DURAPACK® 5000

HIGH-COMPACTION REAR LOADER

SERVICE MANUAL

ISSUED JANUARY 2025

TP1DP5-SM-0125

© 2025 The Heil Co.

Environmental Solutions Group
201 W. Main Street, Ste 300
Chattanooga, TN 37408
Heil Customer Care: 866.275.4345

⚠ WARNING

IF INCORRECTLY USED, THIS EQUIPMENT CAN CAUSE SEVERE INJURY. THOSE WHO USE AND MAINTAIN THE EQUIPMENT SHOULD BE TRAINED IN ITS PROPER USE, WARNED OF ITS DANGERS, AND SHOULD READ AND FULLY UNDERSTAND THIS ENTIRE MANUAL BEFORE ATTEMPTING TO SET UP, OPERATE, ADJUST OR SERVICE THE EQUIPMENT. KEEP THIS MANUAL FOR FUTURE REFERENCE

PLEASE NOTE THAT THIS MANUAL IS APPLICABLE TO THE HEIL BODY ONLY. PLEASE CONSULT THE RESPECTIVE CHASSIS MANUAL FOR ANY AND ALL ISSUES OR QUESTIONS RELATED TO THE CHASSIS. HEIL CANNOT SPEAK FOR THE CHASSIS MAKER.

IMPORTANT SAFETY NOTICE

Proper service and repair are important to the safe, reliable operation of Heil Co.'s products. Service procedures recommended by Heil are described in this service manual and are effective for performing service operations. Some of these service operations may require the use of tools or blocking devices specially designed for the purpose. Special tools should be used when and as recommended. It is important to note that some warnings against the use of specific methods that can damage the product or render it unsafe are stated in the service manual. It is also important to understand these warnings are not exhaustive. Heil could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each method. Consequently, Heil has not undertaken any such broad evaluations. Accordingly, anyone who uses service procedures or tools which are not recommended by Heil must first satisfy himself thoroughly that neither his safety nor the product safety will be jeopardized by the method he selects.

Heil Environmental, as manufacturer of the equipment that is covered by this manual, is providing a product to the user who has acknowledged to have superior knowledge of the conditions of the use to which the product will be put. Heil Environmental relies upon the user's superior knowledge in specifying any changes or modifications including, but not limited to, the inclusion or non inclusion of options that are required by the user and the Heil product, and for the particular application of the user relative to the Heil product.

DURAPACK® 5000
TABLE OF CONTENTS

Copyright 2025, The Heil Co.
Printed in the U.S.A.

DURAPACK® 5000
TABLE OF CONTENTS

Copyright 2025, The Heil Co.
Printed in the U.S.A.

DURAPACK® 5000
TABLE OF CONTENTS

Copyright 2025, The Heil Co.
Printed in the U.S.A.

DURAPACK® 5000
NOTES

Issued January 2025

Copyright 2025, The Heil Co.
Printed in the U.S.A.

DURAPACK® 5000

HIGH-COMPACTION REAR LOADER

SERVICE MANUAL

ISSUED JANUARY 2025

TP1DP5-SM-0125

Copyright 2025, The Heil Co.
Printed in the U.S.A.

Issued January 2025

DURAPACK® 5000
NOTES

Copyright 2025, The Heil Co.
Printed in the U.S.A.

SECTION 1
GENERAL INFORMATION

Copyright 2025, The Heil Co.
Printed in the U.S.A.

DURAPACK® 5000
General Information

INTRODUCTION

The following sections are guides for maintenance and service of the Heil unit. The sections cover preventive maintenance, adjustment, and troubleshooting tips. Before performing maintenance, check the work area carefully to find all the hazards present and make sure all necessary safeguards or safety devices are used to protect all persons and equipment involved. In order to diagnose a problem quickly and effectively, a service person must be thoroughly familiar with the machine.

This section explains the system and its major components. Diagrams and schematics of the electrical and hydraulic systems are in the Service Manual Schematics section.

NOTICE

For CNG units, this Service Manual should be used in conjunction with any associated CNG System Manufacturer's Operation and Maintenance Manuals. Always read and understand all associated manuals alongside the Heil Parts and Service Manual and Heil Operation Manual before operating or servicing the unit. This manual does not contain and should not be relied upon to cover any CNG system specifics. You must consult the applicable CNG system manual as well as this Manual.

IMPORTANT!

- Before starting any maintenance, study this section of the manual.
- Read all hazard warnings and decals on the unit.
- Clear the area of other persons before performing any maintenance.
- Know and understand safe use of all controls.
- It is your responsibility to understand and follow manufacturer’s instructions on equipment and care.

SERVICE/PARTS ASSISTANCE

Assistance in troubleshooting, repair and service is available by contacting the authorized Heil Dealer in your area. Parts are available at your Heil Dealer or through Heil. Heil personnel are trained to provide prompt and professional assistance.

ALWAYS give the unit serial number in any correspondence relating to the equipment.

See the back cover of this manual for Heil contact information.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

RECOMMENDED SPARE PARTS		
PART NO.	**DESCRIPTION**	**QTY**
BODY AND TAILGATE		
022-3509	SEAL, TAILGATE, 240"	1
019-1242	SPRING, 1" OD X 6", MOUNTING	4
HYDRAULICS		
001-7007	CYLINDER, INSIDE	1
001-7006	CYLINDER, OUTSIDE	1
001-7120	CYLINDER, EJECTOR, 18 YD. BODY	1
001-7117	CYLINDER, EJECTOR, 20 YD. BODY	1
001-7121	CYLINDER, EJECTOR, 25 YD. BODY	1
001-7122	CYLINDER, EJECTOR, 27 YD. BODY	1
001-7128	CYLINDER, EJECTOR, 32 YD. BODY	1
001-6980	CYLINDER, UPPER PANEL (SLIDE)	1
001-6858	CYLINDER, TAILGATE RAISE	1
031-6269-002*	VALVE, TAILGATE, 2 SPOOL	1
031-6269-003*	VALVE, TAILGATE, 3 SPOOL	1
031-6269-004*	VALVE, TAILGATE, 4 SPOOL	1
031-6468	VALVE, REGENERATIVE	1
060-0417	CAP, FILLER	1
067-0630	GAUGE, SIGHT THERMOMETER	1
075-0578	STRAINER, SUCTION, 100 MESH	1
075-0930	FILTER, PRESSURE	1
075-0712	BREATHER, FILTER	1
075-0953	FILTER, RETURN LINE	1
031-5601	DISCONNECT, QUICK	1
ELECTRICAL		
063-0124	SWITCH, PROXIMITY, CONNECTOR, 30MM	1
063-0122	SWITCH, PROXIMITY, CONNECTOR, 18MM	1
CONTROLS		
075-0953-012	SWITCH, ELECTRICAL	1
108-8464	SWITCH, TOGGLE	1
032-1011	ASSEMBLY, YOKE	1

Copyright 2025, The Heil Co.
Printed in the U.S.A.

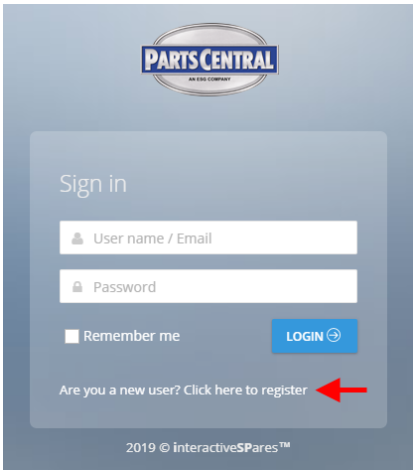
ELECTRONIC PARTS CATALOG (EPC)

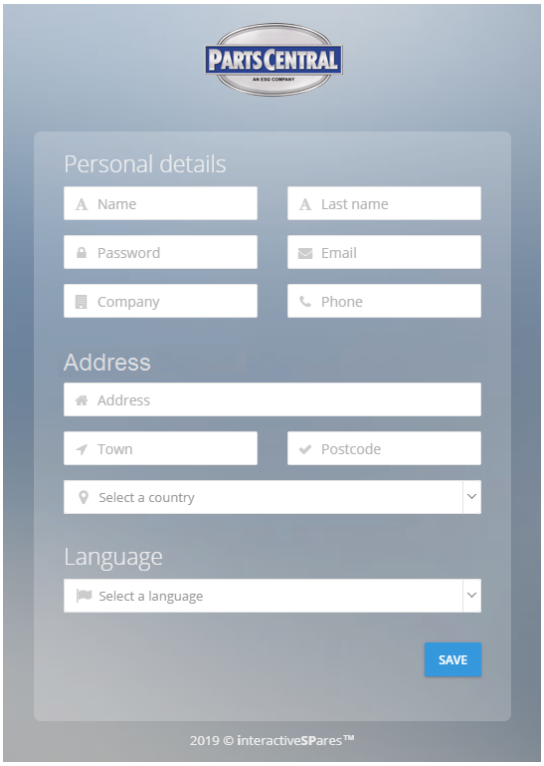
The Parts Central EPC includes electronic versions of the Heil Parts Manuals, specific to a Customer's truck configuration and options. After registering and logging in, the user can search by **Keyword(s) or Part Number** and/or **Heil Body Serial Number** to quickly identify a spare part or browse a custom parts catalog.

Note: This tool is for reference use only and the cart functionality is disabled. Please contact your local Heil Dealer for parts quoting and ordering.

Registration and Login

Register online to gain access: **https://epc.partscentral.com**. Upon registration, you will receive an email notification confirming registration. Within 24 hours, your registration will be approved and you can log in using the **login page**.

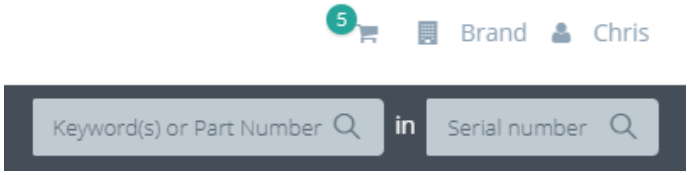




Copyright 2025, The Heil Co.
Printed in the U.S.A.

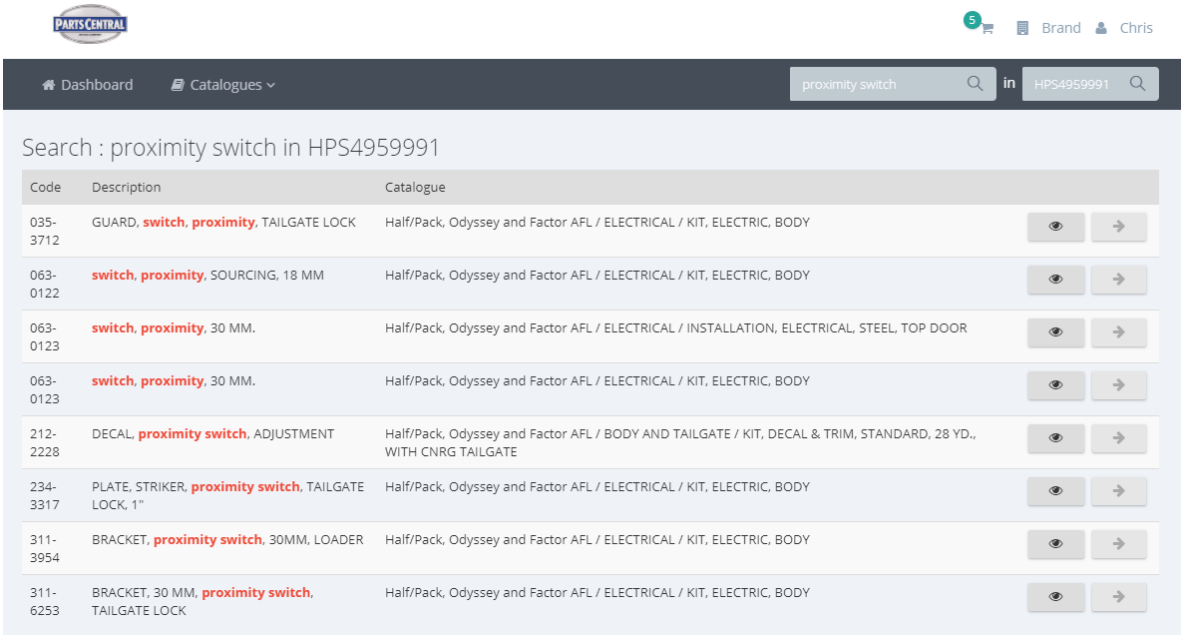
Search by Part Keyword(s) or Part Number in Body Serial Number

After login, you will land on the User Dashboard. At the top right of the Dashboard, there will be two search fields, as shown in the image below.



You can search by **Keyword(s) or Part Number** within a specific Heil Body **Serial Number**. For example, if you are looking for a **proximity switch** for Body Serial Number **HPS4959991**, you can enter this information into these two fields and the search results will include all parts within the **HPS4959991** body that contain the keywords **proximity** and **switch** within their part descriptions. See the image below.

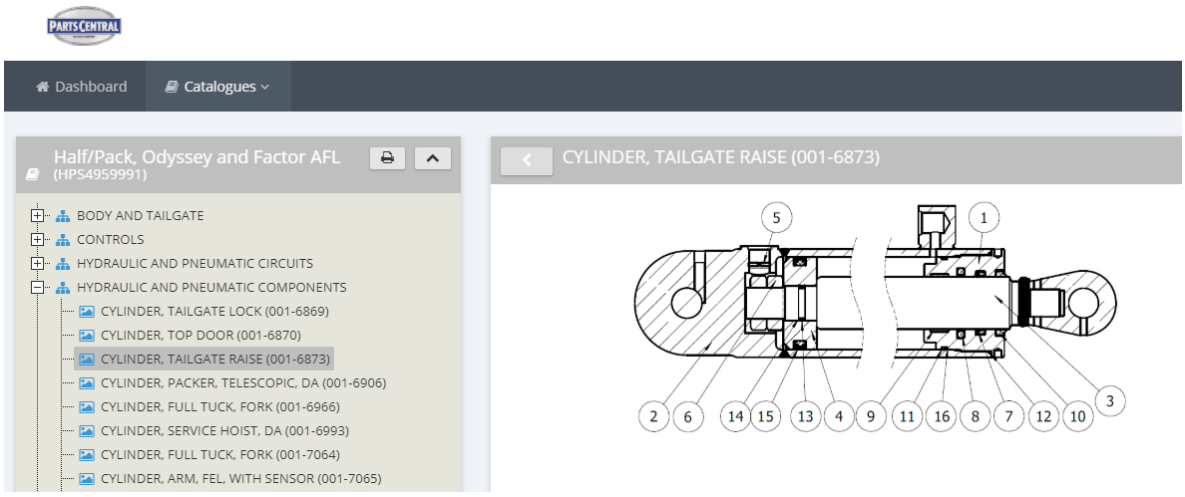
From the search results list, you can select the right arrow icon to view the part within its associated assembly/kit, helping you identify the needed part. Alternatively, you can select the eye icon on the right to see part specifics (including any notes) and quickly add to cart (although this functionality is not yet turned on in the Parts Central EPC).



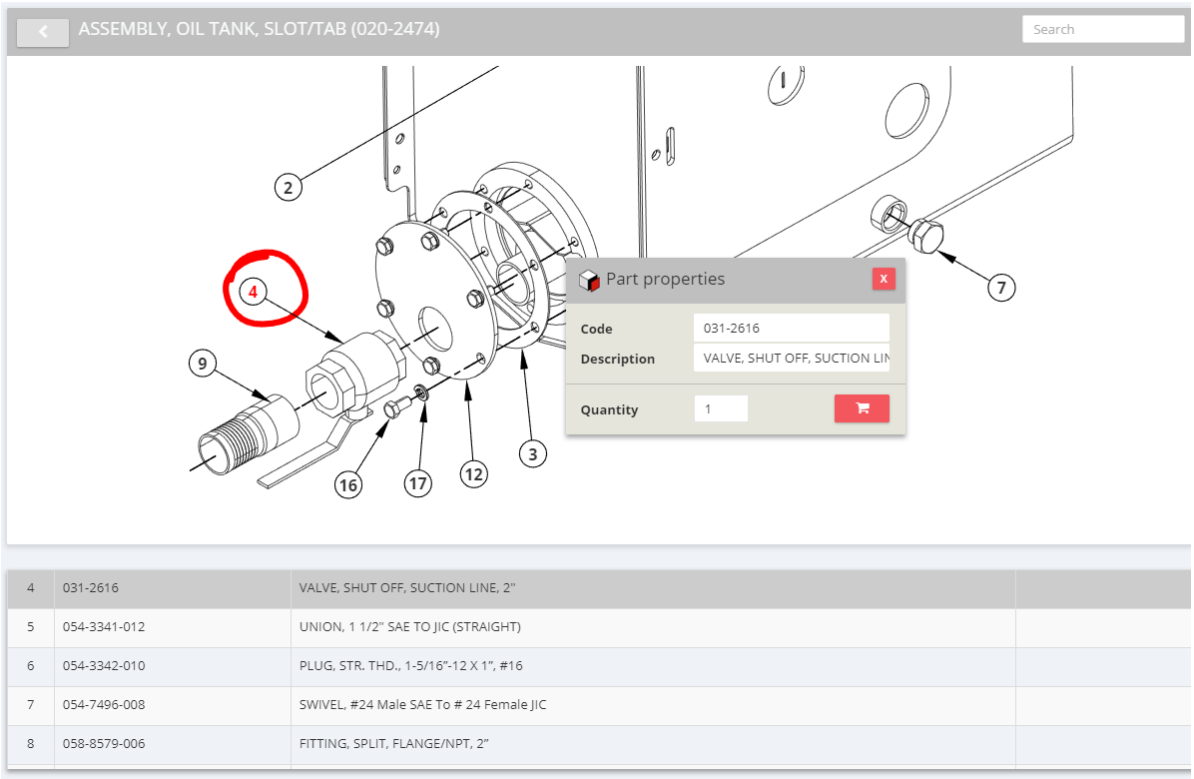
Copyright 2025, The Heil Co.
Printed in the U.S.A.

Search by Body Serial Number

If you want to view an entire parts catalog for a particular Heil unit, you can search by only the Heil Body **Serial Number**, leaving the **Keyword(s) / Part Number** field blank. The search result will then be the Body Serial Number-specific parts catalog with familiar catalog sections that you can browse. You can navigate through the catalog using the section/topic menu in the left panel and then adjust an assembly/kit illustration size in the right panel with the mouse center scroll wheel. Additionally in the right panel, you can drag the image when holding down the left mouse button. See the image below.



For each assembly/kit, you can click on the interactive part callout reference numbers to highlight the corresponding part in the parts list, or you can click on a parts list line item to highlight its position on the illustration. See the image below.



4	031-2616	VALVE, SHUT OFF, SUCTION LINE, 2"	
5	054-3341-012	UNION, 1 1/2" SAE TO JIC (STRAIGHT)	
6	054-3342-010	PLUG, STR. THD., 1-5/16"-12 X 1", #16	
7	054-7496-008	SWIVEL, #24 Male SAE To # 24 Female JIC	
8	058-8579-006	FITTING, SPLIT, FLANGE/NPT, 2"	

Copyright 2025, The Heil Co.
Printed in the U.S.A.

PRECAUTIONARY STATEMENTS

Listed below are the definitions for the various levels of hazards. It is important that the operators of this equipment and people who service units read and understand all warnings as they relate to this equipment operation.

- **DANGER** – indicates a hazardous situation, which if not avoided WILL result in DEATH or SERIOUS INJURY if you do not follow proper instructions.
- **WARNING** – indicates a hazardous situation, which if not avoided COULD result in DEATH OR SERIOUS INJURY if you do not follow proper instructions.
- **CAUTION** – indicates a hazardous situation, which if not avoided COULD result in MINOR to MODERATE INJURY if you do not follow proper instructions.
- **NOTICE** – addresses practices not related to personal injury, such as property damage or damage to the equipment.

The following warnings are generally in the Operator's Manual for each specific unit, or are generic safety messages if an Operator's Manual does not have these safety messages. Other safety alert messages may be in other sections of the Service Manual or in an Operator's Manual. You must read and obey all safety alert messages in any manual produced by Heil to support your unit.

⚠ WARNING

Failure to follow all instructions and safety precautions in this manual, in the Service Manual, in other manufacturer's manuals and on the safety decals attached to the product could result in serious injury or death to operators or bystanders and/or damage to property. Do not operate this vehicle before you read and understand the Operation Manual, the Parts Service Manual for this unit, other applicable manufacturer's manuals and the safety decals on the product. Each operator of this unit must read and understand all directions in this manual before they first operate this vehicle. Keep this manual in the cab for new operators and to remind all operators about safe use.

⚠ WARNING

Never weld on a compressed natural gas vehicle unless the compressed natural gas fuel system has been purged with inert gas.

⚠ DANGER

Do not operate the unit or perform repair or maintenance procedures on the unit until you read and understand all of the instructions in this manual. Failure to do so can result in death or serious injury to operators or bystanders.

⚠ DANGER

Make sure the unit is on firm, stable ground before you raise the body and clear the area of all unnecessary people. Do not prop a body unless it is on firm, stable ground. A unit not on firm, stable ground can roll when raising or propping the body. This can cause death or serious injury to you or bystanders.

⚠ DANGER

Always prop the tailgate when you leave it raised for maintenance, service or cleaning procedures. Any part of your body between the unit's body and the tailgate while you prop the tailgate or when the tailgate is propped is dangerous. Death or serious injury can occur if any part of your body is between the tailgate and the body if the tailgate suddenly closes.

⚠ DANGER

A tailgate in motion is dangerous. Serious injury or death can occur if a person is struck by a moving tailgate or becomes trapped between the tailgate and the body. Clear the area near the tailgate of all unnecessary people before you lower the tailgate.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

⚠ DANGER

The packer and crusher panels are dangerous. They can cause death or serious injury if a person is inside the hopper. Make sure no one is inside the hopper before you begin a packer or crusher function. Put the unit in the Lock-Out/Tag-Out mode if it is necessary to enter the hopper area.

⚠ DANGER

Keep all parts of your body out from underneath the unit's body and away from the cylinders when raising or lowering the body. Serious injury or death will occur if the unit's body suddenly lowers and traps a part of your body.

⚠ DANGER

Do not raise a body that has refuse while you do maintenance or service procedures. Refuse in the body can make the unit unstable. Always unload refuse from the body before you raise it for maintenance or service procedures. Always use the body props when you raise the body for maintenance or service procedures.

⚠ DANGER

A full or partially full load of refuse is dangerous while you lower the body with inoperative controls. Refuse in the body can make the unit unstable and cause it to overturn. Serious injury or death can occur if the unit overturns due to instability caused by the loaded refuse. REMOVE the refuse before you block the body.

⚠ DANGER

Lifting equipment that does not have sufficient lifting capability is dangerous. Equipment can fail and cause death or serious injury to the operator or bystanders. Make sure the lifting equipment has sufficient lifting capability and clear ALL persons not involved with the procedure away from the area.

⚠ DANGER

The lifting equipment can fail. Serious injury or death can occur if the lifting equipment breaks and the body falls or the unit rolls over. Do not place your body or limbs between the unit's body and chassis while you remove the body-supporting timbers. Be attentive and prepared to move quickly away from the unit in the event there is an equipment failure.

⚠ DANGER

Contact of the unit with overhead electric lines is dangerous. Death or serious injury can occur. Make sure there is adequate overhead clearance before you raise the container. If the unit does make contact with overhead electric lines do not touch any metal in the cab. Stay in the unit until help arrives..

⚠ WARNING

Make sure the unit is in the Lockout/Tagout mode when you do ANY maintenance or service procedures, or when you go in the hopper, climb in or on the body or on equipment. Equipment can be operated when the unit is not in the Lockout/Tagout mode. When the unit is not in the Lockout/Tagout mode, equipment operated while you do maintenance or service procedures, go in the hopper or climb in or on the body or on equipment can cause death or serious injury.

⚠ WARNING

Moving equipment can be dangerous to bystanders. Death or serious injury can occur if a person is in the wrong area or is not attentive to the operations. Clear the area of all unnecessary people before you operate the controls.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

⚠ WARNING

Raising the body with the tailgate closed can damage the underride bumper. The under ride bumper can hit the ground when the tailgate is not fully raised before you raise the body. Death or serious injury can occur and also cause damage to the unit.

⚠ WARNING

Clear all people of the area before you lift a refuse container. Make sure the refuse is secure in the refuse container before you lift the container. Loose refuse can fall and cause death or serious injury.

⚠ WARNING

The hydraulic fluid can be under pressure and can spray while you open the connection. Hydraulic fluid can cause damage to your eyes, hands or skin. Wear protective eye glasses, gloves and other clothing as necessary to protect you from the hydraulic fluid.

⚠ WARNING

A unit that needs service or repair can malfunction and create a dangerous condition. A part failure during operation can cause death or serious injury to a person or damage to the unit. Repair or replace any failed or defective part immediately

⚠ WARNING

Improper dumping of the refuse can cause the unit to tip or rollover. Death or serious injury can occur if the unit rolls or tips over. Empty as much refuse as you can with the packer panel before you raise the body.

⚠ WARNING

Do not move the unit forward or backwards excessively fast (lurch) to dump the refuse load. Excessively fast movements with the body raised can make the body unstable and tip or roll the unit over. This can result in death or serious injury to the operator and damage the unit. Use only sufficient movement to loosen the load so that it will leave the body.

⚠ WARNING

Isopropyl alcohol is flammable and is harmful to eyes and skin. Keep isopropyl alcohol away from heat or open sources of ignition. Flush eyes and skin with water for 15 minutes after contact. Seek immediate medical help.

⚠ WARNING

A container that is not locked to the container lift mechanism is dangerous. The container can fall off the container lift mechanism and cause death or serious injury. Make sure you engage and lock the container latch bars before you lift the container.

⚠ WARNING

Grabbing a refuse container with too much pressure can damage the container. Pieces of the container can “fly” off the container and cause moderate or minor injury to a bystander. Use enough pressure with the grabber to raise the container with the lift arm and not damage the container.

NOTICE

Do not move the unit forward or backwards excessively fast (lurch) to dump the refuse load. Excessively fast movements with the body raised puts a very high load on the body raise cylinders and could damage one or both cylinders and make the body unstable unable to lower. Inspect the cylinders after you dump each load and replace if necessary.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

NOTICE

Do not operate the unit or perform repair or maintenance procedures on the unit until you read and understand the instructions in this manual. Failure to do so can result in damage to the unit or other property. If you do not understand a procedure or instruction, tell the owner or the designated person immediately. Do not operate the unit if you do not understand all procedures and instructions in this manual. The owner or designated person can contact your Heil dealer or Heil for additional help. See the Operator's Manual or Service Manual for contact information.

NOTICE

Grabbing a refuse container with too much pressure can damage the container. The container can become unusable. Use enough pressure with the grabber to raise the container with the lift arm and not damage the container.

NOTICE

The following lockout/tagout procedure represents Heil's minimum recommendation and should be used in conjunction with and should not supersede additional or more stringent safety requirements called out by your company policy. Please check with your supervisor to determine if your company has a specific lockout/tagout procedure. Contact your supervisor, Heil Technical Service, or reference *OSHA Regulation 1910.147* if you have any questions about Lockout/Tagout procedures.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

LOCKOUT/TAGOUT PROCEDURE

⚠ DANGER

This procedure MUST be followed before entering the unit's body or performing any maintenance, repair, or cleaning procedures on the unit.

⚠ WARNING

If you do not have functioning Lockout/Tagout gear and/or are not an authorized employee, STOP and DO NOT initiate any service on the unit. Contact your supervisor immediately.

NOTICE

This Lockout/Tagout procedure represents Heil's minimum recommendation and should be used in conjunction with and should not supersede additional or more stringent safety requirements called out by your company's policy. Please check with your supervisor to determine if your company has a specific Lockout/Tagout procedure. Contact your supervisor, Heil Technical Service, or reference OSHA Regulation 1910.147 if you have any questions about Lockout/Tagout.

Watch the Service Shack Video online at **www.Heil.com/Heil-Service-Shack** by selecting **Lock-Out/Tag-Out**.

A. Put the unit in a Lockout/Tagout mode:

1. BEFORE you enter the unit's body
2. BEFORE you perform ANY maintenance, repair or cleaning procedures on the unit.

B. All stored energy must be removed and/or protected against, common sources found on Heil units (Including, but not limited to):

1. Hydraulics
2. Electrical
3. Gravity
4. Pneumatics
5. Mechanical

C. Examples of some basic equipment required, see Figure 1:

1. Multi-hasp
2. Single-keyed red lock
3. Lockout tag

Figure 1. Examples of Lockout/Tagout Gear.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

LOCKOUT/TAGOUT PROCEDURE (CONTINUED)

Follow These Steps:

1. APPLY the brakes. MAKE SURE the brakes do not let the unit move and they work properly.
2. Chock all wheels.
3. SET the tailgate props when the tailgate is raised for any service, maintenance or cleaning.
4. SET the body props when the body is raised for any service, maintenance or cleaning.
5. BEFORE disconnecting main battery power, VERIFY all the following stored energy sources are depleted according to your company policy:
   a. Hydraulic (Such as forks or grabber arm in stowed position)
   b. Pneumatic (Such as tag axles).
   c. Mechnaical (Such as springs)
   d. Gravity (Such as tailgate raised)
6. REMOVE the key from the ignition and store it in your pocket, or another secured location for your safety.
7. Disconnect the battery power by flipping the battery box disconnect switch to OFF.
   a. VERIFY all electrical stored energy is depleted according to your company procedure.
8. INSERT the multi-hasp into the disconnect switch.
9. ATTACH your red single-keyed Lockout/Tagout lock with your tag exposed and visible to the multi-hasp.
   a. ALWAYS use individually assigned locks and tags when performing ANY service or maintenance with other authorized employees. Each employee MUST place their personally assigned tag and lock to the multi-hasp connected to the disconnect switch.
10. REMOVE your lock key and put it in your pocket for your safety.
    a. ONLY the person who placed the lock and tag on the multi-hasp is authorized to remove it.
    b. NEVER remove another employee's Lockout/Tagout gear without approval from the authorized person responsible.
    c. Shift or personnel changes: Off-going employees MUST provide all details pertaining to the unit's status to the oncoming employee(s). The oncoming employee(s) MUST perform the Lockout/Tagout procedure to verify all stored energy is removed from the unit BEFORE applying their Lockout/Tagout gear.
11. BEFORE removing your Lockout/Tagout gear to return the unit to service, follow these steps:
    a. INSPECT the work area to ensure all nonessential items have been removed.
    b. VERIFY all unit components are operationally intact.
    c. ENSURE all employees are safely positioned or removed from the area.
    d. NOTIFY all affected employees that the Lockout/Tagout devices are being removed.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

STORING REFUSE IN THE BODY

Heil does not recommend storing refuse in the body overnight. The different types of debris and corrosive elements usually collected can cause severe corrosion inside the body, decreasing the life of your body and impact unloading. Additionally, storing refuse in the body overnight can increase the risk of fire.

MAINTENANCE/LUBRICATION INFORMATION

Before performing maintenance, check the work area carefully to find all the hazards present and make sure all safe guards or safety devices are in place to protect all persons and equipment involved.

WINCH GEAR OIL

When the unit has a winch option, check the level of the winch's gear oil every 40 hours of operation. Fill as needed with AGMA Grade 5 EP (90wt.) for an 8,000 lb. winch and AGMA Grade 7 EP (140 wt.) for a 12,000 lb. winch.

GREASE LUBRICANT RECOMMENDATION

Use a grease gun. Before engaging grease gun, clean the fitting. Always pump enough grease to purge the joint of contaminated grease and wipe off the excess. Lubricate a unit as shown on the lubrication decal on the unit and in the **Body Lubrication Guide** paragraph of this section.

Use grade NLG1000 grease or equivalent.

OIL LUBRICANT RECOMMENDATION

Use only non-detergent engine oil to lubricate all moveable mechanical parts not furnished with grease fittings. Apply sufficient oil to give good lubrication, but do not bathe parts in oil. Always wipe off excess oil.

HYDRAULIC OIL SPECIFICATIONS

Hydraulic fluid is one of the most important components in a hydraulic system. It transmits power, provides lubrication, cooling function and has the following features:

- High viscosity index and long service life
- Outstanding cold temperature flow properties
- Fast water separation
- Excellent anti-wear performance
- Long term oxidation stability
- Superior rust and corrosion protection
- Exceptional shear stability / filter ability
- Excellent thermal and hydrolytic stability
- Anti-foam characteristics
- High performance of air release characteristics

Current Heil standard hydraulic oil is Shell Tellus S2 VX 32. Please see product TDS and MSDS for more detailed information. We strongly recommend to use it on Heil products to get best system performance and oil service life.

The following oils can be used on Heil products, if Heil standard hydraulic oil (Shell Tellus S2 VX 32) is not available. System performance/oil service life may be compromised.

- Castrol Dual Range HV 32
- Chevron Rando HDZ 32
- Mobil DTE 10 Excel 32

Copyright 2025, The Heil Co.
Printed in the U.S.A.

STANDARD TORQUE DATA FOR NUTS AND BOLTS

The following recommended torque data is a general guideline. Recommended torque, in foot pounds, for all Standard Application nuts and bolts provided in the following table.

NOTICE

Torque specifications on a drawing override torque values in the Standard Torque Data for Nuts and Bolts Table.

- All thread surfaces are clean and lubricated with SAE-30 engine oil. See notice above.
- Joints are rigid, that is no gaskets or compressible materials are used.
- When re-using nuts or bolts use minimum torque values.

STANDARD TORQUE DATA FOR NUTS AND BOLTS TABLE

Bolt Size (D)	Nut Type (STD/Lock)	Thread Turns per Inch (p)	Grade	Heil Plain Dry Condition Torque Value (ft-lbs)	Heil Zinc Plated Fastener Torque Value (ft-lbs)	Heil Lubricated Fastener Torque Value (ft-lbs)	Heil Deformed Lock Nut Torque Value (ft-lbs)
1/4	STD	20	5	9	8	6	
0.25			8	13	12	8	
		28	5	10	9	7	
			8	15	13	10	
	Lock	20	5				6
			8				8
		28	5				7
			8				10
5/16	STD	18	5	19	17	12	
.3125			8	27	24	17	
		24	5	21	19	14	
			8	29	27	19	
	Lock	18	5				12
			8				17
		24	5				14
			8				19
3/8	STD	16	5	33	30	22	
.375			8	47	42	31	
		24	5	38	34	25	
			8	54	48	35	

Copyright 2025, The Heil Co.
Printed in the U.S.A.

STANDARD TORQUE DATA FOR NUTS AND BOLTS TABLE

Bolt Size (D)	Nut Type (STD/Lock)	Thread Turns per Inch (p)	Grade	Heil Plain Dry Condition Torque Value (ft-lbs)	Heil Zinc Plated Fastener Torque Value (ft-lbs)	Heil Lubricated Fastener Torque Value (ft-lbs)	Heil Deformed Lock Nut Torque Value (ft-lbs)
	Lock	16	5				22
			8				31
		24	5				25
			8				35
7/16	STD	14	5	53	48	35	
.4375			8	76	68	49	
		20	5	60	54	39	
			8	84	76	55	
	Lock	14	5				35
			8				49
		20	5				39
			8				55
1/2	STD	13	5	82	73	53	
.500			8	115	104	75	
		20	5	92	83	60	
			8	130	117	84	
	Lock	13	5				53
			8				75
		20	5				60
			8				84
9/16	STD	12	5	118	106	77	
.5625			8	166	150	108	
		18	5	131	118	85	
			8	186	167	121	
	Lock	12	5				77
			8				108
		18	5				85
			8				121
5/8	STD	11	5	162	146	106	
.625			8	230	207	149	
		18	5	184	166	120	

Copyright 2025, The Heil Co.
Printed in the U.S.A.

STANDARD TORQUE DATA FOR NUTS AND BOLTS TABLE							
Bolt Size (D)	Nut Type (STD/Lock)	Thread Turns per Inch (p)	Grade	Heil Plain Dry Condition Torque Value (ft-lbs)	Heil Zinc Plated Fastener Torque Value (ft-lbs)	Heil Lubricated Fastener Torque Value (ft-lbs)	Heil Deformed Lock Nut Torque Value (ft-lbs)
			8	260	234	169	
	Lock	11	5				106
			8				149
		18	5				120
			8				169
3/4	STD	10	5	288	260	188	
0.750			8	408	367	265	
		16	5	322	290	209	
			8	455	409	295	
	Lock	10	5				188
			8				265
		16	5				209
			8				295
7/8	STD	9	5	465	418	302	
0.8750			8	657	591	427	
		14	5	513	461	333	
			8	724	652	471	
	Lock	9	5				302
			8				427
		14	5				333
			8				471
1	STD	8	5	697	627	453	
1.0000			8	984	886	640	
		14	5	782	704	508	
			8	1105	994	718	
	Lock	8	5				453
			8				640
		14	5				508
			8				718
1-1/8	STD	7	5	869	782	565	
1.1250			8	1395	1256	907	

Copyright 2025, The Heil Co.
Printed in the U.S.A.

STANDARD TORQUE DATA FOR NUTS AND BOLTS TABLE

Bolt Size (D)	Nut Type (STD/Lock)	Thread Turns per Inch (p)	Grade	Heil Plain Dry Condition Torque Value (ft-lbs)	Heil Zinc Plated Fastener Torque Value (ft-lbs)	Heil Lubricated Fastener Torque Value (ft-lbs)	Heil Deformed Lock Nut Torque Value (ft-lbs)
		12	5	975	877	634	
			8	1564	1408	1017	
	Lock	7	5				565
			8				907
		12	5				634
			8				1017
1-1/4 1.2500	STD	7	5	1227	1104	797	
			8	1969	1772	1280	
		12	5	1358	1222	883	
			8	2179	1961	1417	
	Lock	7	5				797
			8				1280
		12	5				883
			8				1417
1-3/8 1.3750	STD	6	5	1608	1447	1045	
			8	2580	2322	1677	
		12	5	1830	1647	1190	
			8	2938	2644	1909	
	Lock	6	5				1045
			8				1677
		12	5				1190
			8				1909
1-1/2 1.5000	STD	6	5	2134	1921	1387	
			8	3425	3083	2226	
		12	5	2401	2161	1561	
			8	3854	3468	2505	
	Lock	6	5				1387
			8				2226
		12	5				1561
			8				2505

Copyright 2025, The Heil Co.
Printed in the U.S.A.

BOLT TYPE IDENTIFICATION CHART

IH Type	S.A.E. Grade	Description	Bolt Head Marking**
1	1 or 2	No radial lines. Low or medium carbon steel not heat treated. NOT USED, replace with same grade bolt.	
5	5	Three radial lines. Quenched and tempered medium carbon steel.	
8	8	Six radial lines. Quenched and tempered special carbon or alloy steel	

Copyright 2025, The Heil Co.
Printed in the U.S.A.

TORQUE FOR HYDRAULIC TUBES AND FITTINGS

37 DEGREE FLARE (JIC) FITTINGS		
	SET WRENCH TO *(DRY TORQUE CAN VARY +/- 10%)*	
NOMINAL TUBE OD	**TORQUE WRENCH SETTING**	**ALTERNATE TORQUE UNITS**
1/8"	6.5 ft-lbs.	80 in-lbs.
3/16"	9 ft-lbs.	110 in-lbs.
1/4"	12.5 ft-lbs.	150 in-lbs.
5/16"	16.5 ft-lbs.	200 in-lbs.
3/8"	21 ft-lbs.	250 in-lbs.
1/2"	41 ft-lbs.	490 in-lbs.
5/8"	64 ft-lbs.	770 in-lbs.
3/4"	89 ft-lbs.	1070 in-lbs.
7/8"	105 ft-lbs.	1260 in-lbs.
1"	130 ft-lbs.	1560 in-lbs.
1-1/4"	142.5 ft-lbs.	1710 in-lbs.
1-1/2"	178.5 ft-lbs.	2140 in-lbs.
2"	250 ft-lbs.	3000 in-lbs.

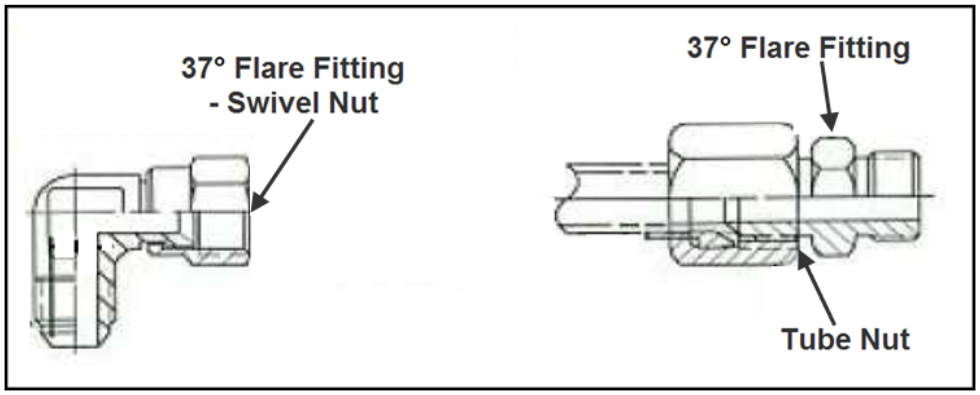


Figure 2. Torque for Hydraulic Tubes and Fittings

Copyright 2025, The Heil Co.
Printed in the U.S.A.

TORQUE FOR HYDRAULIC TUBES AND FITTINGS (CONTINUED)

FROM SAE J2593 TABLE 7		
BOSS (ORB)	**(STEEL) SET WRENCH TO *(DRY TORQUE +0%, -25%)***	
NOMINAL TUBE OD	**TORQUE WRENCH SETTING**	**ALTERNATE TORQUE UNITS**
3/16"	9 ft-lbs.	110 in-lbs.
1/4"	16.5 ft-lbs.	200 in-lbs.
5/16"	21 ft-lbs.	250 in-lbs.
3/8"	29 ft-lbs.	350 in-lbs.
1/2"	64 ft-lbs.	770 in-lbs.
5/8"	89 ft-lbs.	1070 in-lbs.
3/4"	130 ft-lbs.	1560 in-lbs.
7/8"	178.5 ft-lbs.	2140 in-lbs.
1"	224 ft-lbs.	2690 in-lbs.
1-1/4"	250 ft-lbs.	3000 in-lbs.
1-1/2"	300 ft-lbs.	3600 in-lbs.

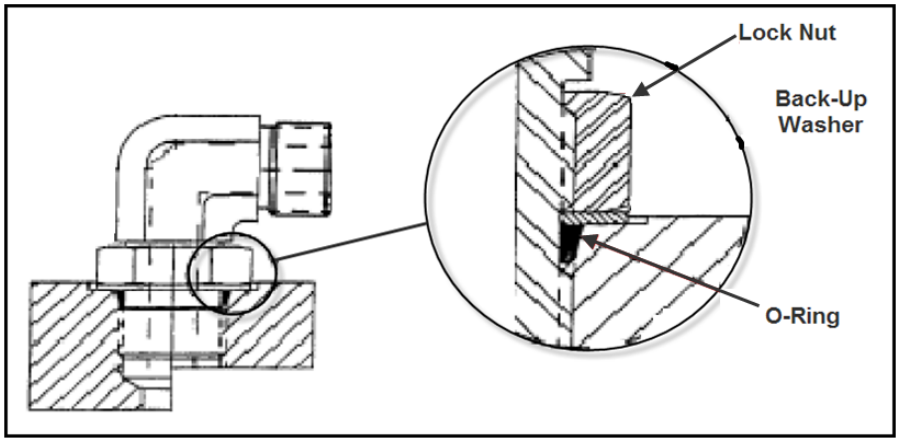


Figure 3. Torque for Hydraulic Tubes and Fittings

Copyright 2025, The Heil Co.
Printed in the U.S.A.

TORQUE FOR HYDRAULIC TUBES AND FITTINGS (CONTINUED)

SPLIT- FLANGE (HALF CLAMP) CONNECTORS (CODE 61)			
		SET WRENCH TO *DRY TORQUE*	
NOMINAL TUBE OD	BOLT SIZE	BOLT TORQUE [FT-LBS] *+/- 4 FT-LBS	BOLT TORQUE [IN-LBS] *+/- 50 IN-LBS
1/2"	5/16-18 x 1.25	17 ft-lbs.	200 in-lbs.
3/4"	3/8-16 x 1.25	25 ft-lbs.	300 in-lbs.
1"	3/8-16 x 1.25	32 ft-lbs.	380 in-lbs.
1-1/4"	7/16-14 x 1.50	41 ft-lbs.	490 in-lbs.
1-1/2"	1/2-13 x 1.50	53 ft-lbs.	640 in-lbs.
2"	1/2-13 x 1.50	61 ft-lbs.	730 in-lbs.
2-1/2"	1/2-13 x 1.75	86 ft-lbs.	1030 in-lbs.
3"	5/8-11 x 1.75	144 ft-lbs.	1730 in-lbs.
3-1/2"	5/8-11 x 2.00	125 ft-lbs.	1500 in-lbs.
4"	5/8-11 x 2.00	125 ft-lbs.	1500 in-lbs.
5"	5/8-11 x 2.25	125 ft-lbs.	1500 in-lbs.

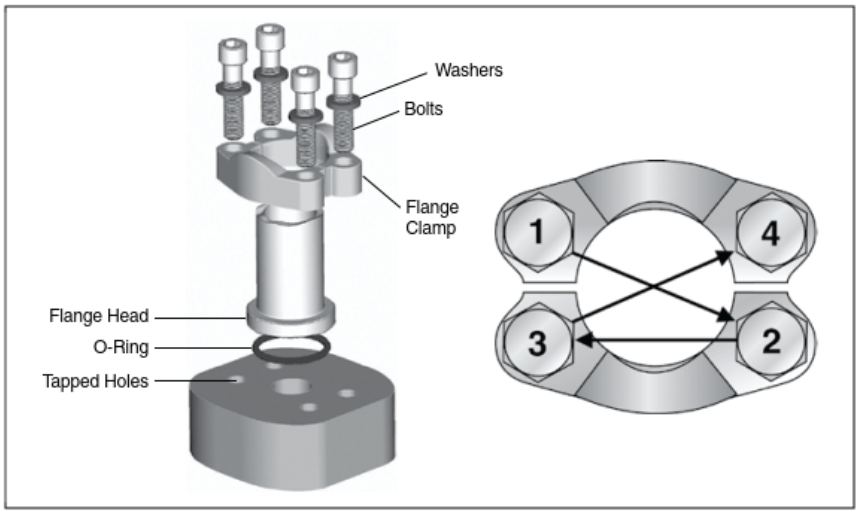


Figure 4. Bolt Torque Sequence.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

COLD WEATHER WARMUP PROCEDURE

When ambient air temperature is cold (below 0 degrees F), it is necessary to warm up the unit's hydraulic oil before you start your daily route operation, check the oil level, or adjust hydraulic pressure settings. The hydraulic oil is sufficiently warmed when the temperature is between 120° and 160° F.

⚠ WARNING

Moving parts on the unit are dangerous. Serious injury or death can occur if a person is struck by the equipment. Clear all people from the area before you operate the unit.

Follow the steps below to warm up the hydraulic oil.

1. START the TRUCK and let the engine idle.
2. APPLY the PARKING BRAKE and make sure it holds.
3. ENGAGE the HYDRAULIC PUMP for approximately five minutes.
4. MAKE SURE the AREA IS CLEAR of all unnecessary people BEFORE you operate the controls.
5. OPERATE the PACKER functions through ten (10) cycles while the engine idles. See the Operator's Manual for operation instructions.
6. Make sure the oil temperature on the site gauge is between 120° and 160° F. If not, repeat step 5.
7. Check for fluid leaks. Repair if necessary.
8. The unit is now ready to go on route.

BATTERY DISCONNECT SWITCH

The battery box is typically located on the street side of the chassis frame near the front of the body, however it can be mounted at a different location on different chassis. Become familiar with the location of the battery box and battery disconnect switch on your unit.

1. You must turn the battery disconnect switch to the OFF position whenever the unit is shut off for any length of time – especially when the unit will be left unattended.
2. You must turn the battery disconnect switch to the ON position whenever you will use the unit.
3. You must check the position of the battery disconnect switch as part of the daily inspection.

NOTICE

Battery cables must be securely anchored and not rubbing other equipment. Cable insulation must be free of damage and abrasion. Inspect weekly.

NOTICE

Always disconnect the battery before welding on the chassis or body.

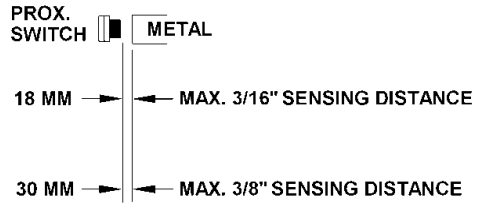
Copyright 2025, The Heil Co.
Printed in the U.S.A.

PROXIMITY SWITCH TROUBLESHOOTING

When one or more of a unit's functions do not operate properly and there are proximity switches in the circuits of the unit for these functions, refer to the following table as a guide to find the problem(s).

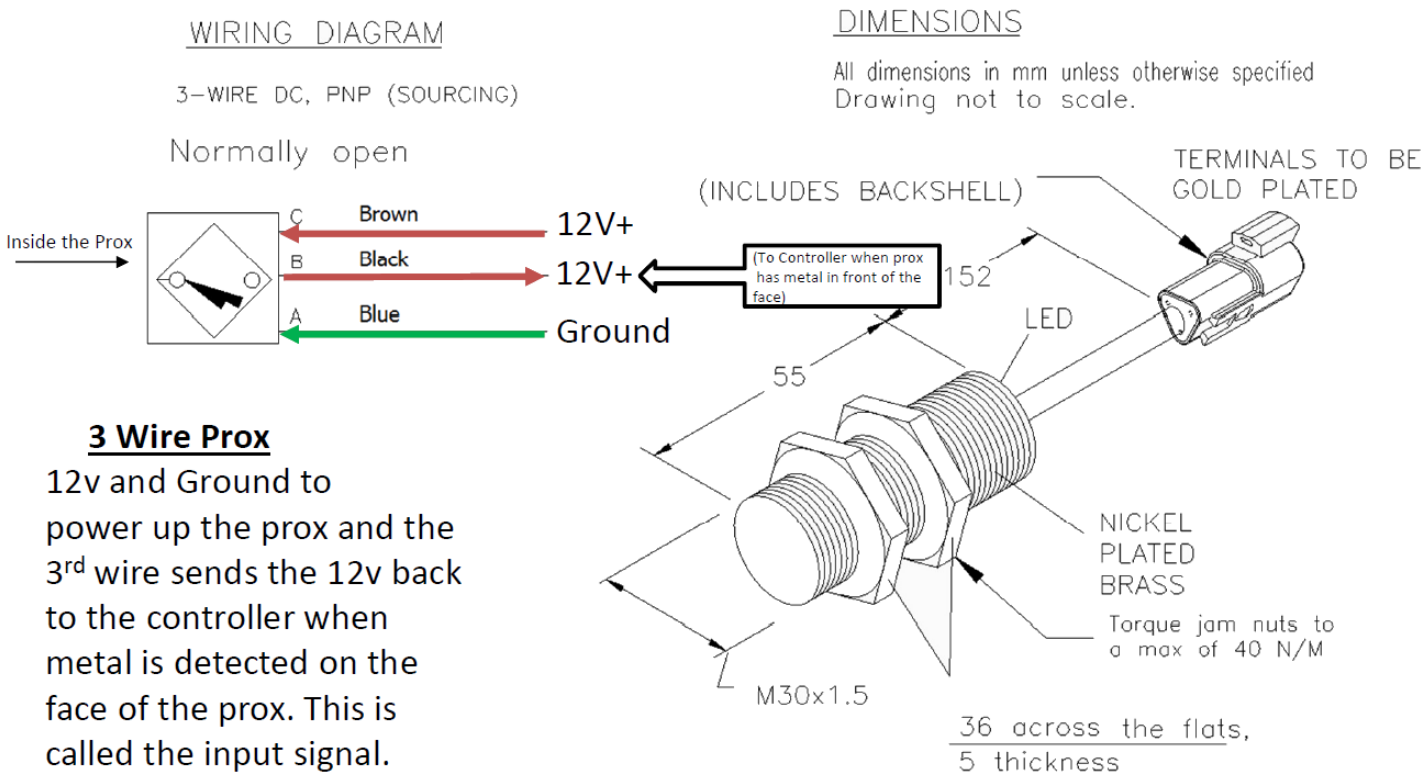
NOTICE

Heil proximity switches have a Light Emitting Diode (LED) on the switch to indicate when the switch is sensing metal. Green indicates the switch is ON. Yellow indicates the switch senses metal. Some proximity switches only have the yellow light.

Proximity Switch Troubleshooting Table	
Probable Cause	Remedy
Loose or corroded electrical connections.	Replace the electrical connections.
Damaged Switch A. Cracked Ferrite core causing the fine internal wire to break. B. Cracked Ferrite core – but wire is not broken – the sensitivity of switch will increase which causes sensing distance to increase or switch work intermittently as the temperature changes.	• DO NOT strike switch to make it work. • DO NOT damage the switch when you adjust it. • DO NOT adjust switch too close to the metal it is sensing.
Voltage spikes from truck chassis electrical system will break down the internal electronics of the proximity switch.	1. Make sure the power source from the chassis manufacturer is clean. 2. The body electrical system is protected from voltage spikes.
Improper Sensing Range	Adjust proximity switches to sense metal as follows: 
If the controller input light stays on when a switch is unplugged (the signal wire is carrying +12V DC)	Check the proximity switch electrical circuits for the source of the problem.
If proximity switch LED light is NOT ON.	1. Check the fuse relay block (Half/Packs with IFM controllers). The fuse/relay box is located in the cab. Or Check the in-line fuses (Side Loaders with IFM controllers). The in-line fuses are located in the cab. 2. Unplug proximity switch. 3. Check the power wire (terminal C) for +12 VDC with a multi-meter. 4. Check ground signal with multi-meter for continuity to chassis ground. 5. Check the signal wire for continuity to appropriate controller input terminal. See Service Manual. 6. If all three (3) wires are good, replace the proximity switch.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

PROXIMITY SWITCH TROUBLESHOOTING (CONTINUED)



3 Wire Prox

12v and Ground to power up the prox and the 3rd wire sends the 12v back to the controller when metal is detected on the face of the prox. This is called the input signal.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

DECALS ON THE UNIT

Make sure you can read all hazard and instruction decals. Clean decals if you cannot read the words. See, Decal Care, for directions on cleaning decals.

Replace any decal that is damaged, missing, or not readable.

When you replace a part that has a decal, make sure a new decal is installed on the new part. See the Parts and Service Manual for a complete decal kit and individual decals. Order the decal kit and individual decals from your Heil Dealer or from Heil.

DECAL CARE

It is important that the decals are properly cleaned to make sure that they are readable and do not come off the unit. Use the following steps to clean the decals.

A. General Guidelines

Following these guidelines helps the decals adhere longer.

