

# The Hydraulic CONNECTION

An Informative Industry Newsletter Published By:



## SEASON'S GREETINGS

Seasons Greetings from the Hercules Sealing Products staff. We would like to take this opportunity to thank you for your continued business. Hercules wishes you and your employees a joyous holiday season and a prosperous new year in 2011.

## 2011 Seal And Kit Catalogs

The 2011 Seal and Kit Catalogs are now available. If you are an existing Hercules customer, you will automatically receive your new catalogs by the last week in December. Pricing will become effective January 3, 2011.

**This year's 2011 Seal Catalog includes the following new products:**

- New Inch Lines: U-PM U-Seals
- New Metric Lines: MUKRN, PU-TDJ and PU-TDT U-Seals, MUKPN Piston Seals, JD/NH Pistons, MPK62, PU-TDA, PU-TDMA, MDPC, MDPCS, MPSA-PDE, PS-GKD, PS-GD1000K Piston Seal Assemblies, MWRA, MRFAL, WRFA and WRFI Wear rings, and OBVD O-Rings.
- Expanded Inch Lines: DRU, RTU, 800, 850, HRU, HU, UPU, Z-Seals and PowerBands
- Expanded Metric Lines: MRT, MBU, MOR, MPSA-58, MRU, MRUB, MRUN, MWR, MWRA, MWRA-L and MWRB
- Assortment Kits – Cat Flange Kit
- Remanufacturing Tools – An expanded line of Hone Stones

**The new 2011 Kit Catalog includes a total of 1971 new kits and parts.**

- Case - 22 new models of backhoe loaders, crawler dozers, excavators, skid-steer loaders and wheel loaders
- Caterpillar - 15 new models of backhoe loaders, wheel loaders, off-highway trucks, telehandlers, and other mobile equipment
- Hitachi - 37 new models of excavators
- JCB - 11 new models of backhoe loaders, excavators, wheel dozers and loaders
- Kobelco - 38 new models of excavators
- Komatsu - 14 new models of crawler dozers, excavators, wheel loaders, motor graders, and wheel dozer
- New Holland - 20 new models of backhoe loaders and skid-steer loaders

Additional copies of the Seal and Kit Catalog can easily be ordered online at [www.HerculesUS.com](http://www.HerculesUS.com) (Top Menu / under Corporate Literature). Please add the quantities you desire in the comment section of the Catalog Request Form. Additional quantities can also be ordered at any time through your regional sales representative. If you prefer the convenience of a CD catalog, the Seal and Kit catalogs are also available on mini CD.

Show your customers that you carry quality sealing products with your own catalogs. Hercules offers customers a Generic Seal and Kit Catalog, without price, in hard copy formats. The cost is \$4.00 for Seal and \$6.75 for Kit Generic Catalogs. Orders can be placed by calling your regional sales representatives at **1-800-777-5617**.



# HERCULES®

## SEALING PRODUCTS

## JANUARY WEB SPECIAL High Quality Digital Caliper



This high quality instrument measures to 6" (150 mm). A push of a button changes from inches, mm, and fractions. Functions also include: On/Off function, zero key, data input capabilities, test for low voltage, and Auto

Off function when unit sits dormant for more than 4 minutes.

**\$25.50** Net

(a \$102.25 Retail Value)

Offer Available 1/1/11 - 1/31/11

While Supplies Last

When Ordering Online Use

**Part# CALIPER PROMO**

## FREE HAT IN JANUARY



Receive a **FREE Limited Edition Hercules Hat** With Your New Customer Registration And First Purchase At [www.HerculesUS.com](http://www.HerculesUS.com)

**New Website Features Include:**

- Faster speed
- Same day tracking and freight cost information via follow-up e-mail
- Order history for all on-line orders
- Add part numbers to the cart quickly through the "Quick Order Entry" button  
(Please allow 3-4 weeks delivery for free hat)

## HOLIDAY HOURS

Thursday 12/23 - Closed

Friday 12/24 - Closed

Friday 12/31 - Closed

Monday 1/3/11

Open Regular Business Hours

**NEW  
PRODUCTS**

# HYDRAULIC HAMMER/BREAKER SEAL KITS

## NPK

Kit Number	List Price
NPK-10X	\$ 874.93
NPK-10XB	874.93
NPK-16X	1,329.73
NPK-20X	1,399.91
NPK-4X	752.22
NPK-7XB	787.21
NPK-8XA	874.93
NPK-8XB	874.93

