



2025 PRO Technical Manual



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Professional Racing Outboard Category American Power Boat Association

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PRO Technical Manual

The purpose of this manual is to bring together in one document information needed to race within the PRO Category of the American Power Boat Association. This manual is intended to supply accurate and complete information that can be used as reference for a range of purposes from the beginner to the inspector. This manual is a compilation of information from the American Power Boat Association Rule Book, motor manufacturers' specifications, PRO Commission decisions, and other sources. **Should any technical differences exist between this manual and the source materials, the source materials should prevail.**

Comments and updates concerning this manual should be directed to the current PRO Category Chairman. Revisions will be made as required. The latest version may be downloaded and printed from the PRO web site. It is available in Adobe PDF format. Go to www.apba.org. Printed copies may also be obtained from the APBA office or the PRO Category Chairman.

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The cover photo and many photos in the PRO Technical Manual are by Teri Ziemer of Vacaville, CA. Thank you very much, Teri.

PRO Category Racing

The Professional Racing Outboard (PRO) Category of the American Power Boat Association (APBA) offers a variety of outboard racing classes ranging from moderate speed to very fast, from old tech to high tech, from low investment to substantial investment. No other category of outboard racing offers such diversity. The PRO Category is also the oldest of the outboard categories, having its roots in the 1920's.

Even with such diversity, however, the basics are the same. Put together a stable boat, a strong motor, the correct propeller, you in the cockpit, a little skill and a little luck, and you'll be able to compete at the top of whatever class you choose to run. The diversity also encourages family racing, with a class for every taste.

The classes taken together can be a bit confusing. Each class has its own class technical rules. How do you choose the best class or classes for you and your pocketbook? If we break the rules down to the basics, the choices will be easier. First we'll cover boats, then motors, then the rules.

Boats

Boats in the PRO Category are roughly 9 to 14 feet in length and weigh perhaps 100 to 250 pounds. Most are made of wood. Mahogany decking and spruce framing are popular. Carbon fiber, honeycomb, and other high tech materials are also used. Most offer a cockpit without a seat. The driver crouches and kneels in the cockpit. Some are driven in a lay-down position and some have the driver seated. Typically the left hand works the spring-loaded throttle and the right hand handles the steering wheel. Both hands also attempt to stabilize the driver in the cockpit. Generally the boats are of two distinct designs referred to as Hydros and Runabouts.

Hydros

Hydros typically trap air beneath them and thus ride on a cushion of air. Most common is the so-called three-point design where the boat contacts the water's surface on two sponsons or outriggers forward and the bottom of the boat near the stern. Often the propeller is the only point of contact between the boat and the water. The design of hydros in the PRO Category is generally unrestricted. The hydro classes, therefore, offer a challenge for those who wish to experiment in boat design and construction.

Runabouts

Runabouts have certain restrictions in design defined by the PRO rules. The various classes have minimum lengths defined for the Runabout hull. While there is great variety in runabout design, generally they have a flat riding surface, are tapered back from a point, and are not designed to channel air under the hull. Runabouts are typically slightly slower than hydros when utilizing a similar motor. The runabout design sometimes allows the boat to be driven partially on the boat's side when rounding a buoy.

Motors

Motors in the PRO Category are generally two-stroke, although 4-stroke motors are permitted, and are divided into classes based upon the amount of piston displacement. Each class has an allowable maximum of piston displacement. Most classes measure this displacement in cubic centimeters (cc's) but others are measured in cubic inches. Many classes are generally unrestricted while others have very specific restrictions on motors and modifications to motors. The motors range from 125cc to 1133cc displacement.

While the class names of some motors are designated by the maximum displacement allowed, other class names use a single letter code designation to indicate the displacement of the motor. The single letter code designations currently used are "K", and "C". These refer to "Kids" and 30 cubic inches respectively.

Getting Started

In order to race, you need a boat and a motor that qualify within the rules of one of the PRO classes and you must meet the age requirements for the class. You will also need to be a current member of both the American Power Boat Association (APBA) and a local club that is a member of APBA. The APBA membership provides you with insurance, boat numbers, notification of races, tracking of points, and many other services.

APBA membership applications are available from the American Power Boat Association online at www.apba.org. When you apply, be sure to indicate that you wish to join the PRO Category. When you become a member of APBA, you will receive a membership card, boat numbers, a magazine, boat decals, and notification of races in your area.

If you can, try to attend a local race or two before investing in your equipment. Not all classes are run actively in all parts of the country, so try to join a class that your local club actively schedules. You can't have a race without competition.

Good luck. Race safe. Have fun.



Suppliers

The following is a listing of suppliers of PRO racing components. APBA's PRO Category makes no representation that this list is complete. Inclusion on this list does not imply any endorsement by APBA or the PRO Category of any product or service. Updates to this listing should be forwarded to the PRO Category Chairman for inclusion in the next edition.

Race Boats

Jerry Davids, Sr., Newport News, VA, Phone: 757-273-4762, Email: Racer3d62N@hotmail.com	Race boats
Ernie Dawe, Dawe Craft Boats/Hardware, 82-138 Tahquitz, Indio, CA 92201, Phone: 760-347-3287	Race boats, hardware
Fralick Boats, Web: www.fralickboats.com , Phone: 905-838-3448	Boats, plans, oil, paints, lumber, hardware
Mike Krier, Krier Boats, RR 1, Box 15, Ollie, IA 52576, Phone: 515-622-1009	Race boats

Motors, Parts, Repairs

Dave Jones, Phone: 860-778-3541	Yamato motor service
Karl Williams, Antique Outboard Racing Engines, Inc., 2920 South MacArthur Blvd., Springfield, Illinois 62704, Phone: 217-528-6873, Email: karl_williams@mac.com	C Service and C Racing motors, parts, hardware
Mike Schmidt, 28 Cherry Lane, Durham, CT 06422. Phone: 860-463-0213, Email: teammsr@comcast.net	Motor repair, welding
Mike Thirlby, M16 Enterprises, 9949 US 31 South, Interlochen, MI 49643, Phone: 231-590-7855	Racing motor building, parts, repair
Ben Thompson, Ft. Pierce, FL, Phone: 772-519-8898, Email: Benf27@hotmail.com	Racing motor building
R. C. Hawie, Hawie Racengineering, PO Box 61, Lake Hamilton, FL 33851, Phone: 941-223-3860	Racing motor building, parts, repair
Rex Hall, 5495 W. Gale Road, Smithville, MO 64089-8453, Phone: 816-532-4598, Email: RexfordHall@aol.com	Rossi sales and repair
Ric Montoya, RPM Marine, 2541 7 th Avenue West, Seattle, WA 98119, Phone/fax: 206-283-4773, Orders: 1-800-YAMATO1	Yamato motors, parts, hardware, lumber, kits
Sid Bass, N.W. Lower Unit Company, 2622 Rockpoint Road, Bremerton, WA 98312, Phone: 360-373-3839	Racing lower units, tower housings, Tohatsu motors
Steve Greaves, Portage Bay Systems, 3110 Portage Bay Place East, Seattle, WA 98102, Phone: 206-371-0486 www.portagebaysystems.com	C Racing gears
Wienandt Performance Technology, Mike Wienandt, N1668 Linda Lou Dr., Greenville, WI 54942, 920-574-2219, wpt1mike@gmail.com	Engine service, parts, cylinder repair, dyno service

Propellers

Craig Dewald, Dewald Racing Propellers, 1050 Rick Road, Reading, PA 19605, Phone: 610-926-2964	Propellers
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Hardware

Akerstrom Tool & Machine LLC, PO Box 142, Rosemont, NJ 08556, Phone: 609-397-1751	Race boat hardware
Digitron, 8102 North Freya, Spokane, WA 99207, Phone: 509-467-3128	Tachometers, gauges
Lee Tietze, 1004 NE 4 th , Canby, OR, Phone: 503-263-2508	Custom machined components
Steve Greaves, Portage Bay Systems, Inc., 3110 Portage Bay Place East, Seattle, WA 98102, Phone: 206-371-0486, Email: sgreaves@portagebaysystems.com , Web: www.portagebaysystems.com	CMP/Keller race boat hardware

Fuel, Lubricants

Blendzall, 310 South First Street, Martins Ferry, OH 43935, Phone: 614-633-1333	Lubricants
Klotz Special Formula Products, Inc., 7424 Freedom Way, Fort Wayne, IN 46818, Phone: 800-242-0489	Lubricants
Rick Fales, Power Mist Racing Fuels, 67 Stickles Pond Road, Newton, NJ 07860, Phone: 201-363-1061	Racing fuels, lubricants

Safety Equipment

Lifeline, 1601 Kofa Avenue, Parker, AZ 85344, Phone: 928-669-9241, Fax: 928-669-8895	Lifejackets, Kevlar driving suits, helmets, uniforms
Patrick Gleason, Gleason Racing, Phone: 206-794-4597, Email: patrickgl@msn.com	Security safety products
Security Race Products, 1105 12 th Ave. NW, Suite A5, Issaquah, WA 98027, Phone: 425-557-6508	Lifejackets, Kevlar driving suits, helmets
Simpson, 2415 Amster Street, Torrance, CA 90505, Phone: 800-717-2246	Helmets, safety harnesses



Colonel Green Round Hill Trophy Winners

The Colonel Green Round Hill Trophy is presented annually by APBA and the PRO Category to the driver with the most points during the season in the Professional Racing Outboard Category. The trophy has been presented since 1933 and is the most prestigious award presented by the PRO Category.

