TOP FUEL DRAGSTER

Top Fuel Dragster

DESIGNATION

TF, preceded by car number.

Reserved for supercharged, fuel-burning Dragsters built specifically for drag racing competition.

- **Minimum Weight: 2,390 pounds (including driver) at conclusion of run.**
- **Technical Changes:**
  - **All proposed changes to vehicle design or components must be submitted in writing to the IHRA Technical Department for review and written approval.**
  - **Only safety-enhancing modifications will be considered for current implementation.**
  - **Performance-enhancing changes may be submitted but are not guaranteed approval, even for future use.**
  - **All submissions may require prototypes and are subject to any costs incurred by IHRA during the review process,**
  - **Which must be covered by the submitting party.**
  - **No unapproved changes may be used in competition.**
- **Component Modifications Include (but are not limited to):**
  - **Engine blocks**
  - **Cylinder heads**
  - **Intake manifolds**
  - **Injector hats**
  - **Fuel pumps**

- Superchargers
- Throttle pedal systems
- Body parts
- Parachute mounting boxes Wing components
- Electronics

- **Repairs:**
  - Repairs to accepted components are allowed only if they restore the part to its originally accepted configuration.
  - Permitted practices: thread repair, surface dressing, squaring of mating surfaces.
  - Any redesign, dimensional change, or reconfiguration during repair requires re-submission for IHRA approval.
- **Approval Process:**
  - Approval must be in writing and signed by an IHRA Technical representative.
  - Approval is not guaranteed before any specific event.
  - IHRA may revoke approval at any time.
- **Team Responsibility:**
  - It is the team's responsibility to consult the IHRA Technical Department before using any changed or repaired component.
  - Unauthorized use can result in disqualification, suspension, fines, or loss of points.
- **Penalties for Non-compliance:**
  - Non-approved components found on a vehicle during qualifying or eliminations may lead to severe penalties, including:
  - Loss of points
  - Monetary fines
  - Suspension or disqualification
  - IHRA may withhold prize money to cover unpaid fines.
  - Repeated or intentional violations may lead to harsher penalties.
- **Key Components Subject to Scrutiny Include:**
  - Injector hats
  - Superchargers (cases, inserts, rotors)
  - Intake manifolds
  - Cylinder heads (max 2.470" intake valves)

- Engine blocks
- Magnetos
- Ignition systems
- Data acquisition systems
- IHRA-mandated safety shutoff devices
- Front and rear wings
- Tires
- Nitromethane

ENGINE

ENGINE

- Internal-combustion, IHRA-accepted, 90° V8 automotive-style engine permitted.
- Must use a single camshaft; overhead or multi-cam configurations prohibited.
- Engine block: forged aluminum only; cast aluminum prohibited.

CYLINDER HEADS

One design allowed:

- 2 valves per cylinder max
- Intake valve: 35° ± 1°, 2.470" max
- Exhaust valve: 21° ± 1°, 1.925" max Intake/Exhaust pushrods: 0.500" O.D. max

ENGINE BLOCK SPECS

- Max displacement: 500 cid
- Bore size: 4.1875" ± .004"
- Bore spacing: 4.800" max
- Cam core: 60 mm max
- Cam-to-crank centerline: 5.400" max
- Lifters: 1.125" max
- IHRA-approved SFI 7.1 ballistic lower engine restraint required.
- Gasket retention: flange/lip on manifold/block mandatory.
- Inner oil diaper (specific part numbers optional, but must meet IHRA approval) mandatory.
- Carbon fiber/composite oil pans prohibited.

EXHAUST SYSTEM

- Double-pipe insulated headers required.
- Max width: 83"; Max height: 11.5" (measured at exhaust exit).

- **Pipe O.D.: 2.75” max; I.D. and O.D. must remain constant for at least 8” from flange.**
- **All pipes must be parallel and touch adjacent tubes.**

FUEL INJECTION

- **Throttle blades must have visible contrast for identification.**
- **Max air inlet: 65 in² (excluding shaft).**
- **Max injector hat height: 34” from crank centerline.**
- **Max forward protrusion: 10.375”**
- **Electronic/electrically controlled injection prohibited.**
- **Only IHRA-accepted injector modifications allowed by OEM.**

FUEL SYSTEM

- **Fuel cells allowed; pressurized tanks prohibited.**
- **Hydrostatic pressure testing required for most fuel lines: 750 psi for 30 seconds; labeling required.**
- **Only nitromethane (max 90%) and methanol permitted.**
- **No artificial fuel cooling/heating.**

INTAKE MANIFOLD

- **Setback and non-setback manifolds must be IHRA-approved.**
- **Manifold studs must meet IHRA specs.**
- **Burst panels meeting SFI 23.1 required; tethering and securing rules strictly enforced.**
- **Only one burst panel per opening; blocker plates must use ¼-20 steel studs.**
- **Tether and safety requirements apply based on configuration.**