- Wash the decals with a blend of mild car wash detergent and clean water
- Rinse with clean water
- Let the vehicle air-dry or dry with a micro-fiber cloth
- Do not allow fuels to stay in contact with the decal for an extended period of time. Remove the fuel contamination as quickly as possible
- Do not use carnauba-based wax over the decals
- Do not use a mechanical brush while washing the decals.

B. Pressure Washer Precautions

Pressure washing can cause damage to decals. It can cause the edges of the decals to lift and peel the decal away from the unit. Over time, the decal can fade, crack or chip away.

Use pressure washing only when other cleaning methods are not effective. If you use a pressure washer, use the following precautions.

- Spray nozzle opening: 40° wide pattern
- Spray angle: 65° from vehicle’s body (do not use sharp angles – this can lift the decals from the unit)
- Distance of nozzle to decal: 38 cm minimum
- Water pressure: <= 5.5 MPa
- Length of time: not more than 30 sec.
- NEVER use a “turbo pressure nozzle”.

C. Remove Difficult Debris

When normal cleaning procedures do not remove difficult debris from the decals, try the following:

- Spot clean the decal with Isopropyl Alcohol and a micro-fiber cloth (rag)
- If these methods do not work on a problem area, call a Heil Dealer or Heil Customer Support.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

DECAL CARE (CONTINUED)

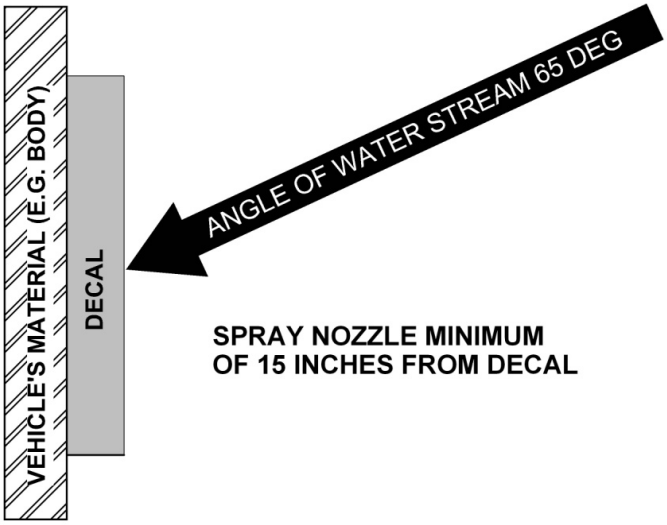


Figure 5. Recommended Technique

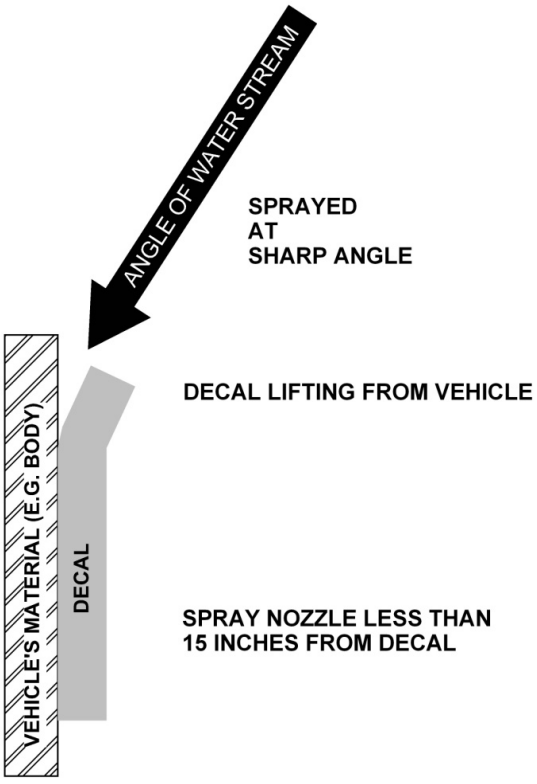
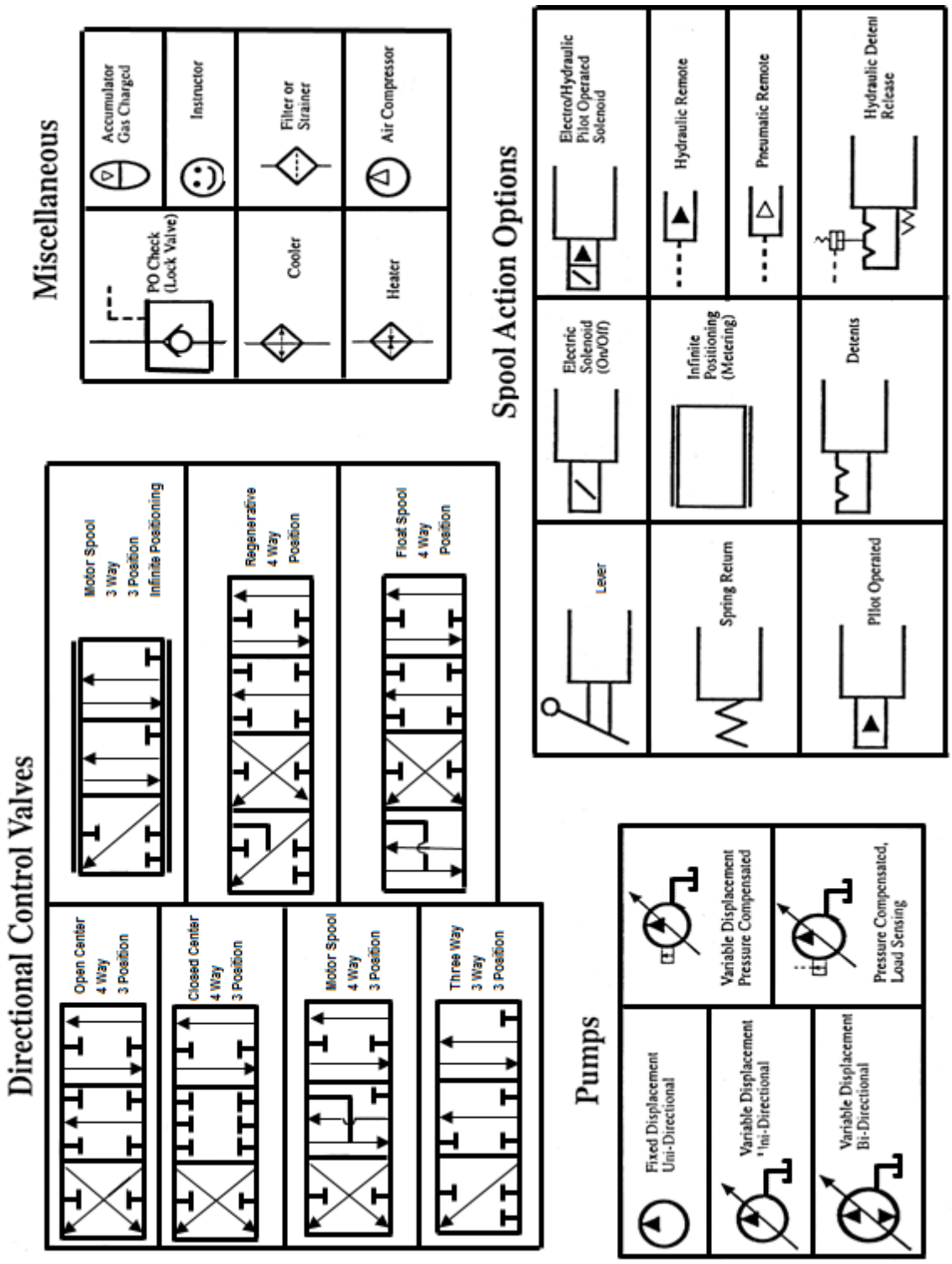


Figure 6. Incorrect Technique

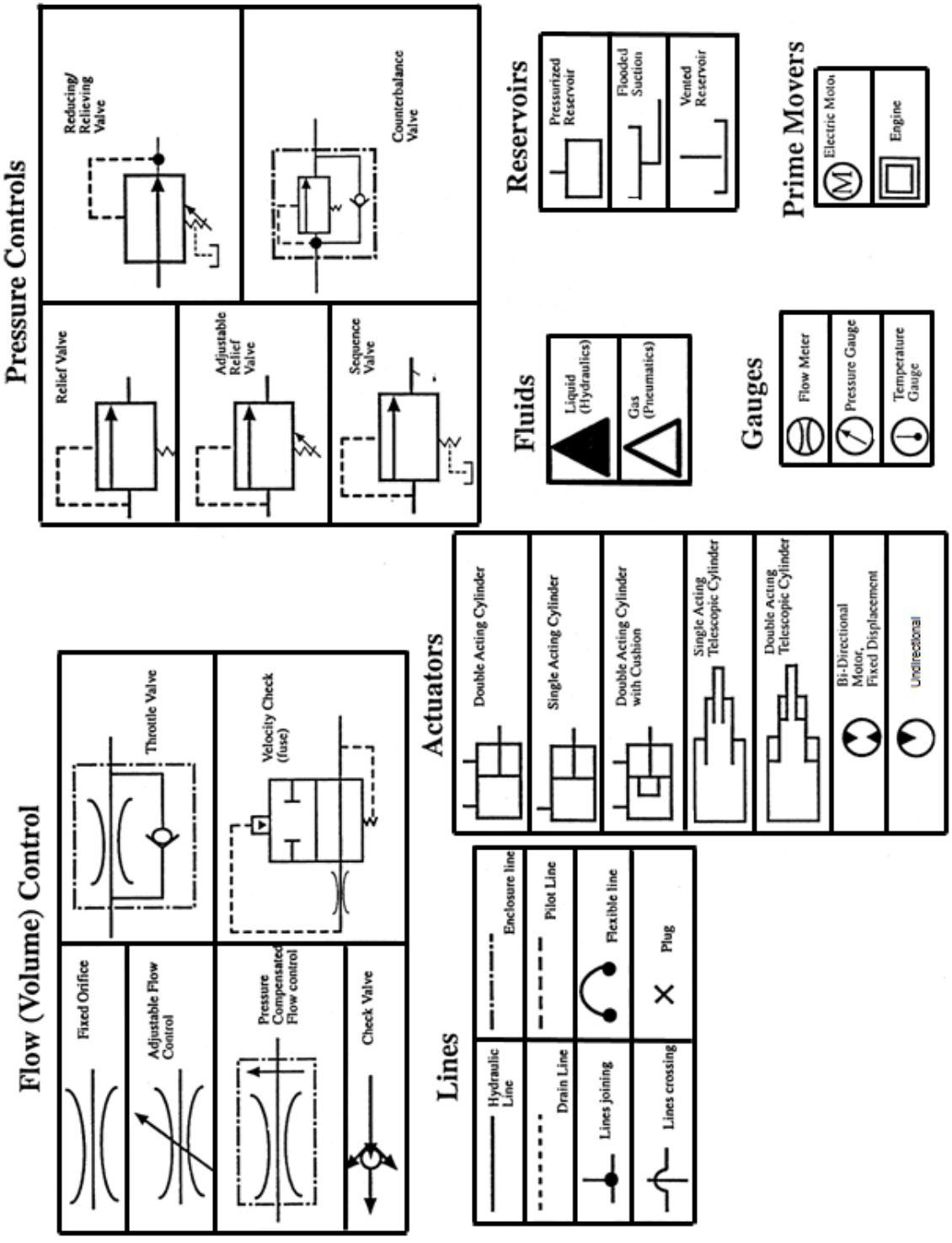
Copyright 2025, The Heil Co.
Printed in the U.S.A.

HYDRAULIC SYMBOLS



Copyright 2025, The Heil Co.
Printed in the U.S.A.

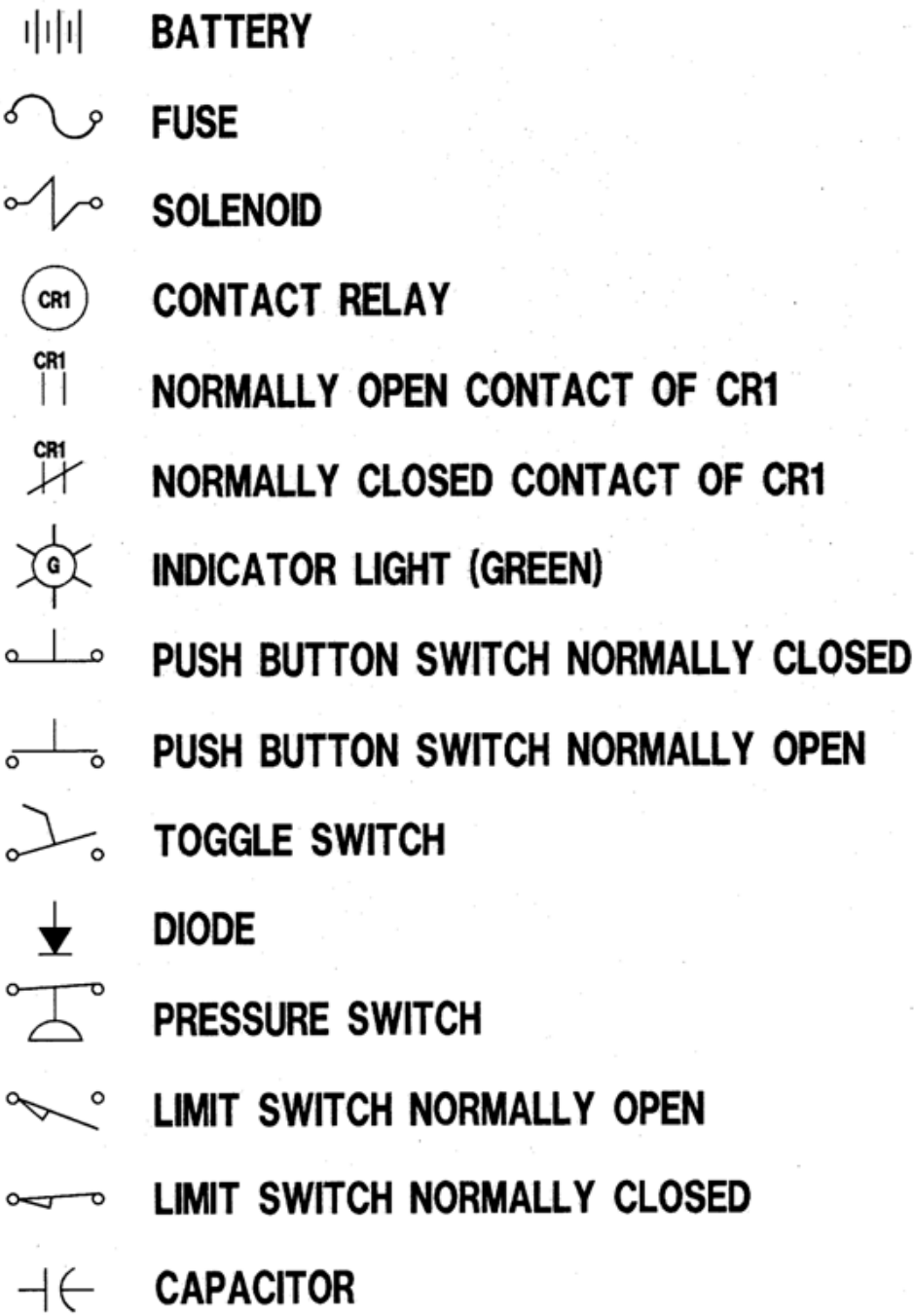
HYDRAULIC SYMBOLS (CONTINUED)



Copyright 2025, The Heil Co.
Printed in the U.S.A.

ELECTRICAL SYMBOLS

SYMBOL DEFINITIONS



Copyright 2025, The Heil Co.
Printed in the U.S.A.

DURAPACK® 5000

NOTES

Copyright 2025, The Heil Co.
Printed in the U.S.A.

SECTION 2
PUMPS

Copyright 2025, The Heil Co.
Printed in the U.S.A.

HYDRAULIC DRIVE CONTROL

There are multiple hydraulic drive configurations that achieve the same goal by utilizing different mechanisms and modes of operation.

A. Clutch Shift PTO

Listed in the display as Cab Controller Output, OUT02 p16 – PTO Sol.

1. Not equipped

Applies to Constant Drive PTO or Crankshaft Driven Front Mount Pumps.

Option Config

Clutch Shift PTO, **[OFF]**

Operation, PTO output is disabled.

2. Without Pump Manifold

Transmission driven PTO utilizing either direct or remote mount hydraulic pump which is not equipped with a solenoid-controlled manifold.

Option Config

Clutch Shift PTO, W/O Pump Manifold: **[ON]**

Operation - ON with System Enable, governed by the following EOS parameters:

Maximum Engine Speed for PTO Engagement: 1000 RPM

Maximum Engine Speed for PTO Operation: 1450 RPM

3. With Pump Manifold

Transmission driven PTO utilizing either direct or remote mount hydraulic pump which is equipped with solenoid-controlled manifold.

Option Config

Clutch Shift PTO, W/Pump Manifold: **[ON]**

Operation - ON with System Enable, governed by the following EOS parameters:

Maximum Engine Speed for PTO Engagement: 1000 RPM

Maximum Engine Speed for PTO Operation: 2700 RPM

B. Single Pump, Gear or Vane

Applies to all PTO or Crankshaft driven Pumps with solenoid-controlled manifolds or dry valves.

Listed in the display as Cab Controller Output, OUT03 p15 – Pump 1 Sol.

1. Clutch Shift PTO Driven

Option Config

Clutch Shift PTO, W/Pump Manifold **[ON]**

Operation - ON with PTO Sol. after 500ms delay, governed by the following EOS parameters:

Maximum Engine Speed for PTO Engagement: 1000 RPM

Maximum Engine Speed for PTO Operation: 1450 RPM

Copyright 2025, The Heil Co.
Printed in the U.S.A.

HYDRAULIC DRIVE CONTROL (CONTINUED)

2. Constant Drive PTO or Crankshaft Driven

Option Config

Clutch Shift PTO, **[OFF]**

Operation - ON with System Enable, governed by the following EOS parameters:

Maximum Engine Speed for PTO Engagement: 1000 RPM

C. Tandem Vane Pump

Applies to Operate at Idle, PTO or Crankshaft driven Tandem Pumps.

Listed in the display as Cab Controller Output, OUT03 p15 – Pump 1 Sol.

And OUT04 p14 – Pump 2 Sol.

1. Clutch Shift PTO Driven

Option Config

Clutch Shift PTO, W/Pump Manifold: **[ON]**

Operate at Idle: **[ON]** Arrow Right to adjust the Pump 1 Pressure Limit

Operation

Pump 1 is **ON** with the following:

PTO Sol. on for 500ms delay

AND main body pressure below Pump 1 Pressure Limit setpoint

AND Throttle Advance Switch OR Slide Activated, governed by the following EOS parameters:

Maximum Engine Speed for PTO Engagement: 1000 RPM

Maximum Engine Speed for PTO Operation: 1000 RPM

Pump 2 is **ON** with **PTO Sol.** after 500ms delay, governed by the following EOS parameters:

Maximum Engine Speed for PTO Engagement: 1800 RPM

Maximum Engine Speed for PTO Operation: 2000 RPM

2. Constant Drive PTO or Crankshaft Driven

Option Config

Clutch Shift PTO, **[OFF]**

Operate at Idle: **[ON]**

Operation

Pump 1 is **ON** with the following:

System Enable

AND main body pressure below Pump 1 Pressure Limit setpoint

AND Throttle Advance Switch OR Slide Activated, governed by the following EOS parameters:

Maximum Engine Speed for PTO Engagement: 1000 RPM

Maximum Engine Speed for PTO Operation: 1000 RPM

Pump 2 is **ON** with **PTO Sol.** after 500ms delay, governed by the following EOS parameters:

Maximum Engine Speed for PTO Engagement: 1800 RPM

Maximum Engine Speed for PTO Operation: 2000 RPM

Copyright 2025, The Heil Co.
Printed in the U.S.A.

TANDEM O.I.G.A.I. PUMP

Front Loaders, Rear Loaders, Recycle 2000, and Liberty

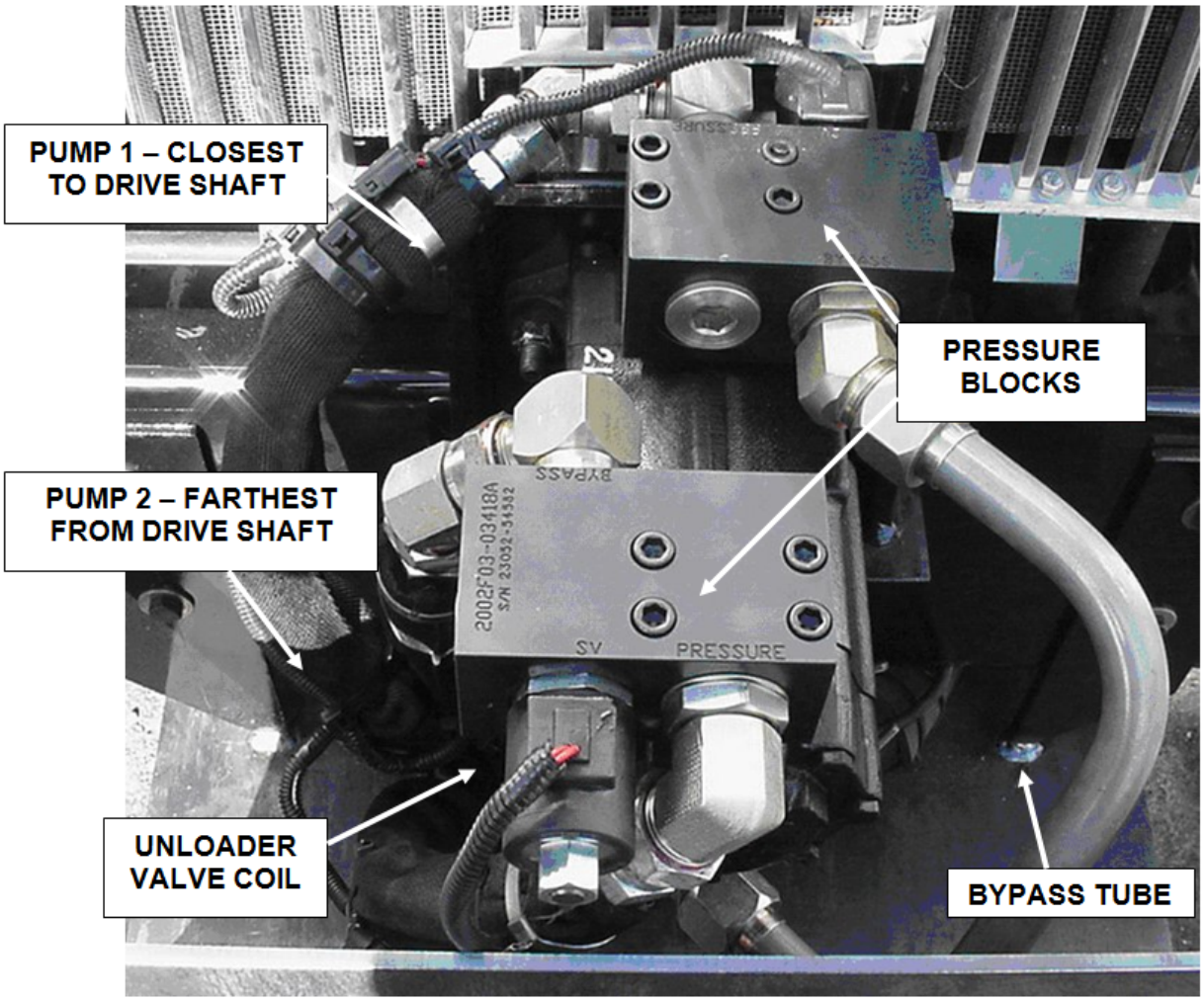


Figure 7. Tandem O.I.G.A.I. Pump

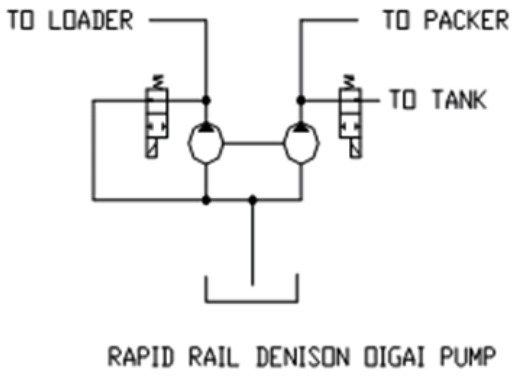


Figure 8.

This is the Hydraulic Controls Operate-In-Gear-At-Idle (OIGAI) System. The pump section (pump 1) closest to the input shaft operates the lift and shuts off first. The pump section (pump 2) farthest from the input shaft operates the packer and stays on at higher RPMs.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

TANDEM VANE PUMP O.I.G.A.I. HYDRAULIC SYSTEM TROUBLESHOOTING

The Operate-in-Gear-at-Idle (OIGAI) system is designed to perform the loading operations at standard idle speed. It is comprised of three major components: the monoblock, tandem vane pump and PTO.

On all systems, the loader is operated from P1, or front section (closest to the pump input shaft). P1 will also run the body function on some units. P2, or rear section (farthest from the input shaft) operates the body section or the packer only, depending on the unit.

A. Troubleshooting

Some symptoms of a problem in the pump circuit could be no operation or slow operation of the loader or packer system. There are 3 different type of hydraulic flow sharing systems Heil uses.

There are three primary causes for the pump circuit to not operate properly:

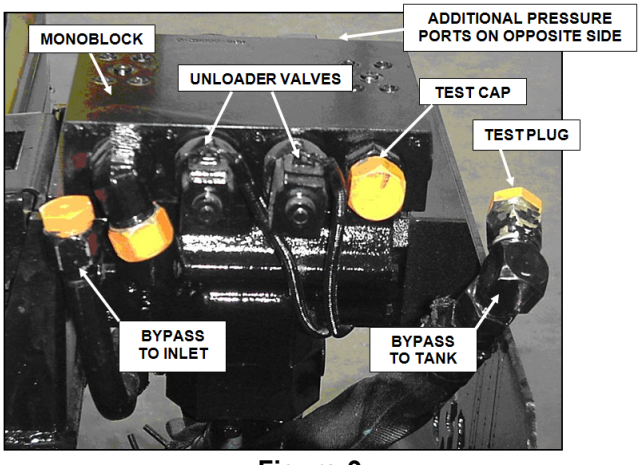
- Low or no voltage to the unloader valve coil.
- Malfunction in the unloader valve assembly.
- Internal problem with the pump.

Perform the following test after finding that there is insufficient or no flow to the loader and/or body valves.

1. Check the Electrical Supply to the Unloader Valve Coils
   a. With the system turned on and the engine operating at idle, test the voltage at the coil. It should read a minimum of 10 VDC. If proper voltage is present and the problem persists, proceed to step 2. If the voltage is below 10 VDC, check the electrical system for problems that can cause a drop or loss of voltage to the unloader valve solenoid coil. Some examples are a broken or shorted wire, blown fuse, fault in the side door switch (if equipped), no alternator input or a failed PLC calibration.
   b. Use an ohm meter to check resistance in the coil. If the measurement is less than 5 ohms or more than 20 then the circuit coil is damaged. If the coil is damaged, replace the coil.
2. Eliminate the Unloader Valve from the Circuit
   a. With the engine off, cap and plug the tube connection for the bypass to the pump inlet. This forces all oil to the hydraulic circuits as if the pump is on. (NOTE: Pump control switches in the cab are no longer effective.)
   b. Restart the truck and test the functions. If the hydraulic system functions return to normal operation (speed and pressure within specifications), replace or repair the unloader assembly.

NOTICE

If flow is present check the main relief valves for proper adjustment and operation.



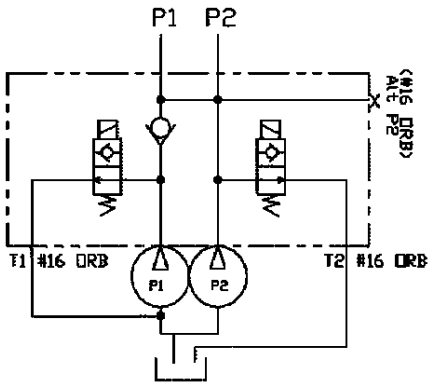


Figure 9.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

POWER TAKE-OFF FAMILIES

We use three different Power Take-Off (PTO) families to drive the hydraulic pumps at Heil.

A. Engine Driven PTO

Commonly called FEPTO. We use a crankshaft adapter then install a driveline and mount the pump in front of the engine.

B. Constant Drive Transmission Mount PTO

This PTO is driven by transmission interface gears and will provide power to the pump once the engine is running. They do not contain electrical, hydraulics, or a clutch.

C. Clutch Shift Transmission Mount PTO

This is PTO is driven by transmission interface gear and will provide power to the pump once the engine is running, the PTO solenoid is activated with 12V, and it's internal clutch is engaged.

PUMP TYPES

Constant Drive and Clutch Shift Transmission Mount PTO families can be found in three different pump types.

A. Direct Mount Pump

This is a very compact system and pump options are limited. The pump installed directly on the PTO flange has to be relatively small. See "Direct Mount Pump" image.

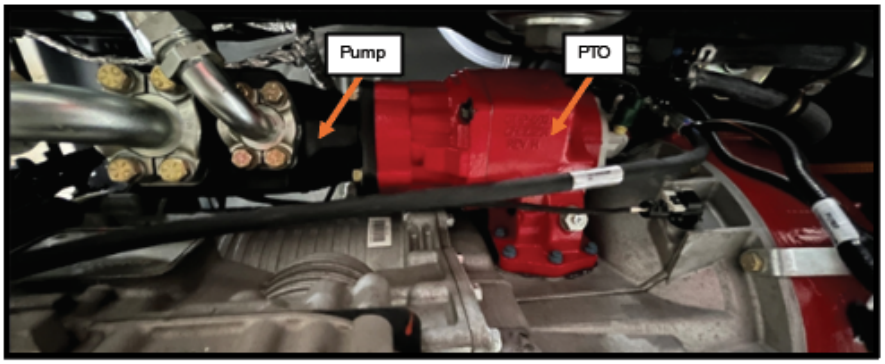


Figure 10. Direct Mount Pump.

B. Remote Mount Pump

This installation is more complex but offers greater flexibility and better pump options. The PTO and pump are not directly connected; instead, a driveline transfers power from the PTO to the pump that is remotely mounted with a separate bracket. See "Remote Mount Pump" image.

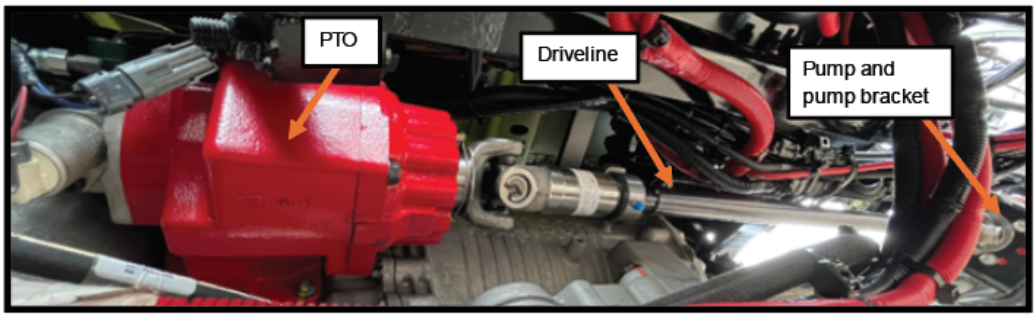


Figure 11. Remote Mount Pump.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

PUMP TYPES (CONTINUED)

C. Extended Shaft PTO

This PTO integrates direct-mount and remote-mount pump capabilities. Its built-in driveshaft allows for mounting a pump further from the PTO unit, creating space for a larger pump and manifold system.

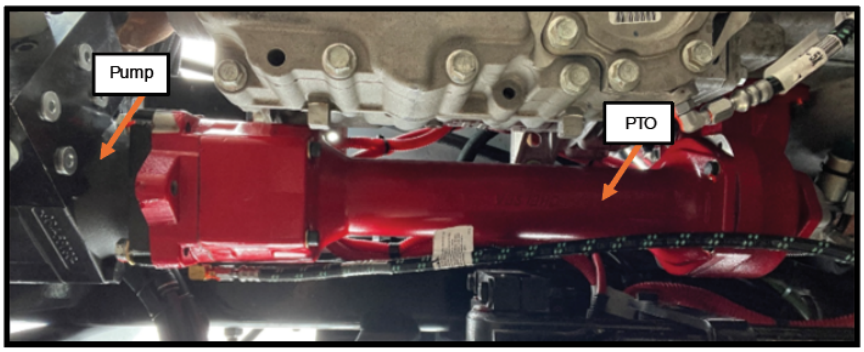


Figure 12. Extended Shaft PTO.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

PTO TROUBLESHOOTING

The following troubleshooting steps are used when the driveline is not equipped or not visible so outside testing must be performed to test if the pump is turning (ex., Clutch Shift Direct Mount or Extended Shaft). The Remote Mount Pump does not require a specific test because the driveline is visible from the outside.

A. Check Voltage at the PTO Solenoid

Heil units have a solenoid valve attached to the drive unit. Once this solenoid is activated, it provides transmission oil pressure to the piston and engages the PTO clutches. See "PTO Pressure Switch" image.

1. Reading should be over 10V with the **PUMP SWITCH ON** and **ENGINE RUNNING**

NOTICE

On newer units, keep the solenoid connected and back-probe the connector. If the connector is undone, the controller will see an "Open Loop" condition (wire break) causing it to self-protect and shut-down the output.

B. Check Coil Resistance

Unplug the coil connector and measure resistance in Ohms. See "PTO Pressure Switch" image.

1. Coil resistance should be 8 ohm +/- 20%

C. PTO Pressure Switch Function

Only complete the following check if a PTO pressure switch is installed on the assembly. See "PTO Pressure Switch" image.

1. This is normally an open switch. Which means, when the transmission oil pressure reaches the pressure set-point (via the solenoid activation) it will close it's contact and allow it to send a signal to the controller
   a. The PTO pressure switch is correctly activated when the blue wire switches to ground

NOTICE

On newer units, keep the switch connected and back-probe the connector. If the connector is disconnected, the controller will see and "Open Loop" condition when it is expecting signal feedback. Also, the in-cab display may show a warning when unplugging the switch.

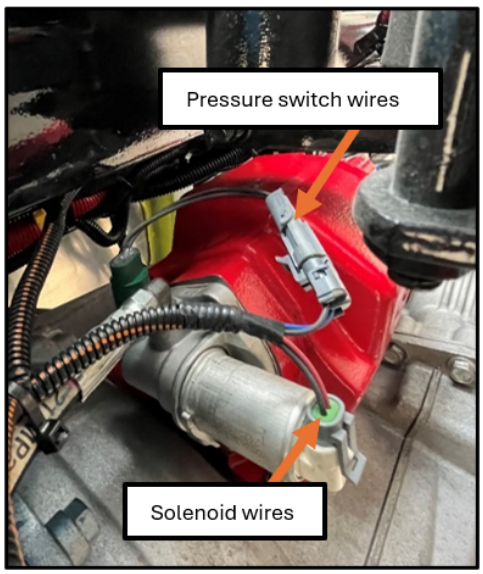


Figure 13. PTO Pressure Switch.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

D. Transmission Pressure Check

This is a multi-step process and each step of the following process will guide you through the failure mode.

1. Install a 500 PSI pressure gauge to the feed line between the transmission port and the PTO. See "Transmission Pressure Feed to PTO" image.
   a. Tee-in the so the PTO will not engage
   b. Start the unit and let the engine run at idle
      (1) Expected Pressure:
         (a) Pump OFF = 170 - 230 PSI
         (b) Pump ON = 220 - 300 PSI

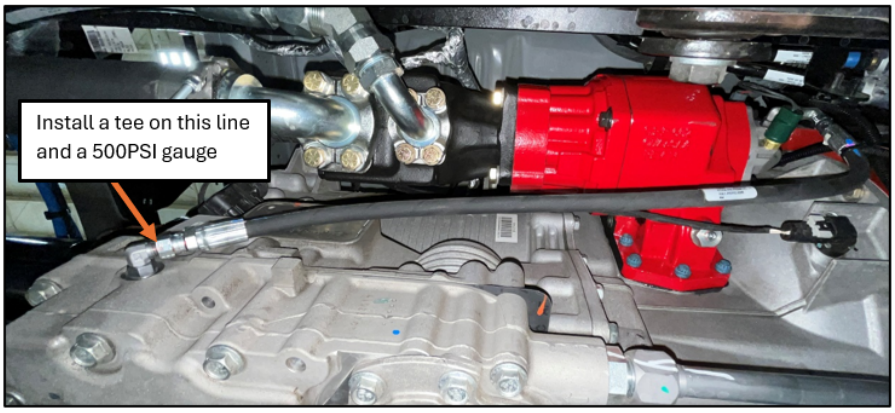


Figure 14. Transmission Pressure Feed to PTO.

2. If pressure is the same pump **OFF** vs pump **ON**, there may be a **missing wire** or **TCM not configured correctly**
3. If pressure difference is greater than **40 PSI,** there is an **internal leak** such as:
   a. Solenoid valve bypassing to sump
   b. Clutch piston seal bypassing to sump
4. If pressure with pump OFF is lower than specifications, it's possible:
   a. the Solenoid valve is bypassing to sump
   b. there is a Transmission pressure problem (if so, follow the next step)
      (1) Install a pressure gauge directly on the transmission port. See "Transmission Pressure Measurement" image.
      (2) Check to see if the pressure is within the specifications provided above

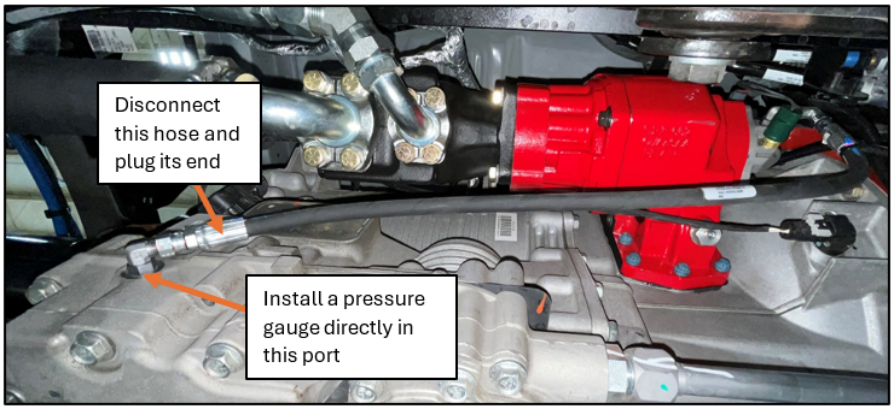


Figure 15. Transmission Pressure Measurement.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

E. Clutch Slippage Test

Applies to the Chelsea 890 PTO **only.** See "Clutch Slippage Test" image.

1. Only the Chelsea 890 PTO has the clutch housing separated from the drive unit
2. Before testing, the unit **MUST** be completely cooled down to **room temperature**
3. Using an infrared thermometer, measure the temperature by aiming the thermometer at the drive unit and clutch housing
   a. Take note of the reading and the exact location where the laser was pointing
4. Start the truck, turn the pump ON and deadhead a hydraulic function for a minimum of **five minutes** (For Odyssey models, deadhead the tailgate lock)
5. Shutdown the engine then take the same measurements and note the results as described in Line 3
   a. If the clutch housing is much hotter than the drive unit, most likely the PTO clutches are slipping
      (1) Clutch housing temperature will depend on the transmission temperature
      (2) Example, 10F on a 300F reading is not a concern, however, 10F on a 100F reading is a concern

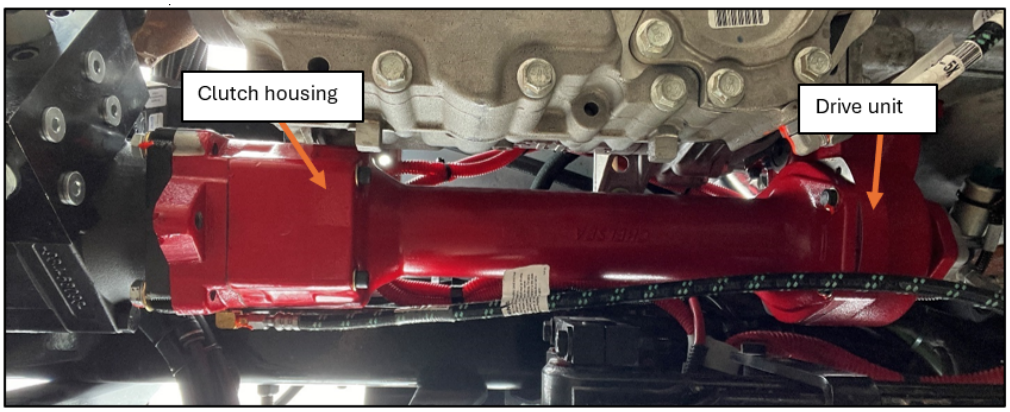


Figure 16. Clutch Slippage Test.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

SECTION 3
BODY AND TAILGATE

Copyright 2025, The Heil Co.
Printed in the U.S.A.

NOMENCLATURE

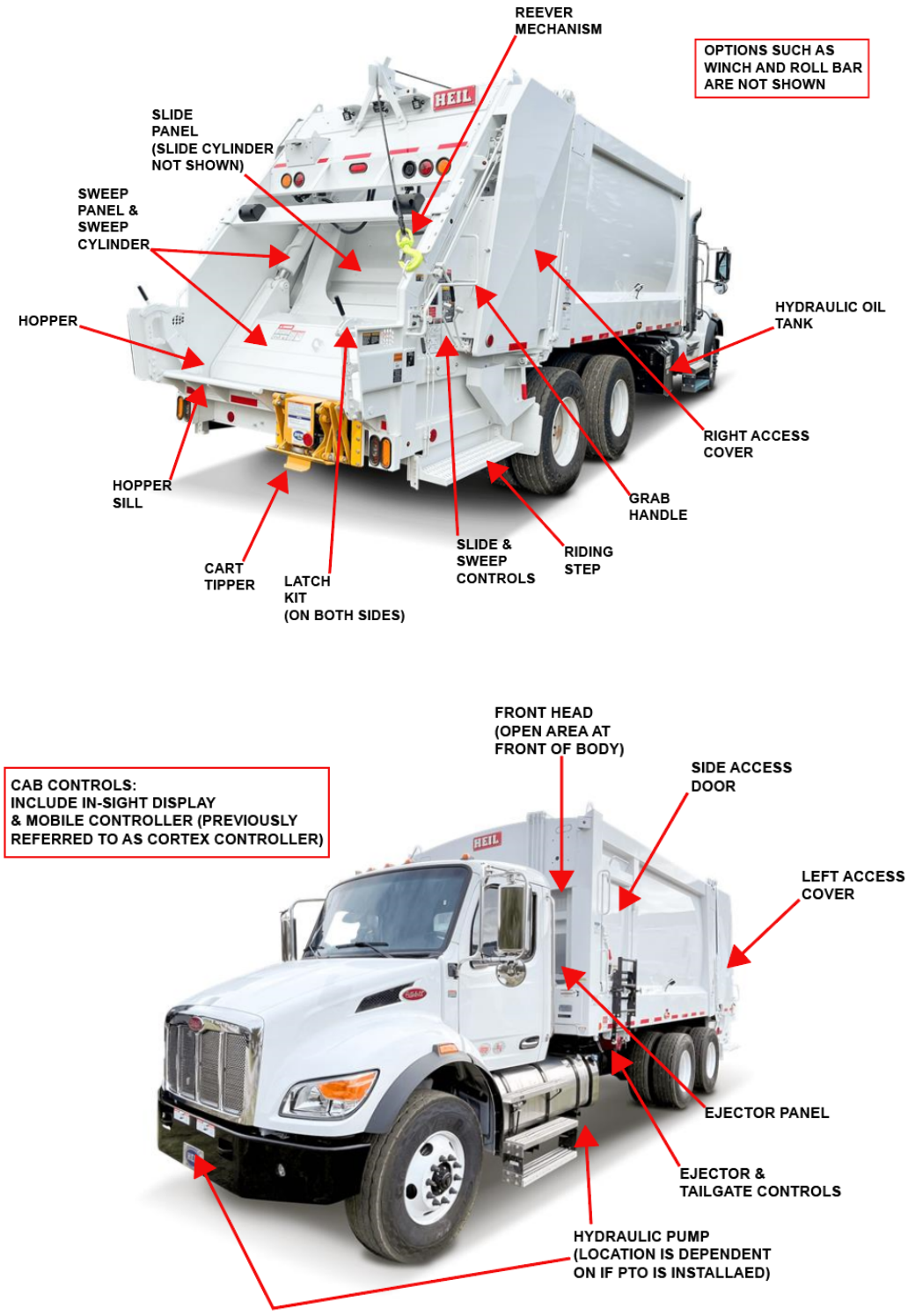


Figure 17. Body and Tailgate Nomenclature

Copyright 2025, The Heil Co.
Printed in the U.S.A.

SPECIFICATIONS

Hydraulic Cylinders:

Sweep (Lower Panel) ..... 5-1/2” Bore x 24” Stroke
Upper Panel ..... 5” Bore x 36” Stroke
Tailgate Raise ..... 4” Bore x 24-1/2” Stroke
Container Arm ..... 3” Bore x 18-7/16” Stroke
Roll Bar ..... 2-1/2” Bore x 14-1/2” Stroke
Reeving ..... 5-1/2” Bore x 49-3/4” Stroke

Tailgate Valve:

Sweep (Lower Panel) Detent ..... 2400 PSI
Sweep Back-Off Relief ..... 3900 PSI
Optional Mechanism (Winch, Roll Bar) ..... 1400 PSI

Tailgate Valve:

Sweep (Lower Panel) Detent ..... 2400 +/- 50 PSI
Sweep Back-Off Relief ..... 3900 +/- 50 PSI
Optional Mechanism (Winch, Roll Bar) ..... 1400 +/- 50 PSI

Packer Mechanism Cycle Times (Empty Hopper):

Complete Cycle – PTO Direct Mount without Driveline @27GPM ..... *28 to 32 Seconds
Complete Cycle – Standard Front Mount or PTO Mount with Driveline @ 47 GPM ..... 16 to 18 Seconds
Reload – PTO Direct Mount without Driveline @ 27 GPM ..... 9 to 11 Seconds
Reload – Standard Front Mount or PTO Mount with Driveline @ 47 GPM ..... 6 to 7 Seconds

Tailgate Cycle Times:

Raise ..... 20 Seconds
Lower (use engine low idle only) ..... 21 Seconds
Hopper Capacity .....3.9 Cu. Yd.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

SIDE DOOR ACCESS

A hinged access door is installed on the STREET SIDE of the body, providing access to the hopper for clean-out purposes. Be sure the door is closed and latched correctly at all times. See Figure "Side Access Door" below.

Figure 18. Side Access Door.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

TAILGATE SUPPORT PROPS

TAILGATE PROP OPERATION

IMPORTANT: TAILGATE MUST BE FREE OF REFUSE AND ALL PERSONS CLEAR OF TAILGATE BEFORE PERFORMING THE FOLLOWING STEPS.

⚠CAUTION

TWO PROPS ARE INSTALLED ON THE UNIT. BOTH MUST BE USED!

TO USE PROPS

2. Set unit on level surface and apply parking brake.
3. Loosen turnbuckle clamps. (Units with automatic tailgate locks do not use these clamps.
4. Remove pins holding prop in stored bracket.
5. Raise tailgate to height where props can be rotated to support position.
6. Rotate props.
7. Lower tailgate until props mate with tailgate stop.
8. Turn engine off and remove ignition key.

TO STORE PROPS

1. Raise tailgate slightly and rotate prop to stored position and install pin.
2. Lower tailgate completely and tighten turnbuckle clamps.

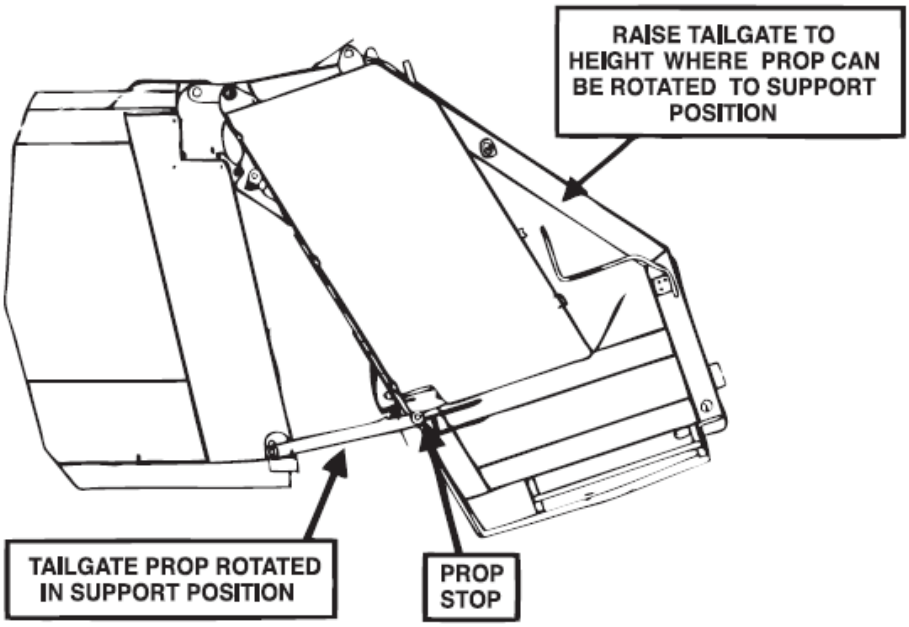


Figure 19.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

UNDERBODY AND EJECTOR UNLOAD VALVE LOCATIONS

The underbody and ejector unload valves are located on the street-side (left side) front corner of the body beneath the side access door. These valves control the ejector panel and tailgate raise/lower functions.

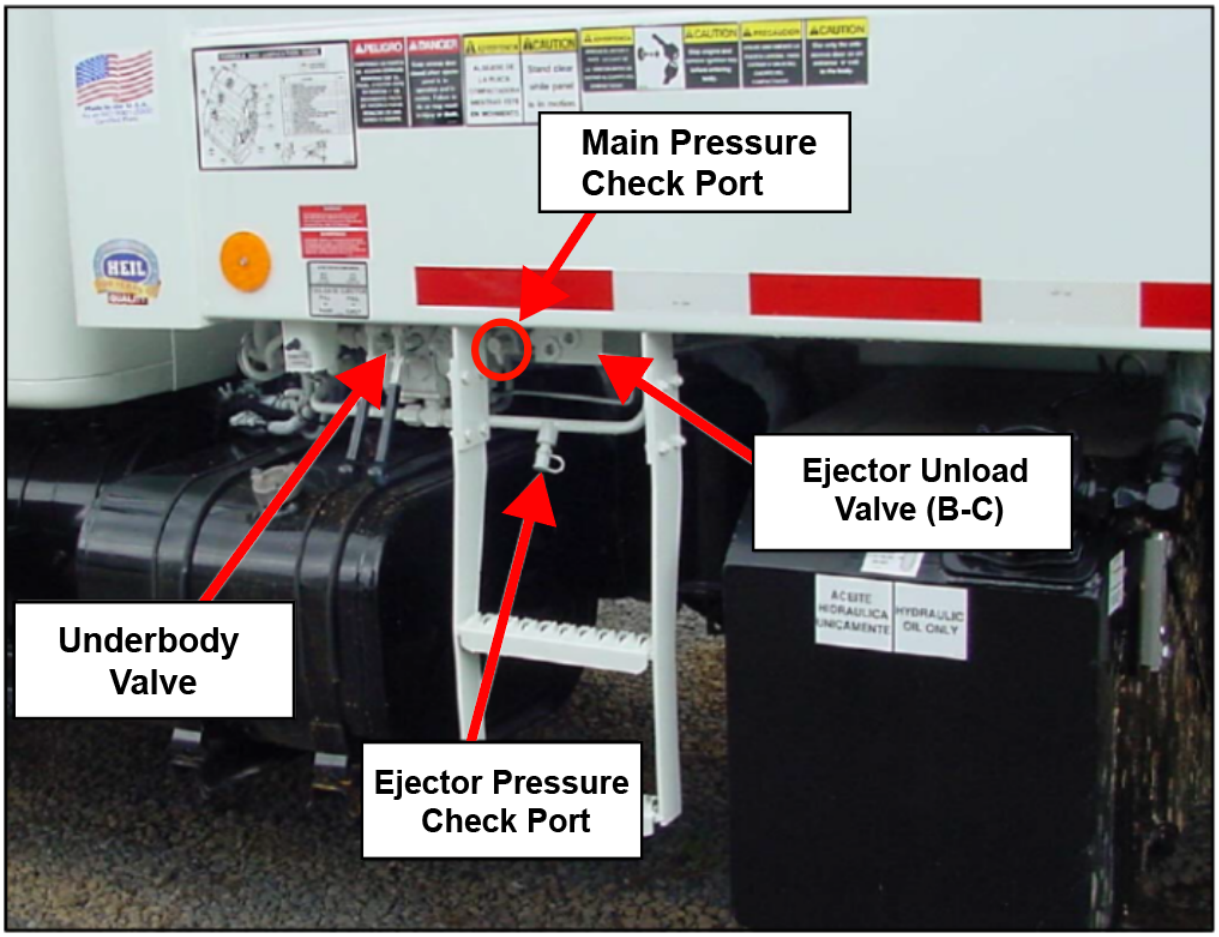


Figure 20. Underbody and Ejector Unload Valve Location.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

HYDRAULIC OIL TANK WITH IN TANK OIL FILTER LOCATION

In most cases, the hydraulic oil tank is located on the street-side (left side) of the unit and mounted to the chassis. See image below. Optionally, the tank is mounted above the front head of the body.

