



**Stormceptor**®

# Owner's Manual

April 2000

*The Stormceptor® System is protected by  
one or more of the following patents:*

Canadian Patent No. 2,009,208

Canadian Patent No. 2,137,942

Canadian Patent No. 2,175,277

Canadian Patent No. 2,180,305

Canadian Patent No. 2,206,338

U.S. Patent No. 4,985,148

U.S. Patent No. 5,498,331

U.S. Patent No. 5,725,760

U.S. Patent No. 5,753,115

U.S. Patent No. 5,849,181

U.S. Patent No. 6,068,765

Australia 693,164

Australia 707,133

New Zealand 314,646

European Patent Treaty 95 307 996.9

*The Stormceptor System for*

# Stormwater Quality Improvement

## Congratulations!

Your selection of a Stormceptor® System means that you have chosen the most recognized and efficient stormwater oil/sediment separator available. Stormceptor is a pollution control device that protects our lakes, rivers and streams from the harmful effects of non-point source pollution. Please address any questions or concerns regarding the Stormceptor Systems to Stormceptor Canada Inc at 1-800-565-4801 or visit our website at [www.stormceptor.com](http://www.stormceptor.com).

## What is a Stormceptor?

Stormceptor is a patented water quality structure that takes the place of a conventional manhole with in a storm drain system. Stormceptor removes free oil (TPH) and suspended solids (TSS) from stormwater preventing spills and non-point source pollution from entering downstream lakes and rivers. Key benefits of a Stormceptor include:

- Capable of removing 50% to 80% of the total sediment load when properly applied as a source control for small areas
- Removes free oil from stormwater during low flow conditions
- Will not scour or re-suspend trapped pollutants
- Excellent spill control device for commercial and industrial developments
- Easy to maintain (vacuum truck)
- STORMCEPTOR *clearly* marked on the cover (excluding inlet designs)
- Engineered and continually tested
- Vertical orientation therefore resulting in a smaller footprint

## Please Maintain Your Stormceptor

To ensure long-term environmental protection through continual performance, **Stormceptor must be maintained**. The need for maintenance is determined through inspection of the Stormceptor. Procedures for inspection are provided in this document. Maintenance of the Stormceptor is performed from the surface via vacuum truck. . If you require a list of contacts for cleaning your Stormceptor please call one of our Stormceptor offices or your nearest Stormceptor affiliate (affiliates listed in Appendix 1).

## How does Stormceptor® Work?

Stormceptor can be divided into two components:

- Lower treatment chamber
- Upper by-pass chamber

Stormwater flows into the by-pass chamber via the storm drain pipe. Low flows are diverted into the treatment chamber by a weir and drop pipe arrangement. The treatment chamber is always full of water. Water flows up through the outlet pipe based on the head at the inlet weir, and is discharged back into the by-pass chamber downstream of the weir. The downstream section of the by-pass chamber is connected to the outlet storm drain pipe.

Free oils and other liquids lighter than water will rise in the treatment chamber and become entrapped beneath the fiberglass insert since the outlet pipe is submerged. Sediment will settle to the bottom of the chamber by gravity. The circular design of the treatment chamber is critical to prevent turbulent eddy currents and to promote settling.