The trophy is 44" high, 19" diameter, and contains 286.20 troy ounces of sterling silver. The trophy is inscribed with the following: *"Round Hill Trophy presented to New Bedford Yacht Club by Colonel E. H. R. Green for Outboard Motor Boat Racing under auspices of American Power Boat Association 1930"*. The past winners of the Colonel Green Round Hill trophy are:

1933	Samuel Crooks, Rutgers
1934	Joel Thorne, Rutgers
1935	Samuel Crooks, Rutgers
1936	Ward Angilley, Marysville, CA
1937	Douglas C. Fonda, New York, NY
1938	Clinton R. Ferguson, Waban, MA
1939	Clinton R. Ferguson, Waban, MA
1940	Frank J. Desmond, Short Hills, NJ
1941	Frank J. Desmond, Short Hills, NJ
1946	Frank J. Desmond, Bernardsville, NJ
1947	John L. Schoolcraft, Schenectady, NY
1948	Harold W. Peters, Los Gatos, CA
1949	Donald H. Whitfield, Montclair, NJ
1950	Donald Lowry, Sacramento, CA
1951	W. B. Barron, Jr., Memphis, TN
1952	William L. Tenney, Dayton, OH
1953	Thomas Ingalls, Los Angeles, CA
1954	Chuck Parsons, Lodi, CA
1955	Ward Angilley, Daly City, CA
1956	Chuck Parsons, Lodi, CA
1957	Bud Wiget, Lakeland, FL
1958	Rockey Stone, Willamina, OR
1959	Rockey Stone, Willamina, OR
1960	Harry Bartolomei, San Leandro, CA
1961	Bud Wiget, Lakeland, FL
1962	Bud Wiget, Lakeland, FL
1963	Fred Hauenstein, Jr., Kingsburg, CA
1964	John Riner Woods, St. Louis, MO
1965	Jack Stanford, Englewood, FL
1966	Jack Stanford, Englewood, FL
1967	Bryan McDougall, Brigham City, UT
1968	Jane E. Smith, Ridley Park, PA
1969	Bob Vieira, Oakland, CA
1970	Ted May, Fountain Valley, CA
1971	Fred Hauenstein, Jr., San Jose, CA
1972	Tommy Hooten, Wauchula, FL
1973	Tommy Hooten, Wauchula, FL
1974	Henry P. Shakeshaft, III, Bedford, VA
1975	Malcom Harden, Portsmouth, VA
1976	Don Wood, Fairmont, WV
1977	Bill Troyer, Lakeland, FL
1978	Joseph S. Tomaini, Long Branch, NJ
1979	Richard Krier, Indianola, IA
1980	Henry P. Shakeshaft, III, Bedford, VA
1981	James D. MacKay, Modesto, CA
1982	Hoz Compton, Lake Placid, FL
1983	John A. Stevens, Orlando, FL
1984	John A. Stevens, Orlando, FL
1985	John A. Stevens, Orlando, FL
1986	John A. Stevens, Orlando, FL
1987	John A. Stevens, Orlando, FL
1988	Joseph E. Garrick, Sr., Ocoee, FL



1989	Steve Greaves, Seattle, WA
1990	Daniel W. Kirts, Bristol, IN
1991	Steve Greaves, Seattle, WA
1992	Daniel W. Kirts, Bristol, IN
1993	Steve Greaves, Seattle, WA
1994	David Hooten, Bartow, FL
1995	Chris Hellsten, Orlando, FL
1996	Chris Hellsten, Orlando, FL
1997	Pete Hellsten, Edgewater, FL
1998	Steve Greaves, Seattle, WA
1999	Chris Hellsten, Orlando, FL
2000	Steve Greaves, Seattle, WA
2001	Jamie Nilsen, Auburn, WA
2002	Chris Hellsten, Orlando, FL
2003	J. Michael Kelly, Puyallup, WA
2004	Jamie Nilsen, Tacoma, WA
2005	Tony Lombardo, Concord, CA
2006	Tony Lombardo, Concord, CA
2007	Brandon Thirlby, Traverse City, MI
2008	Brandon Thirlby, Traverse City, MI
2009	Michael W. Schmidt, Durham, CT
2010	Jim Nilsen, Edgewood, WA
2011	Jim Nilsen, Edgewood, WA
2012	Amy Nydahl, Bristol, WI
2013	Jay Walls, Jr., Danville, IN
2014	Jay Walls, Jr., Danville, IN
2015	Jim Nilsen, Edgewood, WA
2016	Justin Gibson, Washington, IL
2017	Ryan Gowin, Kent, WA
2018	Justin Gibson, Washington, IL
2019	Justin Gibson, Washington, IL
2021	Jon Nilsen, Edgewood, WA
2022	Devin Huff, Anderson, SC
2023	Carson Kelly, Bonney Lake, WA
2024	Justin Gibson, Washington, IL



PRO Category's APBA Hall of Champions Inductees

Since 1974, the PRO Category has selected two to three drivers each year for induction into the APBA Hall of Champions. A formula, based upon the driver's success during the year, considers World and National Championships won, National High Point Championships won, and records set during the season, and guides the PRO Commission in the selection. The formula is published in the APBA Rule Book. Past PRO Category inductees to the APBA Hall of Champions are:

1974	Jerry Simison, Fergus Falls, MN; Doug Martin, Anaheim, CA
1975	Ralph Donald, Marietta, GA; Lee Sutter, Jr., Waukesha, WI
1976	Jerry Kirts, Elkhart, IN; Bruce Nicholson, Slidell, LA
1977	Hal Tolford, Seattle, WA; Bruce Nicholson, Slidell, LA
1978	Bruce Nicholson, Slidell, LA; James Stone, Orange Park, FL
1979	Todd Brinkman, Springfield, IL; Tom Kirts, Bristol, IN
1980	Pete Hellsten, Savannah, GA; Jerry Kirts, Bristol, IN
1981	Denny Henderson, Garland, TX; Jack Kugler, Hamilton, IL
1982	Jerry Kirts, Bristol, IN; Larry Latta, Fort Lauderdale, FL
1983	John Stevens, Orlando, FL; Chris Hellsten, Savannah, GA
1984	Lee Bartolomei, Castro Valley, CA; John Stevens, Orlando, FL
1985	Dan Kirts, Bristol, IN; Tom Kirts, Bristol, IN
1986	Todd Brinkman, Jr., Springfield, IL; Bill Van Steenwyk, Barnhart, MO
1987	Craig Harris, Savannah, GA; John Stevens, Orlando, FL
1988	Larry Conner, McAllister, OK; Joseph E. Garrick, Sr., Ocoee, FL
1989	Denny Henderson, Garland, TX; Eddie Thirlby, Grawn, MI
1990	Bill Rucker, Jr., Oakdale, CA; Dan Kirts, Bristol, IN
1991	Steve Greaves, Seattle, WA; Dan Kirts, Bristol, IN
1992	Denny Henderson, Garland, TX; Dan Kirts, Bristol, IN
1993	Steve Greaves, Seattle, WA; George Thornhill, Tacoma, WA
1994	Steve Greaves, Seattle, WA; David Hooten, Bartow, FL
1995	Dan Kirts, Bristol, IN; George Thornhill, Tacoma, WA
1996	Steve Greaves, Seattle, WA; Chris Hellsten, Orlando, FL
1997	Jack Campbell, Jr., Culver, IN; Eddie Thirlby, Grawn, MI
1998	Steve Greaves, Seattle, WA; Eddie Thirlby, Grawn, MI
1999	Steve Greaves, Seattle, WA; Chris Hellsten, Orlando, FL; Sean McKean, Irving, TX



2000	Jamie Nilsen, Auburn, WA; Buddy Tennell, Lawrenceville, GA
2001	Paul Fuchslin, Dixon, CA; Steve Greaves, Seattle, WA
2002	Tim Brinkman, Springfield, IL; Jonathan Nilsen, Edgewood, WA
2003	Chris Hellsten, Orlando, FL; Curt Hellsten, Orlando, FL
2004	Chris Hellsten, Orlando, FL; Allen Thorsen, Newberg, OR
2005	Jim Nilsen, Edgewood, WA; Brandon Thirlby, Traverse City, MI
2006	Jim Nilsen, Edgewood, WA; George Thornhill, Tacoma, WA
2007	Jim Nilsen, Edgewood, WA; Brandon Thirlby, Traverse City, MI
2008	Jim Nilsen, Edgewood, WA; Tim Small, Lighthouse Point, FL
2009	Sean McKean, Mabank, TX; Jim Nilsen, Edgewood, WA
2010	Sean McKean, Mabank, TX; Jim Nilsen, Edgewood, WA
2011	Doug Hall, De Kalb, MO; Jim Nilsen, Edgewood, WA; Jay Walls, Jr., Danville, IN
2012	Amy Nydahl, Bristol, WI; Jay Walls, Jr., Danville, IN
2013	Michael Thirlby, Interlochen, MI; Jay Walls, Jr., Danville, IN
2014	Jim Nilsen, Edgewood, WA; Jay Walls, Jr., Danville, IN
2015	Jim Nilsen, Edgewood, WA; Andrew Thirlby, Interlochen, MI
2016	Ryan Gowin, Kent, WA; Jim Nilsen, Edgewood, WA
2017	Justin Gibson, Washington, IL; Jim Nilsen, Edgewood, WA
2018	Justin Gibson, Washington, IL; Andrew Thirlby, Interlochen, MI
2019	John Peeters, Arlington, WA; Austin VanOver, Cincinnati, OH
2021	Jack Campbell, Culver, IN; Austin VanOver, Cincinnati, OH
2022	Devin Huff, Anderson, SC; Jon Nilsen, Tahuya, WA
2023	Carson Kelly, Bonney Lake, WA; Jon Nilsen, Ellensburg, WA; Jason Sailer, Hamilton, IL
2024	Justin Gibson, Washington, IL; Jon Nilsen, Ellensburg, WA; Amy Nydahl, Bristol, WI



George H. Townsend Medal

The George H. Townsend Medal has been awarded by the PRO Category since the 1930's. Until 2006, the medal was awarded to the PRO driver who was awarded the most points during the season in all PRO classes raced. The medal was thus awarded typically to the winner of the Col. Green Round Hill Trophy.