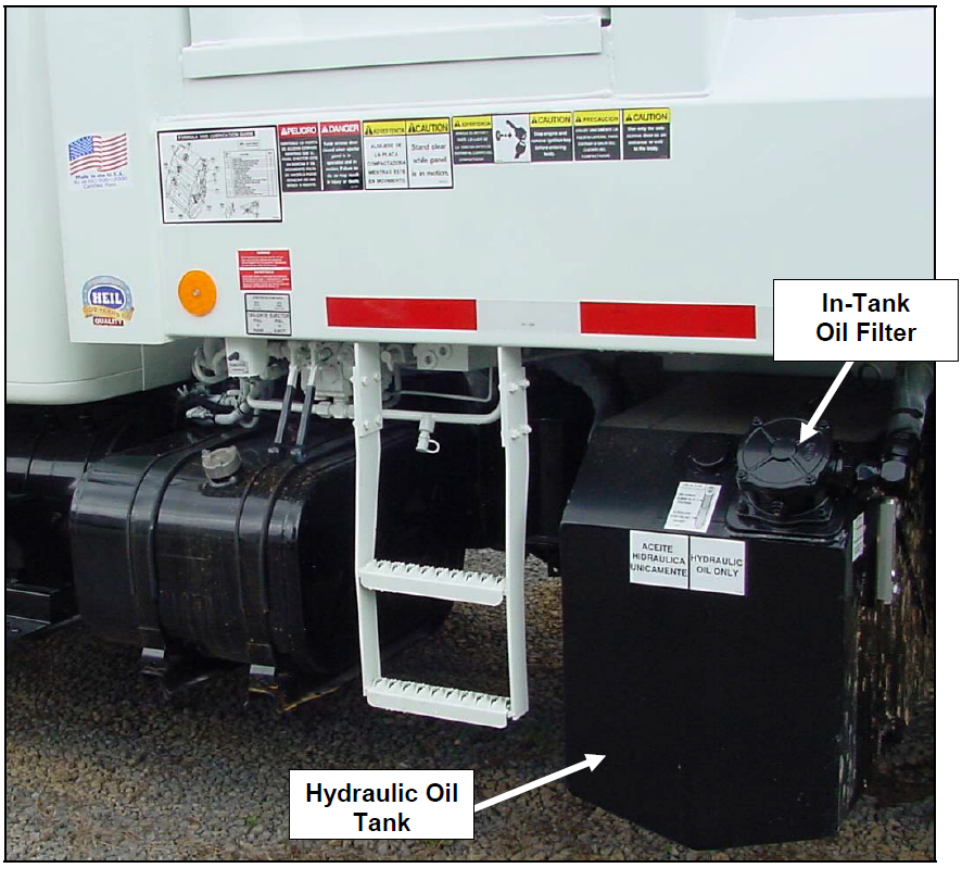


Figure 21. Hydraulic Oil Tank and Filter Location.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

SWEEP BACK-OFF RELIEF VALVE

A relief is provided in the tailgate valve to allow the lower panel to back off slightly (2 to 5 inches of cylinder stroke) during the final stages of packing the load.

If the cylinders back-off excessively (5 to 7 inches of cylinder stroke) the back-off relief needs to be replaced.

WELDING AND ELECTRONIC DEVICES / ELECTRICAL LUBRICANTS

Before welding on any unit with electronic devices like the Mobile Controller, electronic control units (ECUs), and proximity switches complete the following procedures.

⚠ WARNING

Never weld on a compressed natural gas vehicle unless the compressed natural gas fuel system has been purged with inert gas. See Service Manual Section 1.

- Disconnect all battery connections.
- Place welding ground as close as possible to the area that is being repaired.
- Disconnect the Mobile Controller and all other electronic control units (ECUs).
- If welding within 24 inches of a proximity switch, remove the switch from the unit.

NOTICE

Failure to follow these procedures may cause damage to the devices. The damage comes from the inability of the devices to withstand the amperage, open circuit voltage and magnetic flux a welder can produce.

Electrical Anti-Corrosion Lubricant

It is very important that all Packard connectors are properly lubricated. The following compounds, by brand name, or functional equivalents, are approved for use.

- Truck-Lite Corrosion Preventive Compound
- GB ox-gard, anti-oxidant compound
- Burndy Penetrox A electrical joint compound.

These lubricants may be obtained at an electrical supply store.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

SECTION 4
MAINTENANCE AND ADJUSTMENT

Copyright 2025, The Heil Co.
Printed in the U.S.A.

BODY DAILY CHECKLIST

Make sure you perform a daily check of the unit. Refer to the Operator's Manual for the Daily Checklist. Many checks in the Daily Checklist are maintenance related, such as checking tire pressures and hoses for wear and damage.

DAILY CHECKLIST MAINTENANCE ITEMS	
Item	Required Action
Low air pressure in tires	Inflate the tire to the correct air pressure given on the tire.
Worn tire	Replace when the wear is greater than allowed by law or before the tread is no longer visible.
Damaged tire	Replace immediately BEFORE going on route.
Hydraulic pump leaks	Determine the cause of the leak and repair immediately.
Damaged hydraulic pump	Repair or replace IMMEDIATELY.
Loose or missing hardware for the hydraulic pump	Tighten loose hardware. Replace missing hardware immediately.
Damaged decal or decal not readable	Replace decal immediately.
Low level of hydraulic oil	Fill the hydraulic oil tank immediately.
Worn or damaged hoses	Replace immediately.
Leaks at cylinders, hoses or fittings	Tighten loose connection.
Loose or missing hardware	Tighten loose connections. Replace missing hardware.
Worn fiber guards	Replace hoses/fittings as necessary. Install new fiber guard on new hoses.
Worn or damaged tailgate lock components	Replace worn or damaged components.
Loose or missing tailgate lock hardware	Tighten loose hardware. Replace missing hardware.
Damaged tailgate seal	Replace seal.
Body structure, lift arms, and/or attaching components have loose or missing hardware	Tighten loose hardware. Replace missing hardware.
Body structure, lift arms, and/or attaching components have cracked weld joints	Repair immediately.
Body mounting brackets have loose hardware, damaged hardware or cracked welds	Tighten loose hardware. Replace missing hardware. Repair cracked welds.
Hopper liner (when equipped)	Inspect welds. Repair cracked welds. Check for damage or excessive wear. Replace as necessary.
Air regulator	90 PSI, typically located street side in the cab behind the seat
Operation	Operate All Functions to make sure all functions work correctly.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

BODY PREVENTIVE MAINTENANCE CHART

Preventive maintenance must be performed to ensure the safe and reliable operation of your unit. Use the chart below as a guideline for when essential items should checked and serviced. Severe use or adverse conditions may require more frequent maintenance.

BODY PREVENTIVE MAINTENANCE CHART						
*HOURS OF OPERATION						
COMPONENT/SYSTEM	**8**	**40**	**200**	**1000**	**2000**	**CHECK/SERVICE**
Hydraulic System	☑					Check oil level – add if necessary
		☑				Check cylinders, pump, hoses, tubes, fittings, and adapters for leaks. Check hoses for cracks, crushes, and cover blisters. Repair or replace if necessary with genuine Heil parts. Any replacement hose should be the same size and pressure rating as listed on the original OEM hose.
		☑				Check Control valve seals for leaks. Repair or replace if necessary.
				☑		Replace filter after first 30 days of operation, then every 6 months or 1000 hours of operation OR when filter bypass light is ON.
				☑		Replace tank breather filter every time you replace filter element.
					☑	Drain, flush, and refill. Change filter element. Change oil when oil sample shows to change oil.
Electrical, Battery Cables	☑					Check for proper operation.
		☑				Check battery cables from battery to starter for loose cables, rubbing or damage and abrasions to cables. Replace if necessary.
Operator Controls	☑					
Front Mount Pump or Power Take-Off (PTO)		☑				Check seals for leaks and operation. Replace if necessary
PTO/Transmission Interface Inspection		☑				Check drive line for smooth operation. Replace as necessary.
		☑				Check set screws for tightness. Tighten as necessary.
		☑				Make sure keys are in place. Replace if necessary.
			☑			For greaseable PTOs (non-wet spline), remove the pump's bolt flange about 2 inches from the PTO and apply grease

Copyright 2025, The Heil Co.
Printed in the U.S.A.

BODY PREVENTIVE MAINTENANCE CHART						
*HOURS OF OPERATION						
COMPONENT/SYSTEM	**8**	**40**	**200**	**1000**	**2000**	**CHECK/SERVICE**
						to female pilot of PTO pump flange. Failure to lubricate female pilot of PTO as given may cause damage to the pump shaft. Greasing is NOT required on wet spline PTOs such as the Chelsea 890/897 series.
Grease Fittings		☑				Lubricate as shown on Body Lube Chart.
Body Undercoating					☑	Inspect body undercoating and repair as necessary.
Tailgate Seal Integrity	☑					
Packer/Ejector Cylinder Preventive Maintenance	☑	☑	☑			See **Packer/Ejector Cylinder Preventive Maintenance**.
PTO/Transmission Interface Inspection			☑			Check the torque on the PTO mounting screws and tighten to the proper torque specification
Slide assembly	☑					Clean refuse from the slide assembly hydraulic components
* Daily = 8 hrs. Weekly = 40 hrs. Monthly = 200 hrs. 6 Months = 1000 hrs. Yearly = 2000 hrs.						

Copyright 2025, The Heil Co.
Printed in the U.S.A.

PTO INSPECTION AND PREVENTIVE MAINTENANCE

Due to normal torsional vibrations of transmission mounted Power Take-Offs (PTOs), it is important that Service Technicians include the PTO/transmission interface in their standard inspection and maintenance schedules. If a PTO Inspection and Preventive Maintenance schedule is not followed, it is possible that the PTO mounting screws can come loose, resulting in transmission fluid leaks between the PTO and transmission and potential damage to the PTO or drive train

1. ACTIONS

The tools and materials necessary to perform the Inspection/Preventive Maintenance are shown in **Table below**.

Table. Tools and Materials

Item	Part Number	Application
Personal Protective Equipment	Commercially available	Safety protection as required by employer
Wrench/Socket Set	Commercially available	To tighten PTO mounting 10mm 12 pt. head screws
Torque Wrench	Commercially available	To properly tighten PTO mounting screws
Marker	Commercially available	To make witness marks on the PTO mounting flange

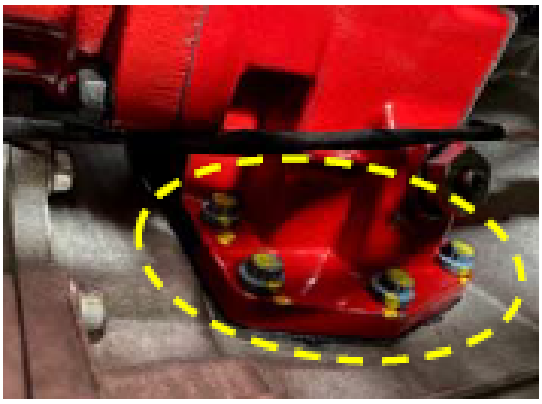
With the unit in LockOut/TagOut mode with the hydraulic pressure relieved, carefully follow the steps below.

A. PTO/Transmission Interface Inspection/Preventive Maintenance (MONTHLY/200 HOURS OF OPERATION)

(1) Inspect for transmission fluid leaking from the PTO/transmission interface. Thoroughly clean around this area.

(2) Using a torque wrench, check the PTO mounting screws. If they are set less than 45 FT-LBS, tighten to 45 FT-LBS.

(3) Using an oil-resistant marker, add a witness mark on each screw head and across the PTO mounting flange. For future inspections, this will help identify if the PTO mounting screws loosen over time. See Figure below.



Witness Marks on PTO Mounting Screws and Flange

(4) Take the unit out of Lock-Out/Tag-Out mode and operate unit functions.

(5) Check for transmission fluid leaks around the PTO/transmission interface. If there are leaks, contact Technical Services.

(6) When there are no transmission fluid leaks, place the unit back into service.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

ADJUST SWEEP PANEL HYDRAULIC DETENTS

The packing mechanism is controlled by two levers at both corners of the tailgate. These levers control the lower panel (sweep) and upper panel. Refer to the operator's manual for correct operation of the controls.

The sweep and upper panel functions can be operated independently by engaging one lever at a time.

NOTE: All adjustments must be made with throttle advance engaged.

1. Start engine and engage PTO (or front mount pump).
2. Place the upper panel in the fully out position.

⚠ DANGER

Stand clear when packing mechanism is in motion.

3. Turn PTO (or front mount pump) to the OFF position.
4. Turn engine ignition to the OFF position, remove keys and follow the Lock Out/Tag Out procedure.

⚠ CAUTION

Do not stand in the hopper or on the hopper sill while adjustments are being made one the packing mechanism with the machine running.

5. All mechanical linkage must be free of any binding. Move the sweep spool by shifting the sweep control lever in both directions.
6. Remove any dirt and grease around the underbody valve main relief.
7. To lower the main relief pressure:
   (a) Remove the dome nut.
   (b) Loosen the lock nut.
   (c) Turn the adjusting screw out counterclockwise four times to decrease the pressure setting.
8. Take the unit out of Lock Out/Tag Out and start the engine.
9. Engage the PTO (or front mount pump) and turn the throttle switch to ON.
10. Move the sweep control lever to shift the spool in either direction.
11. Slowly turn the main relief adjusting screw clockwise to increase the pressure. When the spool kicks out of detent (returns to neutral), note the pressure reading on the gauge. The correct kick out pressure for the sweep is 2400 PSI ± 50 PSI. Check detent with the panel in the down position.
12. If the setting is wrong, remove the rubber plug from the end of the panel spool to expose the detent release adjusting screw. See figure below.

IMPORTANT: Be sure the area around the packing mechanism is clear of all people!

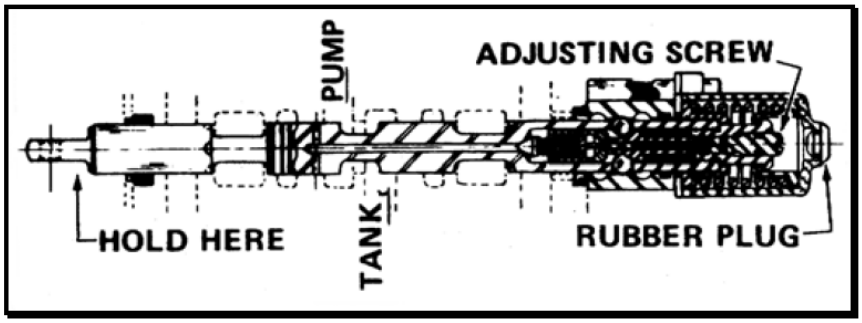


Figure 22. Lower Detent Hydraulic Panel.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

ADJUST SWEEP PANEL HYDRAULIC DETENTS (CONTINUED)

13. Insert a screwdriver and turn the adjusting screw into the spool (clockwise) to increase the kickout pressure or turn the adjusting screw out of the spool (counterclockwise) to decrease the pressure.

NOTE: Be careful not to force the adjusting screw or it may deform the internal adjusting rod and make the valve inoperative.

14. Repeat steps 8 – 12 to check the results.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

ADJUST UPPER HYDRAULIC DETENT PANEL

The upper panel has a hydraulic detent for down set of 2400 PSI. It also has a mechanical detent for the up function and is adjusted mechanically.

1. Start engine and engage PTO (or front mount pump).
2. Place the upper panel in the fully out position.

⚠ DANGER

Stand clear when packing mechanism is in motion.

3. Turn PTO (or front mount pump) to the OFF position.
4. Turn engine ignition to the OFF position, remove keys and follow the Lock Out/Tag Out procedure.

⚠ CAUTION

Do not stand in the hopper or on the hopper sill while adjustments are being made one the packing mechanism with the machine running.

5. All mechanical linkage must be free of any binding. Move the sweep spool by shifting the sweep control lever in both directions.
6. Remove any dirt and grease around the underbody valve main relief.
7. To lower the main relief pressure:
   (a) Remove the dome nut.
   (b) Loosen the lock nut.
   (c) Turn the adjusting screw out counterclockwise four times to decrease the pressure setting.
8. Take the unit out of Lock Out/Tag Out and start the engine.
9. Engage the PTO (or front mount pump) and turn the throttle switch to ON.
10. Move the sweep control lever to shift the spool in either direction.
11. Slowly turn the main relief adjusting screw clockwise to increase the pressure. When the spool kicks out of detent (returns to neutral), note the pressure reading on the gauge. The correct kick out pressure for the sweep is 2400 PSI ± 50 PSI. Check detent with the panel in the down position.
12. If the setting is wrong, remove the rubber plug from the end of the panel spool to expose the detent release adjusting screw. See figure above.

IMPORTANT: Be sure the area around the packing mechanism is clear of all people!

13. Insert a screwdriver and turn the adjusting screw into the spool (clockwise) to increase the kickout pressure or turn the adjusting screw out of the spool (counterclockwise) to decrease the pressure.

NOTE: Be careful not to force the adjusting screw or it may deform the internal adjusting rod and make the valve inoperative.

14. Repeat steps 8 – 12 to check the results.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

PACKER/EJECTOR CYLINDERS PREVENTIVE MAINTENANCE

It is critical to follow the guidelines of the **Body Preventive Maintenance Chart** and **Body Lubrication Guide** found in this section of this Service Manual and the Body Lubrication Guide decal on the unit. Failure to follow stated routine preventive maintenance can lead to premature cylinder failure that is not covered by your warranty.

⚠ WARNING

Make sure that the unit is in Lock-Out/Tag-Out mode before you perform maintenance/service procedures, or when you enter or climb on the hopper/body/related assemblies. Equipment is operational when the unit is not in Lock-Out/Tag-Out mode. Equipment operated while you do maintenance or service procedures can cause serious injury or death so also make sure to clear the area around the unit of all bystanders.

⚠ CAUTION

Failure to follow these instructions can result in damage to the Heil body, truck chassis or can cause personal injury!

HEIL PACKER/EJECTOR CYLINDERS PREVENTIVE MAINTENANCE CHART

DAILY	WEEKLY
• Using a shovel, clean behind the packer panel and pockets around sphericals. DO NOT damage cylinder rods by striking with any metal object. • Visually inspect that lube lines (if equipped) are connected and not damaged or leaking. • Visually inspect packer tracks and hopper floor for excessive wear or damage. Repair or replace if necessary.	• Grease Packer/Ejector cylinder spherical bearings/pins • Inspect packer/ejector cylinder bearings/pins (both ends) for wear, rust or damage and replace if necessary.

Side Loading and Premature Cylinder Failure can be caused by:

- Inadequate greasing intervals
  - causing increased friction at spherical bearings
  - potentially resulting in seizing of spherical bearings
- Packing into the second stage of a multistage cylinder (Non-Rear Loader)
- Binding of components caused by debris

Copyright 2025, The Heil Co.
Printed in the U.S.A.

LUBRICATION GUIDE

Clean fittings before applying grease and always pump enough grease into joint to remove the old grease. Wipe off excess grease. Lubricate moveable mechanical parts without fittings every 60 days with non-detergent engine oil. See the figure below.

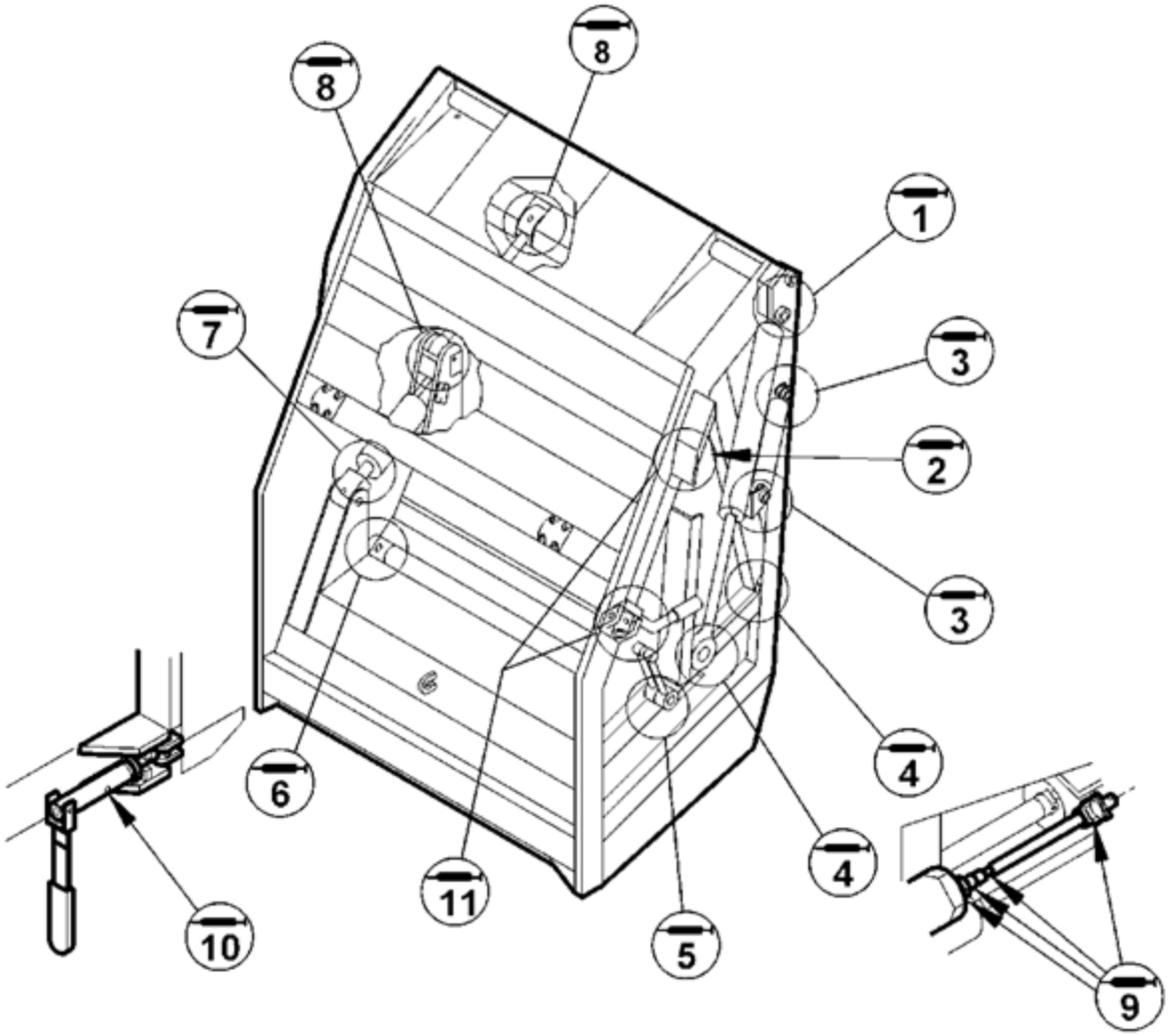


Figure 23. Lubrication Guide

Copyright 2025, The Heil Co.
Printed in the U.S.A.

LUBRICATION GUIDE (CONTINUED)

Clean fittings before applying grease and always pump enough grease into joint to remove the old grease. Wipe off excess grease. Lubricate moveable mechanical parts without fittings every 60 days with non-detergent engine oil. See the chart below.

REF. NO.	LOCATION	QTY.	INTERVAL
1	Tailgate Hinge	2	Weekly/40 Hours
2	Outside Packing Cylinder (Both Ends)	4	Weekly/40 Hours
3	Tailgate Raise Cylinder (Both Ends)	4	Weekly/40 Hours
4	Lower Link Pivot (Both Ends)	4	Weekly/40 Hours
5	Control Handles/Linkage:		Weekly/40 Hours
	A. Upper Bellcranks	2	
	B. Kick-Out Lever	1	
	C. Lower Yoke Assembly	2	
	D. Control Handle Pivots	2	
6	Packer Panel Pivot (Bottle Pin to Upper Panel)	4	Weekly/40 Hours
7	Inside Packing Cylinder (Both Ends)	4	Weekly/40 Hours
8	Upper Link Arms	4	Weekly/40 Hours
9	PTO (Pump) Drive Shaft	4	Weekly/40 Hours
	Front Mount Drive Shaft	3	Weekly/40 Hours
10	Tailgate Turnbuckle Clamps	2	Weekly/40 Hours
11	Container Mech. Control:		
	A. Handle	1	Weekly/40 Hours
	B. Upper Pivot	1	Weekly/40 Hours
12	Ejector Cylinder (Not Shown)	2	Weekly/40 Hours
13	Access Door Hinges (Not Shown)		Every 60 Days

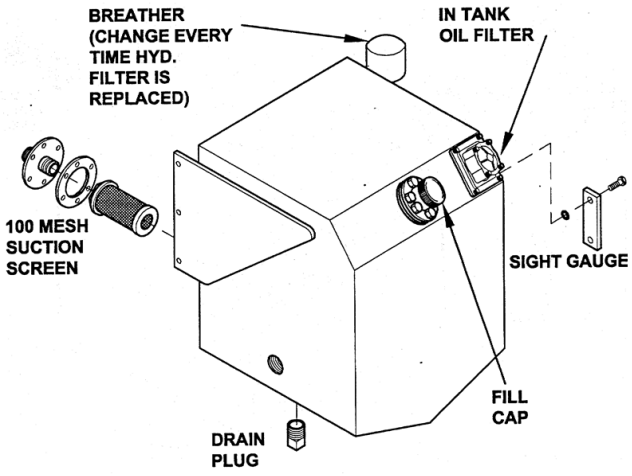
Copyright 2025, The Heil Co.
Printed in the U.S.A.

PREPARING THE UNIT TO CHECK THE OIL LEVEL

Before checking the oil level or adding oil, make sure the unit is in the following position with all cylinders collapsed:

- Truck – on level ground
- Tailgate and Body – fully down and locked
- Ejector Panel – at the front of the body
- Packer Panel – in the in-transit position with all cylinders retracted
- Reeving Cylinder - Fully Retracted

The oil tank is mounted behind the chassis cab. The oil level in the standard tank must be kept between the low and full marks as indicated on the sight gauge. See the figure below.



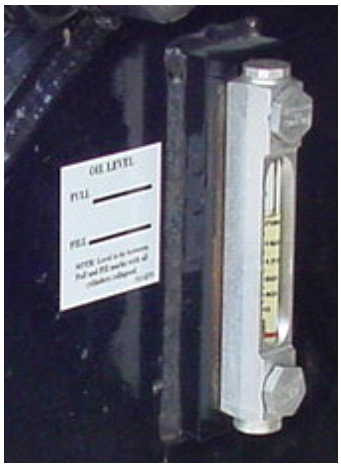


Figure 24. Hydraulic Oil Tank and Sight Gauge

Copyright 2025, The Heil Co.
Printed in the U.S.A.

CHECK OIL LEVEL

Check the hydraulic oil level (after warning up the oil) daily or every eight (8) hours, whichever comes first. Fill as necessary.

Important: Contamination is a hydraulic system's worst enemy. Do not let dirt enter the system. Use a clean rag and remove dirt or other contamination around any system component before you disconnect or remove it. While you fill the reservoir, filter the oil through a 200 mesh (or finer) screen. Never use a cloth to filter the oil.

WHEN TO CHANGE OIL FILTER ELEMENT

Change the filter more often under certain conditions such as an extremely dusty atmosphere or area. Use only Heil replacement filters. Purchase the filter element from your local Heil distributor.

Change the filter element when oil analysis shows the oil has expired.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

CHANGE HYDRAULIC OIL FILTER ELEMENT

Watch the Service Shack Video online at **www.Heil.com/Heil-Service-Shack** and selecting **Changing Filters**.

Replace the hydraulic filter element after first 30 days of operation, then every 6 months or 1000 hours of operation OR when filter bypass light is **ON**. To change the hydraulic oil filter, refer to the figure below and follow these steps:

1. Using a 1/2" wrench, remove the four (4) nuts from the filter cover located on the hydraulic oil tank.
2. Set the nuts aside for reuse and then remove the filter cover.
3. Remove the filter element with the by-pass assembly and responsibly discard as required.
4. Clean the housing with a clean, lint-free cloth.
5. Check the o-ring and gasket. Replace them if necessary.
6. Lubricate all o-rings and gaskets.
7. Install new element.
8. Reinstall cover with nuts. Torque nuts to 13 ft-lbs.
9. Verify work completed. Refer to Change Filter Reset step on the **Maintenance Screen** 113.

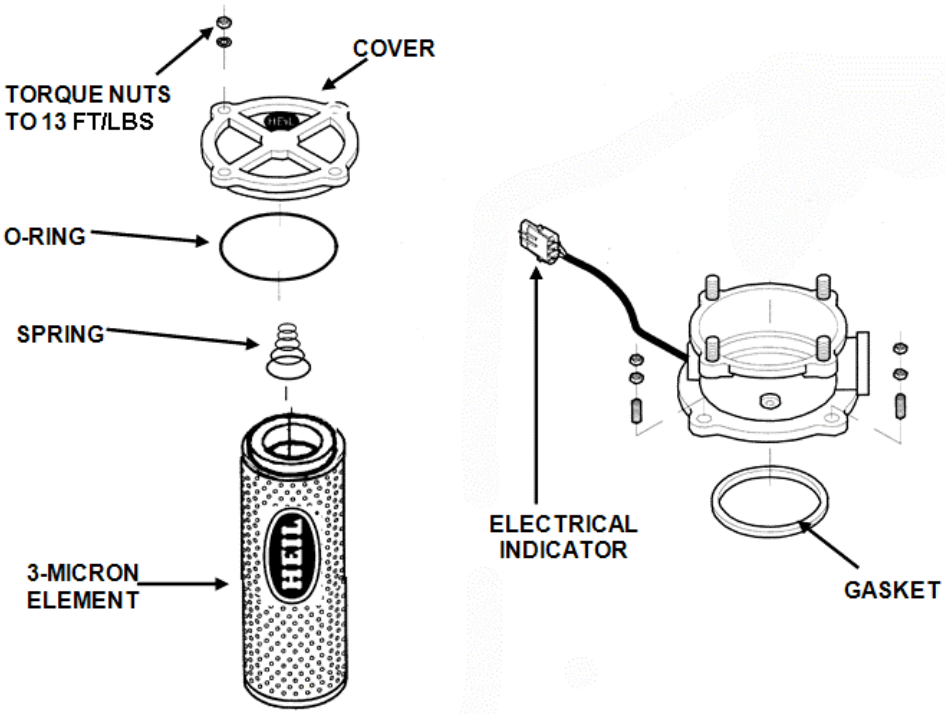


Figure 25. Hydraulic Oil Filter

Copyright 2025, The Heil Co.
Printed in the U.S.A.

DRAIN AND CLEAN THE HYDRAULIC OIL TANK

Change the hydraulic oil according to the applicable service intervals.

Remember that almost all hydraulic system malfunctions can be traced to dirt in the fluid. When working with the hydraulic system, the hands, tools, working area and parts must be as clean as possible.

⚠ CAUTION

Wear proper eye protection when you are working on or around hydraulic lines or components. Wear proper eye protection and avoid contact with hydraulic oil if possible. Never check for oil leaks with your hands.

⚠ WARNING

Make sure the unit is in the Lock-Out/Tag-Out mode when you do maintenance or service procedures, or when you go in the hopper, climb in or on the body or on equipment. Equipment can be operated when the unit is not in the Lock-Out/Tag-Out mode. When the unit is not in the Lock-Out/Tag-Out mode, equipment operated while you do maintenance or service procedures, go in the hopper or climb in or on the body or on equipment can cause serious injury or death.

NOTICE

If your employer or company has a Lock-Out/Tag-Out procedure that is different from the following procedure, use your employer's or company's procedure. If your employer or company does not have a Lock-Out/Tag-Out procedure, use the procedure that follows.

To drain and clean the hydraulic oil tank, follow these steps:

1. Perform the **Lock Out/Tag Out procedures** 13. If you have any questions about the Lock-Out/Tag-Out procedure, please contact your supervisor or **ESG Technical Service**.
2. Disengage the pump, shut off the engine and remove the ignition key.
3. Remove the fill cap from the top of the tank.
4. Remove the drain plug from the bottom of the tank so that the oil drains into a container.
5. While fluid is draining from the tank, remove and replace the filter/breather assembly. Change the assembly every time the in-tank filter is replaced.
6. To drain the entire hydraulic system, disconnect all hoses at the adapter and drain the hoses into a container.
7. Remove and replace the in-tank filter as described in **Change Hydraulic Oil Filter** 64.
8. Remove the outlet flange and 100 mesh suction strainer to gain access to the tank inside.
9. Remove sediment from the tank bottom.
10. Install the outlet flange with a new gasket and the 100 mesh suction strainer into the tank.
11. Install the drain plug in the tank bottom.
12. Reconnect and tighten all hose connections that were disconnected.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

DRAIN AND CLEAN THE HYDRAULIC OIL TANK (CONTINUED)

NOTICE

Before filling the tank be sure the funnel is clean and 200 mesh (or finer) screen is used to strain the hydraulic oil.

13. Fill tank with recommended oil, checking the sight gauge as you fill. Refer to **Hydraulic Oil Specifications** 15.
14. Check the entire system to make sure all connections are tight and no leaks are found.
15. Start the truck's engine and engage the pump.

⚠ WARNING

Moving equipment can be dangerous to bystanders. Serious injury or death can occur if a person is in the wrong area or is not attentive to the operations. Clear the area of all unnecessary people before you operate the controls.

16. Operate the packing panel through 10 cycles to be sure all air is out of the circuits.
17. Operate the automated container lift mechanism.
18. Operate tailgate – full up and full down.
19. Operate body raise (dump units) – full up and full down.
20. With the packing panel in the retracted position and lift in the in-transit position, check tank oil level. If necessary, add recommended oil as described under **Check Oil Level** 63.

PURGE THE HYDRAULIC SYSTEM

If a catastrophic hydraulic component failure occurs, the hydraulic system must be flushed entirely

Remove the in-tank filter assembly cover and inspect the return oil filter and magnets to identify a catastrophic component failure. If the return filter has metal debris or the magnets are full of shavings, perform a complete hydraulic system flush to prevent future failures due to oil contamination.

To purge the system, follow these steps:

1. Completely retract all cylinders to remove as much oil as possible, directing it into the hydraulic reservoir.
2. Completely drain the hydraulic reservoir and discard the in-tank filter.
3. Remove all debris from the filter magnet of the unit's in-tank filter assembly.
4. Remove the hydraulic reservoir outlet flange and suction strainer.
5. Clean the hydraulic reservoir by removing all dirt and debris from the bottom of the tank. Rinse and clean the tank with a nonflammable cleaning solvent.
6. Remove, thoroughly clean, and reinstall the suction strainer, outlet flange, drain plug, system magnets, etc.
7. Reassemble the in-tank return filter assembly using a new OEM replacement filter
8. Remove the suction line from the pump and thoroughly clean the entire length of the inside of the suction line from the pump to the connection at the hydraulic reservoir.
9. **Half/Pack Only** - Remove both ends of the packing circuit's dump valve return line routed between the dump valve and hydraulic reservoir. Thoroughly clean the entire length of the return line between the dump valve and the hydraulic reservoir.
10. Replace the failed hydraulic component that has introduced the contamination into the system.

NOTICE

Before filling the tank be sure the funnel is clean and 200 mesh (or finer) screen is used to strain the hydraulic oil.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

PURGE THE HYDRAULIC SYSTEM (CONTINUED)

11. Fill the hydraulic reservoir with clean hydraulic oil
12. Make sure the suction line shut-off valve is in the on position. Secure the handle with a plastic zip tie to prevent the valve from closing due to vibration or being inadvertently closed.
13. Double-check the routing of all lines and verify that all fittings, flanges, and covers are properly installed and tight.
14. Start the vehicle and turn the pump on.
15. Run each hydraulic function at engine idle “only.” Operate each hydraulic function through one complete cycle to flush any residual contaminated oil from hydraulic cylinders. A complete cycle consists of operating a cylinder to its full extended position and retracting it to the completely collapsed position.
16. After cycling the cylinders as described, remove the filter cover and inspect the filter magnets. If the magnets are covered with metal, replace the filter element, clean the magnets, and reinstall the filter cover.
17. Operate each hydraulic function through a complete cycle at least ten times at engine idle.
18. Remove the filter cover and inspect the magnets. If the magnets are clean, proceed to step 21. If the magnets are covered with metal, repeat steps 18 through 20.
19. At engine throttle, operate each hydraulic function (except the packer) through a complete cycle at least ten times. Operate the packer to the full eject position at engine throttle and back at engine idle.
20. Install a new OEM in-tank hydraulic filter and reinstall the filter cover.
21. Check the hydraulic system for leaks.
22. Run the unit for 40 hours and recheck the hydraulic filter and system magnets for debris. Service the hydraulic filter and magnets as needed.

NOTICE

Extra magnets may be placed inside the hydraulic reservoir to accelerate the removal of metal particles.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

TAILGATE CONTROL VALVE PRESSURE SETTINGS

The tailgate valve has some adjustable pressure settings. Make all valve pressure adjustments with the engine running at the normal operating speed for the function that is being adjusted. When performing these tasks, use common sense. For example, shut off the pump to connect and disconnect a hydraulic pressure gauge, or while unlocking and locking an adjusting screw with a jam nut.

When making adjustments:

- Turn the pressure adjustment screw CLOCKWISE to INCREASE pressure.
- Turn the pressure adjustment screw COUNTERCLOCKWISE to DECREASE pressure.

PRESSURE ADJUSTMENT PROCEDURES

⚠ DANGER

Stand clear when packing mechanism is in motion. Standing close to the unit when it is in motion or operation may result in injury or death.

⚠ DANGER

Do not stand in the hopper or on the hopper sill while adjustments are being made on the packing mechanism with the unit running. Doing this may result in injury or death.

⚠ CAUTION

Always remove dirt and grease from around the main relief valve. Leaving a build up of dirt or grease may result in damage to the valve.

⚠ CAUTION

Do not apply torque beyond this point, as damage to the adjusting screw could occur. If this happens, adjusting screw will not operate properly and remain at maximum pressure even when setting is lowered.

Install accurate 0-5000 PSI glycerin filled pressure gauge in the gauge port at the underbody valve.

A. Before Starting Adjustments

If hydraulic oil temperature is not a minimum of 100 degrees F, warm oil by:

1. Tailgate must be down and locked.
2. Hold throttle advance switch. Unit Throttle advance is used to activate the hydraulic pump. Move ejector panel IN and OUT through 5 cycles.
3. Run tailgate packing mechanism through 10 cycles.
4. Repeat steps (2)–(4) until oil temperature reaches 100 degrees F.

B. Order of Adjustment Procedures

1. Tailgate Valve
   a. Sweep Detent
   b. Slide Detent
2. Ejector Unload Valve (Commonly known as BC Valve)
3. Underbody Valve – Main Relief

Copyright 2025, The Heil Co.
Printed in the U.S.A.

PRESSURE ADJUSTMENT PROCEDURES (CONTINUED)

C. Tailgate Valve

The packing mechanism is controlled by two levers at both corners of the tailgate. The two levers operate the lower panel (sweep) and upper panel. Refer to Operator's Manual for proper operations of controls.

1. There are four adjustment locations for this valve:
   a. Sweep Panel Hydraulic Detents (2)
   b. Slide Upper Kick-out
   c. Slide Lower Kick-out
2. All adjustments must be made with Throttle Advance Engaged:
   a. Start engine and engage PTO (or front mount pump). Pump will not engage until Throttle advance is activated.
   b. Position the upper panel in fully out position.
   c. Turn PTO (or front mount pump) OFF.
   d. Turn engine ignition OFF, remove keys and follow the Lock-Out/Tag-Out procedure in Service Manual Section 1.
   c. All mechanical linkage must be free of any binding. Sweep Spool must move freely in either direction.
   d. REMOVE any dirt or grease around the underbody valve main relief.
3. DECREASE the main relief pressure on the underbody valve by:
   a. Removing dome nut.
   b. Loosen lock nut.
   c. Turn adjusting screw out (counter-clockwise) of body valve **four times** to decrease the pressure setting.
4. Take unit out of Lock-Out/Tag-Out and start engine.
5. Engage the pump and turn throttle switch ON.
6. ENGAGE sweep control mechanism to shift spool in either direction.
7. Sweep should complete movement and remain engaged (should not detent).
8. If Sweep detents:
   a. Manually shift control mechanism to disengage sweep function.
   b. Adjust Main Relief adjusting screw out (counter-clockwise) 1 additional turn.
   c. Repeat steps (10) and (11).
9. **Slowly** turn main relief adjusting screw IN to increase pressure. Watch the pressure gauge to see what the pressure is when the spool kicks out or detents (returns to neutral). The correct kick out pressure is 2400 PSI.
10. If the setting is incorrect, place unit in Lockout/Tagout.
11. Remove the rubber plug from the end of the sweep spool to expose the detent release adjusting screw.
12. Insert a screwdriver and turn adjusting screw in to the spool (clockwise) to increase the kick out pressure or turn adjusting screw out of the spool (counter clockwise) to decrease pressure.
13. Repeat steps 8 thru 12 to check results.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

PRESSURE ADJUSTMENT PROCEDURES (CONTINUED)

D. Ejector Unload Valve Adjustments

See **Ejector Unload Valve** 73 section for the detailed procedure to performing these adjustments.

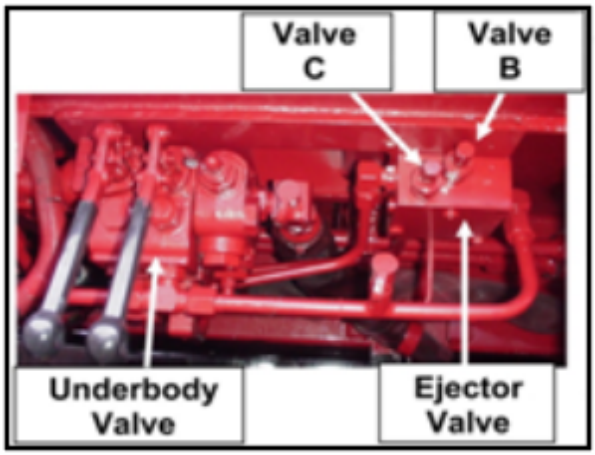


Figure 26. Adjust Valve Relief.

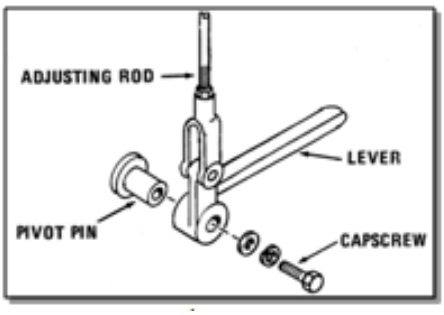


Figure 27. Ejector Control.

E. Adjust Relief Valve B

See **Ejector Unload Valve** 73 section for the detailed procedure to performing these adjustments

F. Adjust Relief Valve C

See **Ejector Unload Valve** 73 section for the detailed procedure to performing these adjustments.

G. Underbody Valve – Main Relief

See **Underbody Valve - Main Relief Adjustments** 77 section for the detailed procedure to performing these adjustments.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

KICK-OUT ADJUSTMENTS

A. Upper Kick-Out Adjustment

1. Retract outside cylinders to the full up position.
2. Check the distance from the cylinder packing nut to the center of the cylinder mounting pin. The distance should be 4 ¾ "+ ¼". See kick out figures below.
3. If incorrect, loosen jam nuts and turn the adjusting rod clockwise to lengthen or counter clockwise to shorten the rod.

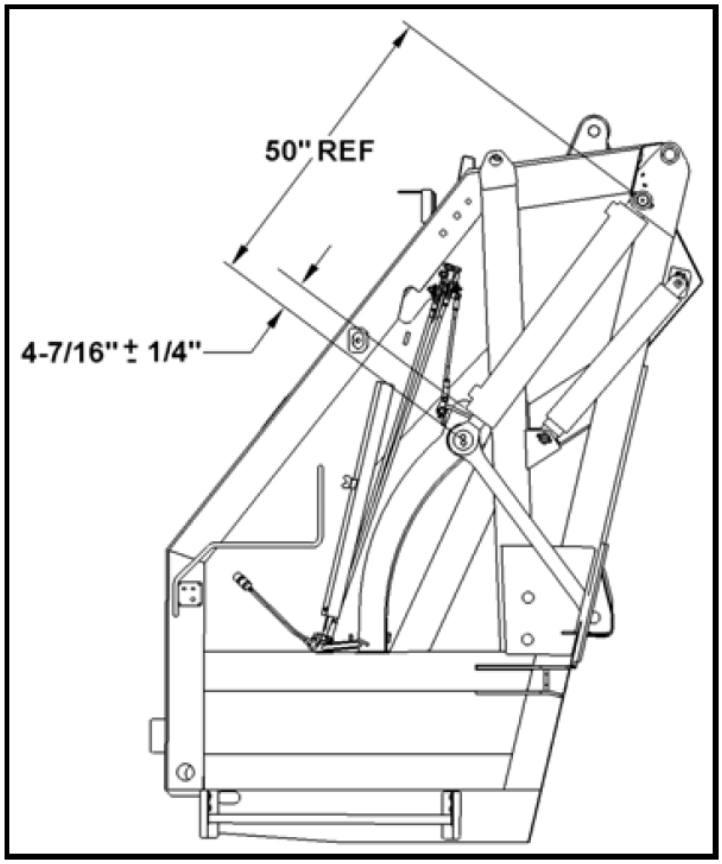


Figure 28. Upper Kick Out Adjustment

Copyright 2025, The Heil Co.
Printed in the U.S.A.

KICK-OUT ADJUSTMENTS (CONTINUED)

B. Lower Kick-Out Adjustment

1. Extend outside cylinders to the full out position.
2. Check the distance from the cylinder packing nut to the center of the cylinder mounting pin. The distance should be 39 ¼”.
3. If Incorrect, loosen jam nuts and turn the adjusting rod clockwise to lengthen or counter clockwise to shorten the rod.

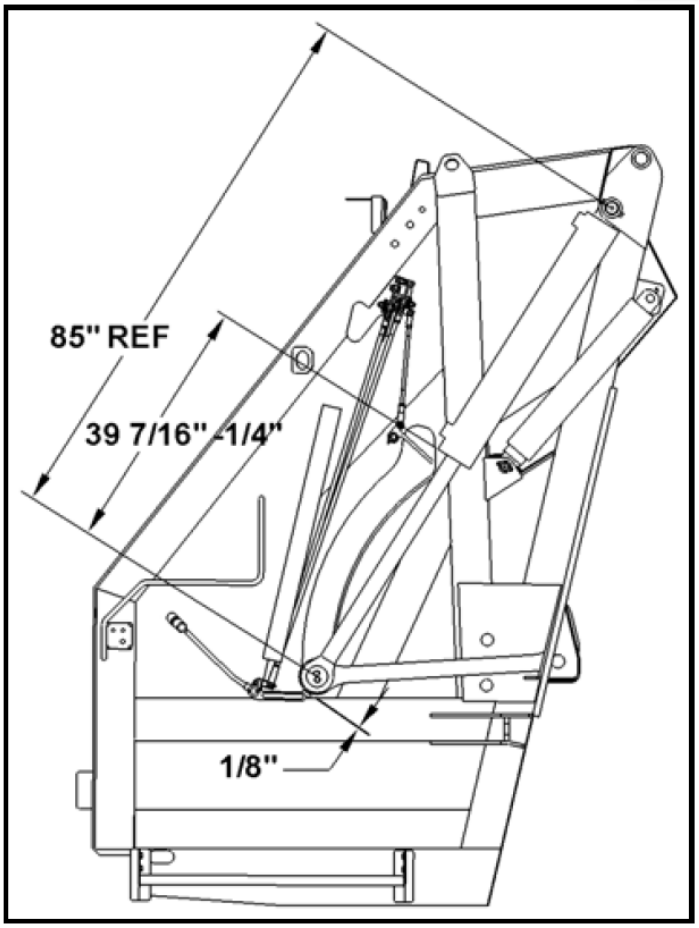


Figure 29. Lower Kick Out Adjustments

Copyright 2025, The Heil Co.
Printed in the U.S.A.

EJECTOR UNLOAD VALVE

The ejector unload valve is located beside the underbody valve. There are two different relief adjustments to make on this valve. See the figure below.

NOTE: All adjustments must be made with the throttle advance engaged!

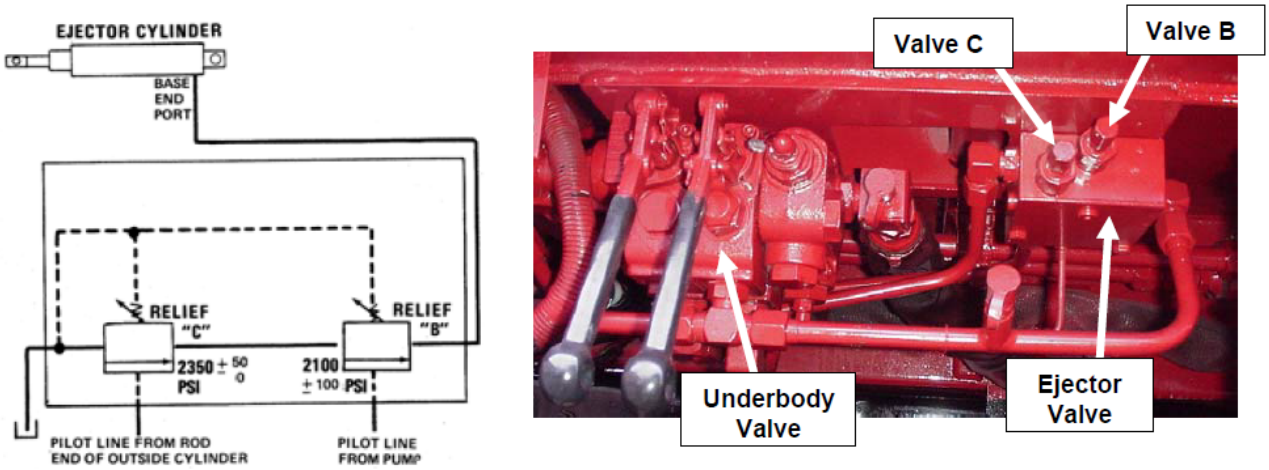


Figure 30. Ejector Unload Valve.

1. Start engine and engage PTO or front mount pump.
2. Place the upper panel in the fully out position.

⚠ DANGER

Stand clear when packing mechanism is in motion.

3. Turn PTO or front mount pump to the OFF position.
4. Turn engine ignition to the OFF position, remove keys and follow the Lock Out/Tag Out procedure.

⚠ CAUTION

Do not stand in the hopper or on the hopper sill while adjustments are being made on the packing mechanism with the machine running.

5. Disconnect the top kick-out on the tailgate control lever. Do the following to disconnect the top kick-out:
   (a) Remove the retaining capscrew from the kick-out pivot.
   (b) Pull the control lever off of the pin.

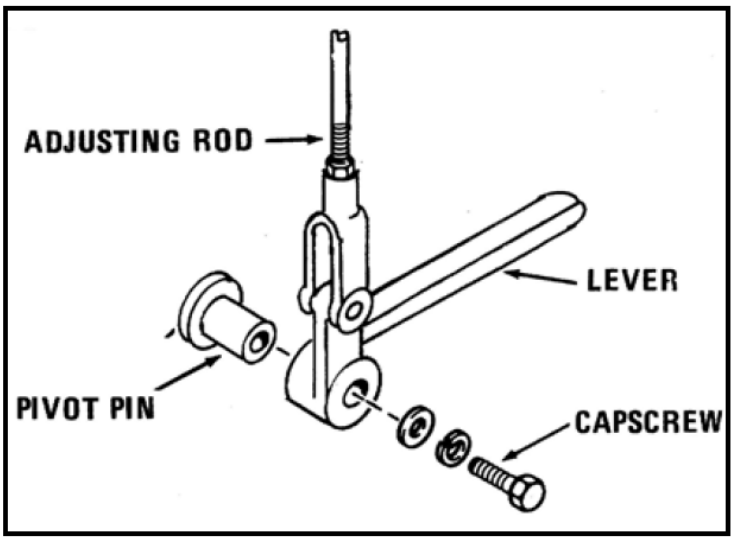
Copyright 2025, The Heil Co.
Printed in the U.S.A.

EJECTOR UNLOAD VALVE (CONTINUED)

6. Start the engine and engage the PTO or front mount pump.
7. Push the upper panel control lever to move the upper panel to a full “up” position. Manually shift the lever back to neutral.

⚠ DANGER

Stand clear when packing mechanism is in motion.



31. Disconnect Top Kick Out.

Adjust Relief Valve B

1. Lock the tailgate and read the main system pressure gauge. Adjust the main system pressure down until the gauge reads 2100 PSI.
2. Remove the plugs covering the relief valve B and relief valve C on the ejector unload valve. See the figure above.
3. Turn the slotted adjustment screw on valve C counterclockwise two full turns.
4. Turn the slotted adjustment screw on valve B clockwise two full turns.
5. Pull the ejector cylinder control lever to extend the cylinder fully out and momentarily bottom out the cylinder.
6. Release the lever. Pressure is trapped in the cylinder.
7. Check the pressure gauge in the ejector line. It should read approximately 1800 PSI.

NOTE: If pressure does not hold, turn the relief B adjusting screw clockwise, 1/2 turn and repeat steps 5, 6 and 7.

8. Push the upper panel control lever and leave it in detented position, (outside cylinders bottomed in retracted position).
9. Observing both pressure gauges, slowly turn the relief B adjusting screw counterclockwise until the pressure reaches 2100 PSI, the ejector line pressure gauge will fall rapidly to 0 PSI. Relief B is now set at 2100 PSI.

NOTE: Manually shift the upper panel control lever to neutral.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

EJECTOR UNLOAD VALVE (CONTINUED)

Adjust Relief Valve C

NOTE: Make all adjustments with throttle advance engaged.

1. Lock the tailgate and read the main system pressure gauge. Adjust the main system pressure down until the gauge reads 2300 PSI.
2. Using a screwdriver, on relief C turn the slotted adjusting screw clockwise 2-1/2 turns.
3. Pull the ejector cylinder control lever to extend the cylinder full out and momentarily bottom out the cylinder.
4. Release the lever. Pressure is now trapped in the cylinder. Check the pressure gauge in the ejector line. It should read approximately 1800 PSI.

NOTE: If pressure does not hold, turn the relief C adjusting screw clockwise 1/2 turn and repeat steps 3 and 4.

5. Push the upper panel control lever and leave it in the detented position. (Outside cylinders bottomed in the retracted position.)
6. Observing both pressure gauges, slowly turn the relief C adjusting screw counterclockwise until relief C reaches 2350 PSI, the ejector line pressure gauge will fall rapidly to 0 PSI. Relief C is now set at 2350 PSI.

NOTE: Manually shift the upper panel control lever to neutral.

7. Reinstall the plugs covering reliefs B and C.
8. Reconnect the top kick-out. Do the following to reconnect the top kick-out:
   (a) Reattach the control lever to the pin.
   (b) Reattach the retaining capscrew from the kick-out pivot.
9. Follow the procedures to readjust the main relief.

⚠ CAUTION

Do not apply torque beyond this point, as damage to the adjusting screw could occur. If this happens, the adjusting screw will not operate properly and remain at maximum pressure even when the setting is lowered.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

EJECTOR SHOE ADJUSTMENT

If the ejector panel has excessive side-to-side movement and is binding or stalling in the body, it may be caused by the ejector shoes not being properly adjusted.

Washers are installed behind the wear shoes. The clearance between the shoe and track should never exceed 1/4”. The tighter the clearance, the less chance the ejector panel will turn and bind in the body. See Figure Ejector Shoe below.

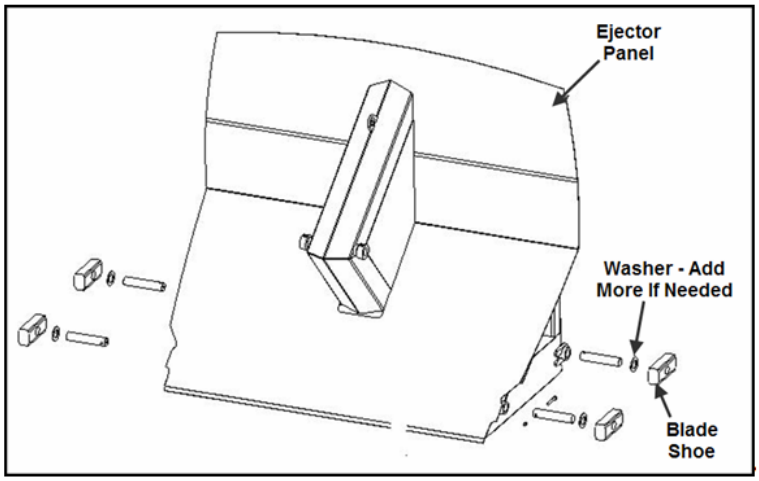


Figure 32. Ejector Shoe Adjustment

Copyright 2025, The Heil Co.
Printed in the U.S.A.

