WATERPILLAR INCORPORATED
P.O. Box 143, Excelsior
Minnesota 55331
USA

Waterpillar (WP2000)

Operation Manual

Waterpillar Parts List

Main Drive Frame

Axle stub (left)

Axle stub (right)

Cog belt gear drive assembly w/ 1/4” s.s. Set screw (2 ea)

Cog belt gear drive assembly key (2 ea)

Mold on Rubber Drive Wheel w/ 1/4” s.s. Set screw (2 ea)

Mold on Rubber Drive Wheel key (2 ea)

Lower end steering arm delrin wheels (4 ea)

Axle Bearing 5/8 x 1 3/8 x 7/16 sealed s.s. (6 ea)

Axle Bearing Blocks Black Delrin (6 ea)

Axle locking collars (2 ea)

Drive belts (2 ea)

Seat support assemblies (2 ea)

Y-yoke seat assemblies w/bottom bracket/cranks/pedals (2 ea)

Seat buckets (2 ea)

Front vertical tube (2 ea)

Upper front cross member (1 ea)

Upper rear cross member (1 ea)

Guide roller assembly (16 ea)

3 inch guide wheel w/ shoulder bushing (4 ea)

4 foot steering cable (1 ea)

6 foot steering cable (1 ea)

Steering lever (1 ea)

Machinery Guards have been installed and tested to provide pinch protection from rotating equipment.

Care and Maintenance

With minimal care and maintenance, your craft has been designed to provide you with many years of enjoyment.

If your boat is used in salt-water environments it is suggested that you rinse the moving parts with fresh water daily to ensure everything operates properly.

All parts can be cleaned with soap and water.

Storage

Make sure to lock-up your Waterpillar when not in use.

If possible, it is best to store you craft inside for the winter.

To save space it is recommended to disassemble the wheel segments before seasonal storage.

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Contents

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Operation Instructions

-General

The Waterpillar is designed to operate on rough and calm water; however it can also be ridden on any level hard surface. The Waterpillar carries one or two passengers preferably over the age of 8 years in the two seats. One out of the two passengers must be able to easily reach the pedals.

-Entry

When on land or sand, entry is made thru either end of the machine (through the wheels) or by entry from the front. When entering from deep water, entry is made from either end of the machine.

-Steering

After entry, feet are placed on the pedals forward of each seat. When operated by a single person, and in dual operation the passenger sits in the left seat and operates both hand levers for steering.

Steering is accomplished by actuating either the right or left steering levers. When pedaling forward, to turn to the right the right lever is actuated. To initiate a left turn the left lever is actuated. When pedaling in reverse, a left turn is initiated by actuating the right steering lever and a right turn is initiated by actuating the left steering lever. This information must be passed on to and understood by each participant prior to launching the Waterpillar.

-Materials

The structure of the Waterpillar (frame, wheel hoops, drive disengage arms) are fabricated from 6063 T5 aluminum tubing that is anodized after fabrication with black architectural anodizing. The fasteners are 18-8 stainless steel, with removable nylon insert brass nuts. The drive axle and guide roller assemblies are made from 304 s.s. The wheel segments are all rotational molded with LL 8450 low density hexane copolymer

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Safety procedures and safety relevant components

The maximum capacity for the Waterpillar is 226kg. Each floatation wheel of the Waterpillar is comprised of 6 segments bolted together. Each segment is sealed and acts as an independent floatation unit capable of 108kg floatation. If 75% of the wheel segments have their floatation compromised, the 3 remaining viable segments will maintain the capability of floating the machine plus 250kg of passengers.

The following must be adhered to at all times:

- Make sure all passengers are wearing Personal Floatation Devices at all times when operating the Waterpillar.
- Ensure children understand that they may get tired pedaling and go too far from shore. Make them aware of wind that may push them away from shore.
- Check wind conditions, current or wave conditions that would make it difficult to pedal back to shore.
- Make sure not to operate when severe weather or storms are present or are expected to move in.
- Make sure steering levers and pedals move freely before taking off from shore.
- Machinery Guards have been installed and tested to provide pinch protection from rotating equipment.
- If the Waterpillar is being used as rental equipment make sure to inform all passengers of the safety rules.
- Make sure to have a spotter on shore to supervise when your craft is being used. If wave or wind conditions become too severe have passengers return to shore immediately. When operating on beaches or large lakes have a boat or watercraft on hand to retrieve Waterpillar in case mechanical or operator failure.

