



Service Bulletin

Bulletin Number: **SB-20-338**
Release Date: **July 27, 2020**
Distribution: **Heil Dealers, Heil Technical Services, Heil Sales Team, Heil Customer Care**
Subject: **Half/Pack® (Featuring Odyssey® Controls): Pump-to-Valve 4-Wire Spiral Hydraulic Hoses Standardization and Hydraulic Hose Clamps Inspection**

NOTE: READ THIS BULLETIN IN ITS ENTIRETY BEFORE BEGINNING ANY REPAIR WORK.

Starting **August 1, 2020**, to ensure the highest hydraulic hose reliability, pump-to-filter and filter-to-valve **4-wire spiral hydraulic hoses** will become standard on all Half/Pack® (featuring Odyssey® Controls) units.

These two (2) specific 2-wire braided hydraulic hoses (Parker 387ST-16) that will be replaced with 4-wire spiral hoses (Parker 722ST-16) on these units are:

- (1) Pump to high pressure filter (hose part number varies with chassis configuration)
- (2) High pressure filter to main body control valve (hose part number varies with chassis configuration)

To address units in the field, Heil Environmental agrees to provide warranty replacement of these two (2) **OEM installed** hoses that meet the following replacement criteria. Warranty replacement of the two specified hoses shall apply if an inspection finds:

- (1) The installed pump-to-filter and filter-to-valve hydraulic hoses are 2-wire braided (387ST-16); or,
- (2) The installed hoses do not have a straight section adjacent to the crimp fitting for a minimum distance that is equal to 2X the hose OD. For these hoses, the OD is 1.39", so a minimum 2.78" straight section from the crimp is applicable; or,
- (3) Damage is found around crimp fittings. Visually inspect for potential premature hose failure adjacent to crimp fittings. Evidence of potential hose failure can be seen as wrinkling or bulging of the hose outer covering.

Additionally, this Service Bulletin outlines the procedure to inspect all hose support clamps for proper installation and perform Hydraulic System tasks as outlined in the Heil Service Manual Body Preventive Maintenance Chart.

1. PLANNING INFORMATION

A. Products Affected

A full list of affected unit serial numbers will be sent out with this Service Bulletin.

B. Compliance

Each Dealer must perform these tasks as outlined in this Service Bulletin for each unit identified above in the Products Affected section no later than **October 31, 2020**. The tasks outlined in this Service Bulletin must be performed by a qualified technician.



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C. Manpower

The labor effort required to accomplish the tasks in this Service Bulletin is shown in **Table 1**.

Table 1. Manpower

TASK	MAN HOURS REQUIRED
Replace pump-to-filter and filter-to-valve hydraulic hoses as described in this Service Bulletin	1

D. Tools, Materials and Parts Needed

The tools and parts necessary to perform the rework are outlined in **Table 2** and **Table 3**.

Table 2. Tools and Materials

Item	Part Number	Application
Personal Protective Equipment	Commercially available	Safety protection as required by employer
Wrench Set	Commercially available	To disconnect/connect hydraulic fittings
Torque Wrench	Commercially available	To properly tighten hydraulic fittings
Container	Commercially available	To capture hydraulic fluid

Table 3. Parts

Part Number	Description	Qty Per Unit	Special Instructions
N/A	Parker 722ST-16 Hydraulic Hose, Pump-to-Filter, 4000 PSI Minimum Working Pressure, 4-Wire Spiral, 1"	1	Hose part number varies with chassis configuration
N/A	Parker 722ST-16 Hydraulic Hose, Filter-to-Valve, 4000 PSI Minimum Working Pressure, 4-Wire Spiral, 1"	1	Hose part number varies with chassis configuration
036-1982-50380	Clamp, 4-Wire Spiral Hydraulic Hose, 1"	3	

2. PREPARING THE UNIT AND WORK AREA

Prior to performing Lock-Out/Tag-Out, make sure to LOWER the arms and forks FULLY DOWN to the ground or RAISE the arms FULLY UP against the arm stops.

Be certain that all hydraulic pressure has been fully relieved before beginning any hydraulic rework.

To relieve the hydraulic pressure in the system:

- (1) When there are in-cab controls, turn the ignition switch to ON then:
 - (a) Move the switches of the hydraulic controls. This relieves the pressure in the cylinders.
 - (b) Turn the ignition switch to OFF.
 - (c) When there are no in-cab controls, move the outside control levers to relieve the pressure in the cylinders.



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Make sure that the unit is in **Lock-Out/Tag-Out mode** before performing re-work. Refer to and follow your company's Lock-Out/Tag-Out policies and procedures. At a minimum, refer to and follow the Lock-Out/Tag-Out procedure found in your Heil Service Manual. Always wear appropriate Personal Protective Equipment as required by your employer (but to always include at a minimum, safety glasses and OSHA approved hard-toed boots) when repairing a unit or performing scheduled maintenance on a unit. Clear the work area around the unit of all unnecessary people and equipment.

3. CORRECTIVE ACTIONS

With the unit prepared as described in Section 2 of this Service Bulletin, in **Lock-Out/Tag-Out mode**, carefully follow the steps below.

