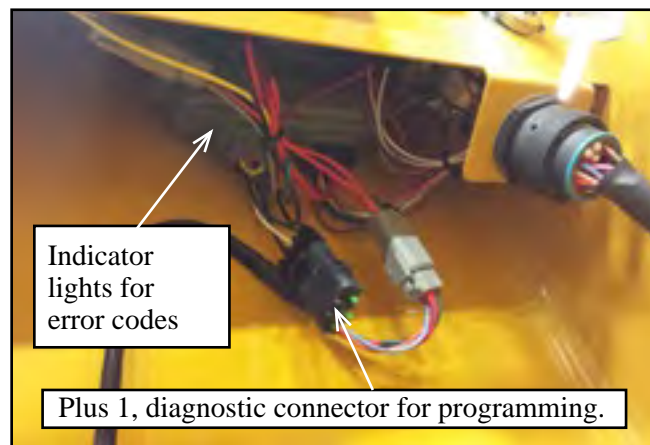


FIG. 26

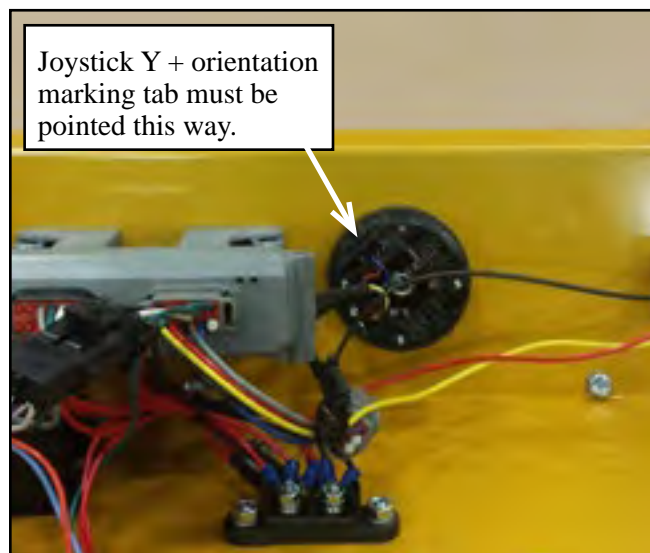
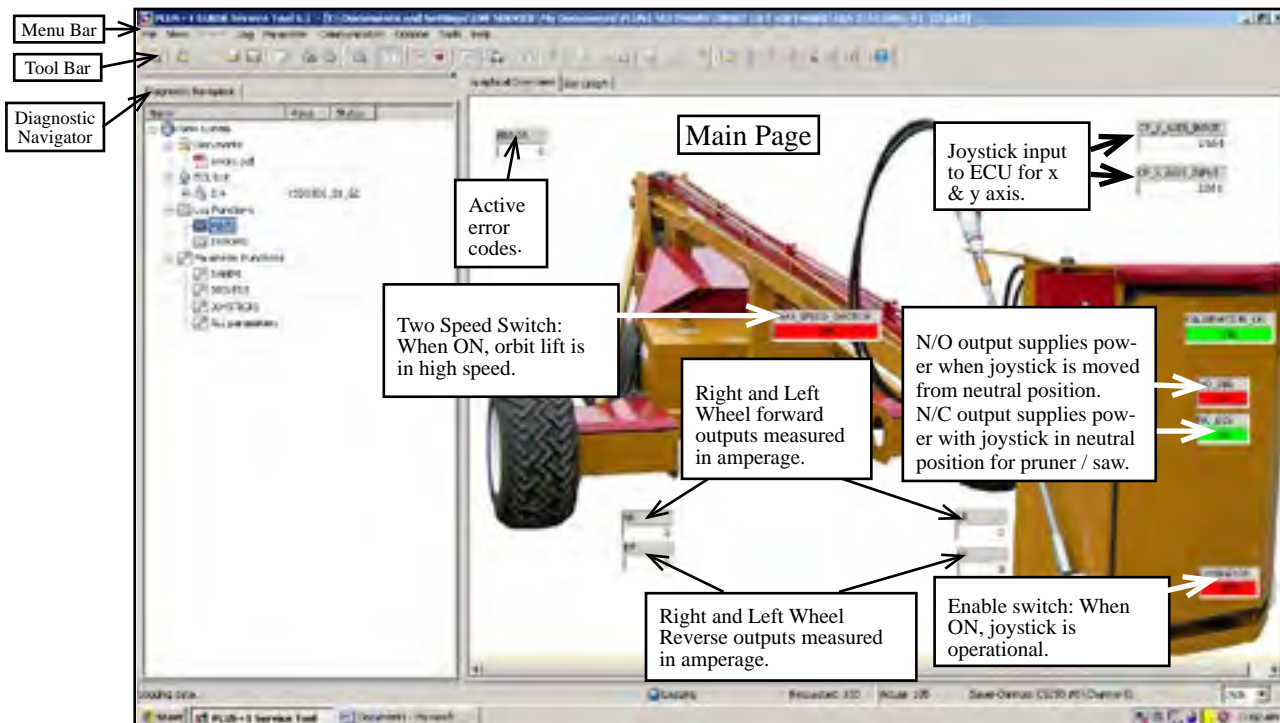
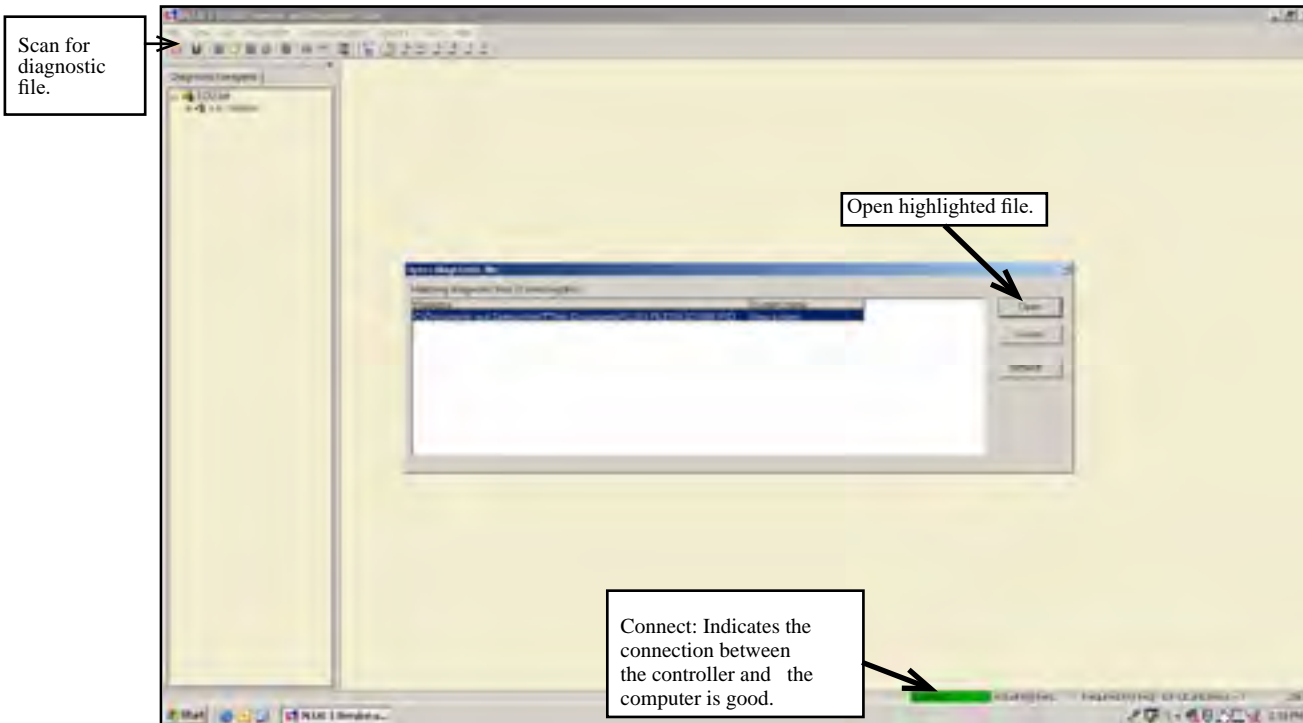


FIG. 26A

indefinitely until power is cycled. Cycling the power will reset the error/flash code data.

Note: The constant flash rate for the joystick being out of calibration is noticeably faster than the regular flash code pattern.

USING THE DIAGNOSTIC SOFTWARE



Using the diagnostic software continued.

Upload must be clicked before any change can be made.

Download must be clicked after a change is made to save data.

Ramps Page

Type in time desired into field then press enter.

Ramps are in m/s and 1,000 m/s = one second

Warning! Test the performance of the orbit lift in an open area when adjusting any ramps or PWM outputs. Always jack up the drive wheels when making any adjustment.

Low speed percentage adjusts the speed in low in all directions.

Drivers Page

Use PWM PERC if wanting to reduce or increase speed and not correct steering.

High speed percentage adjusts the speed in high in all directions.

To adjust click upload then highlight data to be changed and type in desired value then click download.

Low Max % is a percentage of high speed. The higher the percentage, the faster low speed is.

Note: To make the orbit lift drive straight, adjust PWM Max for high speed in each direction. Next adjust the Low Speed percentage for both wheels to drive straight. Then click download to save data.

PWM Start is the initial amperage to move the machine.

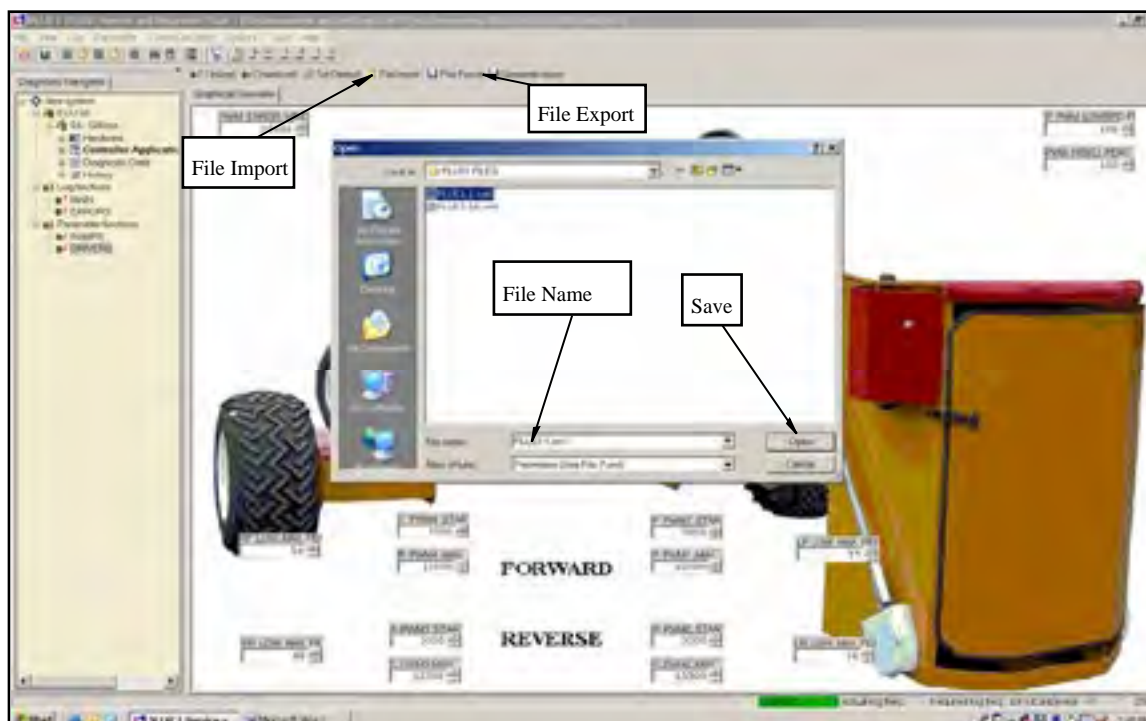
PWM Max is the maximum amperage for high speed. To correct steering in high, adjust these amperages.

All Parameters: Shows settings for Ramp, Drivers and Joysticks and allows one import to set all parameters.

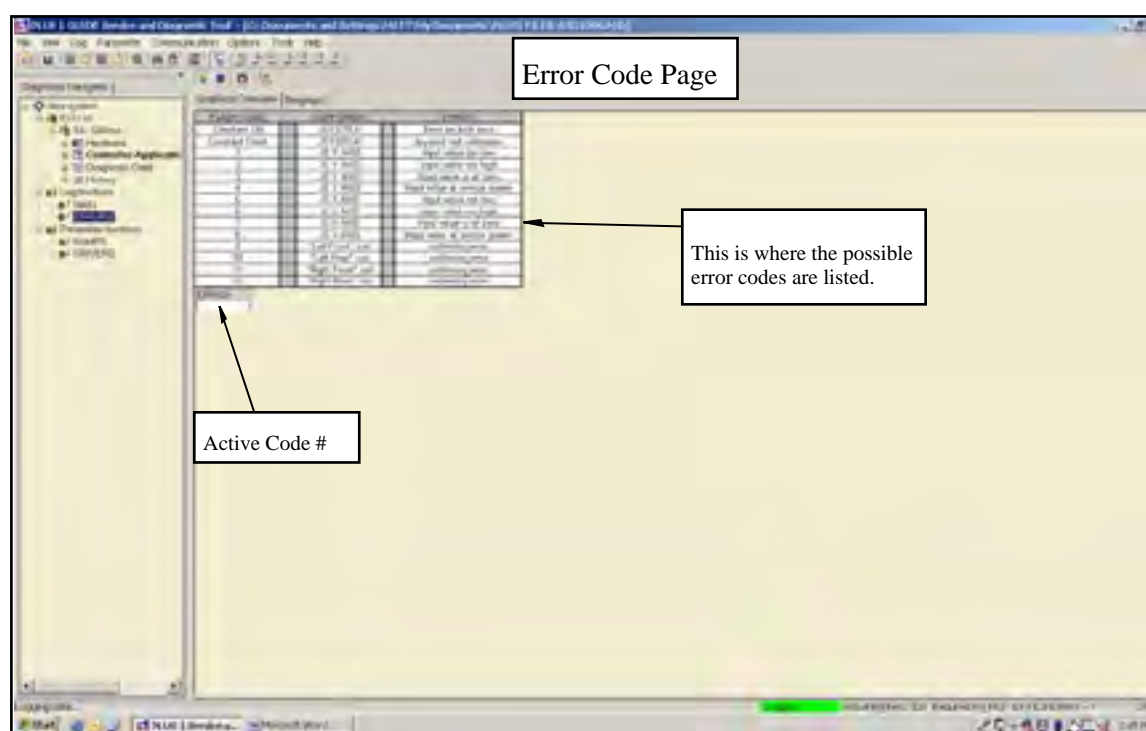
[illegible]

Using the diagnostic software continued.

To save a calibration to your computer hard drive for future downloads: Click File Export, Name the File and Save on your hard drive for future use.



To import a calibration file: Click on File Import, select the file on your hard drive and Open. Then click Download.



ORBIT LIFT 2015 HYDRO DRIVE OPERATION

Drive system

PM10 pump is a variable displacement, axial piston pump, with swash plate system, for closed loop hydrostatic transmissions.

It provides a continuously variable flow rate between zero and maximum in forward and reverse direction. Flow rate is proportional to rotation speed and swashplate angle.

A charge pump located in the pump closest to the engine takes oil supplied from the auxiliary circuit and supplies a constant 300-400 psi to the hydrostats.

The front pump controls the left hand wheel, the back pump (closest to the engine) controls the right hand wheel. EP1 and EP2 on each pump control the pump displacement by PWM signal.

EP1 = forward

EP2= reverse

The pump and motors are closed loop. Example: The oil leaving the A Port on the pump goes to the motor inlet and turns the motor then leaves the return port on the motor and enters the B Port on the pump.

There is a loop flushing valve that drains some oil from the loop to keep the oil cool.

There are high pressure reliefs in the pump to limit the pressure.

PM10 Pump specs

Displacement: 0.55 ci

High speed setting on engine: 2500 RPMs

Charge pressure 300-400 PSI depending on engine speed

Relief valve setting: 4300 PSI

Flow GPM at 2500 RPMs = 6 GPM

Transport mode

When the transport switch is illuminated "on," the brake valve # 3.2 in the manifold is energized to supply 300-350 psi oil pressure to release the brakes. The transport selector valve # 3.1 is also energized; it supplies charge oil to valves #9.1, #9.2, #9.3, #9.4, #9.5. Charge pressure oil is supplied to flow control # 10 to the inlet of the WCD valve # 9.1. The oil flows from the WCD valve to the case drain on the wheel motors until the pressure reaches 25 psi. The oil pressure is limited by the 25 psi check # 11 to 25 psi. The WCD valve # 3.1 shuts off the oil to tank and supplies 25 psi to push the pistons off the cam in the motors.

Valves #: 9.2, 9.3, 9.4, 9.5 connect A and B ports on the wheel motors to the tank.

Valve # 9.6 connects the auxiliary pump P to the tank to bypass the valve so none of the auxiliary functions can work. Example: lift the boom.

Work mode

The transport switch is switched off the transport valve # 3.1 is DE energized shutting off charge pressure and draining the oil from valve # 9.1-9.6 to tank.

9.1 drains oil from the wheel case drains to tank

9.2 - # 9.5 shut off the wheel motors A and B drain to tank and connect them to the pump.

9.6 shuts off the axillary pump P connection to tank so the oil is supplied to the functions in the manifold.

Auxiliary pump circuit

Oil from the 9 cc gear pump enters the control valve the oil pressure is limited by relief valve # 1 to 1800 psi. Oil is directed through # 9, the bypass valve, to # 2 the flow divider. 4 gpm of oil goes to the boom lift control valve # 4 and then continues to the axle slide valve # 7 then it recombines with the excess flow oil at the pruner saw valve inlet # 8 then oil is returned to tank.

Auxiliary pump specs

Displacement: 0.55 ci

Relief valve setting: 1800 PSI

Flow GPM at 2500 RPMs = 6 GPM

Boom lift

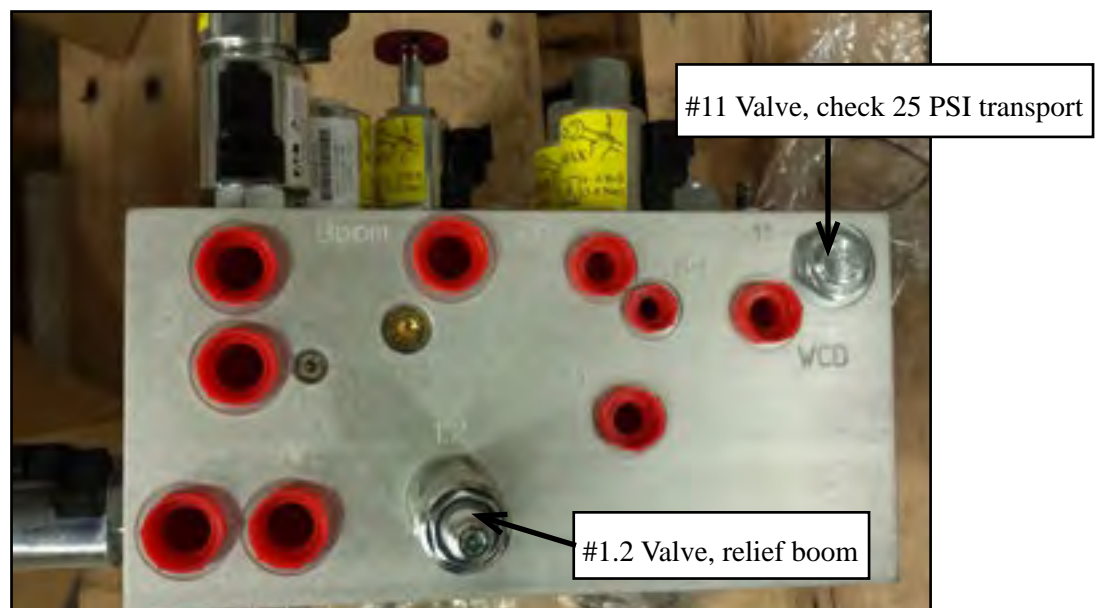
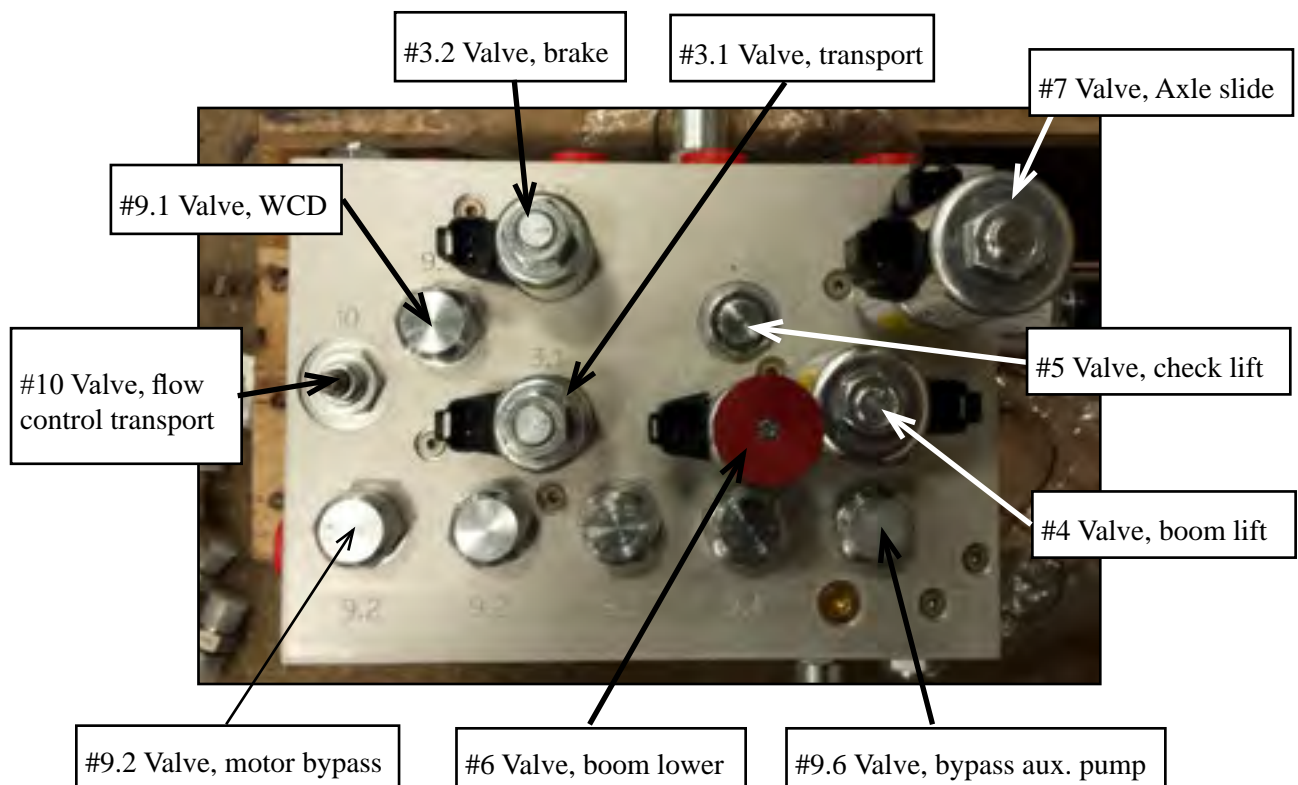
Lift valve # 4 is energized 12v to shift valve and allow oil to go over check valve # 5 and then goes to lift cylinder to extend it. Relief valve # 1.1 limits the pressure.

Boom lower

#6 - Lower valve is energized 12v to shift valve and allow oil to return to tank from the lift cylinder. There is also a manual override on the valve.