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Care and Maintenance

With minimal care and maintenance, your craft has been designed to provide you with many years of enjoyment.

Visually inspect your craft before each use. Make sure there are no loose cables, bolts or wheel segments. Also check the wheels after use to make sure there are no leaks.

If your boat is used in salt-water environments it is suggested that you rinse the moving parts with fresh water daily to ensure everything operates properly.

All parts can be cleaned with soap and water.

The parts list compiled has replacements if any part of your Waterpillar becomes compromised.

Part no.

2001) Delrin Pieces-
a) Lifter roller – Black delrin
b) Lifter spacers – cable spacer
c) Lift arm spacer
d) Belt tensioner roller
e) Frame spacers
2002) Brake levers
2003) Pedals
2004) Steering cables (left and right)
2005) Seats
2006) Steering arm springs
2007) Drive belts
2008) Axle keys
2009) Plastic Guards -
a) Drive covers
b) Guide roller covers
c) Belt guards
2010) Plastic wheel segments

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Storage

Make sure to lock-up your Waterpillar when not in use.

If possible, it is best to store you craft inside for the winter.

To save space it is recommended to disassemble the wheel segments before seasonal storage.

Warranty

There is a two year warranty on all parts of the Waterpillar. Use the replacement parts list to identify what is needed. Contact Waterpillar Inc. directly to order replacement parts. Call 888-222-6040 or email at info@waterpillar.net.

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Safety Signage

- Do not go to far out – Stay within he marked area or close enough that you can easily pedal back to shore.
- Absolutely no rough play.
- Keep your life jacket on at all times.
- If you are having difficulty wave your arms in the air and wait for help. Do not try to swim back to shore

The following people are prohibited from participating:

- Anyone with shoulder, neck or back injuries
- Anyone with asthma, lung or heart conditions
- Anyone that is injured and has any form of debilitating medical condition or people who are unsure of their state of health
- Pregnant Woman
- Anyone that is under the influence of drugs or alcohol

KEY TO CODES

/	SATISFACTORY FOR USE
W	REQUIRES WORK/ATTENTION
R	REPLACE WITHIN 7 DAYS
X	UNSATISFACTORY – DO NOT USE
N	NOT APPLICABLE TO THE RIDE

DAILY CHECKLIST FOR WATERPILLARS

WEEK COMMENCING ___/ ___/ ___

ITEM TO BE CHECKED	MON	TUE	WED	THU	FRI	SAT	SUN	COMMENTS
Weather report checked								
All structural points checked								
All segments checked								
All fasteners checked								
Seats and pedals checked								
Belt drive checked								
Steering pedals and levers moving freely								
Check for leaks								
No loose cables or bolts								
Seat secure and clean								
Test timers								
Personal Floatation Devices onsite and in working order.								
Check that fencing is secure and in place (if required)								
First Aid Kit on site								
All safety signage clearly displayed								
Site clean, tidy and free from debris								

INITIALS OF PERSON HECKING

Materials Used

Plastic parts

All plastic wheel segments and machinery guards are rotational molded of the same material. (See attached material data sheet)

Aluminum parts (frame, wheel hoops, drive disengage arms)

The structure of the Waterpillar and wheel hoops is fabricated from 6063 T5 aluminum that is anodized after fabrication with Black architectural anodizing.

Main drive assembly frame(1 each)
1.25” x 1.25” x 0.125” 6063 T5 square tube Cut,drilled and MIG welded with 5356 filler

Upper front cross member
1.25” x 1.25” x 0.125” 6063 T5 square tube
1.0” x 2.0” 6063 T5 mod channel
1.0” diameter 6061 tubing
Cut, drilled, formed, and MIG welded with 5356 filler

Upper rear cross member
1.25” x 1.25” x 0.125” 6063 T5 square tube
1.0” x 2.0” 6063 mod channel
Cut, drilled, formed, and MIG welded with 5356 filler