A. Inspect Two (2) Potentially Affected Hydraulic Hoses

- (1) Identify the pump-to-filter and filter-to-valve hydraulic hoses.
 - (a) If these two hoses are 4-wire spiral 4000 PSI minimum working pressure hoses (Parker 722ST-16) that have a straight section adjacent to the crimp fitting for a minimum distance that is equal to 2X the hose OD (minimum of 2.78" straight section from the crimp), then no further action related to these hoses is required.
 - (b) If these two hoses are 2-wire braided hoses (Parker 387ST-16) OR do not have a straight section adjacent to the crimp fitting for a minimum distance that is equal to 2X the hose OD (minimum of 2.78" straight section from the crimp), replace with new 4-wire spiral 4000 PSI minimum working pressure hoses by following the procedure below.

B. Replace Two (2) Affected Hydraulic Hoses

Only perform this procedure if the two specified hoses meet the replacement criteria in Section 3.A. of this Service Bulletin.

- (1) Detach the hydraulic fittings and drain remaining oil from the old hose into the container.
- (2) Procure new 1" diameter high-pressure hoses (Parker 722ST-16) with new fittings that meet the requirements below. Some unit configurations may require different length hoses than the hose that is being replaced in order to achieve the following installation requirements, however the hose length of the hose being replaced can be used as a baseline for determining the replacement hose length.

Hose Specification/Installation Requirements:

- (a) The required minimum Bend Radius of the replacement hose material is 6" or less.
- (b) Length of the replacement hose must allow the installed hose Bend Radius to be 6" or more.
- (c) Installation of the replacement hose must allow for a straight section of hose adjacent to the crimp fitting to be a minimum of twice the Outside Diameter (OD) of the hose. For a Heil supplied hose for this application this is a minimum of 2.75".
- (d) The hose length must be made so that the hose assembly has enough length to allow for changes in length to occur when the hose is pressured and for the system components to operate without violating the installation requirements.

- (e) The replacement hose must have an Abrasion Resistant Outer Layer. All replacement hoses are to be of the 4-wire spiral construction and have a minimum of 4000 PSI Working Pressure rating.
- (3) Install the new hydraulic hoses. Use a backup wrench to ensure that the hose does not twist while tightening the fittings. Torque fittings to 130 FT-LBS.
- C. Test for Hydraulic Fluid Leaks
 - (1) Take the unit out of Lock-Out/Tag-Out Mode.
 - (2) Operate all unit functions. Then check for leaks.
 - (3) If there are leaks, tighten the hydraulic fittings that are leaking and then check again for leaks.
 - (4) When there are no leaks, check hydraulic oil level and add oil if needed.
- D. Inspect all Hydraulic Hose Support Clamps

Hydraulic tube clamps should never be used on hydraulic hoses. Over time, these types of clamps will rub through the hose covering and potentially cause hose failure.

 - (1) Inspect all hose clamps. There should be no daylight coming through between the hose and hose clamp. See **Figure 2** for an example of incorrect use of a tube clamp on a hose.
 - (2) Replace any tube clamps used for hoses with appropriately sized hose clamps. **The hose clamps must be tight and secure around the hoses.** See **Figure 1** and **Table 4**.

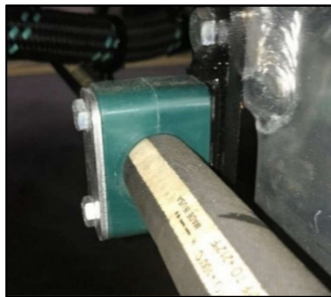


Figure 1. CORRECT Use of Hose Clamps for Hoses



Figure 2. INCORRECT Use of Tube Clamps for Hoses

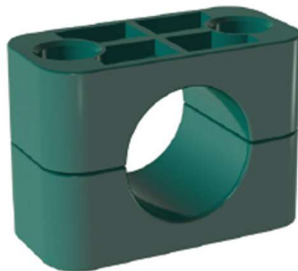


Figure 3. Typical Hose Clamp

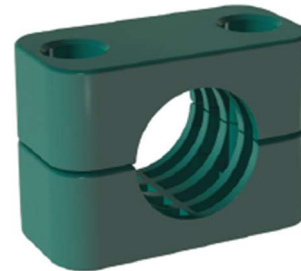


Figure 4. Typical Tube Clamp



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Table 4. Hose Support Clamps Part Numbers