UNDERBODY VALVE - MAIN RELIEF AND PUMP PRESSURE

Be sure to remove all dirt and grease around the main relief.

NOTE: All adjustments must be made with throttle advance engaged.

NOTE: Hydraulic oil must be at or near operating temperature. If not, warm the oil using the directions in Cold Weather Warm-up Procedure

Check the System Pressure

Check the system pressure before making adjustments to the main relief and pump pressure. Do the following to check the system pressure:

1. Lock tailgate and pull the tailgate raise control lever.
2. Read the system pressure gauge. It should read 2500 +50/-0 PSI.

If the system pressure is not 2500 +50/-0 PSI, continue with the adjustment procedure.

Adjust Main Relief and Pump Pressure

Do the following to adjust the main relief and pump pressure:

1. Loosen the lock nut on the underbody valve main relief and turn the adjusting screw counterclockwise until reaching 2500 PSI. The underbody valve relief is now set.

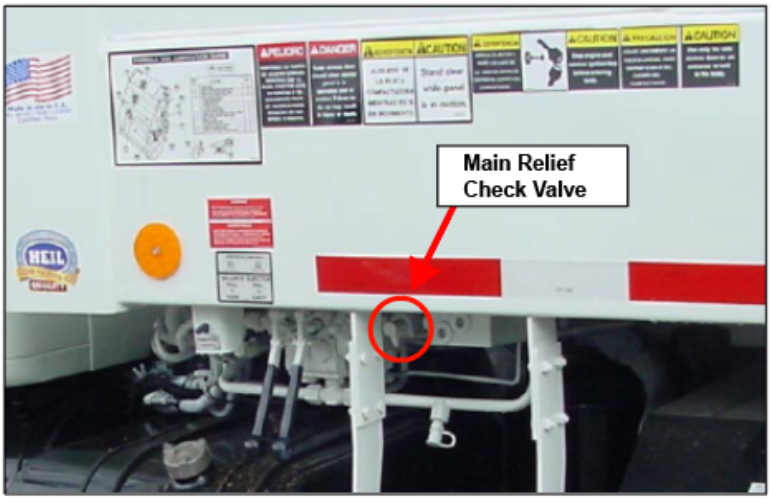


Figure 33. Main Pressure Check Port.

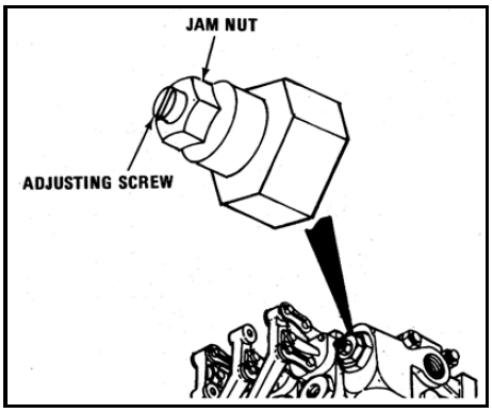


Figure 34. Main Relief Adjustment Screw.

2. Tighten the lock nut on the Underbody Valve Main relief.
3. Lower the pump unload pressure by turning the pressure compensating adjuster screw counterclockwise until reaching 2500 PSI. The pump is set.
4. Check the system pressure again.
5. Remove the pressure gauges from the lines.
6. Check for leaks.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

OPTIONAL CONTAINER MECHANISM ADJUSTMENT PROCEDURE

Before adjusting the container mechanism, install accurate 0-3000 PSI glycerin filled pressure gauges in two locations. Place one gauge on the underbody valve to check the main system pressure and one on the ejector line for unload pressure. Always remove dirt and grease around the main relief.

Winch Adjustment

1. Disengage the front mount pump or PTO.
2. Remove the hoses or tubes and fittings connecting the valve to the winch at the tailgate valve ports.
3. Install o-ring plugs (3/4”-16) in two of the tailgate valve ports.
4. Engage the front mount pump or PTO.
5. Press the throttle advance and move the winch control lever in both directions. The pressure should read 1400 PSI +/- 100 PSI for a 12,000 lb winch.
6. If the pressure is incorrect, do the following to make the necessary:
   (a) Remove the cover nut to expose the adjustment screw on the tailgate valve winch section.
   (b) Pull the spool out to adjust the relief on the detent cap end.
   (c) Push the spool in to adjust the relief on the spool yoke end.
   (d) Loosen the lock nut.
   (e) Turn the adjusting screw clockwise to increase the pressure or counterclockwise to decrease the pressure.
   (f) Tighten the lock nut and re-install the cover nut when the proper pressure is attained.
7. Reconnect the fittings, hoses and tubes if applicable.

Arm Mechanism or Roll Bar (Without Winch) - Single Mechanism

1. Disengage the front mount pump or PTO.
2. Press the throttle advance and engage the mechanism control lever until the cylinders bottom out in the extended position. The pressure should read 1400 PSI +/- 100 PSI with cylinders extended.
3. If the pressure is incorrect, do the following to make the necessary:
   (a) Remove the cover nut to expose the adjustment screw on the tailgate valve arm mechanism or roll bar section.
   (b) Pull the spool out to check the relief on the detent cap end.
   (c) Push the spool in to check the relief on the spool yoke end.
   (d) Loosen the lock nut.
   (e) Turn the adjusting screw clockwise to increase the pressure or counterclockwise to decrease the pressure.
   (f) Tighten the lock nut and re-install the cover nut when the proper pressure is attained.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

TAILGATE CONTROL LEVER ALIGNMENT

The tailgate control handles should be in line when in the neutral position. Adjustments can only be made to sweep control rod. See Figure Tailgate Control Levers below.

If Handle is Out of Alignment:

1. Loosen jam nuts on sweep control adjusting rod.
2. Turn rod clockwise to shorten or counter clockwise to lengthen, to raise or lower control handle.

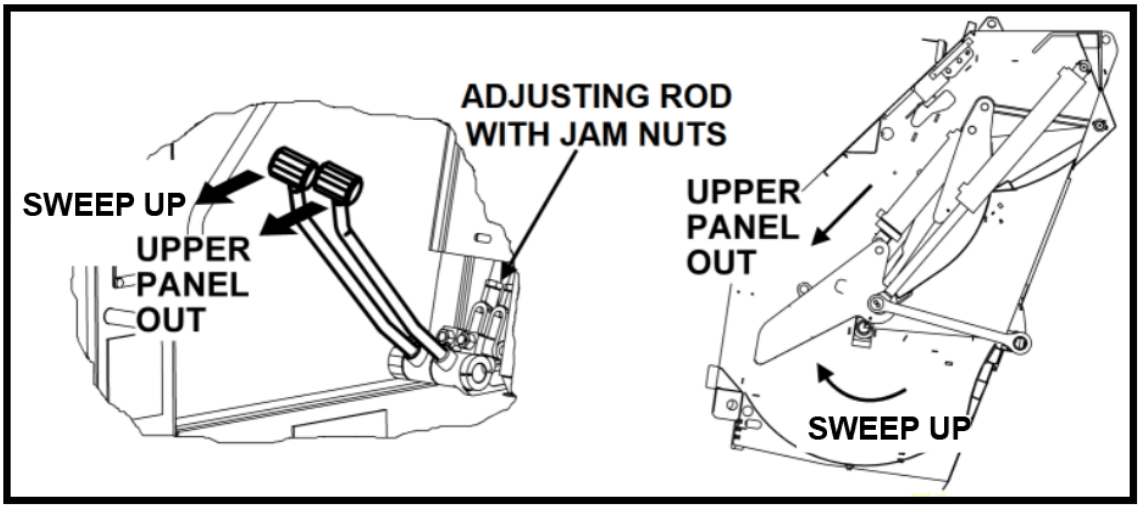


Figure 35. Tailgate Control Levers.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

UNDERBODY VALVE DISASSEMBLY AND ASSEMBLY

⚠ CAUTION

Do not use lockwashers with stud nuts. If stud nuts are not tightened to the proper torque, valve spools may bind or stick or cause section seals to extrude.

Do the following to disassemble or assembly the underbody valve:

1. Mark each valve section numerically to avoid incorrect assembly.
2. Remove the three assembly stud nuts from the inlet section using a 9/16” thin wall socket. See the figure below.
3. Remove the valve sections by sliding from the assembly studs.
4. Remove and discard the o-rings in each section.
5. Thoroughly clean the o-ring counterbores and ground surfaces of each section.
6. Replace valve sections on the assembly studs in the same manner in which they were removed. O-ring counterbores face left when facing “A” portend of the valve.
7. Reassemble the three stud nuts on the stud assembly. Tighten nuts evenly to 32 ft./lbs.

NOTE: Use care when replacing valve section to avoid dislodging the o-rings from the counterbores.

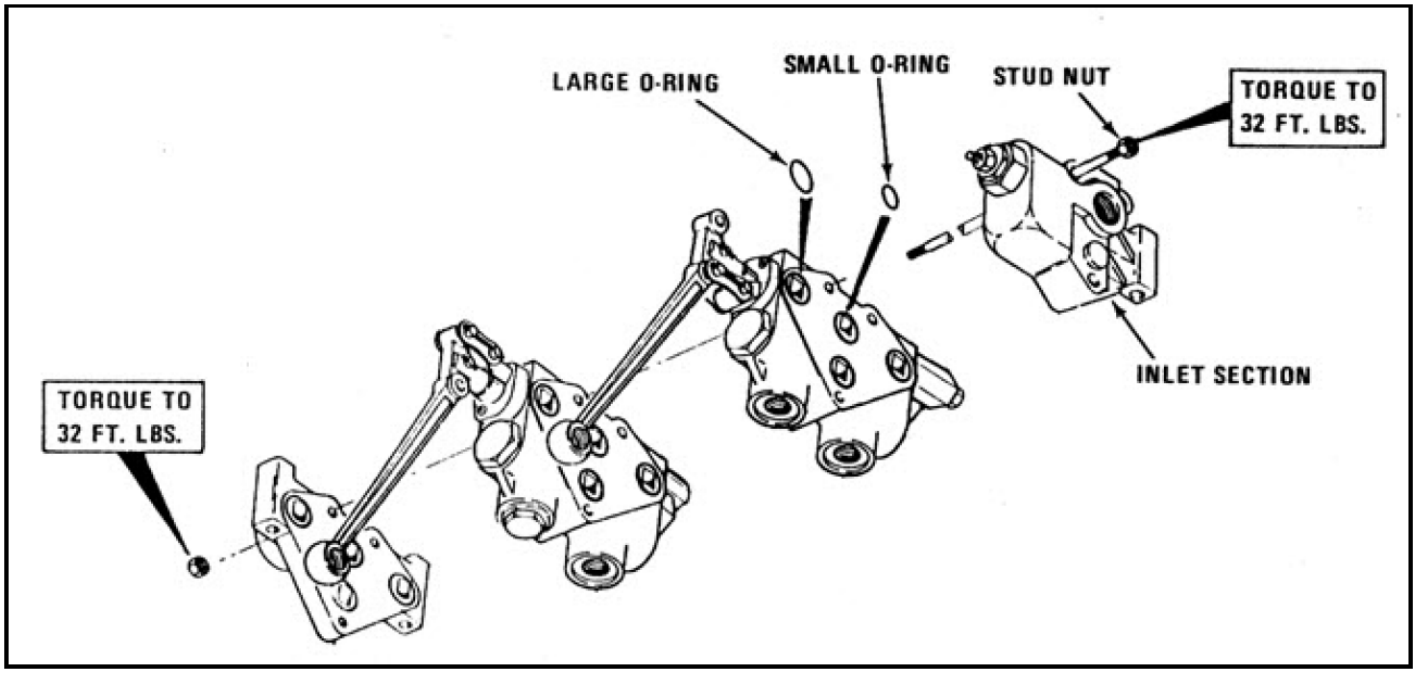


Figure 36. Underbody Valve Disassembly and Assembly.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

REPLACING SPOOL SEALS

Do the following to replace the spool seals:

1. Remove the bonnet assembly parts from the back of the valve section. Keep the parts in order of the disassembly. See the figure below.
2. Remove the complete handle assembly from the spool on the front of the valve section.
3. Remove the retainer place washer, back-up washer and spool seal.
4. Thoroughly clean the counterbore.
5. Lightly oil the new seal and slide it over the spool and insert in the seal counterbore. Place the washers back on the spool and reassemble the handle. Tighten screws to 10 ft. / lbs.
6. Reassemble the bonnet assembly, making sure it goes together in the same order as it was removed.
7. Tighten the bonnet screws evenly to 10 ft. / lbs.

NOTE: Do not remove the spool as the seals can be replaced externally. Prevent the spool from turning or moving by inserting a screw driver through the clevis slot or running a rod through the clevis slot and using a handle. Do not hold the spool with a wrench. This will destroy the spool finish.

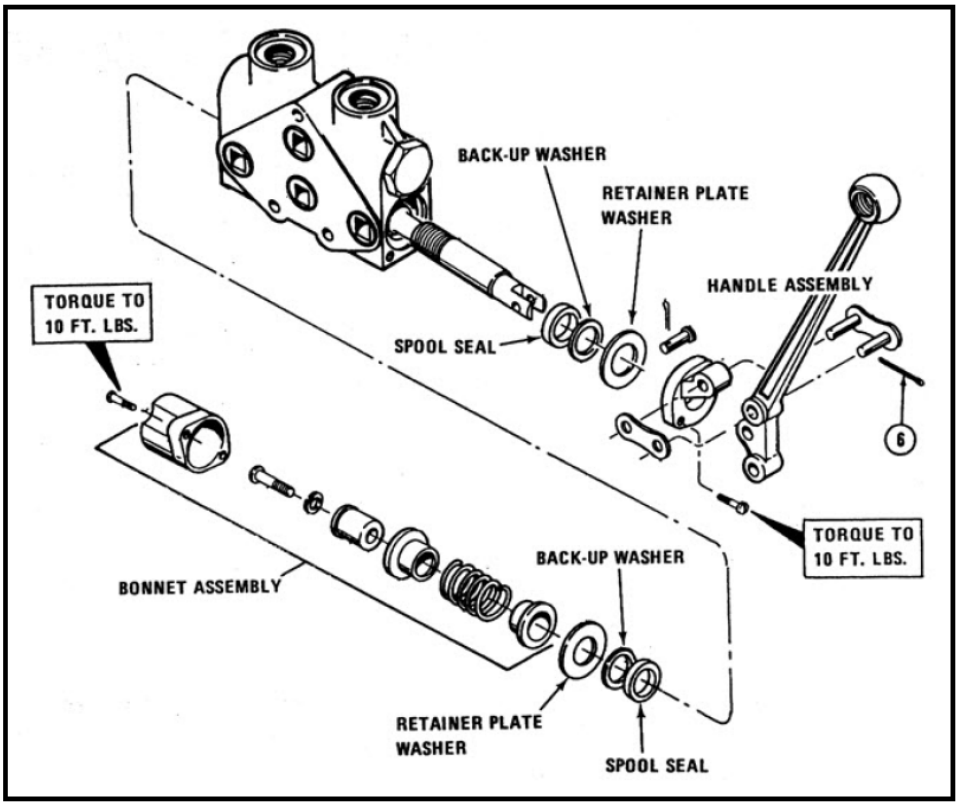


Figure 37. Replace Spool Seals.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

REPAIRING CRACKED WELD JOINTS

Repair all cracked weld joints immediately after finding cracked weld joints. If you are unsure of the proper repair procedure, call Heil Technical Services at 866-310-4345.

TAILGATE LUBRICATION

See **Grease Lubrication Recommendation** and **Body Lubrication Guide** in this section.

INSPECT PROXIMITY SWITCHES

See **Proximity Switch Troubleshooting** 25 for recommended procedures for inspecting proximity switches.

CLEAN AND INSPECT THE TAILGATE SEAL

Daily, check the tailgate seal to make sure it mates properly with the body and inspect for possible wear, damage or leaking.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

SECTION 5
BODY CONTROLLER HARDWARE

Copyright 2025, The Heil Co.
Printed in the U.S.A.

IN-CAB DISPLAY

Copyright 2025, The Heil Co.
Printed in the U.S.A.

IN-CAB DISPLAY

Refer to the Heil DuraPack® 5000 Operation Manual for screens on the InSight™ Diagnostic Display related to operating the unit. The display also allows a qualified and authorized Service Technician to see detailed system information and make configuration changes based on option configuration.

HOME SCREEN

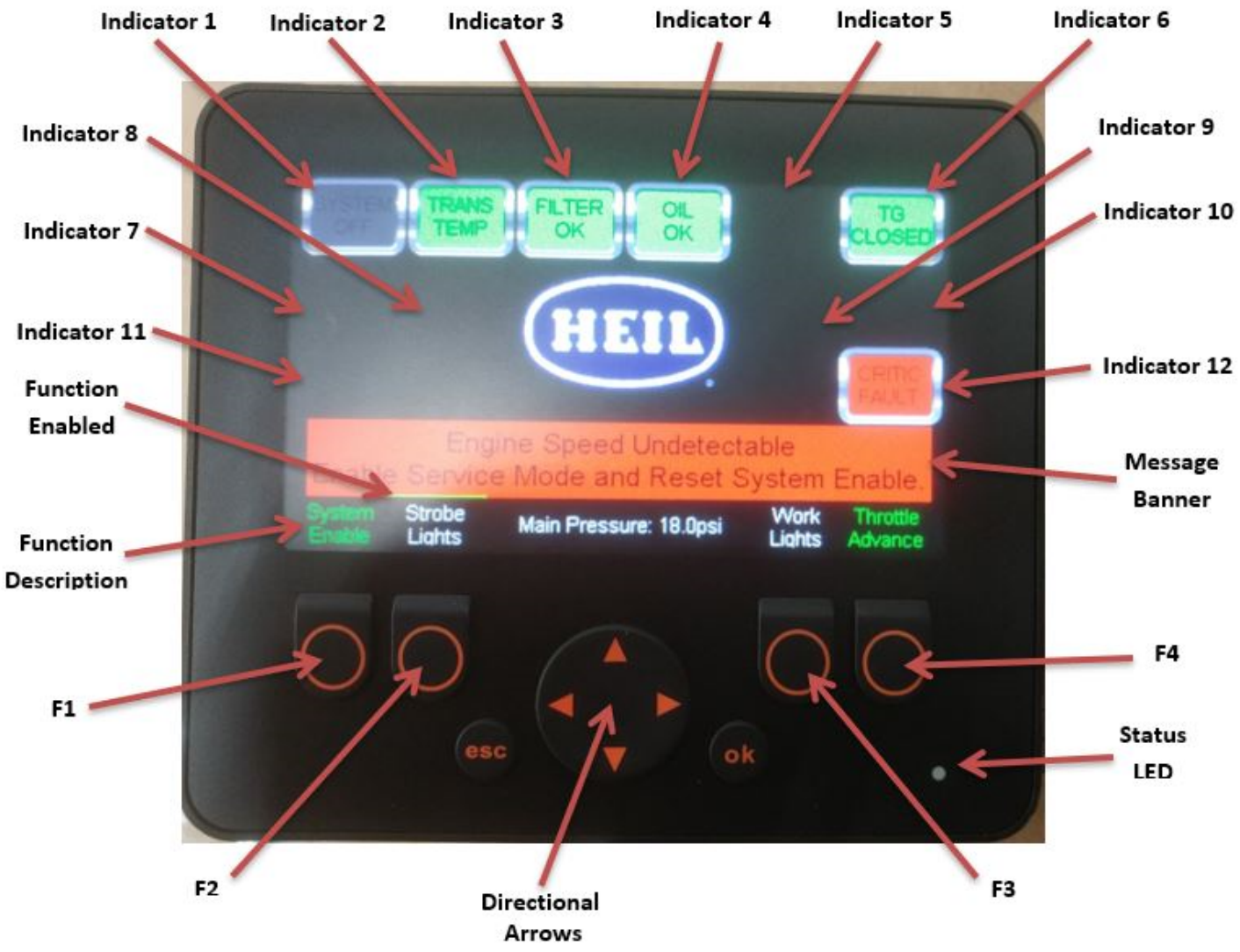


Figure 38.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

DISPLAY INDICATORS

1. System/PTO - Indicates PTO or System Status

A. On units with a Clutch Shift PTO

- RED, “ERROR” - PTO output error.
- GREEN, “PTO ON” - PTO output ON and PTO pressure switch is activated.
- YELLOW, “PTO ON” - PTO output ON but PTO pressure switch is not activated.
- GRAY, “PTO OFF” - PTO output OFF

B. On units without a Clutch Shift PTO

- GREEN, “SYSTEM ON” - Hydraulic System is enabled.
- GRAY, “SYSTEM OFF” - Hydraulic System is disabled.

2. Trans Temp - (Optional) Indicates the High Temp Warning is active on the Allison Transmission. Only applies with Clutch shift PTO.

3. Filter Bypass

- GREEN, “FILTER OK” - Return Filter is NOT in bypass.
- RED, “FILTER BYPASS” - Return Filter is in bypass.

4. Low Oil - (Optional) Included with Hydraulic Tank Monitoring

- GREEN, “OIL OK” - Oil Level is Good.
- RED, “LOW OIL” - Low Hydraulic Oil.

5. Tailgate Lock

- GREEN, “TG LOCKED” - Tailgate is locked.
- RED, “TG UNLOCKED” - Tailgate is unlocked.

6. Tailgate Open

- GREEN, “TG CLOSED” - Tailgate is closed.
- RED, “TG OPEN” - Tailgate is open.

7. Pump #1 - (Optional) Included with manifold controlled hydraulic pump.

- GREEN, “PUMP ON” - Pump output ON.
- GRAY, “PUMP OFF” - Pump output OFF.
- YELLOW, “ERROR” - Pump output error, short or open circuit.

8. Unused - These indicators will be blank.

9. Side Door - (Optional) Included with Side Door Pump Shutdown, indicates Side Door Closed or Open,

- GREEN, “SIDE DOOR CLOSED”
- RED, “SIDE DOOR OPEN”

10. Unused - These indicators will be blank

Copyright 2025, The Heil Co.
Printed in the U.S.A.

DISPLAY INDICATORS (CONTINUED)

11. Pump #2 - (Optional) Included with OAI hydraulic pump.
    - GREEN, “PUMP ON” - Pump output ON.
    - GRAY, “PUMP OFF” - Pump output OFF.
    - YELLOW, “ERROR” - Pump output error, short or open circuit.
12. Fault Indicator
    - RED, “CRITIC FAULT” - Critical Fault.
    - RED, “CTRL. FAULT” – Controller Fault.
    - RED, “SYS. FAULT” – System Fault.

STATUS LED

Indicates status of the display as described below.

- GREEN, 2Hz Flash – Application Running
- GREEN, 5Hz Flash – No Runtime system loaded
- GREEN, Continuous – Application Stopped or No Application Loaded
- RED, 5Hz Flash – Application Stopped due to Low Voltage
- RED, 10Hz Flash – Application Stopped with error application is stopped
- RED, Continuous – Application Stopped with Fatal Error

Copyright 2025, The Heil Co.
Printed in the U.S.A.

FUNCTION BUTTONS

Each button is assigned multiple functions which change by scrolling the **DOWN** directional arrow. The state of functions assigned to F2, F3 and F4 are retained through a power cycle. **Function text will be green when function is enabled, white when not**. Button Functions are listed below.

F1. Functions Button #1

- System Enable – enables the Hydraulic system

F2. Functions Button #2

- Strobe Lights - turns on all strobes.
- Auto Strobe - turns on all strobes with System Enable and vehicle speed below 20 MPH.
- Rear Strobe - turns on all strobes on the rear of the vehicle.
- Front Strobe - turns on all strobes on the front of the vehicle.

F3. Functions Button #3

- Work Lights - turns on body Work Light #1 and all tailgate Work Lights.
- Auto Work Lt - turns on body Work Light #1, tailgate hopper and tailgate side lights with System Enable and vehicle speed below 20MPH.
- Inside Hopper - turns on tailgate hopper light.
- Outside Hopper - turns on tailgate side light.
- Back-Up Assist - turns on side body Back-up Assist lights.
- Camera Floods - turns on tailgate camera lights.

F4. Functions Button #4

- Throttle Advance – Enables engine throttle advance.
- Option Switch 1 – turns on Option Output #1 in the Body Controller, must be enabled in Option Screen
- Option Switch 2 – turns on Option Output #2 in the body Controller, must be enabled in Option Screen

Functions Enabled

This GREEN line indicates that a function associated with this button is active. Scroll down through the functions to locate the enabled function(s).

Copyright 2025, The Heil Co.
Printed in the U.S.A.

MESSAGE BANNER

Potential messages displayed.

1. Critical Faults – result in disabled functions, allowing limited to no operation. (RED)

- "Engine Speed Undetectable, Enable Service Mode and Reset System Enable."

  J1939 Communication with the Engine has been lost, or the Alternator R stator connection was lost.

  To override and continue operation, enter Service Mode.
- "Side Door Interlock. Close Side Door Reset System Enable."

  To override and continue operation, enter Service Mode.
- "Hydraulic Temp Shutdown. Oil Temp Exceeds 200° F Reset System Enable."

  Allow the system to cool and reset by cycling the system-enabled switch. To override and continue operation, enter Service Mode.
- "Transmission Temp High w/Clutch Shift PTO engaged, Reset System Enable. "

  Allow system to cool and reset by cycling system enable switch. To override and continue operation, enter Service Mode.
- "Pump Shutdown Pressed, Reset Street side Switch, Restart System Enable."

  Optional Pump Shutdown System.To override and continue operation, enter Service Mode.
- "Pump Shutdown Pressed, Reset Curbside Switch Restart System Enable."

  Optional Pump Shutdown System.To override and continue operation, enter Service Mode.
- "Low Hydraulic Oil. Fill hydraulic tank to the proper level, Reset System Enable"

  To override and continue operation, enter Service Mode.

2. Operator Warnings – hazardous operating conditions. (RED)

- "Vehicle in motion with TG open. Close and secure TG"
- "Hydraulic Temp Warning Oil Temp Exceeds 180° F."
- "Vehicle in motion with Throttle Advanced. Verify Transmission Neutral." MPH exceeded zero with throttle advance engaged. Throttle Advance is temporarily disabled. Indication of a potential issue with the chassis Neutral signal.

3. Communication Failure – either intermittent or ongoing, between one or more controllers. Press ESC button to acknowledge. (RED)

- "Comms Lost, Multiple Controllers, Restore Comms and, press escape to clear."
- "Cab Controller Communication Lost, Restore Comms and, press escape to clear."
- "Body Controller Communication Lost, Restore Comms and, press escape to clear"
- "Tailgate Controller Communication Lost, Restore Comms and, press escape to clear."

4. Service Mode – system has been placed in service mode. (RED)

"SERVICE MODE!!!"

5. Tailgate Buzzer – visual indication that the Tailgate Buzzer switch is pressed. (BLUE)

"Operator Alert"

Copyright 2025, The Heil Co.
Printed in the U.S.A.

MESSAGE BANNER (CONTINUED)

6. Hydraulic Filter Life – remaining filter life is below 5%. (BLACK)

"Hyd. Oil Filter Life @: ##%"

Hydraulic filter should be changed every 1000 pump hours

7. Hydraulic Oil Life – remaining oil life is below 5% (BLACK)

"Hyd. Oil Life @: ##%"

Hydraulic filter should be changed every 2000 pump hours

8. Hydraulic Oil/Ambient Temp - (Optional) displayed as default message. (BLACK)

"Hyd. Oil Temp.: ##° F"

"Ambient Temp.: ##° F"

9. System OFF – Hydraulic System is turned off (GRAY)

"System OFF"

Copyright 2025, The Heil Co.
Printed in the U.S.A.

COUNTER SCREEN

This screen shows the different cycle counts. To navigate to this screen, press **RIGHT** on the arrow pad.

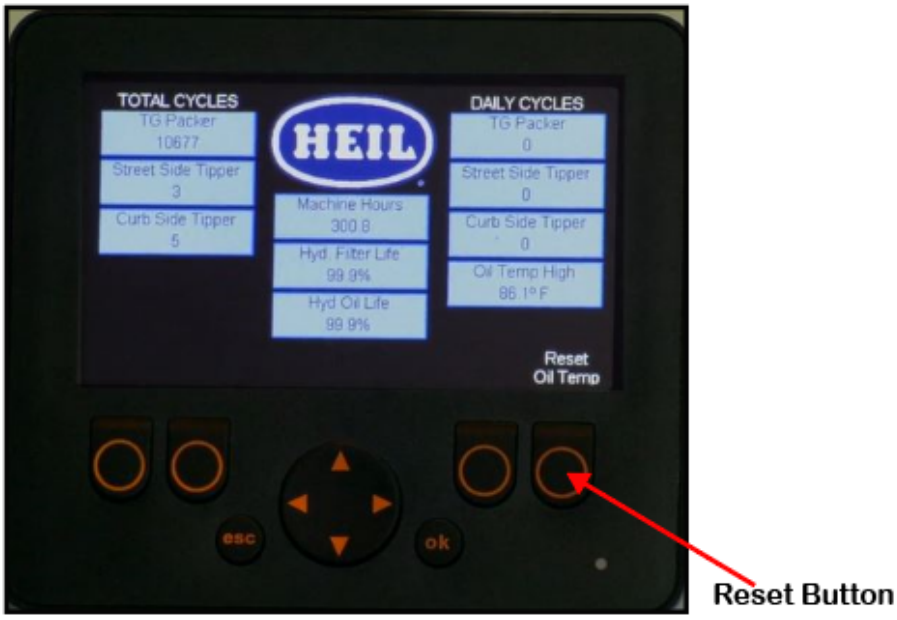


Figure 39.

CYCLE COUNTS

Total Cycles are non-resettable counts, retained throughout the life of the unit controller.

Daily Cycles can be reset. Choose the count to be reset by scrolling down using the directional arrow.

TG Packer count is achieved by monitoring the tailgate Slide Active proximity switch.

To account for the split pack cycle, the Slide Active must engage two separate instances for a minimum of 7 seconds.

Tipper counts are achieved by monitoring the Tipper #1 and Tipper #2 inputs. The input must remain on for 2 seconds to achieve a count.

HOUR COUNTS

Maintenance Hours count the hours the hydraulic pump/PTO is enabled.

Hyd. Filter Life displays remaining life of the hydraulic filter based on 1000 hours of pump operation.

Hyd. Oil Life displays remaining life of the hydraulic oil based on 2000 hours of pump operation.

OTHER

Oil Temp High records the highest hydraulic oil temperature since reset.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

DISPLAY SCREEN

The Display Screen provides details about the display.

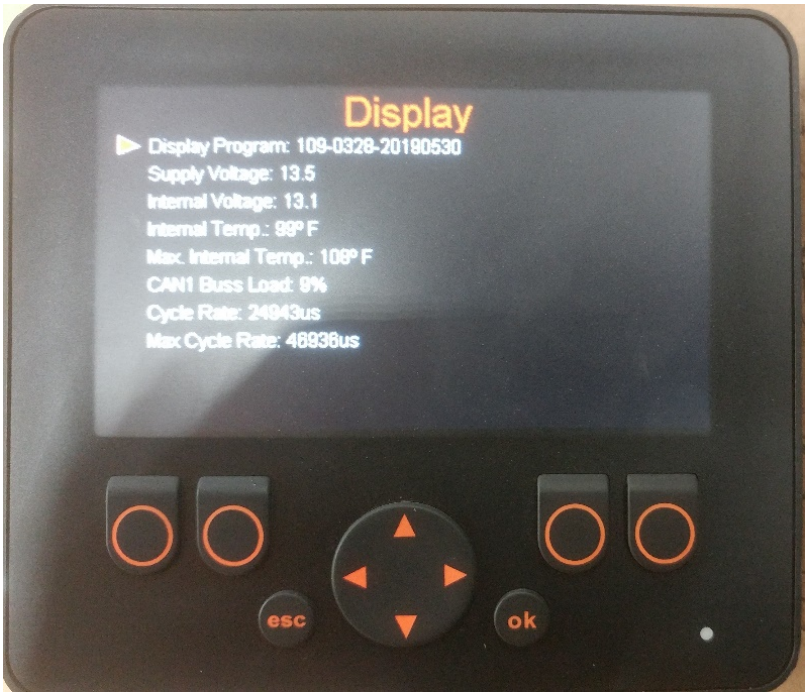


Figure 40.

- Program number/revision date. Exp: 109-0382-yyyymmdd
- Supply Voltage
- Internal Voltage
- Internal Temperature
- Maximum recorded operating temperature for the life of the display.
- CAN1 buss load percentage, the buss load for communications between the controllers and display.
- Current display program process time in microseconds.
- Maximum display program process time, in microseconds, during the current power cycle.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

CAB CONTROLLER INPUTS

This screen displays the status of the Cab Controller inputs and parameters.

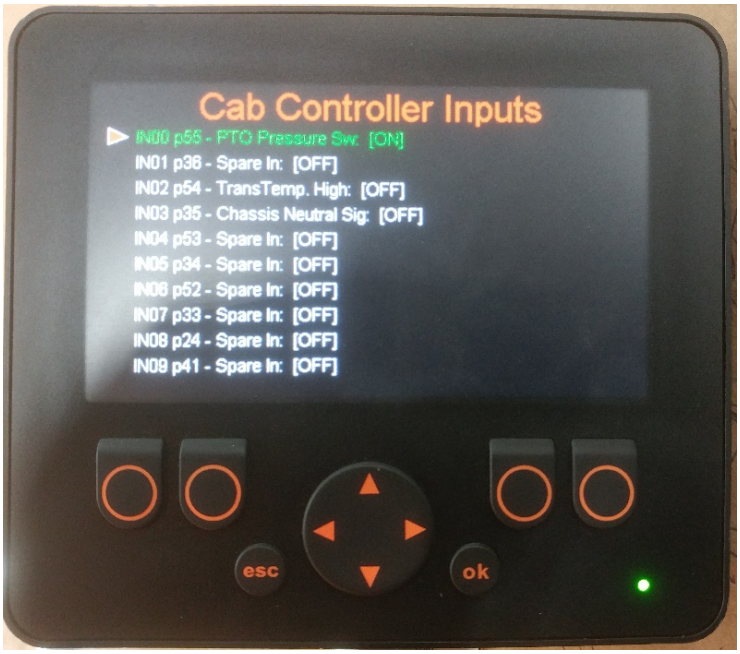


Figure 41.

INPUT	PIN #	DESCRIPTION	FUNCTION
IN00	55	PTO Pressure Sw.	ON with PTO engaged
IN01	36	Low Torque PSW.	ON with O.A.I. LTPSW
IN02	54	Trans Temp. High	ON with Trans. Over temp. warning
IN03	35	Chassis Neutral Sig.	ON/OFF with chassis Neutral, Active high or low signal
IN04	53	Spare In	
IN05	34	Spare In	
IN06	52	Spare In	
IN07	33	Spare In	
IN08	24	Spare In	
IN09	41	Spare In	
IN10	23	Spare In	
IN11	40	Spare In	
IN12	22	Spare In	
IN13	39	Spare In	
IN14	21	Spare In	
IN15	38	Engine Tach Freq	R-Stator or Tach Sig. used with absence of J1939
VBBS	10	Supply Voltage	Controller Power, Ignition Feed
VBB1	19	Supply Voltage	Supply Voltage for Outputs 00-08, Ignition Feed
VBB2	1	Supply Voltage	Supply Voltage for Outputs 08-15, Ignition Feed

Copyright 2025, The Heil Co.
Printed in the U.S.A.

DURAPACK® 5000

Body Controller Hardware

INPUT	PIN #	DESCRIPTION	FUNCTION
N/A	N/A	Controller Temp.	Current temp. of controller
N/A	N/A	Max. Controller Temp.	Highest recorded temp. life of unit
N/A	N/A	CAN1 Bus Load	Bus loading for controller network
N/A	N/A	Mobile Controller Program	109-0329-yyyymmdd

Copyright 2025, The Heil Co.
Printed in the U.S.A.

BODY CONTROLLER INPUTS

This screen displays the status of Body Controller inputs and parameters.

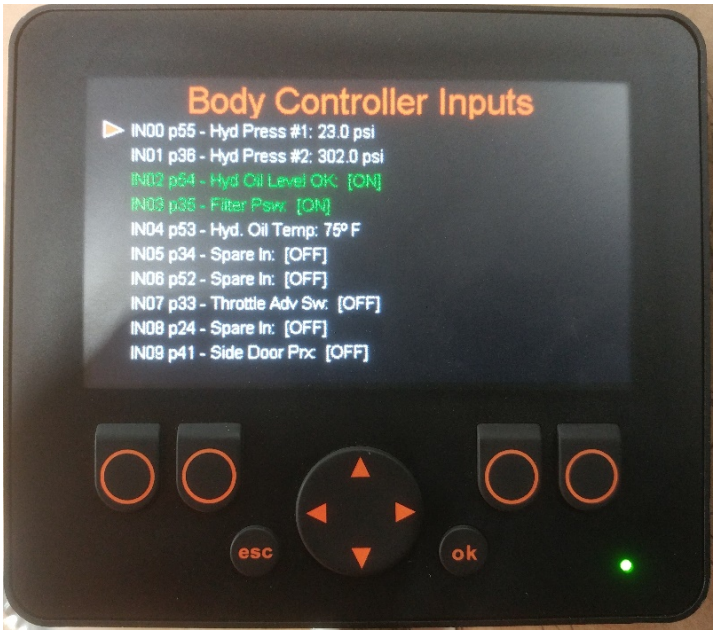


Figure 42.

INPUT	PIN#	DESCRIPTION	FUNCTION
IN00	55	Hyd. Press #1	Main body valve inlet pressure
IN01	36	Hyd. Press #2	CV valve pressure
IN02	54	Hyd. Oil Level	ON with hydraulic oil level good
IN03	35	Filter Psw.	ON with hydraulic filter not in bypass
IN04	53	Hyd. Oil Temp.	Hydraulic oil temp. at tank
IN05	34	Spare In	
IN06	52	Spare In	
IN07	33	Throttle Adv Sw.	ON with body throttle advance switch
IN08	24	Spare In	
IN09	41	Side Door Prx.	ON with body side door closed and latched
IN10	23	Right Turn Sig.	ON with chassis right turn signal
IN11	40	Left Turn Sig	ON with chassis left turn signal
IN12	22	Reverse Light Sig	ON with chassis back up lights
IN13	39	Stop Light Sig	ON with chassis brake lights
IN14	21	Tail Light Sig	ON with chassis tail lights
IN15	38	Spare In	
VBBS	10	Supply Voltage	Controller power, battery feed
VBB1	19	Supply Voltage	Supply voltage for outputs 00-08, battery feed
VBB2	1	Supply Voltage	Supply voltage for outputs 08-15, ignition feed

Copyright 2025, The Heil Co.
Printed in the U.S.A.

DURAPACK® 5000

Body Controller Hardware

INPUT	PIN#	DESCRIPTION	FUNCTION
N/A	N/A	Controller Temp.	Current temp. of controller
N/A	N/A	Max. Controller Temp.	Highest recorded temp. life of unit
N/A	N/A	CAN1 Bus Load	Bus loading for controller network
N/A	N/A	Controller Program	109-0330-yyyymmdd

Copyright 2025, The Heil Co.
Printed in the U.S.A.

TAILGATE CONTROLLER INPUTS

This screen displays the status of the Tailgate Controller inputs and parameters.

Figure 43.

INPUT	PIN#	DESCRIPTION	FUNCTION
IN00	55	Tipper Curb Side	ON with cart tipper activated, curb side
IN01	36	Tipper Street Side	ON with cart tipper activated, street side
IN02	54	Spare In	
IN03	35	Spare In	
IN04	53	Spare In	
IN05	34	Spare In	
IN06	52	Throttle Adv Sw.	ON with tailgate throttle advance switch
IN07	33	Buzzer Sw.	ON with tailgate buzzer switch
IN08	24	System PWR Street Side	ON with tailgate shutdown switch pulled out, street side
IN09	41	System PWR Curb Side	ON with tailgate shutdown switch pulled out, curb side
IN10	23	Work Light Sw.	ON with tailgate work lamp switch
IN11	40	Spare In	
IN12	22	Slide Active Prx.	ON with tailgate slide control lever activated
IN13	39	Sweep Active Prx.	ON with tailgate sweep control lever activated
IN14	21	Tailgate Lock Prx.	ON with tailgate locked, (optional)
IN15	38	Tailgate Close Prx.	ON with tailgate closed
VBBS	10	Supply Voltage	Controller power, battery feed
VBB1	19	Supply Voltage	Supply voltage for outputs 00-08, battery feed
VBB2	1	Supply Voltage	Supply voltage for outputs 08-15, ignition feed

Copyright 2025, The Heil Co.
Printed in the U.S.A.

INPUT	PIN#	DESCRIPTION	FUNCTION
N/A	N/A	Controller Temp.	Current temp. of controller
N/A	N/A	Max. Controller Temp.	Highest recorded temp. life of unit
N/A	N/A	CAN1 Buss Load	Bus loading for controller network
N/A	N/A	Controller Program	109-0331-yyyymmdd

Copyright 2025, The Heil Co.
Printed in the U.S.A.

CHASSIS VARIABLES (J1939)

This screen shows chassis variables from chassis J1939. Not all variables may be available, so their status won't update in those cases. If J1939 is unavailable, engine RPM is sourced from the alternator R Stator or tach signal.

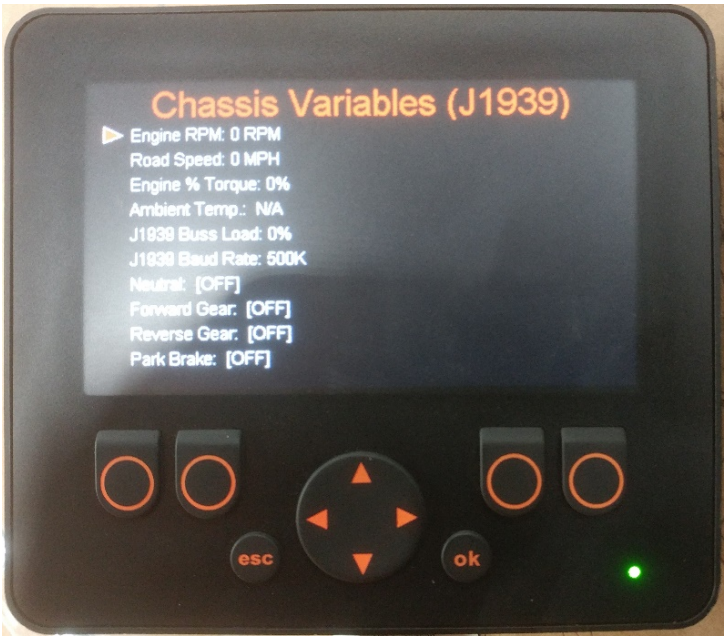


Figure 44.

VARIABLE LIST	FUNCTION
Engine RPM	Engine RPM from J1939 or Tach Sig.
Road Speed	Vehicle MPH
Engine % Torque	Engine percent torque
Ambient Temp	Ambient temperature measured by chassis sensors
J1939 Bus Load	Chassis J1939 bus load
J1939 Baud Rate	Chassis J1939 baud rate
Neutral	ON = Transmission in neutral
Forward Gear	ON = Transmission in forward gear
Reverse Gear	ON = Transmission in reverse gear
Park Brake	ON = Park brake set
Service Brake	ON = Service brake applied
Brake Light Sig.	ON = Chassis brake lamps ON
Right Turn Sig.	ON = Chassis right turn lamps ON
Left Turn Sig.	ON = Chassis left turn lamps ON
Tail Lamp Sig.	ON = Chassis tail lamps ON
Back-Up Lamp Sig.	ON = Chassis back-up lamps ON

Copyright 2025, The Heil Co.
Printed in the U.S.A.

CAB CONTROLLER OUTPUTS

This screen displays the status of Cab Controller outputs. Status of each output is: [ON] - Output is ON or [OFF] - Output is OFF. The state of each status is in brackets [ ].

Diagnostic features outputs 00 thru 07

[Disabled] - Output is disabled by option set or spare.

[Under Voltage on VBB] - Supply Voltage is too low.

[Over Voltage on VBB] - Supply Voltage is too high.

[Settings Invalid] - Program Error.

[Wire Break] - Open Circuits Detected

[Short Circuit] - Short Circuit Detected

[Over Current] - Overload on Circuit

Diagnostic features outputs 08 thru 15

[Disabled] - Output is disabled by option set or spare.

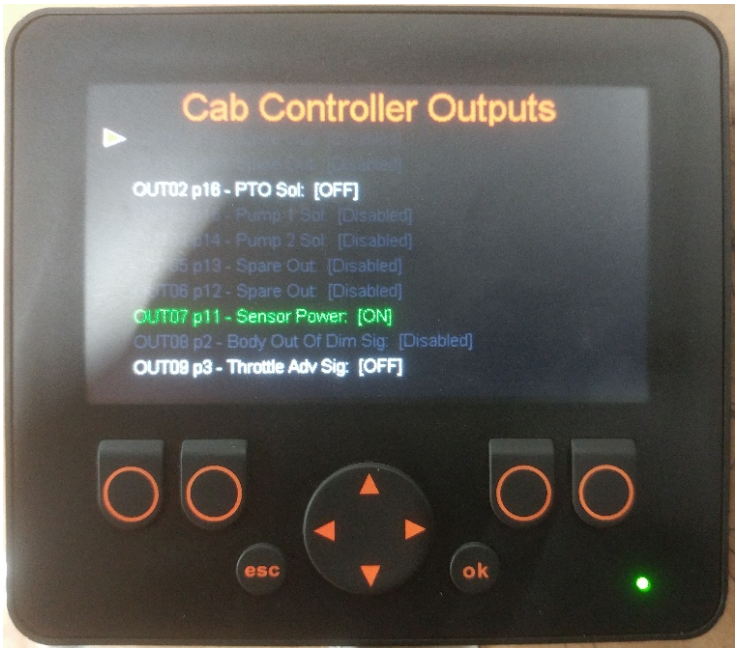


Figure 45.

OUTPUT	PIN#	DESCRIPTION	FUNCTION
OUT00	18	Spare Out	
OUT01	17	Spare Out	
OUT02	16	PTO Sol.	Power to clutch shift PTO solenoid
OUT03	15	Pump 1 Sol.	Power to pump 1 solenoid
OUT04	14	Pump 2 Sol.	Power to pump 2 solenoid
OUT05	13	Spare Out	
OUT06	12	Spare Out	

Copyright 2025, The Heil Co.
Printed in the U.S.A.

OUTPUT	PIN#	DESCRIPTION	FUNCTION
OUT07	11	Sensor Power	Power supply to sensors, ON with ignition
OUT08	2	Body Out of Dim Sig.	Power to engine control relay, road speed limit or accelerator interlock
OUT09	3	Throttle Adv Sig.	Power to engine control relay, throttle advance
OUT10	4	Camera Reverse Trigger	Power to camera input, back-up
OUT11	5	Spare Out	
OUT12	6	Spare Out	
OUT13	7	Spare Out	
OUT14	8	In Cab Alarm 1	Tailgate buzzer or critical fault
OUT15	9	In Cab Alarm 2	Tailgate open or operator warning

Copyright 2025, The Heil Co.
Printed in the U.S.A.

BODY CONTROLLER OUTPUTS

This screen displays the status of Body Controller outputs. Status of each output is: [ON] - Output is ON or [OFF] - Output is OFF. The state of each status is in brackets [ ].

Diagnostic features outputs 00 thru 07

[Disabled] - Output is disabled by option set or spare.

[Under Voltage on VBB] - Supply Voltage is too low.

[Over Voltage on VBB] - Supply Voltage is too high.

[Settings Invalid] - Program Error.

[Wire Break] - Open Circuits Detected

[Short Circuit] - Short Circuit Detected

[Over Current] - Overload on Circuit

Diagnostic features outputs 08 thru 15

[Disabled] - Output is disabled by option set or spare.

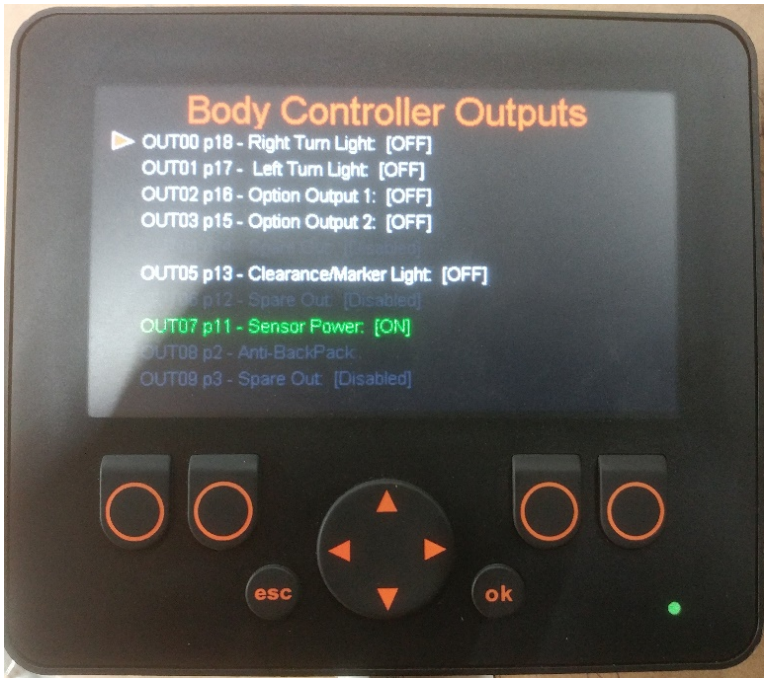


Figure 46.

OUTPUT	PIN#	DESCRIPTION	FUNCTION
OUT00	18	Right Turn Light	NOT USED, power to mid body RH turn lamp
OUT01	17	Left Turn Light	NOT USED, power to mid body LH turn lamp
OUT02	16	Option Output 1	Optional output controlled by display button
OUT03	15	Option Output 2	Optional output controlled by display button
OUT04	14	Spare Out	
OUT05	13	Clearance/Marker Light	NOT USED, power to body clear/marker lamps
OUT06	12	Spare Out	

Copyright 2025, The Heil Co.
Printed in the U.S.A.

OUTPUT	PIN#	DESCRIPTION	FUNCTION
OUT07	11	Sensor Power	Power supply to sensors, ON with ignition
OUT08	2	Anti-Back Pack	Power to anti-back pack relay
OUT09	3	Spare Out	
OUT10	4	Work Light #1	Power to front of body work light
OUT11	5	Reverse Flood Light	Power to back-up assist lights
OUT12	6	Spare Out	
OUT13	7	Strobe 1	Power to front of body oval strobe lights
OUT14	8	Strobe 2	Power to front of body 360 strobe lights
OUT15	9	Spare Out	

Copyright 2025, The Heil Co.
Printed in the U.S.A.

TAILGATE CONTROLLER OUTPUTS

This screen displays the status of Tailgate Controller outputs. Status of each output is: [ON] - Output is ON or [OFF] - Output is OFF. The state of each status is in brackets [ ].

Diagnostic features outputs 00 thru 07

[Disabled] - Output is disabled by option set or spare.

[Under Voltage on VBB] - Supply Voltage is too low.

[Over Voltage on VBB] - Supply Voltage is too high.

[Settings Invalid] - Program Error.

[Wire Break] - Open Circuits Detected

[Short Circuit] - Short Circuit Detected

[Over Current] - Overload on Circuit

Diagnostic features outputs 08 thru 15

[Disabled] - Output is disabled by option set or spare.

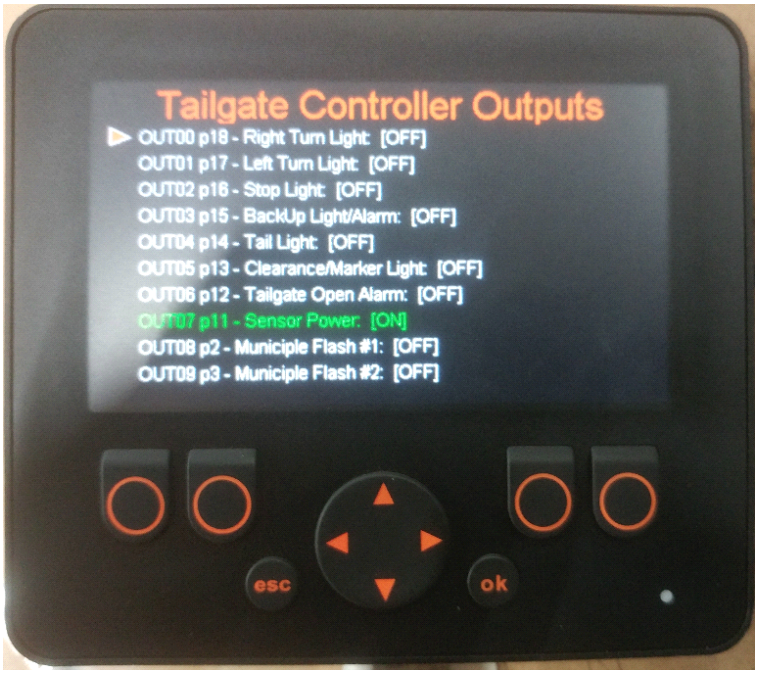


Figure 47.

OUTPUT	PIN#	DESCRIPTION	FUNCTION
OUT00	18	Right Turn Light	RH multi-function strobe
OUT01	17	Left Turn Light	LH multi-function strobe
OUT02	16	Stop Light	NOT USED, power to stop lamps
OUT03	15	Back Up Light/Alarm	NOT USED, power to back-up lamps
OUT04	14	Tail Light	NOT USED, power to tail lamps
OUT05	13	Clearance/Marker Light	NOT USED, power to clearance lamps
OUT06	12	Tailgate Open Alarm	Power to tailgate open audible alarm

Copyright 2025, The Heil Co.
Printed in the U.S.A.

OUTPUT	PIN#	DESCRIPTION	FUNCTION
OUT07	11	Sensor Power	Power supply to sensors, ON with Ignition
OUT08	2	Municipal Flash #1	Power to 7” flashing lamp
OUT09	3	Municipal Flash #2	Power to 7” flashing lamp
OUT10	4	Work Light #1	Power to tailgate side lamp(s)
OUT11	5	Reverse Flood Light	Power to camera work lamps
OUT12	6	Work Light #2	Power to tailgate hopper lamp(s)
OUT13	7	Strobe 1	Power to oval strobe lights
OUT14	8	Strobe 2	Power to 360 strobe light(s)
OUT15	9	Spare Out	

Copyright 2025, The Heil Co.
Printed in the U.S.A.