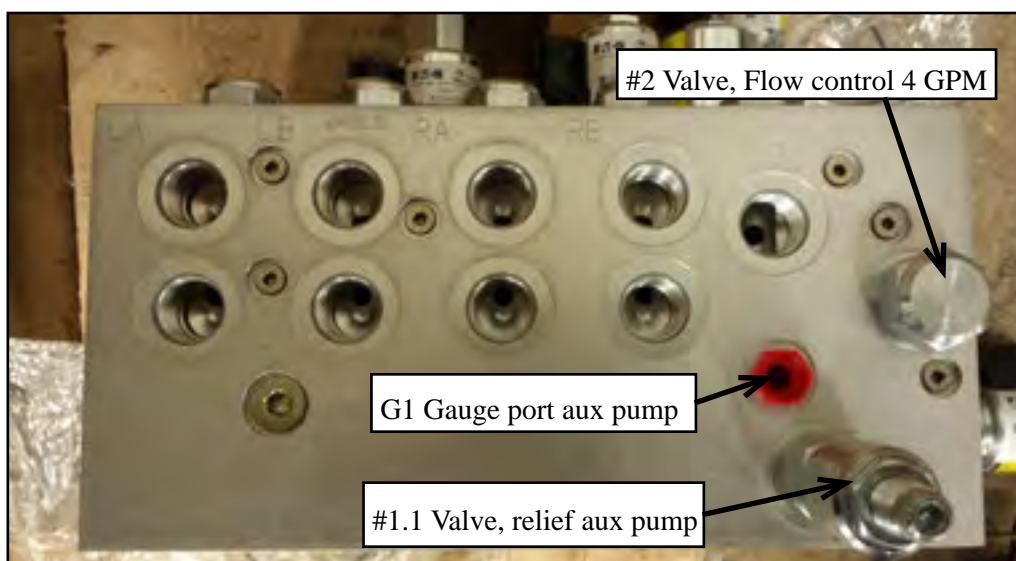
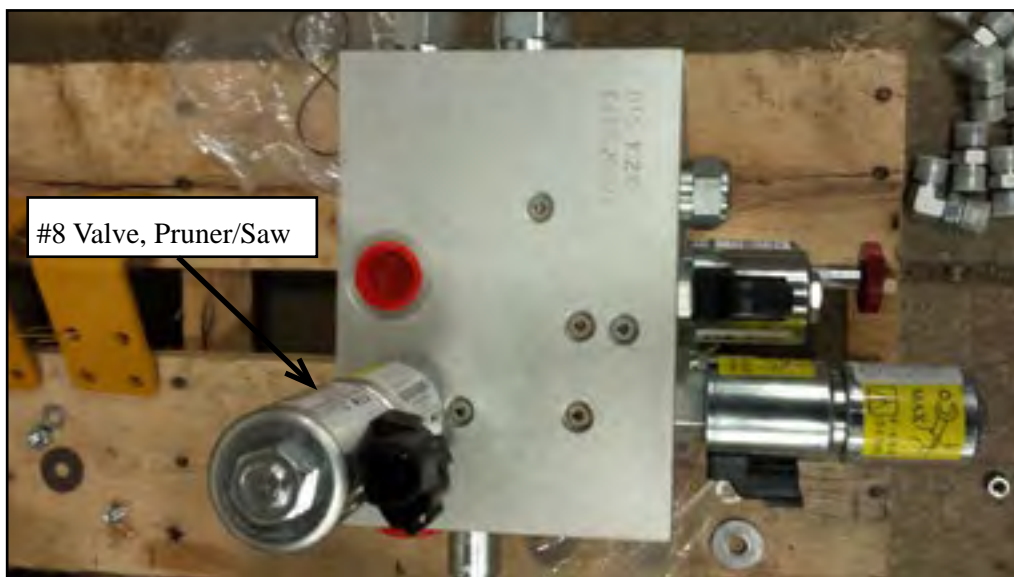
To adjust flow control for transport pressure: turn out to increase pressure and then lock the jam nut.



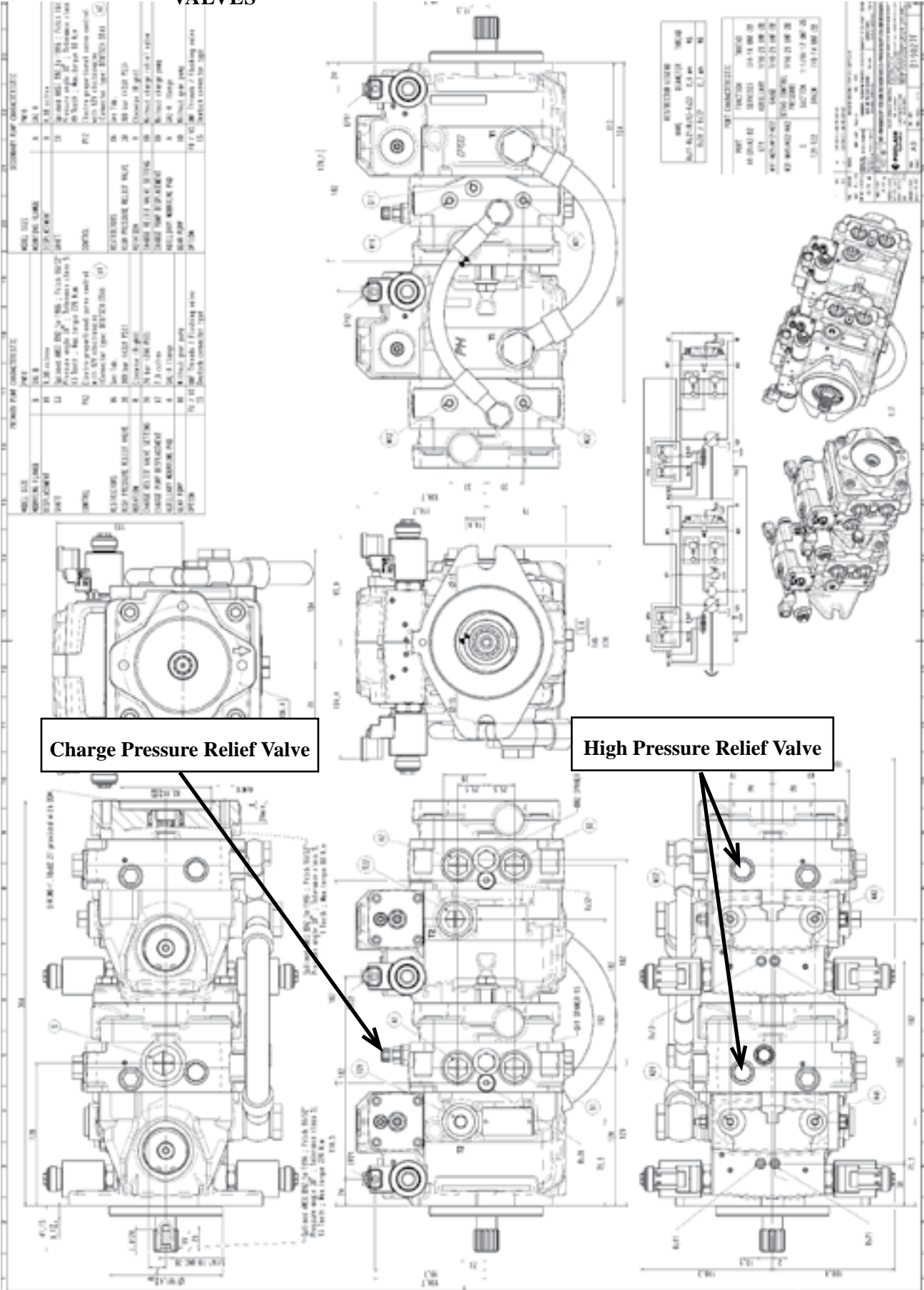
HYDRAULIC MANIFOLD VALVE**GO 13625**

Hydraulic Manifold Valve Continued

GO 13625



POCLAIN, PM10 PUMP, PRESSURE RELIEF VALVES



HYDRAULIC SYSTEM

Hydraulic diagnostic pressure gauge port location for auxiliary pump.

See **FIG. 27**

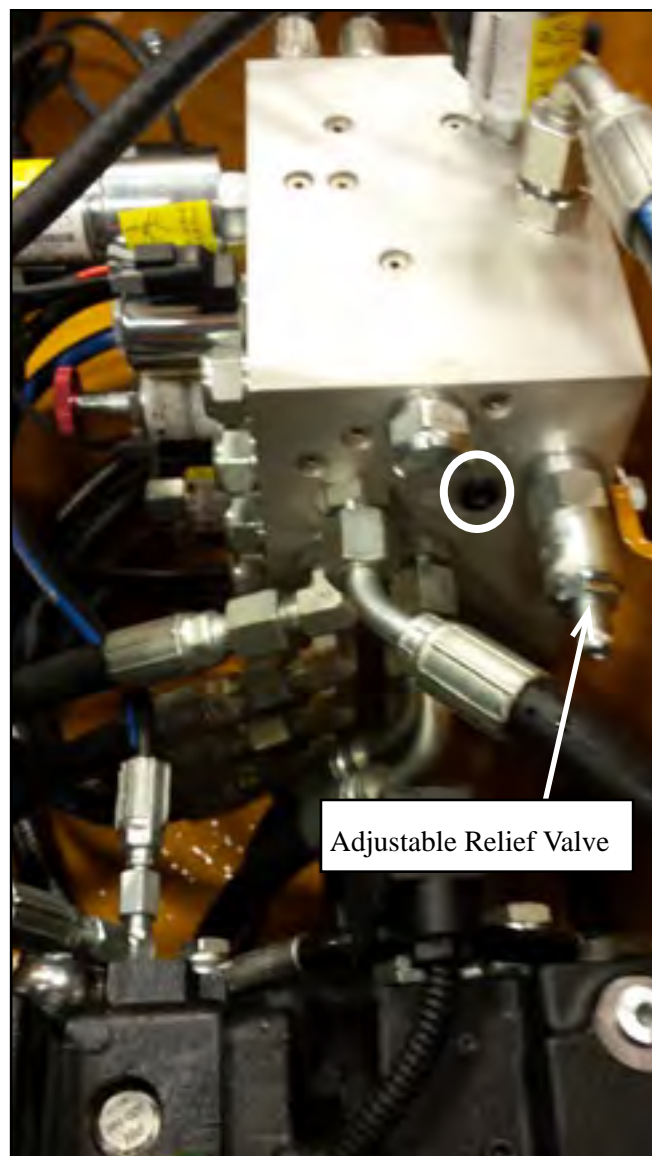
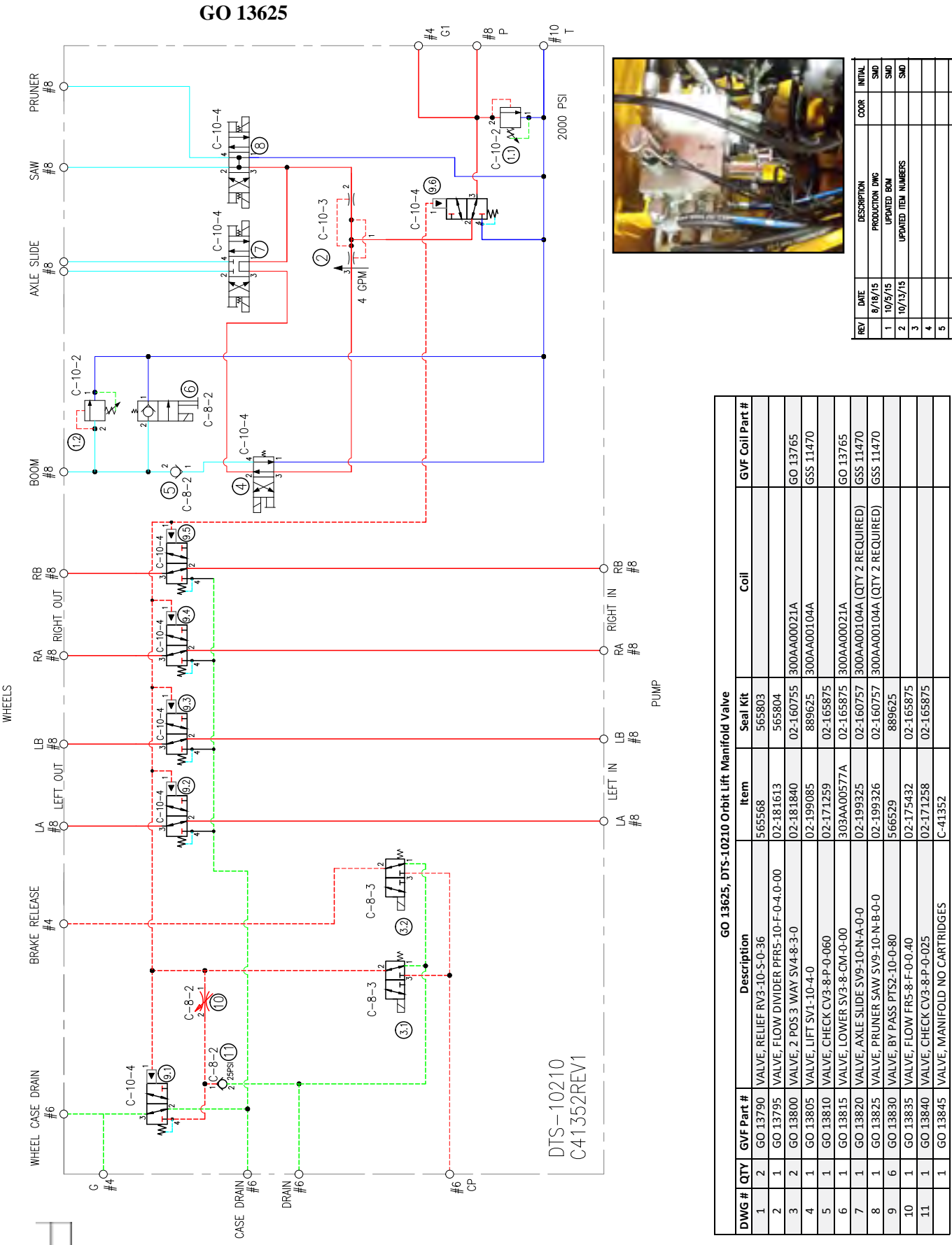
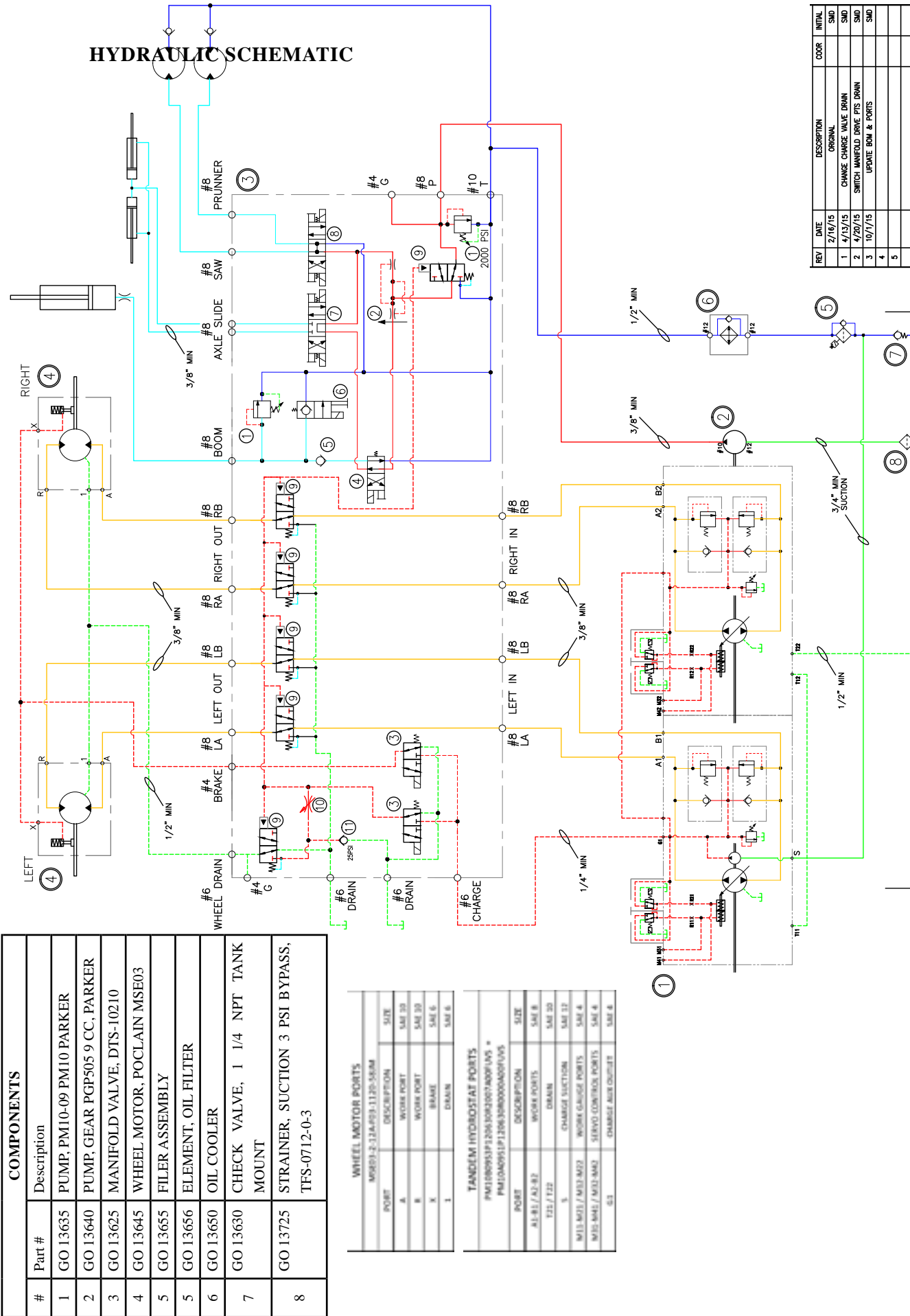
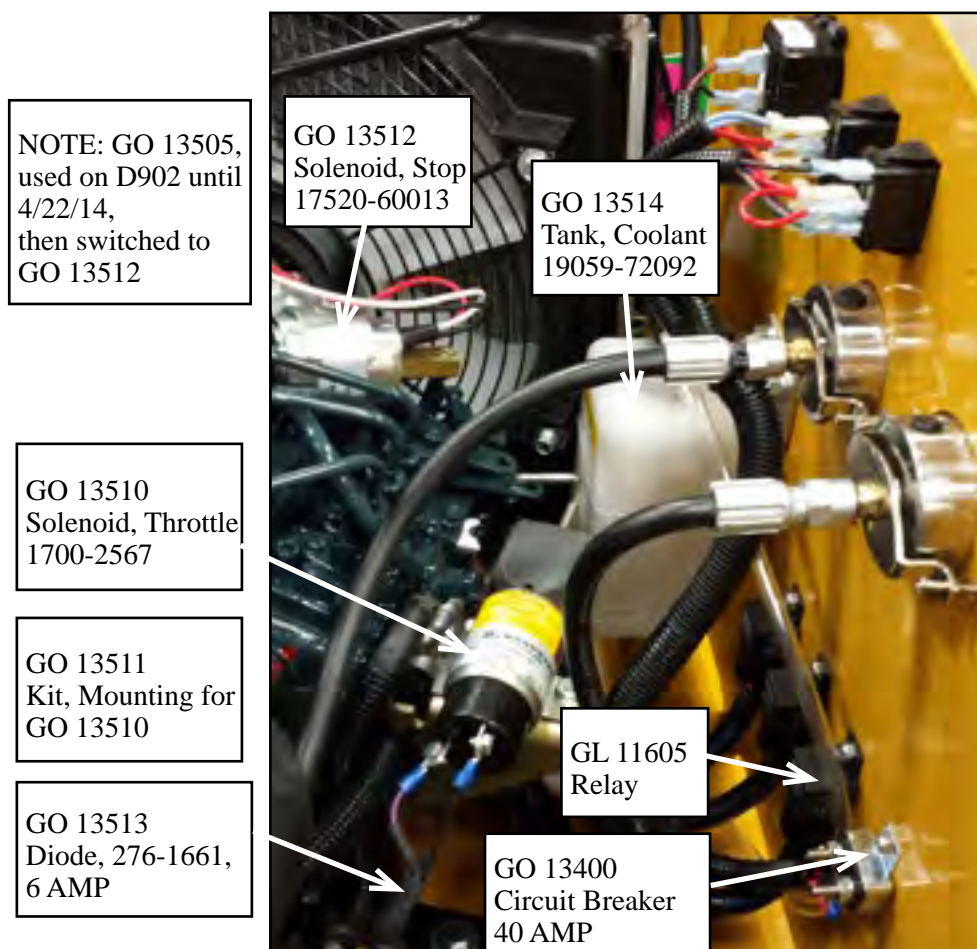
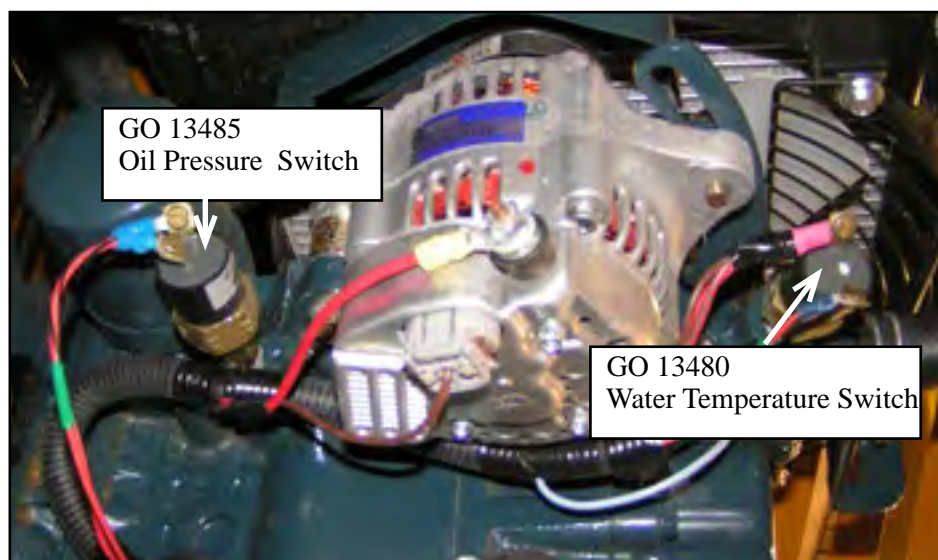


