CRACK PRO GRAVITY FLOW
Owner’s Manual

Version 2.0
Issue Date: June 2019
Effective Date: April 2019

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<th>Date</th>
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ThorWorks Industries, Inc.

Purchased by __________________________  Model NO. _________________
Company Name ________________________  Serial NO. _________________
Address ________________________________  Acceptance Date __________
City _________ State_____ Zip ________

CORRESPONDENCE

All Correspondence regarding this equipment, as well as general correspondence should be addressed to:

ThorWorks Industries, Inc.
PO Box 2277
Sandusky, OH 44870

In referring to the equipment, kindly state the Model Number, Serial Number and any part number involved
SealMaster® LIMITED WARRANTY

SealMaster warrants that its products are of quality material and workmanship. SealMaster agrees to replace, within a period of one (1) year from date of delivery, or at its option, repair, without charge, any part of their manufacture which proved defective. The repair or replacement will be free of charge F.O.B. Sandusky, Ohio, proving the damaged part or parts are returned, freight prepaid, to SealMaster and investigation show such repair or replacement is made necessary by an inherent defect of material or workmanship.

It is hereby understood that engines, motors, pumps, or other components purchased by SealMaster for use on its equipment are not warranted by SealMaster and are sold only with the standard warranty of the manufacturer of that component.

SealMaster will make no allowances for repairs or alterations completed by outside sources unless authorization is in writing and approved by an authorized SealMaster representative.

Any claims for defective material or workmanship must be made prior to the expiration of thirty (30) days from the date failure occurs, and in all cases prior to the expiration of the warranty period of one (1) year. It is the intent of this paragraph to limit SealMaster’s liability solely to the cost of replacement parts, F.O.B. factory, or at the option of SealMaster to repair of the defective part or parts. No allowances for damages, lost time, or any other claim will be recognized.

This warranty is null and void if other than genuine SealMaster parts are used.

SealMaster is constantly striving to improve their products. Changes in design and improvement will be made whenever the manufacturer believes the efficiency of the product will be improved, without incurring any obligation to incorporate such improvements in any machines which have been shipped or are in service.

In an effort to continue to improve product quality, SealMaster reserves the right to change specifications without notice.

Any modification or alteration of this machine without prior approval of the manufacturer may void this warranty.
SAFETY PRECAUTIONS AND CAUTIONS

PRECAUTIONS

• **Always** wear **eye** and **ear** protection, **long sleeve shirt**, **face shield** and **gloves**.

  ![Safety Gear Icons]

  • Be aware of all **CAUTION, WARNING, DANGER** signs on the unit.
  • Read all Owners Manuals that come with this unit.
  • Make sure the operator is familiar with the units’ operation.

CAUTIONS

• Keep hands, feet, and clothing away from moving parts.
• Do not operate the machine without all guards in place.
• Stop the Agitator when opening the lid for any reason.
• Never fill the fuel tank with a lit burner.

• **WARNING!** When checking oil levels, **never check when HOT!**
SAFETY PRECAUTIONS AND CAUTIONS

FIRST AID

FIRST AID FOR MOLTEN ASPHALT CEMENT BURNS

In the event of a MOLTEN ASPHALT CEMENT BURN:
COOL the asphalt cement and affected parts of the body immediately.

Methods of cooling (in order of preference):
1. Completely submerge affected area in ice water;
2. Completely submerge affected area in tap water;
3. Place affected area under running water.

DO NOT DELAY

Use any available water, cooler than body temperature, while arranging for better cooling.

CAUTION: DO NOT apply ice directly to affected area.
LEAVE cooled asphalt cement on affected area.

Proceed with the following:

MINOR ASPHALT CEMENT BURNS — at first opportunity get victim to physician.
Includes:
Injury to small areas of fairly insensitive flesh involving a small quantity of asphalt cement.

SERIOUS ASPHALT CEMENT BURNS — as soon as possible get victim to:
Hospital
Clinic
Physician’s Office
Includes:
Injury to the head, face or extremities;
Injury when large amounts of asphalt cement are involved;
Evidence of nausea or faintness.

TREATMENT FOR SHOCK
In the event shock occurs, do the following:
1. Keep victim lying down and quiet.
2. Keep victim covered with a blanket or something similar to keep body temperature at normal, 98°F (37°C).
3. Keep victim’s head lower than feet to promote blood supply to head and chest.

DO NOT ATTEMPT TO REMOVE THE ASPHALT CEMENT with products containing solvents or ammonia.
Natural separation will occur in about 48–72 hours.
If necessary, for early removal, soak bandage in mineral oil and place over affected area for 2 to 3 hours.
CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER
APPLIES TO ALL DIESEL FUEL BURNER & LP GAS BURNER

MANUAL COVERAGE

CRACK PRO® GRAVITY FLOW
This manual covers the oil jacketed CRACK PRO® model sizes 60, 125 and 260 gals.

CRACK PRO® DIRECT FIRE MELTER
This manual also covers the non-oil jacketed CRACK PRO® model size 125 gallons. Because there is not an oil jacket, the burner reacts differently.

Upon turning on the temperature control, the burner blower motor will come on for a second and then shut off. The burner control is now sensing all parameters. It will take upward of two minutes for this to happen, and once all parameters are met, the burner will fire, starting the heating cycle.