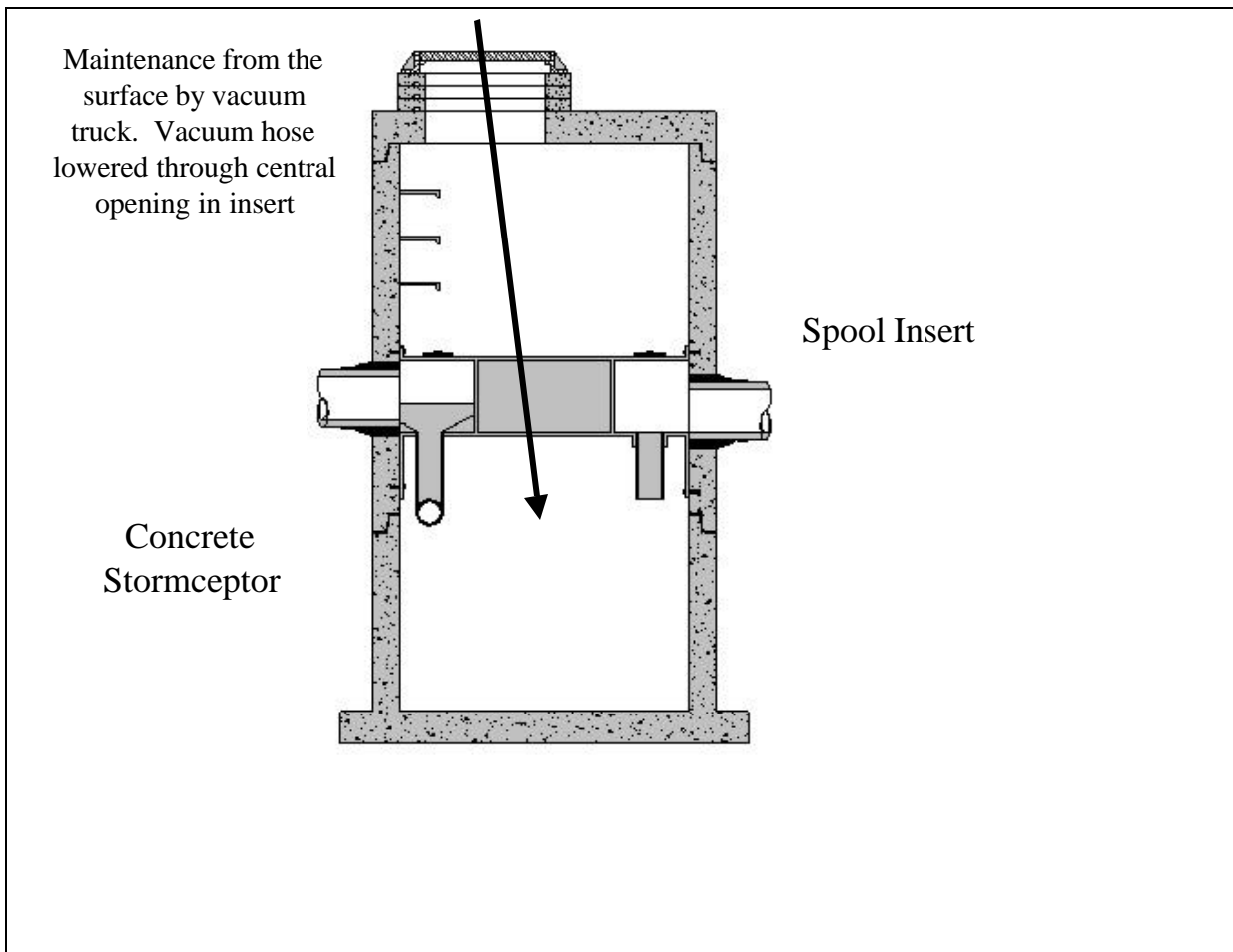
During high flow conditions, stormwater in the by-pass chamber will flow overtop of the weir and be conveyed to the outlet storm drain directly. Water that overflows the weir creates a backwater effect on the outlet pipe (head stabilization between the inlet drop pipe and outlet riser pipe) ensuring that excessive flow will not be forced into the treatment chamber, which could scour or re-suspend the settled material. The by-pass is an integral part of Stormceptor since other oil/grit separators have been noted to scour during high flow conditions (Schueler and Shepp, 1993).

