Section: K
Sentinel Systems

aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding

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Questions? Contact Technical Support:
800 344 3286 or 209 521 7860 ext. 7555
e-mail: racortech@parker.com

Sentinel

When an abnormal condition occurs in a diesel engine, a Sentinel protection system automatically shuts it down or reduces RPMs by controlling the fuel supply. Optional manual or electronic overrides are available.

Sentinel Systems Protect Against:

- **Low oil pressure**
- **Loss of coolant**
- **High oil temperature**
- **High coolant temperature**
- **High transmission temperature**
- **Loss of tail pump pressure on irrigation engines**

Any of these conditions can quickly lead to damaged camshafts, piston heads, cylinders, crankshafts, bearings and transmissions, or even result in total engine seizure. When you consider the loss of revenue from damage and downtime, you can't afford to operate without a Sentinel Engine Protection System.

The All-mechanical advantage:

Electrical shutdown systems are prone to problems with moisture, corrosion, faulty connections and broken indicators. Sentinel systems are entirely mechanical and independent of electrical circuits. This means electrical failure can never induce a failure in your engine protection system.

Coolant Pressure Valve

Master Control

Heat Sensor

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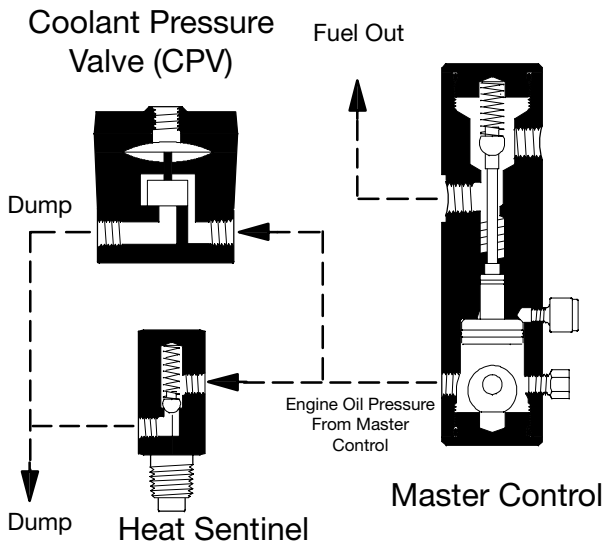
The Basic Sentinel System

During normal operation, oil pressure from the engine keeps the ball valve in the Sentinel Master Control in the raised position, allowing fuel to flow to the engine. With a loss of oil pressure, the ball valve drops and fuel flow is cut off or reduced, depending on the type of systems specified.

Often coolant or transmission oil temperature exceeds the setting of the Sentinel Heat Sensor, it's seal opens and dumps oil pressure from under the Master Control piston, causing the ball valve to fail and halt the flow of fuel. Set to activate at any temperature from 180°F to 255°F, the Heat Sensor comes with 1/2" NPTF or 3/8" NPTF threads.

The Sentinel Coolant Loss Valve is kept closed by the flow pressure of the coolant. Loss of pressure causes the valve to open and dump oil presser from under the Master Control piston, stopping fuel flow.



Customized Operation:

Because the piston design in the Master Control utilizes engine fuel pressure to assist in closing the fuel valve, the Master Control can be closed at a higher working oil pressure then its original low idle setting.

For example, a Sentinel Master Control installed in a Detroit Diesel engine has a primary oil pressure setting of 5 PSI for idle conditions. However, when running at governed speed under load, this engine produces approximately 70 PSI to 80 PSI fuel pressure. Under these conditions, the Sentinel Master Control closes the fuel supply to the engine when diminishing oil pressure reaches 15 PSI, not the primary setting of 5 PSI.

Temperature and pressure shut-off points can be specified within wide limits and various options allow Sentinel systems to be tailored to individual specifications. Settings can be at the factory or on the job by shop mechanic. On suction side applications, the Master Control is installed between the fuel filter and the injection pump. On injection engines, it can be installed between the final filter and the head.

Options:

There are a number of available option switches that enable you to customize the Sentinel protection system to your specific operating requirements.

Master Control for Automatic Torque Reduction:

A fuel orifice inside the Master Control automatically controls fuel flow under emergency conditions, causing predetermined, reduced RPM. It supplies metered start-up fuel.

Master Control with Solenoid Valve:

A solenoid valve controlled by a remote mounted push button may be used to provide fuel flow in emergency conditions. Full power potential or a predetermined, reduced amount of power can be supplied to a failing engine. It also supplies metered start-up fuel.

Pre-Shutdown Alarm:

A remote mounted light/buzzer gives warning of an imminent shutdown condition.

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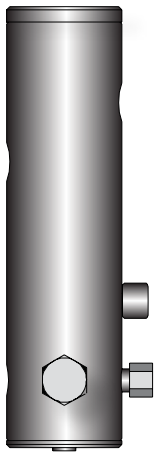
D Series Master Controls

The D Series Master Control provides positive fuel shutoff (complete shutdown) with manual override at the control to allow the operator to manually override the valve each time the engine is started.



Specifications	D-5[1]	D-5V[1]	D-5Y
Engine Make	Detroit Diesel	Detroit Diesel	Cummins Big Cam
Oil Setting Pressure	5 - 25 PSI	5 - 25 PSI	5 - 25 PSI
Fuel Flow	285 GPM	285 GPM	285 GPM
Inlet / Outlet Ports	3/8” NPT	3/8” NPT	3/8” NPT
Override Feature	Yes	No	Yes
Spring Force	5 lbs	5 lbs	8 lbs

Specifications	D-10	D-10V	D-15
Engine Make	All	All	All
Oil Setting Pressure	5 - 25 PSI	5 - 25 PSI	5 - 25 PSI
Fuel Flow	285 GPM	285 GPM	285 GPM
Inlet / Outlet Ports	3/8” NPT	3/8” NPT	3/8” NPT
Override Feature	Yes	No	Yes
Spring Force	10 lbs	10 lbs	15 lbs

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Specifications	D-15V	D-20	D-20V	D-25
Engine Make	All	All	All	All
Oil Setting Pressure	5 - 25 PSI	5 - 25 PSI	5 - 25 PSI	5 - 25 PSI
Fuel Flow	285 GPM	285 GPM	285 GPM	285 GPM
Inlet / Outlet Ports	3/8” NPT	3/8” NPT	3/8” NPT	3/8” NPT
Override Feature	No	Yes	No	Yes
Spring Force	15 lbs	20 lbs	20 lbs	25 lbs

[1] Includes #41737 check valve (1/4”) for fuel return line. Master Control Mounting Bracket: Order Part Number MB-1.

DTF & DTLF Series

DTF & DTLF Series Master Control Orifice Selection

Unless a specific fuel orifice was ordered, each Model DTF and DTLF Series Master Control has an orifice package (#40810) included with each unit. Each fuel orifice has a letter stamped on the head which are codes to identify the orifice size. An orifice selection chart is supplied with each orifice package. Actual orifice size is determined by the customer. When the Master Control functions as a torque reduction unit, the chart below simplifies selecting the proper orifice.

Reference

Orifice Letter	B or D	I or J	J or K	f or J	G or J	N/A
Engine Make	ALLIS -CHALMERS	CAT: D-330C, D-333C, D-343, D-1693,, D-1140, D-1150, D-1160, D-3304, D-3306	CAT: D-346, D-353, D-348, D-379	CAT: D-342	CAT: D-3204	D-3208, D-3304, D-3306

Orifice Letter	J	D or F	A or B	B	B or D	D or F
Engine Make	D-3406, D-3408, D-3412	D-3512	In-line: 3-53, 4-53, 6-53, 2-71, 3-71, 4-71, 6-71	8.2 Liter	V-Series: 6V-53, 8V-53, 6V-71, 8V-71, 12V-71, 6V-92, 8V-92	16V-71, 12V-92, 16V-92

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Orifice Information

Orifice Letter	J	B	B or D	B	F	D
Engine Make	12V-149, 16V-149	8360.05 (160 HP), 8220.02 (200 HP)	FIAT - ALLIS All engines	NTERNATION-AL HARVEST-ER DT-466, 9.0 Liter	D-817B, D-817C	MACK All engines

Orifice Letter	B or D	D or F	B
Engine Make	MERCEDES OM-352-6, OM-355-5	PERKINS All engines	VOLVO In-Line: TD-70E

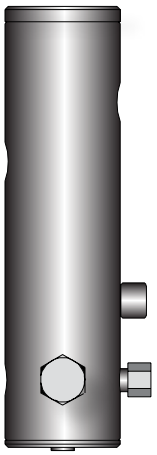
Part Number	FO-1-A	FO-1-B	FO-1-C	FO-1-D	FO-1-E	FO-1-F
Orifice Size	.0083”	.0100”	.0115”	.0135”	.0156”	.0180”

Part Number	FO-1-G	FO-1-H	FO-1-I	FO-1-J	FO-1-K
Orifice Size	.0200”	.0225”	.0250”	.0280”	.0312”

DL Series

DL Series Master Controls

The DL Series Master Control is the same as the D Series except all units feature larger ports and greater fuel flow capacity. Note: For engines with a fuel flow rate higher than 4.0 GPM, two (2) DL Master Control units are required. One DL unit is installed on each side of engines equipped with a common oil pick-up.



Specifications	DL-5*	DL-5Y	DL-10
Engine Make	**Detroit Diesel**	**Cummins Big Cam**	All
Oil Setting Pressure	5-25	5-25	5-25
Fuel Flow	4.0 GPM	4.0 GPM	4.0 GPM
Inlet / Outlet Ports	1/2” NPT	1/2” NPT	1/2” NPT
Override Feature	Yes	Yes	Yes
Spring Force	5	8	10

Specifications	DL-15	DL-20
Engine Make	All	All
Oil Setting Pressure	5-25	5-25
Fuel Flow	4.0 GPM	4.0 GPM
Inlet / Outlet Ports	1/2” NPT	1/2” NPT
Override Feature	Yes	Yes
Spring Force	15	20

* Includes GM-2 check valve (3/8”) for fuel return line. Master Control Mounting Bracket: Order Part Number MB-1.

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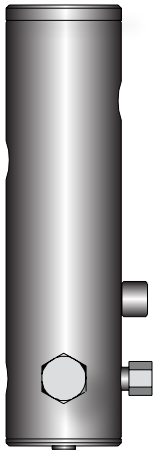
DTF Series Master Controls

The DTF Series Master Control provides engine RPM (torque) reduction and does not create fuel shutoff (complete shutdown) like D and DL Series units. This tamper proof design includes a built-in, fixed by-pass to reduce RPM to idle when a loss of oil pressure is detected. Like the D and DL Series, a manual override at the control allows for full power This unit does not provide protection at idling RPM.



Note: The override valve will allow starting the engine without manually overriding the DTF.

Specifications	DTF-5*	DTF-5V*	DTF-5Y	DTF-10
Engine Make	**Detroit Diesel**	**Detroit Diesel**	Cummins Big Cam	**All**
Oil Setting Pressure	5-25	5-25	5-25	5-25
Fuel Flow	2.85 GPM	2.85 GPM	2.85 GPM	2.85 GPM
Inlet / Outlet Ports	3/8” NPT	3/8” NPT	3/8” NPT	3/8” NPT
Override Feature	Yes	No	Yes	Yes
By-pass Feature	Yes	No	Yes	Yes
Spring Force	5	5	8	10

Specifications	DTF-10V	DTF-15	DTF-20	DTF-25
Engine Make	**All**	All	All	All
Oil Setting Pressure	5-25	5-25	5-25	5-25
Fuel Flow	2.85 GPM	2.85 GPM	2.85 GPM	2.85 GPM
Inlet / Outlet Ports	3/8” NPT	3/8” NPT	3/8” NPT	3/8” NPT
Override Feature	No	Yes	Yes	Yes
By-pass Feature	No	Yes	Yes	Yes
Spring Force	10	15	20	25

* Includes #41737 check valve (1/4”) for fuel return line. Master Control Mounting Bracket: Order Part Number MB-1.

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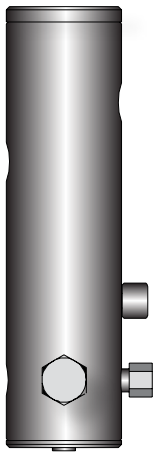
DTLF Series

DTLF Series Master Controls

The DTLF Series Master Control is the same as the DTF Series except all units feature the by-pass and have a greater fuel flow capacity. Note: For engines with a fuel flow rate higher than 4.0 GPM, two (2) DL Master Control units are required. One DTLF unit is installed on each side of engines equipped with a common oil pick-up. The fuel inlet and outlet ports are 1/2" NPT.



Specifications	DTLF-5[1]	DTLF-5Y	DTLF-10
Engine Make	**Detroit Diesel**	**Cummins Big Cam**	All
Oil Setting Pressure	5-25	5-25	5-25
Fuel Flow	4.0 GPM	4.0 GPM	4.0 GPM
Inlet / Outlet Ports	1/2" NPT	1/2" NPT	1/2" NPT
Override Feature	Yes	Yes	Yes
Spring Force	5	8	10

Specifications	DTLF-10	DTLF-15	DTLF-20
Engine Make	All	All	All
Oil Setting Pressure	5-25	5-25	5-25
Fuel Flow	4.0 GPM	4.0 GPM	4.0 GPM
Inlet / Outlet Ports	1/2" NPT	1/2" NPT	1/2" NPT
Override Feature	Yes	Yes	Yes
Spring Force	10	15	20

[1] Includes GM-2 check valve (3/8") for fuel return line. Master Control Mounting Bracket: Order Part Number MB-1

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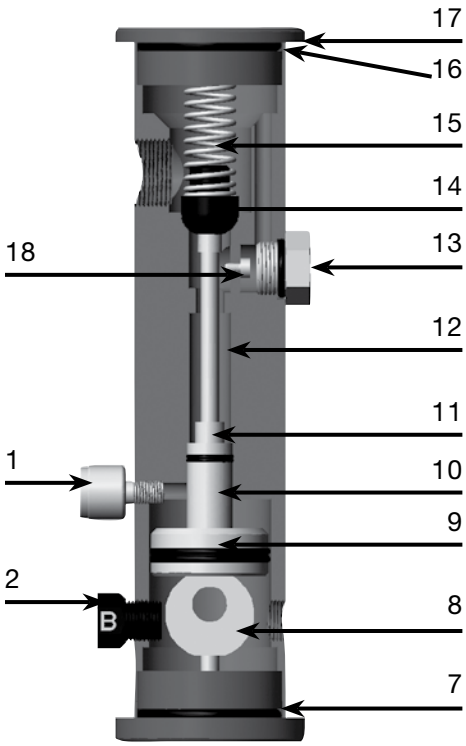
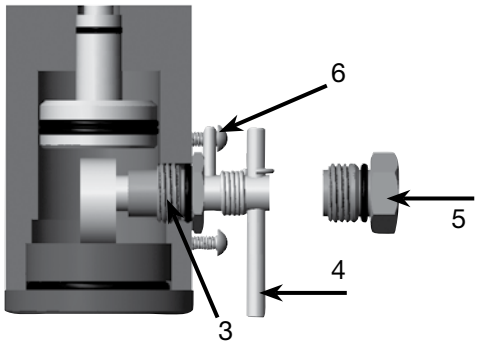
Replacement Parts

	Part Number	Description
1.	**41728**	Filter / Breather
2.	**43572**	Oil Orifice (0.043") Fitting
3.	**40819**	Cam Shaft Bushing (includes 43506 O-ring)
4.	**43595**	Cam Shaft / Handle Assembly
5.	**See Orifice Information Chart**	
6.	**43704**	Stop Screw
	43705	Stop Screw Sleeve
7.	**43597**	Bottom End Cap (D-V only, 1/8"NPT)
8.	**43601**	Cam with Screw (D, DL, DTF & DTLF)
9.	**43502**	Large Quad Ring
10.	**43599**	Piston, D & DTF
	43603	Piston, DL & DTLF
	43602	Piston, D-V
11.	**43501**	Small Quad Ring
12.	**43008**	Main Spring, D-5V, D-5, DL-5, DTF-5 & DTLF-5
	43009	Main Spring, D-5YV, D-5Y, DL-5Y, DTF-5Y & DTLF-5Y
	43010	Main Spring, D-10V, D-10, DL-10, DTF-10 & DTLF-10 (was PN. D9)
	43011	Main Spring, D-15 & DL-15, DTF-15 & DTLF-15
	43012	Main Spring, D-20 & DL-20, DTF-20 & DTLF-20 (was PN. D9-25)
	43013	Main Spring, D-25 & DL-25, DTF-25 & DTLF-25
13.	**40836**	Orifice Plug (DTF, DTLF)
14.	**41752**	Main Ball Seal
	49000	Main Ball Seal with Spring Kit
15.	**43020**	Valve Spring
16.	**43504**	O-ring
17.	**43598**	End Cap (D-V only, 1/4"NPT)
18.	**40810**	Orifice Package (A, B, D, F, J & K sizes)
	SK49012	Seal Kit, All models
	SP-1	End Cap Spanner Wrench
	SK49013	Rebuild Kit, D & DTF
	SK49014	Rebuild Kit, DL & DTLF
	SK49015	Rebuild Kit, D-V
	7330	Installation Instructions





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SVK Series

Electric Solenoid Bypass

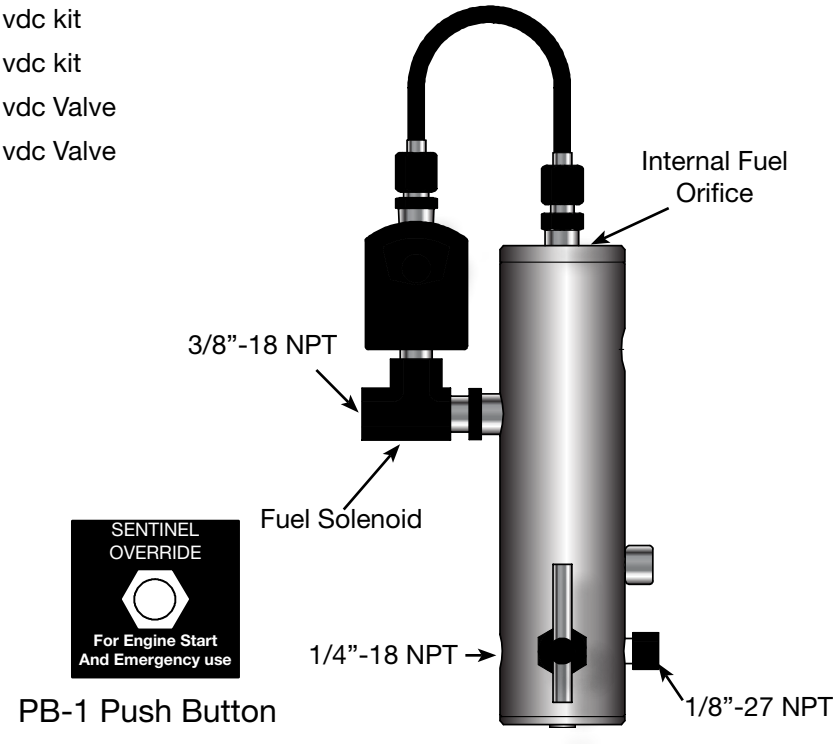
Provides easy override at startup and to the pre-selected, limited horsepower / torque to the engine in the event of a shut-down.