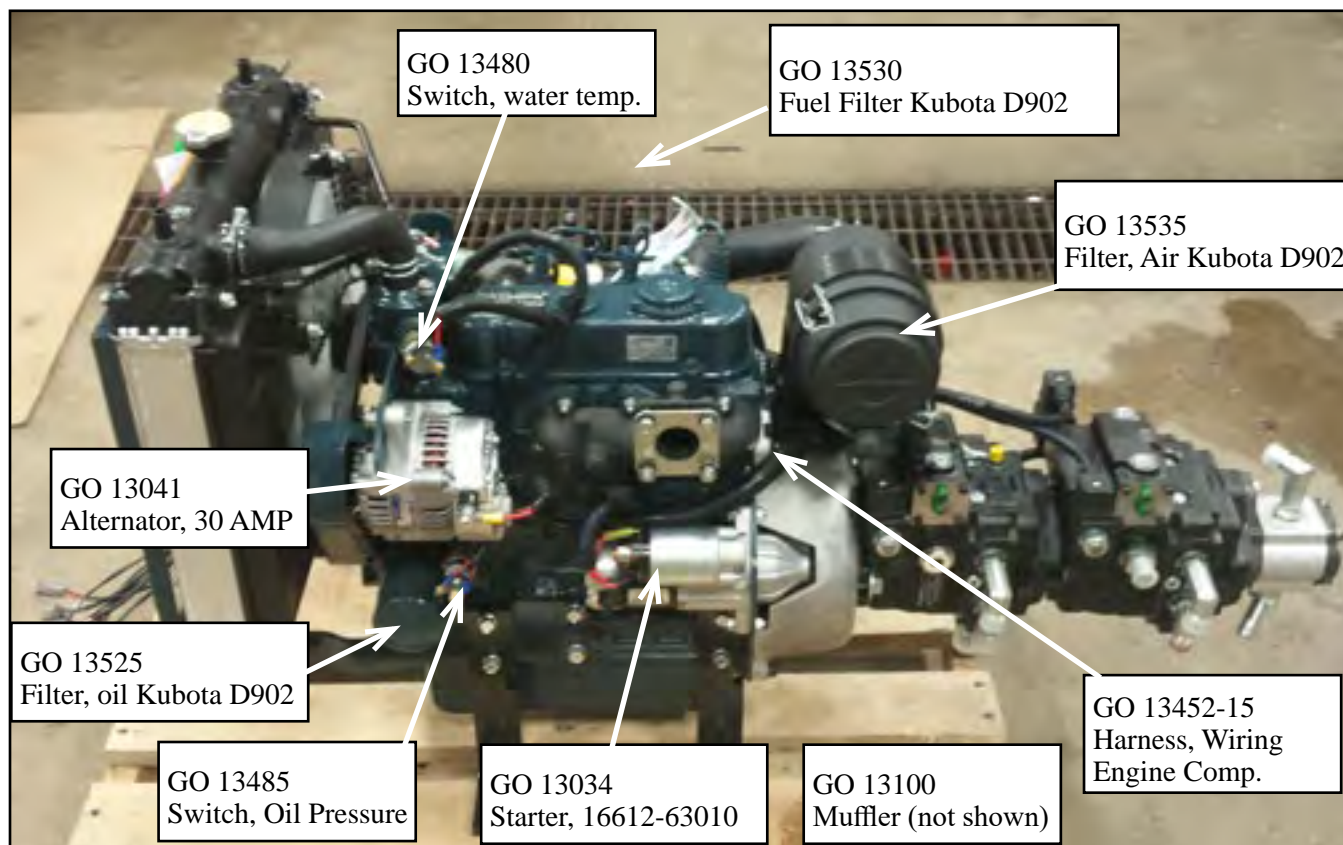
FIG. 27

HYDRAULICMANIFOLDVALVESSCHEMATIC

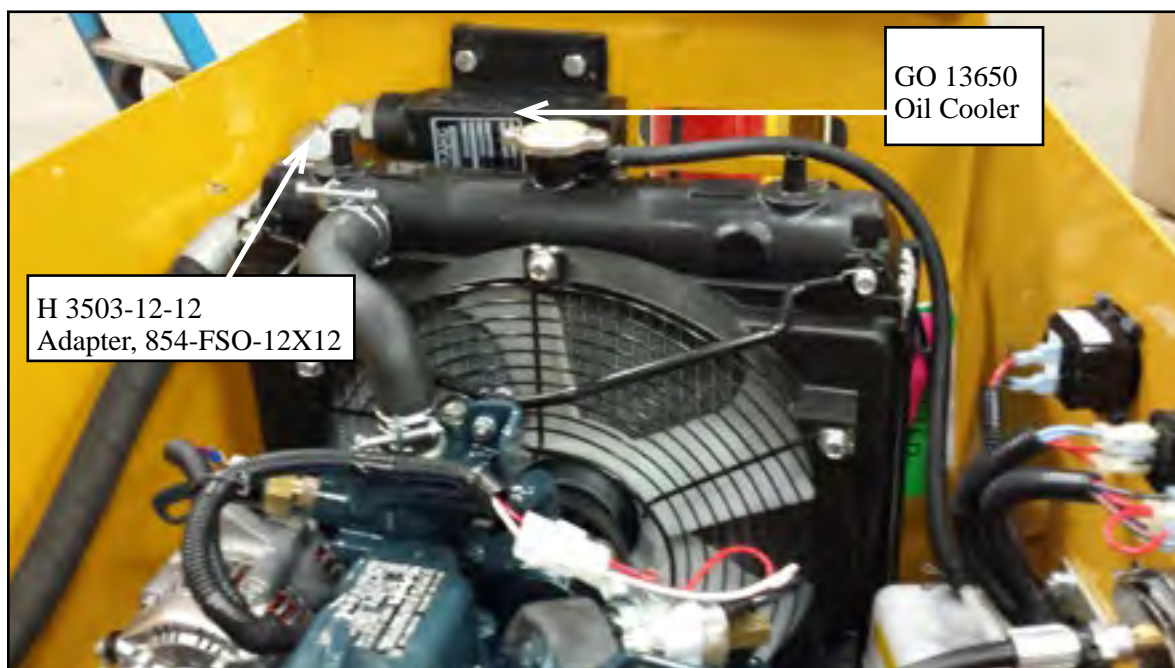
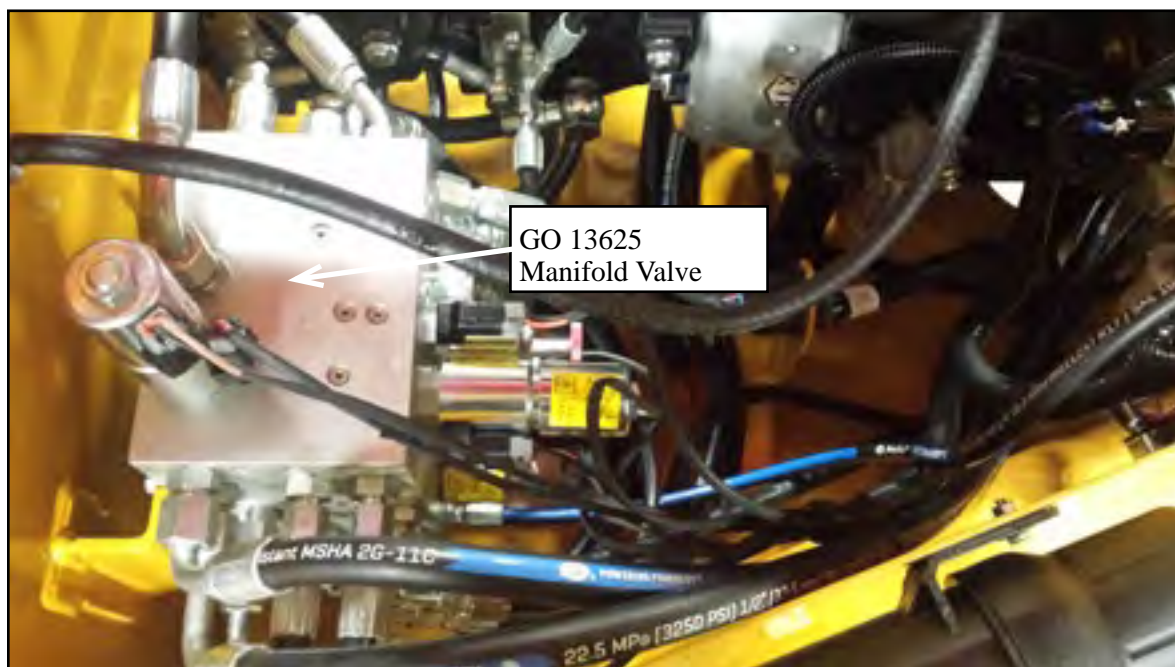


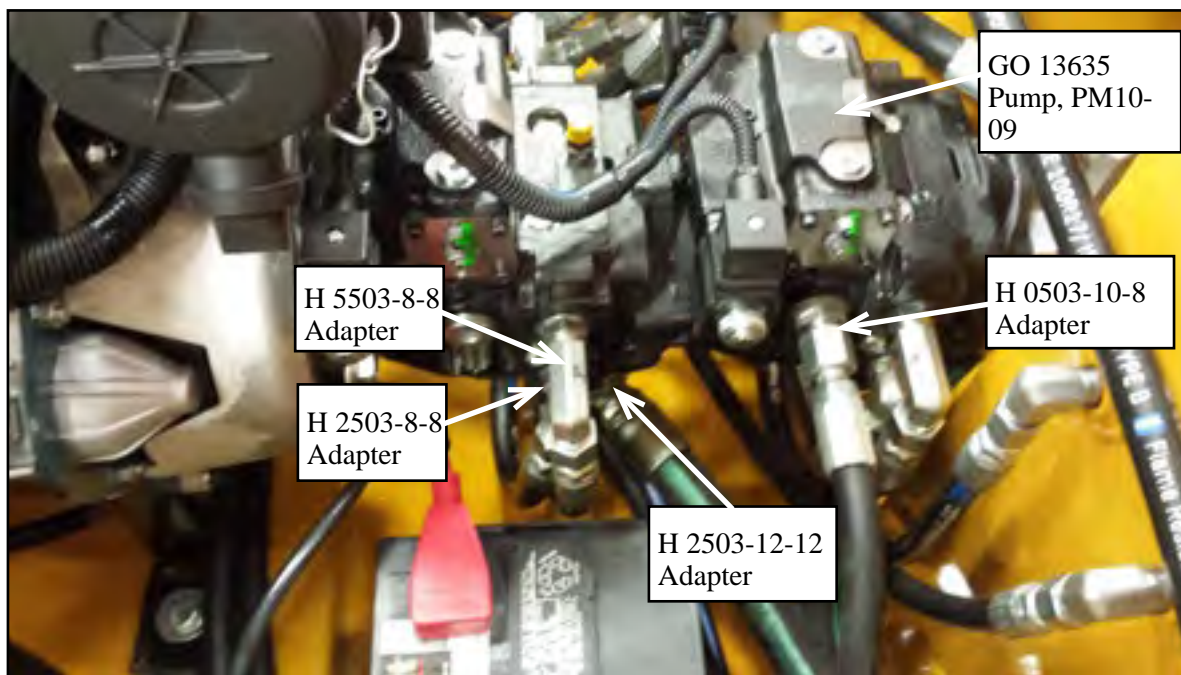
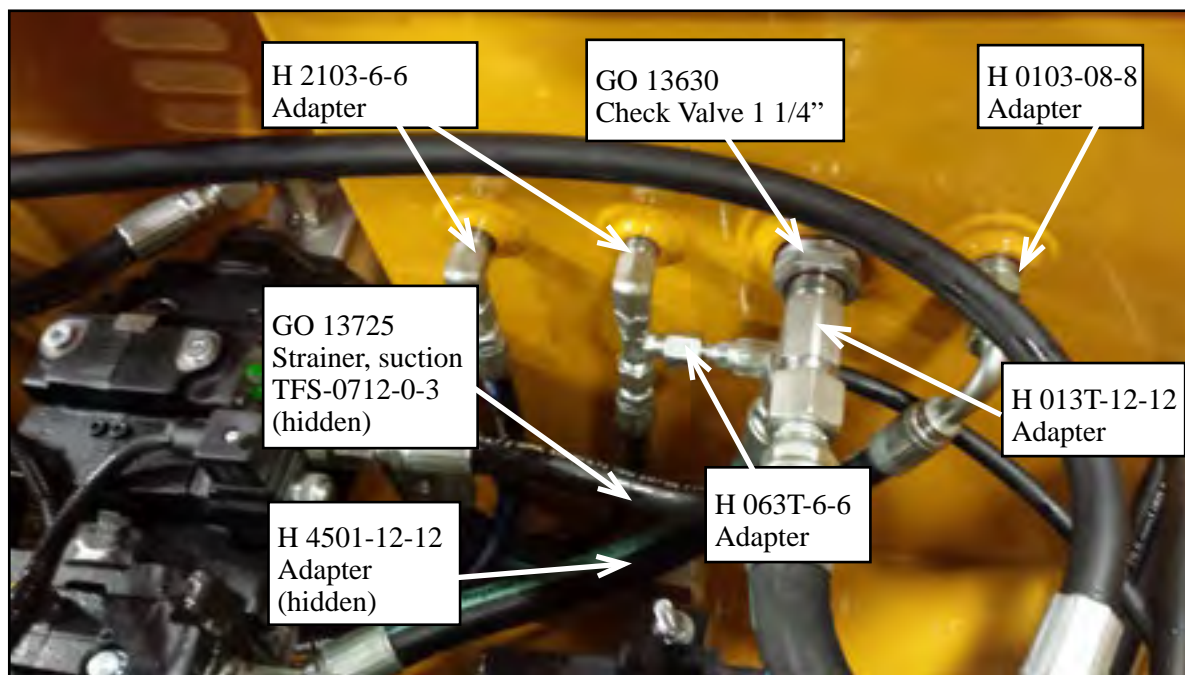


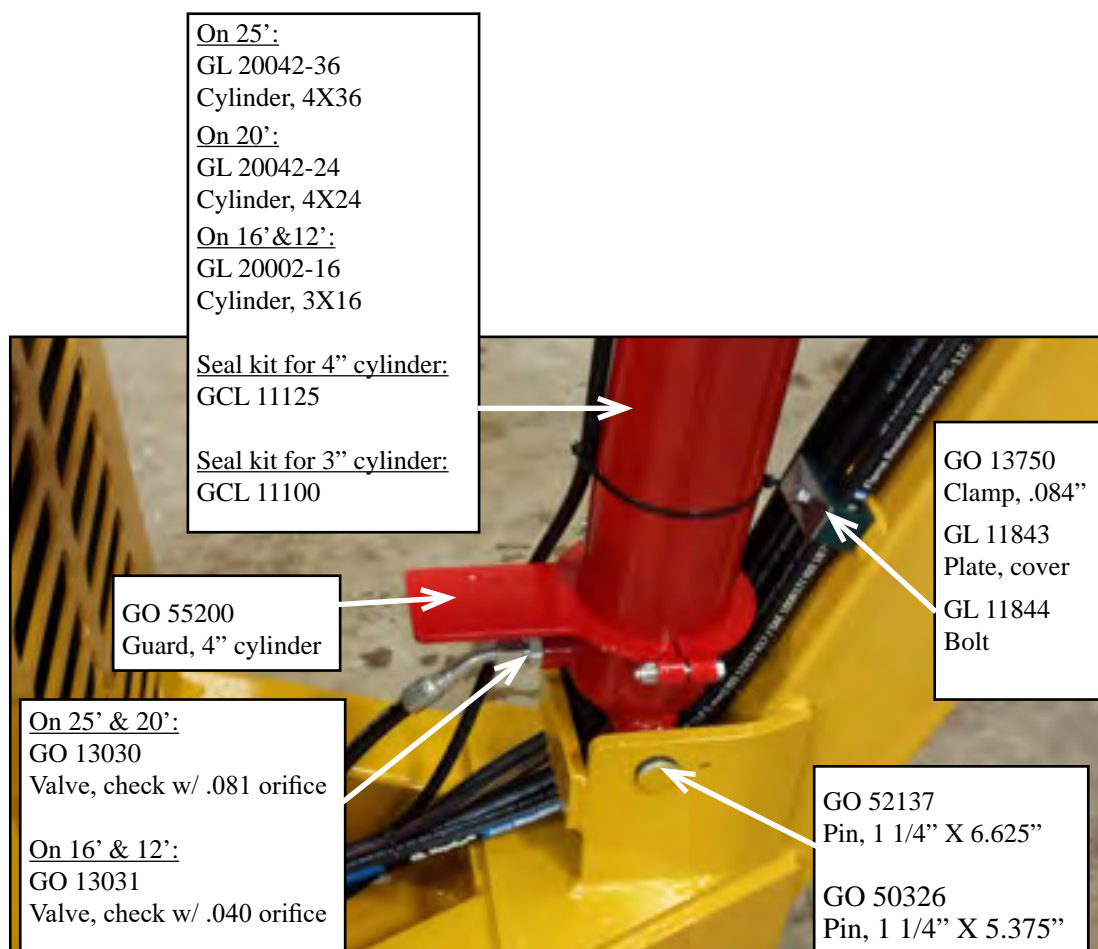
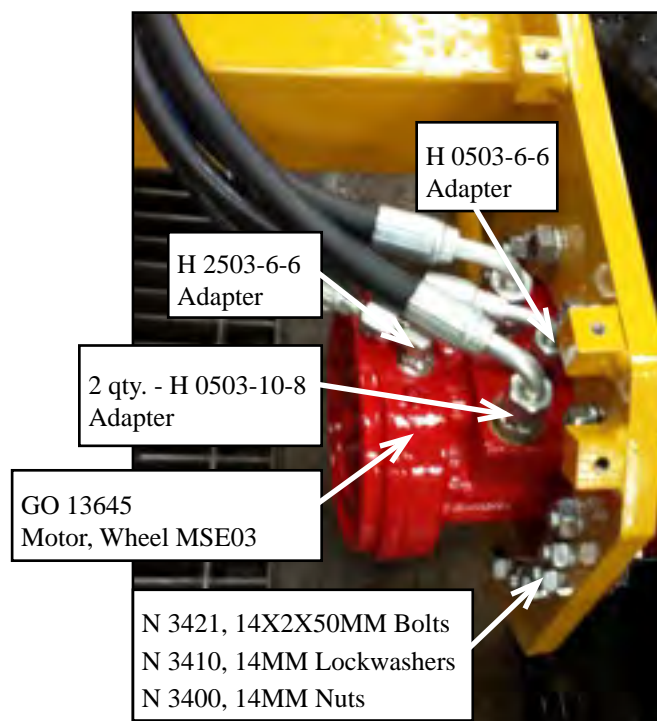
PARTS**GENERAL ENGINE PARTS**

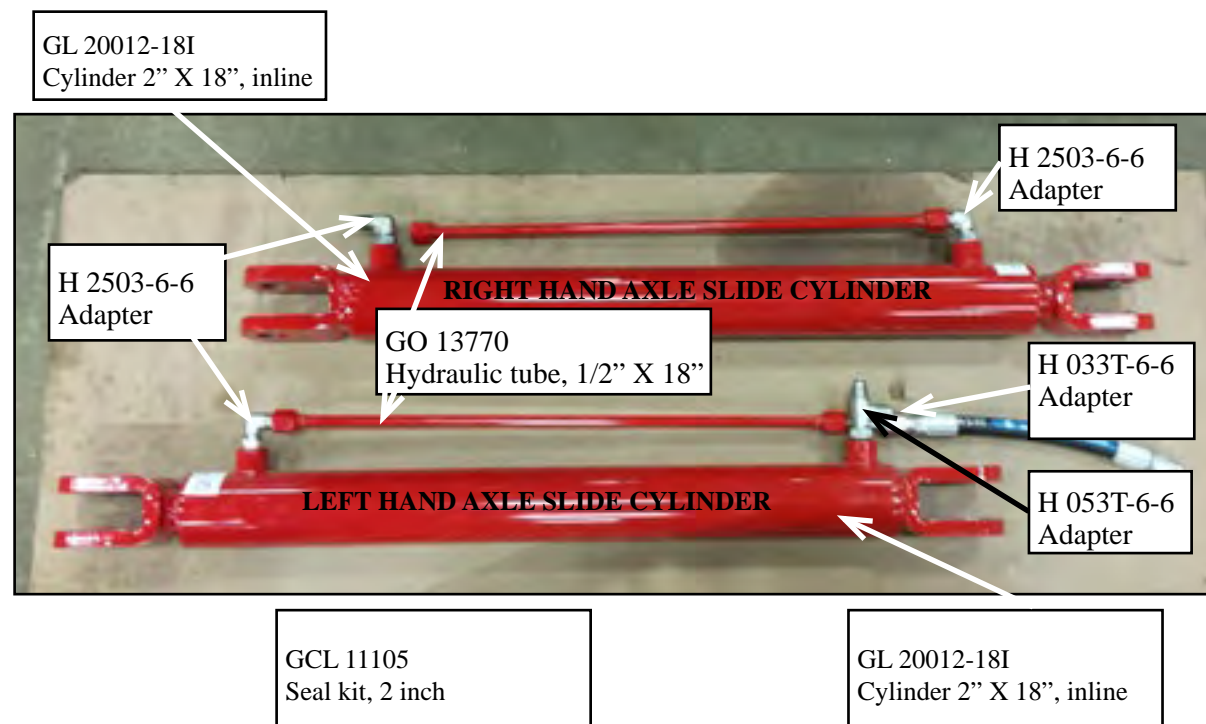
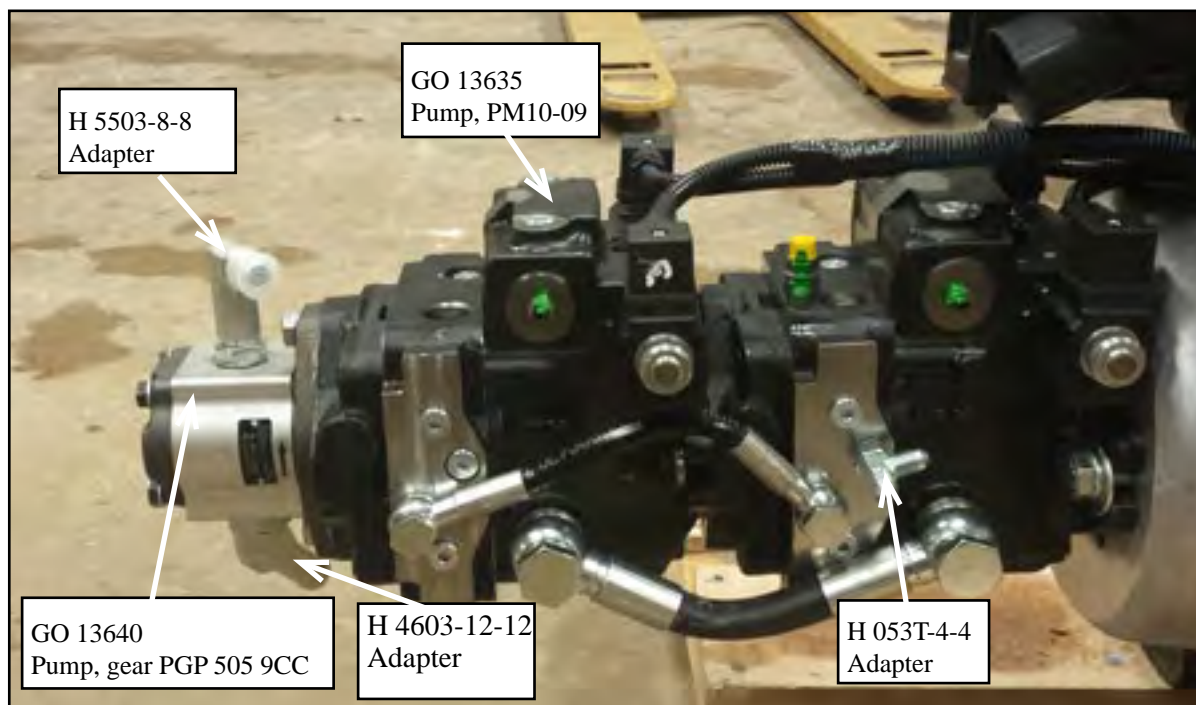


