

## Hull and Drivetrain Background and Specifications

Summary: The following tables contain all data that is known about the respective systems

### **Hull Information**

Year, MFR & Model	1978 Cole CH1 Drag Hydro
HIN#	
Length	18'-6"
Beam	84"
Weight (hull w/drivetrain & trailer)	2860 lbs.
Trailer VIN#	
Trailer Tires	F70-14 or no larger than: 25.5" dia x 6.375" w

### **V-Drive & Steering**

Steering	Deever Outboard with removable rudder
V-Drive	Casale #61000B 10-degree
V-Drive Gear Ratio	1.12:1 (or possibly 1.15:1) (current ratio unverified)
V-Drive to Prop Shaft Gap	set to 5/8" when using supplied 3-blade cleaver prop (ideally, there should be virtually zero gap but that's hard to achieve without moving hardware (engine, v-drive, etc.)
Propeller-1	Precision 10.5" dia x 16 pitch, 3-blade cleaver (lifts transom for more speed) The 3-blade design was recommended to add more lift for operation at high elevation venues to compensate for HP loss
Propeller-2	Precision 11.5" dia x 17 pitch, 2-blade chopper (lifts bow & drops stern-- better on a "V" or flatbottom hull) reduces cruising rpms and increases gas mileage at lower speeds, reduces racing performance. This size and pitch is also a little steep for this size engine. Two or three blade cleavers are usually better (faster) for hydroplanes
V-Drive Lube	85w-90 gear lube

### **Engine (Internals)**

Block	1968 Thunderbird Ford 429-4v (.030 over)
Crank	1968 429 cast iron with chamfered oil holes (internally balanced)
Connecting Rods	1969 Boss 429 #C9AE-B (C9AZ-6200-B)

Pistons	TRW #L2366F+030 forged flat-top with #LR158 lock rings (~10.8:1)
Rings	Sealed Power moly top
Main Bearings	Sealed Power Clevite 77 with 180deg oiling (DON'T use 360 oiling -- drops oil pressure too low) (p/n unknown)
Rod Bearings	Sealed Power Clevite-77 (p/n unknown)
Cam Bearings	TRW #SH697S
Oil Pump	Sealed Power High Volume with high pressure spring
Oil Pan	Milodon #31040 front sump 9qt + filter
Oil Pump Drive Shaft**	Ford Performance #M-6605-A429 (billet)
Distributor Drive Gear	Mallory #29420 Bronze with double pinning of gear
Timing Chain Set	Cloyes True Roller (currently set to 6 deg. retard)
Camshaft	Schneider custom flat-tappet: (Int/Exh) V-lift .600/.605; .050dur 262/272 deg Work Order #27420
Cam Followers	Schneider #5307 solid lifters (non-roller)
Heads	1968 Ford 429 4-v Standard, ported exhaust, port-matched intakes, CC'd chambers, bronze guides, spring seats and 7/16" screw-in studs with pushrod guideplates
Intake Valves	TRW #V2818X (2.19" 44deg)
Exhaust Valves	TRW #S2821 (1.75" 44deg)
Valve Stem Locks	TRW #LK321
Valve Seals	Crane #99820 Teflon
Valve Springs - Outer	Crane #99830 Outer spring with dampener
Valve Springs - Inner	Crane #99858 Inner spring
Valve Spring Retainers	Crane #99601 Aluminum Hard-Coat anodized
Pushrods - Intake*	Crane #62621 (8.688 x 5/16" with B-4 tips)
Pushrods - Exhaust*	Crane #62622 (8.865 x 5/16" with B-4 tips)
Rocker Arms	Crane #27750, S/N 594-P, Roller-Tip needle-bearing fulcrum, 1.73:1 ratio,
Rocker Arm Lock-nuts	Crane #99790 (7/16-24 thread)

### ***Engine (External Accessories)***

Timing Chain Cover	Nicson (Ford 460)
Water Pump	Magnaflow (Ford 460)
Alternator Pulley	Moroso #6480

Alternator	Motorcraft #GL-152
Voltage Regulator	Autolite C5AF-10316A (65-67 Ford Mustang) or equivalent such as Motorcraft #MGR-100 A (exercise caution when substituting)
Starter Motor	Unknown (use caution when buying rebuilt starters)
Distributor	Mallory # 3756701 Unilite w/centrifugal advance (only)
Ignition Coil	Mallory # 28675 Voltmaster MkII
Ignition Amplifier	MSD #6A (with fabricated anti-vibration mounts)
Spark Plug Wires	Mallory #28775 (7mm silicone jacket, stainless core)
Spark Plugs	(See Engine Tuning / Maintenance Document)
Intake Manifold	Weiand #1993 Tunnel Ram (purchased used, mods done by previous owner)
Carburetors	Holley #R4778 750cfm (See Engine Tuning / Maintenance Document)
Carb Fuel Filters	Wix #33019
Inline Fuel Filters	Fram #HPG1
Inline Fuel Filter Cart.	Dry use: #HPGc1; Marine use: #C1110PL
Fuel Pump	Holley #12-802 GPH110 Max Pressure Pump w/#12-803 regulator
Vac-U-Pan System	Moroso #25900
Headers	Bassett Racing: Dry Stack, V-Drive for 460 Ford with Stainless Steel Bolts
Header Covers	Bassett Racing: #3101, BR-Cover-77 (design changes, may need to order in pairs in order to match)
12v Battery	Duracell (purchased from Sam's Club on 00-00-00 [for warranty])

\* **Regarding pushrods:** I don't have a record of which pushrod part number is actually used on the intake and which is used on the exhaust. So please note that the actual use may or may not be opposite of what is listed here in the table (i.e. part numbers for intake and exhaust could be swapped). These non-stock-length pushrods were chosen for proper rocker arm geometry and **MUST** be returned to the exact cylinder from where they were removed during any service procedure. Please also note that this can be determined by measuring the pushrod length. The part numbers listed in the table DO agree with the corresponding lengths listed for that part number.

\*\* **Regarding the Oil Pump Drive Shaft:** The billet, performance shaft does not have a pointed top like the stock shaft. This can make reinstallation of the distributor difficult because the shaft leans to the left and won't slide up into the distributor shaft hex drive. If the distributor cannot be fully seated after removal, try jacking up the left side of the boat/trailer a bit. While the boat is tilted slightly to the right, try spinning the starter while pushing down on the distributor casing. It should eventually plop down into position. You may need to adjust the jacking angle with the goal of having the left-right axis of the distributor level instead of normally tilting to the left. **AFTER fully SEATING the distributor**, ensure that after going through those processes that the distributor alignment remains correct. Sometimes the alignment will skip a tooth or so while struggling to get it seated. If so, you'll need to remove the distributor and repeat the alignment and seating process.