## Stormceptor Models and Identification

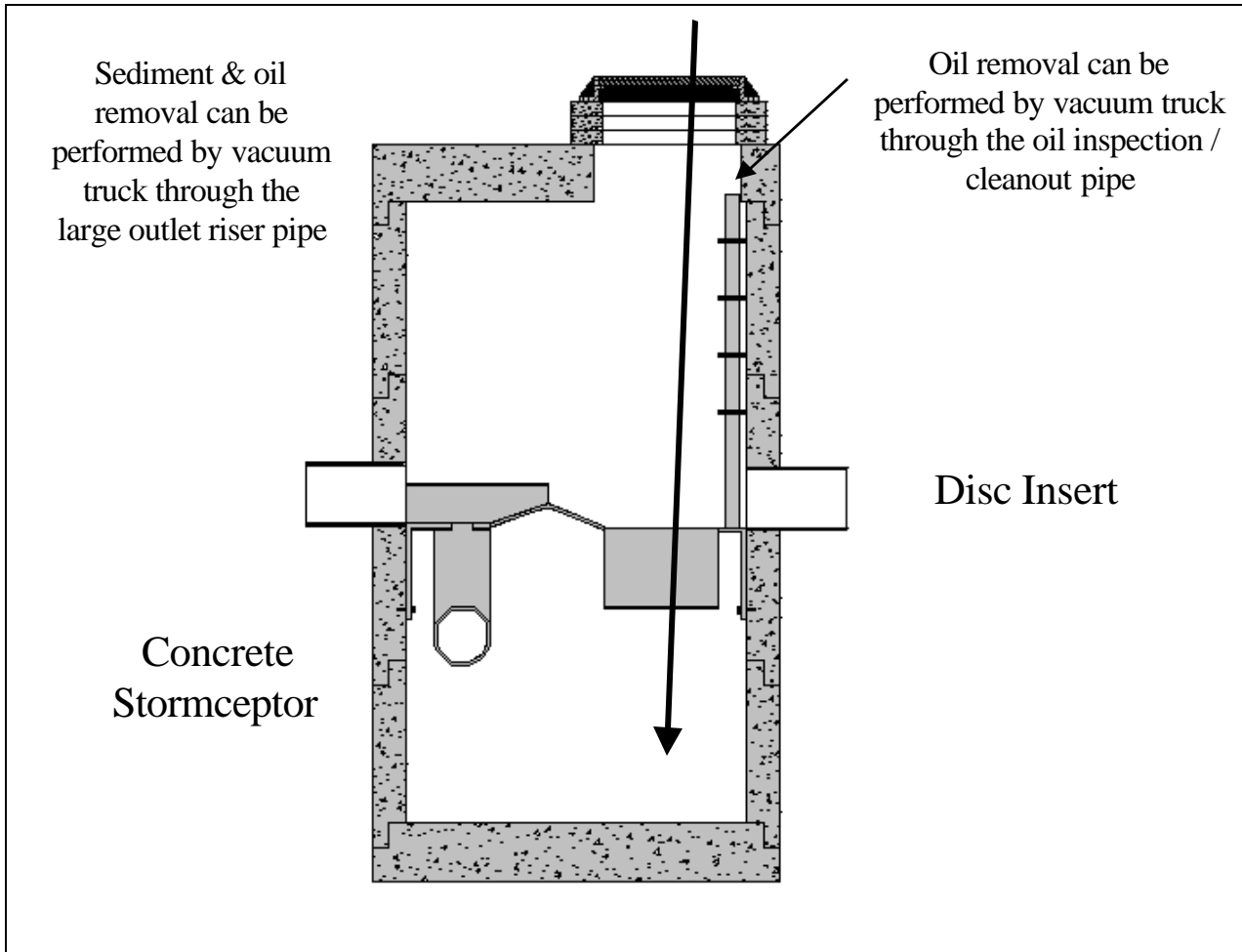
Stormceptor is available in both concrete and fiberglass. There are currently nine different sizes available. A concrete Stormceptor is denoted by STC (e.g. STC6000) preceding the model number. A fiberglass Stormceptor is denoted by STA (e.g. STA6000) preceding the model number.