Every time the temperature control calls for heat, the burner will go thru this two-minute cycle.
CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER

APPLIES TO ALL DIESEL FUEL BURNERS

OPERATING INSTRUCTIONS - DIESEL FUEL BURNER

STARTUP

CHECKLIST

- Check engine oil level. Follow manufacturers guidelines as to type and frequency of changes.
- Check hydraulic oil level. Use grade AW68 hydraulic oil.
- Check heat transfer oil level with oil dipstick #25. Use a good quality grade 68 turbine oil or heat transfer oil. **NEVER CHECK WHEN HOT!**
- Fill fuel tank with gasoline for the engine.
- Fill fuel tank with diesel for the burner. **NEVER FILL FUEL TANK WITH A LIT BURNER!**
- **NOTE:** Direct Fire Melter’s do not have heat transfer oil or oil thermometer.

BEFORE STARTING THE ENGINE

Make sure the agitator control valve #23 is in the neutral position.

23 AGITATOR CONTROL VALVE
CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER
APPLIES TO ALL DIESEL FUEL BURNERS

OPERATING INSTRUCTIONS - DIESEL FUEL BURNER

STARTUP

STARTING THE ENGINE

- Set the fuel shutoff and choke levers to the on position.
- Set the throttle lever at ½ open.
- Turn the engine switch to the start position.

- It is important that when you are done running the engine that the fuel shutoff lever is turned to the off position. This keeps gasoline from mixing with oil as you are driving.

Refer to the engine manual.
CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER

APPLIES TO ALL DIESEL FUEL BURNERS

OPERATING INSTRUCTIONS - DIESEL FUEL BURNER

STARTUP

STARTING TEMPERATURE CONTROL

- The **top scale** is the **ambient temperature** of the heat transfer oil or material temperature for **SM-125**.
- The **bottom scale** is the **set temperature** that you want the oil to be heated to or material temperature for **SM-125**.
- **NOTE**: For **SM-125** Refer to recommend pouring temperature on the material box.
- The burner shuts off when your setting is exceeded by 10°.
- It comes back on when the temperature drops to 10° under your setting.
- The sequence for setting 475° temperature is:
  1) Press the left arrow 3 times, then up or down for the **4**.
  2) Press the left arrow again, then up or down for the **7**.
  3) Press the left arrow again, then up or down for the **5**.
  4) Press **SET**.

**NOTE**: Factory set temperatures: CP Gravity Oil - 475° / SM-125 Material - 375°
CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER
APPLIES TO ALL DIESEL FUEL BURNERS
OPERATING INSTRUCTIONS - DIESEL FUEL BURNER

- 15 OIL THERMOMETER
- 16 MATERIAL THERMOMETER
- 21 ENGINE
- 23 AGITATOR CONTROL VALVE
- 25 OIL DIP STICK
- 30 MATERIAL DISCHARGE VALVE
CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER

APPLIES TO ALL DIESEL FUEL BURNERS

OPERATING INSTRUCTIONS - DIESEL FUEL BURNER

ADDING MATERIAL
1. Open the material tank lid and place three boxes of material inside. Close the lid.

MATERIAL TEMPERATURE
2. When the material thermometer #16 and the oil thermometer #15 reaches 300°, engage the agitator control valve #23 to the forward position. If the agitator will not turn, return the valve to the neutral position. Try again in a few minutes.
3. NOTE: When there are a few inches of liquid material in the tank, you can add more blocks.
   CAUTION: ALWAYS STOP THE AGITATOR WHEN OPENING THE LID FOR ANY REASON!
4. As the material temperature gets close to the recommended pouring temperature, you need to lower the digital temperature controller setting down so that the material thermometer #16 and the oil thermometer #15 readings are close together. When constantly adding blocks of material, the digital temperature should be set about 50° higher than the material pouring temperature.
5. If the material temperature starts to climb over the recommended pouring temperature, open the lid and add more blocks. Leaving the lid open will also help drop the temperature.
CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER

APPLIES TO ALL DIESEL FUEL BURNERS

OPERATING INSTRUCTIONS - DIESEL FUEL BURNER

POURING MATERIAL

6. Set pour pot or applicator under the material discharge valve #30 and raise the handle to open.

   CAUTION: ALWAYS WEAR LONG SLEEVE SHIRT, GLOVES, AND A FACE SHIELD WHEN PERFORMING THIS OPERATION!

7. Fill the crack filler pour pot to the desired level and pour into cracks. Follow with a V-shaped squeegee if desired.

8. To stop for the day, perform the following steps:
   • Turn the burner control switch to the off position, at least a 1/2 hour before completing work.
   • Put agitator control valve #23 in neutral.
   • Shut off the engine #21.
CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER
APPLIES TO ALL LP GAS BURNERS

OPERATING INSTRUCTIONS - LP GAS BURNER

STARTUP

CHECKLIST

- Check engine oil level. Follow manufacturers guidelines as to type and frequency of changes.
- Check hydraulic oil level. Use grade AW68 hydraulic oil.
- Check heat transfer oil level with oil dipstick #25. Use a good quality grade 68 turbine oil or heat transfer oil.
  NEVER CHECK WHEN HOT!
- Fill fuel tank with gasoline.
  NEVER FILL FUEL TANK WITH A LIT BURNER!
- Check if the agitator control valve is in the neutral position.
- NOTE: Direct Fire Melter’s do not have heat transfer oil or oil thermometer.

BEFORE STARTING THE ENGINE
Make sure the agitator control valve #23 is in the neutral position.
STARTING THE ENGINE

- Set the fuel shutoff and choke levers to the on position.
- Set the throttle lever at ½ open.
- Set the engine on/off switch to on position.
- Pull start the engine.