HYDRAULIC PARTS

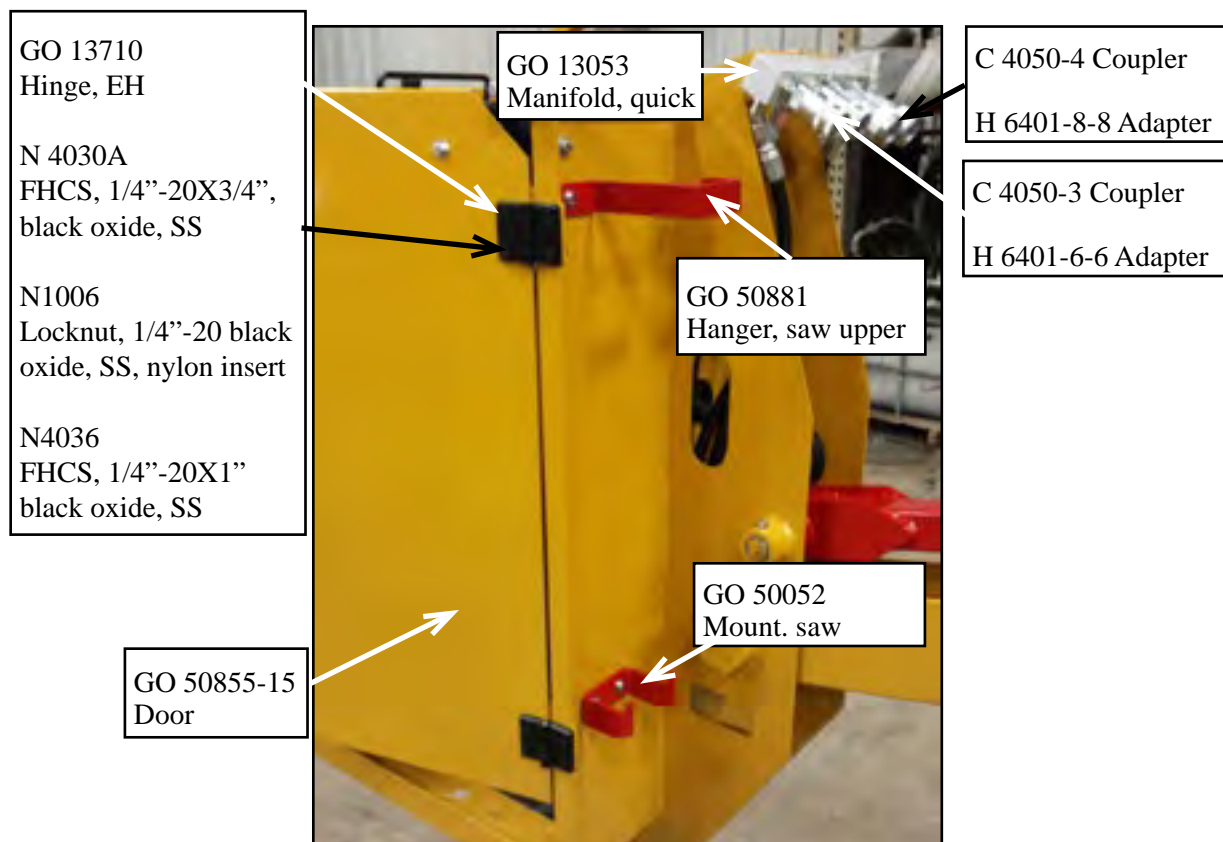
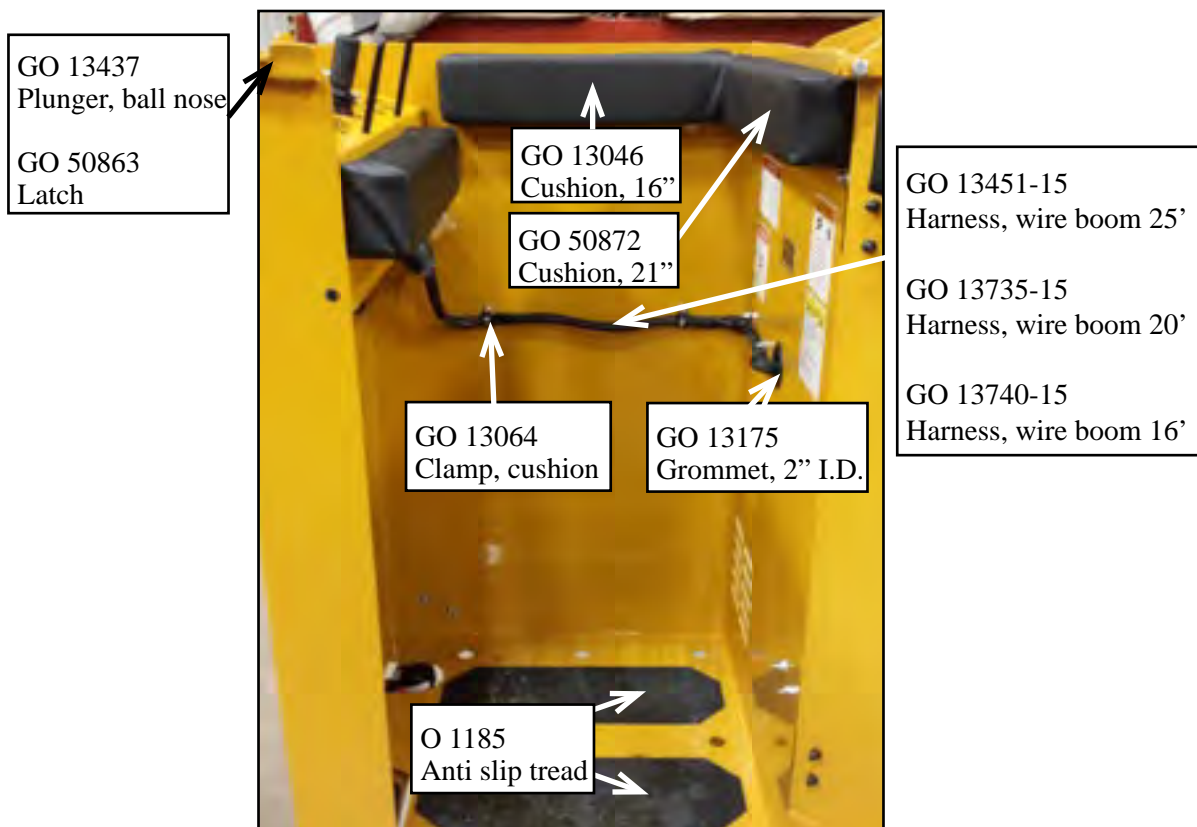


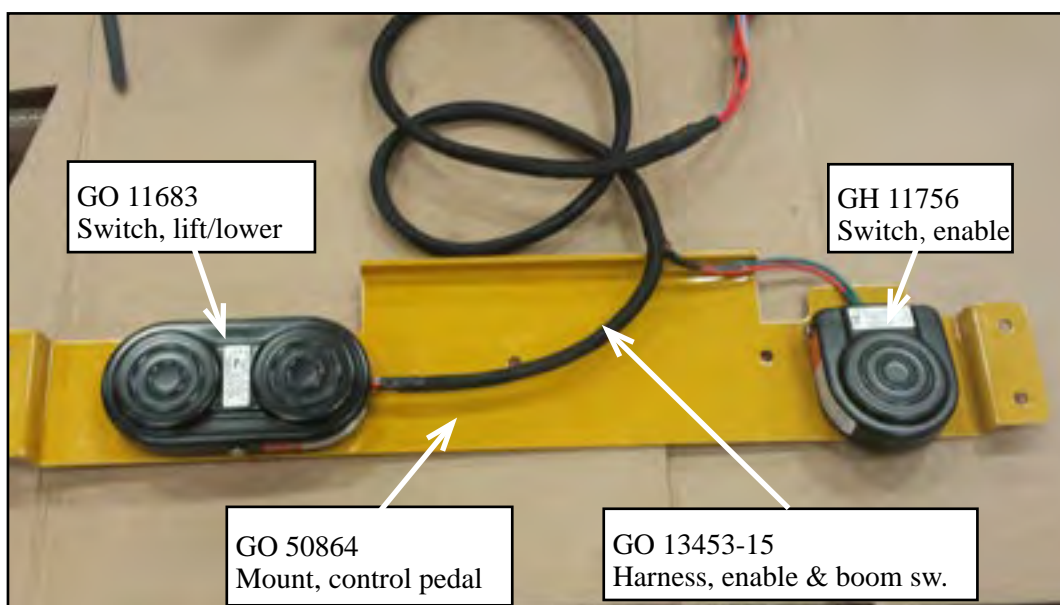


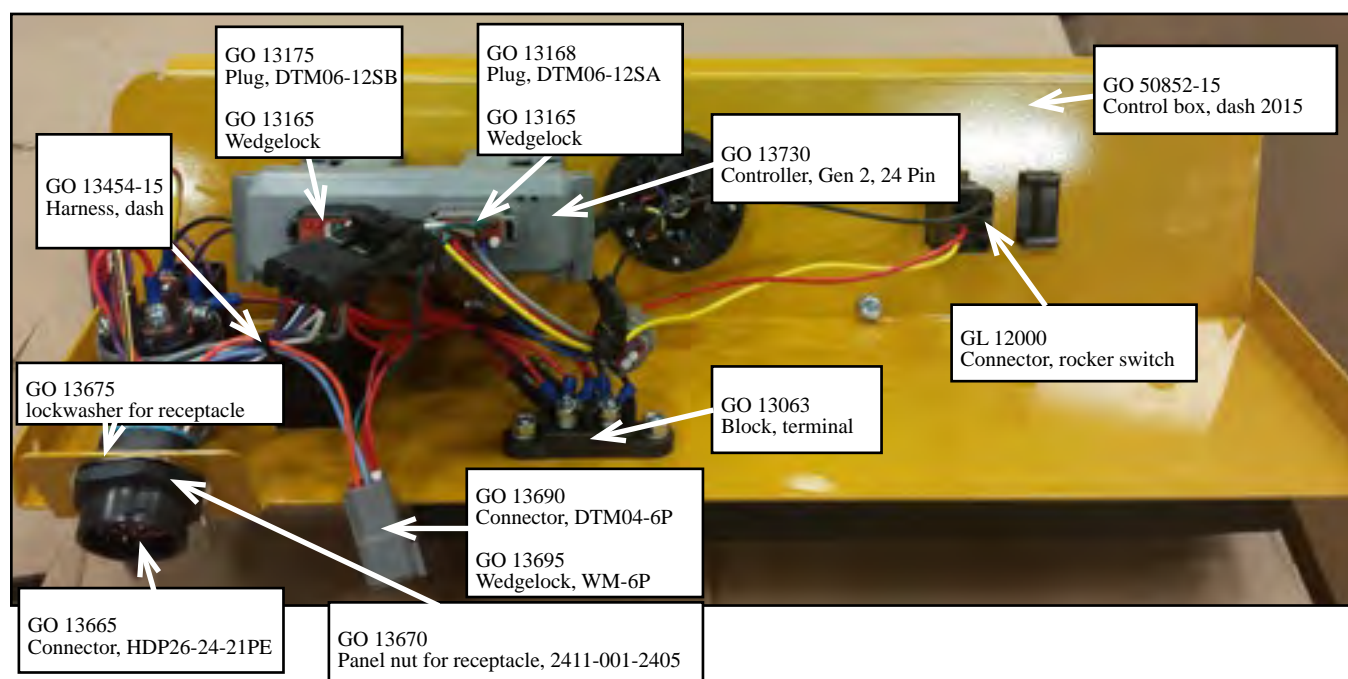
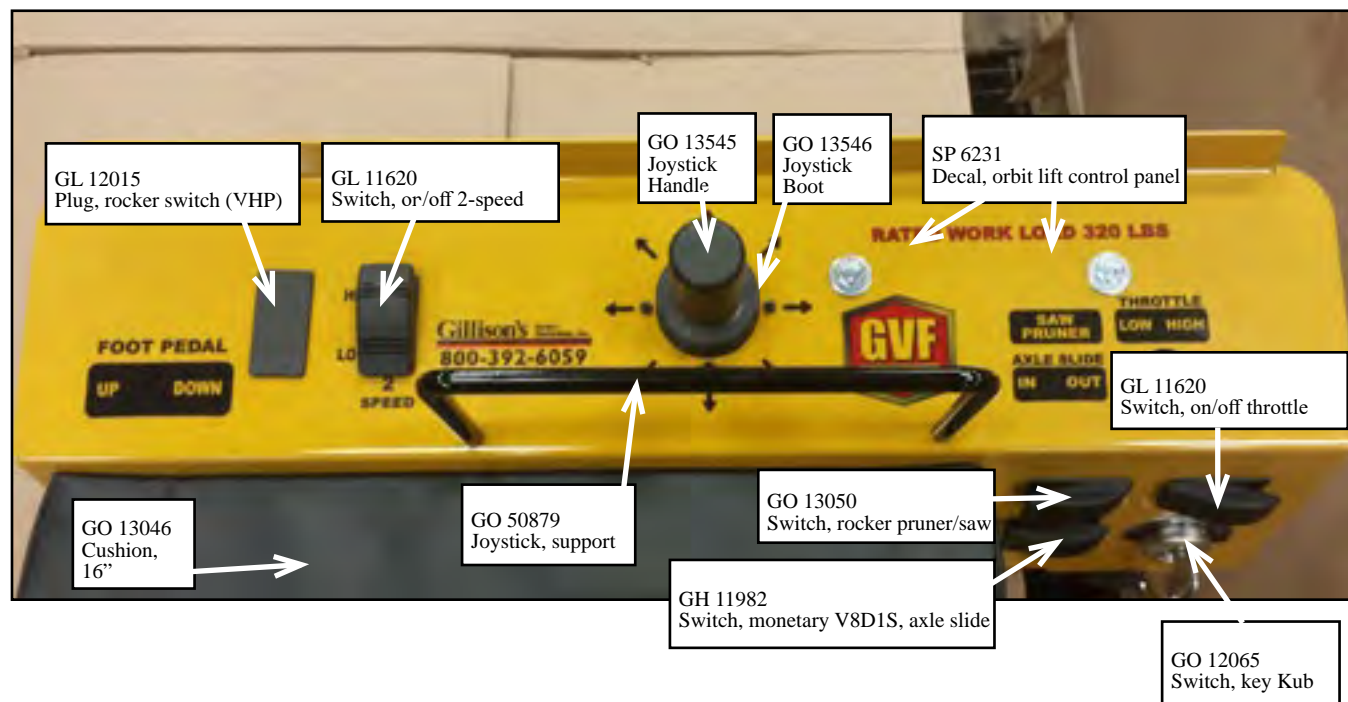




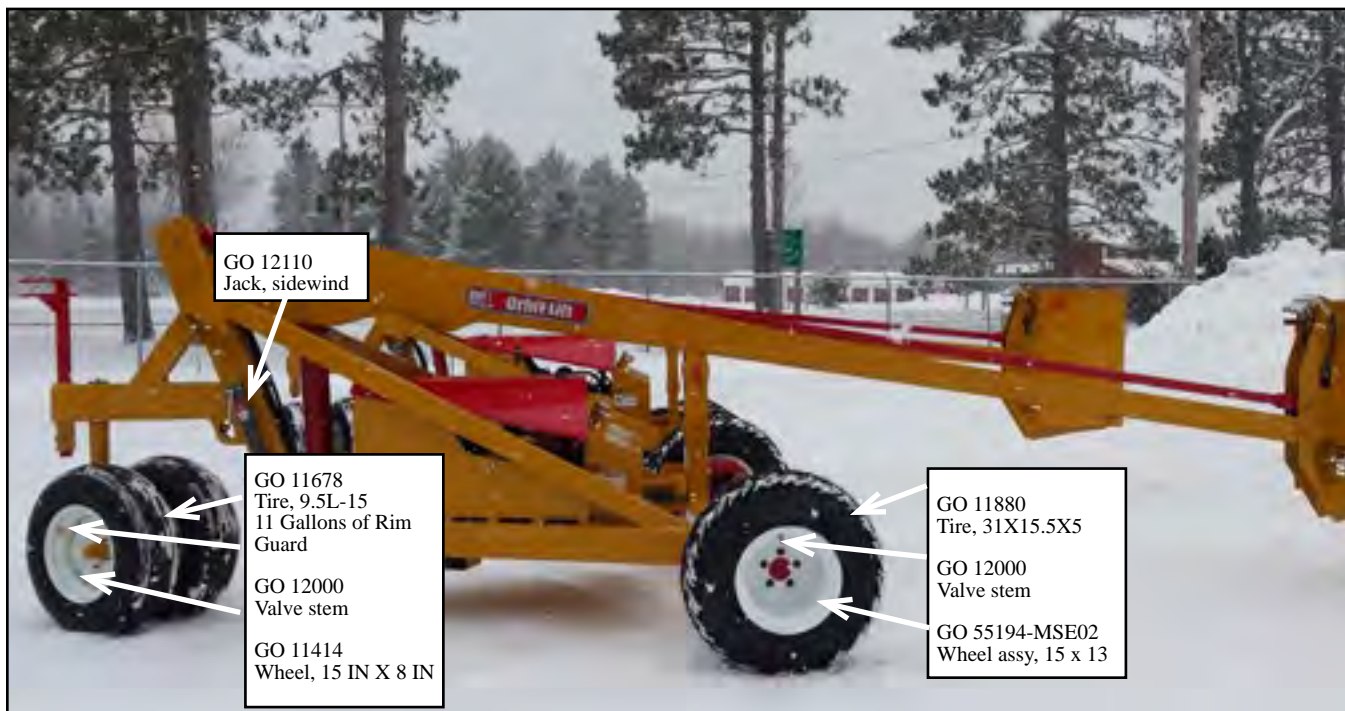
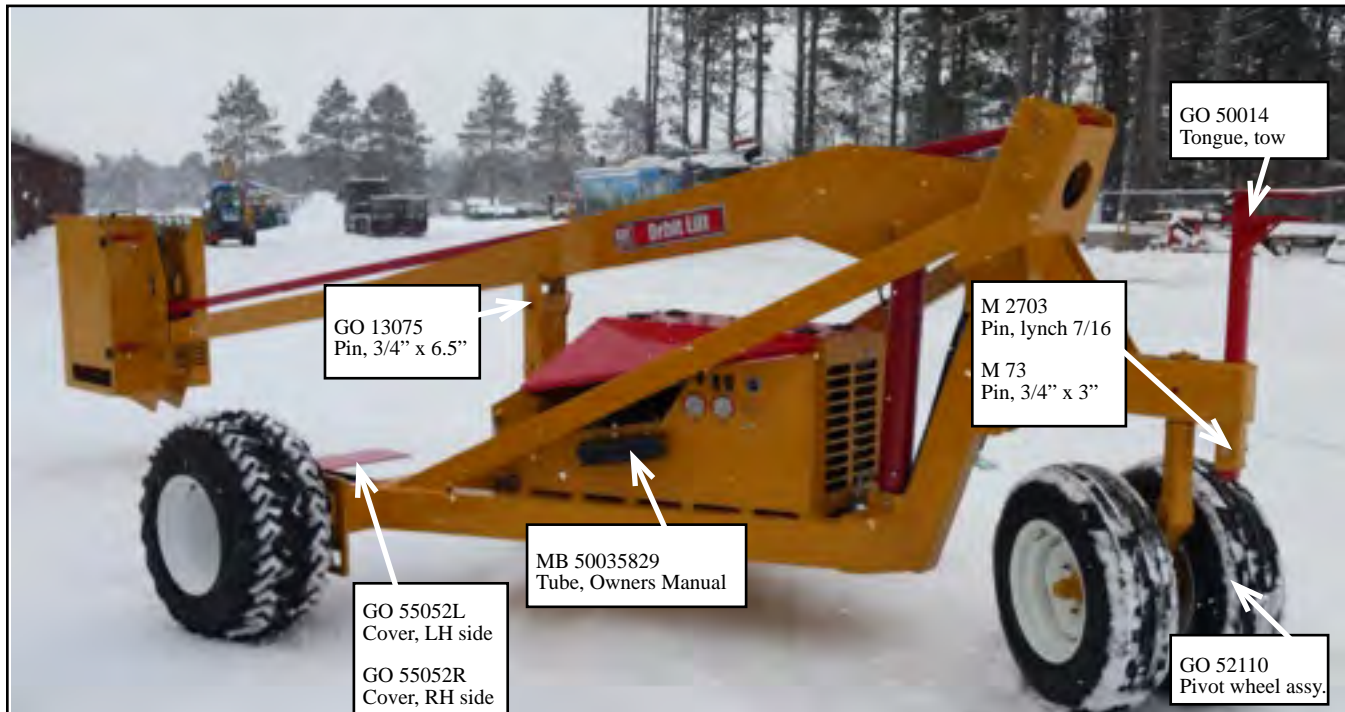
OPERATOR'S PLATFORM PARTS

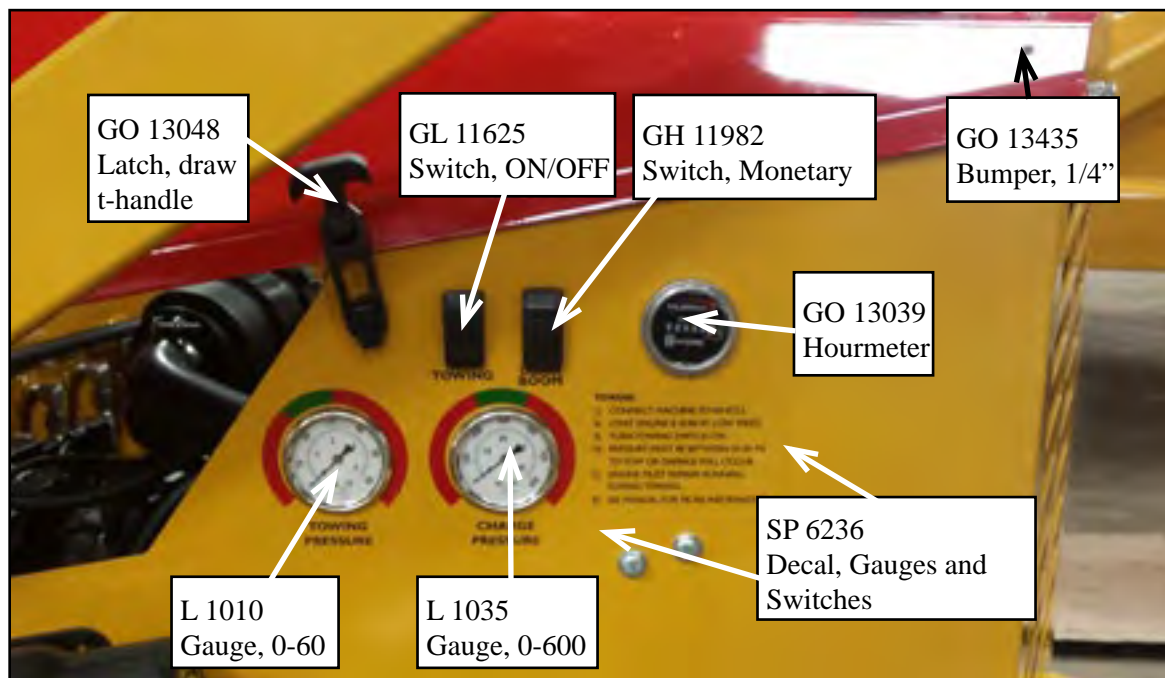






GENERAL PARTS





G 1071
Sight glass, 3/4"

GO 55167
Hood, RH

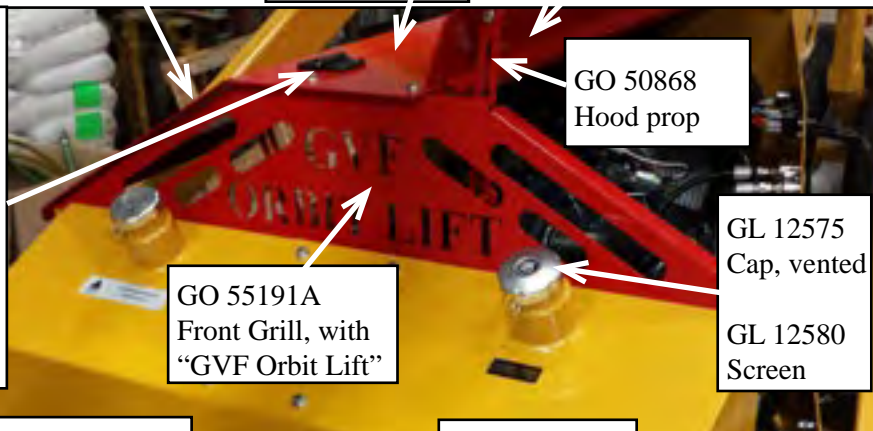
GO 55166
Hood, Center
Support

GO 55171
Hood, LH

GO 13710
Hinge, EH

N 4030A
FHCS, 1/4"-20X3/4",
black oxide, SS

N1006
Locknut, 1/4"-20 black
oxide, SS, nylon insert



GO 55191A
Front Grill, with
"GVF Orbit Lift"

GO 50868
Hood prop

GL 12575
Cap, vented
GL 12580
Screen

GO 11851-15
Tank, oil assy.

GO 11850-15
Tank, fuel assy.