Seat Bracket(2 each)
1.0” x 1.0” x 0.125” 6063 T5 square tube
1.25” x 1.25” x0.125” angle
Cut, drilled, and MIG welded with 5356 filler

Seat y-yoke(2 each)
1.0” x 1.0” x 0.125” 6063 T5 square tube
1.5” x 0.185” 6063 round tube
1.0” x 0.125” 6063 round tube
Cut, drilled, and MIG welded with 5356 filler

Front tube(2 each)
1.25” x 1.25” x 0.125” 6063 round tube

Drive disengage arms(4 each)
1.50” x 1.50” x 0.125” 6063 T5 square tube
1.25” x 1.25” x 0.125” 6063 T5 square tube

Stainless steel parts

Drive axle
0.625” x 79.5” 304 s.s.

Guide wheel assembly attach tab

Guide wheel assembly attach tab

0.25” x 0.75” x 2.0” MIG welded to 303 wheel shaft

Fasteners

All fasteners are 18-8 stainless steel. Removable nylon insert nuts are brass.

Fastener List

All fasteners are of 18-8 Stainless Steel. Retainers are Nylon Insert Nuts. Fasteners requiring regular removal are retained by brass nylon insert nuts.

1/4“ x 1/2”	Button Head	6/WP	cranks to drive gears
1/4” x 1 3/4”	Button Head	8/WP	guide covers & center post
1/4” x 2”	Button Head	24/WP	wheel segments
1/4” x 2 1/2”	Button Head	4/WP	belt covers
5/16” x 1 ¾”	Button Head	8/WP	seat bkts to undercarriage
5/16” x 2 1/4”	Hex	20/WP	bearing bkts & angle braces
5/16” x 2 1/2”	Hex	8/WP	seat yokes
5/16” x 3”	Hex	4/WP	small hoops
5/16” x 3 1/2”	Hex	8/WP	guide wheel bolts
5/16” x 4 1/2”	Hex	8/WP	straight bar bolts
5/16” x 1 3/4”	Carriage	4/WP	blue seat
5/16” x 4”	Carriage	4/WP	blue seat
5/16” x 1 1/2”	Button Head	16/WP	guide wheels
5/16” x 7/8”	Coupling Nut	16/WP	guide wheels
3/8” x 3/4”	Button Head	24/WP	wheel segments
3/8” x 5”	Threaded stud	4/WP	belt tighteners
3/8” x 7”	Hex	4/WP	steering arms
5/8” Alum collar		2/WP	
5/8” x 1 1/2” Fender washers		2/WP	

EC Declaration of Conformity

Manufacturer: Waterpillar, Inc.
19580 Shady Hills Rd.
Shorewood, MN 55331
Telephone: (952) 474-5080 U.S. (888) 222-6040

European Sales Representative: Flymotion Limited
Contact: Arran Ainscough
66/68 High Road
Bushey Heath, Herts WD23 1GG
United Kingdom
Telephone: +44020 (8421) 7472 E-Mail: Arran@flymotion.com.au

Product: Waterpillar (Pedal Craft)
Model No. WP 2000

The undersigned hereby declares, on behalf of Waterpillar, Inc. of Shorewood, Minnesota U.S.A., that the above referenced product, to which this declaration relates, is in conformity with the provisions of:

Council Directive 94/25/EC, Revised 2003/44/EC for Recreational Craft Safety Requirements;
EN ISO 10087:2006 Hull Identification (coding system),
EN ISO 10240:2004 Owners Manual,
EN ISO 12215-3:2002 Small Craft – Hull construction and scantlings (materials list),
EN ISO 12215-4:2002 Small Craft- Hull construction and scantlings (workshop and manufacturing), EN ISO 12217-3:2002 Small Craft- Stability and buoyancy assessment of categorization-Part 3: Boats of hull length less than 6 Meters,
EN ISO 14946:2001 Small Craft-Maximum load capacity,
EN ISO 8847:2004 Steering Gear-Wire and rope pulley systems.

The Compilation of Technical Files required by this Directive are maintained at the Corporate Headquarters of Waterpillar Inc., 19580 Shady Hills Rd., Shorewood, MN U.S.A.

_____

David P. Hart
President- Waterpillar Inc.

Hull Identification Numbers (HIN) required by 33CFR181 Subpart C.