Beginning in 2006, the PRO Commission changed the criteria for the George H. Townsend Medal. In order to encourage and reward young participation in the PRO Category, the medal was awarded to the driver who totals the most points in the K PRO Hydro or K PRO Runabout class during the season.

Since 2006, the **George H. Townsend** medal winners are:

2006	Amy Eldredge, Malabar, FL
2007	Wendy Eldredge, Malabar, FL
2008	Ashley Rucker, Mountlake Terrace, WA
2009	Ashley Rucker, Mountlake Terrace, WA
2010	Colin Rucker, Mountlake Terrace, WA
2011	Ryan Thompson, Renton, WA
2012	Colin Rucker, Mountlake Terrace, WA
2013	Ryan Thompson, Renton, WA
2014	Jacob Mauldin, Friday Harbor, WA
2015	Travis Ulsh, Eatonville, WA
2016	Ryan Gowin, Kent, WA
2017	Ryan Gowin, Kent, WA
2018	Colten King, Kelso, WA
2019	Alec Reitz, Pasco, WA
2021	Madden Henshaw, Everett, WA
2022	Carson Kelly, Bonney Lake, WA
2023	Carson Kelly, Bonney Lake, WA
2024	Harper Kelly-Moen, Tacoma, WA



Gilbert Petermann Award

Gilbert “Gibby” Petermann raced outboards for over 50 years well into his 80’s. Gibby was a gentleman racer as well as an innovative and creative motor builder who loved racing the 250cc Hydro class. Following his passing, Gibby’s fellow racers established the Gilbert Petermann Award to commemorate Gibby’s contributions to outboard racing. The plaque is presented each year to the National High Point winner in the 250cc Hydro class.

The Gilbert Petermann Award winners are:

1998	David Eldredge
1999	Chris Hellsten, Orlando, FL
2000	Chris Hellsten, Orlando, FL
2001	Chris Hellsten, Orlando, FL
2002	Chris Hellsten, Orlando, FL
2003	Chris Hellsten, Orlando, FL
2004	Chris Hellsten, Orlando, FL
2005	Ben Thompson, Orlando, FL
2006	Chris Hellsten, Orlando, FL
2007	Brandon Thirlby, Traverse City, MI
2008	Billy R. Allen, Quincy, MA
2009	Billy R. Allen, Quincy, MA
2010	Michael W. Schmidt, Durham, CT
2011	Michael W. Schmidt, Durham, CT
2012	Amy Nydahl, Bristol, WI
2013	Chris Hellsten, Orlando, FL
2014	Chris Hellsten, Orlando, FL
2015	Chris Hellsten, Orlando, FL
2016	Chris Hellsten, Orlando, FL
2017	Chris Hellsten, Orlando, FL
2018	Chris Hellsten, Orlando, FL
2019	Not awarded (no 250H races in 2019)
2020	Not awarded
2021	Not awarded
2022	Not awarded
2023	Chris Hellsten, Lebanon, TN
2024	Amy Nydahl, Bristol, WI



Retired PRO Racing Numbers

The PRO Commission may approve the retirement of a PRO racing number used by a PRO driver who has passed away where the driver has contributed to the spirit of PRO racing for a life-time. When retired, the racing number will not be assigned to any other driver. The PRO Commission has retired the racing numbers listed below:

Number	Driver
M16	Edwin G. Thirlby, Traverse City, MI
N14	Gilbert Petermann, Malverne, NY
R12	Howard Anderson, Jr., Edmonds, WA
R32	Art Losvar, Mukilteo, WA

The Gary Wyhoski PRO Officials Award

In 2006 the PRO Commission established a special annual award called the PRO Officials Award. It is awarded each year by the PRO Commission to one or more individuals who have served the PRO Category in an official capacity. Beginning with the 2014 award, the PRO Commission renamed the award "The Gary Wyhoski PRO Officials Award" in honor of the late Gary Wyhoski who served as the flagger at the PRO Nationals for many years (see photo below).

The **PRO Officials Award** winners are:

2006	Paul Bosnich II, DePue, IL R. C. Hawie, Lake Hamilton, FL Steve Litzell, Marietta, GA
2007	Gary Wyhoski, Menasha, WI
2008	Penny Anderson, Edmonds, WA Kristi Ellison, Fayetteville, NC
2009	Steve Greaves, Seattle, WA
2010	Fred Mason, Saginaw, MI
2011	Ray Rodda, Carmel, IN
2012	The folks who raised Lake DePue and saved the PRO Nationals
2013	Kristi Ellison, Fayetteville, NC
2014	Joyce Golley and Jerry Davids, Sr., Hampton, VA
2015	Tom Burwinkle, Kingston, TN
2016	The Tennell Family, Buford, GA
2017	Josh Kimble, Danville, IN
2018	Rick Sandstrom, Mukilteo, WA
2019	Mark Wheeler, Kalamazoo, MI
2020	not awarded
2021	not awarded
2022	Jerry Davids, Sr., Newport News, VA
2023	Jim Nilsen, Port Orchard, WA
2024	Erin VanOver, Deputy, IN



PRO Category's Organization

The PRO Category is one of several racing categories within the APBA. The PRO Category is governed by the PRO Commission under the powers granted to it under the APBA by-laws. The PRO Commission members are elected from each region where PRO racing is active to 1-year terms. The Commission selects the PRO Chairman for a 2-year term. The Chairman may appoint additional Commissioners.

The Commission typically meets twice per year, once at the PRO Nationals and once at the APBA Annual Meeting. At other times, the Commission conducts business by phone, fax, and email. The PRO Chairman appoints several committees to advise the Commission.

The PRO Commission acts as a single body to govern the activities involved in PRO racing. Such activities may include: discipline, new classes, appeals from rulings of race committees and referees, technical rule change proposals, safety rule changes, national championship site selection, maintenance of the championship officials list, and approval of records.

Safety rule and technical specification changes may be made by the Commission and are effective 30 days after publication in the APBA "Propeller" magazine. Technical class rules are changed by a vote of those drivers involved in the class.

The PRO Commission, along with the Category's various Committees and Officials, are listed on the following pages.



2025 PRO Commission

Kristi Ellison, 2024-2025 PRO Chairman
(Region 7)
Luxemburg, WI
910-551-5752
rkellisonk22@gmail.com

Michael Schmidt (Region 1)
Durham, CT
860-463-0213
teammsr@comcast.net

Rick Fales (Region 3)
Newton, NJ
973-919-8267
info@powermist.com

Jerry Davids, Sr. (Region 4)
Newport News, VA
757-273-4762
Racer3d62n@hotmail.com

John Palmquist (Region 5)
Boca Raton, FL
561-302-1613
theracersedge@bellsouth.net

Mike Thirlby (Region 6)
Traverse City, MI
Cell: 231-590-7855
Miketm47@gmail.com

Eric VanOver (Region 6)
Cincinnati, OH
513-378-1026
evpass@passservice.com

Kevin Ellison (Region 7)
Wrightstown, WI
910-728-2394
kaveman92@aol.com

Rich Fuchslin (Region 9)
Dixon, CA
916-425-5794
rfuchslin@gyttja.com

Steve Greaves (Region 10)
Seattle, WA
206-371-0486
sgreaves@portagebaysystems.com

Zach Malhiot (Region 10)
Bremerton, WA
360-731-3508
zach.malhiot@gmail.com

Vincent Buskirk (appointed)
Traverse City, MI
231-342-4610
Buskirk.vinny@gmail.com

Kyle Deptula (appointed)
Granville, OH
937-973-0329
kyle.deptula@gmail.com

Justin Gibson (appointed)
Washington, IL
309-215-1289
Gibby53085@gmail.com

Mackenzie Hellsten (appointed)
Lebanon, TN
407-399-1255
mackenzie.hellsten@gmail.com

2025 PRO Committees

PRO Chief Referee

Jim Nilsen
Port Orchard, WA
253-709-0200
Jnilsen529@comcast.net

PRO Chief Scorer

Erin VanOver
Middletown, OH
502-475-0039
eveesepittman@gmail.com

PRO Chief Inspector

Mike Wienandt
Greenville, WI
920-602-3486
Wpt1mike@gmail.com

PRO Safety Representative

Rich Fuchslin
Dixon, CA
916-425-5794
rfuchslin@gyttja.com

J Committee Representative

Jim Nilsen
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253-709-0200
Jnilsen529@comcast.net

PRO Motor Advisory Committee

Dwight Malhiot
Mike Thirlby
Mike Wienandt

PRO Safety Committee

Kristi Ellison
Rich Fuchslin
David Jones
Bob Wartinger

PRO Boat Advisory Committee

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K PRO Committee

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C Service / C Racing Technical Committee

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PRO Technical Manual Committee

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PRO Classes

The PRO Category offers racing in twenty-one separate classes. In addition to the class name, the following table shows the class abbreviation and the class number. The abbreviations are often used as a shorthand designation for the class, and the class number is used by APBA for high point tabulation.

Class Name	Class Abbreviation	Class Number
K PRO Runabout	KPR	To be assigned
125cc Runabout	125R	04010
250cc Runabout	250R	04020
350cc Runabout	350R	04030
500cc Runabout	500R	04040
700cc Runabout	700R	04180
1100cc Runabout	1100R	04060
C Service Runabout	CSerR	04120
C Racing Runabout	CRacR	04140
K PRO Hydro	KPH	04190
125cc Hydro	125H	04200
175cc Hydro	175H	04280
250cc Hydro	250H	04210
350cc Hydro	350H	04220
500cc Hydro	500H	04230
700cc Hydro	700H	04240
1100cc Hydro	1100H	04260
OSY400	OSY400	04320
C Service Hydro	CSerH	04330
C Racing Hydro	CRacH	04340
Formula 45	F45	04350



PRO Class Participation 1993 - 2024

The following tables shows the class participation nationally during the years 1993 through 2024. A participant is defined as a driver who made a start in the class during the season.

