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Star Racing Information:

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800-841-STAR  
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123 Crisp Drive  
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Introduction

Welcome to the Pro Stock Motorcycle (PSM) program offered by Frank Hawley’s Drag Racing School and Star Racing. We are pleased that you want to learn more about drag racing and driving a drag racing motorcycle. To help you prepare for your visit we have prepared this Course Manual. It will let you know how we do things here at Frank Hawley’s Drag Racing School and what you can expect from the experience. If you read it carefully, you should feel more relaxed and confident when you arrive.

This handbook is only a basic overview of how our course operates. We will give you a much more detailed explanation of everything in the classroom and during our track practice sessions.

Goals

You will need the proper attitude and some realistic goals to obtain the full benefits from your time at the school. While we make every effort to offer you our best, a good attitude from you will further add to the benefits of your experience at the school and the new skills you take home with you. Treat your time here as a full-time learning experience. With that in mind, you should begin soaking up new knowledge before you ever see or sit on the motorcycles. Listen carefully to the instructors, watch closely to what is happening, and pay strict attention to what you are doing. It’s also very helpful to observe your fellow classmates and learn from their successes and mistakes along the way.

Your main goal should be to learn as much as possible in the time you are here, and you should not just be interested in how fast you’ll run. If your goal is to make a certain number of full quarter-mile runs or to go a certain speed, you may be disappointed. You will probably find that driving one of these 7-second machines is much more difficult and involved than you expected. Learning what to do when a problem develops and when to close the throttle during a problem situation is as much a part of the total drag race experience as a full quarter-mile run.

If at any point during any run you feel uncomfortable or think that something may be wrong, you should close the throttle, pull in the clutch, shut the engine off and bring the bike to a stop. Your goal should include learning as many details about how to drive as you can in your time here.

In other words, we believe that you can enjoy a valuable learning experience during our school, regardless of what your E.T. slip indicates.
Evaluation

At the school there are three basic areas in which we evaluate a driver’s performance.

1. **Good Judgment**

   This reflects a driver’s attitude, maturity and potential for success. Good judgment must be used in all situations not just while driving the bike. A person with good judgment generally has respect for their personal safety and the safety of those around them. They also take care of and properly use expensive equipment, whether it belongs to them or to someone else.

2. **Total Awareness**

   To be a safe, successful driver you need to know exactly what is happening at all times. You will need a total awareness of the bike’s position on the racetrack, a feel for the engine, and the ability to communicate the individual events of each run back to the instructor. A driver with total awareness is more likely to be prepared for unlikely events and will be better able to handle them.

3. **Performance**

   We are talking about driver performance and not necessarily bike performance. To perform well as a driver you will need to follow procedures correctly, follow the directions of your instructor, and drive smoothly, safely and quickly. It is a mistake to assume that a driver’s performance is based entirely on an E.T. slip.

**Driving a Pro Stock Motorcycle**

There is more to driving a motorcycle than most people think. Not many people realize that driving a bike is more of a mental exercise than a physical one. Therefore, a positive mental attitude is mandatory for success. If you are rested and in good physical condition, you will be a better driver since both your body and mind will be in the best condition to drive well. Using common sense in the saddle is most important; a heavy throttle is not always the answer to winning. It should become a programmed response for you to close the throttle if the bike is not handling properly or not going straight toward your target.
We also have a rule at the school:

If you close the throttle (completely) at any point during a run, the run is over. Once you close the throttle do not attempt to open it again or continue the run.

Drag Racing Terms Used at Frank Hawley’s Drag Racing School

There are a number of terms used in drag racing and some that we use at Frank Hawley’s Drag Racing School. They are listed here for your reference. You may already be familiar with most of them.

Burnout

Before a run, a drag bike spins the tire making it hot, sticky and free of debris. This gives the bike better traction and prevents the tire from spinning during the run.

Christmas Tree

The Christmas Tree got its name for the obvious reason since it somewhat resembles the holiday tree of the same name, because of all the lights that are affixed to it. The Tree includes dual “Pre-Stage” lights, three amber “Ready” lights, a green “Go” light and a red “Foul” light on each side, one set for each lane.

Here is a quick outline of how things work. After the bike has been properly staged, the starter flips a switch which begins the countdown to the green light. The amber lights blink down at half second intervals, helping the driver prepare himself for the green light. If the driver anticipates the green light and leaves too early, he or she will receive a red light, or “Foul” start for an automatic disqualification. This is how the “Full” tree works. It is used in some sportsman classes and in bracket racing.