GO 12020
Hosebarb, 1/2"

N 1170
HHCS, 5/16-18 X 1 GR 5

N 1150
Lockwasher, 5/16"

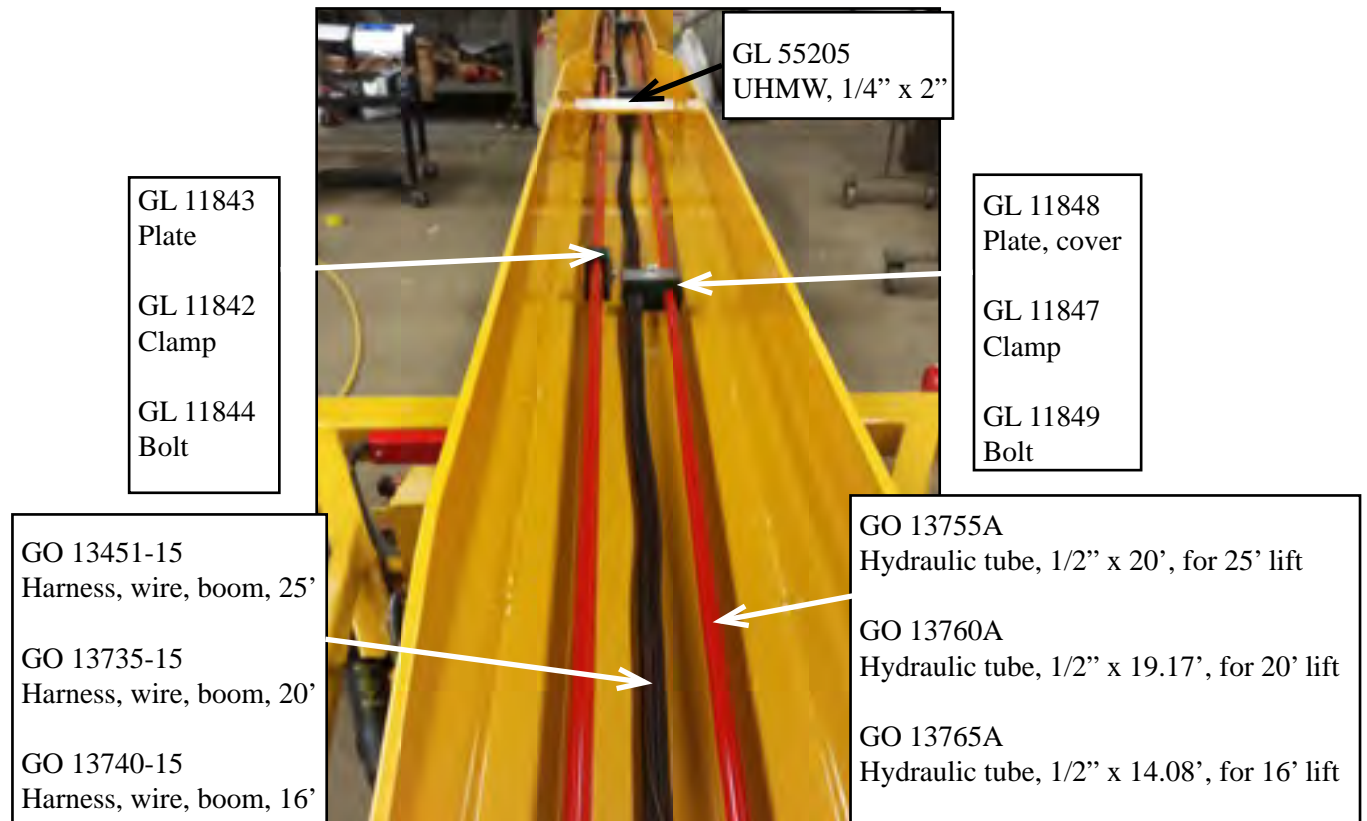
N 1015
Flatwasher, 1/4"

GO 12060
Nut, speed 5/16-18"

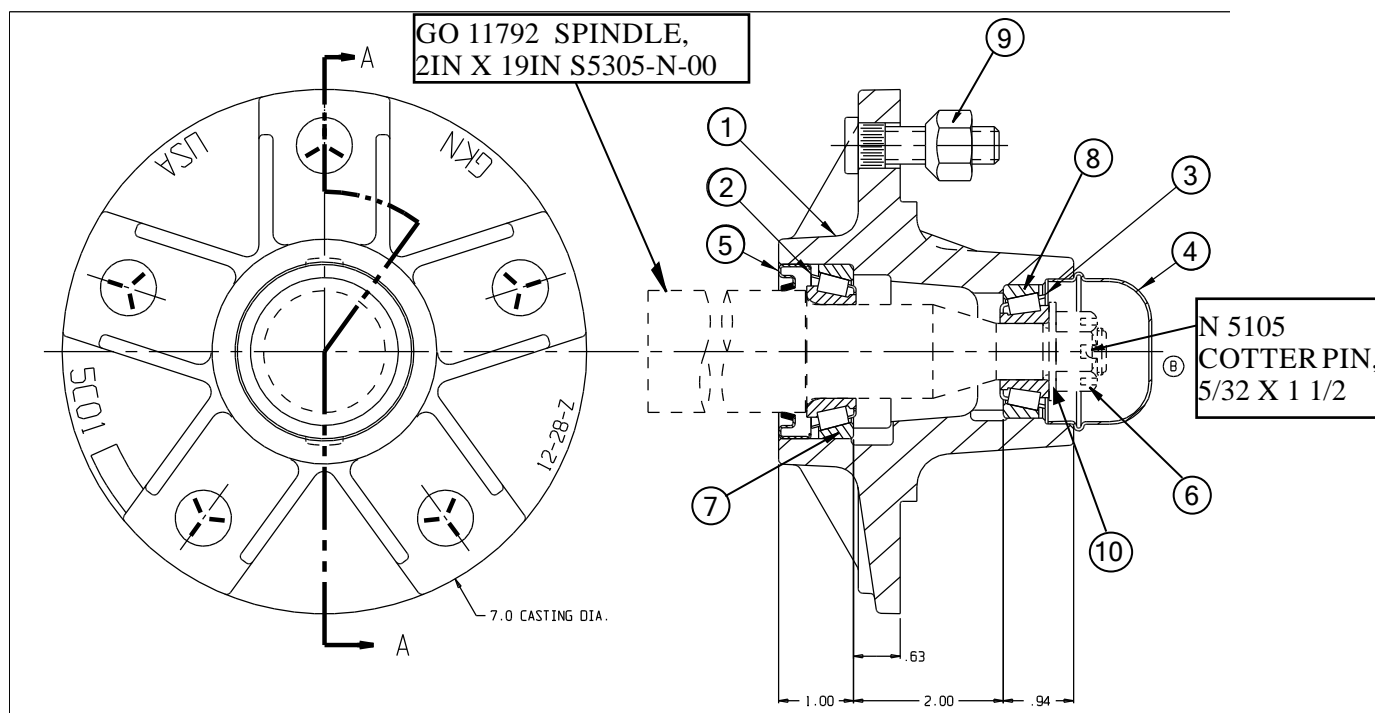
GO 55192
Front Grill,
by tanks

F 992078
Hose, spray 1/2"
clear, 9 inches





PIVOT WHEEL HUB BREAKDOWN



REF. NO.	PART NUMBER	DESCRIPTION
1.	GO 11656	HUB 5-5.5IN-4IN- 2000#
2.	GO 11754	BEARING INNER
3.	GO 11755	BEARING OUTER
4.	GO 11751	DUST CAP
5.	GO 11752	SEAL, CR16754 GKN
NOTE:	MS 15306	SEAL, CR16069 (FOR GO 11656 NORTHFIELD)
6.	MB 15183	NUT, 5/8 SLT HEX NF
7.	GO 11753	BEARING INNER RACE
8.	GO 11756	BEARING OUTER RACE
9.	GO 11646	NUT, STUD
10.	GH 11616	FLAT WASHER, SAE 5/8

NOTE: ITEM 1 INCLUDES ITEMS 2 THRU 9.

ENGINE PUMP DRIVE

For KUBOTA Super Five Series Engines

135-42 FLE Pump Housing Kit

KUBOTA Engines:

D905 V1205

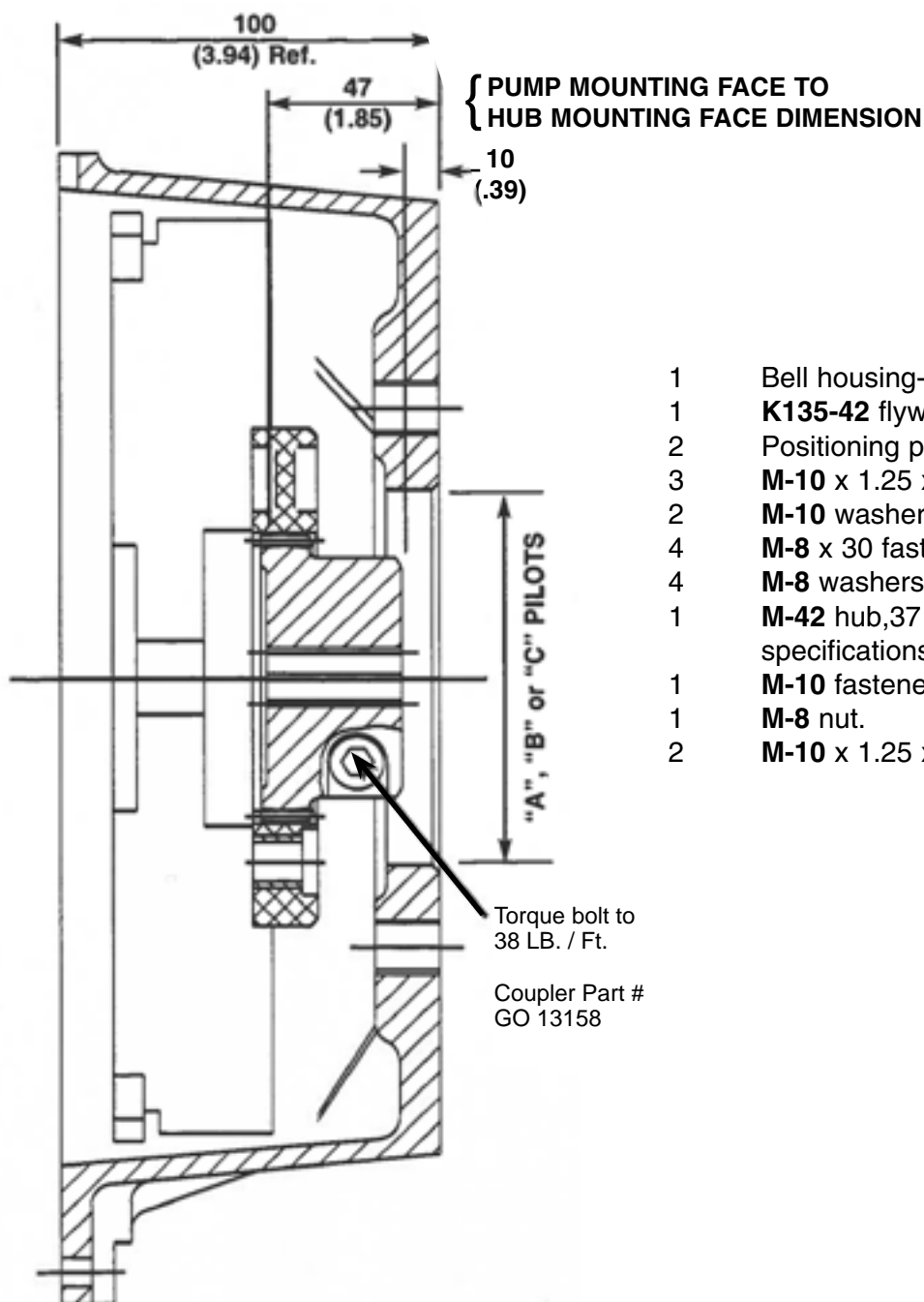
D1005 V1305

D1105 V1505

For B-1 Flywheel Mounting

Stocked Pump Housings

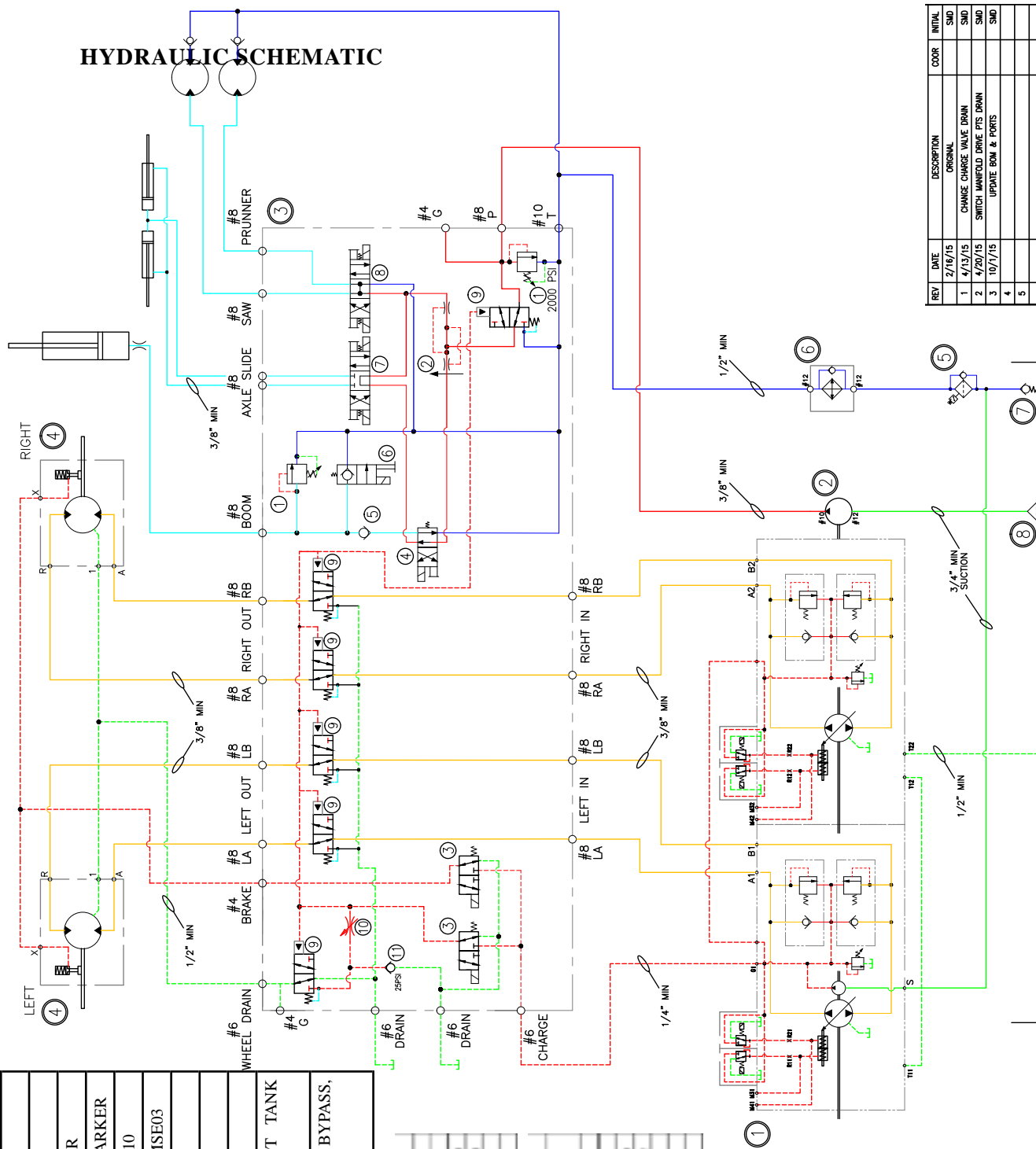
SAE "A" PILOT	3.25" dia.	2 bolt
SAE "B" PILOT	4.00" dia.	2 & 4 bolt
SAE "C" PILOT	5.00" dia.	2 & 4 bolt



Pump Housing and Coupling Kit is Included

- 1 Bell housing- "A", "B", or "C" pilot.
- 1 **K135-42** flywheel flange.
- 2 Positioning pins (installed)
- 3 **M-10** x 1.25 x 30 fasteners (**A**) position.*
- 2 **M-10** washers (**C**) position.
- 4 **M-8** x 30 fasteners (**B**) position.
- 4 **M-8** washers (for bell housing).
- 1 **M-42** hub, 37 mm long machined to customer specifications.
- 1 **M-10** fastener furnished for splined hubs.
- 1 **M-8** nut.
- 2 **M-10** x 1.25 x 35 Bolt (**C**) position.

HYDRAULIC SCHEMATIC



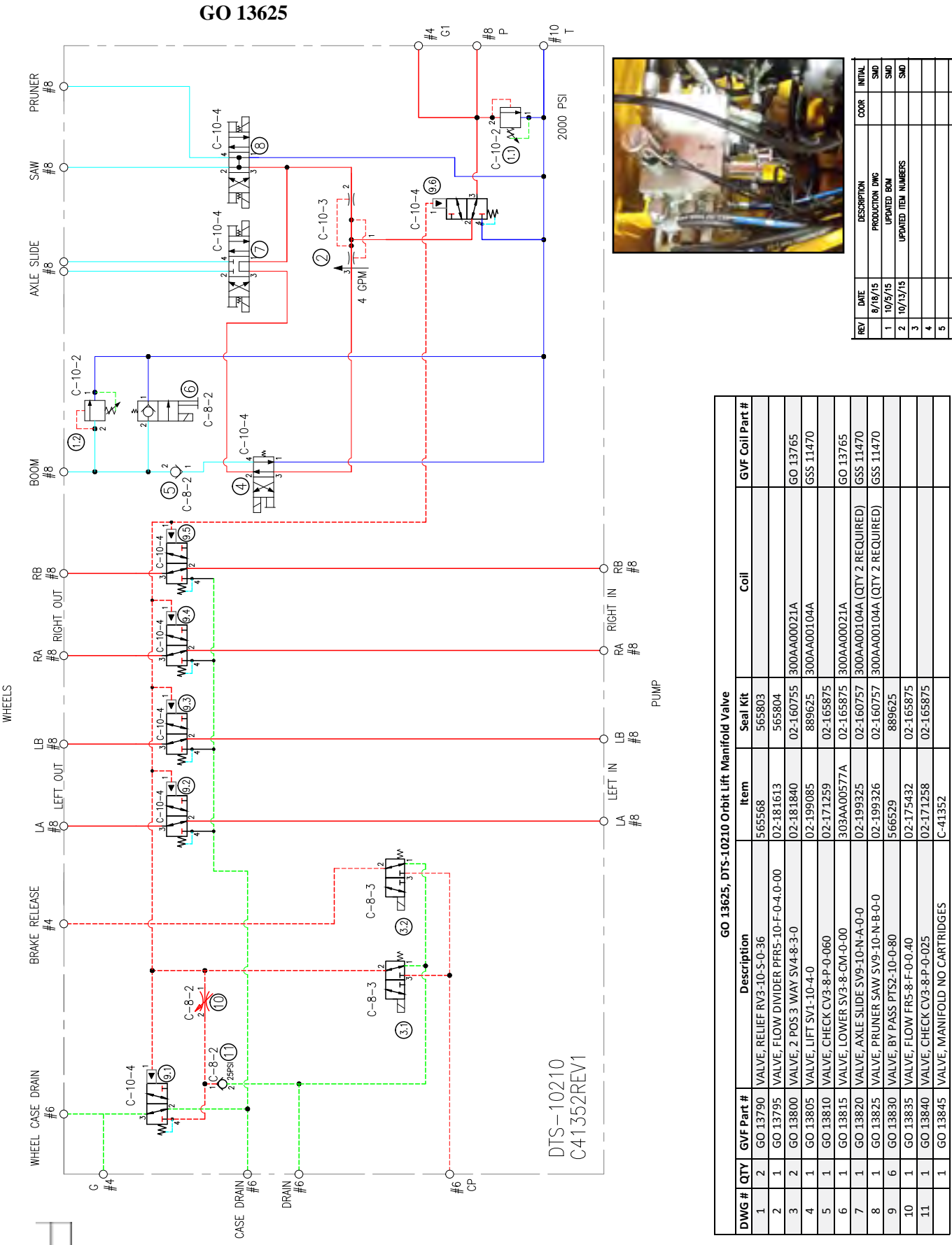
COMPONENTS		
#	Part #	Description
1	GO 13635	PUMP, PM10-09 PM10 PARKER
2	GO 13640	PUMP, GEAR PGF505 9 CC, PARKER
3	GO 13625	MANIFOLD VALVE, DTS-10210
4	GO 13645	WHEEL MOTOR, POCLAIN MSE03
5	GO 13655	FILER ASSEMBLY
5	GO 13656	ELEMENT, OIL FILTER
6	GO 13650	OIL COOLER
7	GO 13630	CHECK VALVE, 1 1/4 NPT TANK MOUNT
8	GO 13725	STRAINER, SUCTION 3 PSI BYPASS, TFS-0712-0-3

WHEEL MOTOR PORTS		
M0801-2-12A003-1120-540M		
PORT	DESCRIPTION	SIZE
A	WORK PORT	SAE 30
B	WORK PORT	SAE 30
X	BRAKE	SAE 6
1	DRAIN	SAE 6

TANDEM HYDROSTAT PORTS		
P01000053P3 20610010070000100 =		
P01000051P12061000000000000		
PORT	DESCRIPTION	SIZE
A1-B1 / A2-B2	WORK PORTS	SAE 6
T12 / T22	DRAIN	SAE 6
S	CHARGE SUCTION	SAE 12
M11 M21 / M12 M22	WORK GAUGE PORTS	SAE 4
M15 M45 / M10 M40	SERVO CONTROL PORTS	SAE 4
53	CHARGE AIR OUTLET	SAE 4

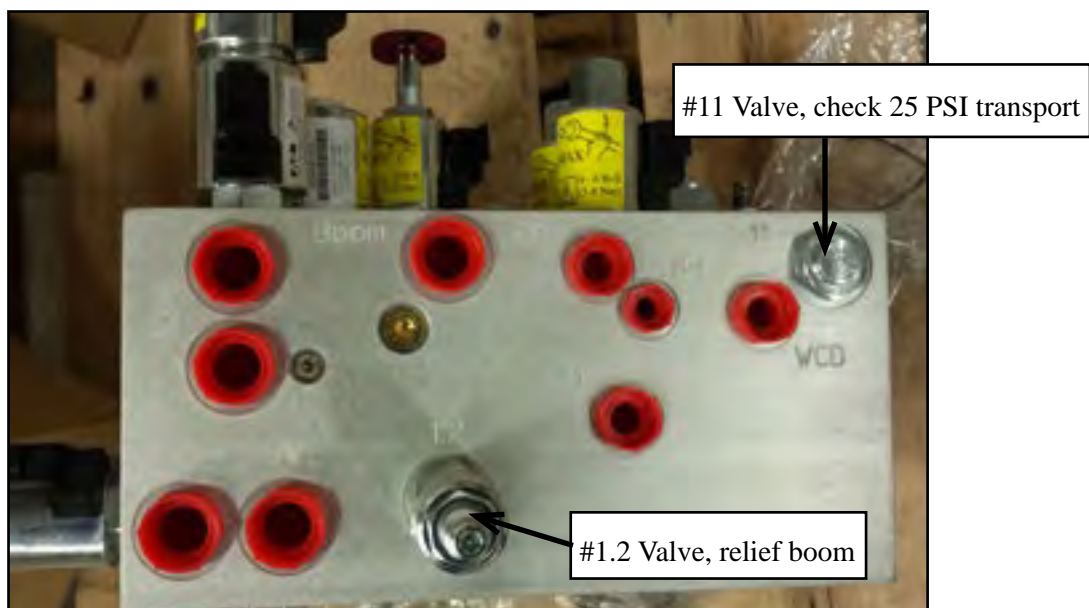
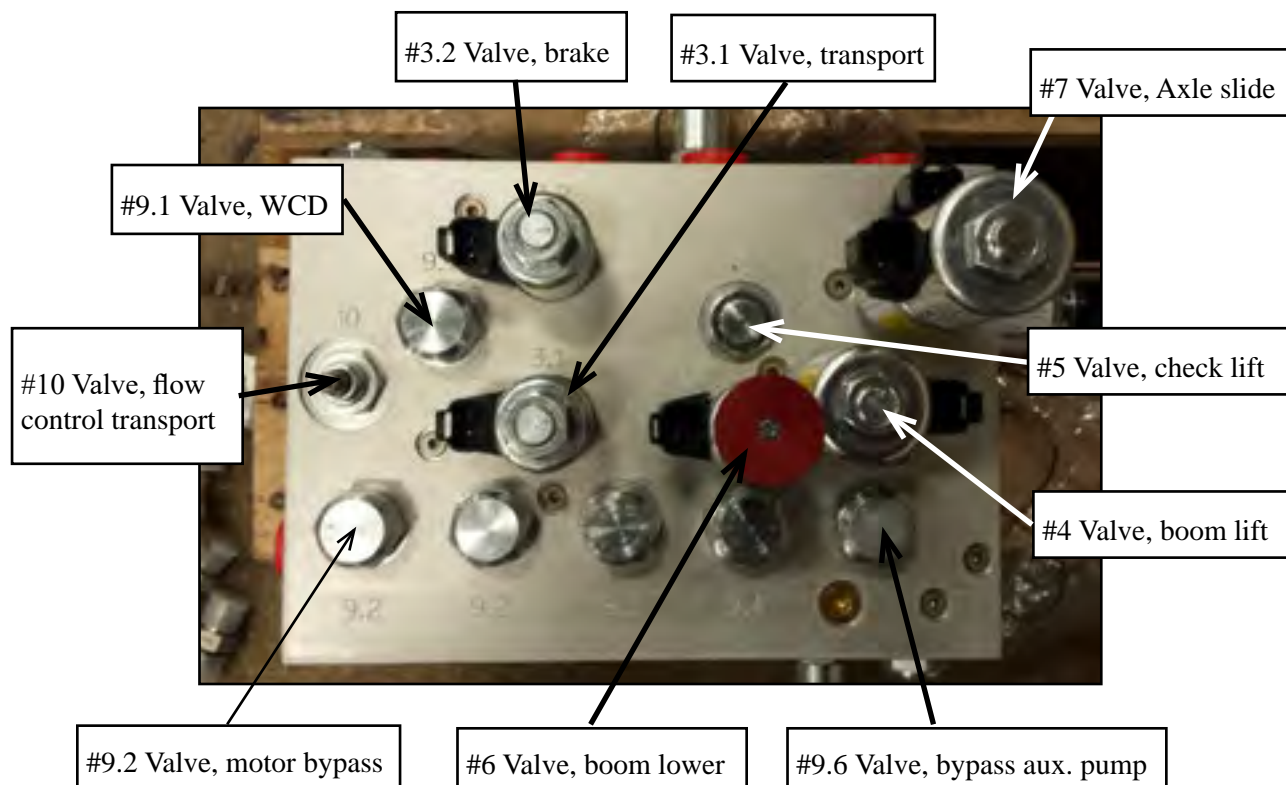
REV	DATE	DESCRIPTION	COORD	INITIAL
	2/16/15	ORIGINAL		SMD
1	4/13/15	CHANGE CHARGE VALVE DRAIN		SMD
2	4/20/15	SWITCH MANIFOLD DRIVE PITS DRAIN		SMD
3	10/1/15	UPDATE BOM & PORTS		SMD
4				
5				