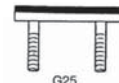
## BREAKER TECH

Kit Number	Code (Pg. xiv)	Rod X Bore Size	List Price
BTI-815-0457-ML	I-V-9	2-3/4 X 5	\$ 168.29
BTI-815-0468-ML	I-V-9	3-1/2 X 6	300.99

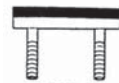
# HONE STONE SETS

PART NUMBER	BORE SIZE	MATERIAL	GRIT SIZE	HARDNESS	LUBRICANT	NET PRICE
H-G25-A25	2.5 - 2.7	Aluminum Oxide	80	Medium	N/A	\$ 20.02
H-G25-A43	2.5 - 2.7	Aluminum Oxide	150	Soft	N/A	20.02
H-G25-A45	2.5 - 2.7	Aluminum Oxide	150	Medium	N/A	20.02
H-G25-A65	2.5 - 2.7	Aluminum Oxide	280	Medium	N/A	20.02
H-G25-J45	2.5 - 2.7	Silicon Carbide	150	Medium	N/A	20.02
H-G25-J65	2.5 - 2.7	Silicon Carbide	280	Medium	N/A	20.02
H-G25-J85	2.5 - 2.7	Silicon Carbide	400	Medium	N/A	20.02
H-G25-J87	2.5 - 2.7	Silicon Carbide	400	Hard	N/A	20.02
H-G25-R25X	2.5 - 2.7	Red Aluminum Oxide	80	Medium	Sulfur Impregnated	20.02
H-M27-A25	2.7 - 4.1	Aluminum Oxide	80	Medium	N/A	20.34
H-M27-A43	2.7 - 4.1	Aluminum Oxide	150	Soft	N/A	20.33
H-M27-A45	2.7 - 4.1	Aluminum Oxide	150	Medium	N/A	20.34
H-M27-A65	2.7 - 4.1	Aluminum Oxide	280	Medium	N/A	20.33
H-M27-J45	2.5 - 2.7	Silicon Carbide	150	Medium	N/A	20.34
H-M27-J55	2.5 - 2.7	Silicon Carbide	220	Medium	N/A	20.34
H-M27-J65	2.5 - 2.7	Silicon Carbide	280	Medium	N/A	20.33
H-M27-J85	2.5 - 2.7	Silicon Carbide	400	Medium	N/A	20.34
H-M27-J87	2.5 - 2.7	Silicon Carbide	400	Hard	N/A	20.34
H-M27-R25X	2.7 - 4.1	Red Aluminum Oxide	80	Medium	Sulfur Impregnated	20.37
H-N37-A25	3.5 - 5.5	Aluminum Oxide	80	Medium	N/A	20.94
H-N37-A43	3.5 - 5.5	Aluminum Oxide	150	Soft	N/A	20.95
H-N37-A65	3.5 - 5.5	Aluminum Oxide	280	Medium	N/A	16.76
H-N37-A45	3.5 - 5.5	Aluminum Oxide	150	Medium	N/A	20.95
H-N37-A63	3.5 - 5.5	Aluminum Oxide	280	Soft	N/A	20.95
H-N37-J45	3.5 - 5.5	Silicon Carbide	150	Medium	N/A	20.94
H-N37-J65	3.5 - 5.5	Silicon Carbide	280	Medium	N/A	20.94
H-N37-J85	3.5 - 5.5	Silicon Carbide	400	Medium	N/A	20.95
H-N37-J87	3.5 - 5.5	Silicon Carbide	400	Hard	N/A	20.95
H-N37-R25X	3.5 - 5.5	Red Aluminum Oxide	80	Medium	Sulfur Impregnated	20.95
H-W47-A25	4.1 - 60.0*	Aluminum Oxide	80	Medium	N/A	23.02
H-W47-A43	4.1 - 60.0*	Aluminum Oxide	150	Soft	N/A	23.01
H-W47-A45	4.1 - 60.0*	Aluminum Oxide	150	Medium	N/A	23.01
H-W47-A65	4.1 - 60.0*	Aluminum Oxide	280	Medium	N/A	23.02
H-W47-J45	4.1 - 60.0*	Silicon Carbide	150	Medium	N/A	23.02
H-W47-J65	4.1 - 60.0*	Silicon Carbide	280	Medium	N/A	23.01
H-W47-J85	4.1 - 60.0*	Silicon Carbide	400	Medium	N/A	23.01
H-W47-J87	4.1 - 60.0*	Silicon Carbide	400	Hard	N/A	23.01
H-W47-R25X	4.1 - 60.0*	Red Aluminum Oxide	80	Medium	Sulfur Impregnated	23.01

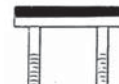
Stone sets for 2.5" to 60" diameter, portable tools (two stones and two guides per set). For Industrial applications. From fast stock removal in deburred, bored, ground, or reamed holes to fine finishing in previously honed holes, these hone stone sets are in stock and ready for next day delivery.