SINGLE HOSE SUPPORT CLAMPS FOR PARKER ABRASION RESISTANT HOSE WITHOUT FIBER GUARD							
HOSE WORKING PRESSURE	HOSE CONSTRUCTION	PARKER HOSE SERIES	PARKER HOSE SIZE	HOSE OUTSIDE DIAMETER		HEIL PART CLAMP NUMBER	CLAMP BORE (MM)
				INCH	MM		
3000 PSI	2-WIRE BRAID	387ST	04	0.53	13.4	036-1982-20127	12.7
3000 PSI	2-WIRE BRAID	387ST	06	0.69	17.4	036-1982-20172	17.2
3000 PSI	2-WIRE BRAID	387ST	08	0.81	20.7	036-1982-30200	20.0
3000 PSI	2-WIRE BRAID	387ST	10	0.94	23.9	036-1982-30230	23.0
3000 PSI	2-WIRE BRAID	387ST	12	1.09	27.8	036-1982-40269	26.9
3000 PSI	2-WIRE BRAID	387ST	16	1.39	35.4	036-1982-50350	35.0
3000 PSI	2-WIRE BRAID	387ST	20	1.82	46.3	036-1982-60460	46.0
4000 PSI	2-WIRE BRAID	487ST	04	0.52	13.1	036-1982-20127	12.7
4000 PSI	2-WIRE BRAID	487ST	06	0.68	17.2	036-1982-20172	17.2
4000 PSI	2-WIRE BRAID	487ST	08	0.80	20.4	036-1982-30200	20.0
4000 PSI	2-WIRE BRAID	487ST	10	0.94	23.9	036-1982-30230	23.0
4000 PSI	2-WIRE BRAID	487ST	12	1.09	27.8	036-1982-40269	26.9
4000 PSI	4-WIRE SPIRAL	487ST	16	1.49	37.8	036-1982-50380	38.0
4000 PSI	4-WIRE SPIRAL	487ST	20	1.82	46.3	036-1982-60460	46.0
4000 PSI	4-WIRE SPIRAL	722ST	06	0.78	19.9	036-1982-30190	19.0
4000 PSI	4-WIRE SPIRAL	722ST	08	0.89	22.7	036-1982-30220	22.0
4000 PSI	4-WIRE SPIRAL	722ST	10	1.04	26.4	036-1982-30254	25.4
4000 PSI	4-WIRE SPIRAL	722ST	12	1.21	30.7	036-1982-40300	30.0
4000 PSI	4-WIRE SPIRAL	722ST	16	1.49	37.8	036-1982-50380	38.0
4000 PSI	4-WIRE SPIRAL, LOW TEMP	722LT	06	0.78	19.9	036-1982-30190	19.0
4000 PSI	4-WIRE SPIRAL, LOW TEMP	722LT	08	0.89	22.7	036-1982-30220	22.0
4000 PSI	4-WIRE SPIRAL, LOW TEMP	722LT	10	1.04	26.4	036-1982-30254	25.4
4000 PSI	4-WIRE SPIRAL, LOW TEMP	722LT	12	1.21	30.7	036-1982-40300	30.0
4000 PSI	4-WIRE SPIRAL, LOW TEMP	722LT	16	1.49	37.8	036-1982-50380	38.0



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E. Body Hydraulics Preventive Maintenance

Following the Body Preventive Maintenance schedule found in Heil Service Manuals, perform the Hydraulic System tasks below.

- (1) Daily (8 Hours)
 - (a) Check oil level – add if necessary.
- (2) Weekly (40 Hours)
 - (a) Check cylinders, pump, hoses, tubes, fittings, and adapters for leaks.
 - (b) Check hoses for cracks, crushes, and cover blisters. Repair or replace if necessary with genuine Heil parts.
 - (c) Any replacement hose should be the same size and pressure rating as listed on the original OEM hose.
 - (d) Check control valve seals for leaks. Repair or replace if necessary.
- (3) Every Six Months (1000 Hours)
 - (a) Replace filters after first 30 days of operation, then every 6 months or 1000 hours of operation OR when filter bypass light is ON.
 - (b) Replace tank breather filter every time you replace filter element.
- (4) Yearly (2000 Hours)
 - (a) Drain, flush, and refill.
 - (b) Change filter elements.
 - (c) Change oil when oil sample shows to change oil.

To obtain reimbursement from Heil for re-work as a result of implementing this Service Bulletin, submit one completed Request For Credit (RFC) for each unit re-worked. Heil Dealers and Service Centers must file claims electronically using Heil's online warranty system. Heil Environmental agrees to provide warranty replacement of these two (2) specified hoses that meet the replacement criteria shown in the first section of this Service Bulletin. Labor will be reimbursed one (1) hour per re-worked affected unit listed in this Service Bulletin. Parts will be reimbursed \$35 for pump-to-filter hose, \$58 for filter-to-valve hose, and \$3 per hose clamp, for a total maximum parts reimbursement of \$102 per re-worked affected unit listed in this Service Bulletin. There will be no labor reimbursement for inspections. **Heil reserves the right to request the return of any replaced hoses for our inspection to review any reimbursement claim.** All re-work must be completed by **October 31, 2020**.



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If you have any questions regarding the information detailed in this Bulletin, please contact Heil Technical Service at 866.310.4345.

*Heil Environmental Service Bulletin procedures are intended for use by professional technicians, NOT a "do-it-yourselfer." They are written to inform experienced technicians of conditions that may occur on some units, or to provide information that could assist in the proper servicing of a unit. Properly trained technicians have **access to and are familiar with the applicable Heil Operation Manual and Heil Parts and Service Manuals** and have the equipment, tools, safety training, and know-how to do a job properly and safely. If a condition is described, DO NOT assume that the Bulletin instructions apply to your unit, or that your unit will have that condition. See your Heil Dealer to determine whether your unit may benefit from the information in this Service Bulletin.*

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