FAULT SCREENS

Access fault screens from the Home screen by using the UP directional arrow.

CRITICAL FAULTS

Critical faults disable functions, leading to limited operation or no operation. These faults appear in the Home Screen Message Banner, displaying one message at a time based on importance, allowing users to view the status of all critical faults.

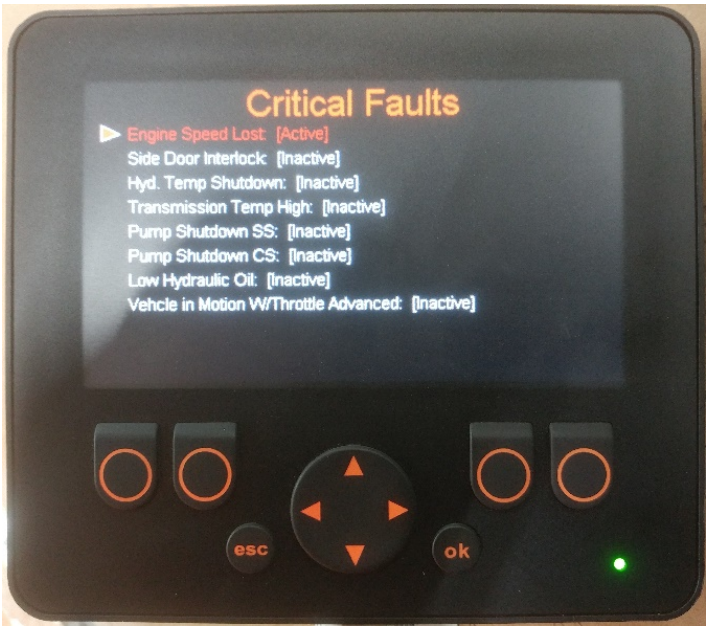


Figure 48.

FAULT	CAUSE	EFFECT	RESET
Engine Speed Lost	System unable to determine engine RPM.	Pump shut down after 1 minute.	Cycle System Enable
Side Door Interlock	Input signal indicates side door has been opened.	Pump shut down immediately.	Cycle System Enable
Hyd. Temp Shutdown	Hyd. Temp. above 200° for 60 seconds.	Pump shut down after 1 minute.	Cycle System Enable
Transmission Temp High	Allison Trans. High Temp Warning is active.	Pump shut down after 1 minute.	Cycle System Enable
Pump Shutdown SS	Input signal indicates street side shutdown switch has been pressed.	Pump shut down immediately.	Cycle System Enable
Pump Shutdown CS	Input signal indicates curb side shutdown switch has been pressed.	Pump shut down immediately.	Cycle System Enable
Low Hydraulic Oil	Input signal indicates hydraulic Oil has fallen below a safe operating level.	Pump shut down immediately.	Cycle System Enable
Vehicle in Motion W/ Throttle Advanced	J1939 indicates Vehicle Wheel Speed greater than zero, with throttle advance active.	Throttle advance is interrupted.	Re-initiate Throttle Advance request

Copyright 2025, The Heil Co.
Printed in the U.S.A.

SYSTEM FAULTS

Access this screen from the Critical Fault screen by using the LEFT directional arrow.

System faults occur with the loss of a signal or, when a signal is out of the normal operating range. These faults are retained through a power cycle and will remain active until reset.

The “Reset All” button will reset all active System Faults. The “Reset Selected” will reset only the selected fault.

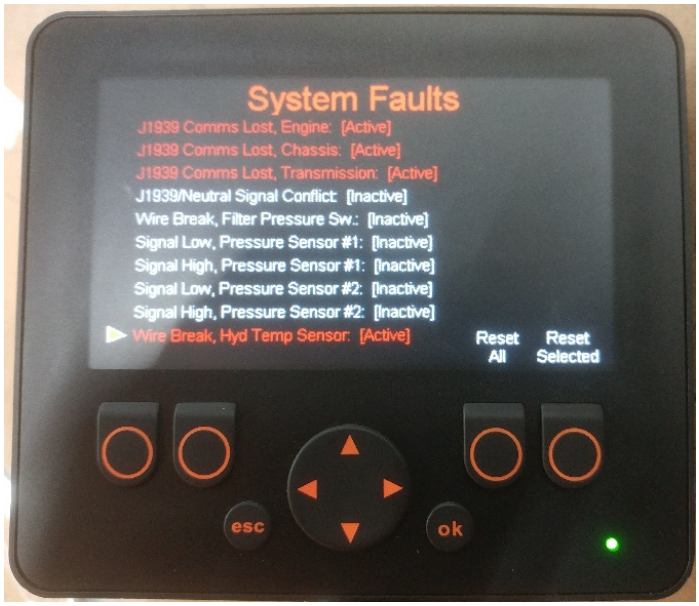


Figure 49.

FAULT	CAUSE
J1939 Comms Lost, Engine	System not receiving PGN 61444 from chassis. *If J1939 is not available, disable this fault, by selecting it and hold both reset buttons for 10 seconds.*
J1939 Comms Lost, Chassis	System not receiving PGN 61445 from chassis. *If J1939 is not available, disable this fault, by selecting it and hold both reset buttons for 10 seconds.*
J1939 Comms Lost, Transmission	System not receiving PGN 65265 from chassis. *If J1939 is not available, disable this fault, by selecting it and hold both reset buttons for 10 seconds.*
J1939/Neutral Signal Conflict	Hardwired neutral signal indicates transmissions is NOT in neutral while J1939 indicates transmission is in neutral. Hardwired neutral function must be verified.
Wire Break, Filter Pressure Sw.	Loss of filter bypass signal with engine OFF
Signal Low, Pressure Sensor #1	Input signal indicates the pressure reading is lower than the operating range of the sensor.
Signal High, Pressure Sensor #1	Input signal the pressure reading is higher than the operating range of the sensor.
Signal Low, Pressure Sensor #2	Input signal the pressure reading is lower than the operating range of the sensor.
Signal High, Pressure Sensor #2	Input signal the pressure reading is higher than the operating range of the sensor.
Wire Break, Hyd. Temp Sensor	Input signal resistance is high, temperature sensor disconnected.
Short to Ground, Hyd. Temp Sensor	Input signal resistance is low, temperature signal shorted to ground.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

CONTROLLER FAULTS

Access this screen from the Critical Fault screen by using the **RIGHT** directional arrow.

Controller faults occur with the following:

- Supply voltage to a controller is lost or low.
- A controller output has an error, short or open circuit etc.
- Loss of communications with or between two controllers.

These faults are retained through a power cycle and once active will remain active until reset. The “Reset All” button will reset all active System Faults. The “Reset Selected” will reset only the selected fault.

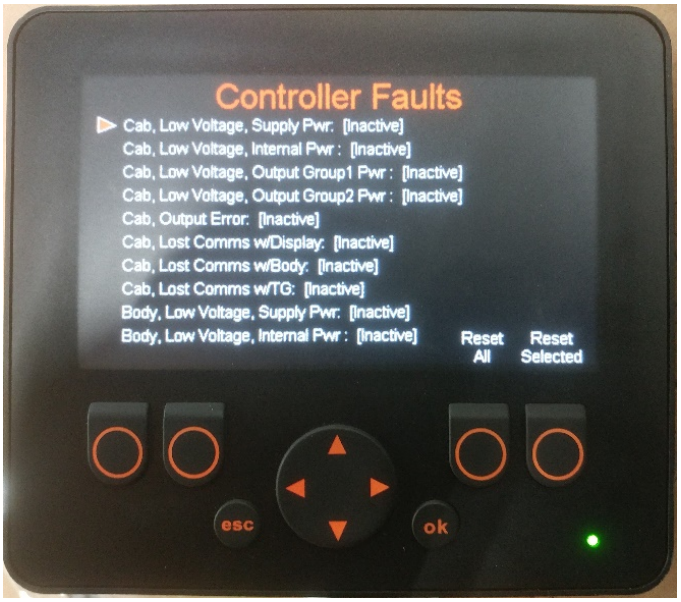


Figure 50.

FAULT	CAUSE
Cab, Low Voltage, Supply Pwr.	VBBS Pin 10 - Supply Voltage < 10VDC
Cab, Low Voltage, Internal Pwr.	Controller internal voltage low
Cab, Low Voltage, Output Group1 Pwr.	VBB1 Pin 19 - Supply Voltage < 10VDC
Cab, Low Voltage, Output Group2 Pwr.	VBB2 Pin 01 - Supply Voltage < 10VDC
Cab, Output Error	Error diagnostic on one or more outputs 00 thru 07
Cab, Lost Comms w/ Display	Controller lost comms with in-cab display.
Cab, Lost Comms w/ Body	Controller lost comms with Body controller.
'Cab, Lost Comms w/TG	Controller lost comms with Tailgate controller.
Body, Low Voltage, Supply Pwr.	VBBS Pin 10 - Supply Voltage < 10VDC
Body, Low Voltage, Internal Pwr.	Controller internal voltage low

Copyright 2025, The Heil Co.
Printed in the U.S.A.

FAULT	CAUSE
Body, Low Voltage, Output Group1 Pwr.	VBB1 Pin 19 - Supply Voltage < 10VDC
Body, Low Voltage, Output Group1 Pwr.	VBB2 Pin 01 - Supply Voltage < 10VDC
Body, Output Error	Error diagnostic on one or more outputs 00 thru 07
Body, Lost Comms w/ Display	Controller lost comms with in-cab display.
Body, Lost Comms w/ Body	Controller lost comms with Body controller.
Body, Lost Comms w/TG	Controller lost comms with Tailgate controller.
Tailgate, Low Voltage, Supply Pwr.	VBBS Pin 10 - Supply Voltage < 10VDC
Tailgate, Low Voltage, Internal Pwr.	Controller internal voltage low
Tailgate, Low Voltage, Output Group1 Pwr.	VBB1 Pin 19 - Supply Voltage < 10VDC
Tailgate, Low Voltage, Output Group2 Pwr.	VBB2 Pin 01 - Supply Voltage < 10VDC
Tailgate, Output Error	Error diagnostic on one or more outputs 00 thru 07
Tailgate, Lost Comms w/ Display	Controller lost comms with in-cab display.
Tailgate, Lost Comms w/ Body	Controller lost comms with Body controller.
Tailgate, Lost Comms w/ TG	Controller lost comms with Tailgate controller.
Display, Low Voltage, Supply Pwr.	Display Supply Voltage < 10VDC

Copyright 2025, The Heil Co.
Printed in the U.S.A.

PASSWORD PROTECTED SCREENS

To access password protected screens press and hold the OK button for 3 seconds.

This will switch the view to the password screen. Enter the password and press OK.

Figure 51.

PASSWORD PROTECTED SCREEN	PASSWORD
Maintenance	4321
Option Config	123412

Copyright 2025, The Heil Co.
Printed in the U.S.A.

OPTION CONFIG

The Option Config screen is used to configure the system.

Press the OK button to turn the functions ON/OFF. Press ESC to exit screen.

Figure 52.

Clutch Shift PTO

ON, enables the PTO solenoid output and should be used when a Clutch Shift PTO is installed.

Additionally, the hydraulic pump may or may not be configured with a solenoid controlled manifold block.

Select “W/Pump Manifold” or “W/O Pump Manifold” by pressing the RIGHT/LEFT arrows.

W/Pump Manifold enables Pump 1 sol output and reconfigures the EOS to control Pump 1 instead of the PTO.

Operate at Idle

ON, enables Operate at Idle (O.A.I) tandem pump outputs Pump 1 solenoid and Pump 2 solenoid.

It also configures the EOS for O.A.I. Pumps and enables low torque pressure functions to shutdown Pump 1 at the selected pressure setpoint.

There are two potential methods to achieve the pressure shutdown of Pump 1.

1. Hyd. Press #1 a transducer monitoring the inlet pressure on the body control valve, arrow RIGHT to adjust Pump 1 pressure limit.
2. Low Torque Pressure switch wired to the Cab Controller, adjust pressure switch setting as required.

Operate in Neutral Only

ON, prevents "Pack on the Fly" functionality by disengaging the hydraulics when the transmission is not in neutral.

No Side Door Interlock (Default OFF)

ON, disables side door interlock pump shutdown. Turn OFF when optional side access door pump shutdown is not installed.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

OPTION CONFIG (CONTINUED)

Hydraulic Tank Monitoring

ON, enables low hydraulic oil and hydraulic oil temperature monitoring. Enable hyd. temp and low hydraulic oil pump shutdown functions.

Multi-Function Strobe

ON, enables a secondary use of the tailgate turn lamps. When not in use as turn signals, the lamps can be used as alternating strobe lights.

Option Switches

ON, enables two multiplexed body controller outputs to be used for optional functions.

Blunt cut wires RED "OPTION-02" and RED "OPTION-03" are controlled from the home screen Function Button F4 88.

Municipal Flashers

ON, enables two tailgate-mounted alternating strobe/flashing lamps, typically 7” municipal flashers.

Out of Dimension

ON, enables the Out of Dimension circuit. The Out of Dimension output turns on at a set MPH when the tailgate is open, or side access door is not closed. Arrow RIGHT to adjust the MPH

setpoint.

Active Low Neutral Sig.

Hardwired neutral signals provided by the chassis can be active high (+12VDC) or active low (Grounding).

ON, configures the cab controller neutral input to function with an active low neutral signal.

OFF, configures the cab controller neutral input to function with an active high neutral signal.

Tailgate Lock Indication

ON, enables tailgate lock/unlock indication.

Pump Shutdown Switches

ON, enables tailgate street and curb side Pump Shutdown switches.

Hyd. Pressure Monitoring

ON, enables body controller hydraulic pressure transducer input 00.

Telematics

ON, enables Connected Truck broadcast on chassis J1939 network.

Engine Idle

Arrow RIGHT to adjust engine idle. This is required on chassis not equipped with J1939.

This uses the alternator R-Stator or Tach. signal, in leu of J1939 messaging.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

MAINTENANCE SCREEN

Filter Change Reset, press OK button to reset

Oil Change Reset, press OK button to reset

Service Mode, press OK button to activate. Service mode is strictly intended to allow pump operation while servicing or troubleshooting the unit.

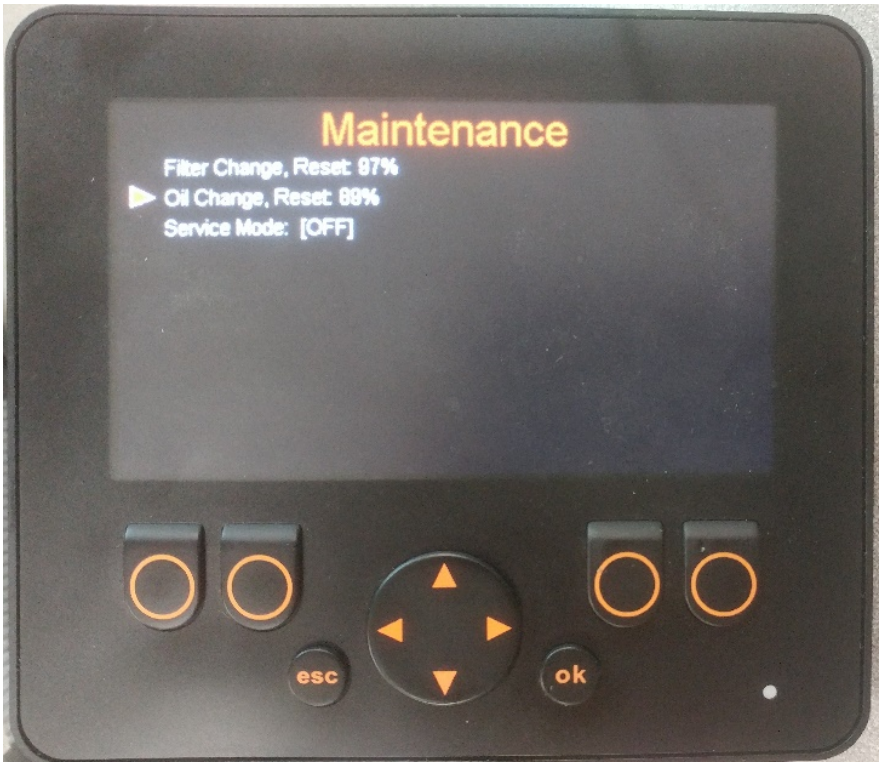


Figure 53.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

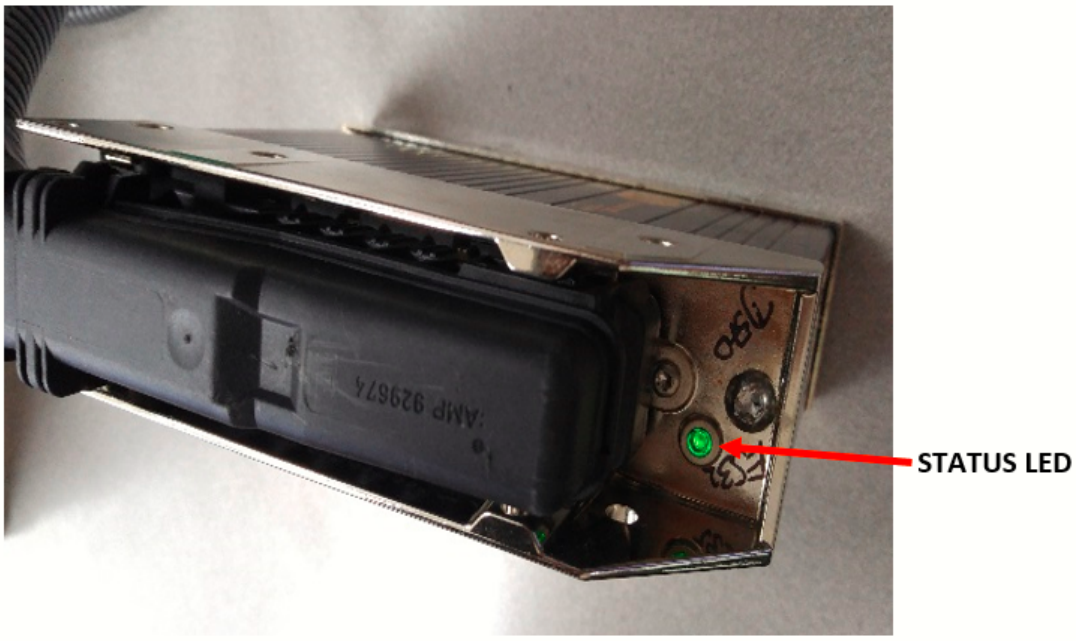
MOBILE CONTROLLER

Copyright 2025, The Heil Co.
Printed in the U.S.A.

PROGRAMMABLE CONTROLLERS

Three identical 32 I/O Mobile Controllers are installed—Cab, Body, and Tailgate—each with unique programs shared with the In-Cab display. If your controller differs from the manual, it will still function the same. When ordering, please provide your unit's program to ensure you receive the correct model. See Programmable Controllers 126 for more details.

Each controller has an LED status indicator. If communication among the three controllers and the In-Cab display is continuous, the LED operates under the Mobile Controller's default parameters. If a controller loses communication with another or the In-Cab Display, the LED alternates between yellow and red for the power cycle.



LED COLOR	STATUS	DESCRIPTION
N/A	OFF	No supply voltage
Orange	1 Flash	Initialization
Green	Flash @ 5 Hz	No operating system loaded
Green	Flash @ 2 Hz	Application running (RUN MODE)
Red	Flash @ 5 Hz	Supply voltage low
Red	Continuous	Fatal error
Yellow/Red	Flash @ 5 Hz	Communication lost during current power cycle

Copyright 2025, The Heil Co.
Printed in the U.S.A.

PROGRAMMABLE CONTROLLERS (CONTINUED)

Cab Controller

Typically mounted inside the cab. On a conventional cab, this controller will be behind the driver seat or under the passenger seat. On a cab over engine it will be under the doghouse cover. This controller manages most of the unit functionality, including:

- Chassis interface, including J1939 comms
- Hydraulic Pump Controls
- Option Configuration
- Audible Alarms
- Pump hour count

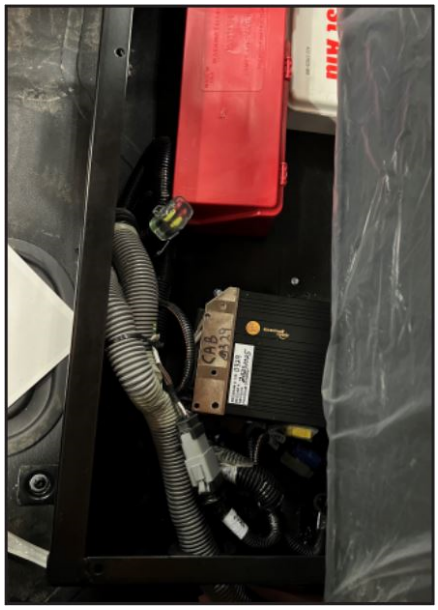


Figure 54. Under Passenger Seat Location.

Figure 55. Doghouse Location.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

PROGRAMMABLE CONTROLLERS (CONTINUED)

Body Controller

Mounted behind the access panel on the street side of the body, as shown below. This controller manages circuits local to the body, including:

- Strobe Lights
- Work Lights
- Oil Tanks Circuits
- Chassis FMVSS light inputs

Figure 56. Body Location, Street Side.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

PROGRAMMABLE CONTROLLERS (CONTINUED)

Tailgate Controller

Mounted in the upper portion of the tailgate this controller manages circuits local to the tailgate, including:

- Strobe Lights
- Work Lights
- Tailgate controls

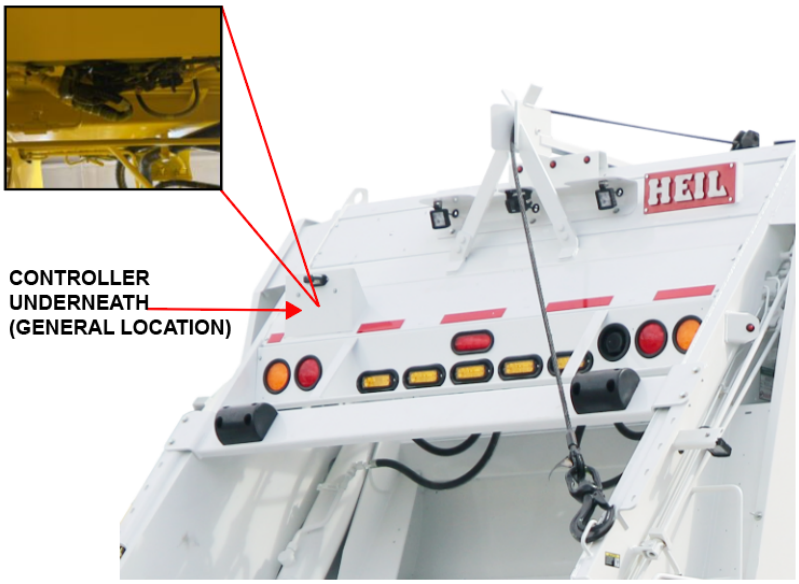


Figure 57. DuraPack 5000.

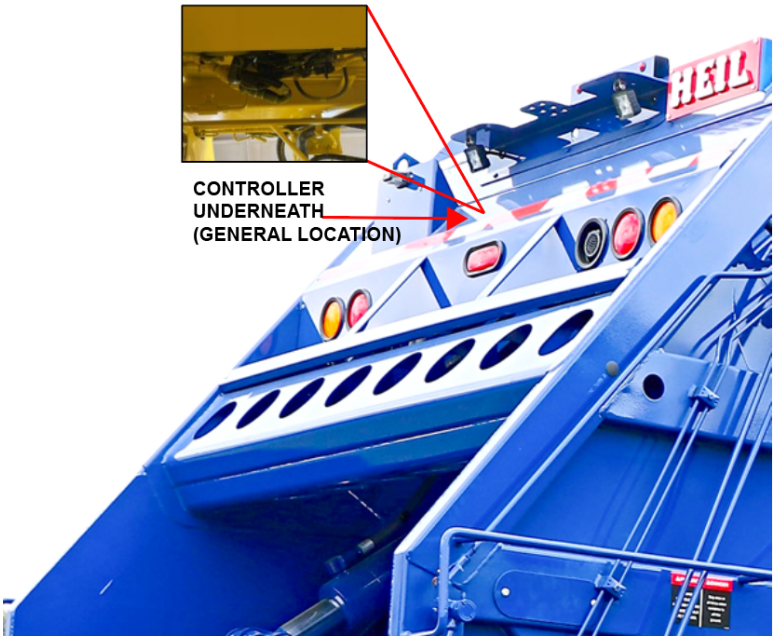


Figure 58. PowerTrak Commercial.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

CONTROL FUSING

Control Fuses

The control system utilizes two fuses. Fuse #1 (F1) is powered by chassis ignition. Fuse #2 (F2) is battery powered by the cold side of the battery disconnect.

Fusing for RP170 Compliant Chassis

The below fuse holder is typically located within 8” of the RP170 power and ground connector.

On cab over chassis this should be under the doghouse cover. On conventional cab chassis this should be behind the seat.

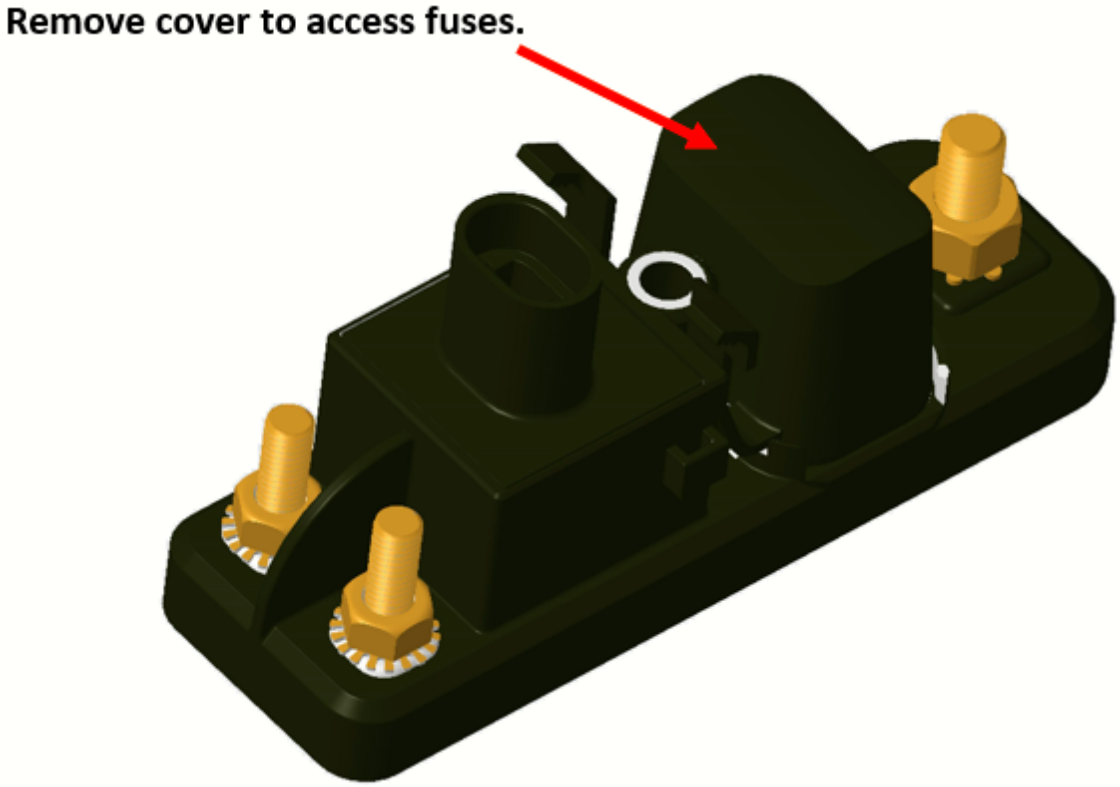
RP170 POWER AND GROUND	FUSE	CIRCUIT
Ignition Power	F1 (20amp)	Cab Controller (Pin 10, Controller power)
		Cab Controller (Pin 19, Outputs 00-07)
		Cab Controller (Pin 01, Outputs 08-15)
		Body Controller (Pin 01, Outputs 08-15)
		Tailgate Controller (Pin 01, Outputs 08-15)
		In-Cab Display
Battery Disconnect	F2 (20amp)	Body Controller (Pin 10, Controller power)
		Body Controller (Pin 19, Outputs 00-07)
		Tailgate Controller (Pin 10, Controller power)
		Tailgate Controller (Pin 19, Outputs 00-07)
Ignition Power	F3 (10amp)	Spare
	F4 (10amp)	Spare

Copyright 2025, The Heil Co.
Printed in the U.S.A.

CONTROL FUSING (CONTINUED)

Fusing for NON RP170 Compliant Chassis

Non RP170 chassis uses a Power Relay Module, pictured below, with two build-in 20-amp fuses. This module is typically located near the chassis battery disconnect switch.



SOURCE	FUSE	CIRCUIT
Ignition Power	F1 (20amp)	Cab Controller (Pin 10, Controller power)
		Cab Controller (Pin 19, Outputs 00-07)
		Cab Controller (Pin 01, Outputs 08-15)
		Body Controller (Pin 01, Outputs 08-15)
		Tailgate Controller (Pin 01, Outputs 08-15)
		In-Cab Display
Battery Disconnect	F2 (20amp)	Body Controller (Pin 10, Controller power)
		Body Controller (Pin 19, Outputs 00-07)
		Tailgate Controller (Pin 10, Controller power)
		Tailgate Controller (Pin 19, Outputs 00-07)

Copyright 2025, The Heil Co.
Printed in the U.S.A.

CONTROL AREA NETWORK

The control system has multiple components that communicate over Control Area Networks or CAN.

a. In-Cab Display
b. Cab Controller (32 I/O Mobile Controller Control Module)
c. Body Controller (32 I/O Mobile Controller Control Module)
d. Tailgate Controller (32 I/O Mobile Controller Control Module)
e. Chassis J1939 interface.

There are two discrete networks in the system.

a. CAN1 Network

   Communications between the In-Cab Display, Cab, Body, and Tailgate Controller.

b. CH-J1939 Network

   Communications between the Cab Controller and the truck chassis J1939.

Chassis J1939 Baud Rate

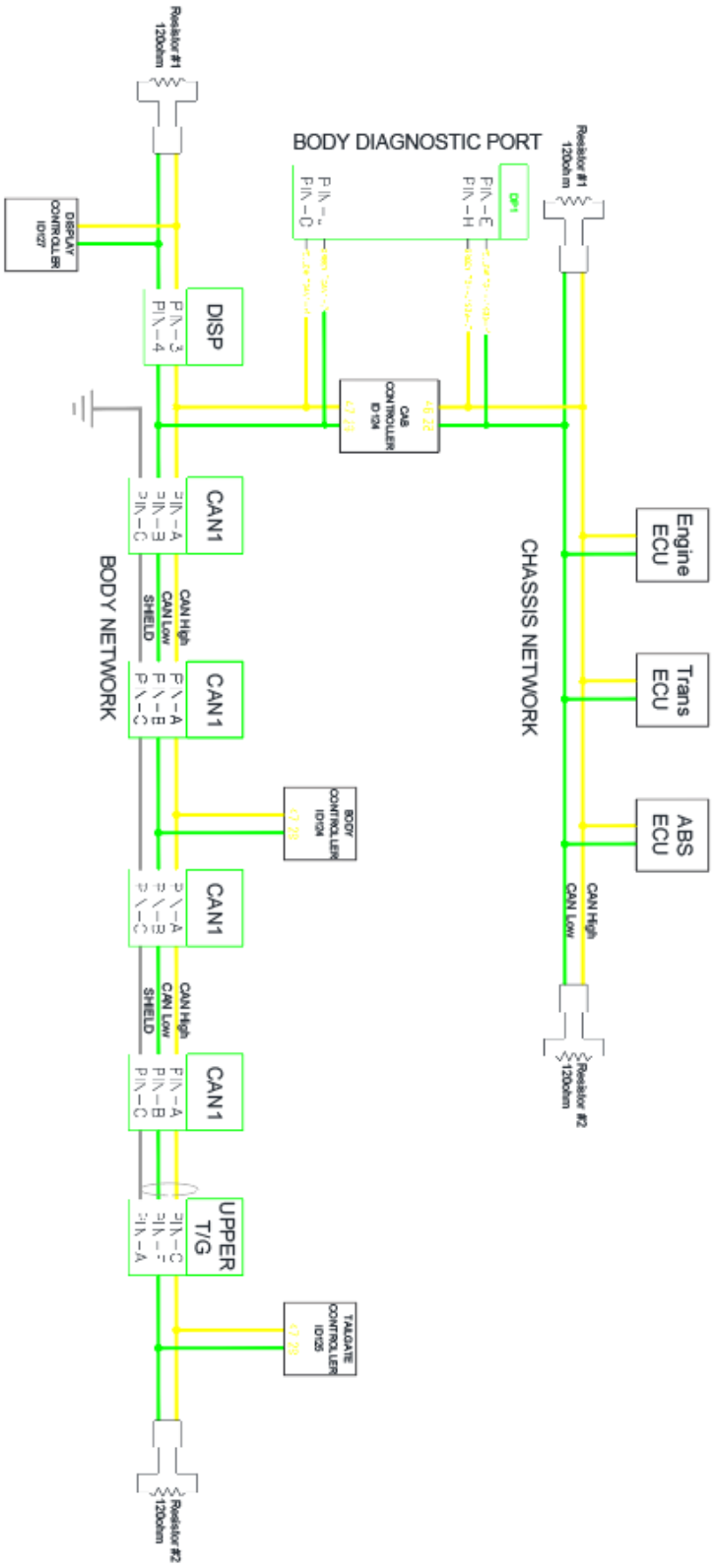
The cab controller automatically detects and sets the baud rate to match the chassis J1939 baud rate. Upon power up, the controller attempts to receive messages from the chassis with the initial baud rate of 250k. If no messages are received within 3 seconds the controller changes the baud rate to 500K and continues. The controller continues to alternate baud rates every 3 second. If no messages are received within 15 seconds a fault is set, the baud rate will rest at 250K.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

DURAPACK® 5000
Body Controller Hardware

CONTROL AREA NETWORK (CONTINUED)

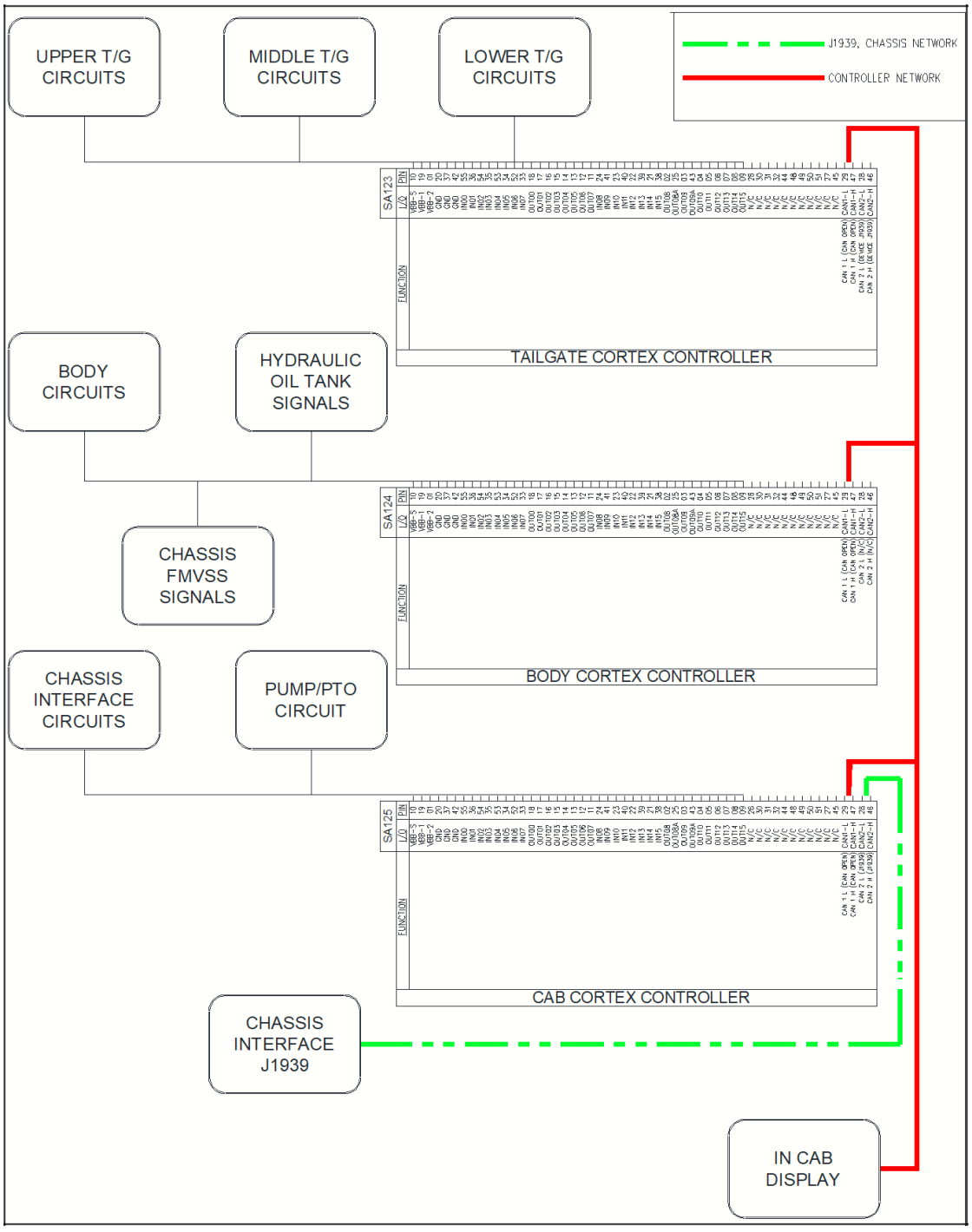
Network Schematic



Copyright 2025, The Heil Co.
Printed in the U.S.A.

CONTROL AREA NETWORK (CONTINUED)

System Architecture



Copyright 2025, The Heil Co.
Printed in the U.S.A.

DURAPACK® 5000
NOTES

Copyright 2025, The Heil Co.
Printed in the U.S.A.

SECTION 6
BODY CONTROLLER SOFTWARE

Copyright 2025, The Heil Co.
Printed in the U.S.A.

MOBILE CONTROLLER DETAILS: PROGRAM 109-0382

DP5000 & Power Track Commercial Vehicle control system consists of 3 Controller **CR2530 (PN: 254-4912)**. Each Controller consists of 32 Inputs/Outputs. The Heil-2530 controllers operate with a voltage ranging from (8 to 32) Volt DC.

A. Mobile Controller Indicator Lights

Each Controller has a two-color LED (Red / Green) that indicates its status. The LED operating status identifications are detailed in the table below.

Color	Status	Descriptions
-	Permanently off	No operating voltage
Red/Green	1x on	Initialization or reset checks
Green	5Hz	No operating system loaded
	2Hz	Application is running (RUN)
	Permanently on	Application stopped (STOP)
Red	5Hz	Application stopped due to under-voltage
	Permanently on	System fault (fatal error)

CONTROLLER & PROGRAM DETAILS

The following information provides details for the controller programs installed.

A. Program Table

Controller	Controller Type	Program Number	Name
1	Heil-2530 Controller (IFM-CR2530)	109-0379	CAB Controller
2	Heil- 2530 Controller (IFM-CR2530)	109-0380	BODY Controller
3	Heil-2530 Controller (IFM-CR2530)	109-0381	TAILGATE Controller
N/A	N/A	109-0382	DISPLAY

B. Inputs

The Controller Inputs are activated by positive +12-volt signals and some Ground signals (some chassis signals). All switches, proximity, pressure, toggle, push buttons, etc., used as input devices to the controller supply a +12-volt signal to a Heil-32 Extended Controller input to turn the input ON unless otherwise specified. With an input ON, the corresponding input field (with Description and Address) shown on the IN-SIGHT display will also be ON.

C. Outputs

During each cycle, the CPU analyzes the status of the inputs and, based on the programming logic, produces the appropriate +12-volt DC outputs.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

D. Cab Controller Program

The tables below provide the connection details between the controller input, output and connector pins for program **109-0379**.

CAB CONTROLLER INPUTS		
Program Number:		**109-0379**
Input Signal	**Input Number**	**Pin Number**
PTO PRESSURE SW.	IN00	55
LOW TORQUE PRES. SW.	IN01	36
TRANS TEMP SIG	IN02	54
CHASSIS NEUTRAL SIG	IN03	35
PLUGGED	IN04	53
PLUGGED	IN05	34
PLUGGED	IN06	52
PLUGGED	IN07	33
PLUGGED	IN08	24
PLUGGED	IN09	41
PLUGGED	IN10	23
PLUGGED	IN11	40
PLUGGED	IN12	22
PLUGGED	IN13	39
PLUGGED	IN14	21
TACH FREQ	IN15	38
SUPPLY VOLTAGE CONTROLLER BAT	-	10
SUPPLY VOLTAGE OUTPUT 00-07	-	19
SUPPLY VOLTAGE OUTPUT 08-15	-	1

CAB CONTROLLER OUTPUTS		
Program Number:		**109-0379**
Output Signal	**Output Number**	**Pin Number**
SPARE OUT	OUT00	18
SPARE OUT	OUT01	17
PTO SOL.	OUT02	16
PUMP 1 SOL.	OUT03	15
PUMP 2 SOL.	OUT04	14
SPARE OUT	OUT05	13
SPARE OUT	OUT06	12

Copyright 2025, The Heil Co.
Printed in the U.S.A.

CAB CONTROLLER OUTPUTS		
Program Number:		**109-0379**
Output Signal	**Output Number**	**Pin Number**
SENSOR POWER	OUT07	11
BODY OUT OF DIM SIG	OUT08	2
THROTTLE ADV SIG	OUT09	3
CAMERA REVERSE TRIGGER	OUT10	4
CAB STROBE	OUT11	5
SPARE OUT	OUT12	6
SPARE OUT	OUT13	7
IN CAB ALARM 1	OUT14	8
IN CAB ALARM 2	OUT15	9

Copyright 2025, The Heil Co.
Printed in the U.S.A.

E. Body Controller Program

The tables below provide the connection details between the controller input, output and connector pins for program **109-0380**.

BODY CONTROLLER INPUTS		
Program Number:		**109-0380**
Input Signal	**Input Number**	**Pin Number**
PLUGGED	IN00	55
PLUGGED	IN01	36
HYD. OIL LEVEL OK	IN02	54
HYD FILTER BYPASS PSW	IN03	35
PLUGGED	IN04	53
PLUGGED	IN05	34
SS TAILGATE LOCKED PROX	IN06	52
THROTTLE ADVANCE SW	IN07	33
CS TAILGATE LOCKED PROX	IN08	24
SIDE DOOR PROX	IN09	41
RIGHT TURN LIGHT	IN10	23
LEFT TURN LIGHT	IN11	40
REVERSE LIGHT	IN12	22
STOP LIGHT	IN13	39
TAILLIGHT	IN14	21
PLUGGED	IN15	38
SUPPLY VOLTAGE CONTROLLER BAT	-	10
SUPPLY VOLTAGE OUTPUT 00-07	-	19
SUPPLY VOLTAGE OUTPUT 08-15	-	1

BODY CONTROLLER OUTPUTS		
Program Number:		**109-0380**
Output Signal	**Output Number**	**Pin Number**
Not Used	OUT00	18
Not Used	OUT01	17
EJECTOR EXTEND SOL	OUT02	16
EJECTOR RETRACT SOL	OUT03	15
TAILGATE RAISE SOL	OUT04	14
SPARE OUT	OUT05	13
TAILGATE LOWER SOL	OUT06	12

Copyright 2025, The Heil Co.
Printed in the U.S.A.

DURAPACK® 5000

Body Controller Software

BODY CONTROLLER OUTPUTS		
Program Number:		**109-0380**
Output Signal	**Output Number**	**Pin Number**
SENSOR POWER	OUT07	11
ANTI-BACKPACK	OUT08	2
SPARE OUT	OUT09	3
WORK LIGHT #1	OUT10	4
REVERSE FLOOD LIGHT	OUT11	5
SPARE OUT	OUT12	6
STROBE 1	OUT13	7
STROBE 2	OUT14	8
SPARE OUT	OUT15	9

Copyright 2025, The Heil Co.
Printed in the U.S.A.

F. Tailgate Controller Program

The tables below provide the connection details between the controller input, output and connector pins for program **109-0381**.

TAILGATE CONTROLLER INPUTS		
Program Number:		**109-0381**
Input Signal	**Input Number**	**Pin Number**
TIPPER CURB SIDE SW	IN00	55
TIPPER STREET SIDE SW	IN01	36
PLUGGED	IN02	54
PLUGGED	IN03	35
PLUGGED	IN04	53
PLUGGED	IN05	34
THROTTLE ADV SW.	IN06	52
BUZZER SW	IN07	33
SYSTEM PWR STREET SIDE	IN08	24
SYSTEM PWR CURB SIDE	IN09	41
WORK LIGHT SW	IN10	23
PLUGGED	IN11	40
SLIDE ACTIVE PRX.	IN12	22
BLADE ACTIVE PRX.	IN13	39
TAILGATE LOCK PRX	IN14	21
TAILGATE CLOSE PRX	IN15	38
SUPPLY VOLTAGE CONTROLLER BAT	-	10
SUPPLY VOLTAGE OUTPUT 00-07	-	19
SUPPLY VOLTAGE OUTPUT 08-15	-	1

TAILGATE CONTROLLER OUTPUTS		
Program Number:		**109-0381**
Output Signal	**Output Number**	**Pin Number**
RIGHT TURN LIGHT	OUT00	18
LEFT TURN LIGHT	OUT01	17
STOP LIGHT	OUT02	16
BACK UP LIGHT/ALARM	OUT03	15
TAILLIGHT	OUT04	14
CLEARANCE/MARKER LIGHT	OUT05	13

Copyright 2025, The Heil Co.
Printed in the U.S.A.

TAILGATE CONTROLLER OUTPUTS		
Program Number:		**109-0381**
Output Signal	**Output Number**	**Pin Number**
TAILGATE OPEN ALARM	OUT06	12
SENSOR POWER	OUT07	11
MUNICIPAL FLASH #1	OUT08	2
MUNICIPAL FLASH #2	OUT09	3
WORK LIGHT #1	OUT10	4
REVERSE FLOOD LIGHT	OUT11	5
SPARE OUT	OUT12	6
STROBE 1	OUT13	7
STROBE 2	OUT14	8
SPARE OUT	OUT15	9

Copyright 2025, The Heil Co.
Printed in the U.S.A.

I/O FUNCTIONS

The following information provides details for the input and output functions for the cab, body, and tailgate controller programs.

A. Standard Cab Controller - Input Functions

1. PTO Pressure Switch (IN00 - PIN55)

Function: This input signal monitors the pressure feedback from Power Take-Off (PTO) system.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON with PTO engaged

Input Device	Status	I/O Address	Status
Pressure Switch	Deactivated	%IBO	ON

2. Low Torque Pressure Switch (LTPSW) (IN01 - PIN36)

Function: This signal monitors the low torque pressure switch.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON with O.A.I. (Operating at Idle) LTPSW

Input Device	Status	I/O Address	Status
Pressure Switch	Activated	%IB1	ON

3. Transmission Temperature Signal (IN02 - PIN54)

Function: The transmission temperature signal provides feedback on the temperature of the transmission Hydraulic Oil.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON with Trans. Over temp. warning

Input Device	Status	I/O Address	Status
Temperature Switch	Activated	%IB2	ON

4. Neutral Signal (IN03 - PIN35)

Function: This signal indicates whether the vehicle is in neutral gear.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON/OFF with chassis Neutral, Active high or low signal.

Input Device	Status	I/O Address	Status
Pressure Switch	Activated	%IB3	ON

Copyright 2025, The Heil Co.
Printed in the U.S.A.

5. Tach Frequency (IN15 - PIN38)

Function:This signal monitors the tachometer frequency or R-stator signal from the engine.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: R-Stator or Tach Sig. used with absence of J1939.

Input Device	Status	I/O Address	Status
Tacho generator	Continuous Signal	%IB15	Engine RPM

Copyright 2025, The Heil Co.
Printed in the U.S.A.

B. Standard Cab Controller - Output Functions

1. PTO Solenoid (OUT02 - PIN16)

Function: This output controls the Power Take-Off (PTO) system solenoid.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: Power to Clutch shift PTO solenoid

Conditions necessary to activate the circuit:

Condition	Function or Component	Status	I/O Address	Status
A	A1. Configure-Clutch Shift PTO	Activated	%MX0.0	ON
	A2. Configure-EV Chassis	Activated	%MX2.7	ON
B	System Enable (Ensures no critical faults)	Activated	CAN(HMI)	ON (See Note Below)
C	C1. Configure-Operates in neutral	Deactivated	%MX0.2	OFF
	C2. Neutral Signal	Activated	N/A	ON (See Note Below)
D	Pump Engine over speed (EOS)	Activated	N/A	ON (See Note Below)

Note: Conditions (A1 or A2) AND (B) AND (NOT C1 or C2) AND D will activate the PTO Solenoid.

Condition C to be true, when Input Neutral Sig (In03) is low or high based on configuration of active low neutral signal status. Reference Option Configure Screen 111.

Condition D to be true, When Engine RPM is less than 1000RPM and Reference Pump Section - Hydraulic Drive Control 34 for more details.

2. Pump 1 Solenoid (OUT03 - PIN15)

Function: This output controls a solenoid valve for Pump 1 (Single Vane Pump Manifold).

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: Power to pump 1 solenoid

Conditions necessary to activate the circuit:

Condition	Function or Component	Status	I/O Address	Status
A	Enable Hydraulic Pump	Activated	N/A	ON (See Note Below)
B	Configure-Operates at Idle	Deactivated	%MX0.1	OFF
C	Configure-Clutch Shift PTO	Activated	%MX0.0	ON
D	Configure-Pump1 SOL	Activated	%MX0.14	ON
E	E1. Configure-Operates in neutral	Deactivated	%MX0.2	OFF
	E2. Neutral Signal	Activated	N/A	ON
F	Pump Engine over speed (EOS)	Activated	N/A	ON (See Note Below)
G	Configure-Operates at Idle	Activated	%MX0.1	ON

Copyright 2025, The Heil Co.
Printed in the U.S.A.

Condition	Function or Component	Status	I/O Address	Status
H	H1. Throttle Advance SW (BODY Controller input)	Activated	IN07	ON
	H2. Throttle Advance SW (TG Controller input)	Activated	IN06	ON
	H3. Slide Active Prxy (TG Controller input)	Activated	IN012	ON

Note: Condition 1: (A) AND NOT (B) AND(C) AND(D) AND (NOT E1 OR E2) AND F

Condition 2: (A) AND (G) AND (H1 OR H2 OR H3) AND (NOT E1 OR E2) AND F

IF Condition 1 OR Condition 2 will activate pump 1 SOL output.

Condition A to be true when after 500ms PTO SOL is activated OR System enabled.

Condition F to be true when engine RPM is less than 1000RPM and Reference Pump Section - Hydraulic Drive Control 34 for more details.

3. Pump 2 Solenoid (OUT04 - PIN14)

Function: This output controls a solenoid valve for Pump 2.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: Power to pump 2 solenoids

Conditions necessary to activate the circuit:

Condition	Function or Component	Status	I/O Address	Status
A	Configure-Operates at Idle	Activated	%MX0.1	OFF
B	Enable Hydraulic Pump	Activated	N/A	ON
C	Low Torque Press	Deactivated	NA	OFF (See Note Below)
D	D1. Configure-Operates in neutral	Deactivated	%MX0.2	OFF
	D2. Neutral Signal	Activated	N/A	ON
E	Pump Enable	Activated	N/A	ON (See Note Below)

Note: Conditions (A) AND (B) AND NOT (C) AND (NOT D1 OR D2) AND E will activate PUMP 2 SOL

Condition C to be true when LOW TORQUE PRESS SW (IN01-Pin36) gets Activated.

Condition E to be true when Engine RPM is B/w 1800 to 2000RPM and Reference Pump Section - Hydraulic Drive Control 34 for more details.

4. Sensor Power (OUT07 - PIN11)

Function: This output gives power to input devices connected to the CAB controller.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: Power supply to sensors, ON with Ignition

Conditions: When Ignition is in ON and Controller is in ON condition, Sensor Power = ON

Copyright 2025, The Heil Co.
Printed in the U.S.A.

5. Body Out of Dimension Signal (OUT08 - PIN02)

Function: This output controls vehicle cruise control 2 Speed.

Condition	Modifiable Parameters	Default Setting
A=Set MPH	1 to 120MPH (Road Speed Limit)	7MPH

Function Logic: Power to engine control relay, road speed limit or accelerator interlock

Conditions necessary to activate the circuit:

Condition	Function or Component	Status	I/O Address	Status
A	Configure-Out of Dimension	Activated	%MX0.8	ON
B	Vehicle Speed > Set MPH	Activated	N/A	ON
C	C1. TG Closed Proximity (TG Controller Input)	Deactivated	%IB15 (IN15)	OFF
	C2. System Pwr Curb Side (TG Controller Input)	Deactivated	%IB09 (IN09)	OFF

Conditions (A) AND (B) AND NOT (C1 OR C2) will activate body out of DIM S/g output.

6. Throttle Advance Signal (OUT09 - PIN03)

Function: This output controls the throttle advance signal.

Conditions necessary to activate the circuit:

Condition	Function or Component	Status	I/O Address	Status
A	Configure-Operates at Idle	Deactivated	%MX0.1	OFF
B	System Enable (Ensures no critical faults)	Activated	CAN(HMI)	ON
C	TG Enable	Activated	CAN(HMI)	ON
D	Neutral Signal	Activated	N/A	ON
F	F1. Throttle Advance SW (BODY Controller input)	Activated	%IB07 (IN07)	ON
	F2. Throttle Advance SW (TG Controller input)	Activated	%IB06 (IN06)	ON
	F3. Slide Active Prxy (TG Controller input)	Activated	%IB12 (IN012)	ON
G	Fault-Roll with TA active	Deactivated	NA	OFF

Conditions (NOT A) AND (B) AND (C) AND (D) AND (F1 OR F2 OR F3) AND NOT(G) will activate Throttle advance signal.

7. Camera Reverse Trigger (OUT10 - PIN04)

Function: This output gives power to camera input.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: Power to camera input, back up

Copyright 2025, The Heil Co.
Printed in the U.S.A.

Condition	Function or Component	Status	I/O Address	Status
A	Reverse Light Signal (Body Controller input)	Activated	%IB12(IN12)	ON

Conditions: Reverse light signal will activate camera reverse trigger signal.