Class	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
125cc Runabout										6
250cc Runabout	11	14	8	14	15	15	13	10	11	14
350cc Runabout	14	10	12	13	12	14	11	15	11	15
500cc Runabout	16	10	12	17	13	12	20	31	20	17
1100cc Runabout	23	18	16	17	20	20	16	23	14	16
C Service Runabout	23	24	23	27	23	23	23	19	19	20
C Racing Runabout	20	17	16	24	20	21	21	14	13	15
J / K PRO Hydro	9	23	13	17	14	20	23	45	44	45
125cc Hydro	17	14	14	16	20	21	24	21	16	21
250cc Hydro	37	40	33	27	25	22	38	27	22	29
350cc Hydro	49	46	41	42	36	38	42	37	29	36
500cc Hydro	64	57	47	42	36	14	15	15	8	11
500cc Sprint Hydro										12
700cc Hydro	30	27	34	23	17	16	16	16	5	10
1100cc Hydro	25	14	15	11	4	9	16	12	5	7
RB Hydro / 175cc Hydro	47	36	20	20	7	14	9	14	15	14
Novice 350 / OSY400	16	34	37	47	47	58	73	96	82	88
C Service Hydro	15	17	14	14	14	19	17	13	16	14
C Racing Hydro	19	15	18	14	13	17	15	12	13	13
Total	435	416	373	385	336	353	392	420	343	403

Class	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
125cc Runabout	7	10	13	11	13	7	15	13	7	8
250cc Runabout	12	13	15	13	13	10	10	13	10	9
350cc Runabout	14	11	13	17	14	11	12	16	10	13
500cc Runabout	15	20	21	23	12	16	15	16	14	14
1100cc Runabout	15	15	15	14	8	14	15	10	5	12
C Service Runabout	19	19	20	20	18	17	21	19	17	17
C Racing Runabout	16	21	18	16	16	14	15	17	16	16
J / K PRO Hydro	35	23	16	21	20	28	28	25	13	22
125cc Hydro	19	25	23	24	31	26	33	34	29	27
250cc Hydro	22	32	34	28	25	21	27	28	22	17
350cc Hydro	30	29	27	24	26	24	20	25	21	22
500cc Hydro	13	12	14	16	13	11	8	10	10	8
500cc Sprint Hydro / 175ccR / 700ccR	6	3	6	8	5	7	0	0	4	3
700cc Hydro	8	8	6	12	9	6	5	9	9	6
1100cc Hydro	6	9	11	14	16	13	10	12	13	11
RB Hydro / 175ccH	9	9	6	5	8	6	15	22	14	14
Novice 350 / OSY400	86	90	85	73	70	71	71	71	56	48
C Service Hydro	13	12	14	14	13	15	14	14	14	13
C Racing Hydro	13	15	12	16	14	11	12	14	12	10
Total	358	376	369	369	344	328	346	368	296	290

Class	2013	2014	2015	2016	2017	2018	2019	2021	2022	2023	2024
125cc Runabout	2	0	0	0	0	0	0	0	5	3	3
250cc Runabout	0	0	0	0	0	0	0	2	7	9	8
350cc Runabout	0	4	0	0	0	0	0	1	7	7	7
500cc Runabout	6	13	10	3	2	3	2	5	9	10	14
1100cc Runabout	6	5	4	8	10	11	9	10	12	15	19
C Service Runabout	15	13	13	14	14	14	17	16	12	16	15
C Racing Runabout	15	11	12	11	11	11	12	14	11	17	13
J / K PRO Hydro	10	9	14	16	11	18	17	11	18	17	21
125cc Hydro	18	19	14	12	11	15	10	6	11	10	15
250cc Hydro	11	5	5	4	2	3	0	2	10	9	14
350cc Hydro	12	13	8	8	9	13	6	6	15	20	21
500cc Hydro	0	0	0	0	0	0	0	3	6	0	4
500cc Sprint H / 175ccR / 700ccR	0	0	12	4	5	8	10	10	17	19	22
700cc Hydro	0	5	0	0	0	1	2	0	8	0	3
1100cc Hydro	0	5	0	0	0	1	2	0	6	4	3
RB Hydro / 175cc Hydro	3	10	6	4	7	4	3	6	11	14	12
Novice 350 / OSY400	34	38	42	33	45	44	40	37	46	37	39
C Service Hydro	9	12	11	9	9	8	12	19	12	15	15
C Racing Hydro	11	10	11	7	10	9	12	17	12	15	12
F500 / F45						0	7	6	9	7	8
K PRO Runabout										12	15
Total	152	172	163	133	146	163	161	171	244	256	283

1993 – 2024 Class Change Notes:

- The Novice 350 class became the OSY400 class beginning in 1994.
- Reinforced cockpits were required in 700cc Hydro beginning in 1996.
- Reinforced cockpits were required in 1100cc Hydro beginning in 1997.
- Reinforced cockpits were required in 500cc Hydro beginning in 1998.
- The 125cc Runabout and 500cc Sprint Hydro classes were first introduced mid-season during 2002.
- Beginning in 2003, the J PRO Hydro class was renamed to K PRO Hydro.
- Beginning in 2004, the word “Antique” was dropped from the C Service and C Racing class names.
- Beginning in the 2006 season, RB Hydro became 175cc Hydro.
- Beginning in the 2009 season, 500 Sprint Hydro became 175cc Runabout.
- OSY400 for the 2012 season required a minimum weight and jetty starts.
- Beginning in the 2013 season the USTS began sanctioning independent of APBA.
- Beginning in the 2014 season, OSY400 required a minimum weight.
- Beginning in the 2015 season, 175R was replaced with 700R.
- Beginning in the 2018 season, the F500 class was created.
- Beginning in the 2019 season, a legal OPC SST45 was allowed in F500.
- Beginning in the 2021 season, the PRO Nationals included the USTS.
- Beginning in the 2023 season, the K PRO Runabout class was introduced.
- Beginning in the 2023 season, the UIM version of F500 was eliminated from F500.
- Beginning in the 2023 season, a 2 cylinder 400cc reed valve powerhead was added to 700R.
- Beginning in the 2024 season, the F500 class was renamed to F45.
- **Beginning in the 2025 season, the Yamato 202 was removed from OSY400.**

PRO Safety Rules

Safety Summary

The PRO Category has several safety requirements in addition to those specified by the general APBA Safety Rules.

1. Flak jackets (or impact material within the life jacket) must be worn.
2. An automatic shut-off throttle and an ignition kill switch tethered to the driver are required.
3. A positive method of stopping the motor must be accessible from the normal driving position.
4. Steering cable arrangements may not include "S" hooks.
5. Steering cable anchors must be bolted through with backing plates or washers of at least 3/4" diameter.
6. Magneto flywheels require a flywheel guard.
7. Carburetor spray shields are required except for rear-facing carburetors or while running in straightaway time trials.
8. A paddle must be carried in the boat.
9. The ignition cutoff tether must be attached to the driver via a wrist strap with a "D" ring or to the life jacket.
10. Drivers must wear long pants while testing or racing.
11. Unless the driver is restrained, the driver must be able to exit the cockpit without moving or removing any windshields, canopies, or cockpit cowlings.
12. Runabout fins may not protrude more than 1" beyond the chine.
13. Hydro fins may not protrude beyond the maximum beam of the boat.
14. The use of cut-resistant ankle length pants and full length cut-resistant sleeves while racing or testing is required. Drivers of reinforced cockpit boats are exempt.
15. Helmet restraints are recommended in PRO racing.