- It is important that when you are done running the engine that the fuel shutoff lever is turned to the off position. This keeps gasoline from mixing with oil as you are driving.

Refer to the engine manual.
CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER
APPLIES TO ALL LP GAS BURNERS

OPERATING INSTRUCTIONS - LP GAS BURNER

30 MATERIAL DISCHARGE VALVE
16 MATERIAL THERMOMETER
25 OIL DIP STICK
21 ENGINE

30 MATERIAL DISCHARGE VALVE
23 AGITATOR CONTROL VALVE

[Image of a Crack Pro® gravity flow and direct fire melter with labeled parts]
CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER

APPLIES TO ALL LP GAS BURNER

LP GAS BURNER PICTURES

1. Hand Torch
2. LP Gas Hose 1/2"
3. Hand Torch Regulator
4. LP Gas Hose 1/4"
6. Main Burner Regulator
7. Temperature Control Box
8. Temperature Control
9. Gas Valve
10. LP Gas Hose 1/2"
11. Needle Valve
12. Gas Burners
13. Pilot Light Assembly
14. Pilot Light Assembly
31. Burner Access Door

17
CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER

APPLIES TO ALL LP GAS BURNERS

OPERATING INSTRUCTIONS - LP GAS BURNER

STARTUP

1. Open the **temperature control box #7**, and turn the **temperature control knob #8** all the way clockwise to its lowest setting. This will prevent the burners from lighting prematurely. Remove **burner access door #31**.
2. Open the LP gas tank valve.
3. Turn the pilot knob on the **gas valve #9** to the pilot position. Light the **hand torch #5** and place it in the burner opening. Position it by the **pilot light assembly #14**, depress the pilot knob and remove the hand torch when you see that the pilot flame is lit. Hold the pilot knob in for at least 30 seconds. Release the knob and turn it to the **ON** position.
4. Turn the thermostat control to its 500° setting, the burner will now light. Replace the **burner access door #31**.

ADDING MATERIAL

5. Open the material tank lid and place three boxes of material inside. Close the lid.

MATERIAL TEMPERATURE

6. When the **material thermometer #16** reaches 300°, start the engine and engage the **agitator control valve #23** to the forward position. If the agitator will not turn, return the valve to the neutral position. Try again in a few minutes.
7. **NOTE**: When there are a few inches of liquid material in the tank, you can add more blocks.

**CAUTION: ALWAYS STOP THE AGITATOR WHEN OPENING THE LID FOR ANY REASON!**
CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER

APPLIES TO ALL LP GAS BURNERS

OPERATING INSTRUCTIONS - LP GAS BURNER

PICTURES

21 ENGINE

23 AGITATOR CONTROL VALVE

8 TEMPERATURE CONTROL

30 MATERIAL DISCHARGE VALVE
CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER
APPLIES TO ALL LP GAS BURNERS

OPERATING INSTRUCTIONS - LP GAS BURNER

8. As the material temperature gets close to the recommended pouring temperature, you need to turn the temperature control #8 down. When constantly adding blocks of material, the temperature control should be set about 50° higher than the material pouring temperature.

9. If the material temperature starts to climb over the recommended pouring temperature, open the lid and add more blocks. Leaving the lid open will also help drop the temperature.

POURING MATERIAL

10. Set pour pot or applicator under the material discharge valve #30 and raise the handle to open.

CAUTION: ALWAYS WEAR LONG SLEEVE SHIRT, GLOVES, AND A FACE SHIELD WHEN PERFORMING THIS OPERATION!

11. Fill the crack filler pour pot to the desired level and pour into cracks. Follow with a V-shaped squeegee if desired.

12. To stop for the day, perform the following steps:
   • Turn the temperature control #8 knob to its lowest setting, at least a 1/2 hour before completing work.
   • Put agitator control valve #23 in neutral.
   • Shut off the engine #21.
   • Turn off the propane tank.
## CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER

APPLIES TO ALL DIESEL FUEL BURNER & LP GAS BURNER

## MACHINE MAINTENANCE

### MAINTENANCE SCHEDULE

Follow maintenance procedures listed on the **engine** and **burner** manuals.

<table>
<thead>
<tr>
<th>MAINTAIN</th>
<th>8 HRS</th>
<th>1 WEEK</th>
<th>1 MONTH</th>
<th>6 MONTHS</th>
<th>1 YEAR</th>
<th>2 YEARS</th>
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<td>CHECK HYDRAULIC OIL LEVELS</td>
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<td>CHECK DIESEL FUEL LEVELS</td>
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<tr>
<td>CHANGE HYDRAULIC OIL *</td>
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<td>CHANGE HYDRAULIC OIL FILTER</td>
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<tr>
<td>CHANGE DIESEL FILTER</td>
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<td>DRAIN WATER FROM DIESEL FILTER</td>
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<tr>
<td>CLEAN HYDRAULIC SUCTION STRAINER</td>
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<td>CHECK BREAKAWAY BOX BATTERY</td>
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<tr>
<td>CHECK TIRE PRESSURE</td>
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<tr>
<td>INSPECT ALL HOSES</td>
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* Use a good quality AW68 hydraulic oil with a rating of 352 SUS @100 F. Do not use a 150 rated hydraulic oil as it is too light.
## CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER

**APPLIES TO ALL DIESEL FUEL BURNER**

## TROUBLESHOOTING DIESEL FUEL BURNER

<table>
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<tr>
<th>PROBLEM</th>
<th>POSSIBLE CAUSES/SOLUTIONS</th>
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<tr>
<td><strong>AGITATOR DOES NOT ROTATE</strong></td>
<td>SHUTOFF VALVE IS CLOSED / OPEN VALVE</td>
</tr>
<tr>
<td></td>
<td>HYDRAULIC OIL LOW / FILL OIL LEVEL 4” FROM TOP OF TANK</td>
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<tr>
<td></td>
<td>SPLINED COUPLER WORN / REPLACE COUPLER</td>
</tr>
<tr>
<td></td>
<td>HYDRAULIC MOTOR / REPLACE AGITATOR MOTOR</td>
</tr>
<tr>
<td></td>
<td>HYDRAULIC PUMP / HAVE TESTED OR REPLACED</td>
</tr>
<tr>
<td><strong>ENGINE ISSUES</strong></td>
<td>OIL SPECIFICATIONS / REFER TO ENGINE OWNER’S MANUAL</td>
</tr>
<tr>
<td></td>
<td>OPERATING INSTRUCTIONS / REFER TO ENGINE OWNER’S MANUAL</td>
</tr>
<tr>
<td><strong>EXPANSION TANK ISSUES</strong></td>
<td>FUEL IN OIL CRANKCASE / FUEL SHUT-OFF VALVE IN OFF POSITION</td>
</tr>
<tr>
<td></td>
<td>WHEN FINISHED</td>
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<tr>
<td><strong>BURNER DOES NOT LIGHT</strong></td>
<td>OIL COMING OUT OF HTO PIPE / LEVEL TOO HIGH – DRAIN</td>
</tr>
<tr>
<td></td>
<td>OIL COMING OUT OF HTO PIPE / WATER IN TANK – DRAIN REFILL WITH</td>
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<tr>
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<td>HTO</td>
</tr>
<tr>
<td><strong>HIGH TEMPERATURE LIGHT ON</strong></td>
<td>BATTERY LOW / REPLACE THE BATTERY</td>
</tr>
<tr>
<td></td>
<td>BLOWER MOTOR SLOW / CHECK BLOWER WIRING FOR POWER</td>
</tr>
<tr>
<td></td>
<td>CAD CELL DIRTY / CLEAN GLASS LENS</td>
</tr>
<tr>
<td></td>
<td>COUPLER DAMAGED / REPLACE THE COUPLER</td>
</tr>
<tr>
<td></td>
<td>BURNER IN LOCKOUT / REMOVE NEGATIVE CABLE &amp; REATTACH</td>
</tr>
<tr>
<td></td>
<td>FUEL NOZZLE PLUGGED / REFER TO BURNER OWNER’S MANUAL</td>
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<tr>
<td></td>
<td>AIR SHUTTER MOVED / REFER TO BURNER OWNER’S MANUAL</td>
</tr>
<tr>
<td></td>
<td>FUEL FILTER PLUGGED / CLEAN AS NEEDED</td>
</tr>
<tr>
<td></td>
<td>BLOWER FAN / CHECK FOR OBSTRUCTIONS</td>
</tr>
<tr>
<td></td>
<td>GREEN LIGHT ON / CHECK ALL OF THE ABOVE</td>
</tr>
<tr>
<td><strong>TEMPERATURE CONTROL DISPLAYS ERROR</strong></td>
<td>OIL IS AT HIGH LIMIT / LOWER SETTING TO 475°</td>
</tr>
<tr>
<td><strong>SETUP CYCLE WILL RUN/ MAY CAUSE ERROR</strong></td>
<td><strong>IN1E MEANS INCORRECT WIRING / CHECK FOR BROKEN WIRES</strong></td>
</tr>
<tr>
<td></td>
<td><strong>UUU1 MEANS SETTING CHANGE / CHECK THERMOCOUPLE</strong></td>
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<td></td>
<td><strong>NNN1 MEANS SETTING CHANGE / CALL FOR INSTRUCTIONS</strong></td>
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## CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER

**APPLIES TO ALL LP GAS BURNERS**

**MACHINE MAINTENANCE**

### TROUBLESHOOTING LP GAS BURNER

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<tr>
<td><strong>EXPANSION TANK ISSUES</strong></td>
<td>OIL COMING OUT OF HTO PIPE / LEVEL TOO HIGH – DRAIN</td>
</tr>
<tr>
<td></td>
<td>OIL COMING OUT OF HTO PIPE / WATER IN TANK – DRAIN REFILL WITH HTO</td>
</tr>
<tr>
<td><strong>TEMPERATURE CONTROL DOES NOT LIGHT</strong></td>
<td>TEMPERATURE DIAL WORN / REPLACE TEMPERATURE CONTROL</td>
</tr>
<tr>
<td><strong>TEMPERATURE CONTROL DOES NOT SHUT-OFF</strong></td>
<td>COPPER TUBES LEAK / DO LEAK TEST THAT CONNECT TO GAS VALVE</td>
</tr>
<tr>
<td></td>
<td>TEMPERATURE PROBE BROKE / REPLACE TEMPERATURE PROBE</td>
</tr>
<tr>
<td><strong>LP GAS BURNER BURNER WILL NOT STAY LIT</strong></td>
<td>COPPER TUBES LEAK / DO LEAK TEST THAT CONNECT TO GAS VALVE</td>
</tr>
<tr>
<td><strong>LP GAS BURNER FLAME IS SMALLER</strong></td>
<td>THERMOPILE / NEEDS REPLACED</td>
</tr>
<tr>
<td></td>
<td>GAS VALVE / NEEDS REPLACED</td>
</tr>
<tr>
<td></td>
<td>OBSTRUCTION IN HOSE / CLEAN OUT HOSE</td>
</tr>
<tr>
<td></td>
<td>BURNER ORIFICE BLOCKED/ CLEAN ORIFICE</td>
</tr>
</tbody>
</table>
Indol® and Indol® (Ultra Clean*)

Anti-Wear Hydraulic Oil

General Description
Indol® Premium Anti-wear Hydraulic Oil is exceptional quality zinc containing anti-wear hydraulic oil designed to exceed the performance requirements of major pump manufacturers.