In the professional ranks, heads up classes, alcohol classes and the super classes, all three amber lights are illuminated simultaneously prior to the green light coming on. The interval between the ambers coming on and the green light is .40 second and not .50 second as with a full tree.

Drive Around

To get students familiar with the motorcycle and the track, we allow each student to “drive around” the facility while being pushed by a pace vehicle. The bike will not be running, but you will be pushed at 30-50 mph down the track to let you
feel how a 10-inch tire steers the vehicle. You will also learn how the brakes and controls work. After going down the track once, you will be pushed back up to the starting line, which gives you a chance to get used to the turn around, stopping and steering without the engine running.

**E.T. Slip**

This is the computer printout of the elapsed time (E.T.) of a run and includes the driver’s reaction time, E.T.’s for the 60, 330, 660, 1000, and 1320 foot marks, time of the run, and the mph at the 660 foot mark and the finish line.

**Reaction Time**

Reaction time is the time that elapses between the instant that the amber light comes on and the time that the bike leaves (unblocks) the stage beam. The elapsed time clock does not start until the bike leaves the stage beam. Therefore, a good reaction time has absolutely no effect on your elapsed time. For this reason and the fact that you will have other things to concentrate on, we will not be concerned with reaction times while driving in our initial driving course. We will, however, discuss reaction times in our classroom.

**Run**

Each time the student stages, leaves the starting line and drives the motorcycle for any distance down the track, it is called a run.

**Shift Point**

The shift point is the place on the track where you will shift the bike into the next gear. This will be signaled by a shift light on the motorcycle.

**Shut Down Area**

The length of the track beyond the finish line is called the shut down area. It allows drivers to slow the bike and stop before leaving the track.

**Staging**

For each lane, there are two sets of small yellow bulbs located near the top of the tree above the amber lights. The highest set is the Pre-Stage lights; the lower set
is the Stage lights. As you slowly approach the starting line, keep your eyes on the Pre-Stage lights. When these lights come on, it is serving as a warning to you that you are nearing the actual Stage position. Slowly allow the bike to roll forward just an inch at a time. When the second set, or Stage lights come on, stop immediately. Both the Stage and the Pre-Stage yellow lights should now be on. You are now in the proper position to begin your run.

**Shut Off Point**

The shut off point is where you will close the throttle on the bike. Your instructor will show you where this point is on the track before each run.
Frank Hawley’s Drag Racing School Facilities

Track

Frank Hawley’s Drag Racing School conducts the George Bryce Pro Stock Motorcycle course at Auto Plus Raceway-Gainesville in Gainesville, Florida. Not every racetrack is the same. Too many racers have found out the hard way that some racetracks have shorter shut down areas than others. Check out every track you race on before you climb onto your bike. Take a drive down the return road and measure the length of the shut down area with a vehicle that has an odometer. Check for possible escape routes if you suddenly find yourself in a problem situation. Drive the complete length of the shut down area and check out each turn off road.

Classroom

The classroom is located in the building next to the staging lanes. The restrooms are located under the grandstands. This is a no-smoking area.

Pit Area

Our pit area is in the staging lanes.

Visitor Areas

Visitors may view the runs from the grandstands or from the pit area up to the yellow line at the head of the staging lanes. Visitors are not allowed in the classroom unless they have paid the Classroom Only (CRO) fee.

Medic

At all times when students are making runs, we have at least one medic present. The medic has an emergency vehicle with all of the recommended equipment on hand.

Waivers and Releases

We require all students and their guests to read and sign our safety procedures and releases. It is the driver’s responsibility to have his or her guests stop by the office and sign the forms.
School Motorcycles

Two bikes are available for classes. The specifications are on page 15.

Gauges

There is a shift light located in front of the center of the handlebars. When it lights, you should shift to the next gear.

There is an air shifter supply gauge on the left handlebar near the clutch lever. It tells how much air is in the tank, but students do not need to be concerned with this since the crew takes care of it.

Gears

There are two controls for the gears. The foot shift lever is located on the left side of the bike in front of the foot peg. The air shift button is located on the left handle bar.

The bikes have five gears. You change gears during a run by pushing the air shift button when the shift light comes on.

Equipment

We follow all NHRA rules concerning the motorcycles and driving equipment. If needed, we can provide you with leathers, helmet and gloves. It is important that you wear each piece of equipment properly. We will show you how to do this during your class. Please bring your own shoes, high tops or boots. Anything that covers your ankles will work.

This equipment is expensive, so please treat it with care. Once you have been issued equipment, it is important that you always return to the classroom and put the equipment on your chair when you are not wearing it. Never place a helmet or other equipment on the ground outside, not even for a minute. Fold the suit; do not just throw it onto the chair. Do not stuff your gloves into the helmet; lay them out flat to help keep them dry.