OIL SYSTEM

- **Rear oil feed line (if used): stainless steel only.**
- **Pressure lines (except return or <30 psi): crimped and tested at 750 psi.**
- **No automotive-style canister filters.**
- **Lines must be guarded from blower belt and allow 1" movement if remote tank/filter is used.**

OIL RETENTION SYSTEM

Oil-retention pan required:

- **Material: .050" aluminum or .040" carbon fiber/Kevlar**
- **Must cover 3" ahead and behind crank pulley/motor plate.**
- **No extended aero enhancements under driver seat.**
- **Max width: frame rails; must seal completely.**
- **Front bulkhead: 4" min; Rear: 2" min; "Coved" design required.**
- **Nonflammable absorbent liner required.**

PAN PRESSURE SHUTOFF

- **IHRA-approved pan pressure shutoff system mandatory.**
- **Must link directly to IHRA-approved safety shutoff controller.**
- **Max switch activation pressure: 9 psi.**
- **Bypassing system function is prohibited.**

SUPERCHARGER

Roots-type only; 14-71 max (standard specs):

- **22 5/16" case length, 11.25" width, 19" rotor length**

- 5.840” rotor diameter (with stripping)
- Inlet: max 11.750” x 4.600”
- Only one-piece cases with removable plates permitted.
- Spacer below hat: 2” max; only aluminum/composite.
- Variable-speed units prohibited.
- SFI 14.3 restraint system required with fire-resistant strap covers.
- Belt guard required.

THROTTLE

- Must be driver foot-operated only.
- No electronics/pneumatics/hydraulics allowed, except for shutoff systems activated by engine-failure indicators (e.g., pan pressure).
- RPM control during burnouts via mechanical device only (must be IHRA approved).

VALVE COVERS

- Titanium only; no cast/composite.
- Must be secured with 5/16” steel studs (min 4130) and steel/titanium nuts.
- Must meet SFI Spec 14.4.

BREATHER/VENT SYSTEM

Catch can/vent tube system required:

- Quick-connects must have secondary locks (no tape).
- Double clamps and O-rings at all hose points.
- Hoses: min 1.25” ID
- Catch can: min 8 qt sump, baffled
- Inlets/Outlets: two 1 1/8” ID (or equivalent area) each
- IHRA-accepted hoses/tubes required.

DRIVETRAIN

Clutch, Flywheel, and Shielding

- Clutch and flywheel must meet SFI Spec 1.3; flywheel shield must meet SFI Spec 6.2 (max depth: 9.4”).
- A steel or titanium spacer (max 0.250") is allowed between the motor plate and flywheel shield.
- Max six clutch discs; aluminum flywheels are prohibited.
- Clutch exhaust filter is mandatory.
- Refer to IHRA General Regulations and SFI Spec 10.5 for detailed bellhousing and motor plate rules.

Driveline and Covering

- **Anti-blowback device is required.**
- **Driveshaft must be fully enclosed on both ends with steel (min 1/16”) or aluminum (min 1/8”) covers.**
- **Rear cover must fully enclose the coupler; front cover must extend from behind the reverser to the splice sleeve near the driver’s legs. Covers must be securely mounted.**

Rear End

- **Gear ratio locked to 3.20:1.**
- **Full-floating or live axle assemblies with steel axles are mandatory; titanium or other materials are prohibited.**
- **Maintenance per manufacturer is required.**
- **An IHRA-approved containment system is required for Strange L7400/L7200 rears (e.g., DRE ISMP-750 with CMH-250, Taylor REB, NitroSew NP 9310).**
- **Front-loading or pumpkin-style rear ends are not allowed at national events.**
- **Drive hub-type hubs and compatible wheels are mandatory.**

Reverser and Safety Shields

- **Reverser and neutral lockout release pin are required.**
- **A one-piece tunnel shield (titanium, chromoly, Docol, or carbon composite) must cover reverser and driveshaft, extending to within 2” of the driver's seat.**
- **Mounting: 1" flange, secured in at least 4 locations with 5/16” steel or titanium bolts.**
- **A tether for the reverser pin is required and must be operable with all safety gear in place.**
- **Pneumatic neutral lockout release mandatory.**
- **Ballistic shield meeting SFI Spec 4.1 required for reverser components.**

Transmission

- **Transmissions and torque converters are not allowed. Brakes**
- **Driver-controlled, non-automated four-wheel hydraulic disc brakes required with dual master cylinders.**
- **Carbon-fiber rotors with matching pads are mandatory; all other materials are prohibited.**
- **Steel brake lines and IHRA-accepted fireproof coverings (for flexible lines) are required.**
- **Brake lines near engine or blower drive must be shielded.**

- **Hand-brake handle: Minimum 5/16” thick × 1” wide (aluminum, steel, or titanium only); no lightening modifications.**

Steering

- **Quick-disconnect steering wheel meeting SFI Spec 42.1 required.**
- **Plating of steering components is prohibited.**

Suspension

- **No front or rear suspension allowed.**
- **Front spindle: Steel (min 4130) required; aluminum housing allowed.**
- **Other materials and plating are not allowed.**

Wheelie Bars

- **Mandatory and must be functional.**
- **Steel and titanium permitted; carbon fiber prohibited.**
- **Non-metallic wheels only.**
- **Pressure sensors and parachute nets allowed; no other attachments (e.g., cameras or extra sensors).**

CHASSIS

BALLAST

Permitted. Must be secured with a minimum of two 1/2-inch or four 3/8-inch Grade 8 fasteners per 100 pounds and be IHRA-accepted.