Indol oils are specially formulated with the highest quality HCG-2 base oils having outstanding stability. The addition of a uniquely balanced additive system provides total anti-wear, oxidation, thermal, hydrolytic stability, anti-rust, demulsibility, and anti-foam performance.

The zinc anti-wear agent used in Indol oils helps minimize wear in high speed, high pressure vane and gear pumps while meeting the lubrication and requirements of the axial piston pumps having bronze and steel metallurgy. Indol oils are highly stable under thermal or oxidative stress and are exceptionally stable when in the presence of moisture.

Indol® (Ultra Clean*) series goes through a special fine filtering process during the manufacturing of selected ISO grades. This ensures an ultra clean oil to prevent excess wear under high pressure and close manufacturing tolerances.

Indol® MV is a multi-viscosity oil formulated with an extremely shear stable viscosity modifier. It provides exceptional low temperature properties enabling performance over a wide range of start-up and operating temperatures.

Features and Benefits
- **Oxidation Control**: Excellent oxidation and thermal stability reduces sludge and varnish providing protection of critical components while extending oil and equipment life.

- **Wear Protection**: The premium anti-wear technology provides protection that passes major hydraulic equipment manufacturers pump tests resulting in longer life.

- **Filterability**: Superior hydrolytic stability with quick water separation provides protection against filter plugging and deposits.

- **Rust and Corrosion Protection**: Reduced maintenance due to outstanding rust and corrosion prevention capabilities when moisture is present.

- **Foam Control**: A special anti-foam agent promotes the rapid break up of foam and reduces air entrapment.

- **High Viscosity Index**: The shear stability of Indol MV provides exceptional viscosity stability, resulting in consistent operation throughout wide temperature ranges and drain intervals.

- **Ultra Clean**: Indol (Ultra Clean*) series only. Additional filtering provides ultra clean oils in selected viscosity grades for maximum system protection.

- **Reserve Quality**: Indol Premium AW hydraulic oils have the ability to maintain their high level of performance under the toughest operating and extended drain conditions.
Indol® and Indol® (Ultra Clean*)

Anti-Wear Hydraulic Oil

Typical Application/Recommendations
- Denison HF-0, HF-1, HF-2
- Cincinnati Lamb P-68, P-69, P-70
- Rexroth, Parker Hannifin
- Marzocchi, Racine S
- DIN 51524-2, GM LS-2, AFNOR 48-603
- U.S. Steel 126, 127, 136
- ASTM D-685, Rust Test A&B: Pass
- ASTM D-943 Oxidation Test: 6,000+Hrs

Typical Customer

Owners and operators of:
- Mobile/Industrial Hydraulic Systems
- Electric Utility Maintenance Equipment
- Enclosed Gear Sets
- Circulating Systems
- Air Compressors and Vacuum Pumps
- Injection Molding Machines
- General Lubrication

Typical Properties

<table>
<thead>
<tr>
<th>ISO Viscosity Grade</th>
<th>MV-32</th>
<th>22</th>
<th>32</th>
<th>46</th>
<th>68</th>
<th>100</th>
<th>150</th>
<th>220</th>
<th>460</th>
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<tbody>
<tr>
<td>Approximate SAE Grade</td>
<td>(5W)-20</td>
<td>(5W)</td>
<td>(10W)</td>
<td>(20W)</td>
<td>(20)</td>
<td>(30)</td>
<td>(40)</td>
<td>(50)</td>
<td>–</td>
</tr>
<tr>
<td>Viscosity @ 100°C, cSt</td>
<td>6.6</td>
<td>4.4</td>
<td>5.5</td>
<td>6.9</td>
<td>8.8</td>
<td>11.4</td>
<td>15.6</td>
<td>19.3</td>
<td>30.5</td>
</tr>
<tr>
<td>SUS</td>
<td>46.5</td>
<td>40.6</td>
<td>44.3</td>
<td>48.5</td>
<td>55.1</td>
<td>63.2</td>
<td>76.4</td>
<td>93.0</td>
<td>145</td>
</tr>
<tr>
<td>Sus @ 40°C, cSt</td>
<td>33.3</td>
<td>22.1</td>
<td>32.4</td>
<td>46.5</td>
<td>69.0</td>
<td>101.1</td>
<td>152.3</td>
<td>220.2</td>
<td>461.3</td>
</tr>
<tr>
<td>Viscosity Index</td>
<td>156</td>
<td>106</td>
<td>150</td>
<td>215</td>
<td>313</td>
<td>456</td>
<td>686</td>
<td>992</td>
<td>2136</td>
</tr>
<tr>
<td>Pour Point, °C / °F</td>
<td>-48/-54</td>
<td>-42/-44</td>
<td>-42/-44</td>
<td>-39/-38</td>
<td>-36/-33</td>
<td>-27/-17</td>
<td>-30/-22</td>
<td>-21/-6</td>
<td>-3/27</td>
</tr>
<tr>
<td>API Gravity / lbs./gal.</td>
<td>32.3/7.19</td>
<td>33.4/7.15</td>
<td>32.1/7.2</td>
<td>31.2/7.24</td>
<td>30.6/7.27</td>
<td>30.1/7.2</td>
<td>29.5/7.32</td>
<td>28.8/7.35</td>
<td>25.7/7.5</td>
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<tr>
<td>Flash Point, °F</td>
<td>400</td>
<td>400</td>
<td>420</td>
<td>440</td>
<td>460</td>
<td>480</td>
<td>500</td>
<td>540</td>
<td>560</td>
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<tr>
<td>Dielectric Strength, KV</td>
<td>40*</td>
<td>40*</td>
<td>40*</td>
<td>40*</td>
<td>40*</td>
<td>40*</td>
<td>40*</td>
<td>40*</td>
<td>40*</td>
</tr>
<tr>
<td>Indol (Ultra Clean) series</td>
<td>Yes*</td>
<td>Yes*</td>
<td>Yes*</td>
<td>Yes*</td>
<td>Yes*</td>
<td>Yes*</td>
<td>Yes*</td>
<td>Yes*</td>
<td>Yes*</td>
</tr>
</tbody>
</table>