Improper use or damage to the equipment could result in a repair bill.
General Course Information

Rain Days

It does not happen very often, but sometimes we do get rain. If it rains for only part of the day, we will get in as much of the class as possible.

No student will get an incomplete class because of rain, we will always make arrangements to complete each course.

Number of Runs

Every student, regardless of the number of students in the class, will get the same number of runs during their course. Since our focus is on developing new skills, we will hold onto your E.T. slips until the end of the course so that you will not be distracted by the stats as you practice new techniques.

Classroom Sessions

Our classroom sessions are an important part of our classes. During your class time, you will receive instruction on what you will be doing during the course plus other valuable information from George Bryce, owner of Star Racing. The classroom sessions are open only to students registered in the course and others who have paid the Classroom Only (CRO) fee (see below).

Every run you make will be videotaped by a crew member. After the entire group has completed one step in the program, you will return to the classroom to watch your performance on video and to discuss it with the instructor.

If you have a guest who would like to sit in on the classroom sessions, he or she can pre-register sometime before your class starts. Call our office for details and the CRO fee.

Instructor

Our chief instructor is George Bryce, multi-World Champion driver and crew chief for Angelle Sampey and the late World Champion John Myers. Bryce personally instructs every class and is present for every run made by each student. He reviews all runs with students using a video replay of your performance. See page 16 for his full biography.
Getting Ready

Although getting dressed and going outside is something you do every day, here at the Drag Racing School this needs to be done correctly and quickly for safety and to save time. Dress in the classroom and leave your riding pants or suit and shoes on throughout the day (except when you go for lunch).

Course Outline

Motorcycle Orientation

After you are fitted with your equipment, we will give you a chance to familiarize yourself with the motorcycles and their controls while they are in the pit area.

To drive a bike properly, you must feel at home in the saddle. The placement and proper use of controls should be something that you know like the “back of your hand.” You should at no time while driving the bike need to look for controls or hesitate to use them properly.

Starting the Motorcycle

The crew will start the bike for you.

The Drive Around

The purpose of this exercise is to familiarize yourself with the “feel” of the bike in motion. The bike will not be running, but you will be pushed at 30-50 mph down the track to let you feel how a 10-inch tire steers the vehicle. You will also learn how the brakes and controls work. After going down the track once, you will be pushed back up to the starting line, which gives you a chance to get used to the turn around, stopping and steering without the engine running.

There are a few things you should know about being pushed. Always hold the clutch in, in case you bump the shifter pedal. Try to keep the bike straight up; these bikes are not designed to lean at all, even in turns. Leave room for the push bike when making your turns.

Burnouts

Burnouts are an important part of drag racing. When you do a burnout you will experience quite a thrill. There will be a lot of noise and the bike will vibrate. Do not
be intimidated, and pay attention to what you are doing. If while doing a burnout you feel unsure of yourself, squeeze the clutch and close the throttle immediately.

If you are unsure of yourself at any time, stop and ask the instructor before you get on the bike. If you are unsure of the steps to follow after you are in the saddle, wave off the start up procedures and ask the instructor your questions then.

Remember, you are here to learn; so rest assured, you will not be laughed at for what you might think is a foolish concern or question. We want you to be confident about what you are doing every step of the way.

The crew will move the bike to a spot in front of the water. The driver will then get on and aim the bike down the track toward the target where he or she wants to end up. Follow these steps to do a burnout:

1. Push the shift lever into third gear as you are rolling backwards.
2. Back the bike’s rear wheel into the water.
3. A crew member will run the starter motor. As it spins the engine, you will flip the power switch to start the bike’s motor.
4. Take a moment to feel the responsiveness of the engine. Blip the throttle to see how the motor responds.
5. Check the initial awkwardness of holding the front brake lever with your fingers as you “rap” the throttle with that hand. We will explain in class how you get familiar with the RPM.
6. Pop the clutch to get the tire smoking, keeping your hand on the brake and your left hand open over the clutch lever.
7. At first, hold the bike back with your feet. Pop the clutch, then move your feet out onto the ground to stabilize the bike.
8. Heat the tire until the instructor waves you to come forward out of the water.
9. When the tire grabs, roll off the throttle, pull the clutch in and coast to a stop.
10. Put the bike into first gear. Hold the clutch with your right hand and use your left hand on the shift lever in front of the foot peg. Pull up to shift into low gear. Remember that neutral is between first and second gear.

Burnouts are done in third gear. After the burnout, shift into first gear.