HYDRAULICMANIFOLDVALVESSCHEMATIC



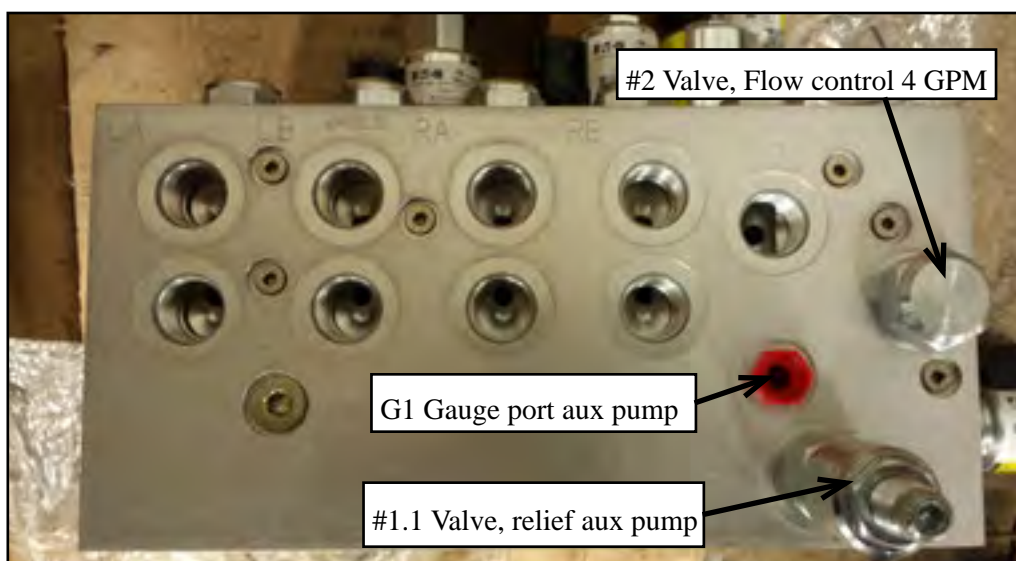
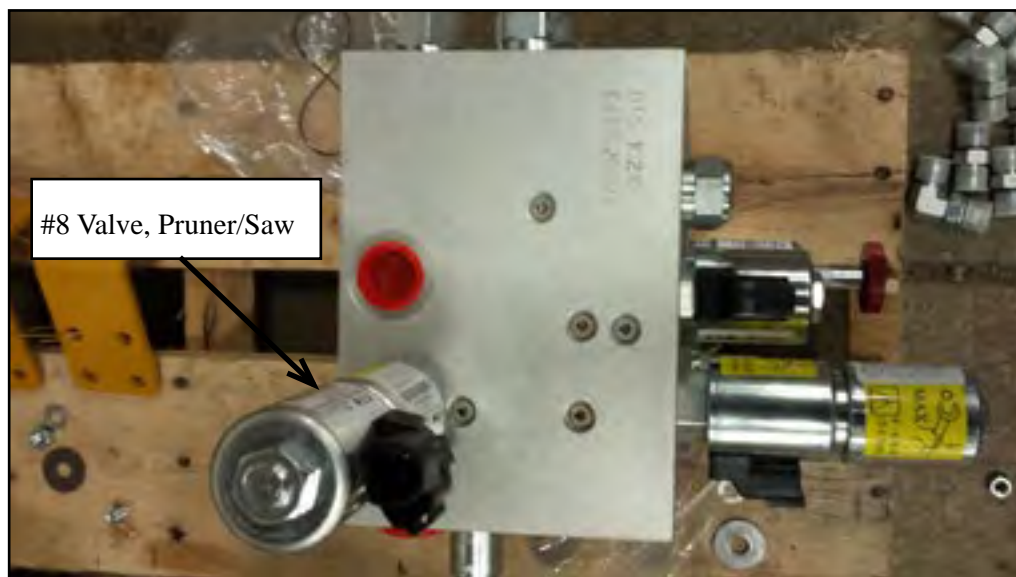
HYDRAULIC MANIFOLD VALVE

GO 13625



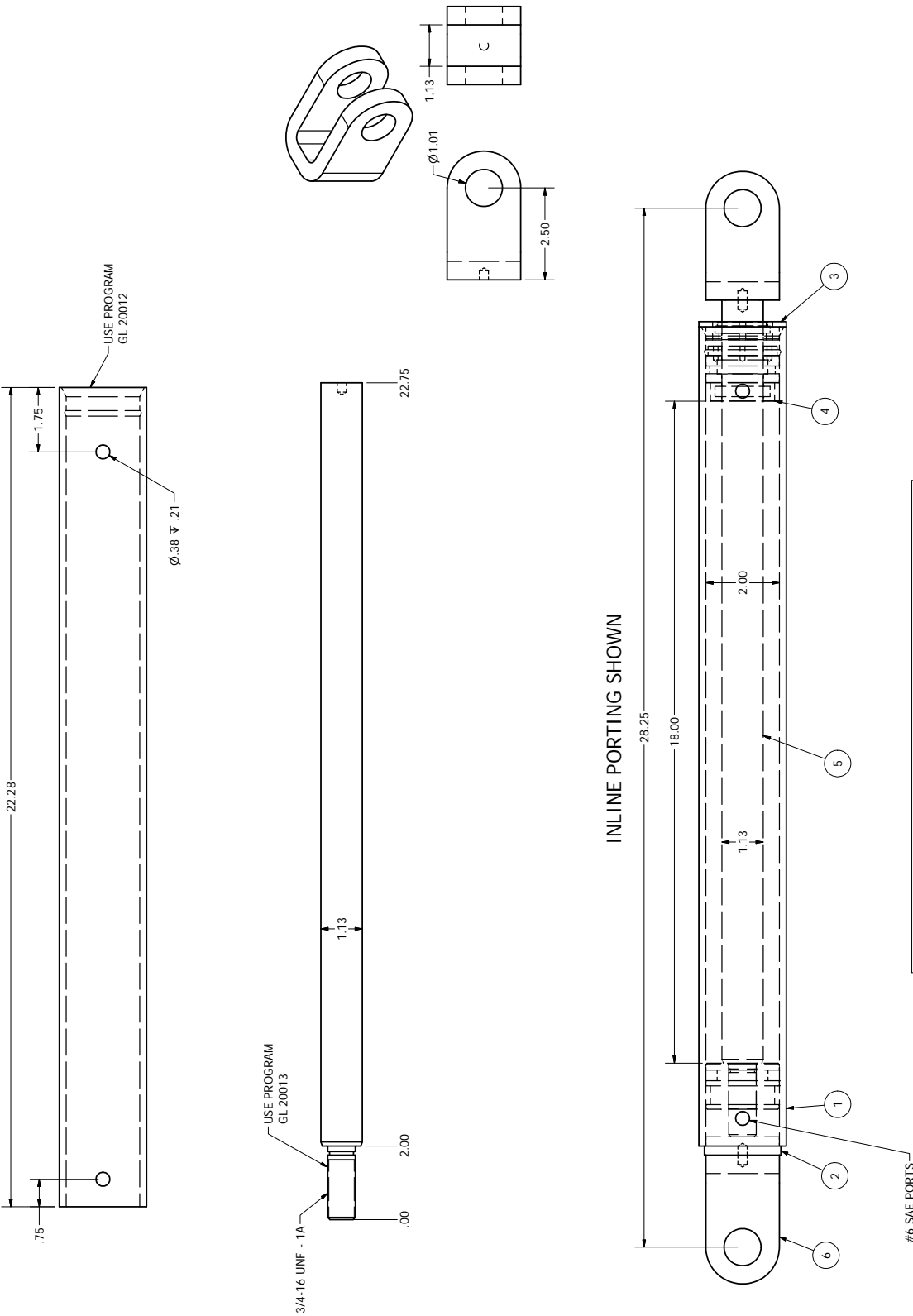
Hydraulic Manifold Valve Continued

GO 13625



2 X 18 CYLINDER WITH CLEVIS ENDS

GL 20012-18

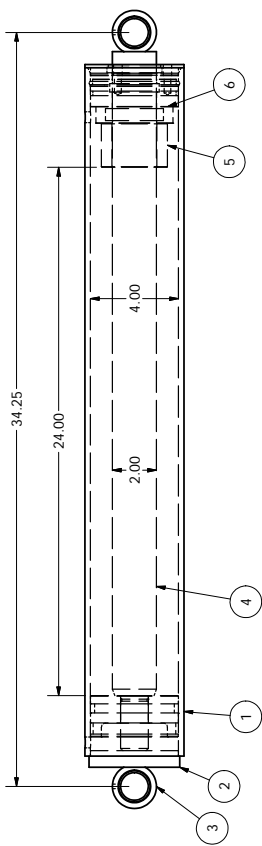
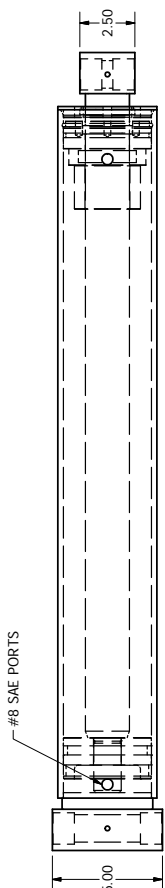
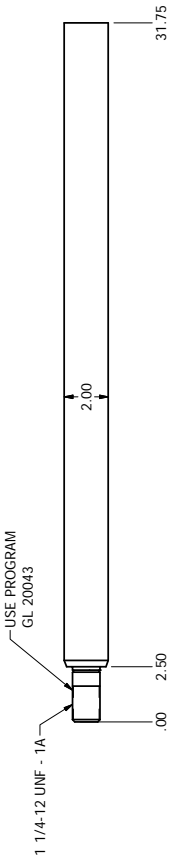
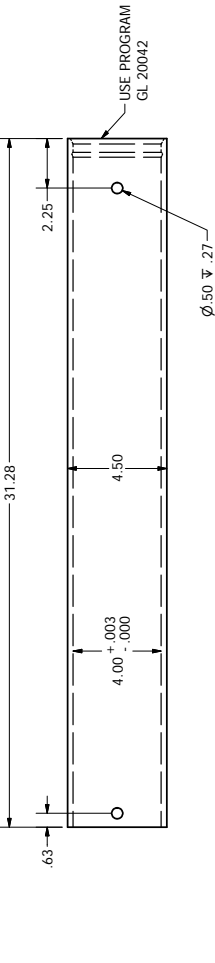


PARTS LIST			GILLISON'S VARIETY FAB.		
ITEM	QTY	PART NUMBER	DESCRIPTION	DATE	REV
1	1	GL20012-18	HONED TUBE 2" I.D. X 2.375" O.D.	6/19/2012	
2	1	GL20017	2" CYLINDER WELD END CAP		
3	1	GL20016	2" END CAP A-36 PLATE		
4	1	GL20015A	2" CYLINDER HEAD 2.090" DURA BAR		
5	1	GL20013-18	ROD ASSEMBLY		
6	1	GL20023	CLEVIS EAR		

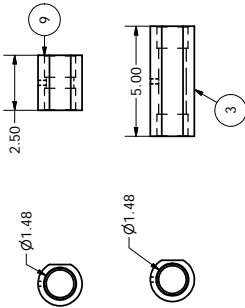
DRAWN matt	TITLE		2X18 CYLINDER CLEVIS ENDS	
CHECKED				
QA				
MFG				
APPROVED				
	SIZE	DWG NO	SCALE	SHEET 1 OF 1
	C	GL20012-18		

4 X 24 CYLINDER WITH CROSS TUBES

GL 20042-24



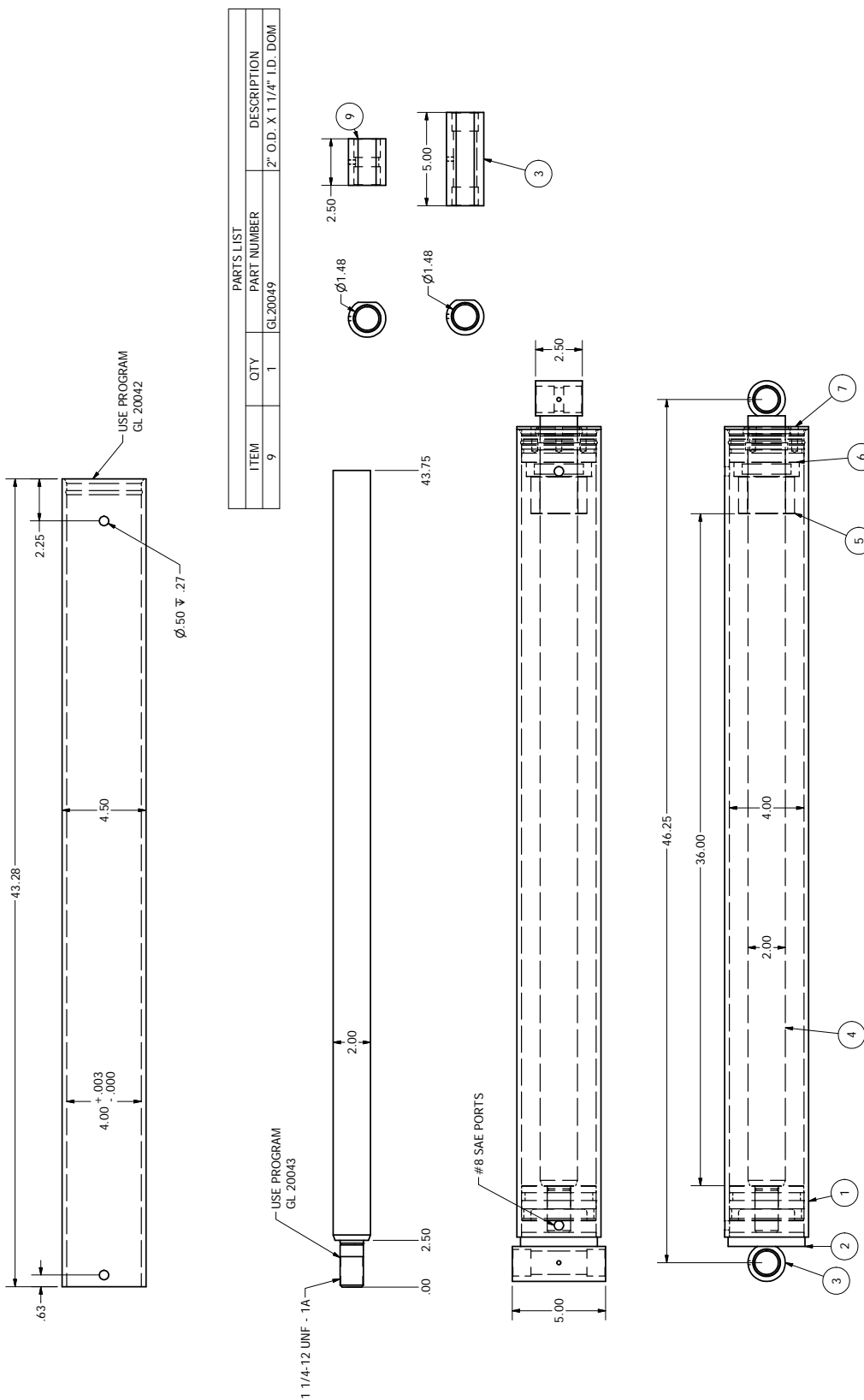
PARTS LIST			DESCRIPTION
ITEM	QTY	PART NUMBER	
9	1	GL20049	2" O.D. X 1 1/4" I.D. DOM



PARTS LIST			DESCRIPTION
ITEM	QTY	PART NUMBER	
1	1	GL20042-24	HONED TUBE 4" I.D. X 4 1/2" O.D.
2	1	GL20047	4" CYLINDER WELD END
3	1	GL20048	CAP 3/4" PLATE
4	1	GL20043	2" O.D. X 1 1/4" I.D. DOM
5	1	GL20050	ROD ASSEMBLY 2" 2" I.D. X 3" O.D. DOM
6	1	GL20055	4" CYLINDER HEAD 4.09" DUCTILE IRON
7	1	GL20056	4" END CAP A-36 PLATE
8	4	GL 12470	BUSHINGS, 1 1/4" DX

DRAWN Matt	2/4/2015	GILLISON'S VARIETY FAB.	
CHECKED		TITLE	
QA		4X24 CYLINDER CROSS TUBE ENDS	
MFG		2" ROD ONE-WAY CYLINDER WITH 2" STOP TUBE	
APPROVED		SIZE	REV
		C	
		DWG NO	
		GL20042-24	
		SCALE	SHEET 1 OF 1

4 X 36 CYLINDER WITH CROSS TUBES

GL 20042-36

PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	GL20042-36	HONED TUBE 4" I.D. X 4 1/2" O.D.
2	1	GL20047	4" CYLINDERWELD END CAP 3/4" PLATE
3	1	GL20048	2" O.D. X 1 1/4" I.D. DOM ROD ASSEMBLY 2"
4	1	GL20043-36	
5	1	GL20050	2" I.D. X 3" O.D. DOM
6	1	GL20055	4" CYLINDER HEAD 4.09" DUCTILE IRON
7	1	GL20056	4" END CAP A-36 PLATE
8	4	GL 12470	BUSHINGS, 1 1/4" DX

DRAWN	2/4/2015	GILLISON'S VARIETY FAB.	
MADE			
CHECKED			
QA		TITLE	
MFG		4X36 CYLINDER CROSS TUBE ENDS	
APPROVED		2" ROD ONE-WAY CYLINDER WITH 2" STOP TUBE	
		SIZE	REV
		C	
		DWG NO	
		GL20042-36	
		SCALE	SHEET OF 1