8. Cab Strobe (OUT11 - PIN05)

Function: This output gives power to camera input.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: Power to CAB strobe lights

Conditions necessary to activate the circuit:

Condition	Function or Component	Status	I/O Address	Status
A	A1. Right Turn Signal (BODY Controller input)	De-activated	IN10(%IB10)	OFF
	A2. Left Turn Signal (BODY Controller input)	De-activated	IN11(%IB10)	OFF
B	B1. Strobe Enable	Activated	CAN(HMI)	ON
	B2. Front Strobe Enable	Activated	CAN(HMI)	ON
	B3. Auto Strobe	Activated	NA	ON (See Note Below)

Note: Conditions (NOT (A1 OR A2)) AND (B1 OR B2 OR B3) will activate the strobe light signal.

Condition B3 to be true when auto strobe is enabled in HMI and Vehicle speed is less than 20MPH and NO left or right signal.

9. In Cab Alarm 1 (OUT14 - PIN08)

Function: This output enables Alarm Buzzer-1.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: Tailgate PB buzzer Press or Critical Fault

Conditions necessary to activate the circuit:

Condition	Function or Component	Status	I/O Address	Status
A	A1. Critical Faults	Activated	NA	ON (See Note Below)
	A2. Tailgate Buzzer PB (TG Controller input)	Activated	IN07(%IB07)	ON

Note: Conditions (A1 OR A2) will activate CAB ALARM BUZZER-1

A1 to be true when there's a critical shutdown fault, and this triggers the buzzer as a beep which is generated in a pulse form, lasting 500 milliseconds for both on and off periods of 4 sec or if the fault is reset.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

10. In Cab Alarm 2 (OUT15 - PIN09)

Function: This output enables Alarm Buzzer-2.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: Tailgate open or operator warning

Conditions necessary to activate the circuit:

Condition	Function or Component	Status	I/O Address	Status
A	A1. Tailgate Closed Prxy (TG controller input)	Deactivated	IN15(%IB15)	OFF
	A2. Tailgate Unlocked	Activated	NA	ON
	A3. Operator warning Faults	Activated	NA	ON
	A4. Service Mode	Activated	CAN(HMI)	ON

Conditions (A1 OR A2 OR A3 OR A4) will Activate CAB ALARM BUZZER-2

A1: Whenever the tailgate is opening (Feedback monitored from TG closed prxy-IN15)

A2: Tailgate lock sensors (SS and CS LOCK proximity feedback- IN06 and IN08 Body controller inputs) are deactivated, this condition applies only if the tailgate lock/unlock indication option is configured.

A3: Additionally, warnings are triggered if there are operator faults, such as high oil temperature or if the vehicle is moving without locking the tailgate.

A4: If the service screen is opened on the HMI when System Enable activated.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

C. Standard Body Controller - Input Functions

1. Hydraulic Oil Level OK (IN02 - PIN54)

Function: This input signal monitors the hydraulic oil level.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON with hydraulic oil level good.

Input Device	Status	I/O Address	Status
Level switch	Activated	%IB2	ON

2. Hydraulic Filter Bypass PSW (IN03 - PIN35)

Function: Detects if the hydraulic filter bypass switch is activated.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON with hydraulic filter not in bypass.

Input Device	Status	I/O Address	Status
Pressure Switch	Activated	%IB3	ON

3. Street-Side Tailgate Locked Prox (IN06 - PIN52)

Function: Provides feedback to confirm the tailgate is locked (sensor on SS) and activates Cab Alarm-2.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON with Tailgate lock on SS side

Input Device	Status	I/O Address	Status
Proximity Switch	Activated	%IB6	ON

4. Throttle Advance Switch (IN07 - PIN33)

Function: Activates throttle advance for specific operations requiring higher engine speed.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON with body throttle advance switch.

Input Device	Status	I/O Address	Status
Selector Switch	Activated	%IB7	ON

Copyright 2025, The Heil Co.
Printed in the U.S.A.

5. Curb-Side Tailgate Locked Prox (IN08 - PIN24)

Function: Provides feedback to confirm the tailgate is locked (sensor on CS) activates Cab Alarm-2.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON with Tailgate lock on CS side

Input Device	Status	I/O Address	Status
Proximity Switch	Activated	%IB8	ON

6. Side Door Prox (IN09 - PIN41)

Function: Detects if the side door is open or closed using a proximity sensor.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON with body side door closed and latched.

Input Device	Status	I/O Address	Status
Proximity Switch	Activated	%IB9	ON

7. Right Turn Light (IN10 - PIN23)

Function: Deactivates strobe lights.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON with chassis right turn signal.

Input Device	Status	I/O Address	Status
Right turn signal	Activated	%IB10	ON

8. Left Turn Light (IN11 - PIN40)

Function: Deactivates strobe lights.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON with chassis left turn signal.

Input Device	Status	I/O Address	Status
Left turn signal	Activated	%IB11	ON

9. Reverse Light (IN12 - PIN22)

Function: Triggers the reverse camera signal and enables the reverse flood lights.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON with chassis back-up lights.

Input Device	Status	I/O Address	Status

Copyright 2025, The Heil Co.
Printed in the U.S.A.

Reverse turn ON signal	Activated	%IB12	ON

10. Stop Light (IN13 - PIN39)

Function: Activates the brake lights when the brake pedal is pressed.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON with chassis brake lights.

Input Device	Status	I/O Address	Status
Brake signal	Activated	%IB13	ON

11. Taillight (IN14 - PIN21)

Function: Activates the rear taillights and work light.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON with chassis taillights.

Input Device	Status	I/O Address	Status
Taillight signal	Activated	%IB14	ON

Copyright 2025, The Heil Co.
Printed in the U.S.A.

D. Standard Body Controller - Output Functions

1. Ejector Extend Solenoid (OUT02 - PIN16)

Function: This output controls the ejector extend solenoid.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: Power to the ejector extend solenoid (SOL) activates when the ejector extend (PB) is pressed. (Switch bank input)

Conditions necessary to activate the circuit:

Condition	Function or Component	Status	I/O Address	Status
A	Configure-Pneumatic Valve enabled	Activated	CAN(HMI)	ON
B	Condition for Allow Eject	Activated	NA	ON (See Note Below)
C	Communication Disconnection-BODY Controller	Deactivated	NA	OFF
D	Communication Disconnection-CAB & TG Controller	Deactivated	NA	OFF
E	System Enable (Ensures no critical faults)	Activated	CAN	ON
F	OSC Enable	Activated	NA	ON (See Note Below)
G	SWITCH 3 UP BUTTON-PB	Activated	CAN(SWB)	ON

Conditions: (A) AND (B) AND NOT (C) AND NOT (D) AND (E) AND (F) AND (G) will activate ejector extend solenoid output.

Condition B always be true.

Condition F to be true, when the vehicle is in neutral (input from CAB controller = IN03) and SWITCH 1 UP PB is pressed (SWB).

Condition F to be false, when the vehicle is not in neutral and if TG open or TG unlock is initiated.

Note: EJECTOR EXTEND SOL can be activated from HMI display and conditions A, B, C, D and F remains the same.

2. Ejector Retract Solenoid (OUT03 - PIN15)

Function: This output controls the ejector extend solenoid.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: Power to the ejector retract solenoid (SOL) activates when the ejector retract (PB) pressed. (Switch bank input)

Conditions necessary to activate the circuit:

Condition	Function or Component	Status	I/O Address	Status
A	Configure-Pneumatic Valve enabled	Activated	CAN(HMI)	ON
B	Condition for Allow Eject	Activated	NA	ON (See Note Below)
C	Communication Disconnection-	Deactivated	NA	OFF

Copyright 2025, The Heil Co.
Printed in the U.S.A.

Condition	Function or Component	Status	I/O Address	Status
	BODY Controller			
D	Communication Disconnection-CAB & TG Controller	Deactivated	NA	OFF
E	System Enable (Ensures no critical faults)	Activated	CAN	ON
F	OSC Enable	Activated	NA	ON (See Note Below)
G	SWITCH 3 DOWN BUTTON-PB	Activated	CAN(SWB)	ON

Conditions: (A) AND (B) AND NOT (C) AND NOT (D) AND (E) AND (F) AND (G) will activate Ejector retract solenoid output.

Condition B always true.

Condition F are true, when the vehicle is in neutral (input from CAB controller = IN03) and SWITCH 1 UP PB is pressed (SWB).

Condition F is false, when the vehicle is not in neutral gear and if TG open or TG unlock is initiated.

Note: EJECTOR RETRACT SOL is activated from HMI display and conditions A, B, C, D and F remains the same.

3. Tailgate Raise Solenoid (OUT04 - PIN14)

Function: This output controls the ejector retract solenoid.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: Power to the tailgate raise solenoid (SOL) activates when the tailgate raise (PB) is pressed. (Switch bank input)

Conditions necessary to activate the circuit:

Condition	Function or Component	Status	I/O Address	Status
A	Configure-Pneumatic Valve enabled	Activated	CAN(HMI)	ON
B	Communication Disconnection-BODY Controller	Deactivated	NA	OFF
C	Communication Disconnection-CAB & TG Controller	Deactivated	NA	OFF
D	System Enable (Ensures no critical faults)	Activated	CAN	ON
E	OSC Enable	Activated	NA	ON (See Note Below)
F	SWITCH 2 UP BUTTON-PB	Activated	CAN(SWB)	ON

Conditions: (A) AND NOT (B) AND NOT (C) AND (D) AND (E) AND (F) will activate ailgate raise solenoid output.

Condition E to be true, when vehicle is in neutral (input from CAB controller=IN03) and SWITCH 1 UP PB is pressed (SWB).

Condition E to be false, when vehicle is not in neutral and if TG open or TG unlock is initiated.

Note: Tailgate raise SOL can be activated from HMI display and conditions A, B, C, and D remains the same.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

4. Tailgate Lower Solenoid (OUT04 - PIN14)

Function: This output controls the ejector retract solenoid.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: Power to the Tailgate Lower solenoid (SOL) activates when the tailgate lower (PB) pressed. (Switch bank input)

Conditions necessary to activate the circuit:

Condition	Function or Component	Status	I/O Address	Status
A	Configure-Pneumatic Valve enabled	Activated	CAN(HMI)	ON
B	Communication Disconnection-BODY Controller	Deactivated	NA	OFF
C	Communication Disconnection-CAB & TG Controller	Deactivated	NA	OFF
D	System Enable (Ensures no critical faults)	Activated	CAN	ON
E	OSC Enable	Activated	NA	ON (See Note Below)
F	SWITCH 2 DOWN BUTTON-PB	Activated	CAN(SWB)	ON

Conditions: (A) AND NOT (B) AND NOT (C) AND (D) AND (E) AND (F) will activate Tailgate lower solenoid output.

Condition E to be true, when the vehicle is in neutral (input from CAB controller = IN03) and SWITCH 1 UP PB is pressed (SWB).

Condition E to be false, when Vehicle is not in Neutral gear and If TG open or TG unlock is initiated.

Note: Tailgate lower SOL can be activated from HMI display and conditions A, B, C, and D remains same.

5. Sensor Power (OUT07 - PIN11)

Function: This output gives power to input devices that are connected to the **BODY** controller.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: Power supply to sensors, ON with ignition

Conditions: When the ignition is ON and the controller is in the ON condition, Sensor Power = ON

6. Anti-backpack (OUT08 - PIN02)

Function: This output controls the anti-backpack relay.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: Power to anti-backpack relay when TG is closed.

Conditions necessary to activate the circuit:

Condition	Function or Component	Status	I/O Address	Status
A	Configure-Anti Backpack	Activated	CAN(HMI)	ON

Copyright 2025, The Heil Co.
Printed in the U.S.A.

Condition	Function or Component	Status	I/O Address	Status
B	Configure-Pneumatic Valve enabled	Deactivated	CAN(HMI)	OFF
C	TG Closed Proximity (TG Controller Input)	Activated	%IB15(IN15)	ON

Conditions: (A) AND NOT (B) AND (C) will activate the anti-backpack relay.

7. Work Light #1 (OUT10 - PIN04)

Function: This output controls the work lights.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: Power to front of body work light is activated by taillight input signal.

Conditions necessary to activate the circuit:

Condition	Function or Component	Status	I/O Address	Status
A	Auto work light enable	Activated	CAN(HMI)	ON
B	System Enable (Ensures no critical faults)	Activated	CAN(CAB)	ON
C	Taillight Signal	Activated	%IB14(IN14)	ON
D	Vehicle Speed< 20MPH (CAB Controller data)	Activated	CAN(CAB)	ON

Conditions: (A) AND (B) AND (C) AND (D) will activate WORK LIGHT #1

Note: Work light can also be activated from the HMI selection.

8. Reverse Flood Light (OUT11 - PIN05)

Function: This output controls the reverse flood lights.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: Power to the reverse flood lights is activated by the reverse light input signal.

Conditions necessary to activate the circuit:

Condition	Function or Component	Status	I/O Address	Status
A	Reverse Light Signal	Activated	%IB12(IN12)	ON
B	Aux Light enable	Activated	CAN(HMI)	ON

Conditions: (A) OR (B)

9. Cab Strobe - 1 (OUT13 - PIN07)

Function: This output controls the **CAB** strobe lights.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Copyright 2025, The Heil Co.
Printed in the U.S.A.

Function Logic: Power to the front of body oval strobe.

Conditions necessary to activate the circuit:

Condition	Function or Component	Status	I/O Address	Status
A	A1. Right Turn Signal	Deactivated	IN10(%IB10)	OFF
	A2. Left Turn Signal	Deactivated	IN11(%IB10)	OFF
B	B1. Strobe Enable	Activated	CAN(HMI)	ON
	B2. Front Strobe Enable	Activated	CAN(HMI)	ON
	B3. Auto Strobe	Activated	NA	ON (See Note Below)

Note: Conditions: (NOT (A1 OR A2)) AND (B1 OR B2 OR B3) will activate strobe - 1 light signal.

Condition B3 to be true when auto strobe is enabled in HMI and the vehicle speed is less than 20MPH and NO left or right signal and System Enable (Ensures no critical faults).

10. Cab Strobe - 2 (OUT14 - PIN08)

Function: This output controls the **CAB** strobe - 2 lights.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: Power to the front of body 360 strobe lights.

Conditions necessary to activate the circuit:

Condition	Function or Component	Status	I/O Address	Status
A	A1. Strobe Enable	Activated	CAN(HMI)	ON
	A2. Front Strobe Enable	Activated	CAN(HMI)	ON
	A3. Auto Strobe	Activated	NA	ON (See Note Below)

Note: Conditions (A1 OR A2 OR A3) will activate the strobe-2 light signal.

Condition B3 to be true when auto strobe is enabled in HMI, and the vehicle speed is less than 20MPH and NO left or right signal and System Enable (Ensures no critical faults).

Copyright 2025, The Heil Co.
Printed in the U.S.A.

E. Standard Tailgate Controller - Input Functions

1. Tipper Curb-Side Switch (IN00 - PIN55)

Function: This input signal enables the tipper interlocks and street-side tipper cycle count.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON with cart tipper activated, curbside and when configure tipper interlock is enabled.

Input Device	Status	I/O Address	Status
Selector Switch	Activated	%IB0	ON

2. Tipper Street-Side Switch (IN01 - PIN36)

Function: This input signal enables the tipper interlocks and curbside tipper cycle count.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON with cart tipper activated, curb side and when configure tipper interlock is enabled.

Input Device	Status	I/O Address	Status
Selector Switch	Activated	%IB1	ON

3. Throttle Advance Switch (IN06 - PIN52)

Function: Enables throttle advance output signal to activate relay.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON with tailgate throttle advance switch.

Input Device	Status	I/O Address	Status
Selector Switch	Activated	%IB6	ON

4. Buzzer Push Button (IN07 - PIN33)

Function: Enables CAB alarm - 1.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON with tailgate buzzer PB.

Input Device	Status	I/O Address	Status
Push Button	Activated	%IB7	ON

Copyright 2025, The Heil Co.
Printed in the U.S.A.

5. System Power Street-Side (IN08 - PIN24)

Function: Enables critical faults to shut down pumps and throttle advance signal (SS).

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON with tailgate shut down switch pulled out, street side.

Input Device	Status	I/O Address	Status
Switch	Activated	%IB8	ON

6. System Power Curb-Side (IN08 - PIN24)

Function: Enables critical faults to shut down pumps and throttle advance signal (CS).

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON with tailgate shutdown switch pulled out, curb side.

Input Device	Status	I/O Address	Status
Switch	Activated	%IB9	ON

7. Work Light Switch (IN10 - PIN23)

Function: Enables work light-1.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON with tailgate work light switch.

Input Device	Status	I/O Address	Status
Switch	Activated	%IB10	ON

8. Slide Active Proxy (IN12 - PIN22)

Function: Enables tailgate pack cycle count.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON with tailgate slide control lever activated and no electric tailgate valve.

Input Device	Status	I/O Address	Status
Proximity switch	Activated	%IB12	ON

9. Sweep Active Proxy (IN13 - PIN39)

Function: Optional.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON with tailgate sweep control lever activated and no electric tailgate valve.

Input Device	Status	I/O Address	Status
Proximity switch	Activated	%IB13	ON

Copyright 2025, The Heil Co.
Printed in the U.S.A.

10. Tailgate Lock Proxy (IN14 - PIN21)

Function: Ensures tailgate lock status and enables alarm if unlocked.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON with tailgate locked (optional).

Input Device	Status	I/O Address	Status
Proximity Switch	Activated	%IB14	ON

11. Tailgate Close Proxy (IN15 - PIN38)

Function: Ensures tailgate is closed and enables alarm if not.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: ON with tailgate closed.

Input Device	Status	I/O Address	Status
Proximity Switch	Activated	%IB15	ON

Copyright 2025, The Heil Co.
Printed in the U.S.A.

F. Standard Tailgate Controller - Output Functions

1. Right Turn Light (OUT00 - PIN18)

Function: This output controls the right turn signals.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: Power to right turn signal input if smart function strobe option is enabled.

Conditions necessary to activate the circuit:

Condition	Function or Component	Status	I/O Address	Status
A	A1. Right turn signal (IN10 Body Controller input)	Activated	CAN	ON
	A2. Controllers' heartbeat error	Activated	NA	ON

Note: Conditions (A1 OR A2) will activate right turn light signal.

2. Left Turn Light (OUT01 - PIN17)

Function: This output controls the left turn signals.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: Power to left turn signal input if smart function strobe option is enabled.

Conditions necessary to activate the circuit:

Condition	Function or Component	Status	I/O Address	Status
A	A1. Left turn signal (IN11 Body Controller input)	Activated	CAN	ON
	A2. Controllers' heartbeat error	Activated	NA	ON

Note: Conditions (A1 OR A2) will activate left turn light signal.

3. Tailgate Open Alarm (OUT06 - PIN12)

Function: This output enables the tailgate alarm.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

Function Logic: Power to Tailgate Open Audible Alarm.

Conditions necessary to activate the circuit:

Condition	Function or Component	Status	I/O Address	Status
A	Ignition	Activated	NA	ON
B	Tailgate closed Proximity	Deactivated	IN15	OFF
C	Tailgate function operated from HMI	Activated	CAN	ON

Note: Conditions (A AND NOT B) OR (C) will activate the tailgate open alarm.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

4. Sensor Power (OUT07 - PIN11)

Function: This output gives power to input devices connected to the TG controller.

Condition	Modifiable Parameters	Default Setting
A	None	N/A

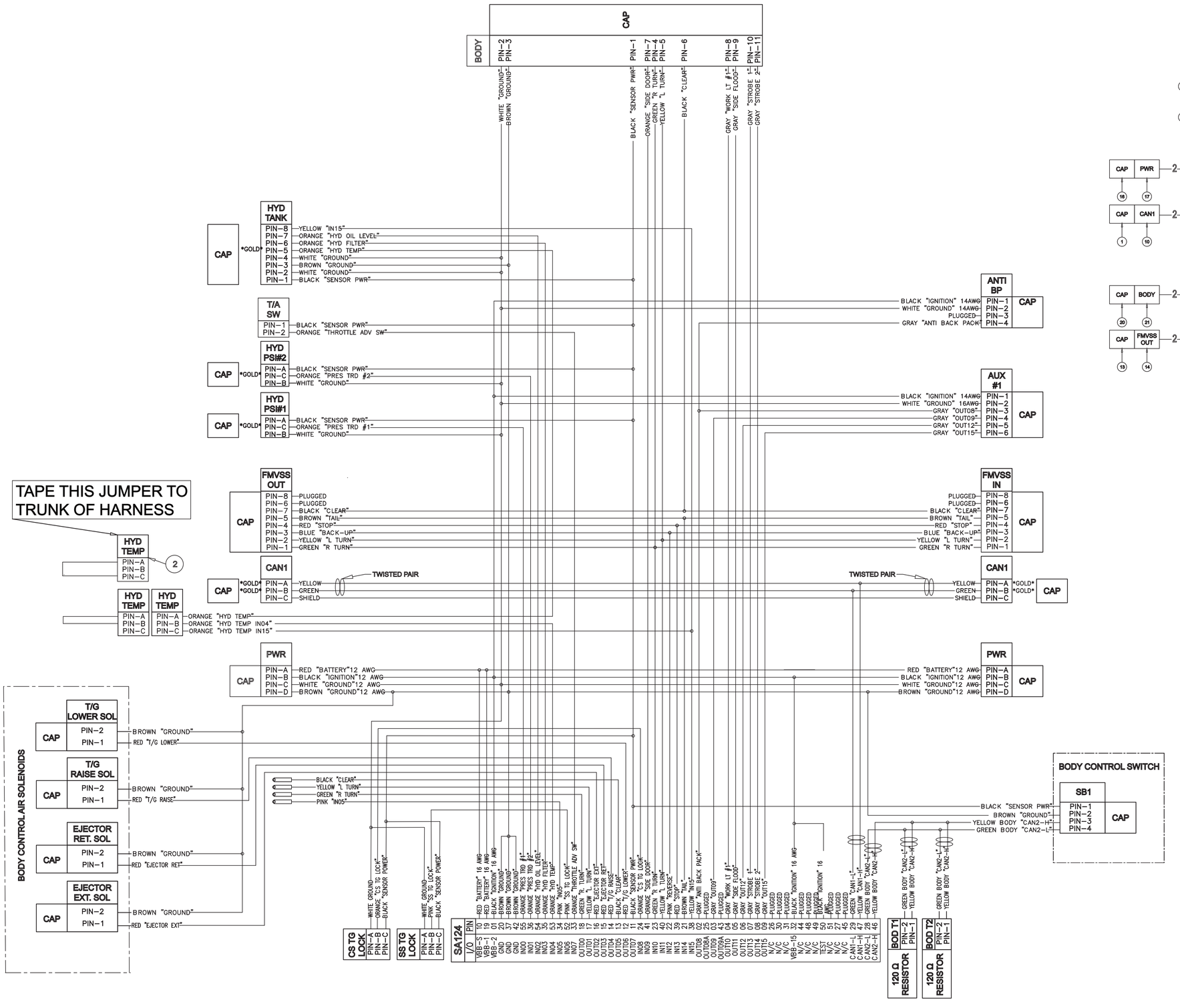
Function Logic: Power supply to sensors, ON with ignition.

Conditions: When the ignition is in ON and the controller is in ON condition, sensor power = ON.

Copyright 2025, The Heil Co.
Printed in the U.S.A.

SECTION 7
SCHEMATICS

Copyright 2025, The Heil Co.
Printed in the U.S.A.

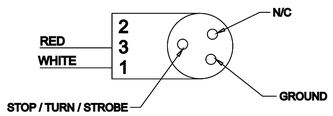


REF.	PART No.	DESCRIPTION	QTY.
1	108-6461-001	CONNECTOR, 3 POS, PLUG	REF
2	108-6461-002	CONNECTOR, 3 POS, RECEPT	REF
3	108-6461-003	CONNECTOR, 4 POS, PLUG	REF
4	108-6461-004	CONNECTOR, 4 POS, RECEPTACLE	REF
5	108-6461-005	CONNECTOR, 6 POS, PLUG	REF
6	108-6461-006	CONNECTOR, 6 POS, RECEPTACLE	REF
7	108-6461-007	CONNECTOR, 8 POS, PLUG	REF
8	108-6461-011	CONNECTOR, 2 POS, PLUG	REF
9	108-6461-012	CONNECTOR, 2 POS, RECEPTACLE	REF
10	108-6461-153	CONNECTOR, 3 POS FLANGE RECEPT	REF
11	108-6461-313	CONNECTOR, 3 POS, PLUG, RED	REF
12	108-6461-314	CONNECTOR, 3 POS, PLUG, YELLOW	REF
13	108-6461-813	CONNECTOR, 8 POS, PLUG	REF
14	108-6461-814	CONNECTOR, 8 POS, FLANGE RECEPT (BLK)	REF
15	108-6461-815	CONNECTOR, 8 POS, FLANGE RECEPT (GRAY)	REF
16	108-8411-004	CONNECTOR, 4 POS, PLUG	REF
17	108-8411-006	4 WAY FLANGE MOUNT RECEPTACLE	REF
18	108-8572-001	IPM CONNECTOR 55 POLE	REF
19	108-8588-002	CONNECTOR, 2 POS, RECEPTACLE	REF
20	108-8588-013	CONNECTOR, 12 POS, PLUG, A KEY	REF
21	108-8588-015	12 WAY FLANGE MOUNT RECEPT, A KEY	REF
22	108-8588-200	2 PIN 120 OHM DTM RESISTOR	REF

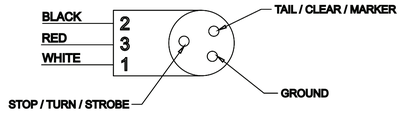
BODY CONTROLLER HARNESS
263-1869-001
05/29/2024, REV D

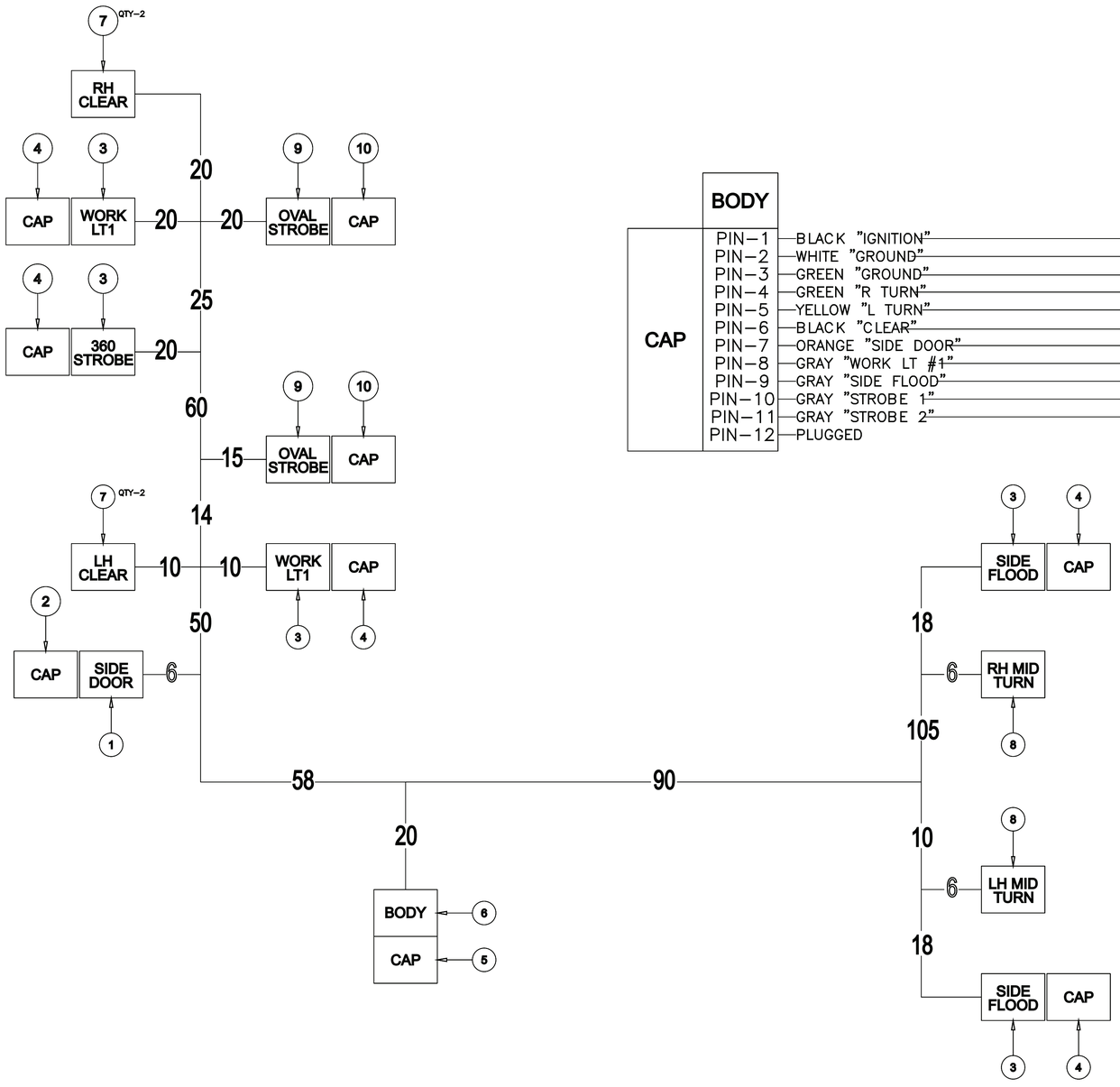
REF.	PART No.	DESCRIPTION	QTY.
1	108-6461-001	CONNECTOR, 3 POS, PLUG	1
2	108-6461-002	CONNECTOR, 3 POS, RECEPT	1
3	108-6461-011	CONNECTOR, 2 POS, PLUG	5
4	108-6461-012	CONNECTOR, 2 POS, RECEPT	5
5	108-8588-011	CONNECTOR, 12 POS, RECEPT, A KEY	1
6	108-8588-013	CONNECTOR, 12 POS, PLUG, A KEY	1
7	108-8721-001	OVERMOLDED TERM, FEMALE 0.18 BULLET	4
8	108-8721-004	OVERMOLDED PLUG, 3 WIRE, 90°	2
9	108-8721-005	OVERMOLDED PLUG, 2 WIRE, 90°	2
10	108-8721-006	3 WIRE CAP	2

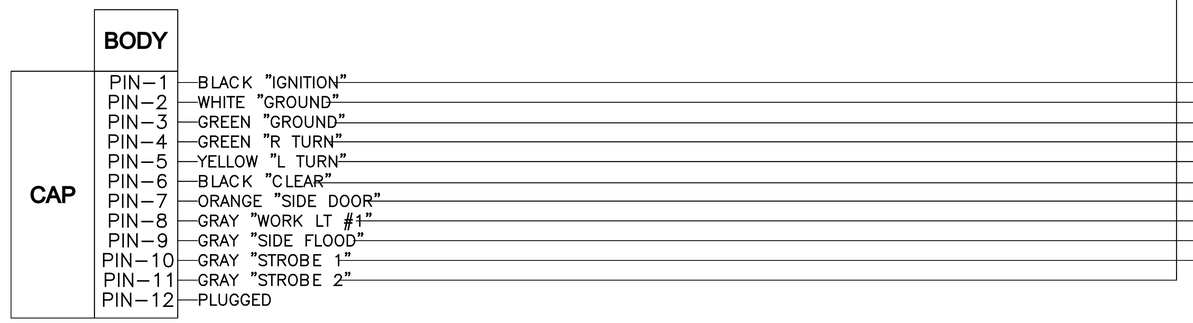
REF PINOUT 108-8721-005

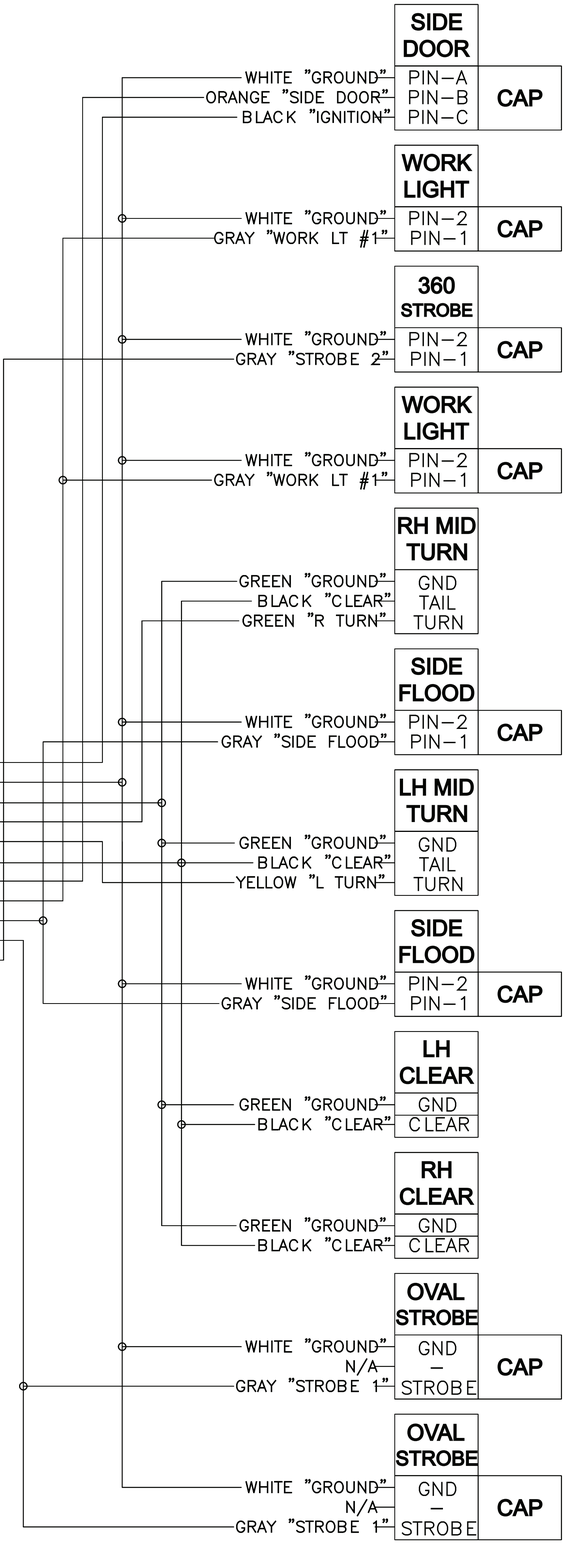


REF PINOUT 108-8721-004

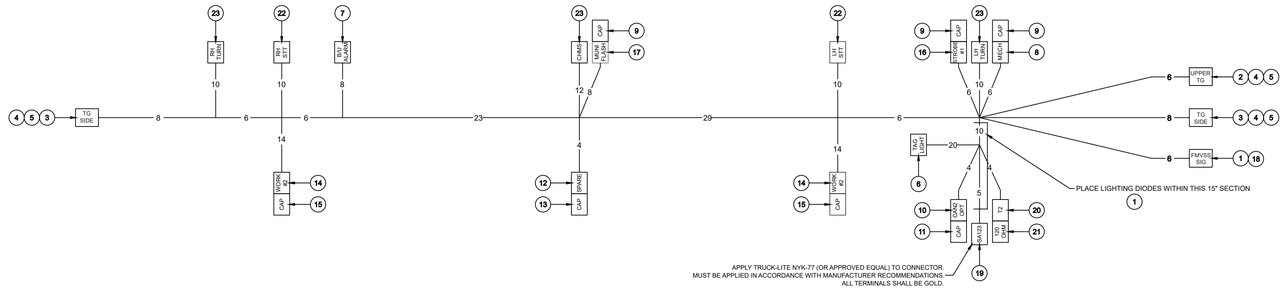




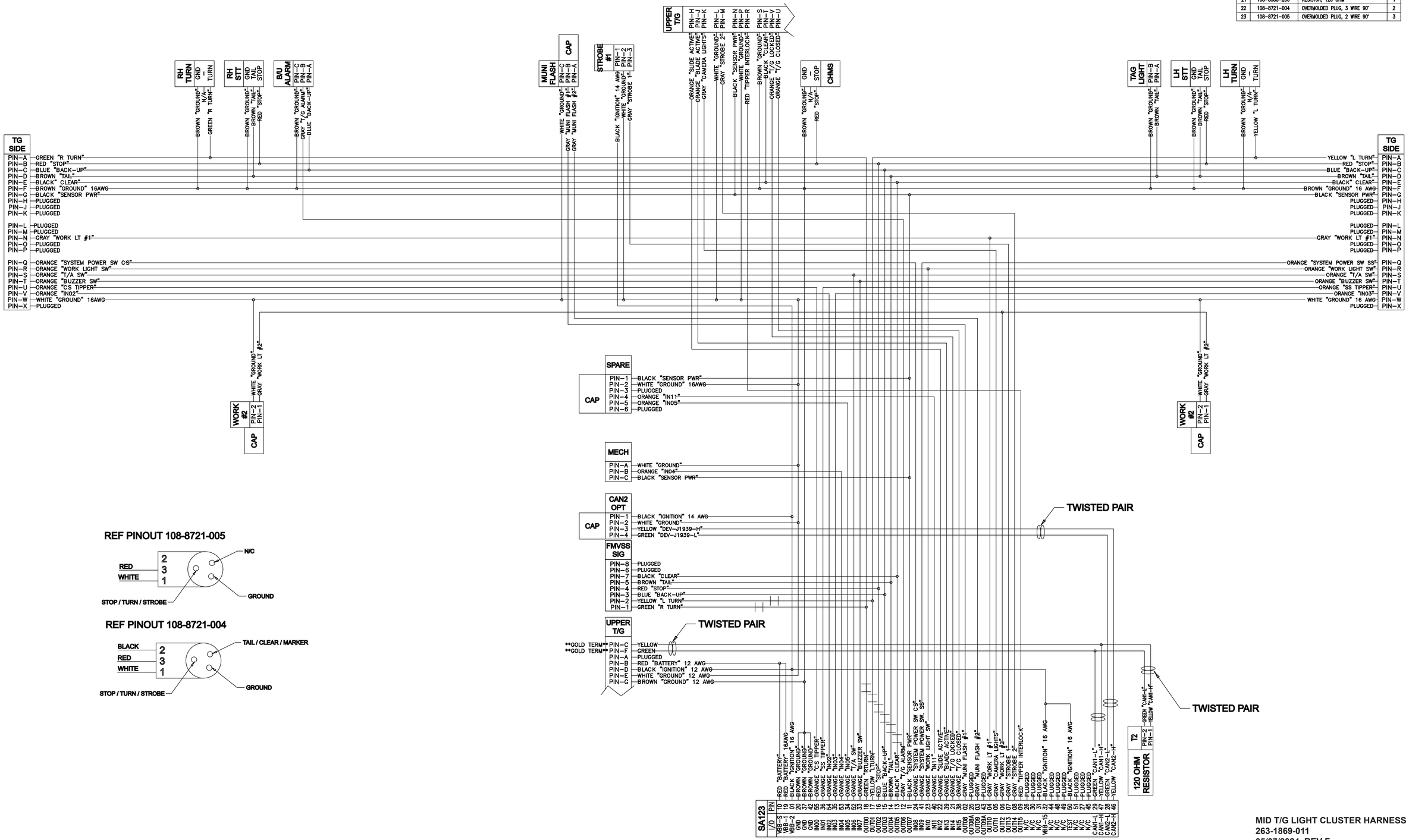




BODY HARNESS
263-1869-002
05/16/2024, REV C



REF	PART No	DESCRIPTION	QTY
1	108-2648	SILICON RECTIFIER DIODE	8
2	108-4815-020	CONNECTOR, 21 POS RECEPT.	1
3	108-4815-024	CONNECTOR, 23 POS RECEPT.	2
4	108-4815-188	LG COMPRESSION BACKSHELL	3
5	108-4815-189	LG COMPRESSION NUT	3
6	108-4827-003	CONNECTOR, 2 POS, MALE	1
7	108-4827-006	CONNECTOR, 3 POS, FEMALE	1
8	108-6461-001	CONNECTOR, 3 POS, PLUG	1
9	108-6461-002	CONNECTOR, 3 POS, RECEPT	2
10	108-6461-003	CONNECTOR, 4 POS, PLUG	1
11	108-6461-004	CONNECTOR, 4 POS, RECEPT	1
12	108-6461-005	CONNECTOR, 6 POS PLUG	1
13	108-6461-006	CONNECTOR, 6 POS RECEPT	1
14	108-6461-011	CONNECTOR, 2 POS, PLUG	2
15	108-6461-012	CONNECTOR, 2 POS, RECEPT	1
16	108-6461-313	CONNECTOR, 3 POS, PLUG (RED)	1
17	108-6461-314	CONNECTOR, 3 POS, PLUG (YELLOW)	1
18	108-6461-814	AT04-08PB-LD12	1
19	108-8572-001	IFM CONNECTOR 55 POLE	1
20	108-8588-002	CONNECTOR, 2 POS, RECEPT	1
21	108-8588-200	RESISTOR, 120 OHM	1
22	108-8721-004	OVERMOLDED PLUG, 3 WIRE 90°	2
23	108-8721-005	OVERMOLDED PLUG, 2 WIRE 90°	3

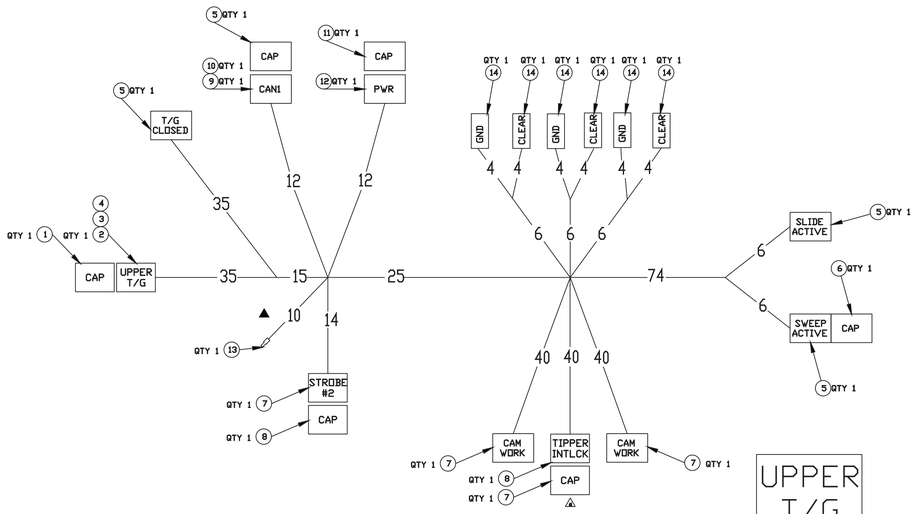


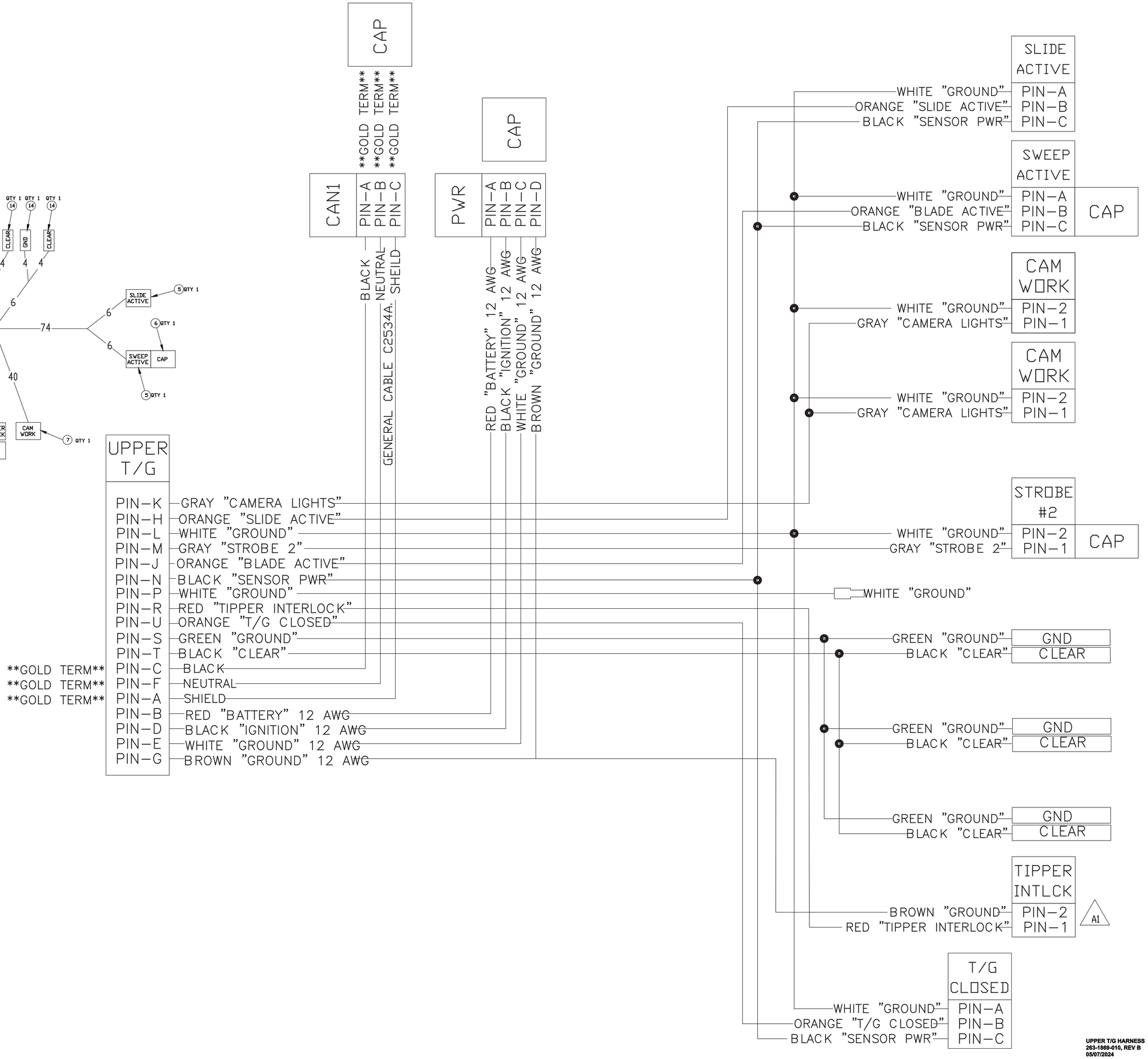
REF PINOUT 108-8721-005

REF PINOUT 108-8721-004

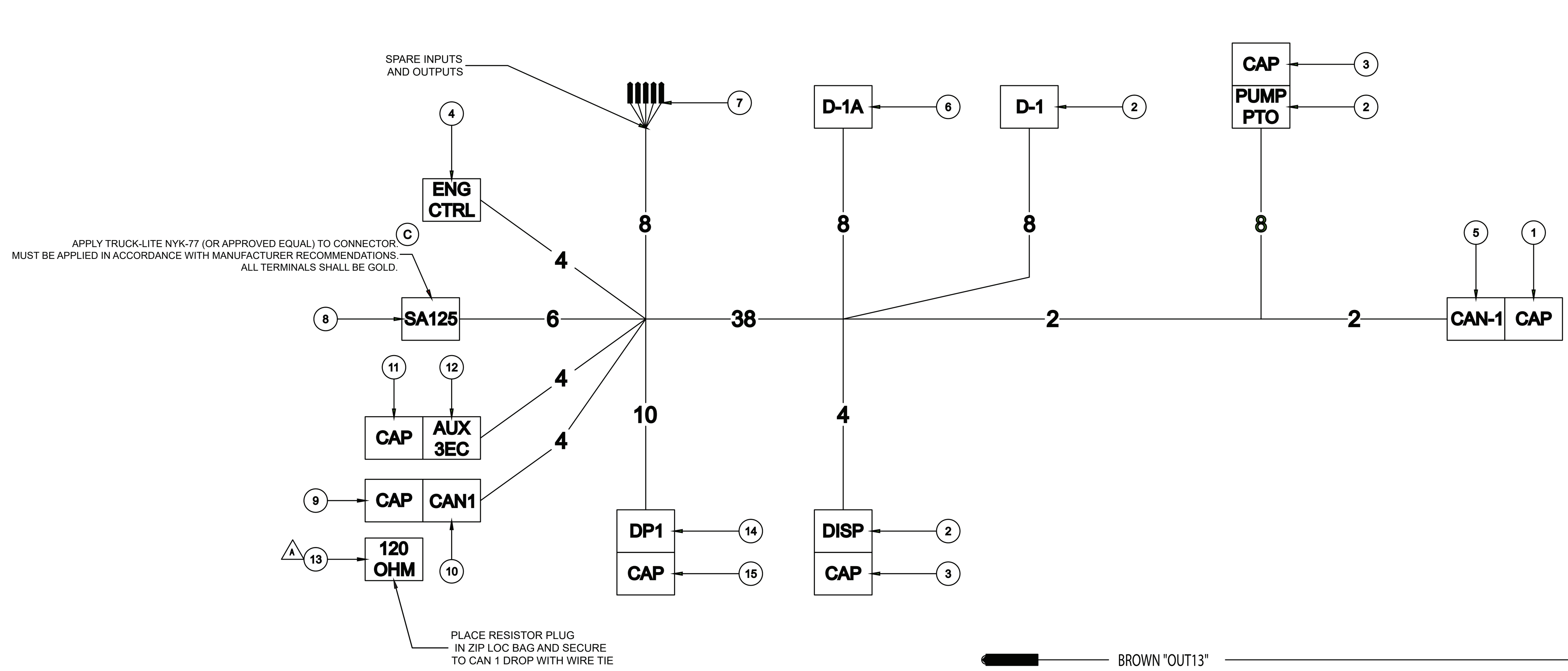
MID T/G LIGHT CLUSTER HARNESS
263-1869-011
05/07/2024, REV F

REF	PART No	DESCRIPTION	QTY
1	108-4815-020	CONNECTOR, HDP 21 POS RECEPT	1
2	108-4815-021	HDP 21 POS PLUG	1
3	108-4815-188	LG COMPRESSION BACKSHELL	1
4	108-4815-189	LG COMPRESSION NUT	1
5	108-6461-001	AT 3 WAY PLUG	4
6	108-6461-002	AT 3 WAY RECEPTACLE	1
7	108-6461-011	AT 2 WAY PLUG	4
8	108-6461-012	AT 2 WAY RECEPTACLE	2
9	108-6461-153	3 WAY FLANGE MOUNTED RECEPTACLE	1
10	108-6461-3RW	LOCK WEDGE, 3 POS RECEPT.	1
11	108-8411-004	DTP 4 WAY PLUG	1
12	108-8411-006	4 WAY RECEPTACLE	1
13	108-8450-001	HEATSHRINK CAP	1
14	108-8721-001	OVERMOLDED TERM, FEMALE, 0.18 BULLET	6

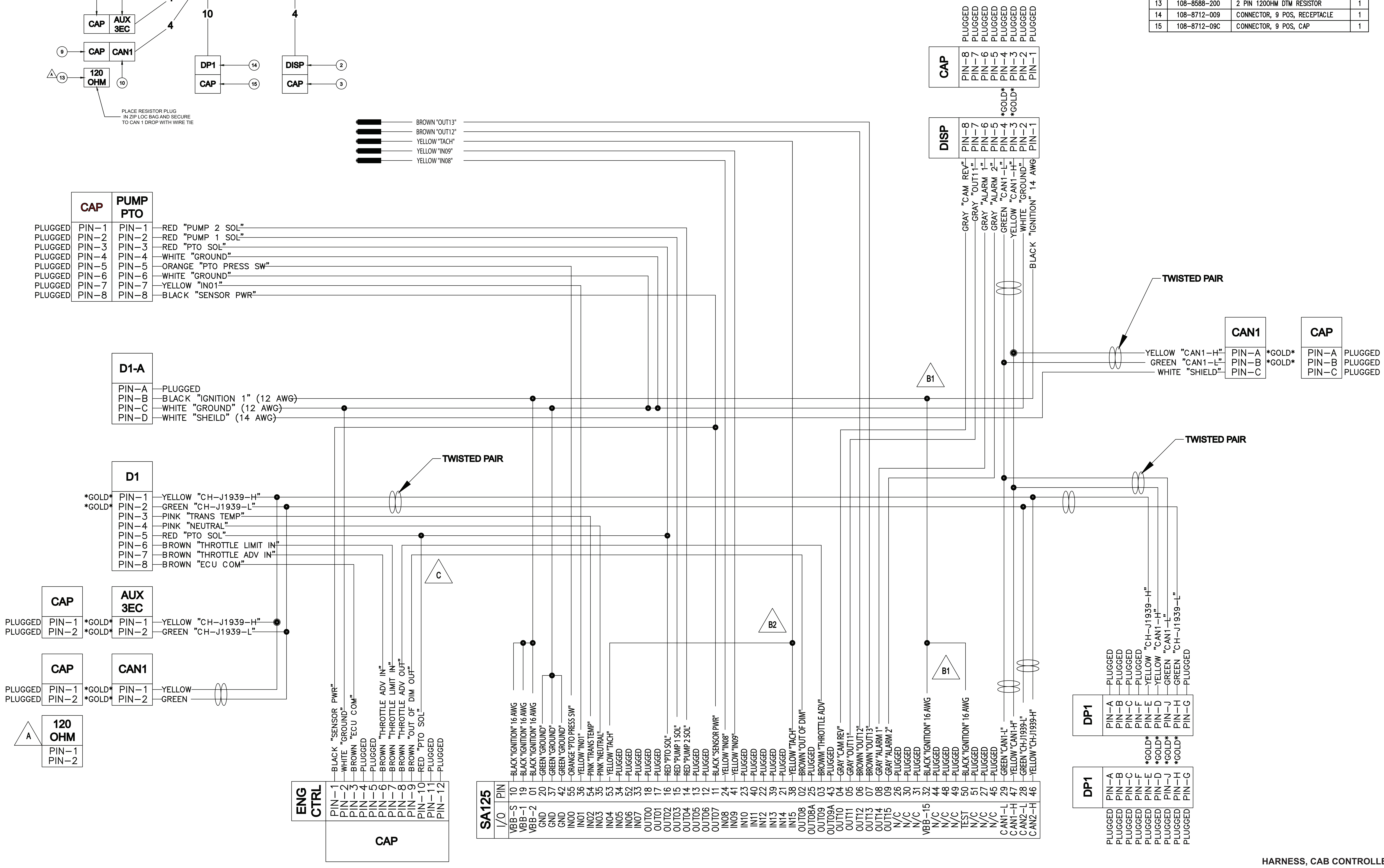




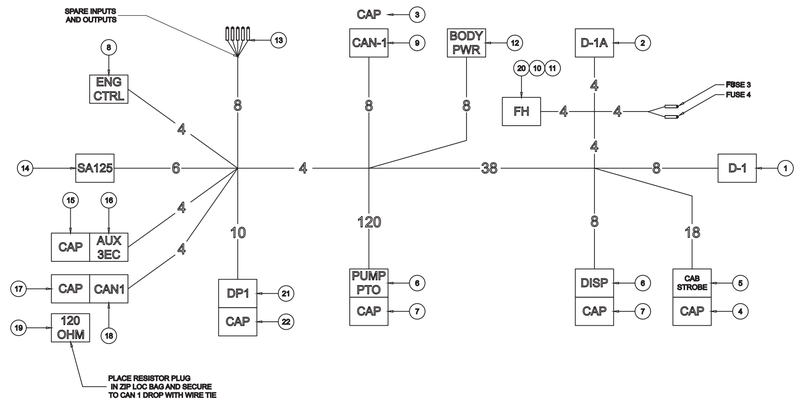
UPPER T/G HARNESS
263-1869-010, REV B
05/07/2024