Two numbers required:

(1) The Primary HIN must be affixed to the Starboard outboard side of the transom within 2 inches of the top of the transom, gunwale, or hull/deck joint (whichever is lowest). On some *catamarans & pontoon boats* (where it would be impractical to use the transom or where pontoons are readily replaceable), the HIN must be affixed to the aft crossbeam within 1 foot of the starboard hull attachment. On boats *without transoms* or boats where it is impractical to use the transom, to the starboard outboard side of the hull, aft, within 1 foot of the stern & within 2 inches of the top of the hull side, gunwale or hull/deck joint (whichever is lowest). If the Primary HIN would not be visible because of rails/fittings or other accessories, it must be affixed as near as possible to the location specified.

(2) The Secondary HIN must be affixed in an unexposed location on the interior of the boat or beneath a fitting or hardware item (out of view). The Secondary HIN is often referred to as the "Hidden HIN".

Both the Primary and Secondary HIN must be identical numbers. Each HIN must be carved, burned, stamped embossed, molded, bonded or otherwise permanently affixed so that any alteration/removal/replacement would be obvious. If the Manufacturer affixes the Primary HIN onto a plate, the plate must be affixed to the boat using epoxy in addition to rivets/screws.

Each HIN must consist of 12 (twelve) characters uninterrupted by slashes/hyphens/spaces. The characters must be at least ¼ inch in height and must be letters of the English alphabet or Arabic numbers. If any other information is displayed within 2 inches of the HIN, the information must be separated by borders or must be on a separate label/tag so that it will not be interpreted as part of the HIN. Exception: For boats intended for export, the characters the HIN may be preceded by "US-" without separate borders.

Format:

The first 3 characters must match the Manufacturer Identification Code assigned by the Coast Guard.

Characters 4 through 8 must be a serial number assigned by the manufacturer using any combination of numbers or letters except for the letters I, O, or Q.

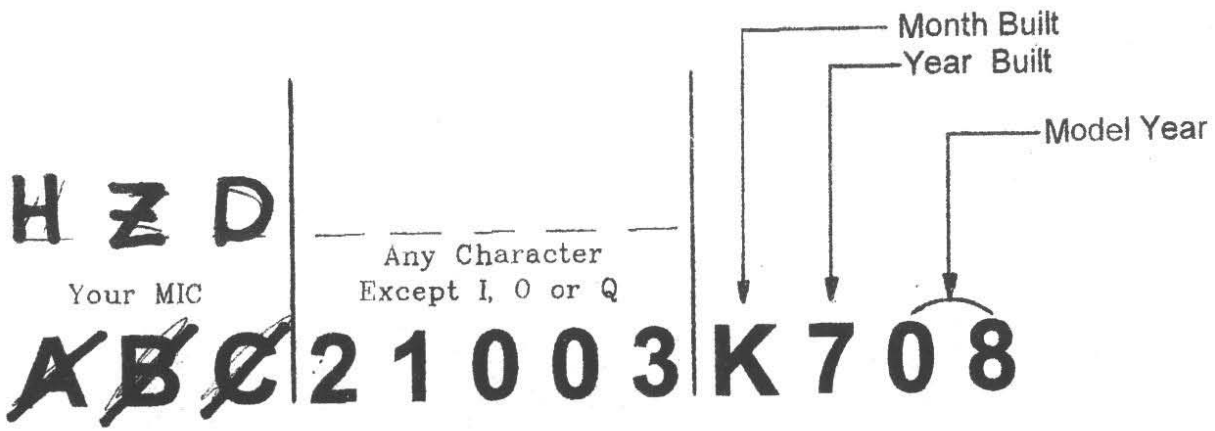
Character 9 must be a letter (A through L) designating the month of manufacture or certification.

A = January	D = April	G = July	J = October
B = February	E = May	H = August	K = November
C = March	F = June	I = September	L = December

Character 10 must be a number corresponding to the last digit of the year of manufacture or certification (i.e., use "1" if the boat is manufactured in 2001, "2" if it is built in 2002, etc).