Kit contains:

SV-4 Series Fuel Solenoid Valve (installed on Master Control at factory) PB-1 Push Button Decal Wiring, Hardware, Connectors The Master Control is not included in SVK-1/SVK-2 kits or with the SV-4-12/SV-4-24 Valves.

Override/Heat Shields

	Part Number	Description
1.	**SVK-1**	Fuel Solenoid, 12 vdc kit
2.	**SVK-2**	Fuel Solenoid, 24 vdc kit
3.	**SV-4-12**	Fuel Solenoid, 12 vdc Valve
4.	**SV-4-24**	Fuel Solenoid, 24 vdc Valve



PB-1 Push Button

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e-mail: racortech@parker.com

Heat Sensor

Sentinel Heat Sensors work in conjunction with the Master Control to protect the engine from abnormally high coolant, transmission oil or crankcase oil temperature. Model H and Model HA Heat Sensors are mechanical dump-type units, normally closed. Temperature actuation settings of 180 to 260° Fahrenheit (82 to 127° Centigrade) can be specified as required for engine coolant and lubricating oil, transmissions, driven compressors, etc.

H-180

How to Order

H or HA	-180	PS
Basic Model: MODEL H 1/2" NPT thread MODEL HA 3/8" NPT thread	Temperature: 180*, 190, 200*[2], 210[1], 218*, 225*, 240[2], 185[1], 195, 205*[2], 212, 220[1]	Indicate: **PS** for a 1/8" NPTF female port option is available to accommodate a pressure switch (if desired)

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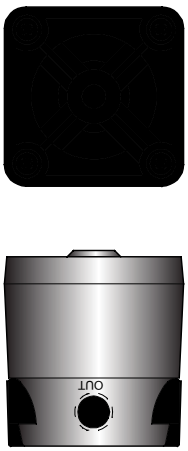
* Indicate that a 1/8" NPTF female port option is available to accommodate a pressure switch.
[1] This temperature setting available for H only.
[2] PS option available for H only.
[3] Metric thread.

Note: The heat sensor must be monitoring **moving** fluid.
MODEL H 1/2" NPT installation thread, two or more may be used in parallel.
MODEL HA 3/8" NPT installation thread, two or more may be used in parallel.
MODEL HM Metric 18M X 1.5 installation thread. Limited selection, see table below.
To order, designate **H or HA**, followed by a dash (-) and then the temperature setting desired. (see below)

CPV Series

Coolant Pressure Valve (CPV)



Specifications	CPV
Crack Pressure: Opens Closes	 **.50 PSI** **.75 PSI**
Flow Resistance	**1 PSI**
Port Size: Inlet Outlet	 1/4” NPTF 1/4” NPTF
Coolant Port	1/8” NPTF
All Ports	Female
Material	fiberglass-filled nylon with an aluminum base

- CPV Standard Coolant Pressure Valve.
- RKCPV: Rebuild Kit for CPV
- MB-79 Mounting Bracket for CPV
- MB-1 Mounting Bracket for CPV and Master Control

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Self Venting Test Valve

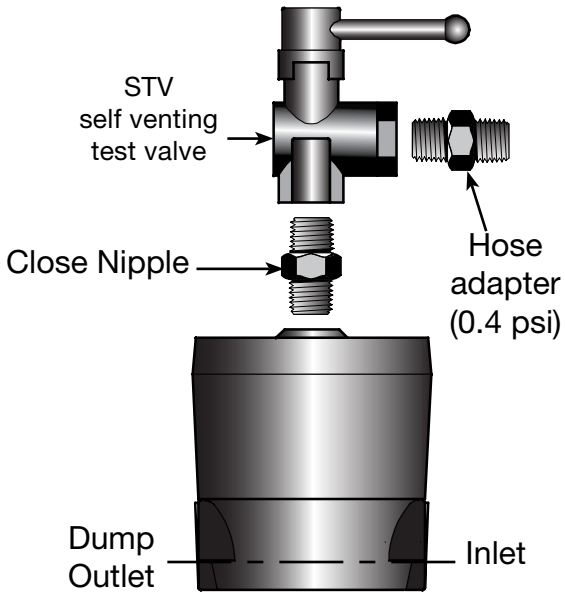
Now, there are no more excuses why the system is not tested and working properly, with just one-quarter turn of the valve handle, the testing is complete! The Sentinel Self Venting Test (STV) Valve Kit eliminates excessive troubleshooting time, fluid spillage, potential component damage and personal harm due to hot oil or water.

How The Valve Works

Sentinel's STV installs at the water inlet to the coolant valve:

1. **In normal operation, water flows through the STV, allowing water to the coolant valve.**
2. **To test the system, the red handle on the STV is turned one-quarter to shut the water flow to the coolant valve.**
3. **When the STV is closed, it vents the small amount of water which becomes trapped between it and the coolant valve. The loss of water pressure from closing the STV causes the coolant valve to open and simulate an engine shutdown.**
4. **The engine will not operate until the STV is returned to the open position.**

Because the engine will not operate until the STV is returned to the open position, an added feature of the new STV is that it can be used as an anti-theft device. At the job site, the operator can turn the STV to the test position when his work is complete. If removal of the equipment is attempted, it would not start because the pressure will not build up close to the coolant valve



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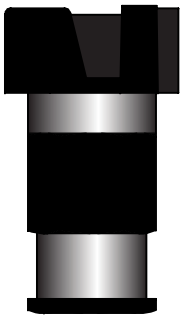
PV Series

Dump Valves

PV Series Dump Valves protect water pumps and air compressors from loss of fluid. They are normally open and will close only when the input pressure reaches the rated pressure of the dump valve (noted at the end of the part number). This pressure can be applied by water discharge from a water pump or air pressure from an air compressor.



Specifications	PV4-15
Minimum Pressure	15 PSI
Maximum Pilot pressure	150 PSI.
Port Size	1/4” NPTF
Orientation	7/32”

Note: CV flow factor: 0.83.

Cylinder Liner Pullers

Sentinel offers three liner pullers for Detroit Diesel engines that provide fast and easy removal and installation of cylinder liners. The puller is placed inside the cylinder and spans from air intake openings. Then turn the crankshaft and the piston will push the liner up and out.

Specifications	LP53-71	LP-92	LP-149
Detroit Diesel Engine Type	53 & 71 Series	92 Series	149 Series

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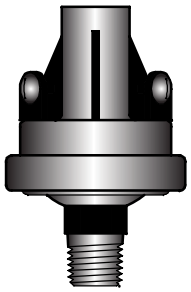
PS & PR Series

Oil Pressure Switches

Pressure Switches (PS) can be used in conjunction with Sentinel Master Controls and Model H and HA Heat Sensors to affect immediate engine shutdown by de-energizing the existing fuel pump solenoid or by activating an alarm to warn of an impending shut-down.



Specifications	PS-1	PS-1A	PS-2	PS-2A[1]
Valve Closed	5 PSI	10 PSI	15 PSI	15 PSI
Tread Size	1/8” -27 MPTM	1/8” -27 MPTM	1/8” -27 MPTM	1/8” -27 MPTM

[1] Specifically for use with Caterpillar 3208, Detroit 8.2 and Cummins B Series engines.

Pressure Relief Valves

The PR valves are used for relieving pressure between the transfer pump and Sentinel Master Control and are mandatory for all mechanical fuel pumps.

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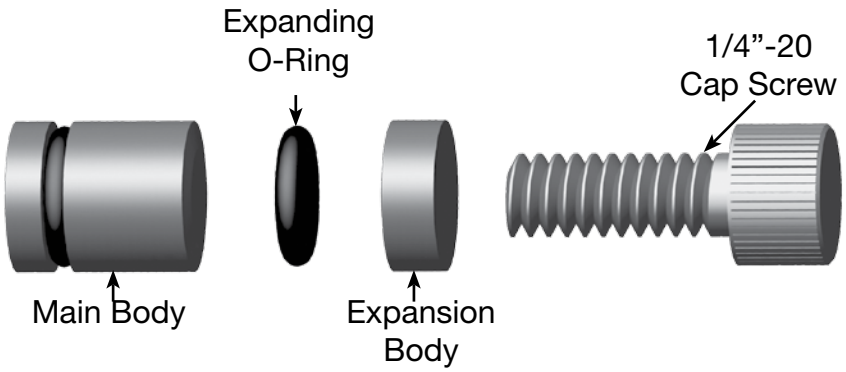
Specifications	PR-35	PR-35
Aplication	Gear Driven Transfer Pumps	Mack Systems with no By-pass
Port Size Inlet	1/4”-18 NPT	1/4”-18 NPT
Port Size Outlet	1/4”-18 NPT	1/4”-18 NPT
Length	1 7/8” long in a 3/4” hexagonal body	1 7/8” long in a 3/4” hexagonal body

CAT Adapters

CAT-1

CAT-2

Expansion Plug For Caterpillar D-353 Engine. The purpose of the CAT-2 Adapter is to prevent fuel from going directly to the injection pump without going through the Sentinel Master Control first.



Note: On some D343 CAT engines in trucks, the CAT-3 Adapter is not required because the ports at the injection pump and filter housing have threads in them. All that is required is to run a fuel line from the filter housing to the fuel Inlet port of the Master Control and one line from the fuel outlet port of the master control to the injection pump.

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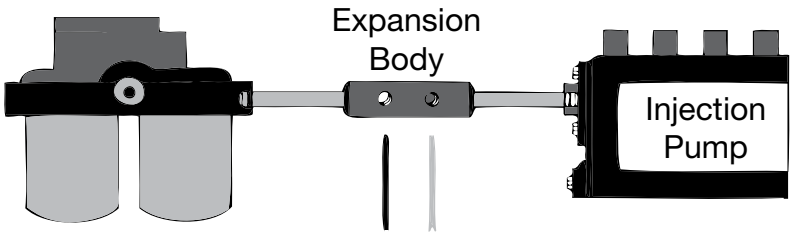
CAT Adapters

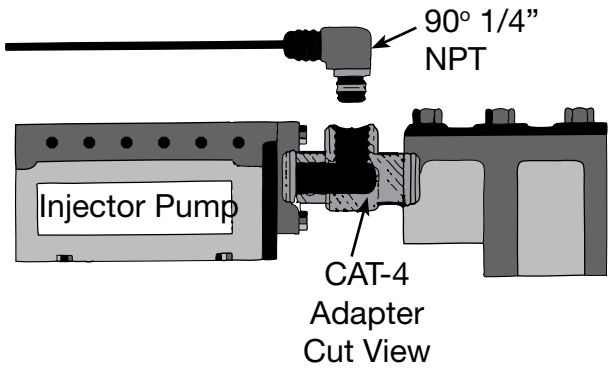
CAT-3

Adapter For Caterpillar 5.4 Bore Engine
(Replaces 8S5030 CAT adapter)



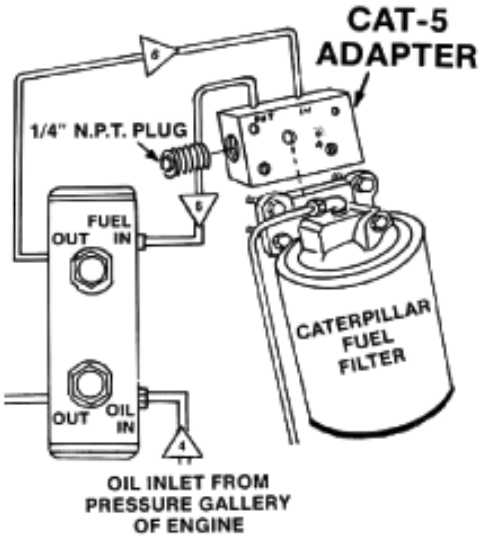
CAT-4

Adapter For Caterpillar D8H and K Engines.



CAT-5

Adapter Block For Caterpillar Sleeve Metering 3304 & 3306 Engines.

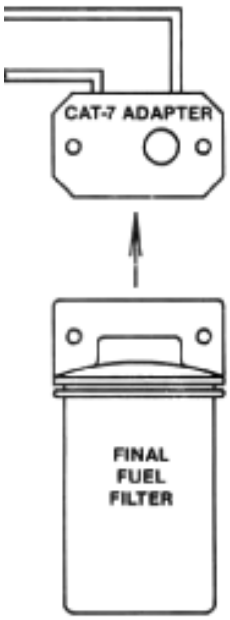


K

CAT Adapters

CAT-7

Adapter For Caterpillar New Scroll 3304 Engines Manufactured After 1980.



CAT-8

Adapter For Caterpillar New Scroll 3304 Engines Manufactured Outside U.S.

HK-CAT Hose Kits

Caterpillar

This HK-CAT kit is specifically assembled for Caterpillar engines and includes the most common hose and fittings necessary to install a complete Sentinel engine protection system on any engine (see Application Guide for details). Depending on the application, this kit may include extra hose and fittings and some application-specific hose and fittings will be customer supplied.

Questions? Contact Technical Support:
800 344 3286 or 209 521 7860 ext. 7555
e-mail: racortech@parker.com

Hose Kit Overview

Find your engine and order one each of the listed components. See notes below.

Caterpillar	D-330, D-330C and D-333C					
System Type	**Master Conttrol**	**Heat Sensor**	**Coolant pressure Valve**	**Mounting Brackets**	**Valves & Adapters**	**Hose & Fitting Kit**
Shutdown	D-10	HA-218	CPV	MB-1, MB-79	CAT-1, STV	HK-CAT
De-Torque	DTF-10	HA-218	CPV	MB-1, MB-79	CAT-1, STV	HK-CAT
Shutdown with Override	D-10 with SVK-1	HA-218	CPV	MB-1, MB-79	CAT-1, STV	HK-CAT
D-336, D-346, D-348 and D-379						
Shutdown	D-10	HA-218	CPV	MB-1, MB-79	STV	HK-CAT
De-Torque	DTF-10	HA-218	CPV	MB-1, MB-79	STV	HK-CAT
Shutdown with Override	D-10 with SVK-1	HA-218	CPV	MB-1, MB-79	STV	HK-CAT
D-342						
Shutdown	D-10	HA-218	CPV	MB-1, MB-79	CAT-4, STV	HK-CAT
De-Torque	DTF-10	HA-218	CPV	MB-1, MB-79	CAT-4, STV	HK-CAT
Shutdown with Override	D-10 with SVK-1	HA-218	CPV	MB-1, MB-79	CAT-4, 41737 and STV	HK-CAT
D-343, D-398 (new style) and D-1693						
Shutdown	D-10	HA-218	CPV	MB-1, MB-79	CAT-3, STV	HK-CAT
De-Torque	DTF-10	HA-218	CPV	MB-1, MB-79	CAT-3, STV	HK-CAT
Shutdown with Override	D-10 with SVK-1	HA-218	CPV	MB-1, MB-79	CAT-3, STV	HK-CAT

Notes: Engines below 180 GPH (approx. 2.85 GPM) fuel flow must use a D master control. Engines with fuel flow between 180 and 240 GPH (approx. 4 GPM) must use a DL master control. Engines with 240 GPH fuel flow, or higher, require two master controls. Standard SVK-1 override is 12 vdc. Order SVK-2 for 24 vdc applications. The STV test valve will aid in initial system test and assist with testing in the field.

HK-CAT

Hose Kit Overview

Find your engine and order one each of the listed components. See notes below.

Caterpillar	D-353, D-398 (old style) and D-399					
System Type	**Master Conttrol**	**Heat Sensor**	**Coolant pressure Valve**	**Mounting Brackets**	**Valves & Adapters**	**Hose & Fitting Kit**
Shutdown	D-10	H-218	CPV	MB-1, MB-79	CAT-2, STV	HK-CAT
De-Torque	DTF-10	H-218	CPV	MB-1, MB-79	CAT-2, STV	HK-CAT
Shutdown with Override	D-10 with SVK-1	H-218	CPV	MB-1, MB-79	CAT-2, STV	HK-CAT
D-318, D-353 Station Engines						
Shutdown	D-10	H-218	CPV	MB-1, MB-79	CAT-2, STV	HK-CAT
1140, 1150, 1160 and 3208 V8						
Shutdown	D-10	H-218	CPV	MB-1, MB-79	PS-1A, PB-1 and STV	HK-CAT
De-Torque	DTF-10	H-218	CPV	MB-1, MB-79	PS-1A, PB-1 and STV	HK-CAT
Shutdown with Override	D-10 with SVK-1	H-218	CPV	MB-1, MB-79	STV	HK-CAT
3114, 3116 and 3117 with Unit Injected Fuel System and D-7 Engine						
Shutdown	D-10	H-218NF	CPV	MB-1, MB-79	PR-60, 41737 and STV	HK-CAT
De-Torque	DTF-10	H-218NF	CPV	MB-1, MB-79	PR-60, 41737 and STV	HK-CAT
Shutdown with Override	D-10 with SVK-1	H-218NF	CPV	MB-1, MB-79	PR-60, 41737 and STV	HK-CAT
3204 with Direct Injected, Scroll Metered Fuel System - Late Models						
Shutdown with Override	D-15 with SVK-1	H-218	CPV	MB-1, MB-79	PR-60, 41737 and STV	HK-CAT

Questions? Contact Technical Support:
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e-mail: racortech@parker.com

Hose Kit Overview

Find your engine and order one each of the listed components. See notes below.

Caterpillar	All 3208					
System Type	**Master Conttrol**	**Heat Sensor**	**Coolant pressure Valve**	**Mounting Brackets**	**Valves & Adapters**	**Hose & Fitting Kit**
Electrical Shutdown	N/A	H-218PS	CPV	MB-79	L3-1, PB-1, PS-1A, D-25-F4, PS-2A and STV	N/A
D-3304, D-3306, D8800 and D7G Engines with Sleeve Metering Fuel System						
Shutdown	D-15	H-218	CPV	MB-1, MB-79	CAT-S, STV	HK-CAT
De-Torque	DTF-15	H-218	CPV	MB-1, MB-79	CAT-S, STV	HK-CAT
Shutdown with Override	D-15 with SVK-1	H-218	CPV	MB-1, MB-79	CAT-S, STV	HK-CAT
D-3304 and D-3306 with Direct Injected, Scroll Metering Fuel System						
Shutdown	D-15	H-218	CPV	MB-1, MB-79	PR-60, Cat-7 and STV	HK-CAT
De-Torque	DTF-15	H-218	CPV	MB-1, MB-79	PR-60, Cat-7 and STV	HK-CAT
Shutdown with Override	D-15 with SVK-1	H-218	CPV	MB-1, MB-79	PR-60, Cat-7 and STV	HK-CAT
All 3306A, 3306C, 3406A, 3406B and 3406C						
Shutdown	D-10	HA-218	CPV	MB-1, MB-79	PR-60, 41737 and STV	HK-CAT
De-Torque	DTF-10	HA-218	CPV	MB-1, MB-79	PR-60, 41737 and STV	HK-CAT
Shutdown with Override	D-10 with SVK-1	HA-218	CPV	MB-1, MB-79	PR-60, 41737 and STV	HK-CAT

Notes: Engines below 180 GPH (approx. 2.85 GPM) fuel flow must use a D master control. Engines with fuel flow between 180 and 240 GPH (approx. 4 GPM) must use a DL master control. Engines with 240 GPH fuel flow, or higher, require two master controls. Standard SVK-1 override is 12 vdc. Order SVK-2 for 24 vdc applications. The STV test valve will aid in initial system test and assist with testing in the field, if necessary. D-3304 and D-3306 engines with sleeve metering fuel systems that have the fuel filter mounted at any location other than directly on the injection pump require no fuel adapter. D8800 engines - add a PR-60 pressure relief valve.