G25



M27



N37



W47

Stone No.	Diameter
G25	2.5 - 2.7
M27	2.7 - 4.1
N37	3.5 - 5.5
W47	4.1 - 60.0*

\* Requires Master Holder Set - Limited to 21" with H-AN-815

Place Your Order Online [www.HerculesUS.com](http://www.HerculesUS.com)

# TECH TIP

By definition, any fluid whose pressure and flow is used to produce work is considered to be a hydraulic fluid. For this and reasons of convenience, a multitude of different lubricants have found their way into the hydraulic sump. Without a formal industry specification it can be difficult to decide on the best fluid for hydraulic equipment.

Selecting a hydraulic fluid centers on answering the following questions:

- What is the base stock used in the fluid?
- Does the oil separate or combine with water?
- How does the oil deal with water contamination?
- What is the viscosity index (VI) of the fluid?
- How clean should the fluid be?

Your lubricant sales representative should be able to provide this information to you, along with performance test results and valid field experience. When reviewing the first question on base stock, it is important to note that hydrocracked Group II base stocks provide higher VIs and higher saturation levels than Group I or naphthenic base stocks. These characteristics offer considerable performance benefits - such as wider viscosity performance range and oxidation resistance - over most other base oils.

The most common fluid choices for hydraulic equipment follow:

## **Anti-Wear Hydraulic Fluid**

Still the number one recommended fluid by pump manufacturers, a premium-performance AW hydraulic fluid should demulsify or clearly separate oil from water, protect against wear in the presence of water, maintain fluid viscosity and guard against oxidation. Fluids with a natural VI of 100 or more are better equipped to handle the extreme temperatures and pressures found in a hydraulic

system. AW fluids are typically the lower priced option for hydraulic equipment, when compared to engine oils and ATFs. Properly formulated, AW fluids usually provide excellent protection for exclusively hydraulic systems.

Hydraulic fluids with anti-wear additives that are not hydrolytically stable can become aggressive to yellow metal and cause premature failure in piston pumps. Excess water not removed from a hydraulic system also will accelerate vane and piston pump wear.

## **Engine Oil**

More costly than AW hydraulic fluids, convenience has sometimes dictated the use of motor oils in the hydraulic sump. Motor oils emulsify or combine with water that has contaminated the system and may provide some protection from rust in wet, undrained systems. But the anti-wear additives in motor oil are typically not hydrolytically stable when exposed to water. This can cause additive dropout in wet motor oil that can result in viscosity gain, pump ability problems and poor wear protection.

Motor oil is designed for use in engine compartments where minor amounts of water are boiled off each day. Hydraulic systems' operating temperature does not normally get high enough to boil off the water, and the zinc compounds in the anti-wear additives can cause corrosive wear.

## **Automatic Transmission Fluid (ATF)**

Like motor oils, ATFs emulsify or combine with water but are less aggressive when wet than motor oils. As a rule, the friction modifiers used in ATFs are not sensitive to water and tend to be thermally stable. In the past, ATF's have been a better hydraulic fluid choice than motor oil because of their oxidation resistance and solid wear protection. But the new passenger car ATF Dexron VI must meet