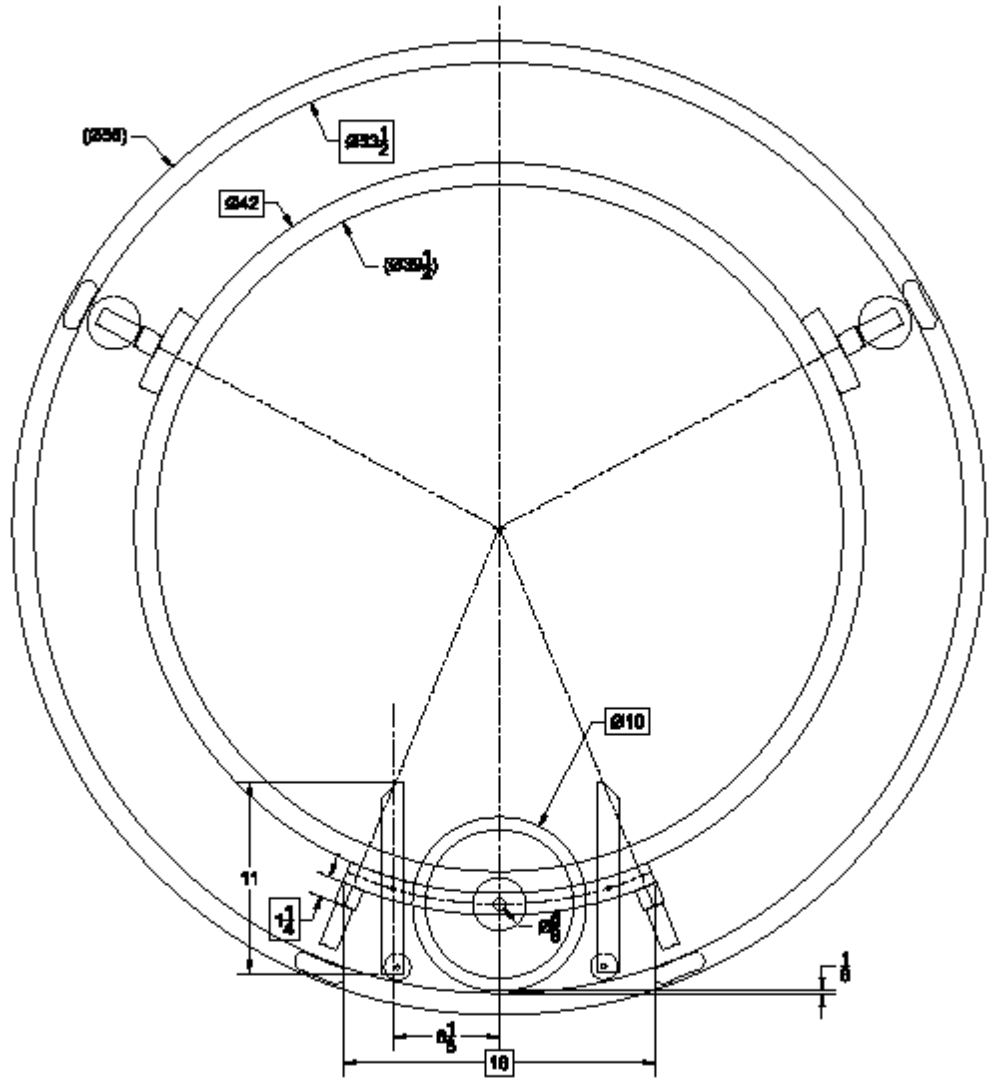
Character 11 and 12 must indicate the model year, using the last 2 digits of the year for which the manufacturer chooses as the model year for the boat. For instance, a manufacturer chooses to start his new model year in October of each year. As such, a boat manufactured in Oct 2002 will have characters 9 and 10 reflected as 12, yet characters 11 and 12 will be reflected as 03 (signifying a 2003 model).

Example of Hull Identification Number (HIN)



A = January	D = April	G = July	J = October
B = February	E = May	H = August	K = November
C = March	F = June	I = September	L = December

HZD is the Manufacturer Identification Code assigned to Waterpillar, Inc. by the United States Coast Guard.



SECTION AT DRIVE WHEEL

ExxonMobil Chemical

ExxonMobil LLDPE

LL 8450

Rotational Molding Resin

Description

LL 8450 is a linear low density hexene copolymer designed to offer excellent stiffness, processability, whiteness, and ESCR. This resin is ideally suited for applications that require the optimum balance of stiffness and processability.