In the concrete Stormceptor, a fiberglass insert separates the treatment chamber from the by-pass chamber. There is three insert designs: the “spool”, the “disc” and the “inlet”. The different insert designs are illustrated in Figures 1, 2 and 3. These designs are easily distinguishable from the surface once the cover has been removed. In the “spool” design you will see one large 914 mm (36”) opening in the center of the insert with two 200 mm (8”) inspection ports located either vertically on the sides of the 914 mm (36”) opening or horizontally on either side of the opening. There are three versions of the in-line disc insert: “single inlet/outlet”, “multiple inlet” and “submerged”. In the “disc” design you will be able to see the inlet pipe, the drop pipe opening to the lower chamber, the weir, a 150 mm (6”) oil inspection/cleanout pipe, a large 610 mm (24”) riser pipe-opening offset on the outlet side of the structure, and the outlet pipe from the unit. The weir will be around the 610 mm (24”) outlet pipe on the “multiple inlet” disc insert. The “submerged” disc insert has a higher weir and a second inlet drop pipe. In the “inlet” design you will be

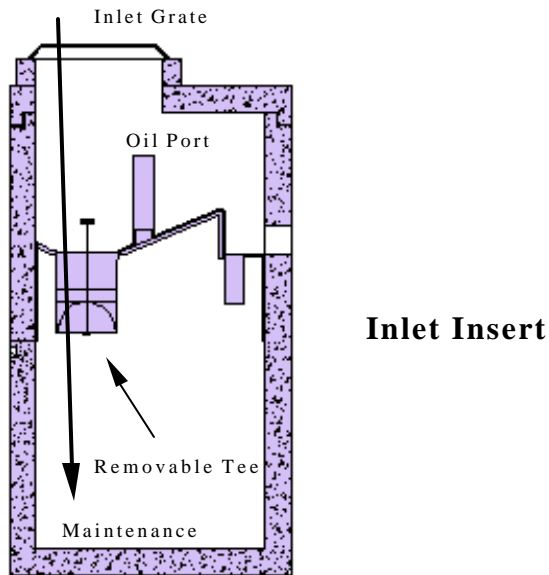
able to see the 305 mm (12") inlet drop pipe and 100 mm (4") outlet riser pipe as well as a central 100mm [4"] oil inspection/cleanout port.



**Figure 1 "Spool" Insert Concrete Stormceptor®**



**Figure 2 Single Inlet/Outlet "Disc" Insert Concrete Stormceptor®**



**Figure 3 STC 300/450 Inlet Insert**

**Sizes/Models**

Dimensions of the fiberglass and concrete Stormceptor® units are provided in Table 1. Values of invert to grade are provided later in this document for your site. The total depth for cleaning will be the sum of the depth from invert to grade and invert to the bottom of the unit.

<b>Table 1. Stormceptor Dimensions *</b>			
Model (Metric)	Model (US)	Pipe Invert to Bottom of STA Stormceptor m (in.)	Pipe Invert to Bottom of STC Stormceptor m (in.)
300	450	1.6 (64)	1.7 (68)
750	900	1.6 (64)	1.9 (74)
1000	1200	2.1 (81)	2.2 (86)
1500	1800	2.9 (115)	3.1 (122)
2000	2400	2.3 (89)	3.1 (122)
3000	3600	3.2 (127)	4.0 (158)
4000	4800	2.9 (113)	3.7 (146)
5000	6000	3.5 (138)	4.3 (170)
6000	7200	3.3 (128)	4.0 (158)

**\* Depths are approximate**

The capacities of the different Stormceptor units are provided in Table 2.

<b>Table 2. Stormceptor® Capacities</b>				
Model (Metric)	Model (US)	Sediment Capacity L (US gal)	Oil Capacity L (US gal)	Total Holding Capacity L (US gal)
300	450	1275 (335)	325 (85)	1775 (470)
750	900	2460 (565)	915 (280)	4325 (950)
1000	1200	3260 (845)	915 (280)	5125 (1230)
1500	1800	5660 (1445)	915 (280)	7525 (1830)
2000	2400	6150 (1345)	2945 (880)	10925 (2495)
3000	3600	10415 (2600)	2945 (880)	15195 (3750)
4000	4800	14060 (3475)	3490 (1025)	20180 (5020)
5000	6000	18510 (4550)	3490 (1025)	24635 (6095)
6000	7200	23445 (5425)	4150 (1100)	31210 (7415)

### **Identification**

Even if you do not have plans of your storm drain system you will be able to easily identify where the inline Stormceptor unit(s) (spool or disc insert) are since the name STORMCEPTOR is clearly embossed on the cover. You will be able to determine the location of “inlet” Stormceptor units with horizontal catch basin inlets by looking down the grate since the insert will be visible. The name Stormceptor is not embossed on the inlet models due to the variability of inlet grates used/approved across North America. Once you have found the unit, you may still be uncertain which model number it is. Comparing the measured depth from the water level (bottom of insert) to the bottom of the tank with Table 1 should help determine the size of the unit.