*This Dielectric Strength and Ultra clean specification are only found in the above products that are in new sealed drums, totes, and 2½-gallon containers from CHS Lube manufacturing plants. The drums and totes will have the ultra clean logo on them.

The typical properties listed reflect the general characteristics of the product, and are not manufacturing specifications. Normal batch-to-batch variations should be expected.

Health & Safety

A complete safety data sheet is available by calling 1-651-355-8438 or visit www.cenex.com.

www.cenex.com
SAFETY DATA SHEET

CHS Inc.  
P.O. Box 64089  
Mail station 525  
St. Paul, MN 55164-0089

Transportation Emergency (CHEMTREC) : 1-800-424-8300  
Technical Information : 1-651-355-8443  
SDS Information : 1-651-355-8445

Product name : Turbine XL 22, 32, 46, 68, 100  
Common name : Industrial turbine oil  
Chemical name : Lubricating oil.  
Chemical family : Hydrocarbon.

SDS no. : 0190-093809  
Revision date : 05/07/2015  
Chemical formula : Mixture

Relevant identified uses of the substance or mixture and uses advised against

Lubricant.

Section 2. Hazards identification

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910. 1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Classification of the substance or mixture : Not classified.

GHS label elements

Signal word : No signal word.

Hazard statements : No known significant effects or critical hazards.

Precautionary statements

General : Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Prevention : Not applicable.

Response : Not applicable.

Storage : Not applicable.

Disposal : Not applicable.

Hazardous Material Information System (U.S.A.)  
Health : 0  Flammability : 1  Physical hazards : 0

National Fire Protection Association (U.S.A.)  
Health : 0  Flammability : 1  Instability : 0

Section 3. Composition/information on ingredients

 Substance/mixture : Mixture

Chemical name : Lubricating oil.

Other means of identification : Industrial turbine oil

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.
Section 4. First aid measures

Description of necessary first aid measures

Eye contact : If material comes in contact with the eyes, immediately wash the eyes with large amounts of water for 15 minutes, occasionally lifting the lower and upper lids. Get medical attention.

Inhalation : If person breathes in large amounts of material, move the exposed person to fresh air at once. If breathing has stopped, perform artificial respiration. Keep the person warm and at rest. Get medical attention as soon as possible.

Skin contact : If the material comes in contact with the skin, wash the contaminated skin with soap and water promptly. If the material penetrates through clothing, remove the clothing and wash the skin with soap and water promptly. If irritation persists after washing, get medical attention immediately.

Ingestion : If material has been swallowed, do not induce vomiting. Get medical attention immediately.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following: pain or irritation, watering, redness.

Inhalation : Adverse symptoms may include the following: respiratory tract irritation, coughing.

Skin contact : Adverse symptoms may include the following: irritation, redness.

Ingestion : No known significant effects or critical hazards.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use water spray to cool fire exposed surfaces and to protect personnel. Foam, dry chemical or water spray (fog) to extinguish fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Toxic fumes gases or vapors may evolve on burning.

Hazardous thermal decomposition products : No specific data.

Special protective actions for fire-fighters : When fighting fires wear full turnout gear and self contained breathing apparatus. Water may cause splattering. Material floats on water.

Special protective equipment for fire-fighters : Not applicable.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : Keep unnecessary and unprotected personnel from entering. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Methods and materials for containment and cleaning up

Spill : Contain with dikes or absorbent to prevent migration to sewers/streams. Take up small spill with dry chemical absorbent; large spills may require pump or vacuum prior to absorbent. May require excavation of severely contaminated soil.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking.
Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits
None.

Appropriate engineering controls
Use only with adequate ventilation.

Environmental exposure controls
Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Individual protection measures

Hygiene measures
Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection
Recommended. Splash goggles and a face shield, where splash hazard exists.

Skin protection

Hand protection
4 - 8 hours (breakthrough time): Nitrile gloves.

Body protection
Recommended. Long sleeved coveralls.

Other skin protection
Recommended: Impervious boots.