HK-CAT

Application Guide

Find your engine and order one each of the listed components. See notes below.

Continued from previous page.

Caterpillar	All 3406 Stationary Engines					
System Type	**Master Conttrol**	**Heat Sensor**	**Coolant pressure Valve**	**Mounting Brackets**	**Valves & Adapters**	**Hose & Fitting Kit**
Shutdown	D-15	HA-218	CPV	MB-1, MB-79	41737, STV	HK-CAT
All D-3408 and D-3412 Engines						
Shutdown	D-15	HA-218	CPV	MB-1, MB-79	41737, STV	HK-CAT
De-Torque	DTF-15	HA-218	CPV	MB-1, MB-79	41737, STV	HK-CAT
Shutdown with Override	D-15 with SVK-1	HA-218	CPV	MB-1, MB-79	41737, STV	HK-CAT
All 3508, 3512 and 3516 Engines						
Shutdown	D-10	HA-218	CPV	MB-1, MB-79	GM-2, STV	HK-CAT
De-Torque	DTF-10	HA-218	CPV	MB-1, MB-79	GM-2, STV	HK-CAT
Shutdown with Override	D-10 with SVK-1	HA-218	CPV	MB-1, MB-79	GM-2, STV	HK-CAT

Notes: Engines below 180 GPH (approx. 2.85 GPM) fuel flow must use a D master control. Engines with fuel flow between 180 and 240 GPH (approx. 4 GPM) must use a DL master control. Engines with 240 GPH fuel flow, or higher, require two master controls. Standard SVK-1 override is 12 vdc. Order SVK-2 for 24 vdc applications. The STV test valve will aid in initial system test and assist with testing in the field.

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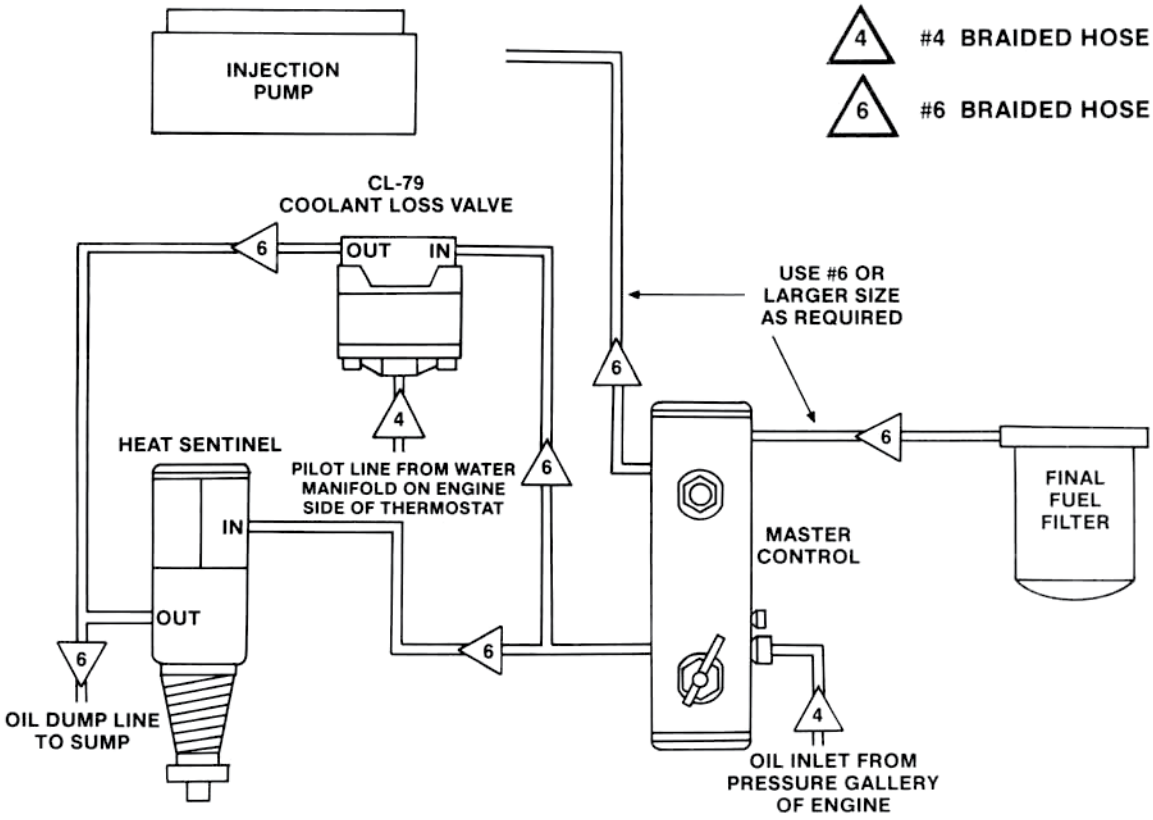
e-mail: racortech@parker.com

HK-CAT



Important: Proper Installation Mandatory for Optimum Performance

Refer to Master Control Installation Instructors for additional information.

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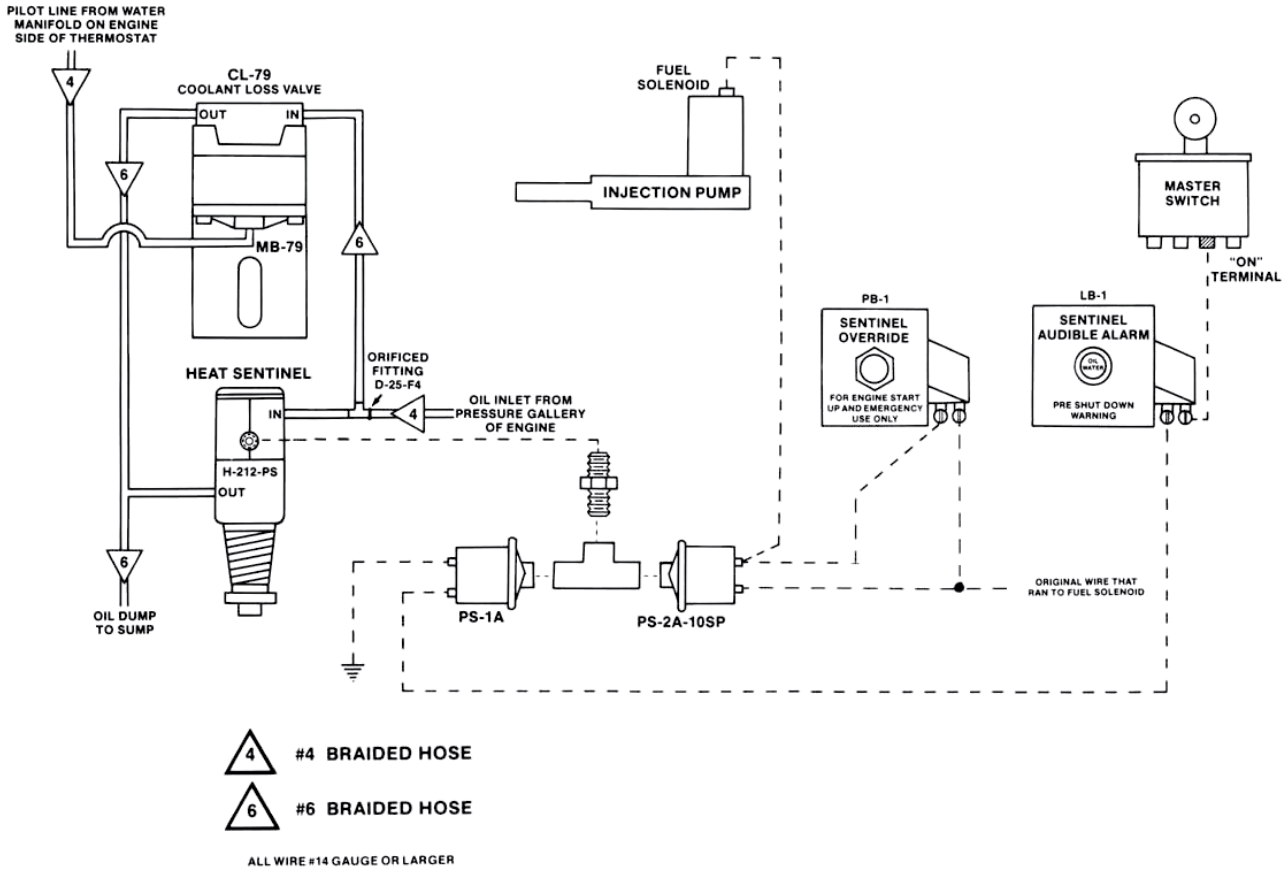
HK-CAT



Important: Proper Installation Mandatory for Optimum Performance

Refer to Master Control Installation Instructors for additional information.

Notes: Use only the water pick up point at 1/8" Pipe Plug on top left side of water pump.

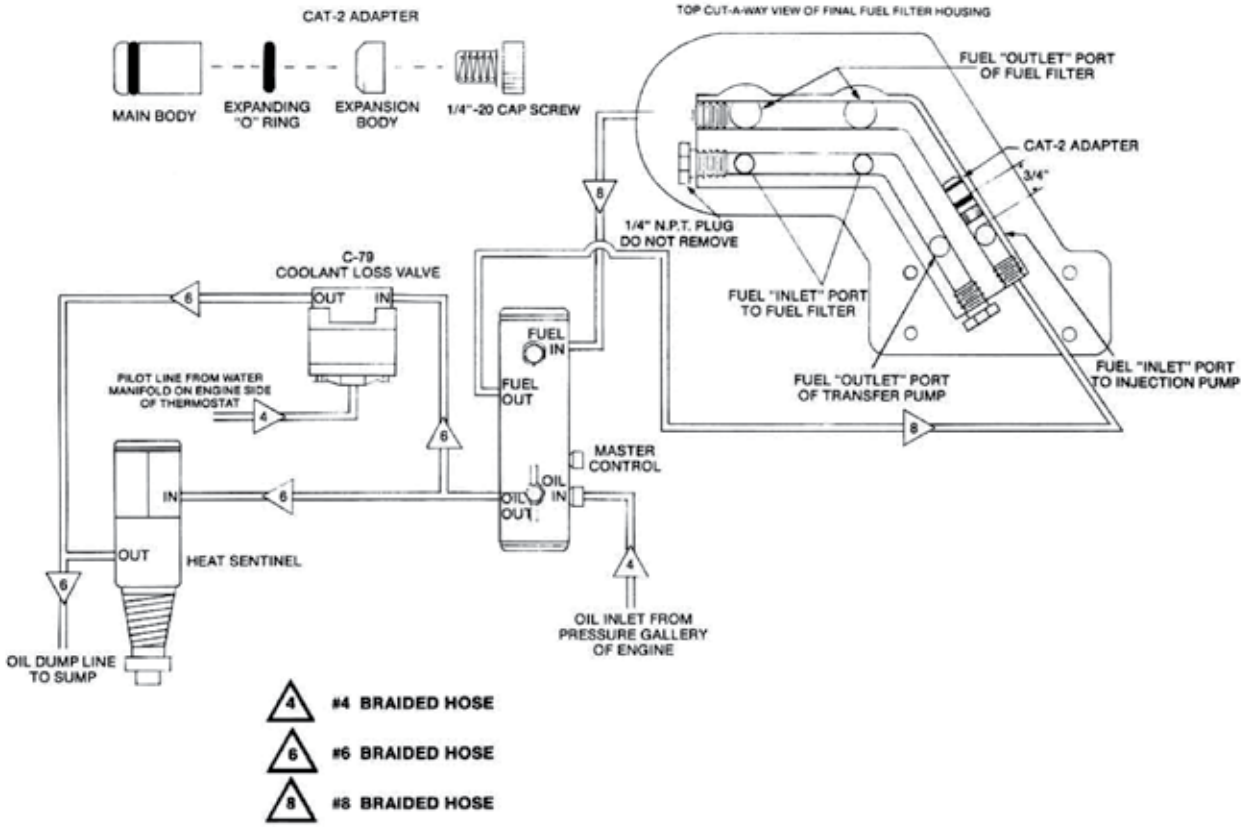
Instructions For Installing CAT-2 Adapter

1. **Remove the four (4) bolts that hol dthe fuel filter housing onto the injection pump. Remove the fuel filter housing from the injection pump.**
2. **Remove the 1/4 N.P.T. plug that is installed in the end of the fuel filter housing, in front of the fuel "inlet" port to the injection pump.**
3. **Remove the 1/4-20 cap screw in the CAT-2 Adapter. Using a long 1/4-20 bolt, insert the main body of the CAT-2 Adapter into the port from which the 1/4 N.P.T. plug was removed. Make sure that the Main Body of the CAT-2 Adapter is inserted approximately 1/4" past the fuel "Inlet" port to the injection pump. Insert the Expansion Body and the 1/4-20 cap screw and tighten the cap screw.**

CAUTION: the port into which the CAT-2 Adapter is to be inserted is supposed to be 27/64 (.422) I.D. Some ports may be undersize in which case a 27/64 drill or reamer will have to be used to enlarge the port.

4. **Install a suitable adapter that will accept the #8 fuel line into the port form which the 1/4 N.P.T. plug was removed. Replace the 1/4 N.P.T. plug at the opposite end of the port with a suitable adapter that will accept the #8 fule line.**
5. **Replace the fuel filter housing, plumb the fuel system and the remainder of the system shown.**

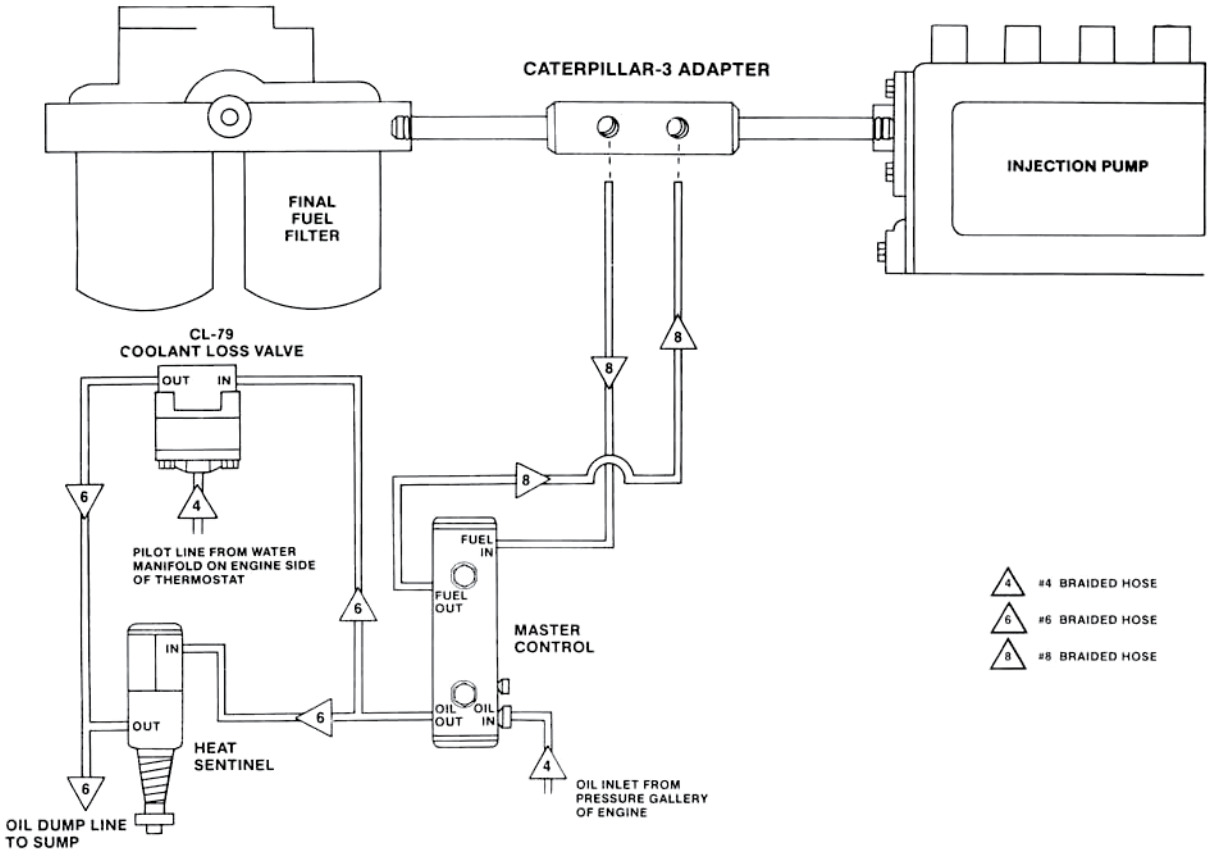
THE PURPOSE OF THE CAT-2 ADAPTER IS TO PREVENT FUEL FROM GOING DIRECTLY TO THE INJECTION PUMP WITHOUT GOING THROUGH THE SENTINEL MASTER CONTROL FIRST.



HK-CAT

Instructions For Installing CAT-3 Adapter

1. **Remove the final fule filter housing by removing the five (5) bolts that hold it to the engine. Replace the fuel sleeve (855030) that connects the fuel filter housing to the injection pump, with the CAT-3 Adapter.**
2. **Replace the fuel filter housing.**
3. **Install the proper fittings in the CAT-3 Adapter and the Sentinel Master Control that will accept the #8 fuel lines. Make sure that the fuel coming out of the final fuel filter goes to the fuel "In" port of the Master Control.**
4. **Plumb the remainder of the system as shown.**



Note: On some D343 CAT engines in trucks, the CAT-3 Adapter is not required becasue the ports at the injection pump and filter housing have threads in them. All that is required is to run a fuel line from the filter housing to the fuel "In" port of the Master Control and one line from the fuel "Out" port of the Master Control to the injection pump.