Applications

- Wide Variety of Consumer Articles
- Junction Boxes
- Playground Equipment
- Potable Water Tanks
- Small Storage Boxes

Additive Package	Form	Stabilizer
LL 8450.31	Pellet	Long Term UV 8 Stabilization
LLP8450.31	35 US Mesh Powder	Long Term UV 8 Stabilization

Resin Properties	Test Based On[3]	Typical Value / Unit
Melt Index	ASTM D 1238	5 g/10 min
Density	ASTM D 4883	0.937 g/cm^3
Melting Point	ASTM D 3418	127 (261) °C (°F)

Molded Properties[1]		
Tensile Strength at Yield[2]	ASTM D 638	17.6 (2,550) MPa (psi)
Tensile Yield Elongation	ASTM D 638	16.7 %
Flexural Modulus	ASTM D 790	730 (106,000) MPa (psi)
1% Secant	Procedure B	
Impact Strength @ - 40°C	ARM	
1/8" (3.17 mm) thickness		77 (57) J (ft-lbs$_f$)
1/4" (6.35 mm) thickness		183 (135) J (ft-lbs$_f$)
Environmental Stress Crack	ASTM D 1693 Condition. A	
Resistance, F_{50}	100% Igepal	> 1000 hr
	10% Igepal	185 hr
Deflection Temperature	ASTM D 648	
@ 66 psi (455 Kpa)		61 (142) °C (°F)
@ 264 psi (1820 Kpa)		38 (100) °C (°F)

1. All physical properties were measured on 3 mm. rotomolded samples unless a different value is shown, except for ESCR, which was measured on compression molded samples.
2. Tensile testing was conducted at a crosshead speed of 50 mm/min. The tensile strength reported refers to the maximum stress reached during the test.
3. Test procedures may be modified to accommodate operating conditions or facility limitations.

LL 8450 grade can - in principle - be used in food contact applications in the USA (FDA) and in Canada (HPB). Migration or use limitations may apply. Please contact your ExxonMobil Chemical representative for more detailed information and/or actual compliance certification documents for the specific grade of interest.

Revised March 2006

PRODUCT: Waterpillar (WP 2000)

HAZARD AND RISK ASSESSMENT

IDENTIFIED HAZARD	POSSIBLE RISK	PRIORITY NUMBER	CONTROL	PERSON TO IMPLEMENT	COMPLETE BY	COMPLETED
Set up/Assembly of Waterpillar	Back injury	4 -	Training. More than one person to help assemble.	Existing		
Site Selection						
-Inclement weather conditions	Impact , drowning, drift	1+	Contact with local weather stations. Constant Monitoring of prevailing weather condition. Anchorage in windy conditions. Postpone set up and operation in strong winds.	Existing		
- Waterpillar Drifting to far (wind)	Dehydration, exhaustion, distress		Instructional talk, buoyed area of operation to limit travel			
-Swimmers/Sunbathers	Impact	1+	Site inspection. Selection of site with fewer swimmers. Launch lane marker with buoys across sand and water.	Existing		
Falling from Waterpillar into water during ride	Drowning	1+	Instructional Talk prior to loading. Participant rules, supervision.PBD	Existing		
Contact with other Waterpillars	Impact	2-	Instructional Talk prior to loading. Participant rules, supervision	Existing		
Contact with other Watercraft	Impact	1+	Instructional Talk prior to loading. Participant rules, supervision. buoyed area of operation. Flags.	Existing		
Heat Exhaustion	Dehydration, sun stroke	2-	Instruction of patron on distress signal (hands above head waving)	Existing		
Panic	Distress	6--	Supervision. Instruction of patron on distress signal (hands above head waving)	Existing		
Participant Exposure to UV and Sun	Dehydration, Sunburn, Sunstroke	1+ +	Access to Water on Site/ Shade provided	Existing		
Staff exposure to UV rays	Burns, Dehydration, Sunstroke.	1 + +	Supply sunscreen and headwear. Access to refreshments, breaks and shade Encourage other methods of protection e.g. Sunglasses All staff supplied with PPE's	Existing		

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