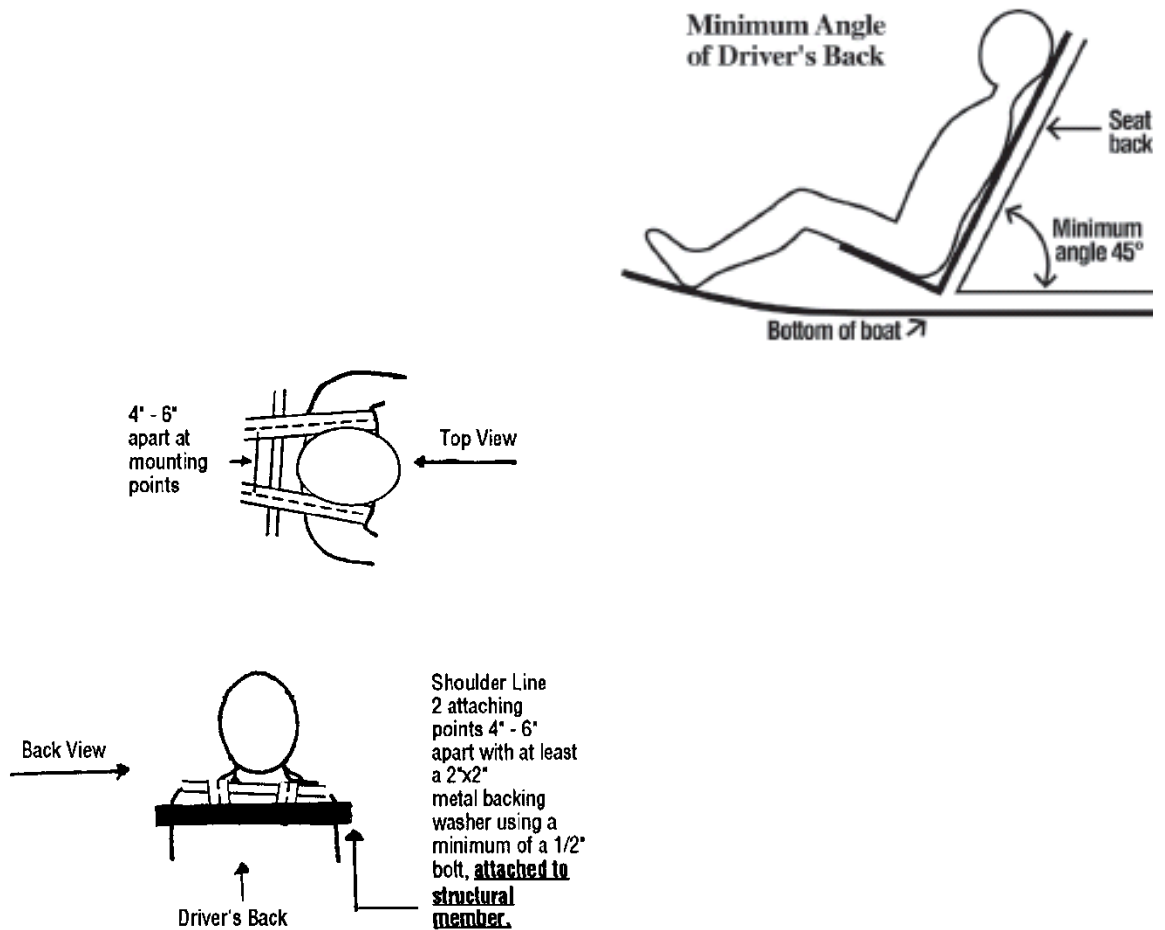
Safety Summary for Reinforced Cockpits

The PRO Category has several safety requirements related to reinforced cockpits in addition to those specified by the general APBA Safety Rules.

Boats racing in the 500ccH, 700ccH, and 1100ccH classes must utilize a reinforced cockpit with driver restraints. Step-ups, step-downs, and cross-overs must conform to the reinforced cockpit requirements of the class entered. Any PRO boat utilizing a driver restraint system shall have a reinforced cockpit according to the specifications below.

These rules provide only a minimum standard for reinforced cockpits. It is important that constructors continually develop cockpits beyond these minimums and produce cockpits that exceed these standards.

1. The manufacturer of any reinforced cockpit will submit his name (company name) and complete a PRO Reinforced Cockpit Questionnaire to the PRO Chairman before use of the cockpit in an APBA sanctioned regatta. The manufacturer's name, date of manufacture, and serial number must be permanently affixed to the reinforced cockpit.
2. The manufacturer will receive a letter of acknowledgement from the PRO Safety Committee, copies of which may be sent to the individual competitors.
3. Any competitor driving, or passenger, in a registered reinforced cockpit design boat will be in a restraint system consisting of a minimum 5-strap / 4-point mounting design. Strap locations will be minimum two hip, two shoulder, and crotch hooked together in a central release system activated (released) from the normal driving position. The use of a "lever-activated" central quick release system shall be mandatory. Belts shall be a minimum 2" width. These are the required placements of seat belts and shoulder harnesses to be used in a reinforced cockpit. (See drawing below.)



4. The boat must have enough buoyancy, either natural or from use of permanently attached flotation to float the combined hull, driver, and motor in a swamped state. Cockpit structure must also include permanent flotation capable of floating the cockpit, driver, engine and any other attached structures. Placement shall be in the closest possible location to the rear of the driver (cockpit) and the sides of the driver (boat). Two (2) pound per cubic foot, closed cell, U.S.C.G. approved flotation is recommended.
5. All reinforced cockpits must include coverage over at least 50% of the top of the driver's helmet with a minimum of 2" clearance above the driver's head and coverage over at least 50% of the side of the driver's helmet with the driver's head in the furthest aft position, as an integral part of the cockpit construction. It is recommended that in a reinforced cockpit, an opening of at least nine (9) square inches be made in the seat/backboard, behind the driver's helmet, so as to reduce the hydraulic effect on the driver in case of an accident.
6. A minimum of 1/4" Ethofoam (1/2" recommended) or other energy absorbing foam must be present completely around the inside of the helmet area to help prevent injury from the helmet hitting the cockpit.
7. Reinforced cockpit boats using an electric fuel pump or fuel injection must have an additional centrifugal-force-actuated or inversion-actuated kill switch. This switch must be capable of disabling the engine ignition as well as the electric fuel pump, if so equipped, when the boat is upside down.
8. Reinforced cockpit boats using full coverage canopies and/or cowlings must have both internal and external release capabilities for driver's exit, as well as positive airflow ventilation. The canopy must have one or more external handles or hand-holds to facilitate opening of the canopy from the outside. All canopy attaching hinges must have an easily removable hinge pin utilizing a

- pull ring, assessable from outside the cockpit. It is recommended that all canopy attaching hinges also have an internal release mechanism.
9. Left and right rear view mirrors are required. Mirrors are to be minimum of eight (8) square inches. Mirrors are not required during kilo trials.
 10. No sharp edges or protrusions are allowed anywhere inside or around the entryway of the cockpit.
 11. It is required that the top of the front of the cockpit should be a maximum of 4" below eye level and so constructed as to deflect water away from the driver.
 12. A removable steering wheel is highly recommended, "spring loaded".
 13. As a guide, the following construction methods have proven themselves effective in racing:
Suggested construction:
 - Step 1 Gel cote mold and let dry.
 - Step 2 Apply ¾ oz. glass mat and let dry.
 - Step 3 Apply layer of 6 to 9 oz. carbon fiber or S-glass, layer of 9 oz. Kevlar, layer of veil, and a layer of 3/8" Belcobalsa core or equivalent density of foam.
 - Step 4 Apply a layer of veil, layer of 9 oz. Kevlar, layer of veil, and layer of 9 oz. carbon fiber. Vacuum bag and apply vacuum until fully cured.
 - Step 5 Capsule should be laminated with epoxy resin or vinyl ester resin.
 14. Ventilation is required in the driving compartment to prevent fogging and in the aft compartment to prevent an accumulation of fumes.
 15. Drivers in a reinforced cockpit must be restrained in a seated position. A "seated position" is defined as having the driver's chest and legs facing forward and no less than 45 degrees of angle between the driver's back and the bottom of the boat.
 16. When used in a capsule boat, life jackets do not need to meet the PRO requirement for flak material.
 17. Drivers in capsule boats are exempt from the requirement to carry paddles and exempt from the requirement to paddle off the course if stopped.
 18. Life jackets used in reinforced cockpit boats shall have adequate flotation for the driver.
 19. The use of an air supply system in reinforced cockpit boats is mandatory.
 20. Upon request of the Referee, drivers of reinforced cockpit boats are required to show written certification of having completed supervised underwater cockpit escape training within the prior two years. Such written certification shall be signed and dated by an APBA Referee or other APBA official having reviewed the training.
 21. To the degree practical, the seating system, whether upright or reclining, should provide lateral support on both the left and right sides. The driver should be positioned as far rearward and as close to the seat back bulkhead as possible. It is absolutely necessary, in the reclining position, to provide a kick-up (roll-up) forward to the buttocks of sufficient height and strength to prevent forward movement and/or rotation of the torso under the seatbelt. In the reclining position, adequate padding is recommended under the buttocks to absorb impact.



Technical Class Rules

General Technical Summary

The following general technical specifications apply to all classes in the PRO Category unless specifically superseded by a particular class's technical rules. These specifications summarize those areas of interest to participants and officials but do not cover every rule of PRO racing. The current APBA Rule Book should be used as the definitive reference on all class rules.

1. PRO racing boats shall be powered by one outboard motor.
2. An outboard motor may be any 2-cycle or 4-cycle reciprocating engine.
3. Superchargers or turbochargers are not allowed. Engines must naturally aspirated,
4. Tuned intake and exhaust is permitted.
5. A motor may have no more rotary valves than cylinders.
6. Propulsion must be by water propeller.
7. Propellers must push, not pull.
8. The lower unit's "S" dimension (see Motor Specification Diagrams) must be at least .625 inches.
9. The lower unit's "Q" dimension (see Motor Specification Diagrams) must be no more than 24.25 inches.
10. The propeller shaft to drive shaft angle may not exceed 100 degrees.
11. Any non-pressurized liquid fuel is permitted.
12. PRO boats must have a racing number strongly contrasting with the background color. PRO boats may have a racing number composed of only a number.

Legal Motors

The legal motors for use in each class are detailed in the following table.

Class	Legal Motor
125cc Runabout & Hydro	Any single-cylinder motor up to and including 128.75cc
175cc Hydro	Any motor up to and including 175cc
250cc Runabout & Hydro	Any motor up to and including 257.5cc
350cc Runabout & Hydro	Any motor up to and including 350cc
500cc Runabout & Hydro	Any motor up to and including 500cc
700cc Runabout	Konig / Konny rotary-valve motors over 500cc up to and including 710cc; or GRM / VRP 2 cylinder reed valve motors with a minimum of 420cc and a maximum of 500cc displacement.
700cc Hydro	Any motor up to and including 700cc
1100cc Runabout & Hydro	Any motor up to and including 1133cc
K PRO Runabout & Hydro	Mercury 60J, OMC J/A, Mercury J/A
OSY400	Yamato 80, Yamato 102, Yamato 300 series
C Service Runabout & Hydro	OMC Speeditwin, Johnson P-50, Johnson PX-50, Johnson PO
C Racing Runabout & Hydro	Johnson PR, Evinrude Racing C, Hubbell Racing C
F45	45SS

4-Stroke Maximum Displacement Table

The classes listed below have a maximum displacement range for 4-stroke motors that is 1.5 times the maximum displacement for 2-stroke motors. The table below shows the maximum displacement range for 2-stroke and 4-stroke motors in each class.