Questions? Contact Technical Support:
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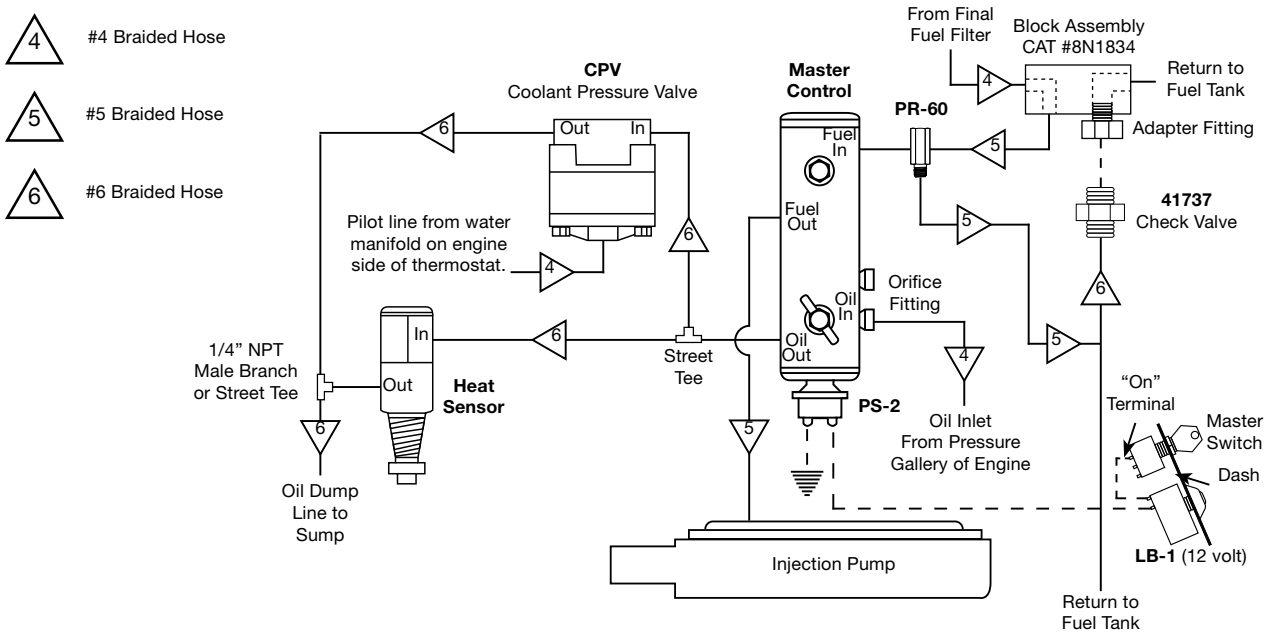
For Caterpillar 3406 Engines

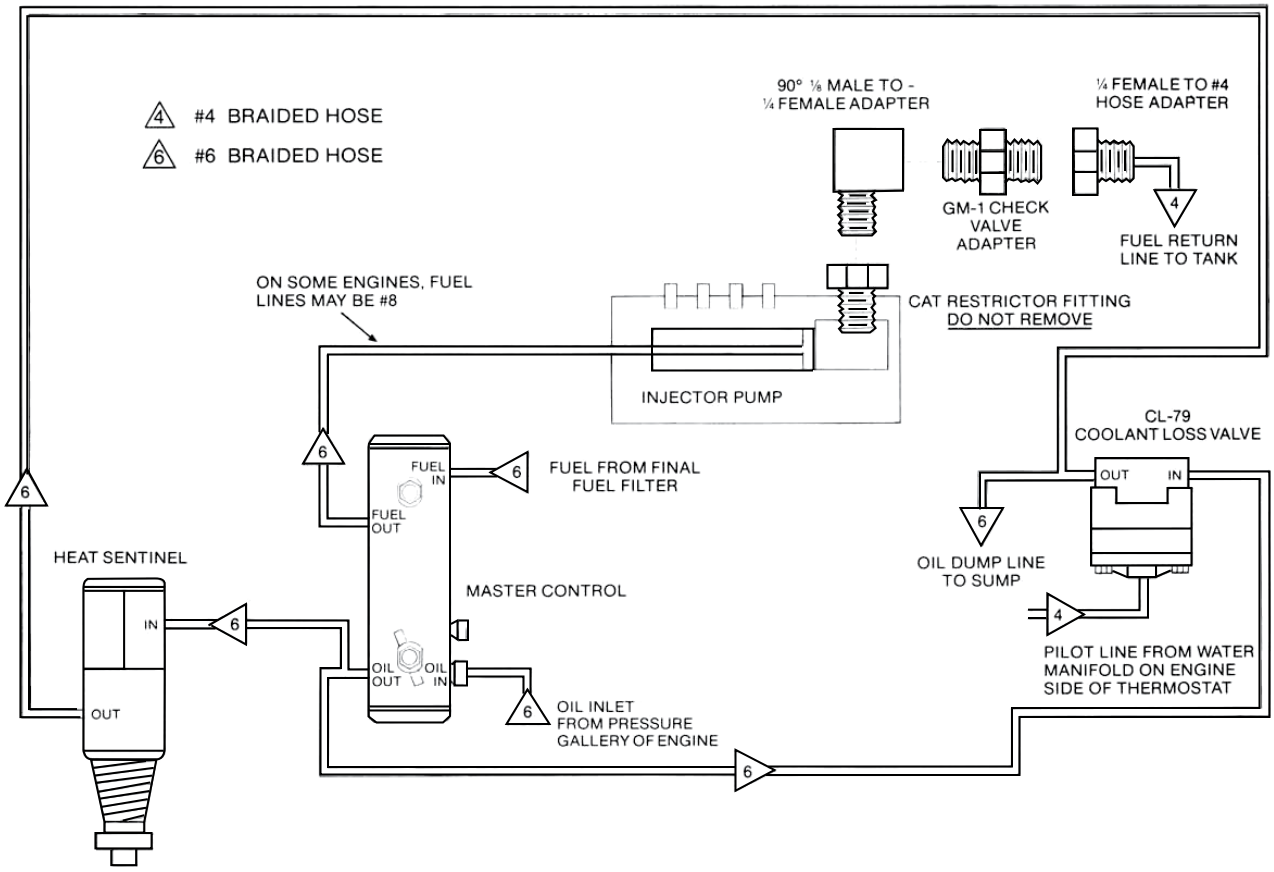


Light Buzzer (LB-1) and Pressure Switch (PS-2) as shown, are optional equipment.

K

HK-CAT

For Caterpillar 3408 & 3412 Engines



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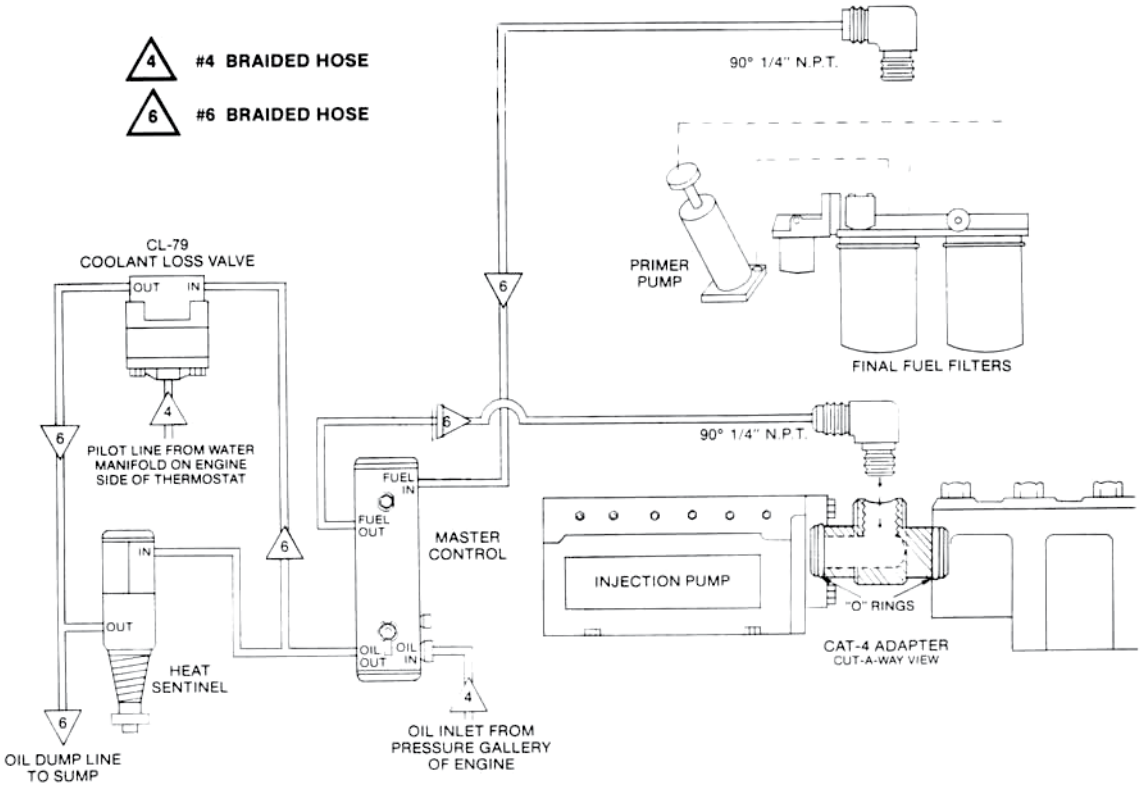
CAT-4 Adapter

1. **Remove the final fuel filter housing by disconnecting the two fuel primer lines at the back of the filter housing and removing the five (5) bolts holding the housing on the engine.**
2. **Remove the 1/4 N.P.T. plug, located between the two fuel filter line fittings on the back of the filter housing. Install a 90° 1/4 N.P.T. to #6 Adapter in the place that the 1/4 N.P.T. plug was removed.**
3. **Replace the fuel sleeve (7L7345) that connects the final fuel filter housing to the injection pump with the CAT-4 Adapter. The 90° 1/4 N.P.T. to #6 Adapter will have to be installed in the CAT-4 Adapter before the housing is bolted back on the engine. There is not enough room to install it after the housing has been installed. NOTE: Make sure the open fuel port in the CAT-4 Adapter is toward the injection pump.**
3. **Bolt the housing back to the engine and plumb the fuel system as shown.**
3. **Install the remainder of the system and plumb as shown.**



Important: Proper Installation Mandatory for Optimum Performance

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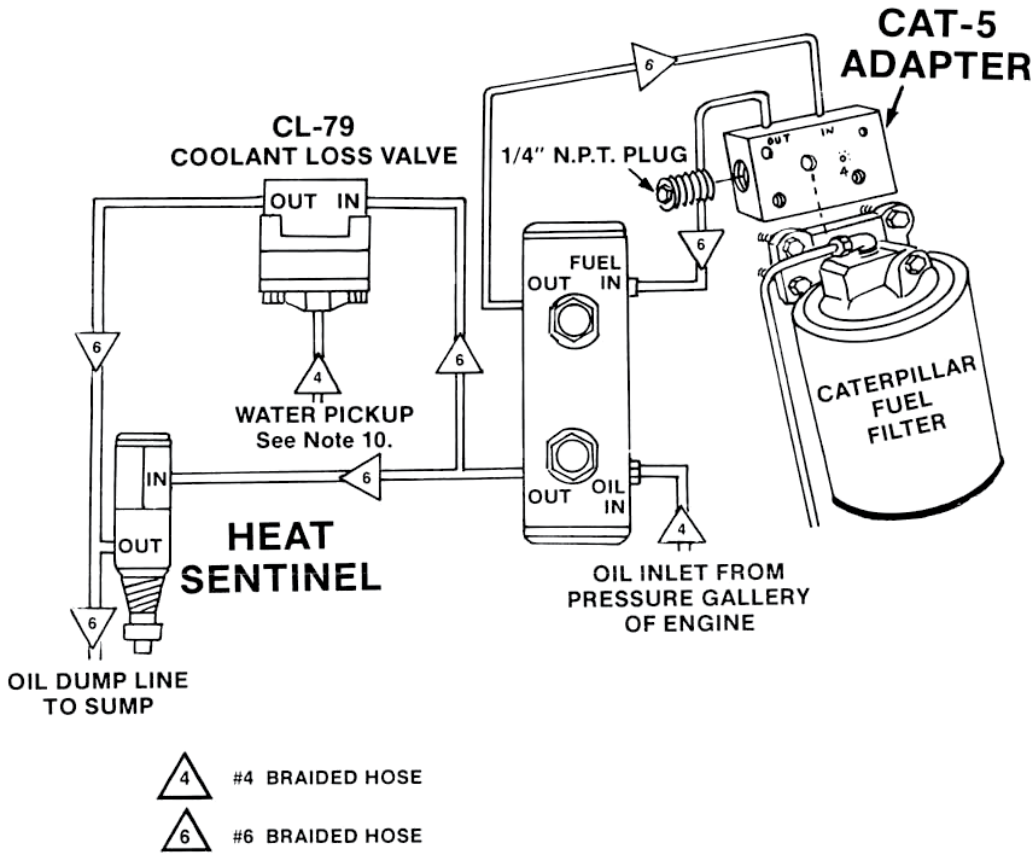
e-mail: racortech@parker.com

HK-CAT

CAT-5 Fuel Block

1. **Remove fuel filter housing from pump by removing 4 bolts.**
2. **Place CAT-5 Fuel Block Adapter between filter and pump, matching fuel flow holes. Use (2) 6N-2843CAT gaskets.**
3. **Replace filter housing using longer bolts.**
4. **Connect fuel supply line from CAT-5 Adapter port marked "Out" to fuel inlet side of Master Control, using #6 Braided Hose.**
5. **Connect fuel line from "Fuel Out" of Master Control to opening in adapter marked "In", using same size line as in Step 4.**
6. **Plumb Heat Sentinel and Coolant Loss Valve as shown. Do Not use hose with less than $^{5}/_{16}$" I.D. CAUTION: Check opening and cavity in Engine for obstructions - the brass power element of Heat Sentinel must not be squeezed or distorted when installed.**
7. **Connect oil line from pressure gallery of engine, using #4 Braided Hose to orifice fitting in Master Control.**
8. **Connect oil outlet of Heat Sentinel and Coolant Loss valve (dump line) to non-pressure opening in engine (sump or pan), using same size hose as in Step 6.**
9. **Note stampings, "IN", "OUT" and "4" on CAT-5 Adapter.**
10. **Water pickup for CL-79 is from Pilot Line from Water Manifold on engine side of thermostat.**



Important: Proper Installation Mandatory for Optimum Performance

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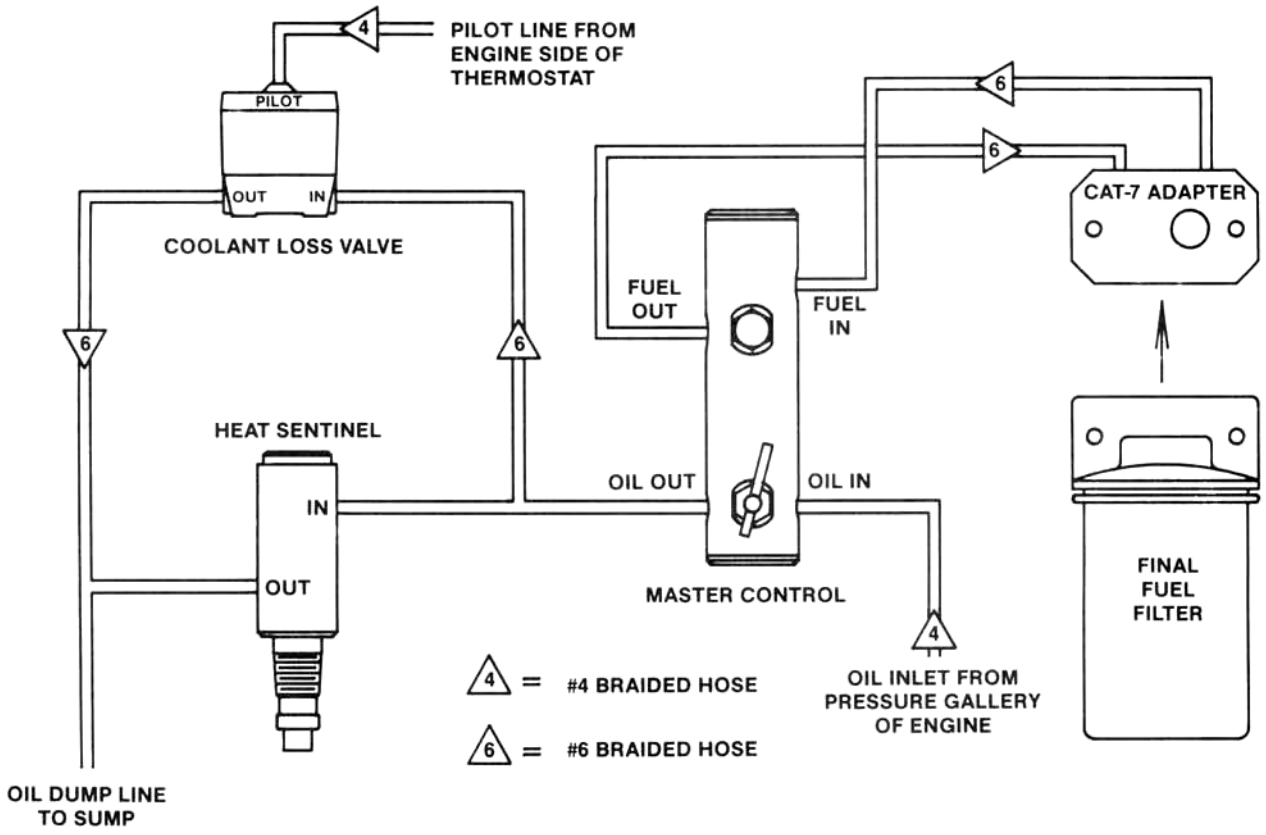
CAT-7 Fuel Block

1. **Remove fuel filter housing from pump by removing 4 bolts.**
2. **Place CAT-7 Fuel Block Adapter between filter and pump, matching fuel flow holes. Use (2) 7N9520CAT gaskets.**
3. **Replace filter housing using longer bolts.**
4. **Connect fuel supply line from CAT-7 Adapter port marked "Out" to fuel inlet side of Master Control, using #6 Braided Hose.**
5. **Connect fuel line from "Fuel Out" of Master Control to opening in adapter marked "In", using same size line as in Step 4.**
6. **Plumb Heat Sentinel and Coolant Loss Valve as shown. Do Not use hose with less than $^{5}/_{16}$" I.D. CAUTION: Check opening and cavity in Engine for obstructions - the brass power element of Heat Sentinel must not be squeezed or distorted when installed.**
7. **Connect oil line from pressure gallery of engine, using #4 Braided Hose to orifice fitting in Master Control.**
8. **Connect oil outlet of Heat Sentinel and Coolant Loss valve (dump line) to non-pressure opening in engine (sump or pan), using same size hose as in Step 6.**
9. **Note stampings, "IN", "OUT" and "4" on CAT-7 Adapter.**
10. **Water pickup for CL-79 is from Pilot Line from Water Manifold on engine side of thermostat.**



Important: Proper Installation Mandatory for Optimum Performance

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HK-CAT

Master Control and Coolant Loss Valve (CL-79) may be mounted together on MB-1 Mounting bracket for ease in mounting. Using two of the four bolts on top of air intake manifold (located about the middle of the "V" of engine) is suitable for most vehicle installation.

Heat Sentinel Installation

Three $^{3}/_{8}$" NPT openings into coolant jackets are easily accessible on most engines. One on either head and one at rear of engine in the "V" on water manifold. Other $^{1}/_{2}$" NPT openings are also available and suitable for Heat Sentinel installation.

Oil Pressure Pickup

Use one of the following:

1. **Tee into oil pressure gage line.**
2. **Drill and tap ($^{1}/_{8}$" NPT) removable plate on right front of engine.**
3. **Drill and tap ($^{1}/_{8}$" NPT) plate on left side of engine. (Two bolts hold plate on) This plate is covering main oil pressure gallery.**
4. **Any other main oil pressure outlet on engine.**

Coolant Pressure Pickup

There are numerous openings in engine coolant system that are suitable. make sure that opening which is selected is between the water pump and thermostat housing. The $^{3}/_{8}$" NPT opening that was not used in Heat Sentinel installation makes a good pickup point. To insure proper coolant pressure pickup point was selected, a 0-30 P.S.I. pressure gage may be used to test the water pump pressure. The water pressure should increase as the engine RPM increases. If pressure does not increase as engine RPM increases, pickup point is on suction side of water pump.