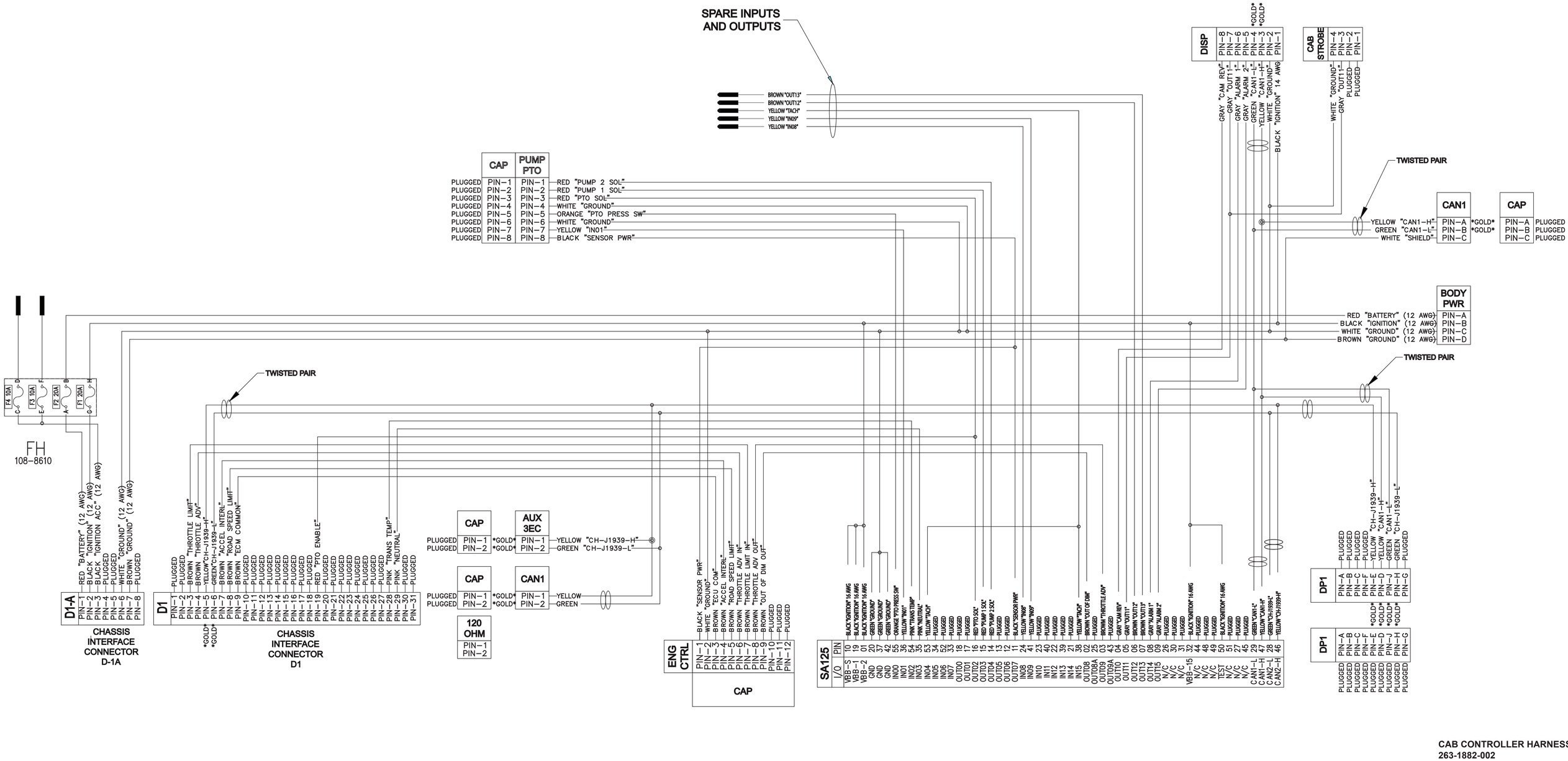
REF	PART No	DESCRIPTION	QTY
1	108-6461-001	CONNECTOR, 3 POS PLUG	1
2	108-6461-007	CONNECTOR, 8 POS PLUG	3
3	108-6461-008	CONNECTOR, 8 POS RECEPTACLE	2
4	108-6461-009	CONNECTOR, 12 POS PLUG	1
5	108-6461-153	DT 3 WAY RECEPTACLE FLANGE	1
6	108-8411-003	CONNECTOR, 4 POS RECEPTACLE	1
7	108-8450-001	CAP, HEAT SHRINK	5
8	108-8572-001	IFM CONNECTOR 55 POLE	1
9	108-8588-001	DTM, 2 POS PLUG,	1
10	108-8588-002	DTM, 2 POS RECEPTACLE,	1
11	108-8588-017	DTM, 2 POS PLUG, BLUE	1
12	108-8588-018	DTM, 2 POS RECEPTACLE, BLUE	1
13	108-8588-200	2 PIN 1200HM DTM RESISTOR	1
14	108-8712-009	CONNECTOR, 9 POS, RECEPTACLE	1
15	108-8712-09C	CONNECTOR, 9 POS, CAP	1



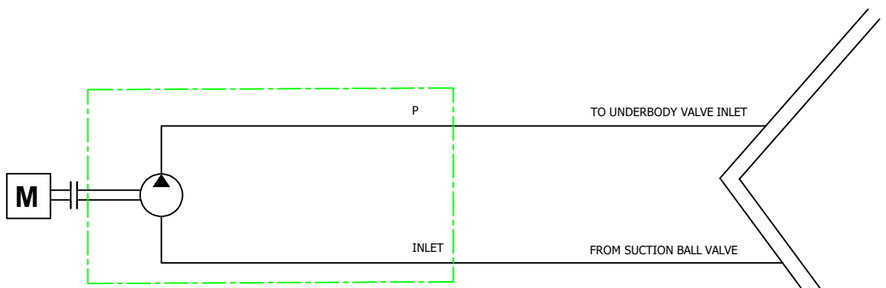
HARNESS, CAB CONTROLLER
CONVENT CAB, NON RP170
263-1882-001
07/25/2023, REV C



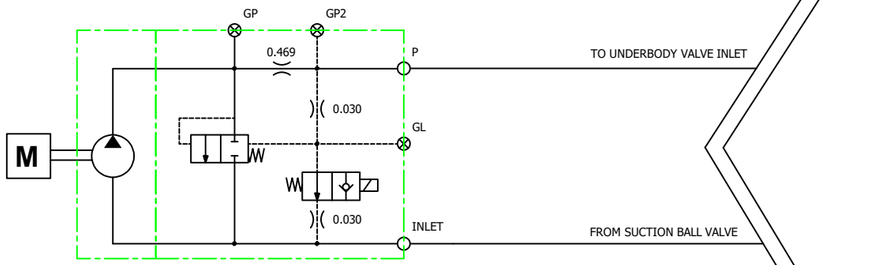
REF.	PART No.	DESCRIPTION	QTY.
1	108-4815-207	CONNECTOR, 31 POS PLUG (RP170 D-1)	1
2	108-4815-209	CONNECTOR, 8 POS PLUG (RP170 D-1A)	1
3	108-6461-001	CONNECTOR, 3 POS PLUG	1
4	108-6461-003	AT 4 POS PLUG	1
5	108-6461-004	AT 4 POS RECEPTACLE	1
6	108-6461-007	CONNECTOR, 8 POS PLUG	2
7	108-6461-008	CONNECTOR, 8 POS RECEPTACLE	2
8	108-6461-009	CONNECTOR, 12 POS PLUG	1
9	108-6461-153	DT 3 WAY RECEPTACLE FLANGE	1
10	108-7112-010	FUSE 10 AMP MINI BLADE	2
11	108-7112-020	FUSE 20 AMP MINI BLADE	2
12	108-8411-003	CONNECTOR, 4 POS RECEPTACLE	1
13	108-8450-001	CAP, HEAT SHRINK	7
14	108-8572-001	IFM CONNECTOR 55 POLE	1
15	108-8588-001	DTM, 2 POS PLUG, BLUE	1
16	108-8588-002	DTM, 2 POS RECEPTACLE, BLUE	1
17	108-8588-017	DTM, 2 POS PLUG, BLUE	1
18	108-8588-018	DTM, 2 POS RECEPTACLE, BLUE	1
19	108-8588-200	2 PIN 120OHM DTM RESISTOR	1
20	108-8610	BUSSMANN MINI FUSE HOLDER	1
21	108-8712-009	CONNECTOR, 9 POS, RECEPTACLE	1
22	108-8712-09C	CONNECTOR, 9 POS, CAP	1



CAB CONTROLLER HARNESS
263-1882-002
08/10/2021, REV C2

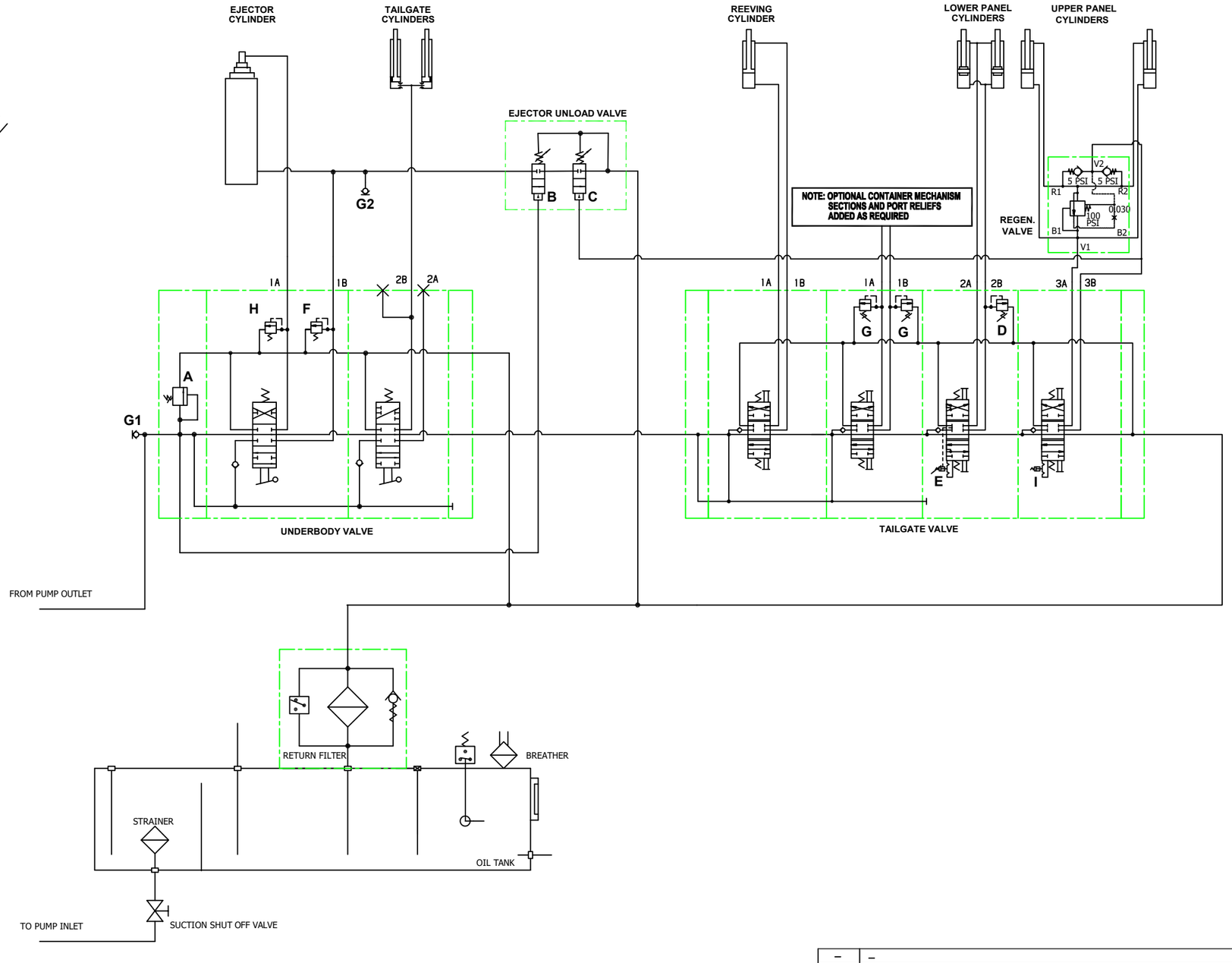


FRONT MOUNT OR CONSTANT DUTY PTO PUMP



FRONT MOUNT OR CONSTANT DUTY PTO PUMP
WITH PUMP CONTROL MANIFOLD

CLUTCH SHIFT PTO DRIVEN
DUAL VANE PUMP OAI



GAUGE POST LOCATIONS	
G1	GAUGE PORT (SYSTEM PRESSURE)
G2	GAUGE PORT (EJECTOR UNLOAD PRESSURE)

REF	RELIEF VALVES	PRESSURE SETTINGS
A	MAIN RELIEF	2500 PSI
B	EJECTOR UNLOAD (PILOTED BY PUMP PRESSURE)	2100 PSI
C	EJECTOR UNLOAD (PILOTED BY UPPER PANEL CYLINDER)	2350 PSI
D	LOWER PANEL BACK OFF	3000 PSI
E	LOWER PANEL (HYDRAULIC DETENT)	3400 PSI
F	EJECTOR EXTEND RELIEF	2800 PSI
G	OPTIONAL CONTAINER MECHANISM PORT RELIEFS	1400 PSI
H	EJECTOR RETRACT RELIEF	2800 PSI
I	UPPER PANEL DETENT MECHANICAL BOTH WAYS	———

REV.	WAS	DATE	ECO
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
1	Complete update revision Added pumps, revised tank, TG valve, Cushion cylinders, Regen valve	08/02/2024	N/A-
-	RELEASED	-	-

ITEM	PART DESCRIPTION
–	–
–	–

DIMENSIONS AND TOLERANCES PER ASME Y14.5-2009 TOLERANCES UNLESS OTHERWISE SPECIFIED: LINEAR (INCHES) XX = ± 0.06 XXX = ± 0.030 ANGULAR = ±1°

This drawing, and all of the information and rights embodied and contained hein, constitutes confidential, proprietary information and trade secrets of Heil Environmental. You are not permitted to use, disclose, distribute, copy, transmit, license, create derivative works from or otherwise reproduce this drawing in whole or in part except as authorized, in writing, by Heil Environmental. You agree to immediately return this drawing and any copies or reproductions thereof upon request by Heil Environmental.

WEIGHT [.2]

TYPE DRAFT

DATE: JUL 30th, 2024

SCALE: N/A

MATERIAL:

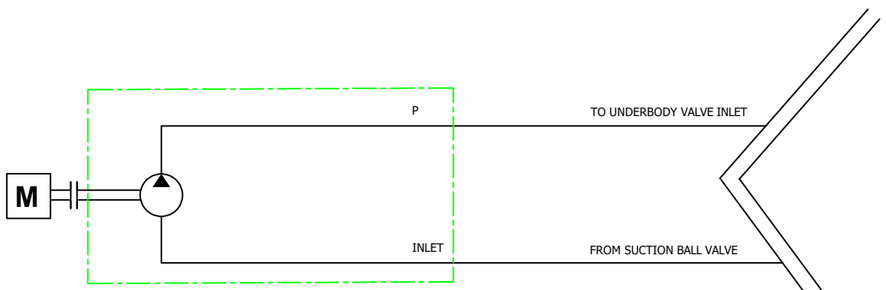
HEIL ENVIRONMENTAL INDUSTRIES, LTD.

TITLE: **HYDRAULIC SCHEMATIC DP5000 REAR LOADER**

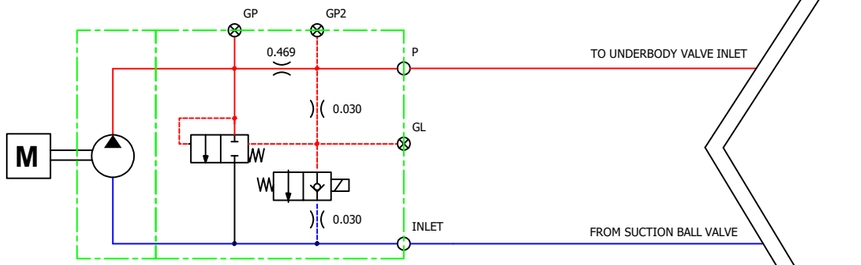
DRAWN BY: EW

PART No. 701-8426

PUMP ON

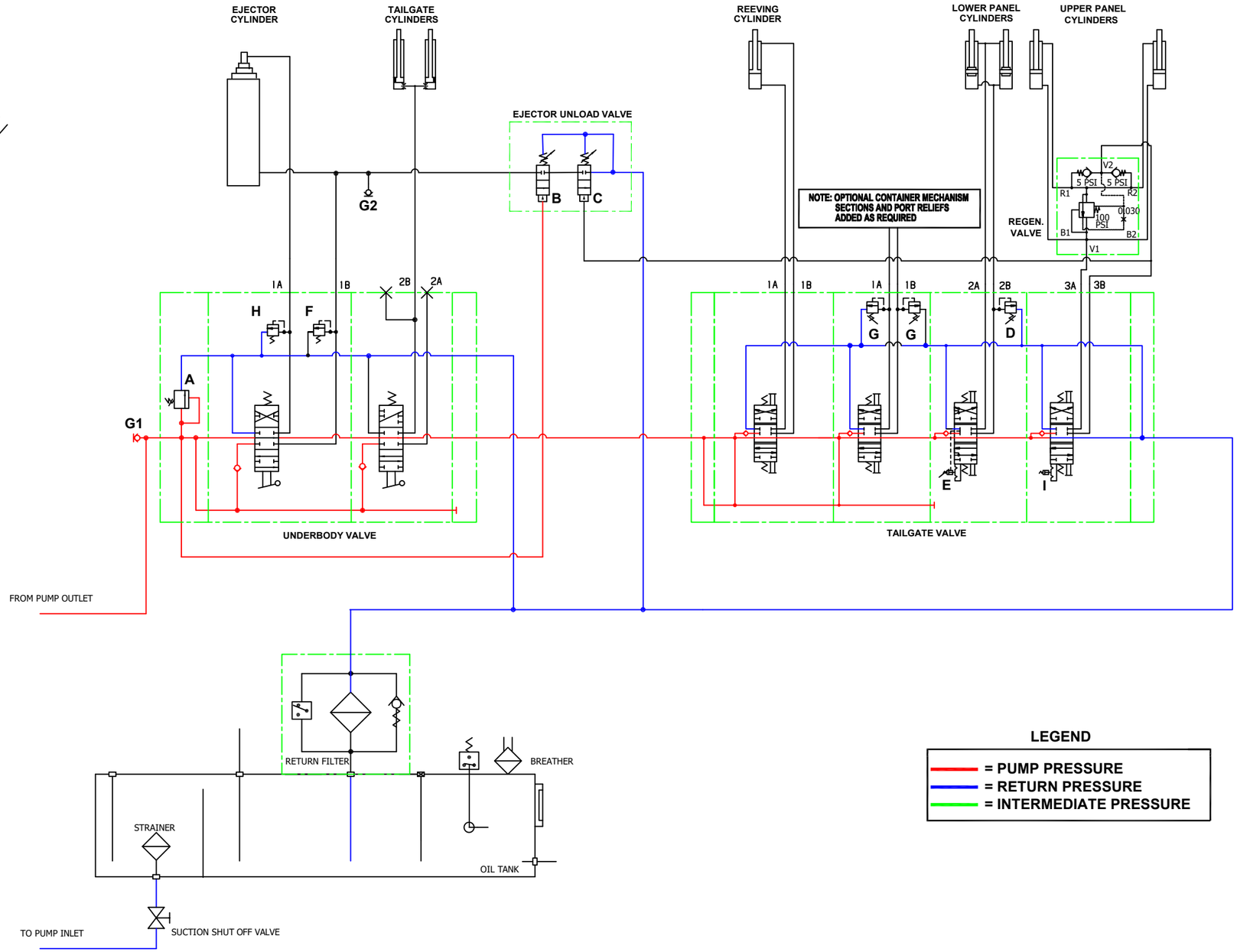


FRONT MOUNT OR CONSTANT DUTY PTO PUMP



FRONT MOUNT OR CONSTANT DUTY PTO PUMP
WITH PUMP CONTROL MANIFOLD

CLUTCH SHIFT PTO DRIVEN
DUAL VANE PUMP OAI



LEGEND

- = PUMP PRESSURE
- = RETURN PRESSURE
- = INTERMEDIATE PRESSURE

GAUGE POST LOCATIONS	
G1	GAUGE PORT (SYSTEM PRESSURE)
G2	GAUGE PORT (EJECTOR UNLOAD PRESSURE)

REF	RELIEF VALVES	PRESSURE SETTINGS
A	MAIN RELIEF	2500 PSI
B	EJECTOR UNLOAD (PILOTED BY PUMP PRESSURE)	2100 PSI
C	EJECTOR UNLOAD (PILOTED BY UPPER PANEL CYLINDER)	2350 PSI
D	LOWER PANEL BACK OFF	3000 PSI
E	LOWER PANEL (HYDRAULIC DETENT)	3400 PSI
F	EJECTOR EXTEND RELIEF	2800 PSI
G	OPTIONAL CONTAINER MECHANISM PORT RELIEFS	1400 PSI
H	EJECTOR RETRACT RELIEF	2800 PSI
I	UPPER PANEL DETENT MECHANICAL BOTH WAYS	———

REV.	WAS	DATE	ECO
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
1	Complete update revision Added pumps, revised tank, TG valve, Cushion cylinders, Regen valve	08/02/2024	N/A-
-	RELEASED	-	-

ITEM	PART DESCRIPTION
–	–
–	–

DIMENSIONS AND TOLERANCES PER ASME Y14.5-2009 TOLERANCES UNLESS OTHERWISE SPECIFIED: LINEAR (INCHES) XX = ± 0.06 XXX = ± 0.030 ANGULAR = ±1°

This drawing, and all of the information and rights embodied and contained hein, constitutes confidential, proprietary information and trade secrets of Heil Environmental. You are not permitted to use, disclose, distribute, copy, transmit, license, create derivative works from or otherwise reproduce this drawing in whole or in part except as authorized, in writing, by Heil Environmental. You agree to immediately return this drawing and any copies or reproductions thereof upon request by Heil Environmental.

WEIGHT [.2]

TYPE DRAFT

DATE: JUL 30th, 2024

SCALE: N/A

MATERIAL:

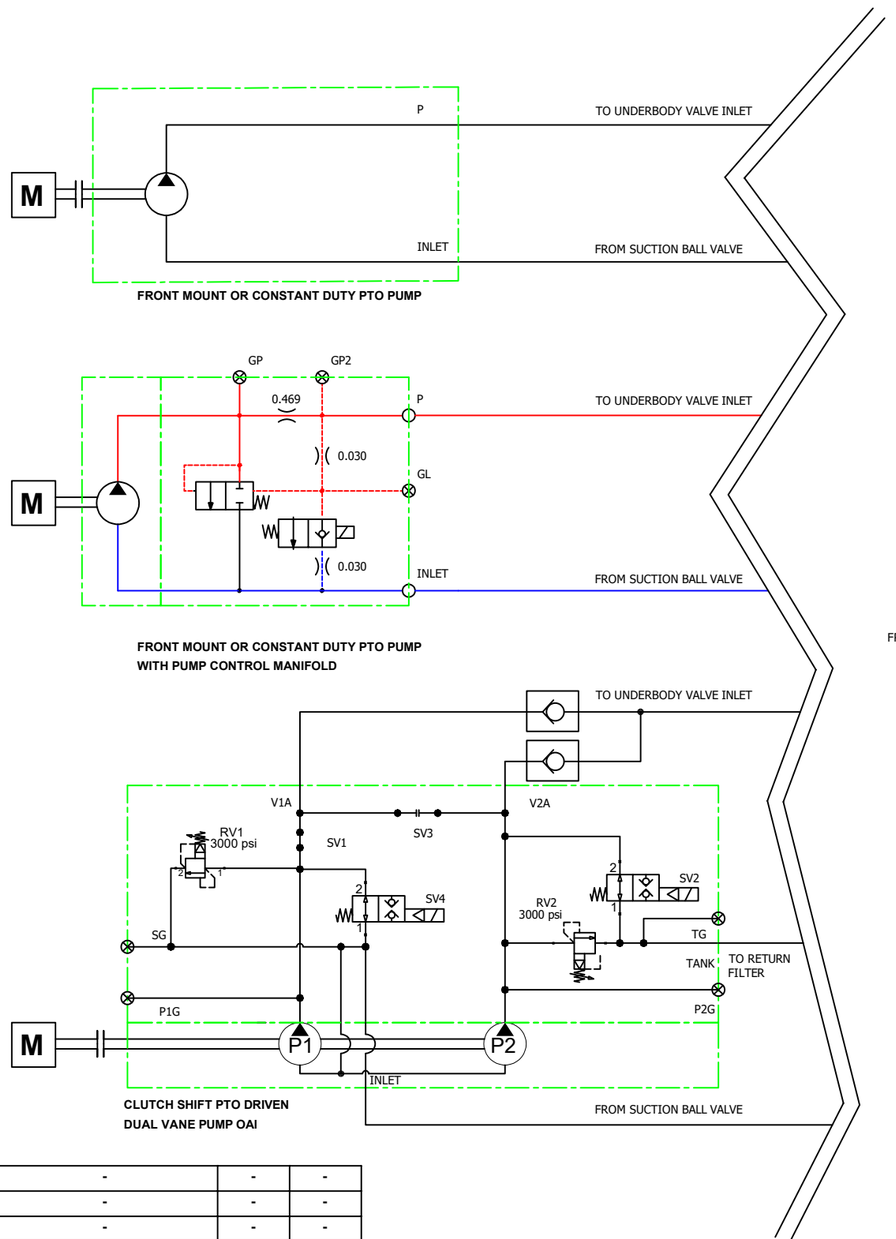
HEIL ENVIRONMENTAL INDUSTRIES, LTD.

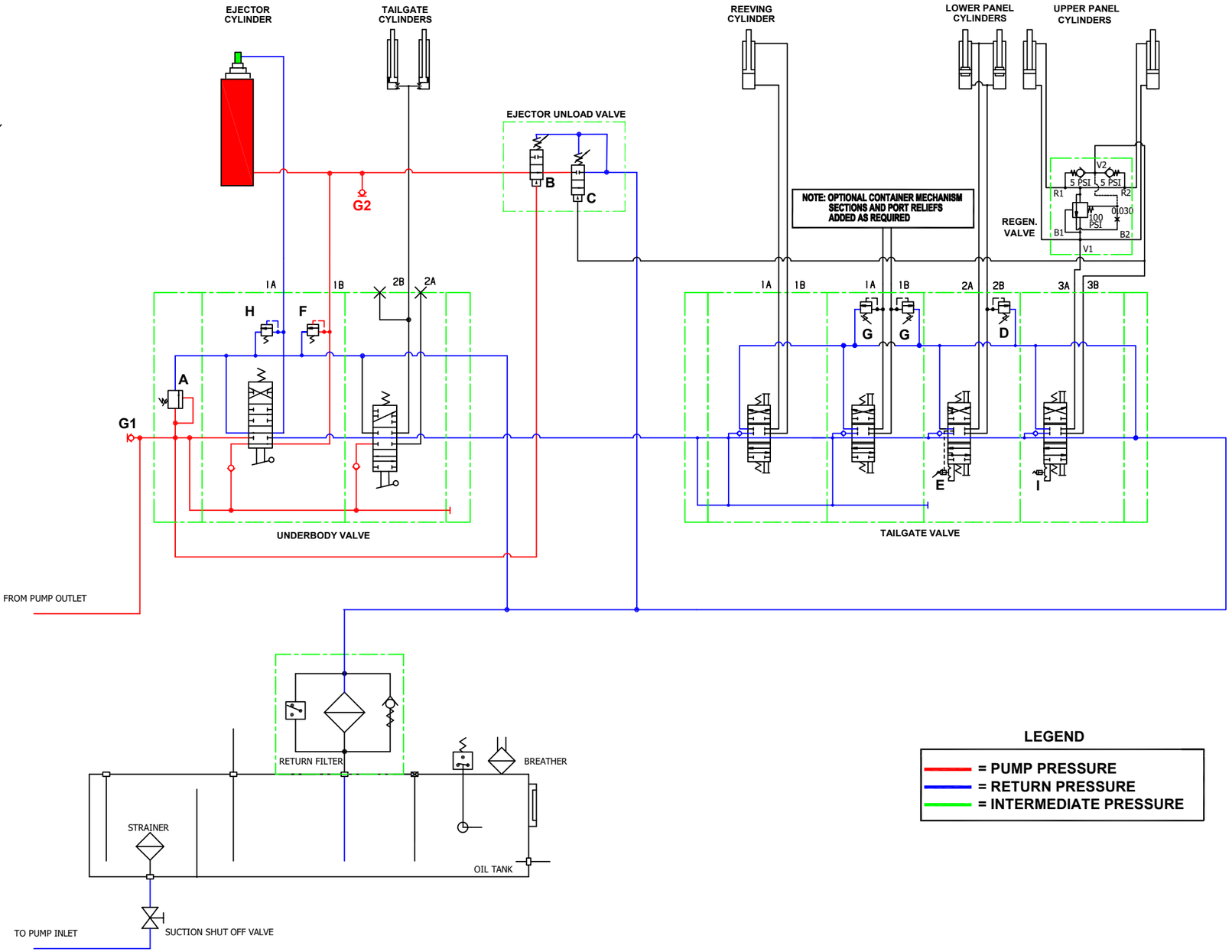
TITLE: **HYDRAULIC SCHEMATIC DP5000 REAR LOADER**

DRAWN BY: EW

PART No. 701-8426

EJECTOR EXTEND





LEGEND

- = PUMP PRESSURE
- = RETURN PRESSURE
- = INTERMEDIATE PRESSURE

REF	RELIEF VALVES	PRESSURE SETTINGS
A	MAIN RELIEF	2500 PSI
B	EJECTOR UNLOAD (PILOTED BY PUMP PRESSURE)	2100 PSI
C	EJECTOR UNLOAD (PILOTED BY UPPER PANEL CYLINDER)	2350 PSI
D	LOWER PANEL BACK OFF	3000 PSI
E	LOWER PANEL (HYDRAULIC DETENT)	3400 PSI
F	EJECTOR EXTEND RELIEF	2800 PSI
G	OPTIONAL CONTAINER MECHANISM PORT RELIEFS	1400 PSI
H	EJECTOR RETRACT RELIEF	2800 PSI
I	UPPER PANEL DETENT MECHANICAL BOTH WAYS	———

GAUGE POST LOCATIONS	
G1	GAUGE PORT (SYSTEM PRESSURE)
G2	GAUGE PORT (EJECTOR UNLOAD PRESSURE)

REV.	WAS	DATE	ECO
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
1	Complete update revision Added pumps, revised tank, TG valve, Cushion cylinders, Regen valve	08/02/2024	N/A-
-	RELEASED	-	-

ITEM	PART DESCRIPTION
–	–
–	–

DIMENSIONS AND TOLERANCES PER ASME Y14.5-2009 TOLERANCES UNLESS OTHERWISE SPECIFIED: LINEAR (INCHES) XX = ± 0.06 XXX = ± 0.030 ANGULAR = ±1°

This drawing, and all of the information and rights embodied and contained hein, constitutes confidential, proprietary information and trade secrets of Heil Environmental. You are not permitted to use, disclose, distribute, copy, transmit, license, create derivative works from or otherwise reproduce this drawing in whole or in part except as authorized, in writing, by Heil Environmental. You agree to immediately return this drawing and any copies or reproductions thereof upon request by Heil Environmental.

WEIGHT [.2]

TYPE DRAFT

DATE: JUL 30th, 2024

SCALE: N/A

MATERIAL:

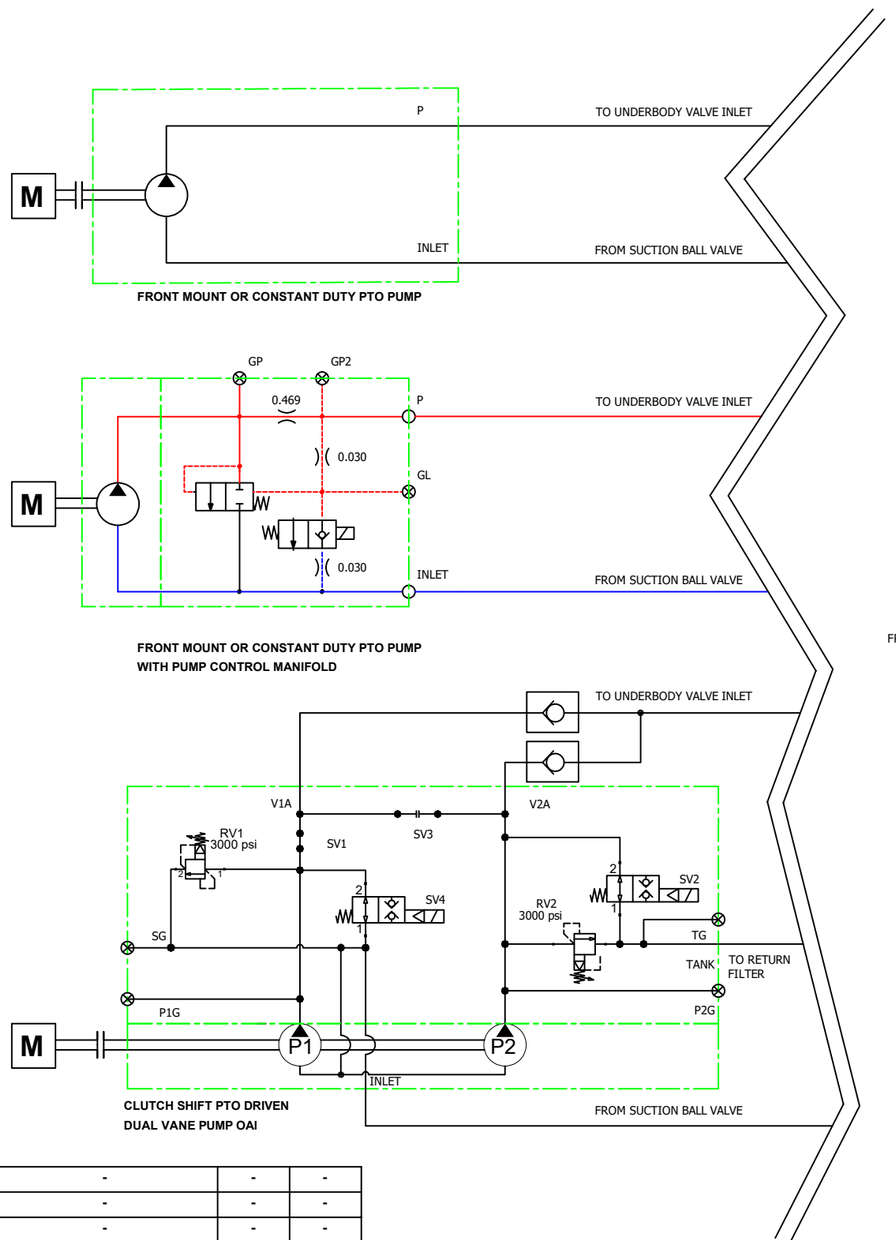
HEIL ENVIRONMENTAL INDUSTRIES, LTD.

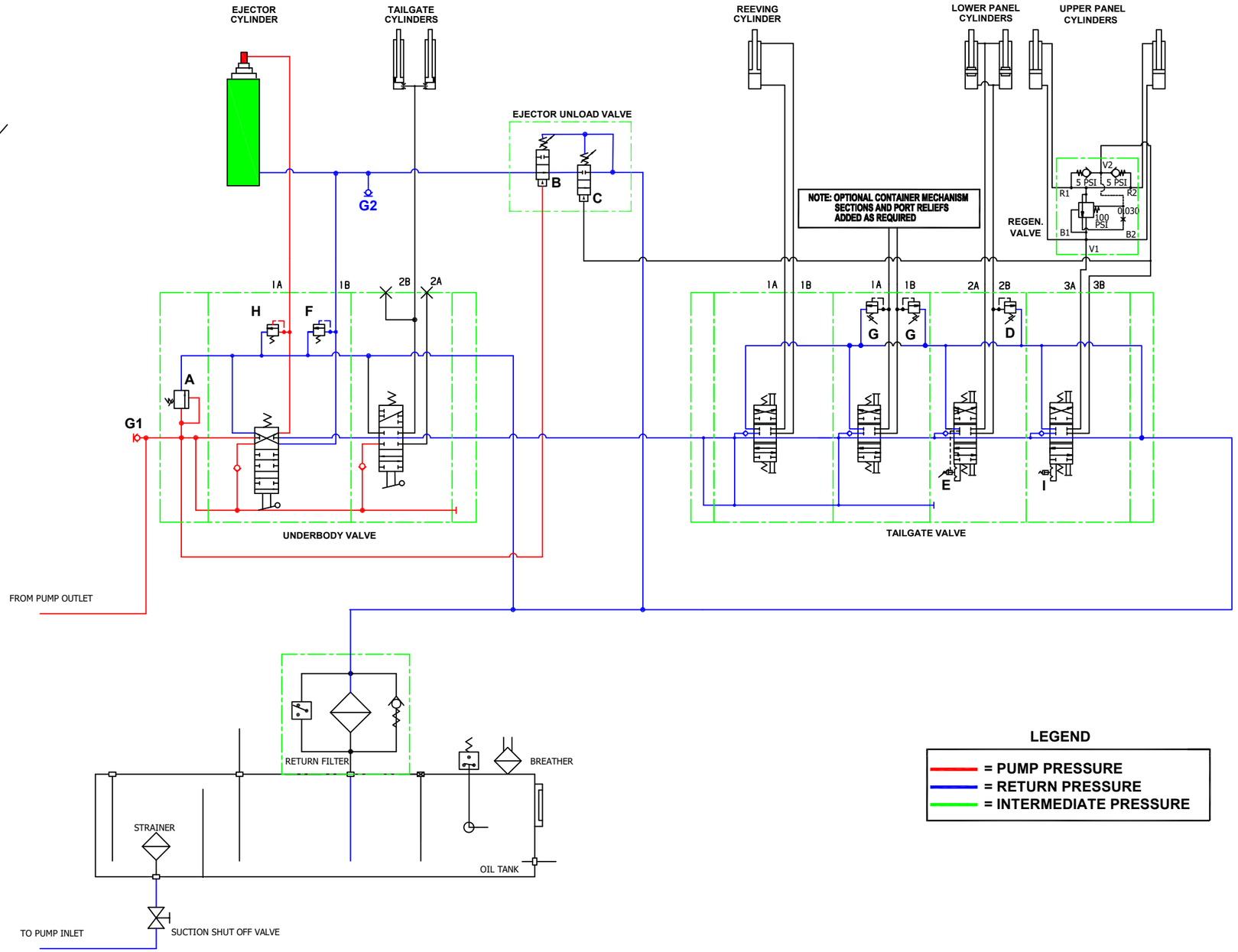
TITLE: **HYDRAULIC SCHEMATIC DP5000 REAR LOADER**

DRAWN BY: EW

PART No. 701-8426

EJECTOR RETRACT





LEGEND

- = PUMP PRESSURE
- = RETURN PRESSURE
- = INTERMEDIATE PRESSURE

GAUGE POST LOCATIONS	
G1	GAUGE PORT (SYSTEM PRESSURE)
G2	GAUGE PORT (EJECTOR UNLOAD PRESSURE)

REF	RELIEF VALVES	PRESSURE SETTINGS
A	MAIN RELIEF	2500 PSI
B	EJECTOR UNLOAD (PILOTED BY PUMP PRESSURE)	2100 PSI
C	EJECTOR UNLOAD (PILOTED BY UPPER PANEL CYLINDER)	2350 PSI
D	LOWER PANEL BACK OFF	3000 PSI
E	LOWER PANEL (HYDRAULIC DETENT)	3400 PSI
F	EJECTOR EXTEND RELIEF	2800 PSI
G	OPTIONAL CONTAINER MECHANISM PORT RELIEFS	1400 PSI
H	EJECTOR RETRACT RELIEF	2800 PSI
I	UPPER PANEL DETENT MECHANICAL BOTH WAYS	———

REV.	WAS	DATE	ECO
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
1	Complete update revision Added pumps, revised tank, TG valve, Cushion cylinders, Regen valve	08/02/2024	N/A-
-	RELEASED	-	-

ITEM	PART DESCRIPTION
–	–
–	–

DIMENSIONS AND TOLERANCES PER ASME Y14.5-2009
TOLERANCES UNLESS OTHERWISE SPECIFIED:
LINEAR (INCHES)
XX = ± 0.06
XXX = ± 0.030
ANGULAR = ±1°

This drawing, and all of the information and rights embodied and contained hein, constitutes confidential, proprietary information and trade secrets of Heil Environmental. You are not permitted to use, disclose, distribute, copy, transmit, license, create derivative works from or otherwise reproduce this drawing in whole or in part except as authorized, in writing, by Heil Environmental. You agree to immediately return this drawing and any copies or reproductions thereof upon request by Heil Environmental.

WEIGHT [.2]

TYPE DRAFT

DATE: JUL 30th, 2024

SCALE: N/A

MATERIAL:

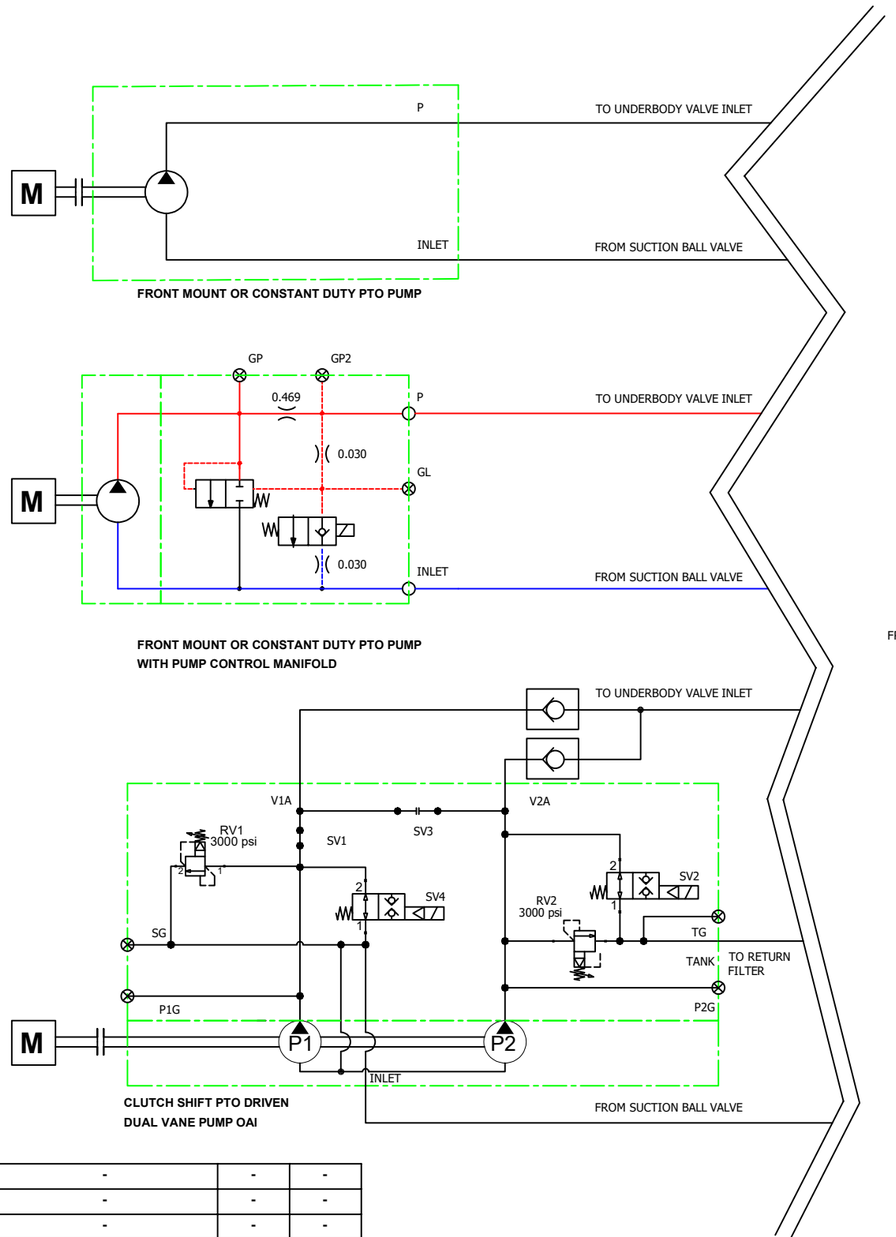
HEIL ENVIRONMENTAL INDUSTRIES, LTD.

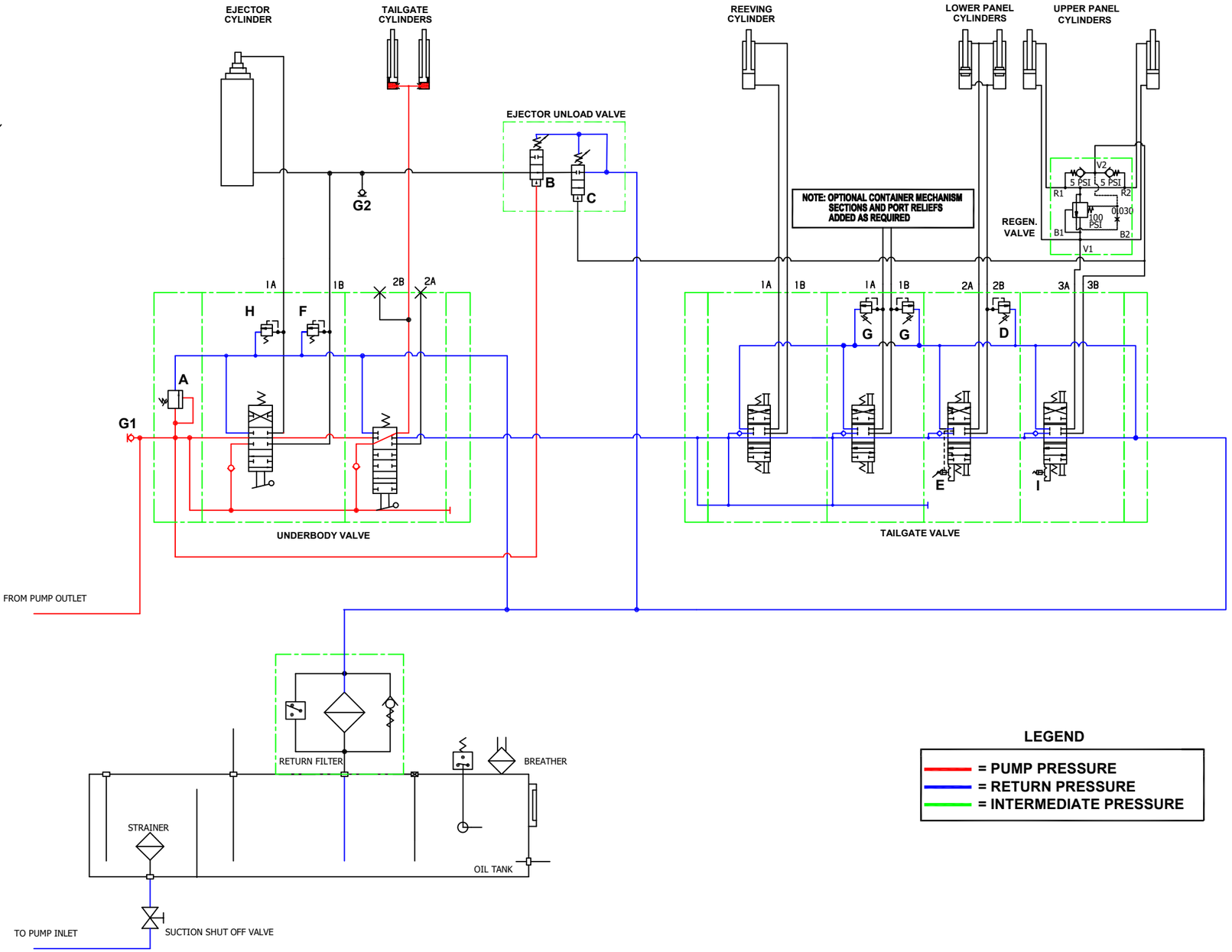
TITLE: **HYDRAULIC SCHEMATIC DP5000 REAR LOADER**

DRAWN BY: EW

PART No. 701-8426

TAILGATE RAISE





LEGEND

- = PUMP PRESSURE
- = RETURN PRESSURE
- = INTERMEDIATE PRESSURE

GAUGE POST LOCATIONS	
G1	GAUGE PORT (SYSTEM PRESSURE)
G2	GAUGE PORT (EJECTOR UNLOAD PRESSURE)

REF	RELIEF VALVES	PRESSURE SETTINGS
A	MAIN RELIEF	2500 PSI
B	EJECTOR UNLOAD (PILOTED BY PUMP PRESSURE)	2100 PSI
C	EJECTOR UNLOAD (PILOTED BY UPPER PANEL CYLINDER)	2350 PSI
D	LOWER PANEL BACK OFF	3000 PSI
E	LOWER PANEL (HYDRAULIC DETENT)	3400 PSI
F	EJECTOR EXTEND RELIEF	2800 PSI
G	OPTIONAL CONTAINER MECHANISM PORT RELIEFS	1400 PSI
H	EJECTOR RETRACT RELIEF	2800 PSI
I	UPPER PANEL DETENT MECHANICAL BOTH WAYS	———

REV.	WAS	DATE	ECO
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
1	Complete update revision Added pumps, revised tank, TG valve, Cushion cylinders, Regen valve	08/02/2024	N/A-
-	RELEASED	-	-

ITEM	PART DESCRIPTION
–	–
–	–

DIMENSIONS AND TOLERANCES PER ASME Y14.5-2009
TOLERANCES UNLESS OTHERWISE SPECIFIED:
LINEAR (INCHES)
XX = ± 0.06
XXX = ± 0.030
ANGULAR = ±1°

This drawing, and all of the information and rights embodied and contained hein, constitutes confidential, proprietary information and trade secrets of Heil Environmental. You are not permitted to use, disclose, distribute, copy, transmit, license, create derivative works from or otherwise reproduce this drawing in whole or in part except as authorized, in writing, by Heil Environmental. You agree to immediately return this drawing and any copies or reproductions thereof upon request by Heil Environmental.

WEIGHT [.2]

TYPE DRAFT

DATE: JUL 30th, 2024

SCALE: N/A

MATERIAL:

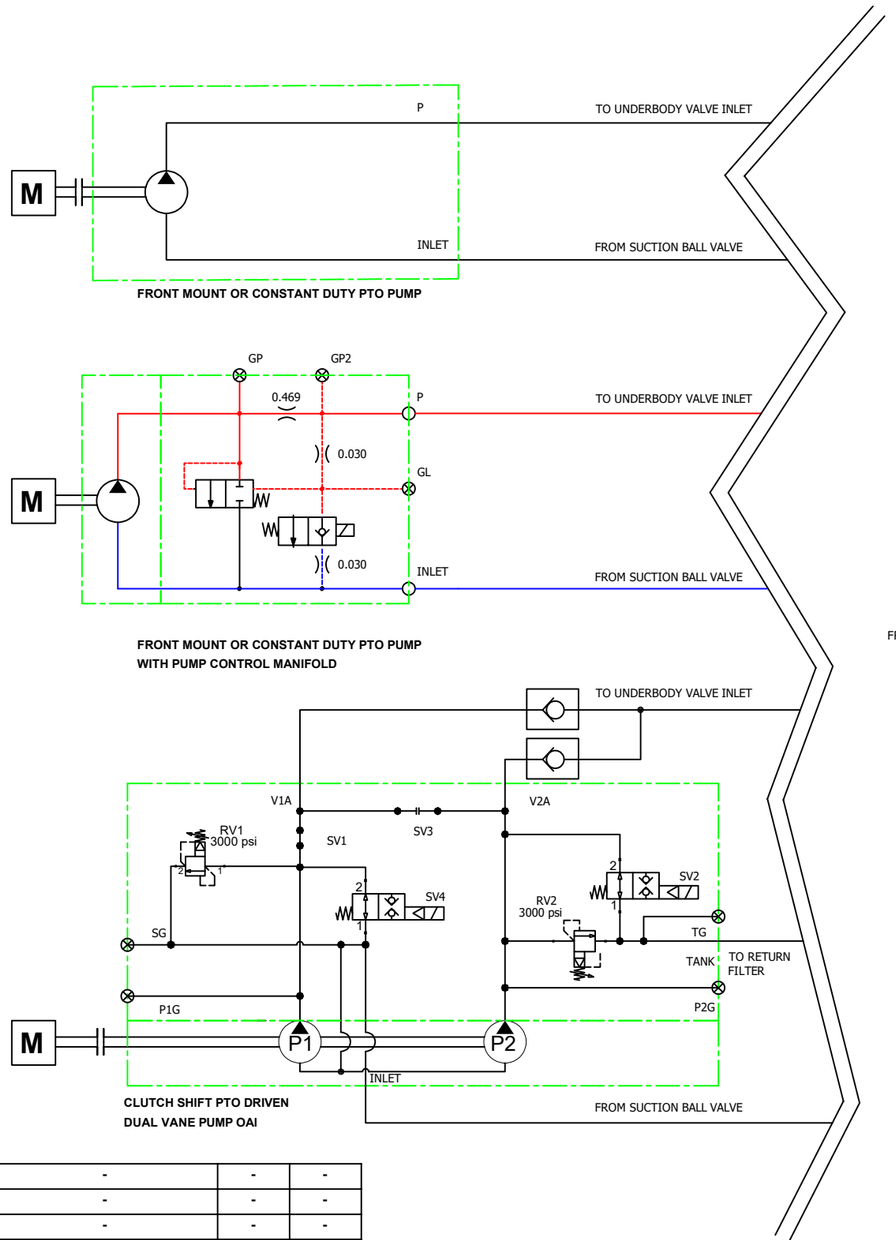
HEIL ENVIRONMENTAL INDUSTRIES, LTD.