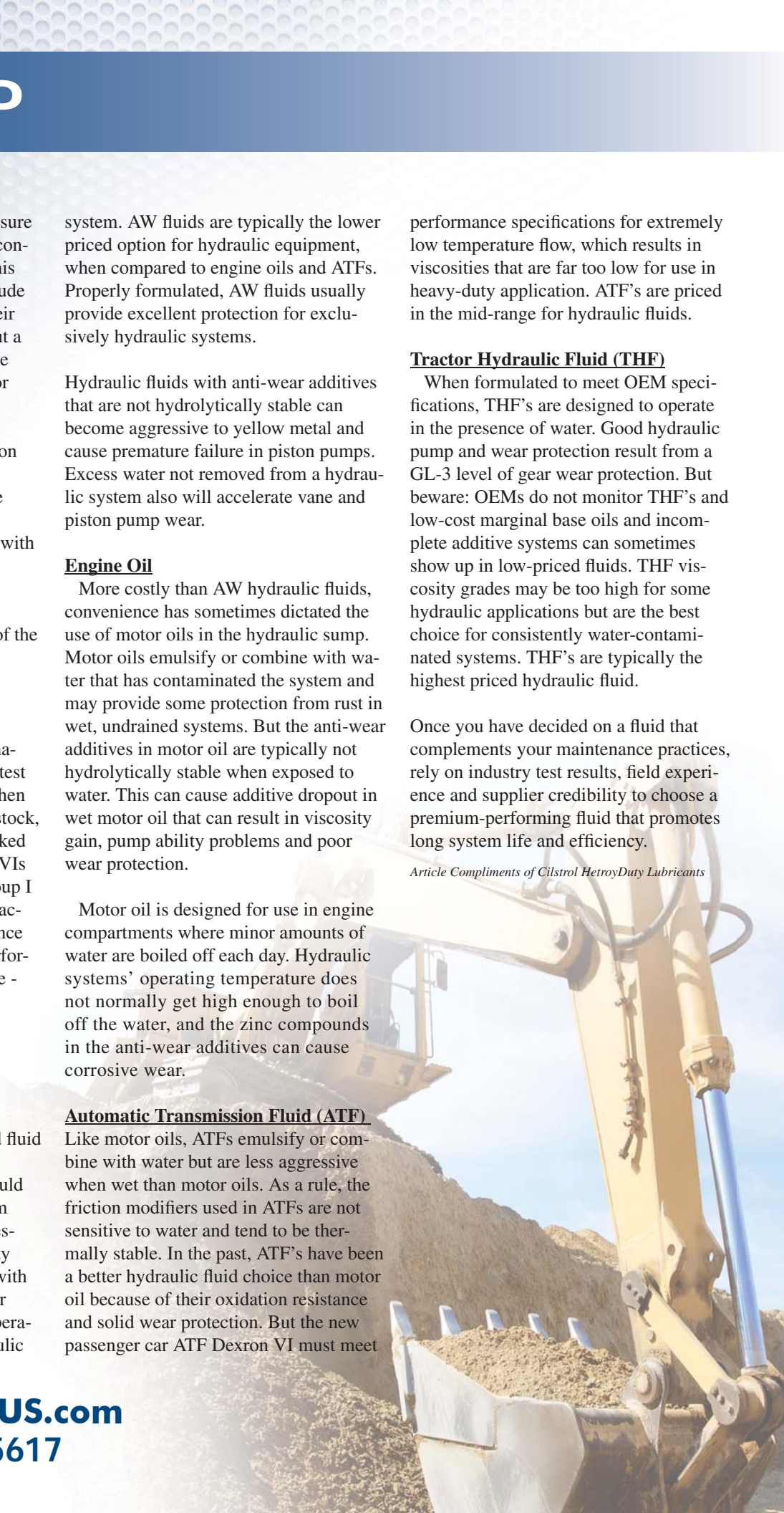
performance specifications for extremely low temperature flow, which results in viscosities that are far too low for use in heavy-duty application. ATF's are priced in the mid-range for hydraulic fluids.

## **Tractor Hydraulic Fluid (THF)**

When formulated to meet OEM specifications, THF's are designed to operate in the presence of water. Good hydraulic pump and wear protection result from a GL-3 level of gear wear protection. But beware: OEMs do not monitor THF's and low-cost marginal base oils and incomplete additive systems can sometimes show up in low-priced fluids. THF viscosity grades may be too high for some hydraulic applications but are the best choice for consistently water-contaminated systems. THF's are typically the highest priced hydraulic fluid.

Once you have decided on a fluid that complements your maintenance practices, rely on industry test results, field experience and supplier credibility to choose a premium-performing fluid that promotes long system life and efficiency.

*Article Compliments of Cilstrol HeavyDuty Lubricants*



# **HERCULES<sup>®</sup>** **SEALING PRODUCTS**

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### **EXCAVATORS**

Models

220, 231, 320, 320D, 320G, 322D, 322G, 323, 325G, 328G, 329,  
331, 331, 331E, 334, 337G, 337WG, 341G, 430, 435, X-225,  
X-320, X-325 and X-331

### **SKID STEER LOADERS**

Models

310, 313, 371, 440, 440B, 443, 444, 500, 450, 453, 463,  
520, 530, 533, 540, 542B, 543, 543B, 553, 600, 610,  
620, 630, 640, 642, 642B, 643, 653, 700, 720, 721,  
722, 730, 731, 732, 733, 741, 742, 743, 742B, 743B,  
743DS, 751, 753, 763, 773, 825, 843, 843B, 853, 863,  
873, 943, 953, 970, 974, 975, 980, 1213, A300, S130,  
S150, S160, S175, S185, S205, S220, S250 and S300

### **WHEEL LOADERS**

Models

1600, 2400 and 2410