Oil Dump

Use one of the following:

1. **Plate on left front of engine in hydraulic pump is not installed on engine. (Six bolts hold plate on.) Drill and tap $^{1}/_{4}$" NPT for opening.**
2. **Cover over cam shaft gear on top front of engine. (Four bolts hold plate on.) Drill and tap $^{1}/_{4}$" NPT for opening.**
3. **Some valve covers have openings that can be tapped $^{1}/_{4}$" NPT. (No drilling necessary.)**
4. **Any convenient non-pressure openings in crankcase.**

Fuel Section

The fuel line that runs the final fuel filter to the injection pump may be used by disconnecting it at the injection pump and connecting it to the Master Control fuel "Inlet" port. A new line will have to be made to run from the fuel "Outlet" port to the injection pump.

Locate the fuel return line on the injection pump and install the GM-1 Check Valve with the arrow pointing towards the fuel tank. **CAUTION**: Make sure that the Cat restrictor fitting that is installed in the fuel return line is not removed or the engine will not develop full power. Check system for shutdown as described in installation sheet furnished with master Control.

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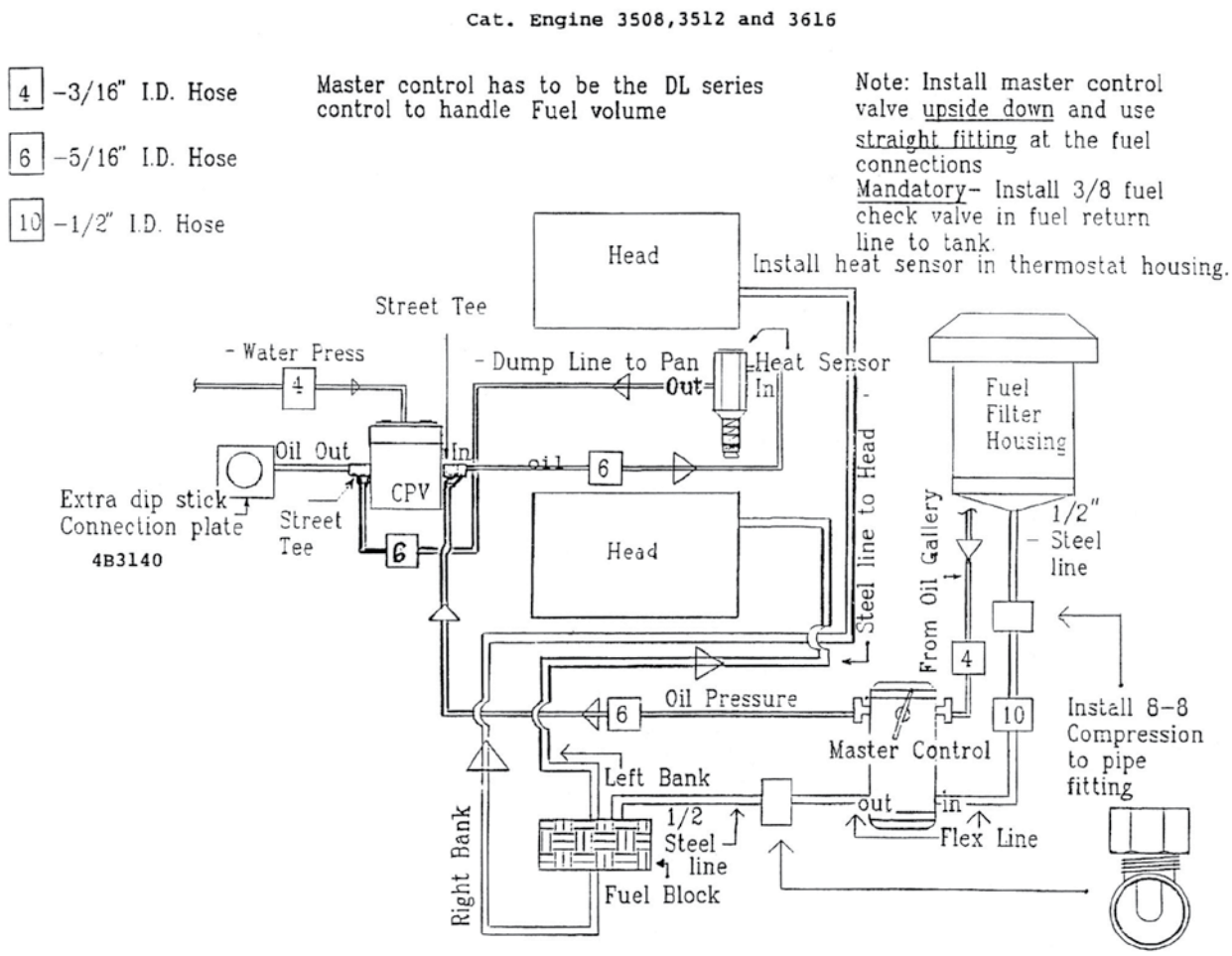
For Caterpillar 3508, 3512 & 3616 Engines



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HK-CMNS

Cummins Hose Kits

This HK-CMNS kit is specifically assembled for Cummins engines and includes the most common hose and fittings necessary to install a complete Sentinel engine protection system on any engine (see Application Guide for details). Depending on the application, this kit may include extra hose and fittings and some application-specific hose and fittings will be customer supplied.

Cummins Application Guide

Find your engine and order one each of the listed components. See notes below.

Cummins	All B Series direct injected engines with rotary Bosch pump, 6 CT 8.36 engine with Bosch injection pump, B Series with Bosch in-line injection pump, 230 thru 475, 855, 902, Big Cam II and III, L-10, M-11, NH-220, KTA-19C, KTA-450, KTA-1710, K-1150, all in-line 6, V504 and all C Series					
System Type	**Master Conttrol**	**Heat Sensor**	**Coolant pressure Valve**	**Mounting Brackets**	**Valves & Adapters**	**Hose & Fitting Kit**
Shutdown	D-5Y	HA-212	CPV	MB-1, MB-79	PR-60, STV	HK-CMNS
De-Torque	DTF-5Y	HA-212	CPV	MB-1, MB-79	PR-60, STV	HK-CMNS
Shutdown with Override	D-5Y with SVK-1	HA-212	CPV	MB-1, MB-79	PR-60, STV	HK-CMNS
All 2300, M-38-V-12, 3067, K-50-V-16 and K Series engines						
Shutdown	DL-10	H-212	CPV	MB-1, MB-79	PR-60, 41737, STV	HK-CMNS
De-Torque	DTLF-10	H-212	CPV	MB-1, MB-79	PR-60, 41737, STV	HK-CMNS
Shutdown with Override	DL-10 with SVK-1	H-212	CPV	MB-1, MB-79	PR-60, 41737, STV	HK-CMNS

Notes: Engines below 180 GPH (approx. 2.85 GPM) fuel flow must use a D master control. Engines with fuel flow between 180 and 240 GPH (approx. 4 GPM) must use a DL master control. Engines with 240 GPH fuel flow, or higher, require two master controls. Standard SVK-1 override is 12 vdc. Order SVK-2 for 24 vdc applications. Hose and fitting kits include the most common components to fit most applications - additional components, if needed, are customer supplied. The STV test valve will aid in initial system test and assist with testing in the field, if necessary. Cummins C Series engines require two 14mm to $^{3}/_{8}$" NPT banjo fittings (part number 40748).

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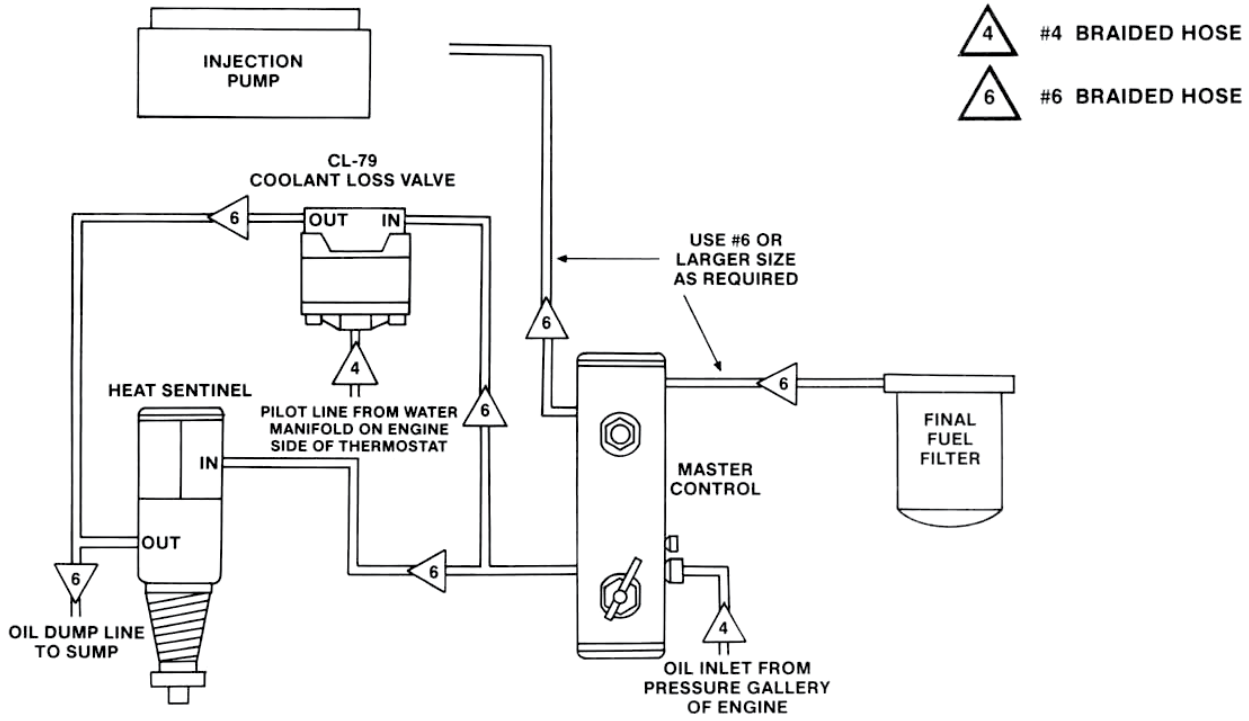
e-mail: racortech@parker.com

HK-CMNS



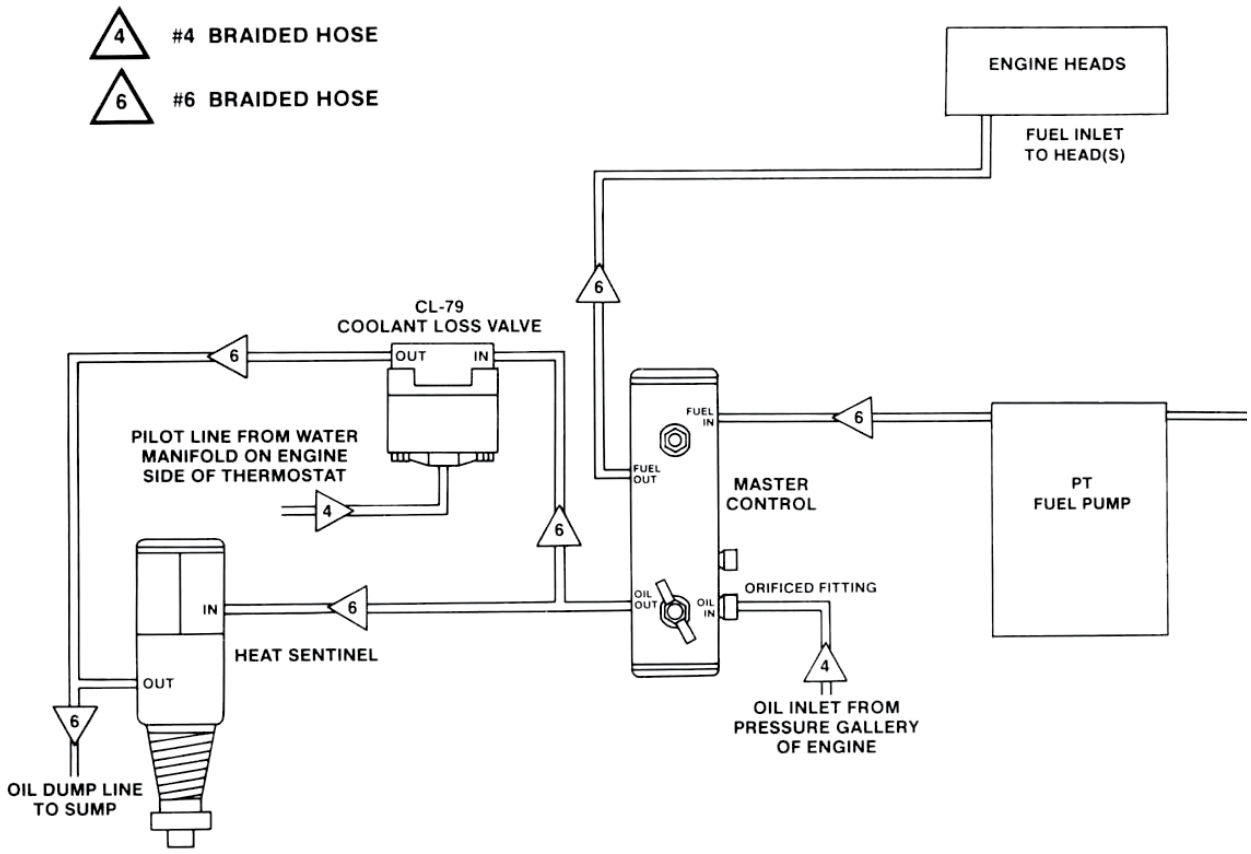
Important: Proper Installation Mandatory for Optimum Performance

Refer to Master Control Installation Instructors for additional information.

K

HK-CMNS

All Cummins w/PT Pump Fuel Systems

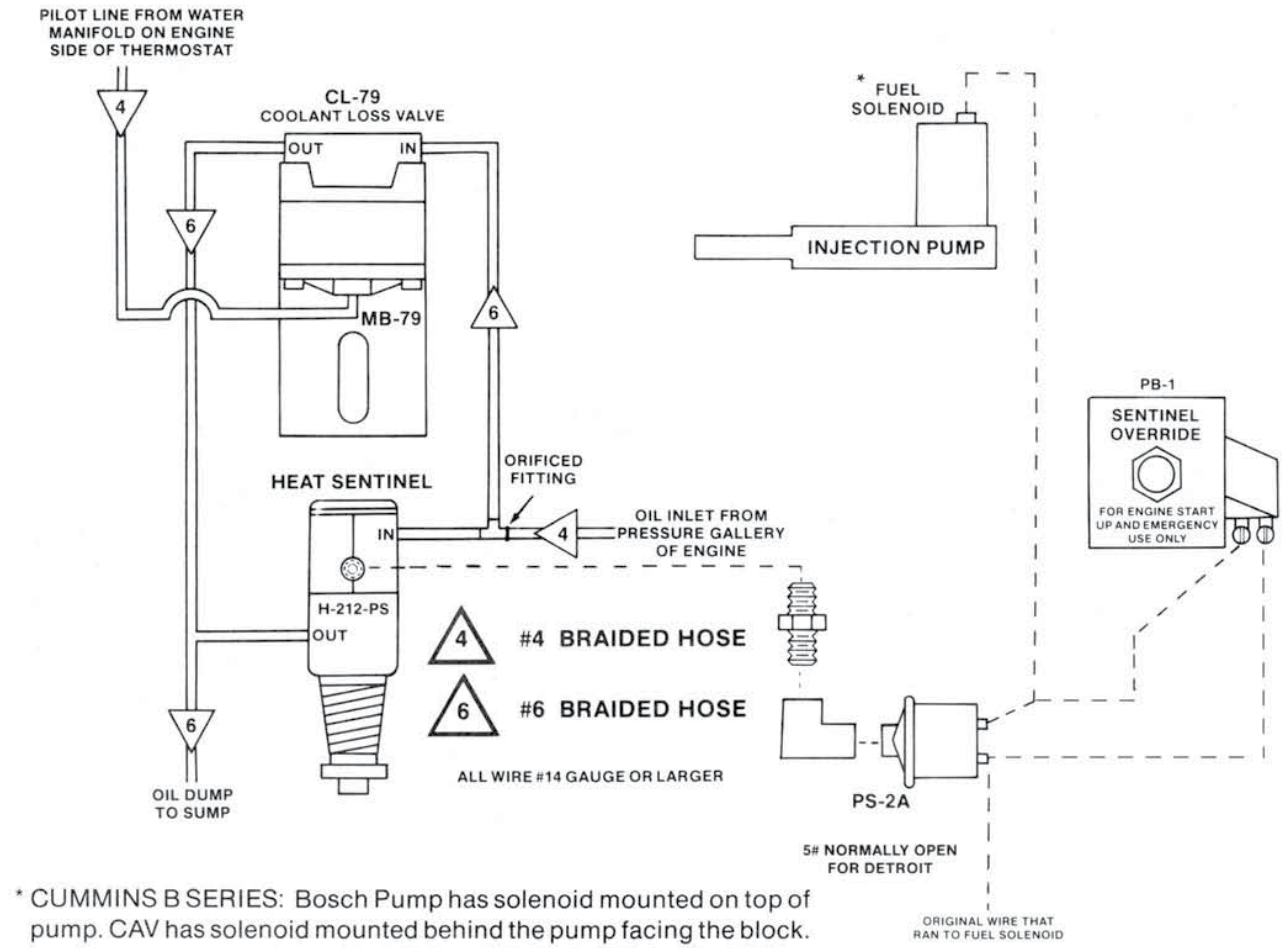


Important: Proper Installation Mandatory for Optimum Performance

Refer to Master Control Installation Instructors for additional information.

Questions? Contact Technical Support:
800 344 3286 or 209 521 7860 ext. 7555
e-mail: racortech@parker.com

Cummins "B" Series



* CUMMINS B SERIES: Bosch Pump has solenoid mounted on top of pump. CAV has solenoid mounted behind the pump facing the block.

Important: Proper Installation Mandatory for Optimum Performance

Refer to Master Control Installation Instructors for additional information.

Use ONLY the water pick up point at $^{1}/_{8}$" Pipe Plug on top left side of water pump.

K

HK-CMNS

Deutz Application Guide

Find your engine and order one each of the listed components. See notes below.

Deutz	All 411 and 511 engines					
System Type	**Master Conttrol**	**Heat Sensor**	**Coolant pressure Valve**	**Mounting Brackets**	**Valves & Adapters**	**Hose & Fitting Kit**
Shutdown	D-15	HA-225	CPV	MB-1	DZ-3A, STV	HK-GU
All 1011, F2L912 and F4L-1011 engines						
Shutdown	D-15	HA-225	CPV	MB-1	STV	HK-GU
All 413, BF6L, FL-3, FL-4, FL-5, FL-6, FL-912 and FL-913 and 914 engines						
Shutdown	D-15	HA-225	CPV	MB-1	DZ-4A, STV	HK-GU

Notes: Engines below 180 GPH (approx. 2.85 GPM) fuel flow must use a D master control. Engines with fuel flow between 180 and 240 GPH (approx. 4 GPM) must use a DL master control. Engines with 240 GPH fuel flow, or higher, require two master controls. Standard SVK-1 override is 12 vdc. Order SVK-2 for 24 vdc applications. Hose and fitting kits include the most common components to fit most applications - additional components, if needed, are customer supplied. The STV self-venting test valve will aid in initial system test and assist with testing in the field, if necessary. Deutz engines: If belt protection is required, use XDV-1 dump valve installed in 2245062 Deutz mounting bracket

All water-cooled engines require a CPV (Coolant Pressure Valve), air-cooled engines do not.