Class	2-stroke maximum cc's	4-stroke maximum cc's
125ccR	128.75	193.13
250ccR	257.5	386.25
350ccR	350	525
500ccR	500	750
1100ccR	1,133	1,699.5
125ccH	128.75	193.13
175ccH	175	262.5
250ccH	257.5	386.25
350ccH	350	525
500ccH	500	750
700ccH	700	1050
1100ccH	1,133	1,699.5



Driver's Age

The following table describes the age requirements for drivers in the various PRO classes.

Class Name	Minimum Age Requirement
125cc Runabout	14 years
125cc Hydro	14 years
175cc Hydro	16 years
250cc Runabout	16 years
250cc Hydro	16 years
350cc Runabout	16 years
350cc Hydro	18 years
500cc Runabout	18 years
500cc Hydro	18 years
700cc Runabout	18 years
700cc Hydro	18 years
1100cc Runabout	Driver: 18 years Deck Rider: 16 years
1100cc Hydro	18 years
K PRO Runabout	9 - 16 years *
K PRO Hydro	9 - 16 years *
OSY400	14 years
C Service Runabout	14 years
C Service Hydro	14 years
C Racing Runabout	16 years
C Racing Hydro	16 years
Formula 45	16 years **

* Drivers may not compete in K PRO classes after the end of the racing season in which they turn 16 years of age. Drivers who are 9 and 10 years old may only race in the K PRO classes with restrictions. See "Motor-based and Restricted Classes", K PRO classes, Rule 6.

** Novice drivers must, for the 12 months following their first event in the Formula 45 class, tape or paint a 2" wide orange X on the rear of the motor cowling and on the top of the motor cowling on the boat in which they are competing. The X must extend from the top of the cowling to the bottom and must be visible to other drivers while the boat is on the race course.

Minimum Runabout Lengths

The following table describes the minimum length of runabouts in the PRO Category (the C Service and C Racing Runabout classes have additional design restrictions listed later in this manual). K PRO Runabouts must meet the hull requirements for the J Classes JR class.

Class Name	Minimum Runabout Length
K PRO Runabout	9' 5"
125cc Runabout	11' 6"
250cc Runabout	11' 6"
350cc Runabout	12'
500cc Runabout	13'
700cc Runabout	13'
1100cc Runabout	13'
C Service Runabout	13'
C Racing Runabout	13'

Runabout Restrictions

1. The PRO runabout racing hull must conform to the following:
 - a. The bottom shall have no steps or breaks in the longitudinal continuity.
 - b. The bottom must not have any of the following:
 - i. Tunnel
 - ii. A concavity greater than one-sixteenth (1/16) of an inch within the planning surface
 - iii. Any design that uses a tunnel effect
 - c. The side of the boat must form a continuous contour from a single stem to transom and must have no concavity greater than one-quarter (1/4) inch. For all classes except the C Service and C Racing classes, the "side" of the boat referred to in Section "c" shall be interpreted as the outside chine.
 - d. Trim tabs which are adjustable by the driver while underway shall not be allowed.
 - e. Rub rails will be allowed provided:
 - i. They are attached to the extreme outside of the boat, and
 - ii. They do not exceed 1.5" in depth and width.
2. Runabout lengths as specified in class rules shall be measured from top of transom along centerline to tip of bow excluding any hardware or other devices added to the boat to extend its overall length.

Hydroplane Restrictions

Sponsons on PRO hydroplanes shall not exceed 60% of the hull length.



Displacement-based Classes

Additional Class Restrictions

The following listed classes, sometimes known as "Bore and Stroke Classes", are generally unrestricted. This means that for these "unrestricted" classes, there are only the restrictions detailed in the previous "General Technical Summary", piston displacement, hull requirements, driver age requirements, and any additional class restrictions listed below.

Class	Additional Class Restriction(s)
125cc Runabout	125cc motors may only have one cylinder
125cc Hydro	125cc motors may only have one cylinder
175cc Hydro	None
250cc Runabout	None
250cc Hydro	None
350cc Runabout	None
350cc Hydro	None
500cc Runabout	None
500cc Hydro	Boats competing in the 500ccH class must utilize a reinforced cockpit with driver restraints.
700cc Runabout	Konig / Konny rotary-valve motors over 500cc up to and including 710cc; or GRM / VRP 2 cylinder reed valve motors with a minimum of 420cc and a maximum of 500cc displacement.
700cc Hydro	Boats competing in the 700ccH class must utilize a reinforced cockpit with driver restraints.
1100cc Runabout	The 1100ccR class requires two persons in the boat: a driver and a deck rider.
1100cc Hydro	Boats competing in the 1100ccH class must utilize a reinforced cockpit with driver restraints.
Formula 45	The only legal entries are entries that conform to the current OPC SST45 rules.

Points for Displacement-based Classes

In order to receive national points in closed course competition for displacement-based PRO classes (125cc, 175cc, 250cc, 350cc, 500cc, 700cc, and 1100cc) at least three of the starters in closed course racing must use a motor that was built or modified exclusively for the PRO displacement-based classes.

As evidence of being built or modified exclusively for PRO displacement-based racing, the motor must have the following characteristics:

- (1) the base fuel must be methanol, **and**
- (2) the motor must have an exhaust system that is external of the tower housing (mid-section).



Stock and Mod Motors (Cross-overs and Step-downs)

Motors legal for APBA's Stock and Mod Categories are also legal in the PRO Category's displacement-based classes. When these motors are run in their comparable PRO class based upon their piston displacement, they are referred to as "cross-overs" meaning that they have crossed over from their comparable Stock or Mod class.

At non-championship and non-record events, certain older motors, which utilize deflector scavenging, are allowed to run in a smaller class than their displacement. These motors are called "deflector step-downs".

The following table shows many motors utilized in the J, Stock and Mod categories and the unrestricted PRO classes where they are allowed to run as a "Cross-over" and/or as a "Deflector Step-down".

Stock or Mod Motor	"Cross-over" PRO Class	"Deflector Step-down" PRO Class	Stock Class	Mod Class	Cubic inches	CC's
OMC J/A	250		J, AS	FA	13.2	216.31
Mercury KG4H	250			AM	14.9	244.17
Mercury Mark 15	250			AM	14.9	244.17
Hot Rod A	250			AM	14.94	244.82
Sidewinder A	250		AS		14.94	244.82
Mercury J/A	350	250	J, AS		15.6	260.55
Mercury 20H	350	250		BM	19.9	326.10
Hot Rod B	350	250		BM	19.94	326.76
Sidewinder B	350	250	BS		19.94	326.76
Yamato 80	350		20SS	BM	19.99	327.58
Mercury 25SS	500	350	25SS	25M	22	360.51
Mercury 200	500	350		25M	22	360.51
OMC 22.1	500	350		25M	22.1	362.15
Yamato 102	500		CS	CM	24	393.29
Yamato 202	500				24	393.29
Yamato 300 series	500		CS		24	393.29
Mercury 25XS	500		25SS		24.4	399.84
Mercury 30H	500	350		CM	30	491.61
Mercury 55H	700	500		DM	39.6	648.93
Mercury 44XS	1100	500, 700	DS		43.9	719.39
Mercury 44	1100	500, 700		DM, FE	43.9	719.39
OMC 45SS	1100		45SS	FE	44.9	735.78
OMC 75	1100			FE	49.7	814.43
Mercury 650XS	1100	700		FE	49.9	817.71
Mercury 6 cyl	1100	700		FE	60	983.22
Merc 650	1100	700		FE	66.5	1089.74

Motor-based and Restricted Classes

The following classes have additional technical restrictions.

K PRO Hydro and Runabout

1. Motors

The following are approved legal motors for use in the K PRO classes.

- a. Mercury 60J
- b. OMC J/A 13.2 cu. in.
- c. Mercury 15 (15.9 cu. in. produced in 1999 or later)

2. The motor technical specifications for the OMC J/A and the Mercury 15 are identical to those for the JH / JR Classes. For the motor technical specifications refer to the current J Classes Rules.

3. Mercury 60J Motor Rules

- a. Motor must be run with the factory cowl without modifications if motor was manufactured with a cowling. It must be run with the usual manufacturer's markings.
- b. Tuned exhaust must be totally within the towerhousing without modifications.
- c. The factory crankcase and cylinder block must be used with a single carburetor. Modifications are permitted provided they do not conflict with general or safety rules.
- d. The bore and stroke must be per factory specifications.
- e. Motors may be modified for burning alcohol.

4. Boats:

The boat shall be either hydroplane or runabout type without weight restrictions. On Hydros, sponsons must not exceed 60% of the hull. Any hull that meets the definition of a PRO runabout may not compete in K PRO Hydro.

5. Other:

Drivers in the K PRO classes having less than four prior races in APBA competition must wear a white "X" on their helmets and are restricted to starting and racing "in the outside lanes of the course" and "at the rear of the field". The helmet "X" requirement and the driving restrictions outlined above apply to all drivers under the age of 12 regardless of any prior racing experience. (The "X" must have a stroke of at least 1.5" in width and must extend from ear to ear and from front to back, intersecting at the top of the helmet.)

6. 9 and 10 Year Old Driver Restrictions:

- a. Drivers who are 9 years old, racing an OMC J/A motor, may compete in the KPRO classes with a .562" round restrictor plate meeting J class specifications behind the carburetor.
- b. Drivers who are 10 years old, racing an OMC J/A motor, may compete in the KPRO classes with a .650" round restrictor plate meeting AX class specifications behind the carburetor.
- c. Drivers who are 9 years old, racing a Mercury 15 motor, may compete in the KPRO classes with the restrictor plate approved for the Mercury 15 in the J class (.252" x 1.044") behind the carburetor.
- d. Drivers who are 10 years old, racing a Mercury 15 may compete in the KPRO classes without a restrictor plate.