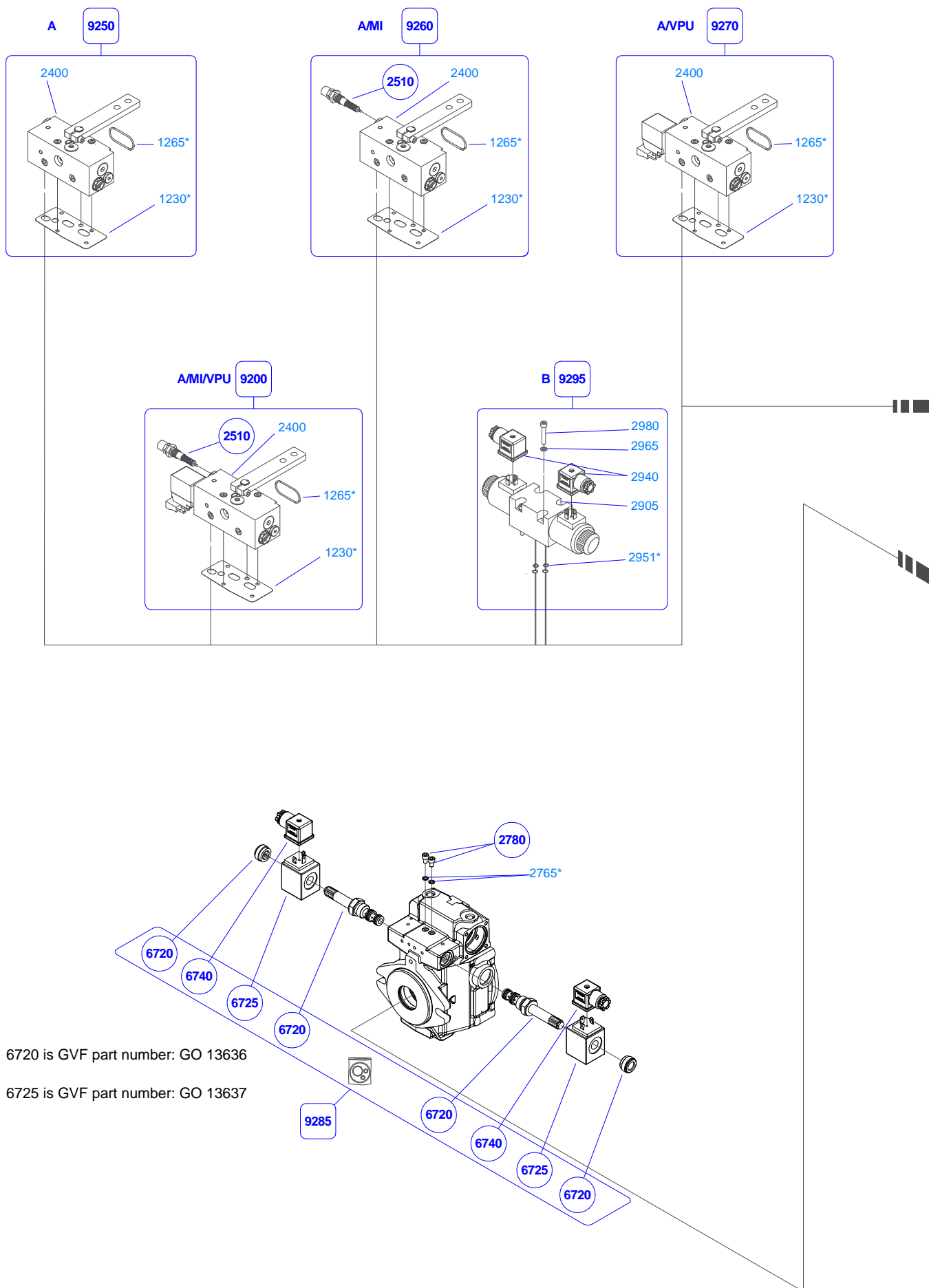
POCLAIN PUMP, PM10-09 PM10

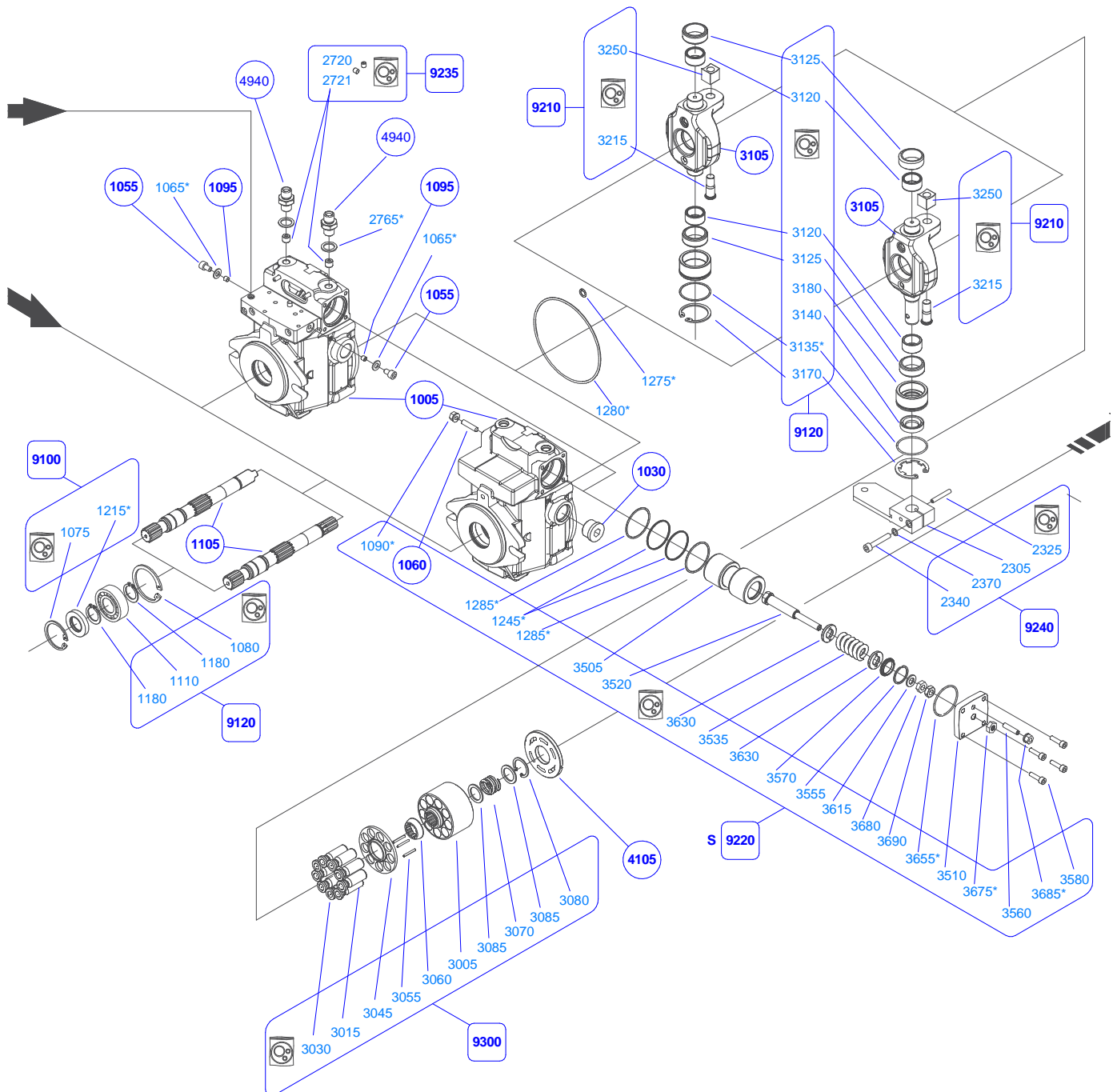
GO 13635

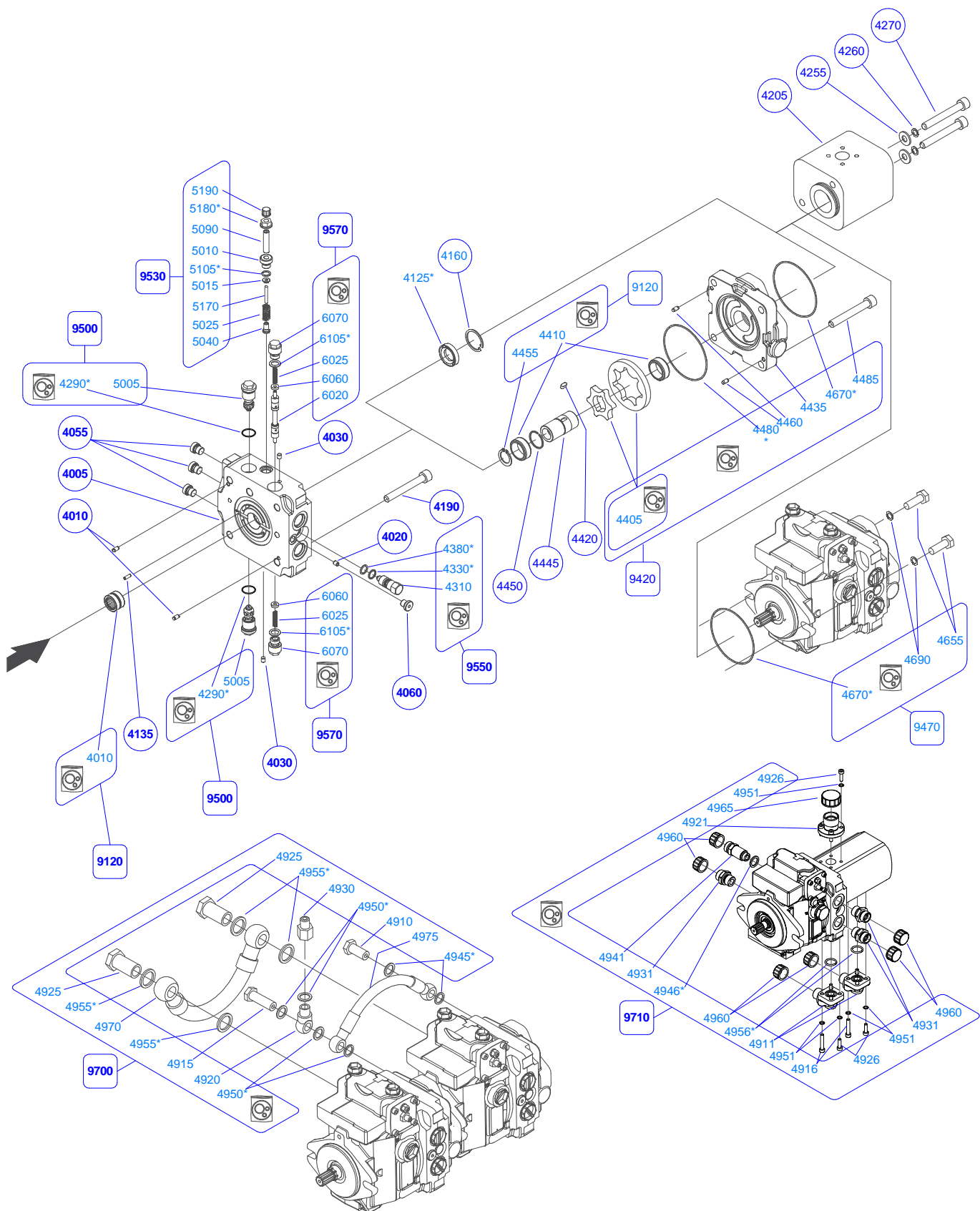
B19027F, PM10B09S3P120630R2007A00FUVS+PM10A09S1P120630R0000A00FUVS

Item	Description	p/n	Qty
9100	<i>Kit shaft seal</i>	6100990300	2
9120	<i>Kit bearing</i>	6100990301	2
9210	<i>Kit block slide hydraulic control</i>	6100990302	2
9285	<i>Kit electro-proportional control P12</i>	6100800050	2
6720	Solenoid GVF part number: GO 13636	8245300012	2
6725	Coil GVF part number: GO 13637	8750700001	2
6740	Connector	67H043	2
9300	<i>Kit rotating group</i>	6100730010	2
9420	<i>Kit charge pump</i>	6525550050	1
4405	<i>Gerotor</i>	6525990006	1
4420	<i>Key</i>	3995254102	1
4445	<i>Shaft</i>	3435250002	1
4450	<i>Snap ring</i>	23WR25	1
9470	<i>Tandem mounting kit</i>	6100390010	1
9500	<i>Kit high pressure relief valve</i>	8830301300	4
9530	<i>Kit low pressure relief valve</i>	45KVAR05	2
9550	<i>Kit screw bypass</i>	6100910010	2
9570	<i>Kit flushing</i>	6100950050	2
9700	<i>Kit tandem connection pipes</i>	6100850005	1
1005	<i>Housing (front pump)</i>	S100180004	1
1005'	<i>Housing (rear pump)</i>	6100290301	1
1030	<i>Plug</i>	2316120005	2
1060	<i>Screw</i>	22G625D	2
1105	<i>Shaft (front pump)</i>	3031000031	1
1105'	<i>Shaft (rear pump)</i>	3031000023	1
2780	<i>Screw</i>	9540124050	2
3105	<i>Swash plate</i>	3451000004	2
4005	<i>End cover (front pump)</i>	B08220J	1
4005'	<i>End cover (rear pump)</i>	B08219H	1
4010	<i>Needle bearing</i>	9110042011	2
4020	<i>Restrictor</i>	20S2033-1	4
4030	<i>Plug</i>	9510009000	4
4060	<i>Plug</i>	2316120006	7
4105	<i>Valve plate</i>	3251000004	2
4130	<i>Pin</i>	26S412	2
4135	<i>Pin</i>	26S510	4
9000	<i>Seals kit</i>	6100990303	1

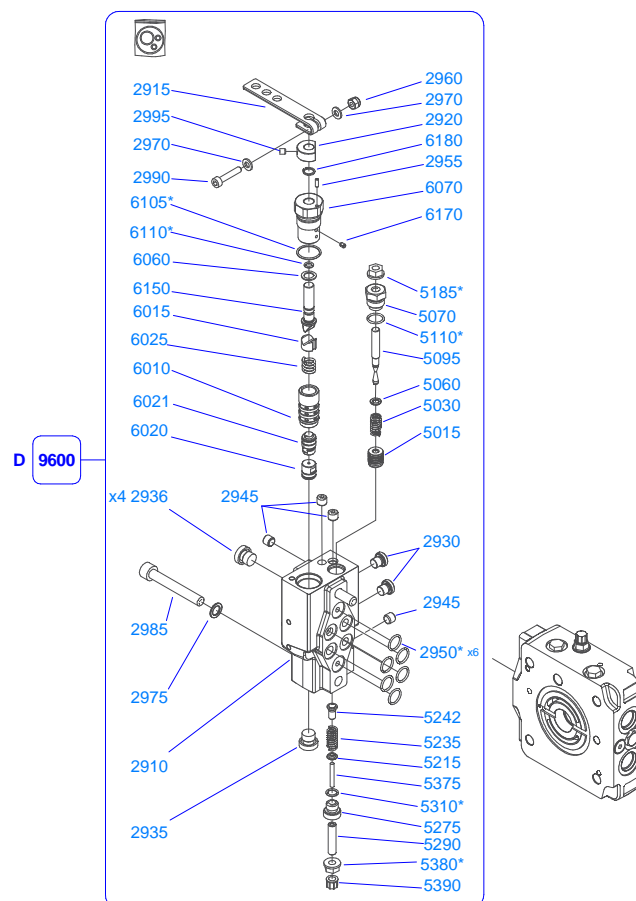
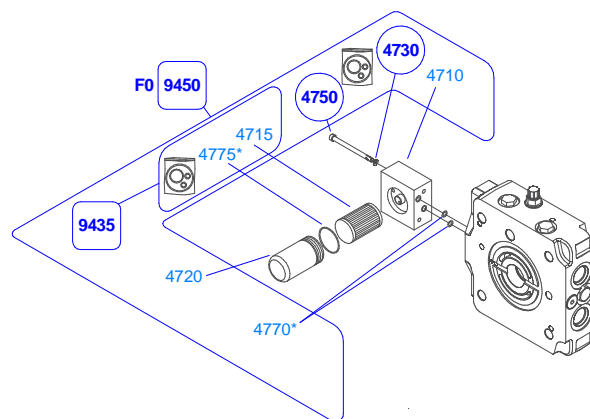
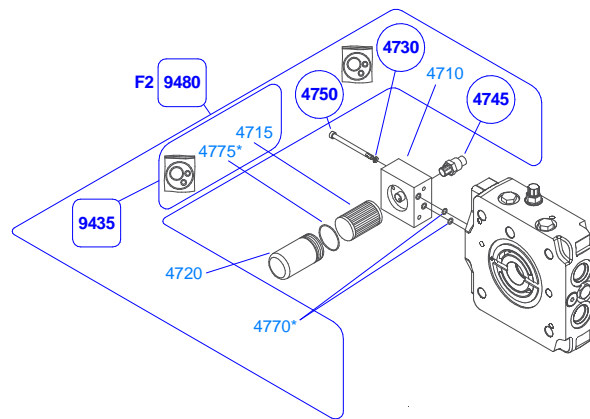
See numbered parts references on the next four pages.







Seal kit 9000* = 1065+1090+1215+1230+1245+1265+1275+1280+1285+2765+2950+2951+3135+3655+3675+3685+4125+4290+4330+4380+4480+4670+4770+4775+4945+4946+4950+4955+4956+5105+5110+5180+5185+5310+5380+6105+6110



WHEEL MOTOR, POCLAIN MSE03

GO 13645

See numbered parts reference diagrams on pages
after description listing pages.

Number	Part Number	Description	Reference	Qte	Prix	Dispo
0		MSE03-2-12A-F03-1120-58EJM	B21110U	1	n.c.	
1	1000	Other SUBASSEMBLY	002750865V	10,000	611,22	class A
2	1005	BEARING SUPPORT	003046175K	10,000	144,79	class B
2	1105	SHAFT	001830033R	10,000	339,43	class B
2	1205	BEARING	A07547D	10,000	43,44	class B
2	1305	BEARING	A05291B	10,000	54,29	class B
2	9100	REPAIR KIT	A17324F	10,000	145,12	class B
3	1405	SEAL	008946066K	10,000	31,37	class B
3	1500	SEAL KIT	A17278F	10,000	168,89	class B
4	1505	SEAL	007746067N	10,000	14,30	class A
4	1600	SEAL KIT	005849622K	10,000	95,38	class A
5	1605	GUIDE RING	005028765Z	10,000	125,49	class B
5	1610	SEAL	002930468R	10,000	0,69	class B
5	1615	SEAL SUPPORT	002445266X	10,000	11,27	class B
3	1700	REPAIR KIT	A17252C	10,000	16,74	class B
4	1705	SHIM		10,000	---	---
5	1720	SHIM		10,000	---	---
5	1725	SHIM		10,000	---	---
5	1730	SHIM		10,000	---	---
5	1735	SHIM		10,000	---	---
5	1740	SHIM		10,000	---	---
4	1710	GUIDE RING		10,000	---	---
4	1750	SNAP RING		10,000	---	---
3	4085	SEAL		20,000	---	---
2	9150	BOLT	002627935B	10,000	26,81	class B
3	1010	BOLT		50,000	---	---
1	2000	BRAKE SUBASSEMBLY	002243073X	10,000	439,34	class A
2	2005	BRAKE HOUSING	005843127A	10,000	118,40	class B
2	2010	SCREW	001332944C	100,000	0,77	class B
2	2040	WASHER	000834924B	10,000	22,18	class B
2	2080	SNAP RING	000036272B	10,000	6,61	class B
2	2205	BRAKE SHAFT	001930024C	10,000	110,59	class B
2	2265	SHIM	003145383U	20,000	22,76	class B
2	2305	BRAKE PISTON	005843121T	10,000	43,44	class B
2	2950	SCREW	000932912K	10,000	0,08	class B
2	9200	REPAIR KIT	A17193N	10,000	51,74	class B
3	2210	SEAL	005337750C	10,000	33,24	class A
4	2215	SEAL		10,000	---	---
4	2235	SEAL SUPPORT		10,000	---	---
4	2255	OTHER BUSHING		10,000	---	---
3	2955	SEAL	001446072S	10,000	0,84	class A

Wheel Motor, Poclain MSE03, GO 13645 Continued

3	4060	SEAL		10,000	---	---
3	4410	SEAL		10,000	---	---
3	9225	SEAL KIT	A01360D	10,000	14,84	class A
4	2310	SEAL		10,000	---	---
4	2310	SEAL		10,000	---	---
4	2505	CAP	003540407T	10,000	7,12	class A
4	2510	SEAL		10,000	---	---
4	2520	PLUG		10,000	---	---
4	2905	GREASE	001103248H	10,000	6,64	class A
2	9210	REPAIR KIT	005949649K	10,000	60,56	class B
3	2405	BRAKE DISC		210,000	---	---
3	2410	BRAKE DISC		200,000	---	---
3	2425	SHIM	003245372D	10,000	22,14	class B
4	2430	SHIM		20,000	---	---
4	2435	SHIM		10,000	---	---
4	2440	SHIM		20,000	---	---
4	2445	SHIM		10,000	---	---
1	3000	CYLINDER BLOCK	A34617C	10,000	1209,08	class A
2	3005	CYLINDER BLOCK		10,000	---	---
2	3010	RADIAL PISTON	A44075H	80,000	30,98	class A
3	3030	RADIAL PISTON		10,000	---	---
3	3035	PISTON BUSHING		10,000	---	---
3	3040	ROLLER		10,000	---	---
3	3045	SEAL		10,000	---	---
4	0	SEAL	009246095D	10,000	3,31	class B
2	9300	REPAIR KIT	006149652E	10,000	27,81	class A
3	3060	LUNAMBULE		160,000	---	---
3	3070	CLIP		80,000	---	---
3	3070	CLIP		80,000	---	---
2	9305	SEAL KIT	A46124K	10,000	56,78	class A
3	3045	SEAL		100,000	---	---
4	0	SEAL	009246095D	10,000	3,31	class B
3	9000	DOCUMENT	A44481Z	10,000	---	class C
1	3505	REPAIR KIT	B17496R	10,000	---	class A
2	3505	CAM	B09434D	10,000	---	class A
1	4000	COVER	B21147K	10,000	588,92	class A
2	4005	COVER	B21148L	10,000	---	class A
2	4010	PIN	000036052M	10,000	0,43	class A
2	4070	SCREW	002133040W	120,000	1,27	class A
2	4105	DISTRIBUTION VALVE	000350338C	10,000	166,50	class A
2	4485	PLUG	002537432D	10,000	3,50	class A
2	4950	SCREW	000932912K	20,000	0,08	class A

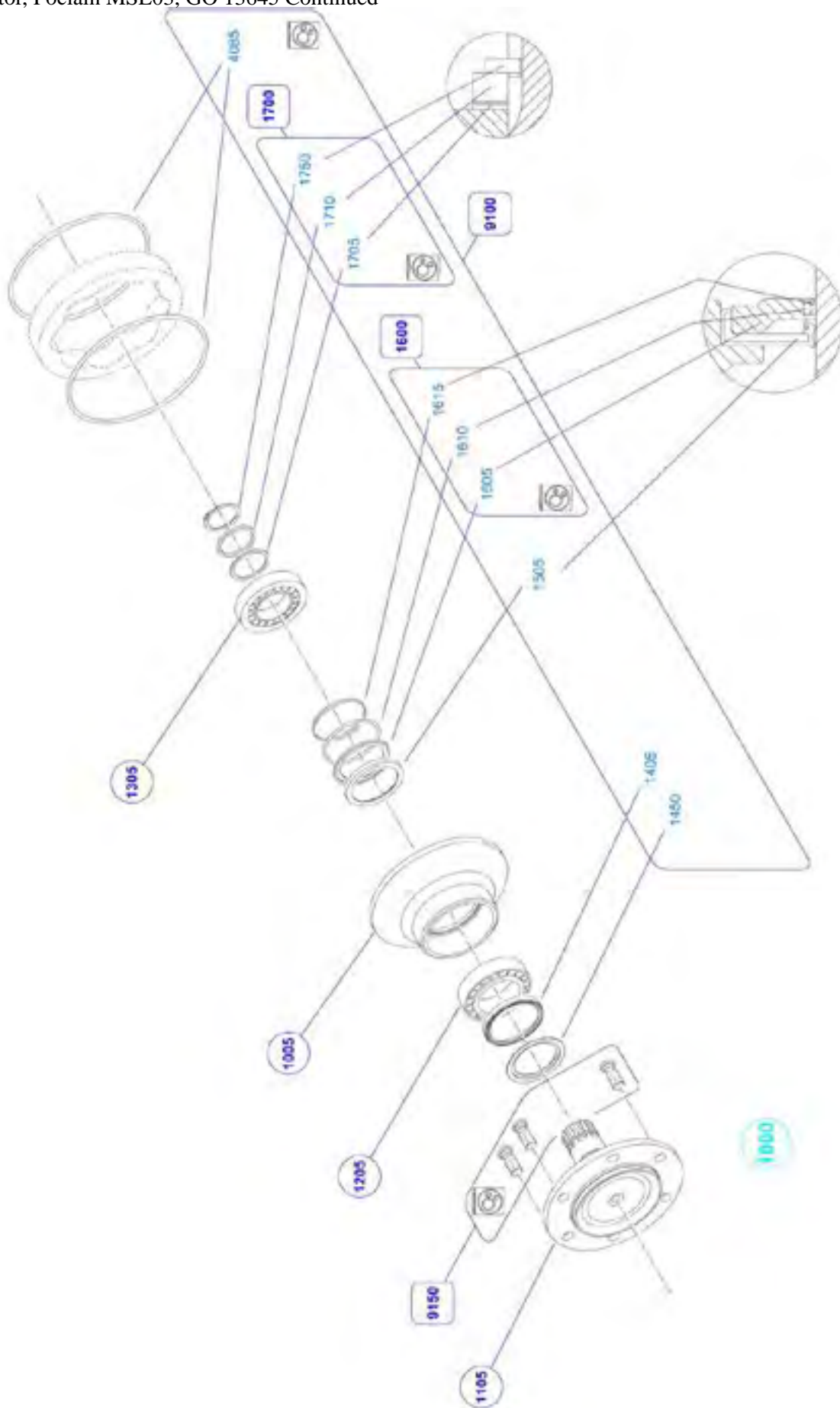
Wheel Motor, Poclain MSE03, GO 13645 Continued

2	4960	PLUG	002937471D	10,000	6,95	class A
2	9400	SEAL KIT	A17425Q	10,000	36,28	class A
3	4060	SEAL		10,000	---	---
3	4085	SEAL		20,000	---	---
3	4115	SEAL KIT	005549611L	10,000	34,27	class B
4	4155	SEAL KIT		10,000	---	---
3	4410	SEAL		10,000	---	---
3	4955	SEAL		20,000	---	---
2	9420	SEAL KIT	A28569D	10,000	16,68	class A
3	4190	SPRING		60,000	---	---
1	8101	REPAIR KIT	A35743B	10,000	116,60	class A
2	8106	SPEED SENSOR	A29661Q	10,000	95,89	class B
2	8115	SCREW		10,000	---	---
3	8190	BLANK	B09745R	,0100	---	class C
3	8910	BLANK	A06453P	,0100	---	class C
2	8120	WASHER		10,000	---	---
3	0	LINK	901914101U	,0100	---	class C
4	0		A07813S	,0001	---	class A
2	8125	WASHER	A03664H	20,000	0,72	class B
3	0	LINK	901914101U	,0100	---	class C
4	0		A07813S	,0001	---	class A
2	8130	WASHER	A03478F	10,000	0,27	class B
3	0	LINK	901914101U	,0100	---	class C
4	0		A07813S	,0001	---	class A
2	8135	WASHER	A03486P	40,000	0,28	class B
3	0	LINK	901914101U	,0100	---	class C
4	0		A07813S	,0001	---	class A
2	8136	WASHER	A13876H	20,000	5,28	class B
2	8140	NUT	000034113E	10,000	0,18	class B
2	8145	NUT		10,000	---	---
3	8910	BLANK	B09746S	,0100	---	class C
1	8105	REPAIR KIT	A35748G	10,000	82,30	class A
2	8105	Other SUBASSEMBLY	A08396B	10,000	18,67	class A
3	8106	PLUG	A04033J	10,000	76,01	class B
3	8110	SEAL	001630414P	10,000	0,26	class B
2	8145	NUT		10,000	---	---
3	8910	BLANK	B09746S	,0100	---	class C
1	9000	SEAL KIT	A36597E	10,000	201,56	class A
2	8110	SEAL	009246005F	10,000	1,70	class B
2	8110	SEAL	001630414P	10,000	0,26	class B
2	8155	WASHER	002945456H	10,000	3,22	class B
2	9100	REPAIR KIT	A17324F	10,000	145,12	class B