Questions? Contact Technical Support:
800 344 3286 or 209 521 7860 ext. 7555
e-mail: racortech@parker.com

John Deere

This HK-JD kit is specifically assembled for John Deere engines and includes the most common hose and fittings necessary to install a complete Sentinel engine protection system on any engine (see Application Guide for details). Depending on the application, this kit may include extra hose and fittings and some application-specific hose and fittings will be customer supplied.

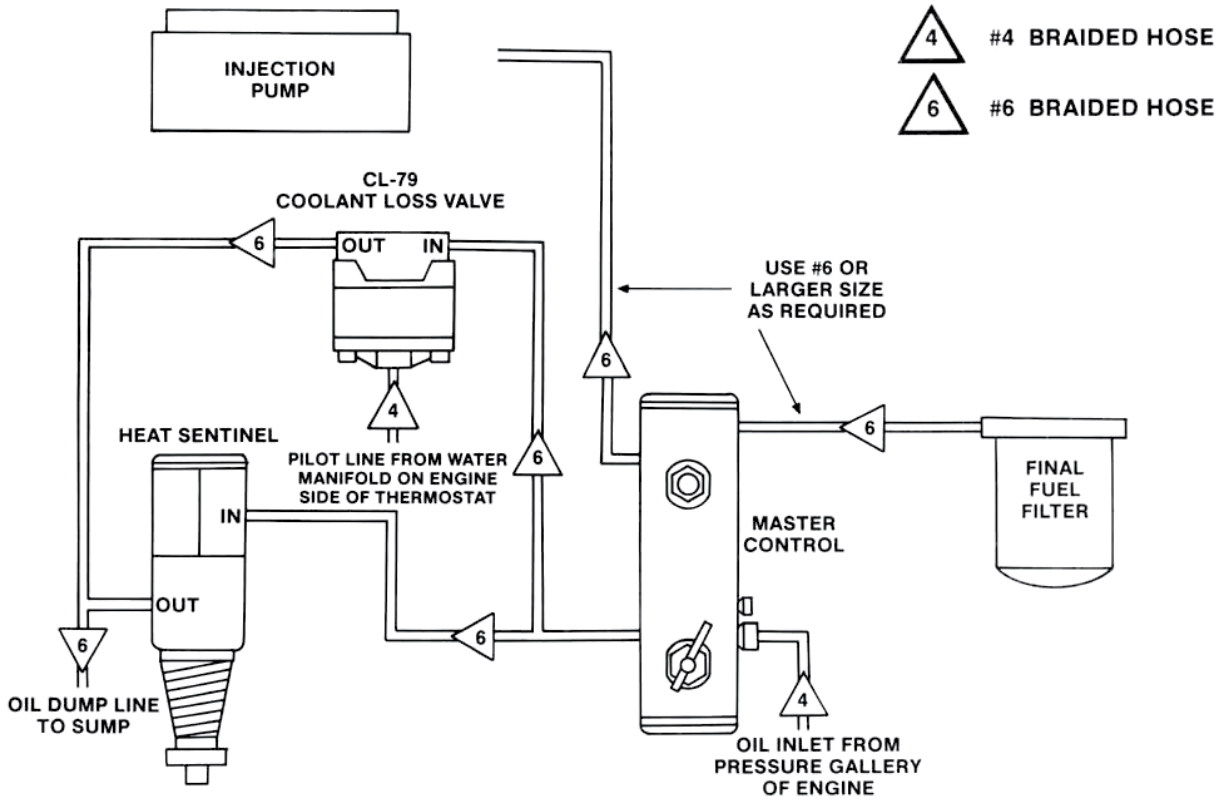
John Deere Application Guide

Find your engine and order one each of the listed components. See notes below.

Deutz	All agricultural, construction and stationary equipment/engines					
System Type	**Master Conttrol**	**Heat Sensor**	**Coolant pressure Valve**	**Mounting Brackets**	**Valves & Adapters**	**Hose & Fitting Kit**
Shutdown	D-15	H-218	CPV	MB-1, MB-79	PR-60, STV	HK-JD

Notes: Engines below 180 GPH (approx. 2.85 GPM) fuel flow must use a D master control. Engines with fuel flow between 180 and 240 GPH (approx. 4 GPM) must use a DL master control. Engines with 240 GPH fuel flow, or higher, require two master controls. The STV test valve will aid in initial system test and assist with testing in the field, if necessary.

HK-JD



Important: Proper Installation Mandatory for Optimum Performance

Refer to Master Control Installation Instructors for additional information.

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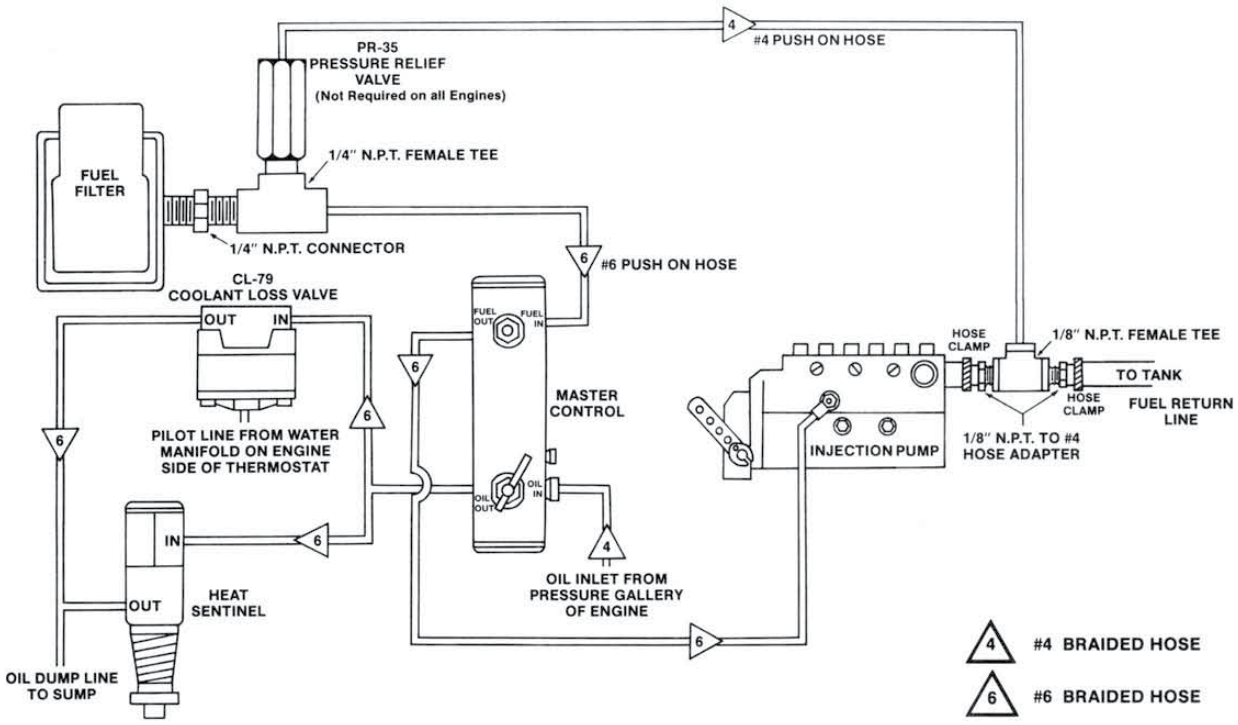
For All John Deere



Important: Proper Installation Mandatory for Optimum Performance

Refer to Master Control Installation Instructors for additional information.

K

HK-DDC

Detroit Diesel Hose Kits

This HK-DDC kit is specifically assembled for Detroit Diesel engines and includes the most common hose and fittings necessary to install a complete Sentinel engine protection system on any engine (see Application Guide for details). Depending on the application, this kit may include extra hose and fittings and some application-specific hose and fittings will be customer supplied.

Detroit Diesel Application Guide

Find your engine and order one each of the listed components. See notes below.

Detroit Diesel	3-53, 4-53, 6-53, 2-71, 3-71, 4-71 and 6-71 in-line engines, 6V-53, 8V-53, 6V-71, 8V-71, 12V-71, 6V-92 and 6110					
System Type	**Master Conttrol**	**Heat Sensor**	**Coolant pressure Valve**	**Mounting Brackets**	**Valves & Adapters**	**Hose & Fitting Kit**
Shutdown	D-5	HA-212	CPV	MB-1, MB-79	STV	HK-DDC
De-Torque	DTF-5	HA-212	CPV	MB-1, MB-79	STV	HK-DDC
Shutdown with Override	D-5 with SVK-1	HA-212	CPV	MB-1, MB-79	STV	HK-DDC
All Series 40 engines						
Shutdown	D-5Y	H-212	CPV	MB-1, MB-79	41737, STV	HK-DDC
De-Torque	DTF-5Y	H-212	CPV	MB-1, MB-79	41737, STV	HK-DDC
Shutdown with Override	D-5Y with SVK-1	H-212	CPV	MB-1, MB-79	41737, STV	HK-DDC
All 8-71 engines with electrical shut-off						
Electrical Shutdown	N/A	H-218PS	CPV	MB-79	LB-1, PB-1, PS-1A, D-25-F4, PS-2A	N/A

Notes: Engines below 180 GPH (approx. 2.85 GPM) fuel flow must use a D master control. Engines with fuel flow between 180 and 240 GPH (approx. 4 GPM) must use a DL master control. Engines with 240 GPH fuel flow, or higher, require two master controls. Standard SVK-1 override is 12 vdc. Order SVK-2 for 24 vdc applications. The STV test valve will aid in initial system test and assist with testing in the field.

Questions? Contact Technical Support:
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e-mail: racortech@parker.com

Detroit Diesel Hose Kits

This HK-DDC kit is specifically assembled for Detroit Diesel engines and includes the most common hose and fittings necessary to install a complete Sentinel engine protection system on any engine (see Application Guide for details). Depending on the application, this kit may include extra hose and fittings and some application-specific hose and fittings will be customer supplied.

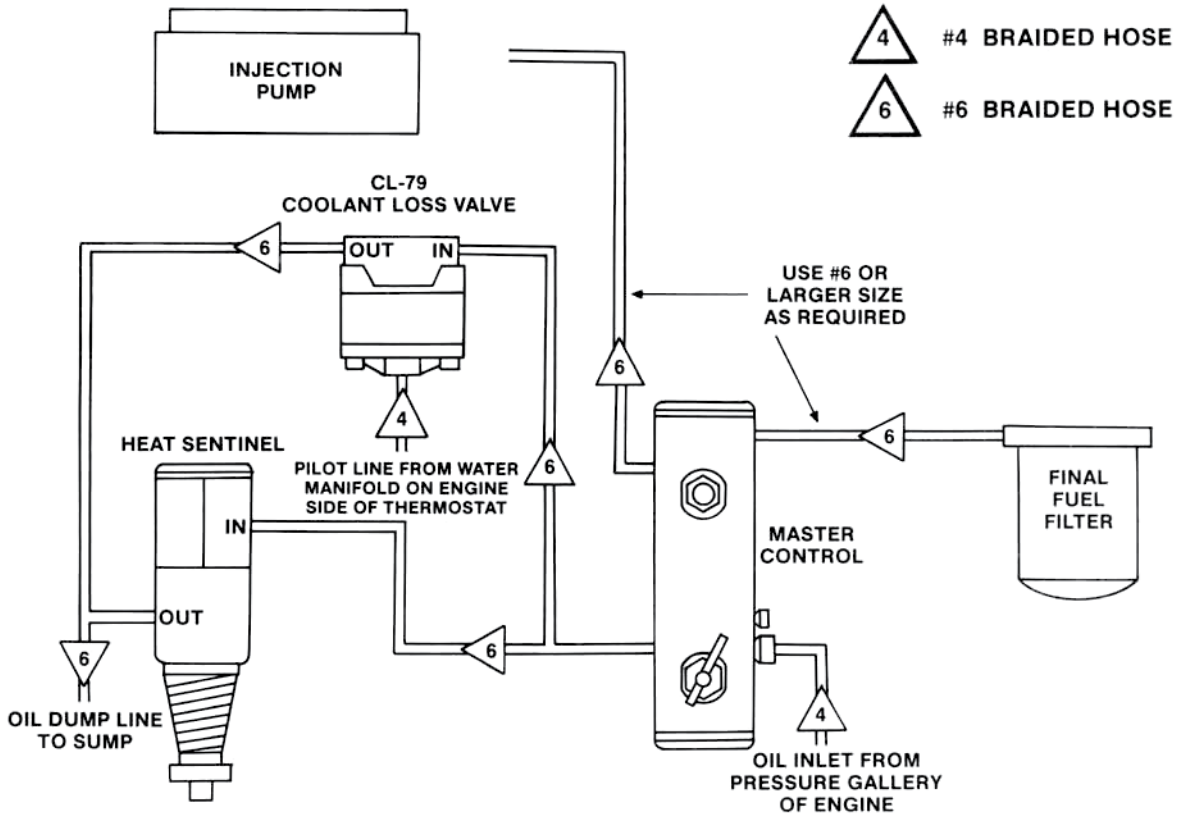
Detroit Diesel Application Guide

Find your engine and order one each of the listed components. See notes below.

Detroit Diesel	All 16V-71, 12V-92 and 16V-92 engines					
System Type	**Master Conttrol**	**Heat Sensor**	**Coolant pressure Valve**	**Mounting Brackets**	**Valves & Adapters**	**Hose & Fitting Kit**
Shutdown	D-5	H-212	CPV	MB-1, MB-79	STV	HK-DDC
De-Torque	DTF-5	H-212	CPV	MB-1, MB-79	STV	HK-DDC
Shutdown with Override	D-5 with SVK-1	H-212	CPV	MB-1, MB-79	STV	HK-DDC
All 12V-149 and 16V-149 engines						
Shutdown	DL-5	H-212	CPV	MB-1, MB-79	STV	HK-DDC
De-Torque	DTLF-5	H-212	CPV	MB-1, MB-79	STV	HK-DDC
Shutdown with Override	DL-5 with SVK-1	H-212	CPV	MB-1, MB-79	STV	HK-DDC

Notes: Engines below 180 GPH (approx. 2.85 GPM) fuel flow must use a D master control. Engines with fuel flow between 180 and 240 GPH (approx. 4 GPM) must use a DL master control. Engines with 240 GPH fuel flow, or higher, require two master controls. Standard SVK-1A override is 12 vdc. Order SVK-2 for 24 vdc applications. The STV test valve will aid in initial system test and assist with testing in the field.

HK-DDC



Important: Proper Installation Mandatory for Optimum Performance

Refer to Master Control Installation Instructors for additional information.

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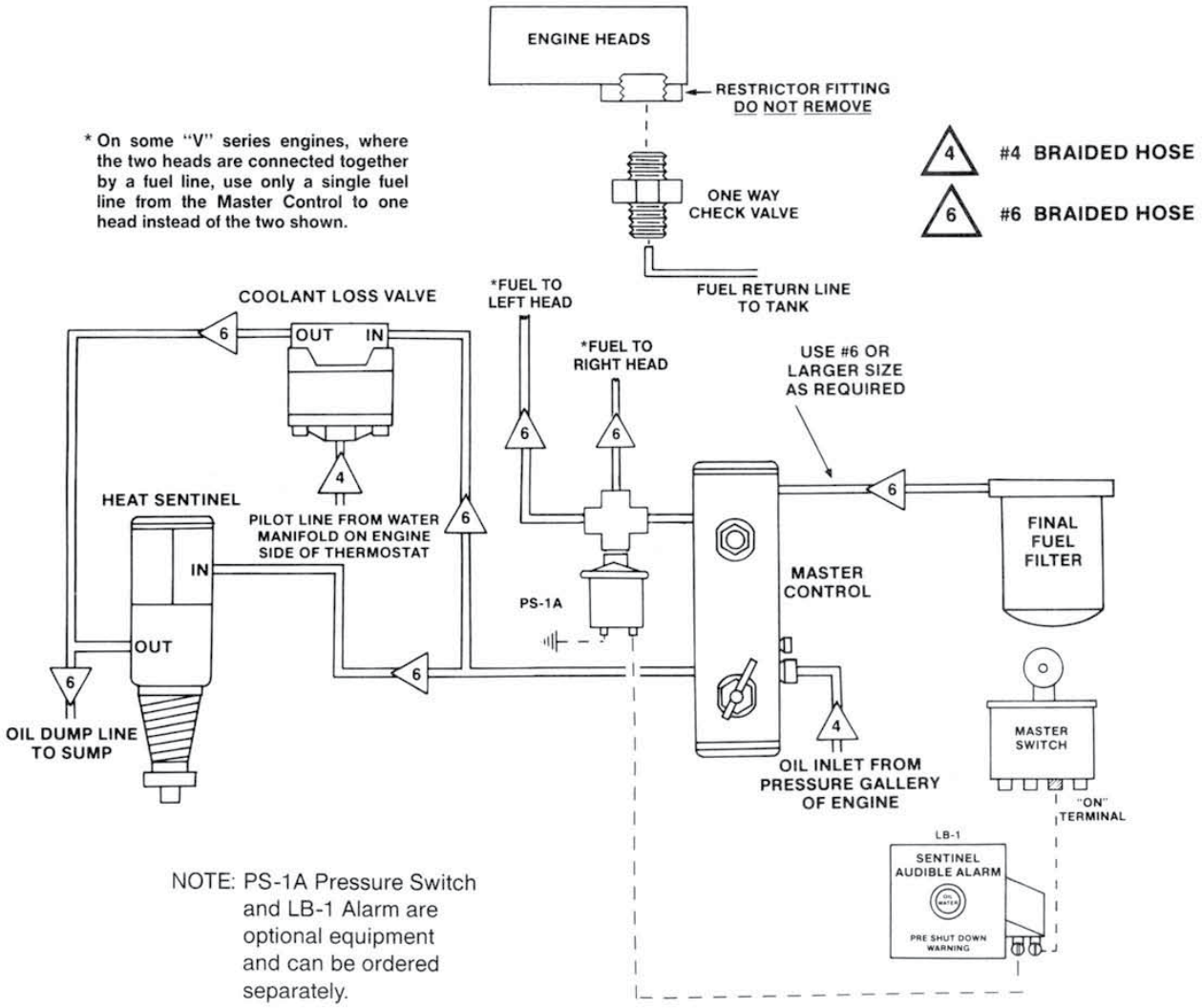
e-mail: racortech@parker.com

Detroit 6V, 8V & 12V Series Engines



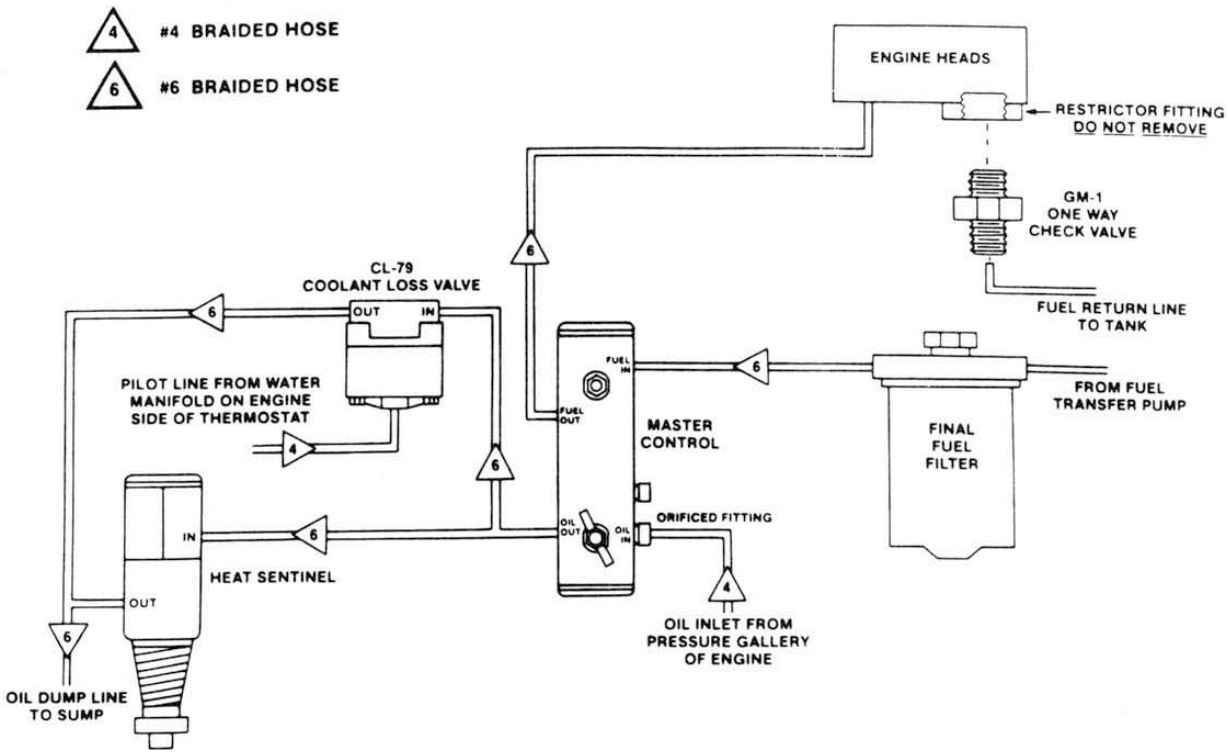
Important: Proper Installation Mandatory for Optimum Performance

Refer to Master Control Installation Instructors for additional information.