OSY400

Motors:

Yamato 80, Yamato 102, Yamato 300 Series

Note: It is the intention that the motor specifications for the Yamato 80, 102, and 300 series motors, when raced in the OSY400 class, be identical to motors used in the Stock Category.

The specifications for the Yamato 80 motor are identical to the Stock Outboard Category Class 20SS.

The specifications for the Yamato 102 and the Yamato 300-series motors are identical to the Stock Outboard Category C Stock classes.

Technical Rules:

1. The boat shall be hydroplane type. Sponsons must not exceed 60% of the hull. Any hull that meets the definition of a PRO runabout may not compete in the OSY400 class.
2. The following motors are legal:
 - a. A Yamato 80 which meets the rules and specifications for SO 20SS class.
 - b. A Yamato 102 which meets the rules and specifications for SO C Stock classes.
 - c. A Yamato 300-series which meets the rules and specifications for SO C Stock classes.
3. Must use gas and oil fuel that meets the APBA Modified Category requirements for fuel.
4. Must not change the motor height or angle while underway.
5. The class shall have a minimum overall weight of 396 lbs.

C Service Runabout & Hydro

The C Service classes are based only upon the American-built fishing and pleasure outboard motors listed below and approved for use in the C Service classes during the 1930's, 40's, and 50's.

Motors: OMC (Evinrude / Elto) Speeditwin, Johnson P-50 & PX-50, Johnson PO

Motor	Code	OMC Speeditwin	Johnson P-50 & PX-50	Johnson PO
Displacement		30 cubic inches	30 cubic inches	30 cubic inches
Number of cylinders		2 cylinders	2 cylinders	2 cylinders
Firing of cylinders		Opposed	opposed	opposed
Gear ratio		14:21 or 15:21	12:21	12:21
Carburetor		Vacturi AO-500 or original carburetor	Vacturi AO-500	Vacturi AO-500
Dimensions (in inches)	A	2.828 +/- .030	2.828 +/- .063	5.068 +/- .026
	C	3.016 +/- .030	3.016 +/- .063	5.256 +/- .026
	E	2.375 +/- .030	2.328 +/- .063	4.568 +/- .031
	G	2.750 +/- .050	2.750 +/- .050	2.750 +/- .050
	H	5.000 +/- .018	4.480 +/- .015	
	J	2.500 +/- .016	2.515 +/- .015	2.514 +/- .002
	K	2.500 +/- .009	2.240 +/- .008	
	L	5.125 +/- .016	4.250 +/- .010	
	Q	13 3/8 maximum	12 15/16 maximum	12 15/16 maximum
	R	2 3/4 minimum	3 1/16 minimum	3 1/16 minimum
	S	15/16 minimum	1 7/32 minimum	1 7/32 minimum
X	3 1/8 maximum	1 7/32 minimum	1 7/32 minimum	
Z	4 5/8 maximum	5 1/2 maximum	5 1/2 maximum	
Other		13/16 x 2 5/16 maximum crankcase inlet	may use the PR-style crankcase, crankshaft, and connecting rods	

Propeller Height: The maximum distance that the propeller blade may extend above the bottom of the boat is specified below. (The bottom is measured from the true bottom, i.e., it is not measured from any tunnel.) The maximum propeller height restriction applies to all racing including straightaway trials.

Hull / Motor	Maximum Propeller Height
Runabout with OMC Speeditwin motor	1 inch
Runabout with Johnson motor	1-1/4 inches
Hydro with OMC Speeditwin motor	1-1/4 inches
Hydro with Johnson motor	1-5/8 inches

Minimum Weights: The C Service classes have a minimum weight that the entire outfit (boat, motor, driver, jacket, helmet, and remaining fuel, as raced, less any accumulated water) must weigh. The following table lists the minimum weights that apply to the C Service classes.

Class Name	Minimum Weight
C Service Runabout	500 lbs
C Service Hydro	450 lbs

C Racing Runabout & Hydro

The C Racing classes are based only upon the American-built factory racing outboard motors listed below and approved for use in the C Racing classes during the 1930's, 40's, and 50's.

Motors: Johnson PR, Evinrude Racing C, Hubbell Racing C

Motor	Code	Johnson PR	Evinrude Racing C	Hubbell Racing C
Displacement		30 cubic inches	30 cubic inches	30 cubic inches
Number of cylinders		2 cylinders	2 cylinders	2 cylinders
Firing of cylinders		Opposed	opposed	opposed
Gear ratio		13:16 or 13:19	13:16 or 13:19	13:16 or 13:19
Carburetor		Vacturi AO-500	Vacturi AO-500	Vacturi AO-500
Dimensions (in inches)	A	2.859 +/- .063	2.859 +/- .063	2.859 +/- .063
	C	3.047 +/- .063	3.047 +/- .063	3.047 +/- .063
	E	2.328 +/- .063	2.328 +/- .063	2.328 +/- .063
	G	2.750 +/- .050	2.750 +/- .050	2.750 +/- .050
	H	4.490 +/- .025	4.490 +/- .025	4.490 +/- .025
	J	2.514 +/- .020	2.514 +/- .020	2.514 +/- .020
	L	4.250 +/- .020	4.250 +/- .020	4.250 +/- .020
	Q	13 7/8 maximum	13 7/8 maximum	13 7/8 maximum
	R	2 1/4 minimum	2 1/4 minimum	2 1/4 minimum
	S	11/16 minimum	11/16 minimum	11/16 minimum
Drive shaft housing length		12 7/8 minimum	12 7/8 minimum	12 7/8 minimum

Propeller Height: The maximum distance that the propeller blade may extend above the bottom of the boat is specified below. (The bottom is measured from the true bottom, i.e., it is not measured from any tunnel.) The maximum propeller height restriction applies to all racing including straightaway trials.

Hull	Maximum Propeller Height
Runabout	2 inches
Hydro	2 1/4 inches

Minimum Weights: The C Racing classes have a minimum weight that the entire outfit (boat, motor, driver, jacket, helmet, and remaining fuel, as raced, less any accumulated water) must weigh. The following table lists the minimum weights that apply to the C Racing classes.

Class Name	Minimum Weight
C Racing Runabout	500 lbs
C Racing Hydro	450 lbs

Motor Specification Diagrams

The following diagrams show the locations of the various "letter" specifications referred to in the Motor Specification Tables. Note: the "A" and "C" dimensions include the gasket, if any. If two adjoining surfaces both require the addition of gasket thickness to bring their measurements into tolerance, then multiple gaskets must be used. (Drawings created by Mike Cruver, Monroe, Washington.)

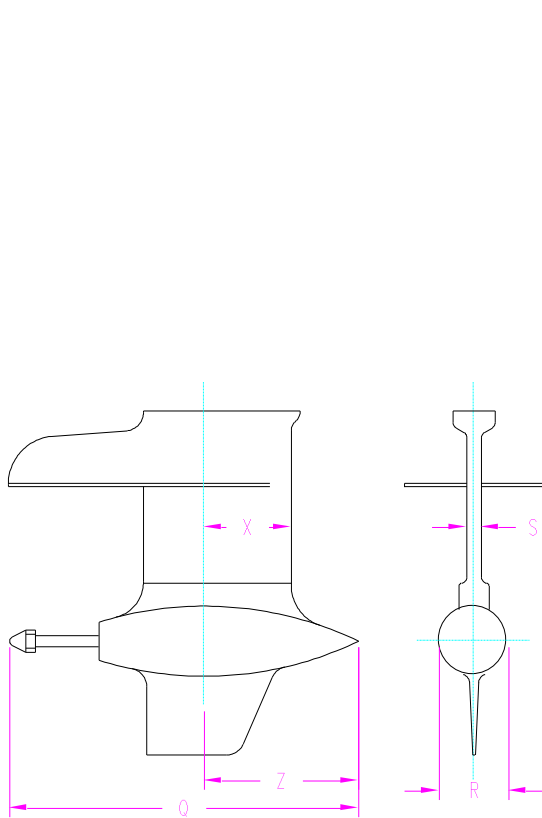


Figure 3. Lower unit

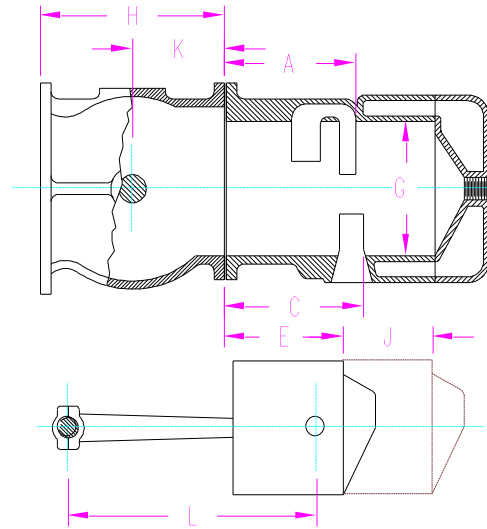


Figure 4. All C Service and C Racing powerheads except Johnson PO

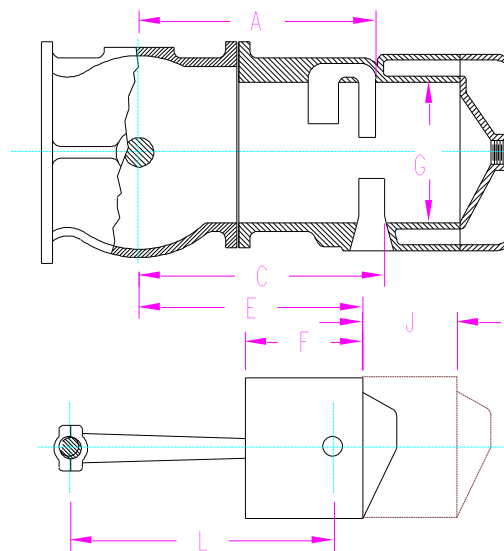


Figure 5. Johnson PO powerhead

C Service and C Racing Class Boat Rules

Boats utilized within the four C Service and C Racing classes have design restrictions as detailed below:

Runabouts:

1. Must be a displacement-type hull without steps in the bottom.
2. The bottom may not have any breaks in longitudinal or transverse continuity other than keel or lapstrake. The keel or lapstrake may have no greater depth than 3/4" when measured across the total width of the boat.
3. The design may not make use of external air pressure or tunnel effects.
4. Runabouts may not compete with hydros.
5. 13' runabouts built prior to 1986 which were legal when built may continue. Runabouts built after 1985 must meet the following dimensions. The measurement tolerance is +/- 1/16".
 - A. The minimum length at the centerline.
 - B. The minimum beam at the transom.
 - C. The minimum vertical depth measured at the transom from the deck to the keel.
 - D. The maximum tumblehome at amidships.
 - E. The minimum width of the deck 2' aft of the bow.
 - F. The minimum depth measured 2' aft of the bow.