Starting in 1996, a metal serial number tag has been affixed to the inside of the unit. The serial number has the model number written on it. If the unit does not have a serial number, or if there is any uncertainty regarding the size of the interceptor using depth measurements, please contact Stormceptor at 1 800 565-4801 and we will help you determine the size of a particular unit.

### **What is the Maintenance Procedure?**

Maintenance of Stormceptor is performed using vacuum trucks. No entry into the unit is required for maintenance of the spool insert, inlet insert or the smaller disc inserts. Entry to the level of the disc insert may be required for servicing the larger disc insert models. **DO NOT ENTER THE STORMCEPTOR CHAMBER** unless you have the proper equipment, have been trained and are qualified to enter a confined space, as identified by local Occupational Safety and Health Regulations (*e.g.* Canada Occupational Safety and Health Regulations – SOR/86-304). Without the proper equipment and training, entry into confined spaces can result in serious bodily harm and potentially death. Consult local, provincial, and/or state regulations to determine the requirements for confined space entry. Be aware that the insert may be slippery. In addition, be aware that some units do not have a safety grate to cover the outlet riser pipe that leads to the submerged, lower treatment chamber.

The Vacuum Service Industry is a well-established sector of the service industry that cleans underground tanks, sewers and catch basins. Costs to clean a Stormceptor<sup>®</sup> will vary based on the size of unit and transportation distances.

The depth of oil in the interceptor can be determined by inserting a dipstick tube in the 150 mm (6") oil inspection/cleanout pipe ("disc" design), or in the 914 mm (36") central access way ("spool" design), or in the 100 mm (4") cleanout pipe ("inlet" design).

Similarly, the depth of sediment can be measured from the surface without entry into the Stormceptor via a dipstick tube equipped with a ball valve (Sludge Judge). This tube would be inserted in the central opening ("spool" design) or in the 610 mm (24") opening ("disc" design), or in the 100 mm (4") cleanout pipe ("inlet" design). Maintenance should be performed once the sediment depth exceeds the guideline values provided in Table 3.

For the "spool" design Stormceptor maintenance is performed through the large central 914 mm (36") diameter opening for both the oil and the sediment. In the "disc" design, oil is removed through the 150 mm (6") oil inspection/cleanout pipe and sediment is removed through the 610 mm (24") diameter outlet riser pipe. Alternatively, oil could be removed from the 610 mm (24") opening if water is removed from the lower chamber to lower the oil level to the level of the drop pipes. For the "inlet" design, maintenance is performed through the 305mm (12") inlet drop pipe for the sediment, and oil can be removed from the 100 mm (4") oil/inspection cleanout pipe.

We recommend the following procedure to clean out the Stormceptor:

1. Check for oil (using a dipstick tube)
2. Remove any oil separately using a small portable pump
3. Decant the water from the unit to the sanitary sewer using a portable pump (**prior approval is required from the sewer authority/municipality**)
4. Remove the sludge from the bottom of the unit using a vacuum truck
5. Re-fill the Stormceptor with water where required by the local jurisdiction

### **How Often Is Maintenance Required?**

Generally, annual maintenance is recommended but the required maintenance frequency will vary with the amount of pollution on your site (number of hydrocarbon spills, amount of sediment, etc.). It is recommended that the frequency of maintenance be increased or reduced based on local conditions. If the sediment load is high, maintenance may be required semi-annually. Conversely once the site has stabilized, maintenance may be required less frequently. Maintenance should be performed immediately after an oil spill or once the sediment depth in Stormceptor reaches the value specified in Table 3 based on the unit size.