K

HK-DDC

Detroit Inline 2-71, 3-53, 3-71, 4-53, 4-71, 6-53 & 6-71 Series Engines



Important: Proper Installation Mandatory for Optimum Performance

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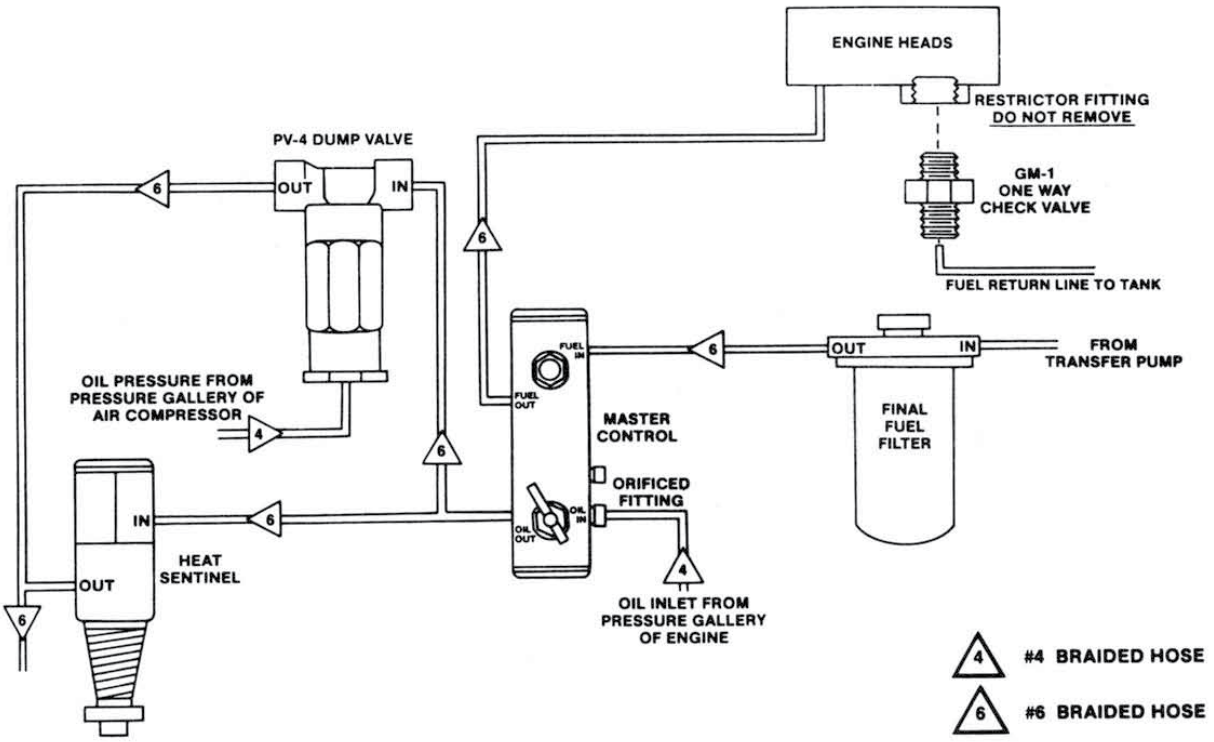
e-mail: racortech@parker.com

Detroit Inline w/PV-4 2-71, 3-53, 3-71, 4-53, 4-71, 6-53 & 6-71 Series Engines



Important: Proper Installation Mandatory for Optimum Performance

Refer to Master Control Installation Instructors for additional information.

K

HK-GU

General Use Hose Kits

This HK-GU (General Use) kit includes the most common hose and fittings necessary to install a complete Sentinel engine protection system on any engine (see Application Guide for details). Depending on the application, this kit may include extra hose and fittings and some application-specific hose and fittings will be customer supplied.

Application Guide

Find your engine and order one each of the listed components. See notes below.

Allis Chalmers	All In-line and V Series engines					
System Type	**Master Conttrol**	**Heat Sensor**	**Coolant pressure Valve**	**Mounting Brackets**	**Valves & Adapters**	**Hose & Fitting Kit**
Shutdown	D-10	H-212	CPV	MB-1, MB-79	STV	HK-GU
De-Torque	DTF-10	H-212	CPV	MB-1, MB-79	STV	HK-GU
Shutdown with Override	D-10 with SVK-1	H-212	CPV	MB-1, MB-79	STV	HK-GU

Case	504 engine and 300 HP Scania engine 674T with Bosch injection Pump, Tractors: 970, 1070, 1170, 1175, 1220, 1370, 1570, 2090, 2290, 2390, 2590, 2670, 2870, 4490, 4690 and 4890					
Shutdown	D-15	HA-212	CPV	MB-1, MB-79	STV	HK-GU

Fairmont Tamper	All Engines					
Shutdown with Override	D-5Y with SVK-1	H-212	CPV	MB-1, MB-79	40748, PR-60, STV	HK-GU

Fiat	All 8360.05 (160 HP), 8220.02 (200 HP), MZ900 and M2900 engines					
Shutdown	D-10	HA-212	CPV	MB-1, MB-79	STV	HK-GU
De-Torque	DTF-10	HA-212	CPV	MB-1, MB-79	STV	HK-GU
Shutdown with Override	D-10 with SVK-1	HA-212	CPV	MB-1, MB-79	STV	HK-GU

Notes: Engines below 180 GPH (approx. 2.85 GPM) fuel flow must use a D master control. Engines with fuel flow between 180 and 240 GPH (approx. 4 GPM) must use a DL master control. Engines with 240 GPH fuel flow, or higher, require two master controls. Standard SVK-1 override is 12 vdc. Order SVK-2 for 24 vdc applications. The STV test valve will aid in initial system test and assist with testing in the field.

Questions? Contact Technical Support:
800 344 3286 or 209 521 7860 ext. 7555
e-mail: racortech@parker.com

Application Guide

Find your engine and order one each of the listed components. See notes below.

Fiat Allis	All In-line and V Series engines					
System Type	**Master Conttrol**	**Heat Sensor**	**Coolant pressure Valve**	**Mounting Brackets**	**Valves & Adapters**	**Hose & Fitting Kit**
Shutdown	D-10	H-212	CPV	MB-1, MB-79	STV	HK-GU
De-Torque	DTF-10	H-212	CPV	MB-1, MB-79	STV	HK-GU
Shutdown with Override	D-10 with SVK-1	H-212	CPV	MB-1, MB-79	STV	HK-GU

Ford	All 225, 2725, 6.2L, 6.9L and 7.3L engines					
Shutdown	D-15	HA-212	CPV	MB-1, MB-79	STV	HK-GU
De-Torque	DTF-15	HA-212	CPV	MB-1, MB-79	STV	HK-GU
Shutdown with Override	D-15 with SVK-1	HA-212	CPV	MB-1, MB-79	STV	HK-GU

General Motors	All 225, 2725, 6.2L, 6.9L and 7.3L engines					
Shutdown	D-15	H-212	CPV	MB-1, MB-79	PR-60, STV	HK-GU
De-Torque	DTF-15	H-212	CPV	MB-1, MB-79	PR-60, STV	HK-GU
Shutdown with Override	D-15 with SVK-1	H-212	CPV	MB-1, MB-79	PR-60, STV	HK-GU

Notes: Engines below 180 GPH (approx. 2.85 GPM) fuel flow must use a D master control. Engines with fuel flow between 180 and 240 GPH (approx. 4 GPM) must use a DL master control. Engines with 240 GPH fuel flow, or higher, require two master controls. Standard SVK-1 override is 12 vdc. Order SVK-2 for 24 vdc applications. The STV test valve will aid in initial system test and assist with testing in the field.

HK-GU

Application Guide

Find your engine and order one each of the listed components. See notes below.

Hino	All EH-100 and EH-200 engines					
System Type	**Master Conttrol**	**Heat Sensor**	**Coolant pressure Valve**	**Mounting Brackets**	**Valves & Adapters**	**Hose & Fitting Kit**
Shutdown	D-5Y	HA-212	CPV	MB-1, MB-79	STV	HK-GU
De-Torque	DTF-5Y	HA-212	CPV	MB-1, MB-79	STV	HK-GU
Shutdown with Override	D-5Y with SVK-1	HA-212	CPV	MB-1, MB-79	STV	HK-GU

Hyundai	All 6D125-1 engines					
Shutdown with Override	D-10 with SVK-1	H-212	CPV	MB-1, MB-79	STV	HK-GU

International Harvester	All 200 Series, 268, 303, 310, 414, 414T, 436, 466, 466T, 510 payloaders up thru 550, 800T, 817B, 817C, 9.0L, DT-366, DT-408, DT-466HT, DT-530 late models, backhoes, and crawler tractors TD-7 thru TD-20					
Shutdown	D-15	H-212	CPV	MB-1, MB-79	STV	HK-GU
De-Torque	DTF-15	H-212	CPV	MB-1, MB-79	STV	HK-GU
Shutdown with Override	D-15 with SVK-1	H-212	CPV	MB-1, MB-79	STV	HK-GU
	All DT-466 engines					
Shutdown	D-5Y	H-212	CPV	MB-1, MB-79	STV	HK-GU
De-Torque	DTF-5Y	H-212	CPV	MB-1, MB-79	STV	HK-GU
Shutdown with Override	D-5Y with SVK-1	H-212	CPV	MB-1, MB-79	STV	HK-GU

Notes: Engines below 180 GPH (approx. 2.85 GPM) fuel flow must use a D master control. Engines with fuel flow between 180 and 240 GPH (approx. 4 GPM) must use a DL master control. Engines with 240 GPH fuel flow, or higher, require two master controls. Standard SVK-1 override is 12 vdc. Order SVK-2 for 24 vdc applications. The STV test valve will aid in initial system test and assist with testing in the field.

Questions? Contact Technical Support:
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Application Guide

Find your engine and order one each of the listed components. See notes below.

Isuzu	All engines					
System Type	**Master Conttrol**	**Heat Sensor**	**Coolant pressure Valve**	**Mounting Brackets**	**Valves & Adapters**	**Hose & Fitting Kit**
Shutdown	D-15	HA-212	CPV	MB-1, MB-79	STV	HK-GU
Shutdown with Override	D-15 with SVK-1	HA-212	CPV	MB-1, MB-79	STV	HK-GU

Komatsu	All D-155 and D-355 engines					
Shutdown	D-10	H-212	CPV	MB-1, MB-79	STV	HK-GU
De-Torque	DTF-10	H-212	CPV	MB-1, MB-79	STV	HK-GU
Shutdown with Override	D-10 with SVK-1	H-212	CPV	MB-1, MB-79	STV	HK-GU

Kubota	All engines					
Shutdown	D-15	HA-212	CPV	MB-1, MB-79	STV	HK-GU
Shutdown with Override	D-15 with SVK-1	HA-212	CPV	MB-1, MB-79	STV	HK-GU

Lister	All HR-1, HR-2, HR-3, HR-4, 6 cylinder and TR engines					
Shutdown	D-15	HA-225	N/A	MB-1	STV	N/A

Lombardini	All HR-1, HR-2, HR-3, HR-4, 6 cylinder and TR engines					
Shutdown	D-15	HA-225	N/A	MB-1	STV	N/A

Notes: Engines below 180 GPH (approx. 2.85 GPM) fuel flow must use a D master control. Engines with fuel flow between 180 and 240 GPH (approx. 4 GPM) must use a DL master control. Engines with 240 GPH fuel flow, or higher, require two master controls. Standard SVK-1 override is 12 vdc. Order SVK-2 for 24 vdc applications. The STV test valve will aid in initial system test and assist with testing in the field.

HK-GU

Application Guide

Find your engine and order one each of the listed components. See notes below.

Mack	All engines					
System Type	**Master Conttrol**	**Heat Sensor**	**Coolant pressure Valve**	**Mounting Brackets**	**Valves & Adapters**	**Hose & Fitting Kit**
Shutdown	D-15	H-212	CPV	MB-1, MB-79	PR-60, STV	HK-GU
De-Torque	DTF-15	H-212	CPV	MB-1, MB-79	PR-60, STV	HK-GU
Shutdown with Override	D-15 with SVK-1	H-212	CPV	MB-1, MB-79	PR-60, STV	HK-GU

Mack-Renault	All in-line engines					
Shutdown	D-15	HA-212	CPV	MB-1, MB-79	PR-60, STV	HK-GU
De-Torque	DTF-15	HA-212	CPV	MB-1, MB-79	PR-60, STV	HK-GU
Shutdown with Override	D-15 with SVK-1	HA-212	CPV	MB-1, MB-79	PR-60, STV	HK-GU

Mitsubishi	E-70-B 4 cylinder (4032) and all engines up to 700 HP					
Shutdown	D-10	HA-218	CPV	MB-1, MB-79	STV	HK-GU
De-Torque	DTF-10	HA-218	CPV	MB-1, MB-79	STV	HK-GU
Shutdown with Override	D-10 with SVK-1	HA-218	CPV	MB-1, MB-79	STV	HK-GU

Perkins	All in-line and V Series engines					
Shutdown	D-15	HA-212	CPV	MB-1, MB-79	STV	HK-GU
Shutdown with Override	D-15 with SVK-1	HA-212	CPV	MB-1, MB-79	STV	HK-GU

Notes: Engines below 180 GPH (approx. 2.85 GPM) fuel flow must use a D master control. Engines with fuel flow between 180 and 240 GPH (approx. 4 GPM) must use a DL master control. Engines with 240 GPH fuel flow, or higher, require two master controls. Standard SVK-1 override is 12 vdc. Order SVK-2 for 24 vdc applications. The STV test valve will aid in initial system test and assist with testing in the field.

Questions? Contact Technical Support:
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e-mail: racortech@parker.com

Application Guide

Find your engine and order one each of the listed components. See notes below.

Scania	All engines					
System Type	**Master Conttrol**	**Heat Sensor**	**Coolant pressure Valve**	**Mounting Brackets**	**Valves & Adapters**	**Hose & Fitting Kit**
Shutdown	D-15	H-212	CPV	MB-1, MB-79	PR-60, STV	HK-GU
Shutdown with Override	D-15 with SVK-1	H-212	CPV	MB-1, MB-79	PR-60, STV	HK-GU

Superior	All engines					
Shutdown	DL-10	H-212	CPV	MB-1, MB-79	STV	HK-GU

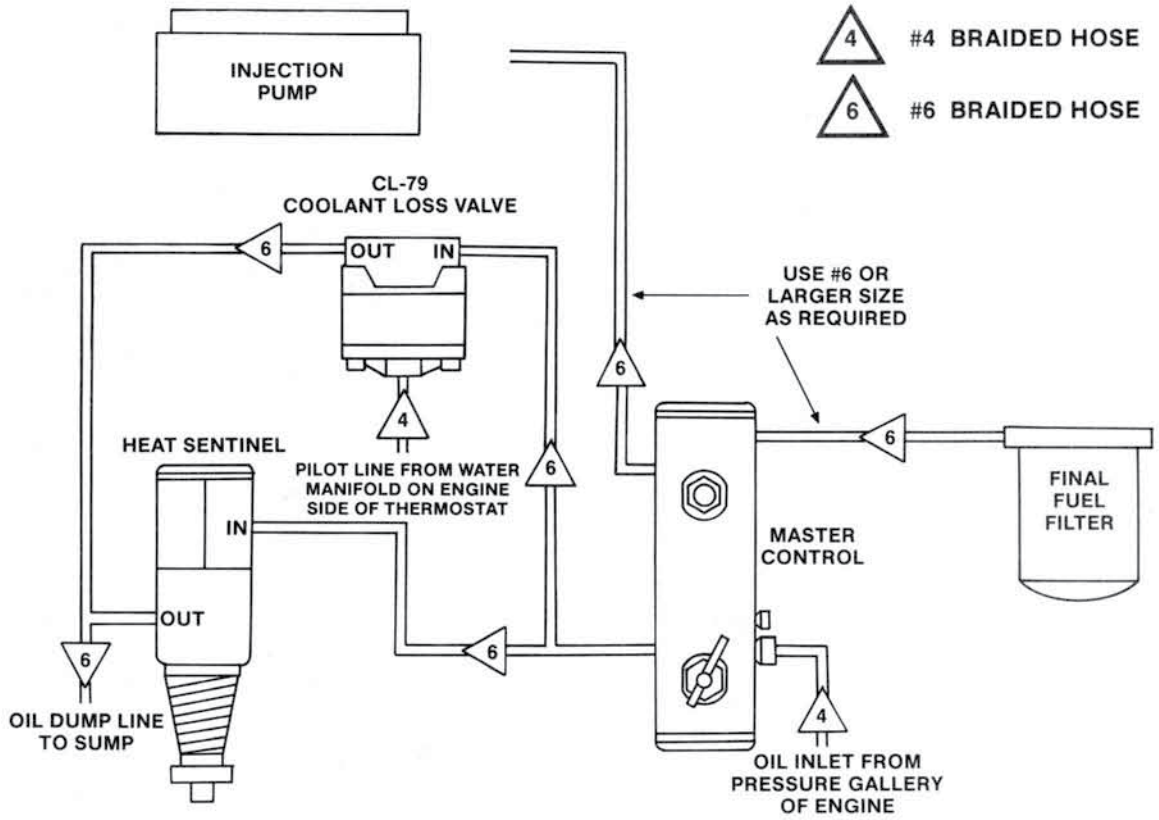
	All in-line engines					
Shutdown	D-15	HA-212	CPV	MB-1, MB-79	STV	HK-GU
Shutdown with Override	D-15 with SVK-1	HA-212	CPV	MB-1, MB-79	STV	HK-GU

Waukesha	All L5792 engines					
Shutdown	DL-10	H-212	CPV	MB-1, MB-79	STV	HK-GU

Yanmar	All 4T95J engines					
Shutdown	D-15	HA-212	CPV	MB-1, MB-79	STV	HK-GU
Shutdown with Override	D-15 with SVK-1	HA-212	CPV	MB-1, MB-79	STV	HK-GU

Notes: Engines below 180 GPH (approx. 2.85 GPM) fuel flow must use a D master control. Engines with fuel flow between 180 and 240 GPH (approx. 4 GPM) must use a DL master control. Engines with 240 GPH fuel flow, or higher, require two master controls. Standard SVK-1 override is 12 vdc. Order SVK-2 for 24 vdc applications. The STV test valve will aid in initial system test and assist with testing in the field.