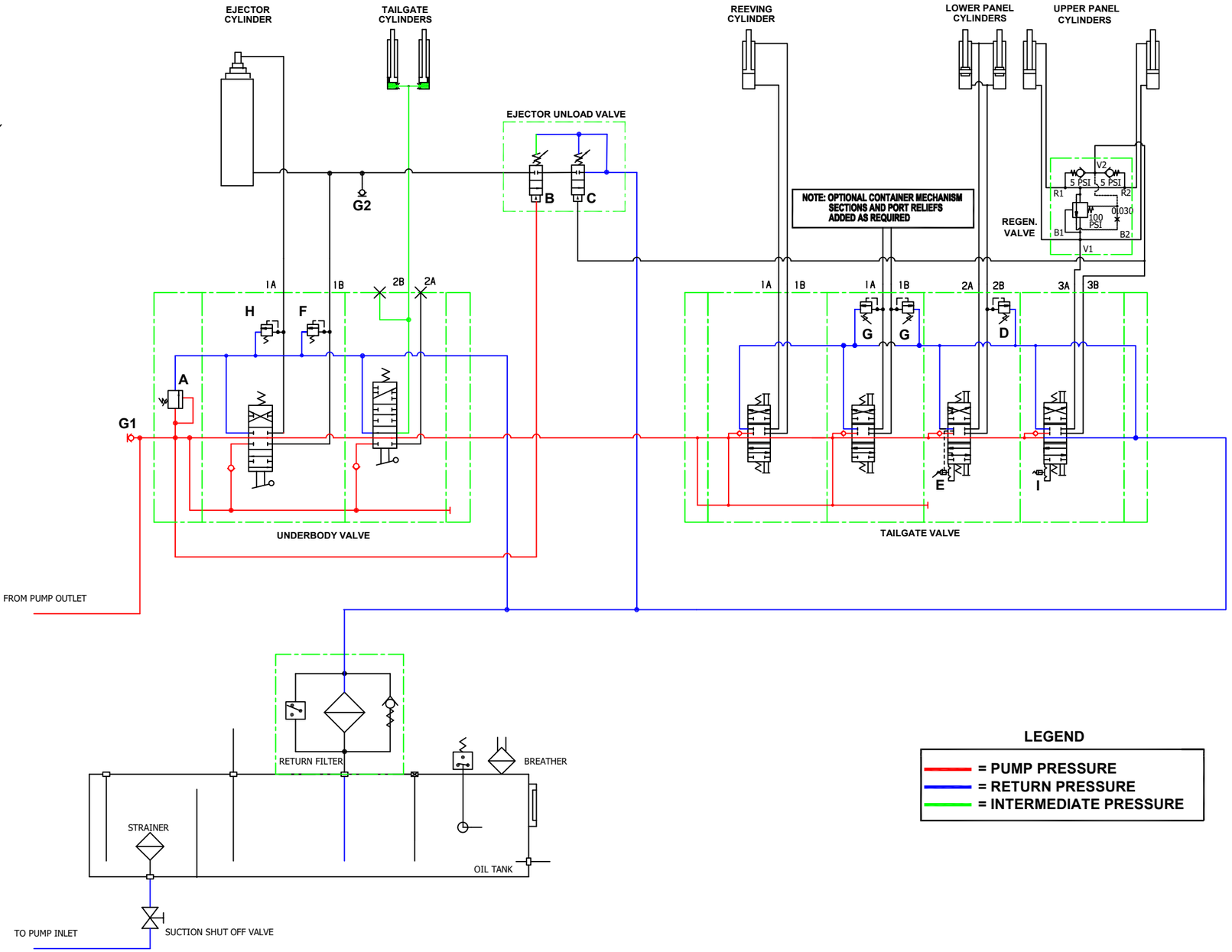
TITLE: **HYDRAULIC SCHEMATIC DP5000 REAR LOADER**

DRAWN BY: EW

PART No. 701-8426

TAILGATE LOWER





LEGEND

- = PUMP PRESSURE
- = RETURN PRESSURE
- = INTERMEDIATE PRESSURE

REF	RELIEF VALVES	PRESSURE SETTINGS
A	MAIN RELIEF	2500 PSI
B	EJECTOR UNLOAD (PILOTED BY PUMP PRESSURE)	2100 PSI
C	EJECTOR UNLOAD (PILOTED BY UPPER PANEL CYLINDER)	2350 PSI
D	LOWER PANEL BACK OFF	3000 PSI
E	LOWER PANEL (HYDRAULIC DETENT)	3400 PSI
F	EJECTOR EXTEND RELIEF	2800 PSI
G	OPTIONAL CONTAINER MECHANISM PORT RELIEFS	1400 PSI
H	EJECTOR RETRACT RELIEF	2800 PSI
I	UPPER PANEL DETENT MECHANICAL BOTH WAYS	———

GAUGE POST LOCATIONS	
G1	GAUGE PORT (SYSTEM PRESSURE)
G2	GAUGE PORT (EJECTOR UNLOAD PRESSURE)

REV.	WAS	DATE	ECO
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
1	Complete update revision Added pumps, revised tank, TG valve, Cushion cylinders, Regen valve	08/02/2024	N/A-
-	RELEASED	-	-

ITEM	PART DESCRIPTION
–	–
–	–

DIMENSIONS AND TOLERANCES PER ASME Y14.5-2009 TOLERANCES UNLESS OTHERWISE SPECIFIED: LINEAR (INCHES) XX = ± 0.06 XXX = ± 0.030 ANGULAR = ±1°

This drawing, and all of the information and rights embodied and contained hein, constitutes confidential, proprietary information and trade secrets of Heil Environmental. You are not permitted to use, disclose, distribute, copy, transmit, license, create derivative works from or otherwise reproduce this drawing in whole or in part except as authorized, in writing, by Heil Environmental. You agree to immediately return this drawing and any copies or reproductions thereof upon request by Heil Environmental.

WEIGHT [.2]

TYPE DRAFT

DATE: JUL 30th, 2024

SCALE: N/A

MATERIAL:

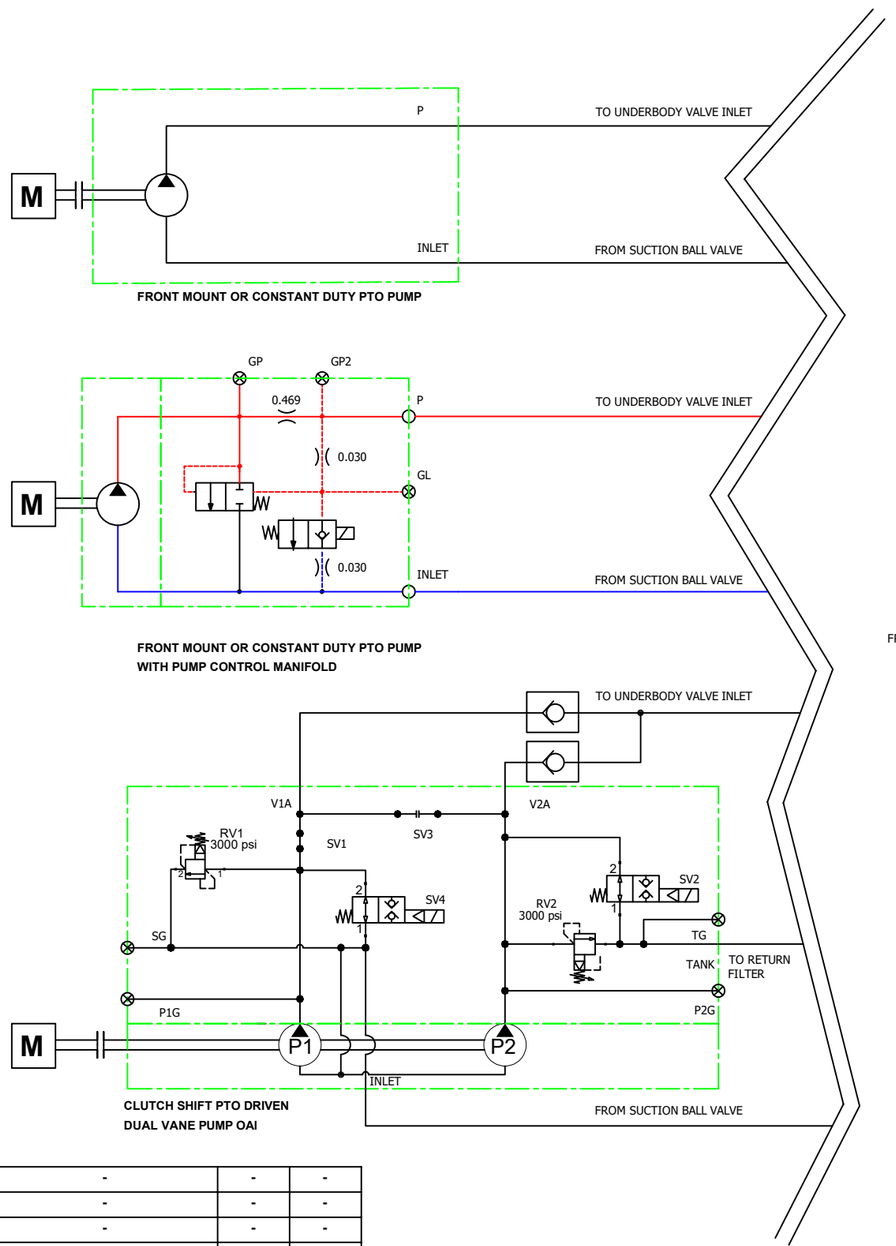
HEIL ENVIRONMENTAL INDUSTRIES, LTD.

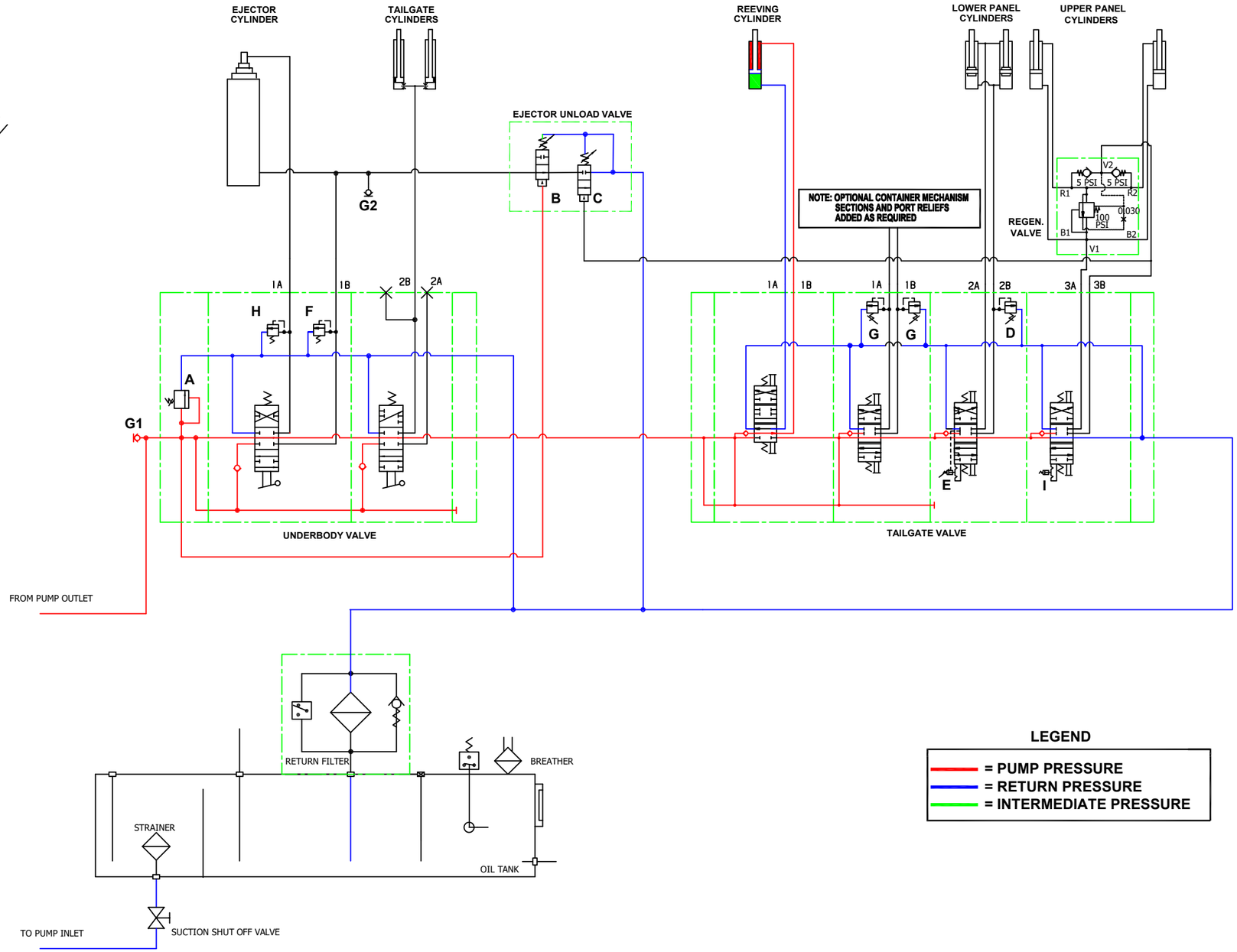
TITLE: **HYDRAULIC SCHEMATIC DP5000 REAR LOADER**

DRAWN BY: EW

PART No. 701-8426

REEVING CYLINDER





LEGEND

- = PUMP PRESSURE
- = RETURN PRESSURE
- = INTERMEDIATE PRESSURE

REV.	WAS	DATE	ECO
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
1	Complete update revision Added pumps, revised tank, TG valve, Cushion cylinders, Regen valve	08/02/2024	N/A-
-	RELEASED	-	-

GAUGE POST LOCATIONS	
G1	GAUGE PORT (SYSTEM PRESSURE)
G2	GAUGE PORT (EJECTOR UNLOAD PRESSURE)

REF	RELIEF VALVES	PRESSURE SETTINGS
A	MAIN RELIEF	2500 PSI
B	EJECTOR UNLOAD (PILOTED BY PUMP PRESSURE)	2100 PSI
C	EJECTOR UNLOAD (PILOTED BY UPPER PANEL CYLINDER)	2350 PSI
D	LOWER PANEL BACK OFF	3000 PSI
E	LOWER PANEL (HYDRAULIC DETENT)	3400 PSI
F	EJECTOR EXTEND RELIEF	2800 PSI
G	OPTIONAL CONTAINER MECHANISM PORT RELIEFS	1400 PSI
H	EJECTOR RETRACT RELIEF	2800 PSI
I	UPPER PANEL DETENT MECHANICAL BOTH WAYS	———

DIMENSIONS AND TOLERANCES PER ASME Y14.5-2009
TOLERANCES UNLESS OTHERWISE SPECIFIED:
LINEAR (INCHES)
XX = ± 0.06
XXX = ± 0.030
ANGULAR = ±1°

This drawing, and all of the information and rights embodied and contained hein, constitutes confidential, proprietary information and trade secrets of Heil Environmental. You are not permitted to use, disclose, distribute, copy, transmit, license, create derivative works from or otherwise reproduce this drawing in whole or in part except as authorized, in writing, by Heil Environmental. You agree to immediately return this drawing and any copies or reproductions thereof upon request by Heil Environmental.

WEIGHT [.2]

TYPE DRAFT

DATE: JUL 30th, 2024

SCALE: N/A

MATERIAL:

ITEM	PART DESCRIPTION
–	–
–	–

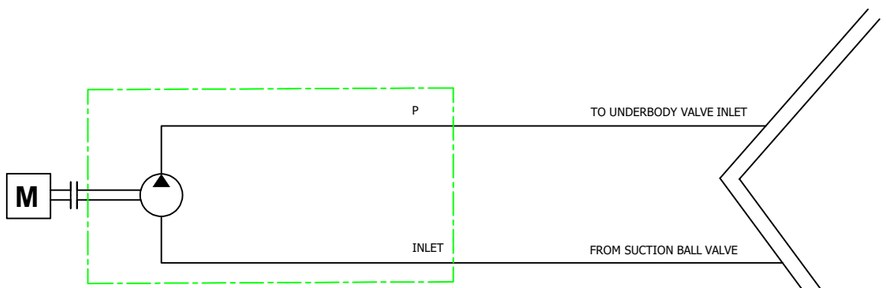
HEIL ENVIRONMENTAL INDUSTRIES, LTD.

TITLE: **HYDRAULIC SCHEMATIC DP5000 REAR LOADER**

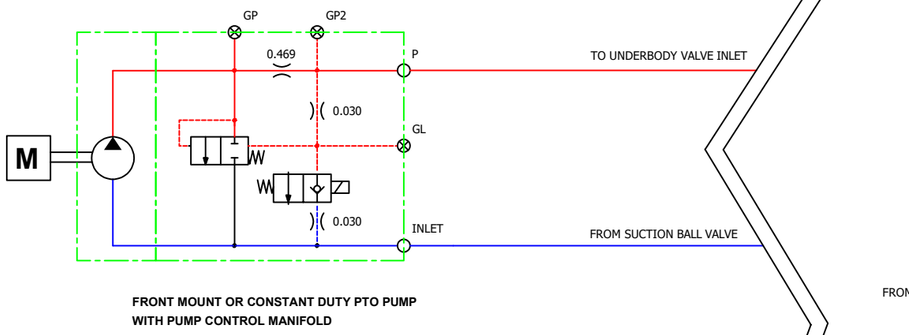
DRAWN BY: EW

PART No. 701-8426

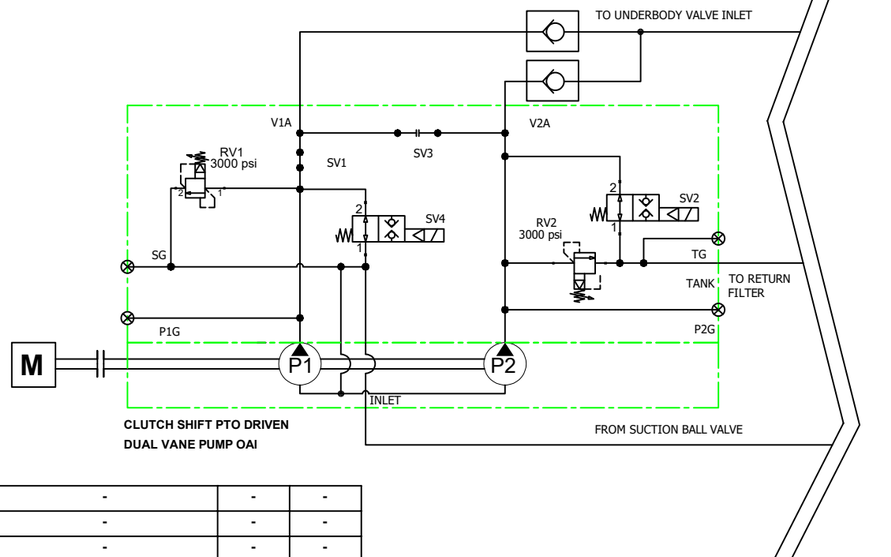
AUTO CYCLE LOWER PANEL OUT



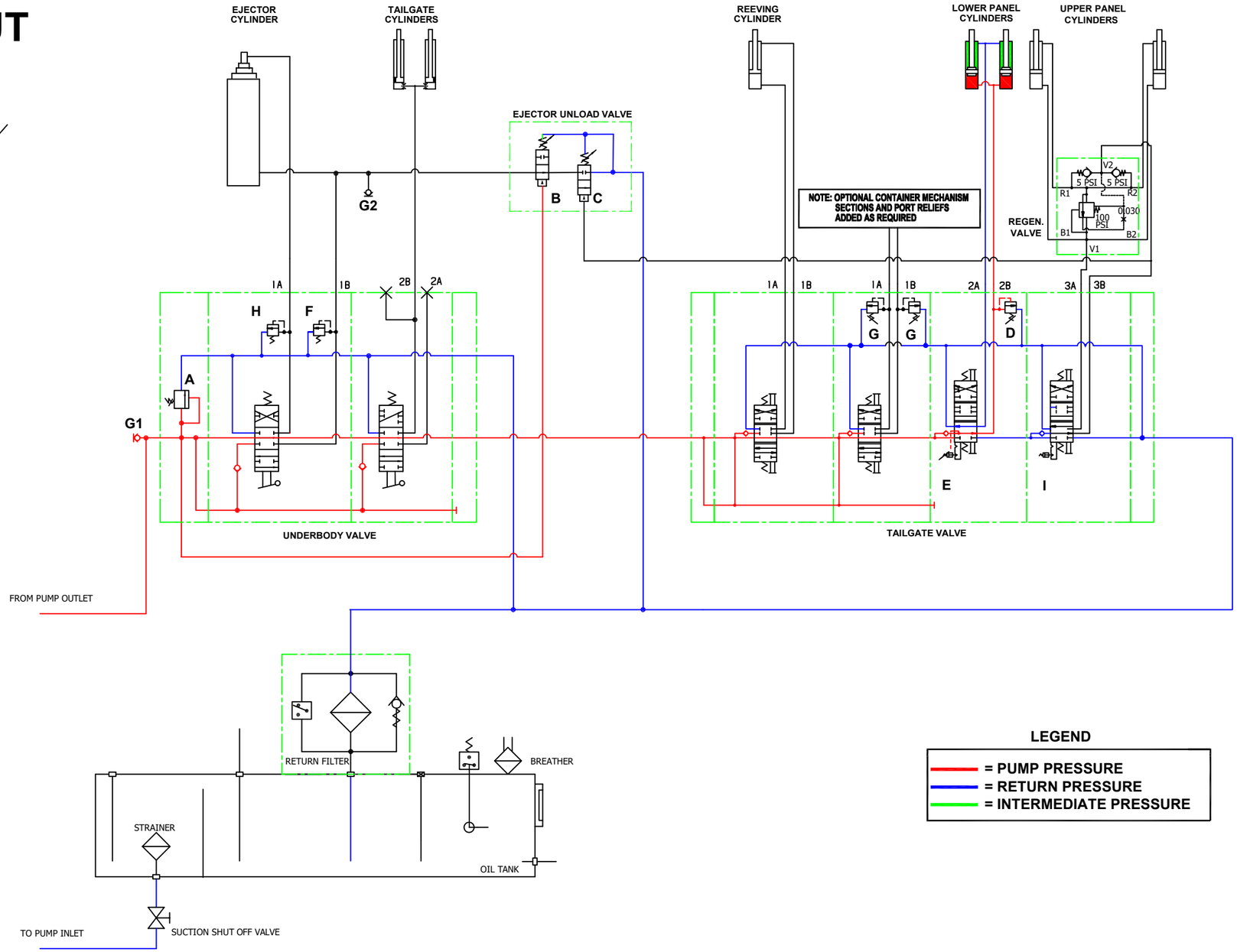
FRONT MOUNT OR CONSTANT DUTY PTO PUMP



FRONT MOUNT OR CONSTANT DUTY PTO PUMP
WITH PUMP CONTROL MANIFOLD



CLUTCH SHIFT PTO DRIVEN
DUAL VANE PUMP OAI



LEGEND

- = PUMP PRESSURE
- = RETURN PRESSURE
- = INTERMEDIATE PRESSURE

GAUGE POST LOCATIONS	
G1	GAUGE PORT (SYSTEM PRESSURE)
G2	GAUGE PORT (EJECTOR UNLOAD PRESSURE)

REF	RELIEF VALVES	PRESSURE SETTINGS
A	MAIN RELIEF	2500 PSI
B	EJECTOR UNLOAD (PILOTED BY PUMP PRESSURE)	2100 PSI
C	EJECTOR UNLOAD (PILOTED BY UPPER PANEL CYLINDER)	2350 PSI
D	LOWER PANEL BACK OFF	3000 PSI
E	LOWER PANEL (HYDRAULIC DETENT)	3400 PSI
F	EJECTOR EXTEND RELIEF	2800 PSI
G	OPTIONAL CONTAINER MECHANISM PORT RELIEFS	1400 PSI
H	EJECTOR RETRACT RELIEF	2800 PSI
I	UPPER PANEL DETENT MECHANICAL BOTH WAYS	———

REV.	WAS	DATE	ECO
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
1	Complete update revision Added pumps, revised tank, TG valve, Cushion cylinders, Regen valve	08/02/2024	N/A-
-	RELEASED	-	-

ITEM	PART DESCRIPTION
–	–
–	–

DIMENSIONS AND TOLERANCES PER ASME Y14.5-2009 TOLERANCES UNLESS OTHERWISE SPECIFIED: LINEAR (INCHES) XX = ± 0.06 XXX = ± 0.030 ANGULAR = ±1°

This drawing, and all of the information and rights embodied and contained hein, constitutes confidential, proprietary information and trade secrets of Heil Environmental. You are not permitted to use, disclose, distribute, copy, transmit, license, create derivative works from or otherwise reproduce this drawing in whole or in part except as authorized, in writing, by Heil Environmental. You agree to immediately return this drawing and any copies or reproductions thereof upon request by Heil Environmental.

WEIGHT [.2]

TYPE DRAFT

DATE: JUL 30th, 2024

SCALE: N/A

MATERIAL:

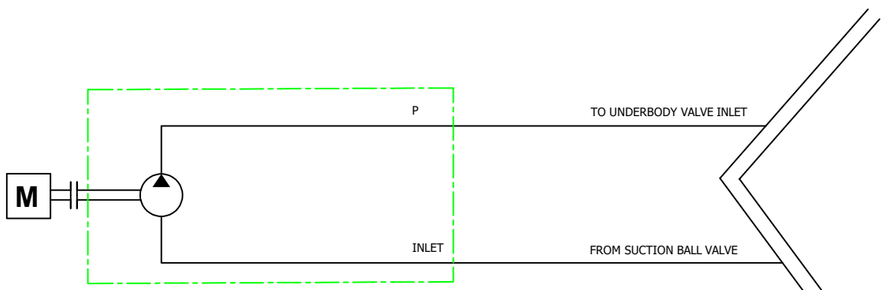
HEIL ENVIRONMENTAL INDUSTRIES, LTD.

TITLE: **HYDRAULIC SCHEMATIC DP5000 REAR LOADER**

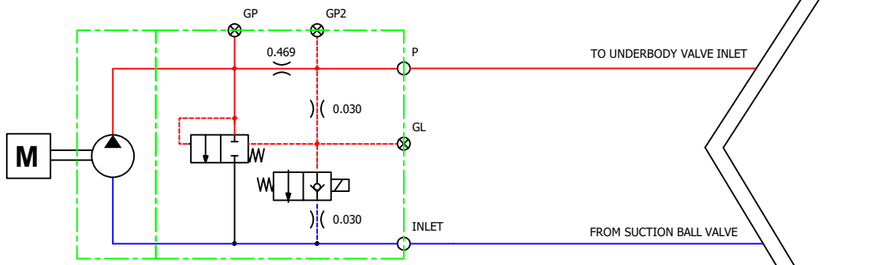
DRAWN BY: EW

PART No. 701-8426

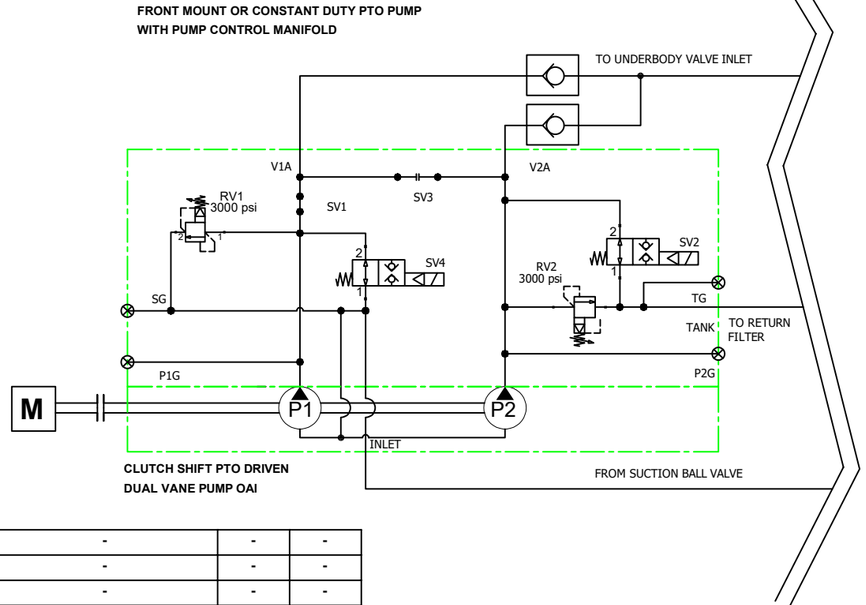
AUTO CYCLE UPPER PANEL DOWN



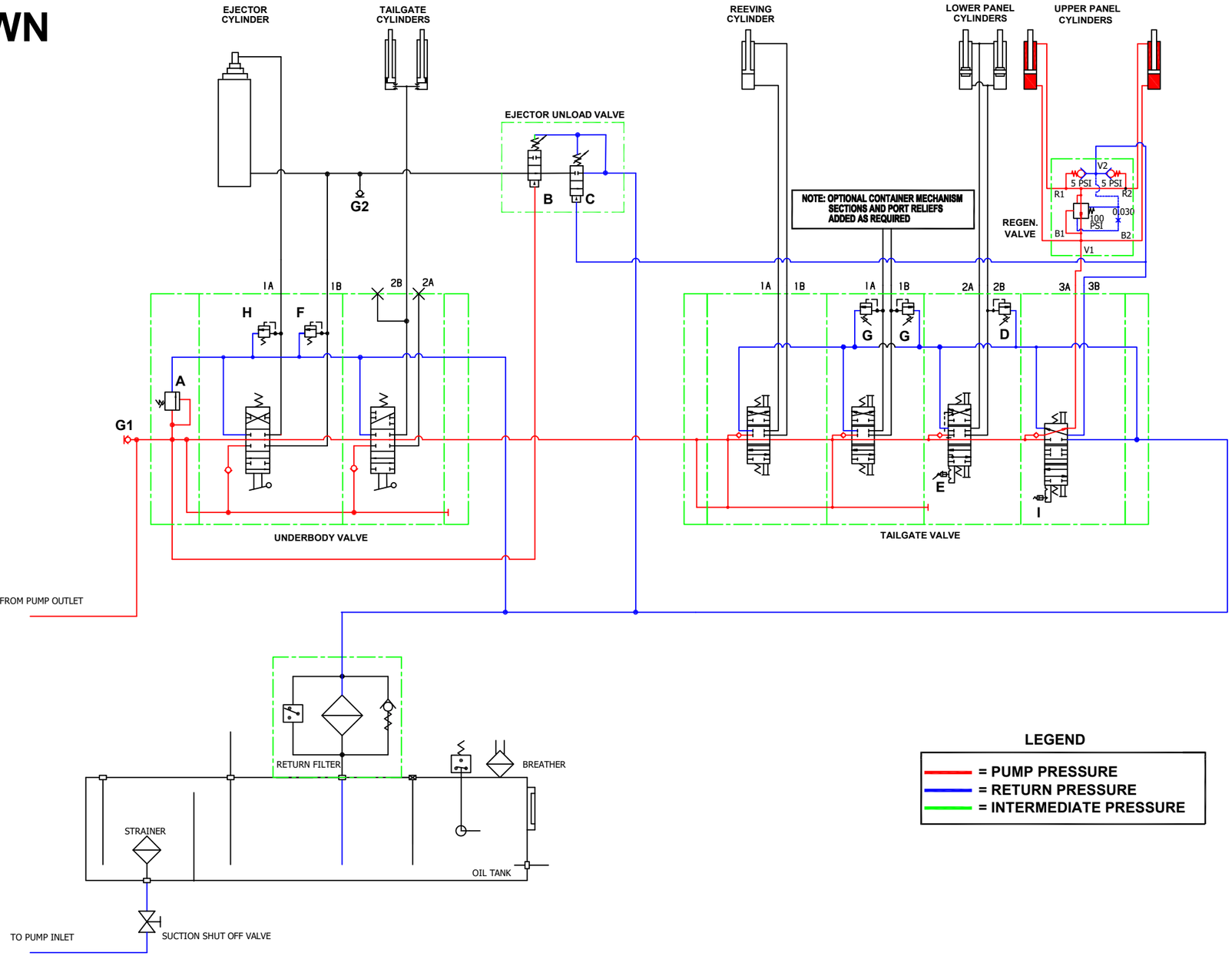
FRONT MOUNT OR CONSTANT DUTY PTO PUMP



FRONT MOUNT OR CONSTANT DUTY PTO PUMP
WITH PUMP CONTROL MANIFOLD



CLUTCH SHIFT PTO DRIVEN
DUAL VANE PUMP OAI



LEGEND

- = PUMP PRESSURE
- = RETURN PRESSURE
- = INTERMEDIATE PRESSURE

GAUGE POST LOCATIONS	
G1	GAUGE PORT (SYSTEM PRESSURE)
G2	GAUGE PORT (EJECTOR UNLOAD PRESSURE)

REF	RELIEF VALVES	PRESSURE SETTINGS
A	MAIN RELIEF	2500 PSI
B	EJECTOR UNLOAD (PILOTED BY PUMP PRESSURE)	2100 PSI
C	EJECTOR UNLOAD (PILOTED BY UPPER PANEL CYLINDER)	2350 PSI
D	LOWER PANEL BACK OFF	3000 PSI
E	LOWER PANEL (HYDRAULIC DETENT)	3400 PSI
F	EJECTOR EXTEND RELIEF	2800 PSI
G	OPTIONAL CONTAINER MECHANISM PORT RELIEFS	1400 PSI
H	EJECTOR RETRACT RELIEF	2800 PSI
I	UPPER PANEL DETENT MECHANICAL BOTH WAYS	———

REV.	WAS	DATE	ECO
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
1	Complete update revision Added pumps, revised tank, TG valve, Cushion cylinders, Regen valve	08/02/2024	N/A-
-	RELEASED	-	-

ITEM	PART DESCRIPTION
–	–
–	–

DIMENSIONS AND TOLERANCES PER ASME Y14.5-2009
TOLERANCES UNLESS OTHERWISE SPECIFIED:
LINEAR (INCHES)
XX = ± 0.06
XXX = ± 0.030
ANGULAR = ±1°

This drawing, and all of the information and rights embodied and contained hein, constitutes confidential, proprietary information and trade secrets of Heil Environmental. You are not permitted to use, disclose, distribute, copy, transmit, license, create derivative works from or otherwise reproduce this drawing in whole or in part except as authorized, in writing, by Heil Environmental. You agree to immediately return this drawing and any copies or reproductions thereof upon request by Heil Environmental.

WEIGHT [.2]

TYPE DRAFT

DATE: JUL 30th, 2024

SCALE: N/A

MATERIAL:

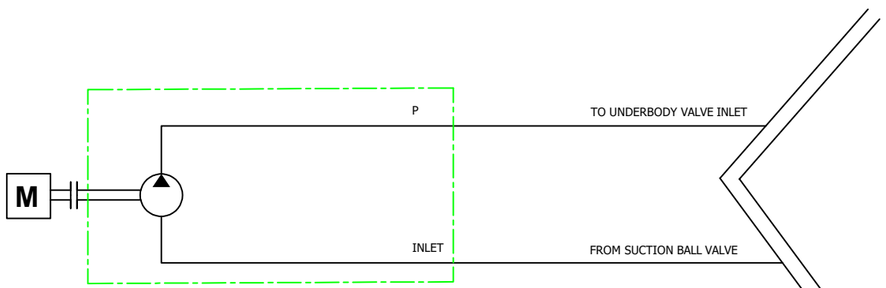
HEIL ENVIRONMENTAL INDUSTRIES, LTD.

TITLE: **HYDRAULIC SCHEMATIC DP5000 REAR LOADER**

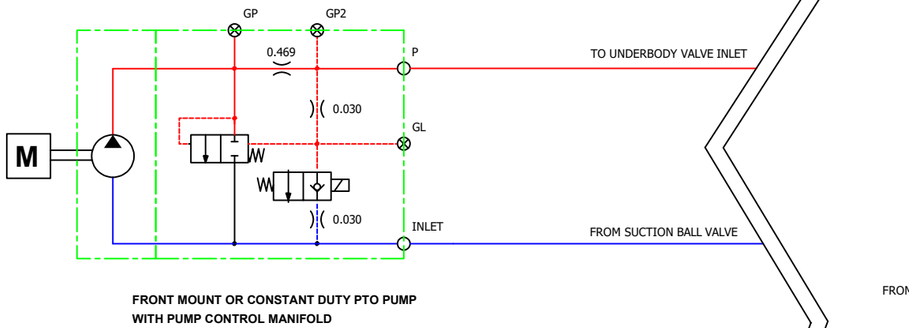
DRAWN BY: EW

PART No. 701-8426

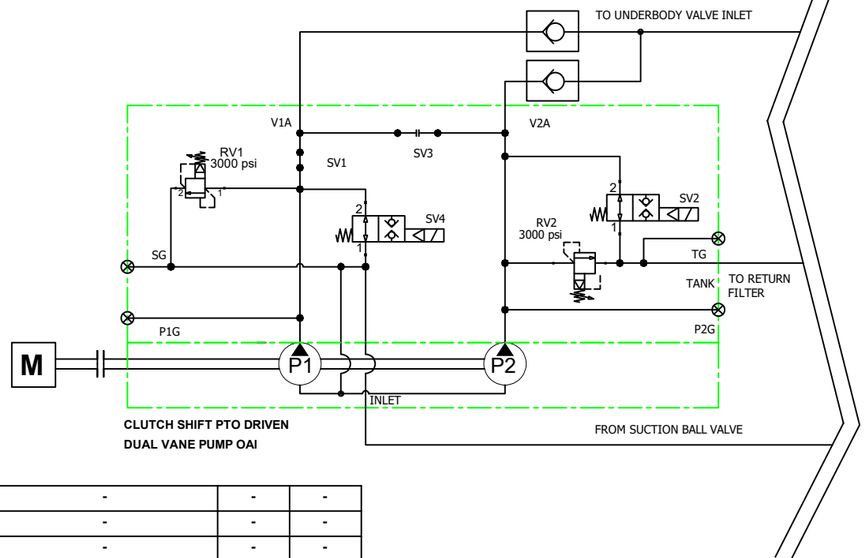
AUTO CYCLE LOWER PANEL IN



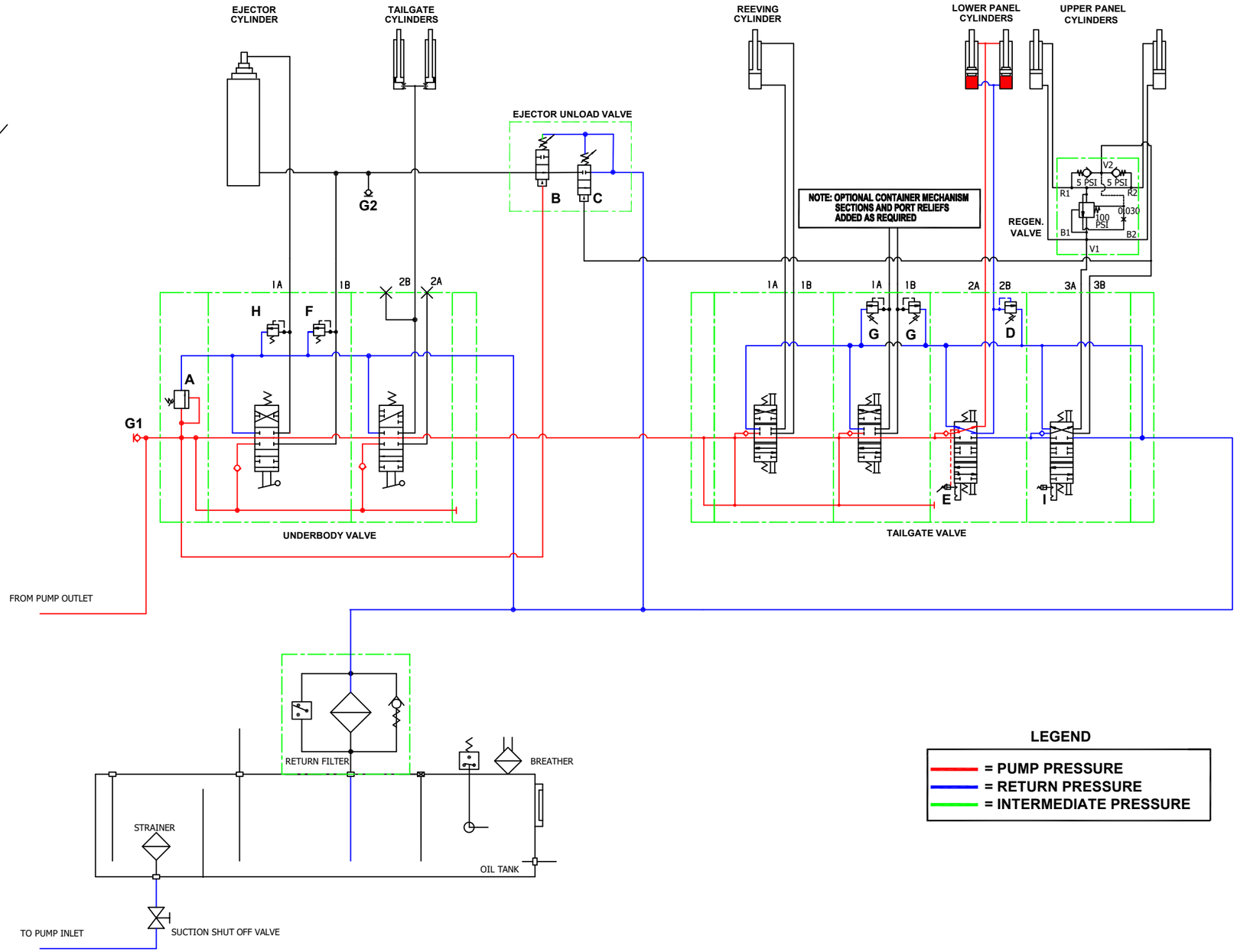
FRONT MOUNT OR CONSTANT DUTY PTO PUMP



FRONT MOUNT OR CONSTANT DUTY PTO PUMP
WITH PUMP CONTROL MANIFOLD



CLUTCH SHIFT PTO DRIVEN
DUAL VANE PUMP OAI



LEGEND

- = PUMP PRESSURE
- = RETURN PRESSURE
- = INTERMEDIATE PRESSURE

REF	RELIEF VALVES	PRESSURE SETTINGS
A	MAIN RELIEF	2500 PSI
B	EJECTOR UNLOAD (PILOTED BY PUMP PRESSURE)	2100 PSI
C	EJECTOR UNLOAD (PILOTED BY UPPER PANEL CYLINDER)	2350 PSI
D	LOWER PANEL BACK OFF	3000 PSI
E	LOWER PANEL (HYDRAULIC DETENT)	3400 PSI
F	EJECTOR EXTEND RELIEF	2800 PSI
G	OPTIONAL CONTAINER MECHANISM PORT RELIEFS	1400 PSI
H	EJECTOR RETRACT RELIEF	2800 PSI
I	UPPER PANEL DETENT MECHANICAL BOTH WAYS	———

GAUGE POST LOCATIONS	
G1	GAUGE PORT (SYSTEM PRESSURE)
G2	GAUGE PORT (EJECTOR UNLOAD PRESSURE)

REV.	WAS	DATE	ECO
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
1	Complete update revision Added pumps, revised tank, TG valve, Cushion cylinders, Regen valve	08/02/2024	N/A-
-	RELEASED	-	-

ITEM	PART DESCRIPTION
–	–
–	–

DIMENSIONS AND TOLERANCES PER ASME Y14.5-2009 TOLERANCES UNLESS OTHERWISE SPECIFIED: LINEAR (INCHES) XX = ± 0.06 XXX = ± 0.030 ANGULAR = ±1°

This drawing, and all of the information and rights embodied and contained hein, constitutes confidential, proprietary information and trade secrets of Heil Environmental. You are not permitted to use, disclose, distribute, copy, transmit, license, create derivative works from or otherwise reproduce this drawing in whole or in part except as authorized, in writing, by Heil Environmental. You agree to immediately return this drawing and any copies or reproductions thereof upon request by Heil Environmental.

WEIGHT [.2]

TYPE DRAFT

DATE: JUL 30th, 2024

SCALE: N/A

MATERIAL:

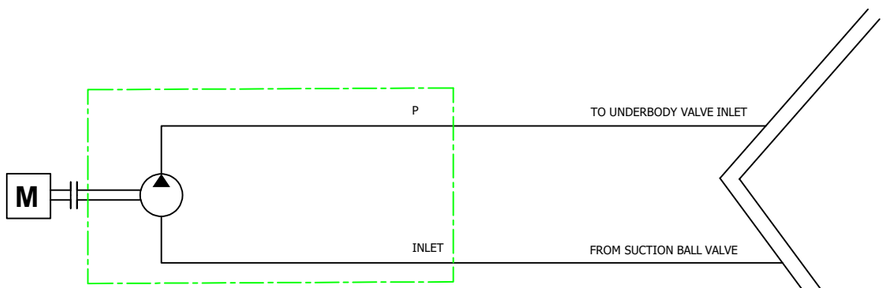
HEIL ENVIRONMENTAL INDUSTRIES, LTD.

TITLE: **HYDRAULIC SCHEMATIC DP5000 REAR LOADER**

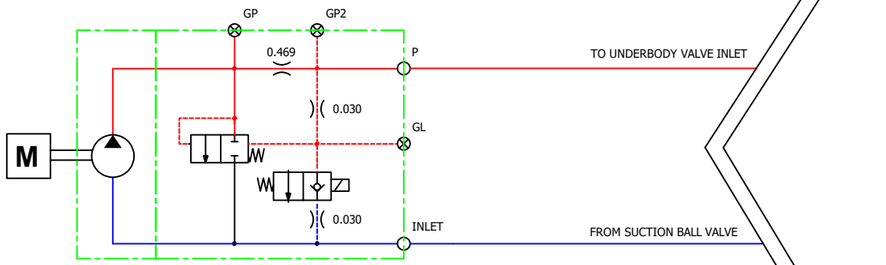
DRAWN BY: EW

PART No. 701-8426

AUTO CYCLE UPPER PANEL UP

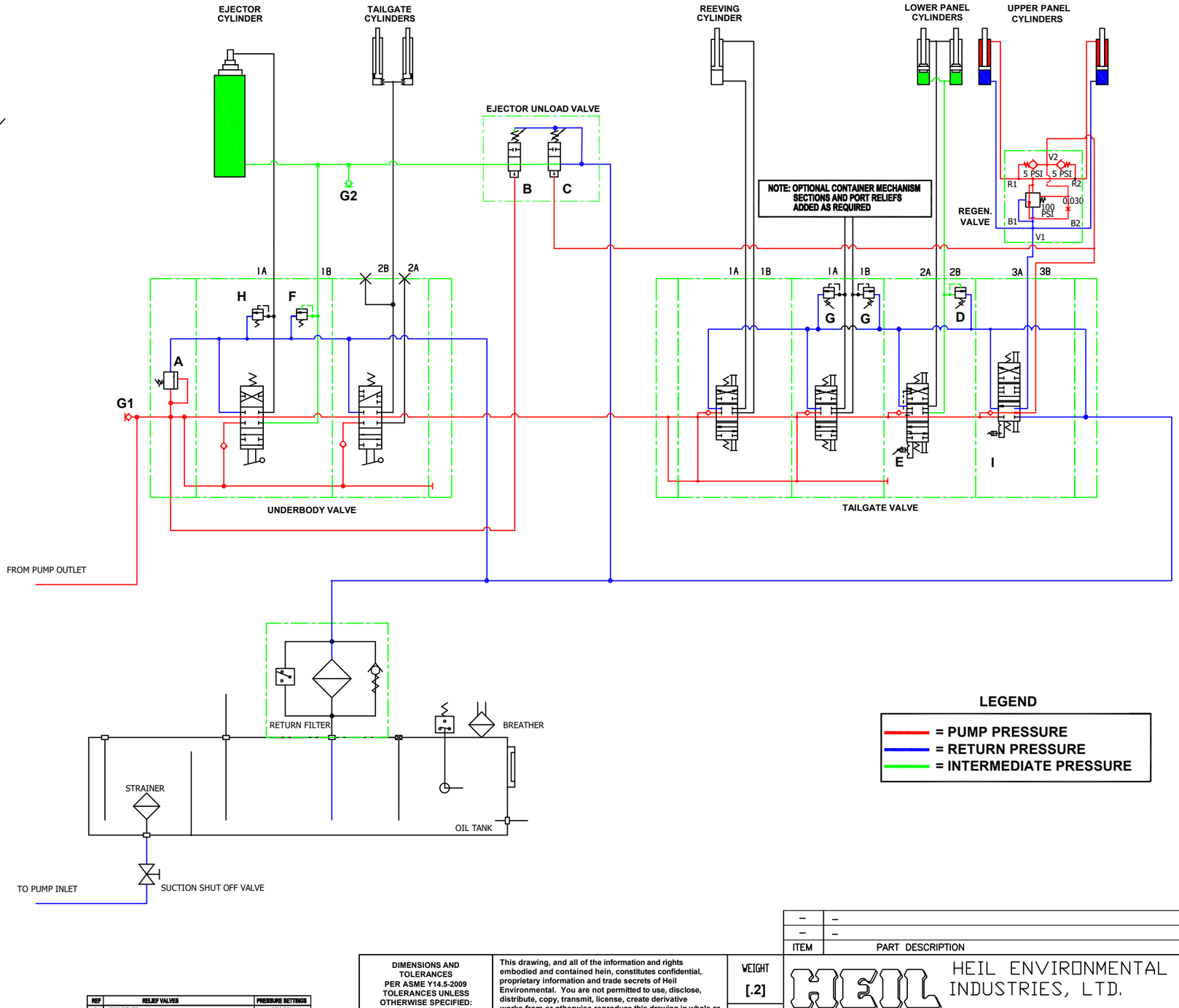


FRONT MOUNT OR CONSTANT DUTY PTO PUMP



FRONT MOUNT OR CONSTANT DUTY PTO PUMP
WITH PUMP CONTROL MANIFOLD

CLUTCH SHIFT PTO DRIVEN
DUAL VANE PUMP OAI



LEGEND

- = PUMP PRESSURE
- = RETURN PRESSURE
- = INTERMEDIATE PRESSURE

GAUGE POST LOCATIONS	
G1	GAUGE PORT (SYSTEM PRESSURE)
G2	GAUGE PORT (EJECTOR UNLOAD PRESSURE)

REF	RELIEF VALVES	PRESSURE SETTINGS
A	MAIN RELIEF	2500 PSI
B	EJECTOR UNLOAD (PILOTED BY PUMP PRESSURE)	2100 PSI
C	EJECTOR UNLOAD (PILOTED BY UPPER PANEL CYLINDER)	2350 PSI
D	LOWER PANEL BACK OFF	3000 PSI
E	LOWER PANEL (HYDRAULIC DETENT)	3400 PSI
F	EJECTOR EXTEND RELIEF	2800 PSI
G	OPTIONAL CONTAINER MECHANISM PORT RELIEFS	1400 PSI
H	EJECTOR RETRACT RELIEF	2800 PSI
I	UPPER PANEL DETENT MECHANICAL BOTH WAYS	———

REV.	WAS	DATE	ECO
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
1	Complete update revision Added pumps, revised tank, TG valve, Cushion cylinders, Regen valve	08/02/2024	N/A-
-	RELEASED	-	-

ITEM	PART DESCRIPTION
–	–
–	–

DIMENSIONS AND TOLERANCES PER ASME Y14.5-2009 TOLERANCES UNLESS OTHERWISE SPECIFIED: LINEAR (INCHES) XX = ± 0.06 XXX = ± 0.030 ANGULAR = ±1°

This drawing, and all of the information and rights embodied and contained hein, constitutes confidential, proprietary information and trade secrets of Heil Environmental. You are not permitted to use, disclose, distribute, copy, transmit, license, create derivative works from or otherwise reproduce this drawing in whole or in part except as authorized, in writing, by Heil Environmental. You agree to immediately return this drawing and any copies or reproductions thereof upon request by Heil Environmental.

WEIGHT [.2]

TYPE DRAFT

DATE: JUL 30th, 2024

SCALE: N/A

MATERIAL:

HEIL ENVIRONMENTAL INDUSTRIES, LTD.

TITLE: **HYDRAULIC SCHEMATIC DP5000 REAR LOADER**

DRAWN BY: EW

PART No. 701-8426

Copyright 2025, The Heil Co.

R

S

T

W

Printed in the U.S.A.
Copyright 2025, The Heil Co.

HEIL ENVIRONMENTAL WARRANTY STATEMENT

The Heil Co. d/b/a Heil Environmental ("Heil") warrants its solid waste collection equipment to be free from defects in material and workmanship under normal use for a period of one (1) year or 2000 hours of operation (whichever comes first) from the date of equipment In-Service or during the period of coverage offered by an extended warranty program, when proper service and maintenance as described in Heil Service Bulletins and Parts & Service Manuals are performed. The standard or extended equipment warranty is not transferable except for sales demonstration units.

This warranty is expressly limited to the repair or replacement of any component or part thereof, of any such refuse or recycling collection body manufactured by Heil that is proven to Heil's satisfaction to have been defective in material or workmanship. Such components or parts shall be repaired or replaced at Heil's option without cost to the standard purchaser for parts and labor provided such unit is returned to an authorized Heil Distributor for replacement or repair. The repair or replacement must be made during the standard or extended warranty coverage period. Before any warranty can be allowed on new equipment, a validated warranty registration form must be on file with Heil's Customer Service Department within sixty (60) days of the equipment's In-Service date. Wear items are excluded from warranty coverage.

All OEM service parts sold by Heil have a six (6) month warranty from the date of purchase. Aftermarket parts purchased from Heil are supported by a 90-day warranty. The parts warranty covers parts only, providing that factory inspection reveals a defect in material or workmanship. Labor, troubleshooting, equipment downtime, etc. is not covered under the parts warranty policy.

HEIL MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, AND MAKES NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR ANY PARTICULAR PURPOSE. HEIL DOES NOT ASSUME ANY LIABILITY OR ACCEPT CLAIMS FOR LOSS OF PROFITS, PRODUCT DOWN TIME OR ANY OTHER DIRECT, INCIDENTAL OR INDIRECT CONSEQUENTIAL LOSSES, COSTS, DAMAGES OR DELAYS.

Any improper use, operation beyond rated equipment or component capacity, substitution of parts that are not Heil-approved, or any alteration or repair by others in such a manner as in Heil's sole judgment affect the product operation or integrity shall void the warranty.

Other than the extension of the standard warranty period purchased under a supplemental Heil Extended Warranty Program, no employee or representative is authorized to modify this warranty in any way nor shall any other warranties be granted. No dealer-supplied warranty program is endorsed or supported by Heil.

Heil retains the right to modify its factory warranty program prospectively at any time.

The statements included herein is merely a summary of the full Limited Warranty provided by Heil. Please see the full limited warranty as outlined at https://www.heil.com/warranty/ under Heil Warranty Policies and Procedures

Revised 6/2024

WE NEVER STOP WORKING FOR YOU

www.heil.com

Customer Care:
866-ASK-HEIL
(866-275-4345)

The Heil Co.
4301 Gault Avenue North
Fort Payne, AL 35967-9984

Parts Central:
800-528-5308

Technical Service:
866-310-4345
TechSupport@DoverESG.com