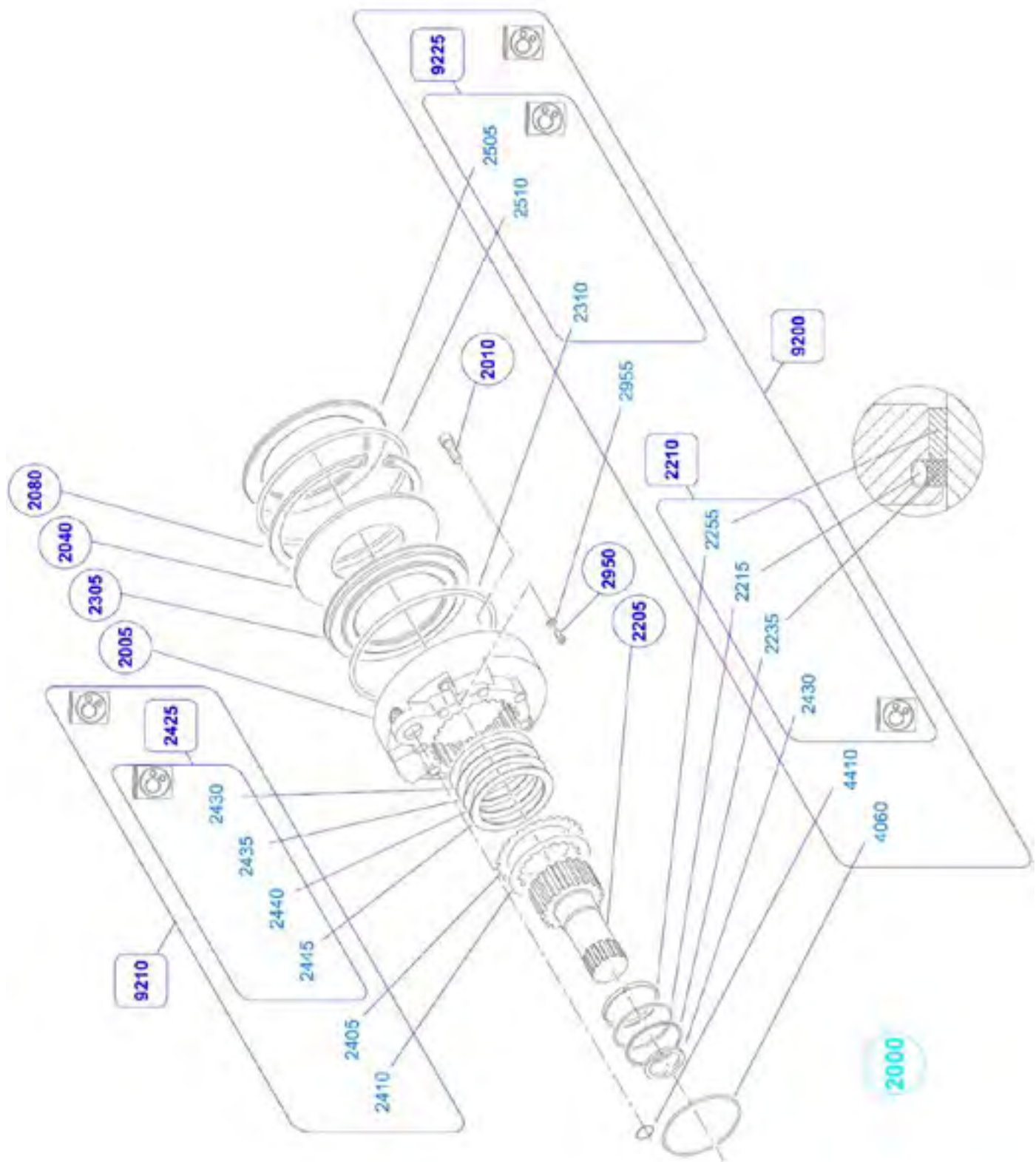
Wheel Motor, Poclain MSE03, GO 13645 Continued

3	1405	SEAL	008946066K	10,000	31,37	class B
3	1500	SEAL KIT	A17278F	10,000	168,89	class B
4	1505	SEAL	007746067N	10,000	14,30	class A
4	1600	SEAL KIT	005849622K	10,000	95,38	class A
5	1605	GUIDE RING	005028765Z	10,000	125,49	class B
5	1610	SEAL	002930468R	10,000	0,69	class B
5	1615	SEAL SUPPORT	002445266X	10,000	11,27	class B
3	1700	REPAIR KIT	A17252C	10,000	16,74	class B
4	1705	SHIM		10,000	---	---
5	1720	SHIM		10,000	---	---
5	1725	SHIM		10,000	---	---
5	1730	SHIM		10,000	---	---
5	1735	SHIM		10,000	---	---
5	1740	SHIM		10,000	---	---
4	1710	GUIDE RING		10,000	---	---
4	1750	SNAP RING		10,000	---	---
3	4085	SEAL		20,000	---	---
2	9200	REPAIR KIT	A17193N	10,000	51,74	class B
3	2210	SEAL	005337750C	10,000	33,24	class A
4	2215	SEAL		10,000	---	---
4	2235	SEAL SUPPORT		10,000	---	---
4	2255	OTHER BUSHING		10,000	---	---
3	2955	SEAL	001446072S	10,000	0,84	class A
3	4060	SEAL		10,000	---	---
3	4410	SEAL		10,000	---	---
3	9225	SEAL KIT	A01360D	10,000	14,84	class A
4	2310	SEAL		10,000	---	---
4	2310	SEAL		10,000	---	---
4	2505	CAP	003540407T	10,000	7,12	class A
4	2510	SEAL		10,000	---	---
4	2520	PLUG		10,000	---	---
4	2905	GREASE	001103248H	10,000	6,64	class A
2	9400	SEAL KIT	A17425Q	10,000	36,28	class B
3	4060	SEAL		10,000	---	---
3	4085	SEAL		20,000	---	---
3	4115	SEAL KIT	005549611L	10,000	34,27	class B
4	4155	SEAL KIT		10,000	---	---
3	4410	SEAL		10,000	---	---
3	4955	SEAL		20,000	---	---
1	9350	SEAL KIT	A17492N	10,000	20,16	class A
2	2520	PLUG		10,000	---	---
2	4085	SEAL		20,000	---	---

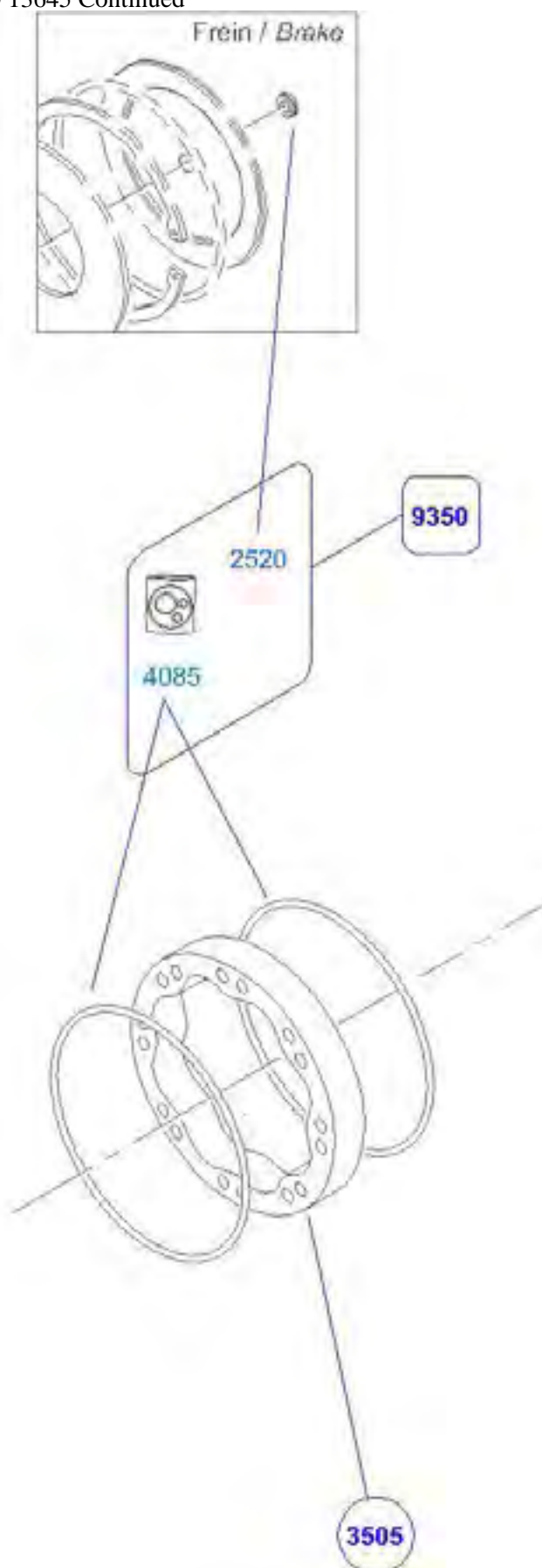
Wheel Motor, Poclain MSE03, GO 13645 Continued



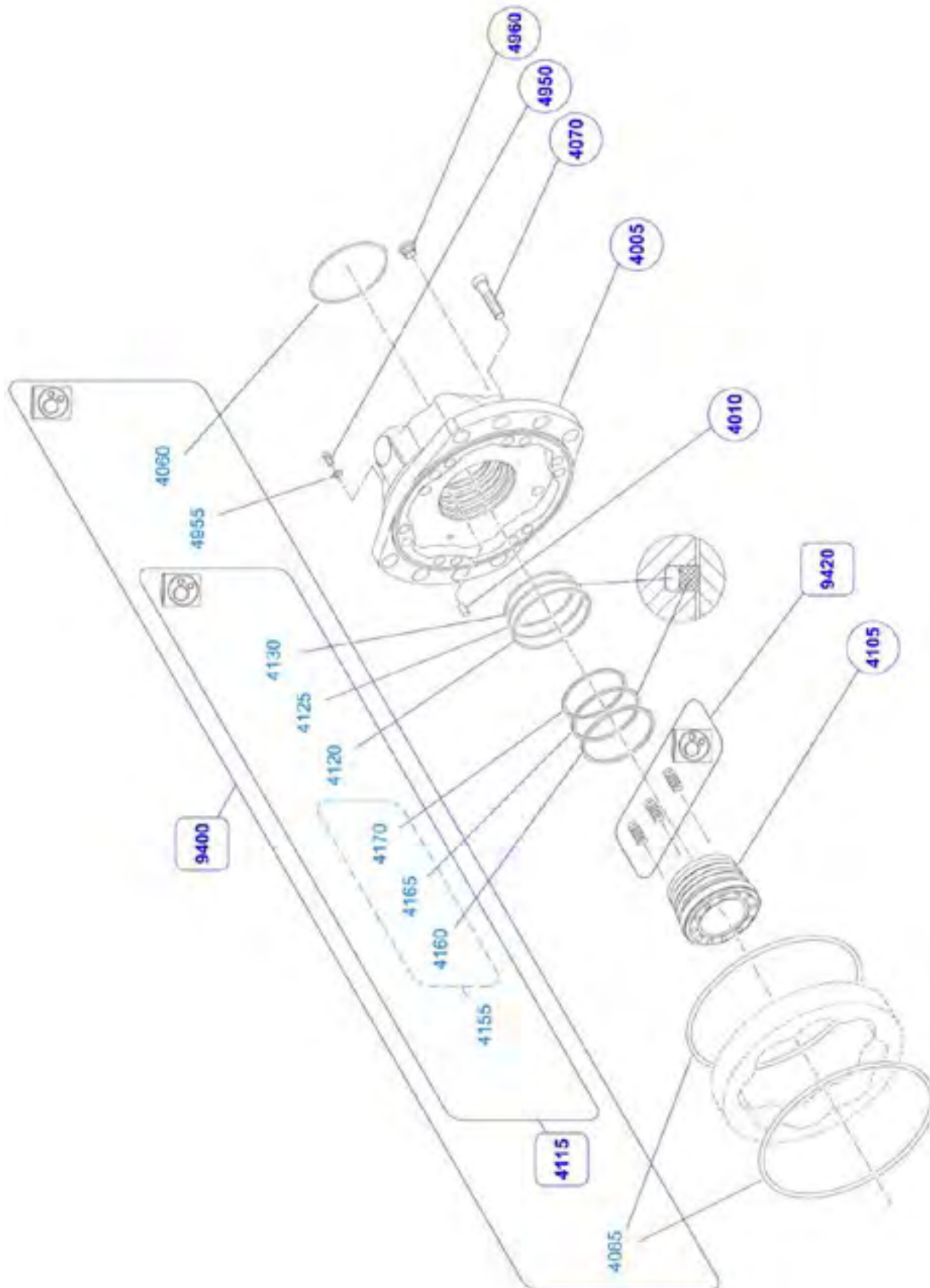
Wheel Motor, Poclain MSE03, GO 13645 Continued



Wheel Motor, Poclain MSE03, GO 13645 Continued

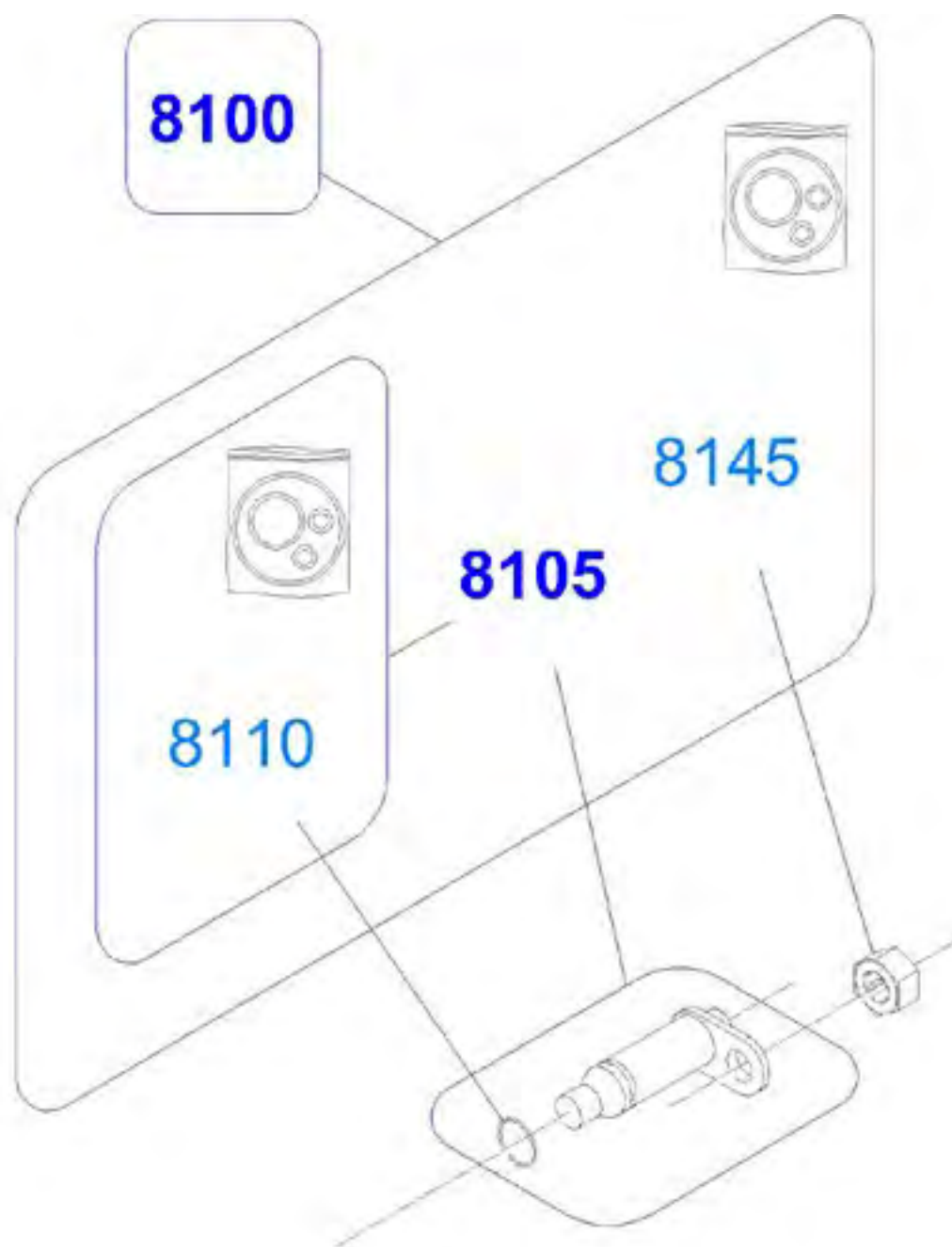


Wheel Motor, Poclain MSE03, GO 13645 Continued



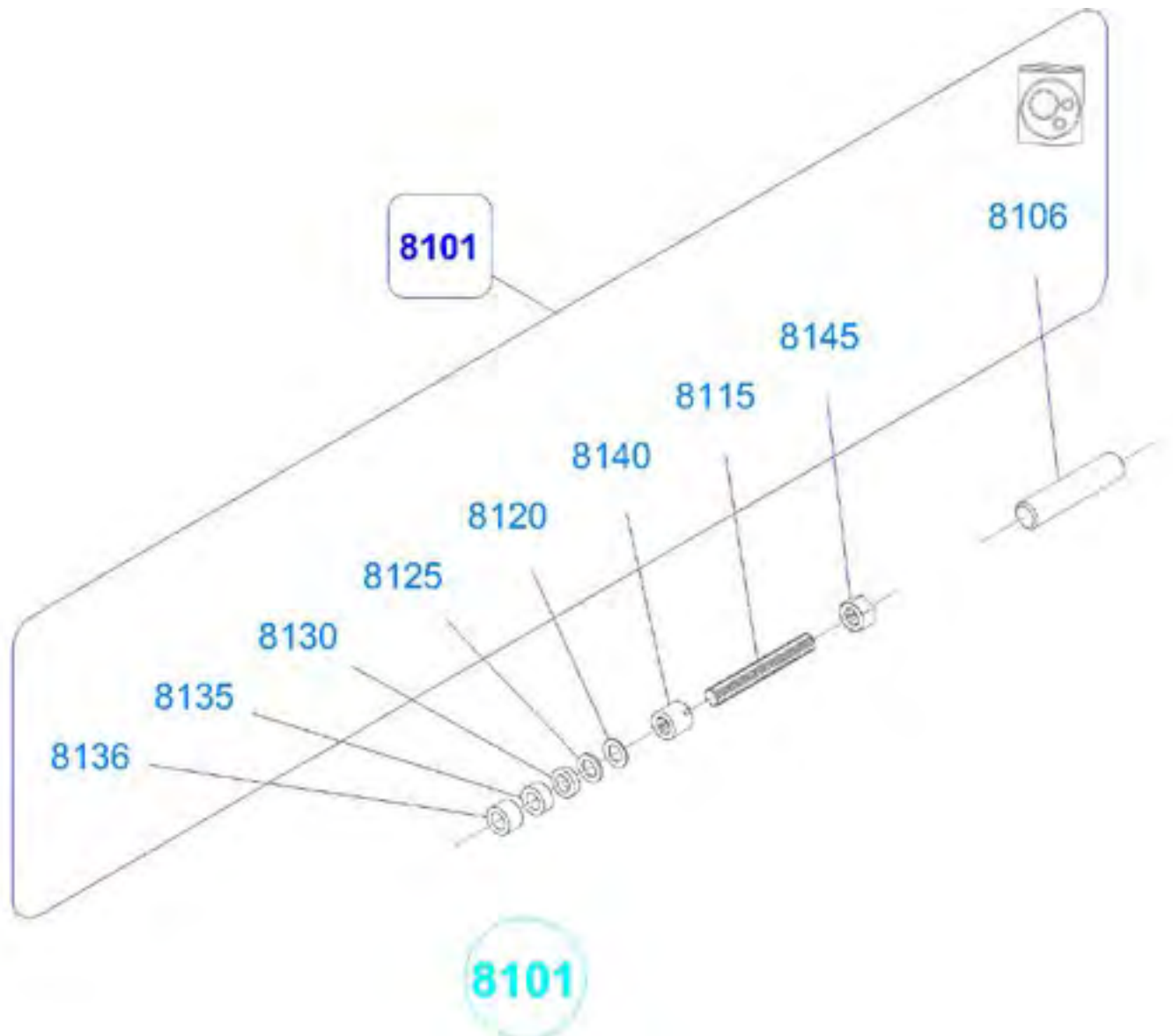
4000

Wheel Motor, Poclain MSE03, GO 13645 Continued




8100

Wheel Motor, Poclain MSE03, GO 13645 Continued



REFERENCE**KUBOTA D 902 ENGINE PARTS MANUAL****97898-81240****KUBOTA D 902 ENGINE OPERATORS MANUAL****1J090-89160**

FLUID OR FILTER	CAPACITY	FLUID TYPE & WEIGHT	FILTER PART #
ENGINE OIL		10W-30 CF	
ENGINE FUEL	15 Gallon		
ENGINE COOLANT		Ethylene Glycol	
HYDRAULIC OIL	15 Gallon	AW 46	
ENGINE OIL FILTER			GO 13525
ENGINE FUEL FILTER			GO 13530
ENGINE AIR FILTER			GO 13535
HYD OIL FILTER			GO 13656
INLINE FUEL FILTER			B 840

 Gillison's Variety Fabrication, Inc. 3033 Benzie Hwy. Benzonia, MI 49616 231-882-5921 Fax 231-882-5637 www.gillisons.com 800-392-6059		Orbit Lift Pruning Tower Inspection Form	
Name, phone number and address of equipment owner:		Name, phone number and address of equipment inspector:	
Serial Number:			
Model:			
Hourmeter:			
Date:			
All inspections are to be performed by a qualified individual with knowledge of the orbit lift pruning tower. <input type="checkbox"/> PRE-DELIVERY: Must be performed prior to each delivery by sale, lease, or rental. <input type="checkbox"/> FREQUENT: Must be performed every three months or 150 hours of operation, whichever comes first. <input type="checkbox"/> ANNUAL INSPECTION: Must be performed no later than 13 months from the date of the prior Annual Inspection.			
P=Pre-Delivery, F=Frequency, A=Annual Mark as: Y=Yes (passed) N=No (Failed) C=Corrected N/A=Not Applicable P/F A		P=Pre-Delivery, F=Frequency, A=Annual Mark as: Y=Yes (passed) N=No (Failed) C=Corrected N/A=Not Applicable P/F A	
GENERAL, PLATFORM AND BOOM INSPECTION		FUNCTIONS AND CONTROLS	
1) Ensure that operator's manual is on the lift.		1) All joystick/toggle controls return to neutral/off position when released.	
2) Check lift for visible damage. Inspect boom, stabilizer arm and chassis including all welds.		2) Check that enable foot switch operates properly, not modified, disabled or blocked. Should not drive unless depressed.	
3) Boom sections and related weldments free of damage, distortion and excessive wear.		3) Check all functions of movement by driving and operating the machine including the boom moving up and down, propelling in all directions. Check speed and smoothness.	
4) Inspect all pivot pins, cylinder pins, attaching and retention hardware, connections and fasteners for damage, distortion and excessive wear.		4) Check that all other machine controls, gauges operate properly at both platform and ground control stations.	
5) Check for fluid leaks.		5) Make sure boom up/down switch at engine compartment is operational.	
6) Inspect tires and wheel nuts. Ensure proper wheels/tires installed. Inspect for excessive damage wear and corrosion. Tires properly mounted. Inflate front drive tires to 30 lbs, fill rear tires with liquid ballast to 30 psi.		6) Make sure emergency lower valve is operational.	
7) Check drive hubs for proper fluid level.		7) Test the tilt alarm.	
8) Inspect platform and ensure mounting hardware free of damage and secure. Door is secure and opens and latches properly.		POWER SYSTEM	
9) Platform guardrail and floor in place, secure and free of damage.		1) Engine speed set at proper RPM: 1500 (low) - 3000 (high)	
10) Lanyard anchorage points secure and free of damage.		2) Air and fuel filter properly serviced.	
11) Read all decals and ensure that they are present and legible.		3) Proper coolant and engine oil levels.	
12) Caster (pivot) wheel swivels freely.		4) Exhaust system operates properly, secure and free of damage.	
13) Machine is free of unauthorized modifications or additions.		5) Inspect belts and hoses.	
14) Grease and lubricate per service maintenance manual.			
Inspector Name:		Owner Name:	
Date:		Date:	
Inspector ensures that this machine has been inspected per each area of inspection.		Owner ensures all discrepancies have been corrected prior to placing the machine back into service.	

G V F WARRANTY

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

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

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

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

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