Short Runs

We will be teaching you to drive in progressive steps. Since the start of a run is critical to success, you will leave the line under full power but you will only be running about 60 feet down the track. This may seem like a very short run; but, believe us,
this will be all you need at this point. We will step up to full runs gradually. If you deviate from our outlined procedure, it may result in a repeated exercise. Each student has the same number of runs allotted and, therefore, repeated short runs will reduce the number of long runs at the end of the program for some students.

This is the procedure for doing a short run:

1. Do a complete burnout. (See instructions on previous page.)
2. Put the bike in first gear and do a dry hop.
3. The instructor will signal you to roll forward and stop you about one foot from pre-stage. At this point, the instructor will leave. It will be your responsibility to stage the bike.
4. Roll forward until the pre-stage yellow lights are on and then stop. One of the crew members will turn on the bike’s computer and tap you on the leg or back to let you know he has finished.
5. When you are ready to continue, roll slightly forward until staged and stop. Turn the throttle wide open.
6. Watch the tree for the amber lights. When the amber lights come on, pop the clutch.
7. Drive to the 60-foot cones under full power without shifting.
8. At the cone, roll off the throttle, pull in the clutch and roll to a stop.
9. Shut the engine off. Someone will come and push you back to the pit area.

**Full Runs**

This same procedure is going to be followed with each run getting longer until you are shifting into high gear under full power.

**A Very Important Point**

*On any run, if you have closed the throttle completely, you must not open the throttle again. The run is over. Do not hesitate, however, to close the throttle early if a problem situation develops.*

How quickly you advance to the point of making full power, full quarter-mile runs is up to you as an individual. Do not be discouraged if some students advance more quickly than you. Remember that some of our students have considerable racing experience and many are returning students who have been through the course before. Take your time and exercise caution.
Remember our initial words of caution: If there is ever a question in your mind about whether you have the bike under complete control, roll off the throttle, pull in the clutch, roll to a stop and shut the engine off.

Also, remember that our instructors are here to answer your questions at all times. Do not be afraid to ask, no matter how silly or foolish you might think your question is. We are called “Frank Hawley’s Drag Racing School” for the very obvious reason that we are all here to enjoy a learning experience.

By paying close attention to the instructors and using caution at all times, you will do just that, learn how to properly drive a 7-second motorcycle the fast way and the safe way.
# Pro Stock Motorcycle Specifications

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Star Racing: Four Decades of Championship Performance

In 1980, George Bryce and his wife, Jackie, founded Star Racing to support the motorcycle drag racing community. Their high performance motorcycle company has evolved into a successful mail-order parts business with engine building and machine shop services. The state-of-the art machine shop houses a 5-axis Haas CNC machine; Sunnen boring and honing equipment; DTS and Superflow engine dynos; a DynoJet chassis dyno; and a Spintron.

Celebrating the company’s 30th anniversary in 2010, Star Racing specializes in parts for older drag bikes and late model sport bikes. They stock a large and varied selection of race products including ignition and head components, valves, sprockets, gaskets, chains, wheels, brakes, nitrous systems, carbs, pistons and rings, clutch plates, and chassis components in their on-site warehouse.

Star Racing has also evolved into the development of late-model hot rod V-Twins for both the street and strip. They now offer a full line of S&S engines and support parts for drag racing enthusiasts, as well as for other motorcyclists, dealers and distributors. Their Web site, www.StarRacing.com, is regularly updated with the latest race press releases, photos, engines in stock and information on complete turnkey motorcycles.

George Bryce Biography

For more than 25 years, George Bryce has been the dynamic force behind the exciting NHRA Pro Stock Motorcycle series. To date, he has won six NHRA national championships and 78 event wins as a rider, owner or crew chief in 149 final rounds of competition.

Starting out as the owner/rider/tuner of the Star Racing machines, Bryce garnered enough knowledge in all three areas to become the most sought after man in the business today. He is credited with developing more talent than any other team owner in the history of the sport. Against all odds and with naysayers at every turn, George took a raw, untested Angelle Sampey and turned her into the most victorious female racer in NHRA history. He has had similar experiences with nearly a dozen other riders.

Untiring in his winning effort, George Bryce is widely acclaimed for his ability to manage all aspects of a successful racing operation. Melding the psychological and physical aspects of the sport has made him indispensable to potential professional racers, leading him to teach his own Pro Stock Motorcycle course at the acclaimed Frank Hawley Drag Racing School for 20 years. The classes are always full and repeat attendance speaks volumes as to George's knowledge of the sport.

In the thirty years since George and Jackie founded Star Racing, they have positioned the business as a premier motorcycle racing and R&D facility. Among other things, George remains team coach and chief tuner.