HK-GU



Important: Proper Installation Mandatory for Optimum Performance

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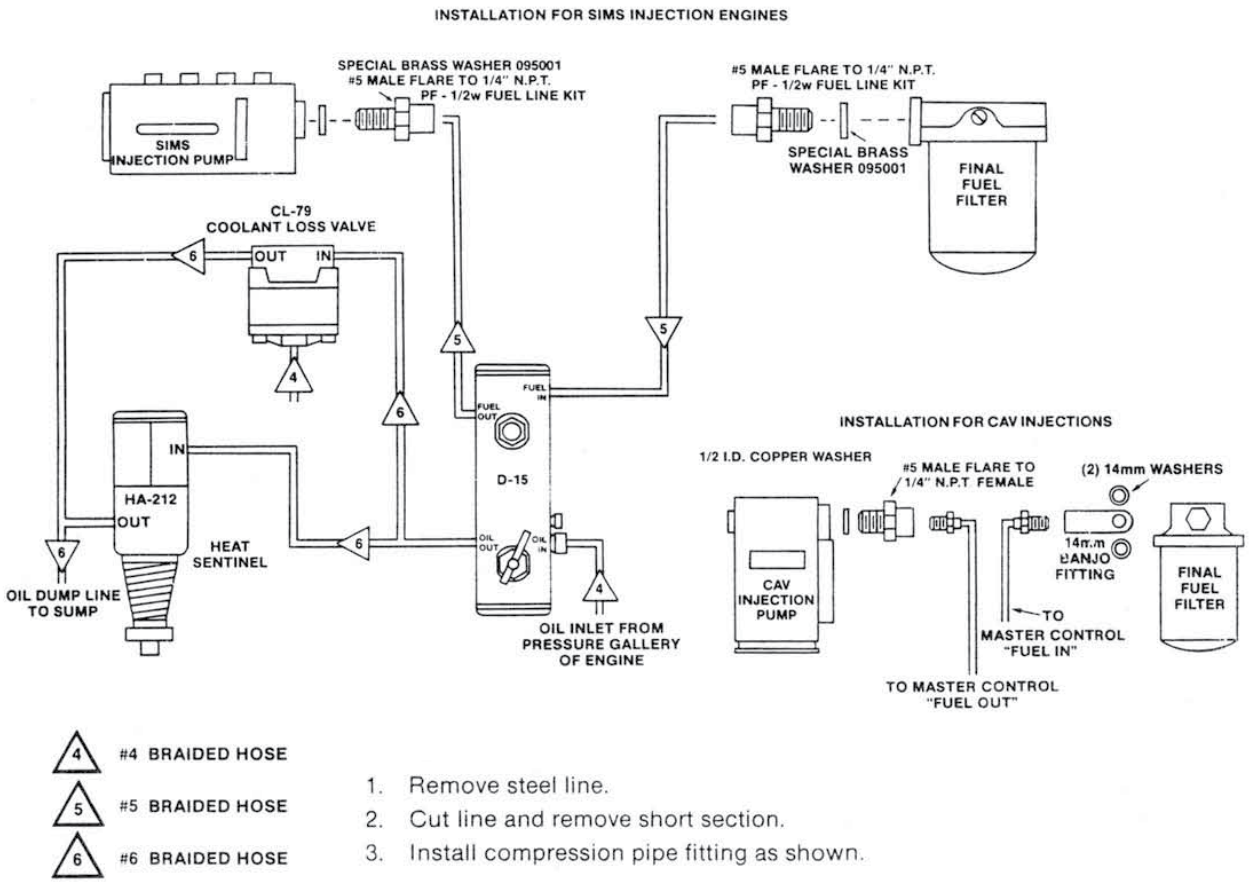
Perkins Inline and V Series Engines



Important: Proper Installation Mandatory for Optimum Performance

Refer to Master Control Installation Instructors for additional information.

K

HK-GU

Komatsu D-155 & D355 Engines

PARTS LIST

A) Master Control

OPTIONS

(1) D-10V (No Manual Override at Control). *Shown in Drawing*

(2) D-10 With D4-2 & D4-4 Caps (Full Power Override at Control)

(3) DTF-10V With FO-1-K Fuel Orifice (No Manual Override at Control)

(4) DTF-10 With D4-2 Cap and FO-1-K (Full Power Manual Override at Control)

(B) H-212 Heat Sentinel 212° F

(C) CL-79 Coolant Loss Valve

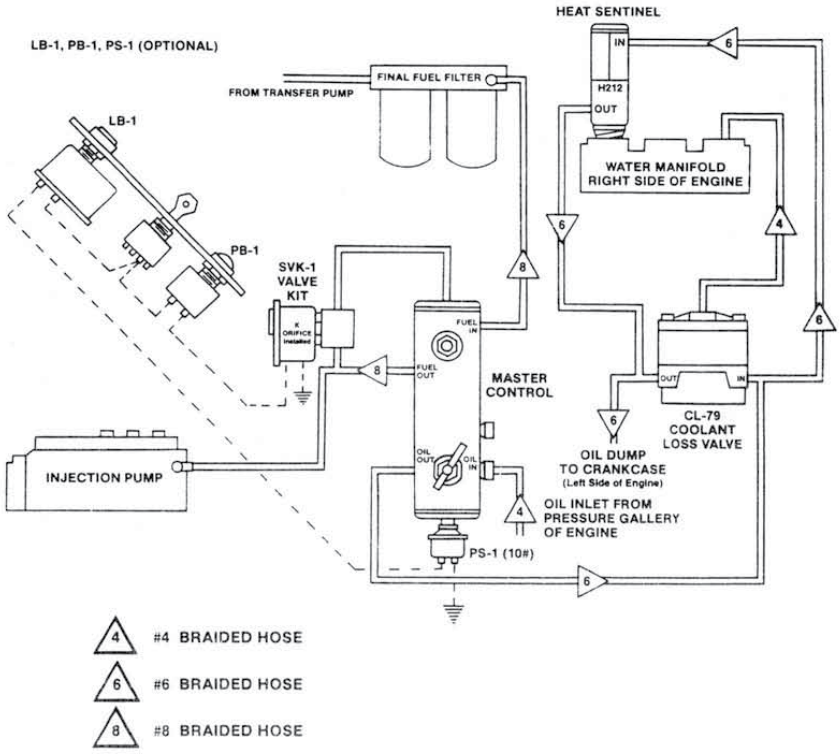
(D) SVK-1 Fuel Solenoid Valve with FO-1-D Fuel Orifice Installed

(E) MB-1 Mounting Bracket for Master Control

(F) MB-79 Mounting Bracket for Coolant Loss Valve

(G) LB-1 Light Buzzer

(H) PS-1 10# Pressure Switch



Important: Proper Installation Mandatory for Optimum Performance

Refer to Master Control Installation Instructors for additional information.

Notes:

1. Mount Master Control below Fuel Filter Air Intake Manifold using MB-1 Mounting Bracket. Bracket should be bent 90˚.

2. Coolant Loss Valve can be mounted 12" to the right of Master Control using bolt in Air intake manifold. MB-79 Mounting Bracket should be bent 90˚.

Questions? Contact Technical Support:
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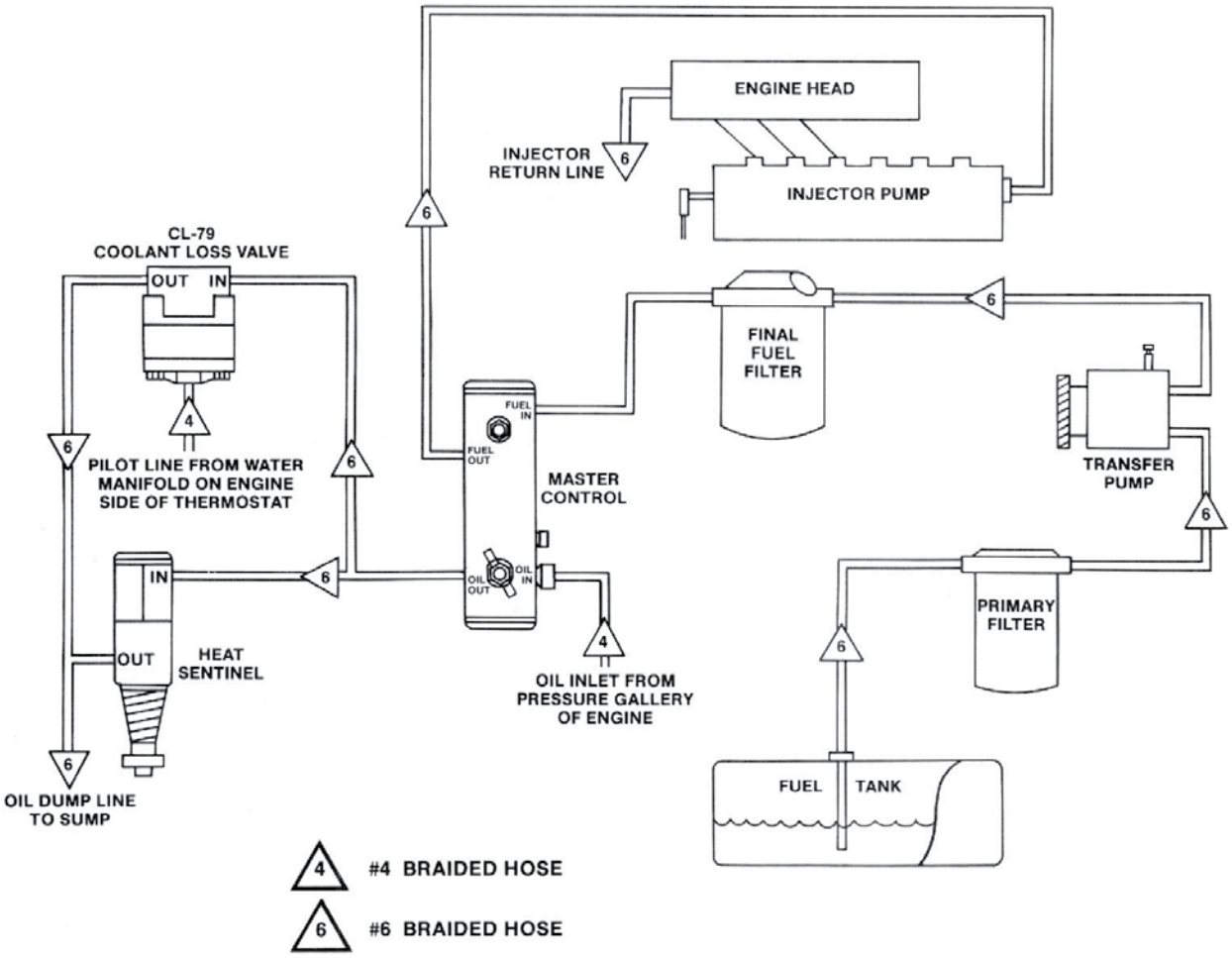
e-mail: racortech@parker.com

International Harvester Engines



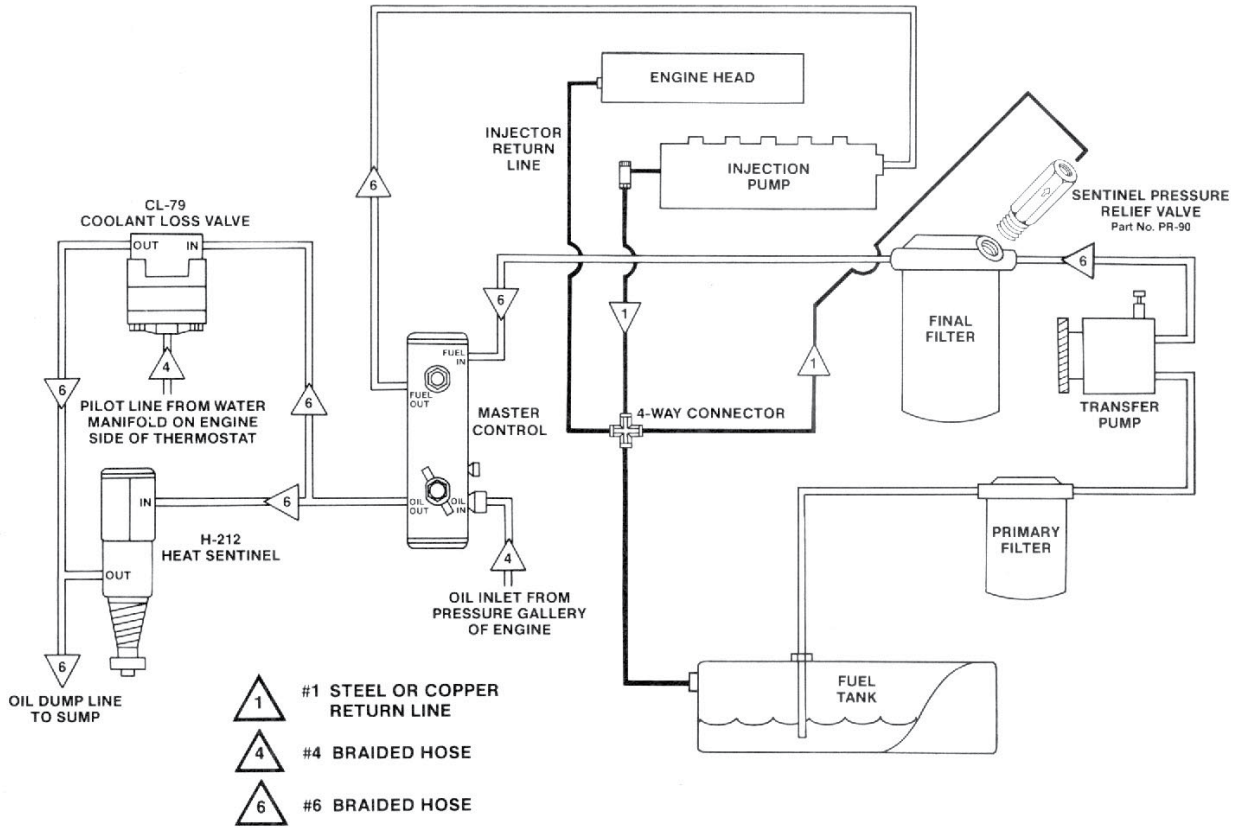
Important: Proper Installation Mandatory for Optimum Performance

Refer to Master Control Installation Instructors for additional information.

K

HK-GU

International 817C Engines DT 466
PR-90 Pressure Relief Valve



Important: Proper Installation Mandatory for Optimum Performance

Refer to Master Control Installation Instructors for additional information.

Notes:

The PR-90 Pressure Relief valve must be installed between the Master Control and Transfer Pump on all international engines that use **Piston Type** transfer pumps.

817C (C Series Engines will have serial numbers of 10,000 or higher) and the 573B are two samples that use this type of pump.

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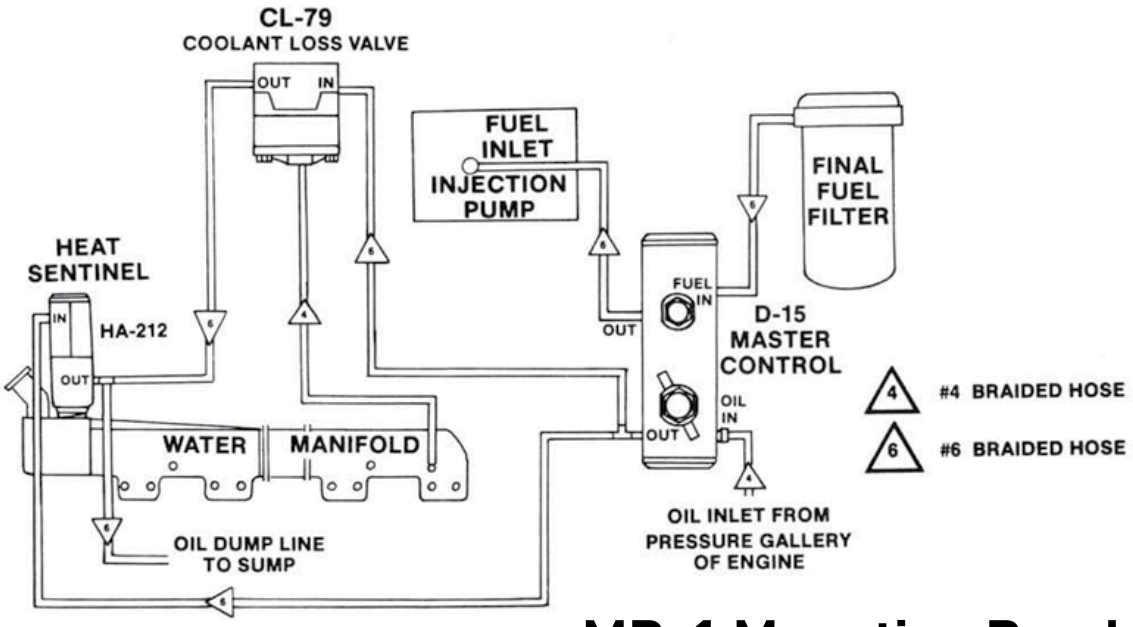
e-mail: racortech@parker.com

Mack, Mack Renault, Scania & Volvo Engines

1. **Using the MB-1 Mounting Bracket, mount the Master Control in a convenient location between the fuel inlet of the injection pump and final fuel filter.**
2. **Install the Heat Sentinel in the 1/2" NPT opening in the thermostat housing. Other openings in the water manifold, engine block or engine head are available, also if the 1/2" NPT opening in the thermostat housing is not available.**
3. **Mount the CL-79 Coolant Loss Valve at any convenient location at approximately the same height as the engine head. Pilot line pickup point is any opening in the water manifold.**
4. **Install a fitting that will accept a #6 hose end at any non-pressure opening in the crankcase. A 3/8" NPT opening on the left side of the engine block, just above the oil pan, is usually used for the dump point.**
5. **For oil pressure to the Master Control use one of the following pickup points:**
   a. **main oil pressure gallery opening in injection pump**
   b. **3/8" NPT oil pressure opening in injection pump**
   c. **3/8" NPT oil pressure opening in oil filter housing**

   NOTE: Do not tee into oil pressure line that feeds an accessory
6. **Remove the fuel line that runs from the final fuel filter to the inlet of the injection pump. Make up two new #6 fuel lines and plumb as shown. Plumb remaining lines and check system as described on installation sheet furnished with Master Control.**



MB-1 Mounting Bracket

Important: Proper Installation Mandatory for Optimum Performance

Refer to Master Control Installation Instructors for additional information.

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