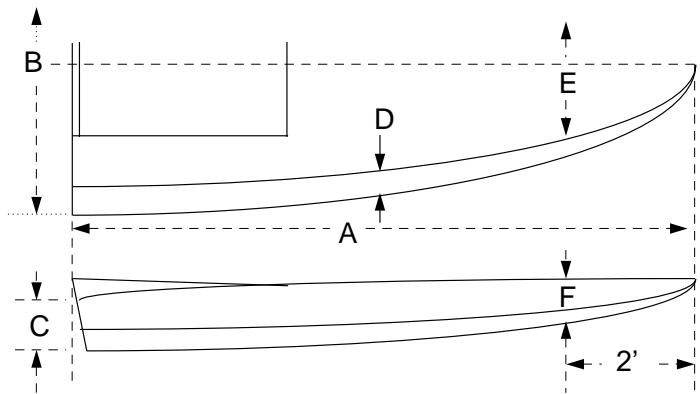


Figure 6. C Service and C Racing class runabout hull dimensions

Dimension	Specification
A	13' minimum
B	48" minimum
C	9" minimum
D	10" maximum
E	11" minimum
F	10" minimum

Hydros:

Hydros may be of pickle-fork design no matter when the boat was constructed.

C Service and C Racing Class Motor Rules

1. General C Service and C Racing Motor Rules:

- a. Motors may be modified within the specifications listed in the motor specifications. Ports may be squared on the top and bottom. Additional ports are not permitted.
- b. Additional lubricators are permitted.
- c. The OMC Speeditwin may utilize either the Vacturi AO-500 or the original factory carburetor. For all other motors, the Vacturi AO-500 is the only carburetor permitted.
- d. Mufflers may be removed, but tuned exhaust and intake systems are not permitted. Tank brackets similar to those manufactured by Wiseco or Newton are permitted.
- e. Motors must have fuel tanks of approximately the original shape and in approximately the original location and use gravity to flow fuel to the carburetor. The interchange of Johnson and OMC (Evinrude, Elto) tanks is permitted.
- f. Fuel will consist of either methanol and a lubricant or pump gasoline and pleasure use outboard motor oil. The fuel mixture may not contain nitro compounds or oxygen inducing additives.
- g. Only 2-bladed propellers are permitted. Cleaver-shaped propeller blades are not permitted.
- h. Service motors are legal Racing motors, but Racing motors may not run in Service classes.
- i. Ignition systems of any type are permitted. Systems other than the points-condenser-coil system must be hidden under the flywheel to maintain the original appearance.
- j. The lower unit shape and contour may be modified within the limits of the specifications.
- k. All parts manufactured before 1986 which meet the original manufacturer's specifications and which meet the current specifications are approved. All parts manufactured after 1985 which are reproductions of the originals and which meet the current specifications are approved. Any parts manufactured after 1985 which are not reproductions of the originals or which do not meet the current specifications must be approved in advance by the C Service and C Racing Technical Committee.
- l. The total overbore of the two cylinders shall not exceed .125" over standard bore of 2.750".



2. C Service Motors:

- a. Service motors must use the original motor manufacturer's crankcase, crankshaft, and cylinders, or replacement parts approved by the C Service and C Racing Technical Committee. The P-50 may utilize the PR-style crankcase, crankshaft, and connecting rods.
- b. Service motors may be modified within the limits of the specifications, except as specified.
- c. Material may not be added to the crankshaft, but crankshafts may be beveled, balanced, and shortened.
- d. Material may not be added to the inside of the crankcase or cylinder block so as to reduce the internal volume.
- e. Modifications are not permitted to the combustion chambers of the OMC Speeditwin, except it is allowed to increase the size of the chamfer around the spark plug hole on Speeditwin cylinders. The Johnson P-50 or PX-50 may only use the original stock P-50 cylinder heads. No changes may be made to the combustion chamber of the original stock P-50 cylinder head.
- f. No change may be made to the placement of the carburetor, nor will any additional intakes be permitted.
- g. Johnson Service motors shall use the original drive shaft housing and clamp bracket assembly or similar after market drive shaft housing with a minimum length of 12 7/8". OMC Service motors may use any drive shaft housing and clamp bracket assembly provided the drive shaft housing is not less than 10" in length (including any spacers).
- h. The interchange of Service motor power heads and lower units of different manufacturers shall not be permitted unless of similar specifications.
- i. Addition of a ball or roller bearing on the lower unit pinion shaft at the top of the pinion case is permitted.
- j. Original crankcase bushings may be replaced with any type of bearing and seal. Material may be added to the crankcase to accommodate bearings and seals provided the internal crankcase volume is unchanged.
- k. The Johnson P-50, PX-50, and PO may use the Johnson S-45 (16hp) stock lower unit provided it meets the specifications. The P-50 / PO is allowed to use the PR-50/55 pinion casting, provided it meets specifications.
- l. The OMC Speeditwin may use the original Evinrude/Elto, Wiseco, Eldredge, Go-Mc, Goslee, or Wagner lower unit.
- m. Additional approved replacement parts for the OMC Speeditwin are:
 - the Ezzo crankcase
 - the Miller crankcase
 - the OMC V4 "100 HP" connecting rod
- n. Additional approved replacement parts for the Johnson P-50/PX-50 are:
 - the PR-style crankcase, crankshaft, and connecting rods
 - the mid-'70's OMC 40HP connecting rod
 - the Williams Delrin connecting rod retainer
 - the Chrysler / Mercury connecting rod (Chrysler FA 335016-2, Mercury 818052-A6)
- o. Additional approved replacement parts for the Johnson PO:
 - the Chrysler / Mercury connecting rod (Chrysler FA 335016-2, Mercury 818052-A6)
 - the mid-'70's OMC 40HP connecting rod
 - the Williams Delrin connecting rod retainer



3. C Racing Motors:

- a. Racing motors must use the original drive shaft housing and clamp bracket assembly or similar after market copies.
- b. The interchange of parts between racing motors (Johnson, Evinrude, and Hubbell) is permitted provided they are of similar specifications.
- c. The interchange of Racing C parts manufactured by Hubbell, Vincent, Fuller, Jones, Myers, Harden, Wiseco, and Starnes is permitted provided they are of similar specifications.
- d. In addition, the following are approved replacement parts for use in the Racing classes:
 - the mid-'70's OMC 40HP connecting rod
 - the Williams Delrin connecting rod retainer
 - the Chrysler / Mercury connecting rod (Chrysler FA 335016-2, Mercury 818052-A6)



Conversion Tables

Fraction / Decimal Equivalents

Fraction	Decimal	Fraction	Decimal
1/64	.0156	33/64	.5156
1/32	.0313	17/32	.5313
3/64	.0469	35/64	.5469
1/16	.0625	9/16	.5625
5/64	.0781	37/64	.5781
3/32	.0938	19/32	.5938
7/64	.1094	39/64	.6094
1/8	.1250	5/8	.6250
9/64	.1406	41/64	.6406
5/32	.1563	21/32	.6563
11/64	.1719	43/64	.6719
3/16	.1875	11/16	.6875
13/64	.2031	45/64	.7031
7/32	.2188	23/32	.7188
15/64	.2344	47/64	.7344
1/4	.2500	3/4	.7500
17/64	.2656	49/64	.7656
9/32	.2813	25/32	.7813
19/64	.2969	51/64	.7969
5/16	.3125	13/16	.8125
21/64	.3281	53/64	.8281
11/32	.3438	27/32	.8438
23/64	.3594	55/64	.8594
3/8	.3750	7/8	.8750
25/64	.3906	57/64	.8906
13/32	.4063	29/32	.9063
27/64	.4219	59/64	.9219
7/16	.4375	15/16	.9375
29/64	.4531	61/64	.9531
15/32	.4688	31/32	.9688
31/64	.4844	63/64	.9844
1/2	.5000	1	1.0000

Metric Conversion

For purposes of motor inspection, the following metric conversion factors will apply:

- millimeters / 25.4 = inches
- inches x 25.4 = millimeters
- cubic centimeters / 16.387 = cubic inches
- cubic inches x 16.387 = cubic centimeters

The formulas for calculating motor displacement are:

- $(\text{Bore})^2 \times 0.7854 \times \text{Stroke} \times \text{No. of cyl.} = \text{Cubic Inches}$
- $(\text{Bore})^2 \times 0.7854 \times \text{Stroke} \times \text{No. of cyl.} \times 16.387 = \text{Cubic Centimeters}$