Respiratory protection
If ventilation is inadequate, use a NIOSH-certified respirator with an organic vapor cartridge and P95 particulate filter.

Section 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Relative density: 0.86 to 0.88</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state: Liquid.</td>
<td>Evaporation rate: &lt;1 (Butyl acetate = 1)</td>
</tr>
<tr>
<td>Color: Amber.</td>
<td>Solubility: Insoluble in the following materials: cold water and hot water.</td>
</tr>
<tr>
<td>Odor: Mild.</td>
<td>Solubility in water: Insoluble</td>
</tr>
<tr>
<td>pH: Not available.</td>
<td>Auto-ignition temperature: &gt;260°C (&gt;500°F)</td>
</tr>
<tr>
<td>Melting point: Not available.</td>
<td>Decomposition temperature: Not available.</td>
</tr>
<tr>
<td>Boiling point: Not available.</td>
<td>SADT: Not available.</td>
</tr>
<tr>
<td>Flash point: Closed cup: &gt;200°C (&gt;392°F)</td>
<td>Viscosity: Not available.</td>
</tr>
<tr>
<td>Flammability: Not available.</td>
<td>Vapor pressure: &lt;0.13 kPa (&lt;1 mm Hg) (68°F)</td>
</tr>
<tr>
<td>Lower and upper explosive (flammable) limits: Not available.</td>
<td>Vapor density: Not available.</td>
</tr>
</tbody>
</table>

Section 10. Stability and reactivity

Reactivity
No specific test data related to reactivity available for this product or its ingredients.

Chemical stability
The product is stable.

Possibility of hazardous reactions
Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid
No specific data.

Incompatible materials
Reactive or incompatible with the following materials: oxidizing materials.

Hazardous decomposition products
Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Section 11. Toxicological information

Information on toxicological effects

Acute toxicity
There is no data available.

Irritation/Corrosion
Skin : There is no data available.
Eyes : There is no data available.
Respiratory : There is no data available.

Sensitization
Skin : There is no data available.
Respiratory : There is no data available.

Mutagenicity
There is no data available.

Carcinogenicity
There is no data available.

Reproductive toxicity
There is no data available.

Teratogenicity
There is no data available.

Specific target organ toxicity (single exposure)
There is no data available.

Specific target organ toxicity (repeated exposure)
There is no data available.

Aspiration hazard
There is no data available.

Information on the likely routes of exposure : Dermal contact. Eye contact. Inhalation. Ingestion.

Section 12. Ecological information

Toxicity
There is no data available.

Persistence and degradability
There is no data available.

Bioaccumulative potential
There is no data available.

Mobility in soil
Soil/water partition coefficient (Koc) : There is no data available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.
Section 14. Transport information

DOT IDENTIFICATION NUMBER: Not applicable.
DOT proper shipping name: Not applicable.
DOT Hazard Class(es): Not applicable.
PG: Not applicable.
DOT EMER. RESPONSE GUIDE NO: Not applicable.

Section 15. Regulatory information

U.S. Federal regulations:
- TSCA 4(a) final test rules: 2-Butenedioic acid (E), di-C8-18-alkyl esters
- TSCA 8(a) PAIR: 2-Butenedioic acid (E), di-C8-18-alkyl esters; Diphenylamine
- TSCA 8(a) CDR Exempt/Partial exemption: Not determined
- United States inventory (TSCA 8b): All components are listed or exempted.

Clean Water Act (CWA) 313: Vinyl acetate

Clean Air Act Section 602 Class I Substances: Not listed
Clean Air Act Section 602 Class II Substances: Not listed
Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs): Not listed

SARA 302/304

Composition/information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>EHS</th>
<th>SARA 302 TPQ (lbs)</th>
<th>SARA 302 TPQ (gallons)</th>
<th>SARA 304 RQ (lbs)</th>
<th>SARA 304 RQ (gallons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vinyl acetate</td>
<td>0 - 0.1</td>
<td>Yes</td>
<td>1000</td>
<td>129</td>
<td>5000</td>
<td>644.8</td>
</tr>
</tbody>
</table>

SARA 304 RQ: 1111111111.1 lbs / 504444444.4 kg [153172556.3 gal / 579821200.5 L]

SARA 311/312

Hazard classifications: Not applicable.

Composition/information on ingredients

No products were found.

SARA 313

This product (does/not) contain toxic chemicals subject to the reporting requirements of SARA Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372.

<table>
<thead>
<tr>
<th>Product name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not applicable</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts: None of the components are listed.
New York: None of the components are listed.
New Jersey: The following components are listed: Distillates (petroleum), hydrotreated heavy paraffinic
Pennsylvania: None of the components are listed.
California Prop. 65: WARNING: This product contains less than 0.1% of a chemical known to the State of California to cause cancer.