In the "disc" design and "inlet" design, any potential obstructions at the inlet can be observed from the surface. The "disc" insert has been designed as a platform to facilitate maintenance of the Stormceptor and the storm drain system.

Model (Metric)	Model (US)	Sediment Depth mm (in.)
300	450	200 (8)
750	900	200 (8)
1000	1200	250 (10)
1500	1800	375 (15)
2000	2400	300 (12)
3000	3600	425 (17)
4000	4800	375 (15)
5000	6000	450 (18)
6000	7200	375 (15)

### **What Should I do in the Event of an Oil Spill?**

Stormceptor® is often implemented in areas where the potential for spills is great. Stormceptor should be cleaned immediately after a spill occurs by a licensed liquid waste hauler. You should also notify the appropriate regulatory agencies as required in the event of a spill.

### **Disposal of the Trapped Material Removed from Stormceptor**

The requirements for the disposal of material from Stormceptor are similar to that of any other Best Management Practices (BMP). Local guidelines should be consulted prior to disposal of the separator contents.

In most areas the sediment, once dewatered, can be disposed of in a sanitary landfill. It is not anticipated that the sediment would be classified as hazardous waste. In some areas, mixing the water with the sediment will create a slurry that can be discharged into a trunk sanitary sewer. In all disposal options, approval from the disposal facility operator/agency is required. Petroleum waste products collected in Stormceptor (oil/chemical/fuel spills) should be removed by a licensed waste management company.

### **What if I see an oil rainbow or sheen at the Stormceptor outlet?**

With a steady influx of water with high concentrations of oil, a sheen may be noticeable at the Stormceptor outlet. This may occur because a rainbow or sheen can be seen at very small oil concentrations (< 10 ppm). Stormceptor will remove over 95% of all free oil and the appearance of a sheen at the outlet with high influent oil concentrations does not mean that the unit is not working to this level of removal. In addition, if the influent oil is emulsified, the Stormceptor will not be able to remove it. The Stormceptor is designed for free oil removal and not emulsified or dissolved oil conditions.

## **Appendix 1**

### **Stormceptor<sup>®</sup> Affiliates**

# **Stormceptor<sup>®</sup> Affiliates**

## **CANADA**

### **FIBERGLASS**

#### **Stormceptor Canada Inc.**

416-626-0840 / 1-800-565-4801

Todd Neff

### **CONCRETE**

#### **Lafarge Canada Inc.**

403-292-9502 / 1-888-422-4022

AB, MB, NW, ON, SK

604-502-5236

Chris Hughes

BC

#### **Centennial Concrete Pipe & Products Inc.**

519-622-7574 / 1-888-888-3222

Brian Lee

ON

#### **Lécuyer et Fils Ltée.**

450-454-3928

Réjean Tremblay

PQ

#### **Strescon Limited**

902-494-7400

Andrew LeVatte

NS

506-633-8877

Gary Bennett

NB, PE, NF

**UNITED STATES**

**CSR Hydro Conduit**

1-800-909-7763 CSR National Stormceptor® Information

AK, AL, AR, AZ, CA, CT  
DC, DE, FL, GA, HI, s. IL, IN,  
KS, KY, LA, MA, MD, ME,  
MI, MO, MS, NC, NE, NH,  
NM, NV, OK, OR, RI, SC, TN,  
TX, VA, VT, WA

**The Cretex Companies**

612-441-2121

Brad Fossum

MN, IA, n. IL WI

**Camtek Construction Products**

724-327-3400

Andy Virostek

NY, NJ, OH, PA, WV

**Carder Concrete Products**

303-791-1600

Don Grzesiek

CO

**Wyoming Concrete Products**

307-265-3100

John Finch

ID, MT, ND, SD, UT, WY

**AUSTRALIA**

**CONCRETE**

**CSR Humes**

61 7 3364-2933

Colin Roome

Australia

**CSR Construction Materials**

61 3 9286-2624

Keith Caporn

Pacific Rim