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Cancer</th>
<th>Reproductive</th>
<th>No significant risk level</th>
<th>Maximum acceptable dosage level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vinyl acetate</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Ethyl acetate</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
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</table>
## Section 16. Other information

<table>
<thead>
<tr>
<th>Revision date</th>
<th>05/07/2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revised Section(s)</td>
<td>1, 2, 16.</td>
</tr>
<tr>
<td>Supersedes</td>
<td>11/15/2013</td>
</tr>
<tr>
<td>Prepared by</td>
<td>KMK Regulatory Services Inc.</td>
</tr>
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</table>

**Notice to reader**

The information contained in this SDS relates only to the specific material identified. It does not cover use of that material in combination with any other material or in any particular process. In compliance with 29 C.F.R. 1910.1200(g), CHS has prepared this SDS in segments, with the intent that those segments be read together as a whole without textual omissions or alterations. CHS believes the information contained herein to be accurate, but makes no representation, guarantee, or warranty, express or implied, about the accuracy, reliability, or completeness of the information or about the fitness of contents herein for either general or particular purposes. Persons reviewing this SDS should make their own determination as to the material's suitability and completeness for use in their particular applications.
CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER

APPLIES TO ALL DIESEL FUEL BURNER

WIRING DIAGRAMS

TEMPERATURE CONTROL BOX

TERMINALS:

U – YELLOW 14 GA. TO BURNER
P1 – RED 10 GA. TO MOTOR
N – BLACK 10 GA. TO MOTOR

G – BLACK 12 GA. TO BURNER
B – RED 12 GA. TO BURNER
D – WHITE 14 GA. TO BURNER

NOTE: RUN BATTERY – DIRECTLY TO BURNER
WIRING DIAGRAMS

ELECTRIC BRAKES AND RUNNING LIGHTS

Electric Brakes Wiring Diagram

Running Lights Wiring Diagram
CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER

APPLIES TO ALL DIESEL FUEL BURNER & LP GAS BURNER

MACHINE PICTURES AND PARTS LIST

PICTURE-1
<table>
<thead>
<tr>
<th>ITEM #</th>
<th>PART#</th>
<th>QTY.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>P472A010</td>
<td>1</td>
<td>AGITATOR CONTROL VALVE</td>
</tr>
<tr>
<td>29</td>
<td>P439A004</td>
<td>1</td>
<td>LOWER AGITATOR BUSHING</td>
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<tr>
<td></td>
<td>P74000B015</td>
<td>1</td>
<td>SHAFT PIVOT PIN</td>
</tr>
<tr>
<td>33</td>
<td>P514A015</td>
<td>2</td>
<td>TIRE AND WHEEL ASSEMBLY CP-60 / SM-125</td>
</tr>
<tr>
<td></td>
<td>P514A017</td>
<td>2</td>
<td>TIRE AND WHEEL ASSEMBLY CP-125</td>
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<td>P514A022</td>
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<td>TIRE AND WHEEL ASSEMBLY CP-260</td>
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<td>P514A017</td>
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<td>TORSION AXLE CP-260</td>
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<td>P511A017</td>
<td>2</td>
<td>TORSION AXLE CP-260 XD</td>
</tr>
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<td>46</td>
<td>P630A043</td>
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<td>SPLINE COUPLER</td>
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<td>P630A047</td>
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<td>SPLINE COUPLER CP-260</td>
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<td>P74000E062-001</td>
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<td>SHAFT COLLAR</td>
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<td>P74000F062-001</td>
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<td>AGITATOR SHAFT</td>
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<td>P74000B014</td>
<td>2</td>
<td>BLADE SUPPORT</td>
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<td>P75000B011A</td>
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<td>BLADE CP-60</td>
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<td>P74000B008B</td>
<td>2</td>
<td>BLADE CP-125 / SM-125</td>
</tr>
<tr>
<td></td>
<td>P74000B013-001</td>
<td>2</td>
<td>BLADE CP-260</td>
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CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER

APPLIES TO ALL DIESEL FUEL BURNER & LP GAS BURNER

PICTURE-2

- 25 OIL DIP STICK
- 24 OIL OVERFLOW PIPE
- 50 PROPANE TANK HOLDER LP GAS BURNER ONLY
- 51 PROPANE TANK NOT INCLUDED
- 35 RATCHET TIE DOWN OR TANK LATCH LP GAS BURNER ONLY
- 43 TRAILER JACK
- 45 HOOK
- 44 SAFETY CHAIN
- 36 PINTLE EYE COUPLER 37 BALL COUPLER
- 31 BURNER ACCESS DOOR LP GAS BURNER ONLY
CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER

APPLIES TO ALL DIESEL FUEL BURNER & LP GAS BURNER

PARTS LIST

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* DENOTES YOUR CHOICE

53 FILTER HEAD

55 OIL FILTER

54 FILTER FUEL/WATER ASSEMBLY

58 FILTER – ONLY DIESEL FUEL BURNER ONLY

52 FILTER HYD. TANK
CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER

APPLIES TO ALL DIESEL FUEL BURNER & LP GAS BURNER

PICTURE-3
# CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER

APPLIES TO ALL DIESEL FUEL BURNER & LP GAS BURNER

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CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER
APPLIES TO ALL DIESEL FUEL BURNERS

PARTS LIST

PICTURE - 4
# CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER

APPLIES TO ALL DIESEL FUEL BURNERS

## PARTS LIST

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CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER

APPLIES TO ALL LP GAS BURNER

PICTURE - 5

8 TEMPERATURE CONTROL

9 GAS VALVE

2 LP GAS HOSE 1/2"

3 HAND TORCH REGULATOR

4 LP GAS HOSE 1/4"

6 MAIN BURNER REGULATOR

7 TEMPERATURE CONTROL BOX

10 LP GAS HOSE 1/2"

11 NEEDLE VALVE

12 GAS BURNERS

31 BURNER ACCESS DOOR

5 HAND TORCH
CRACK PRO® GRAVITY FLOW AND DIRECT FIRE MELTER

APPLIES TO ALL LP GAS BURNER

PARTS LIST - LP GAS BURNER

![Diagram of LP Gas Burner Parts](image)

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