GROUND CLEARANCE

- **Minimum 3" from front to 12" behind front axle centerline; 2" for the rest of the car (static body).**

HELMET SHROUD

- **Must be made from min. .075" Grade 2 ASTM-B-265 titanium or .090" 4130 steel.**
- **Securely fastened using Grade 8 bolts and bosses.**
- **No attachments allowed to the shroud.**
- **Must be flush with or sealed to the roll cage.**
- **Bolt heads must be 1/2-inch hex-style.**

PARACHUTE

- **Dual parachutes required.**
- **Spring-loaded pilot chutes must be bright colored.**
- **Two separate shroud line mounts required using sleeved 1/2" min. Grade 8 bolts.**

- Mounting brackets: min. 3/16" 4130 steel or titanium.
- Shroud lines must be leather or IHRA-accepted covered to pack.
- Two IHRA-accepted parachute tethers required.
- Mounting options and approved tethers listed (e.g., Amick PARA-101REV1, Taylor 108, etc.)

MANUAL PARACHUTE LEVERS

- Parachutes must deploy at half-travel of the manual lever.

PARACHUTE AIR CYLINDER

- Must operate independently of the manual lever.
- Flame-resistant 1/4" air lines minimum.
- Teflon-lined AN lines must be 3AN or larger.

PARACHUTE CABLES

- Must use reinforced ends and proper crimps.

ROLL CAGE

- Must meet SFI Spec 10.5.
- Recertification yearly by certified inspector with serialized sticker.
- Routing of lines and wiring inside chassis allowed.

ROLL-CAGE PADDING

- Must meet SFI Spec 45.2.
- Padding must fully encase roll cage from bottom of helmet upward and all sides.
- All padding must be securely attached and flame-retardant covered.

WHEELBASE

- Min: 280 inches. Max: 300 inches (measured on long side).
- Side-to-side variation: max 2 inches.

WHEELS AND TIRES

TIRES

All vehicles must use four tires from the same manufacturer. Only Goodyear tires, as approved by IHRA, are permitted. The tire brand name, logo, and identification markings must remain visible and unaltered on all tires. Tires must meet size specifications when mounted and inflated to the manufacturer's recommended pressures. Drive tires must be, or have been, readily available to all competitors. Any tires currently supplied by a manufacturer or distributor must be accessible to all participants in the class. Minimum tire pressure at the start of a run is 6 psi.

WHEELS

Front wheels must meet SFI Spec 15.2. Rear 16-inch beadlock wheels must meet SFI Spec 15.4, with a minimum inner bead diameter of 14 3/4 inches (+/- 1/8 inch). All wheels must be of the drive hub type and compatible with the required drive hubs. Modifications or lightening not done by the manufacturer are prohibited. Wire wheels, rear wheel discs, and covers are prohibited. Wheels must comply with the specifications set by the tire manufacturer. Titanium wheel studs are not allowed.

WINGS

Front Wing

- **Front wing must comply with SFI Spec 49.2.**
- **Design must be NHRA-accepted before competition.**
- **Maximum width of front-wing element(s): 63 inches total.**
- **Spill plates must be:**
    - **Flat and vertical.**
    - **Have parallel inner and outer surfaces.**
    - **Maximum thickness of spill plates, including trailing edge of wicker: 0.550 inch.**
    - **Wicker is only allowed on the trailing edge.**
    - **Lower edge of spill plates may not exceed 5.00 inches above ground level.**

Rear Wing and Supports

- **Rear wing supports must meet SFI Spec 2.3.**
- **Rear wing must meet SFI Spec 49.1.**
- **SFI tag must be affixed to the underside of main wing element, near the right spill plate.**
- **Wing configuration: Only one allowed, with three elements, and must be NHRA-accepted.**
- **Total rear wing area (all elements):**
- **Minimum: 1,450 square inches**
- **Maximum: 1,500 square inches**
- **Rear wing trailing edge may not extend more than 50 inches behind the centerline of the rear axle.**
- **Maximum height from trailing edge to ground: 90 inches (vertical measurement).**

Strut mounting points:

- **Must not be forward of motor plate.**
- **Distance between main and secondary points: 30 inches minimum.**

- **No wing or support parts may attach to engine, bellhousing, or transmission.**

Fastener requirements:

- **Main strut to chassis: 7/16-inch, Grade 5 minimum**
- **Adjusting rods: 5/16-inch, Grade 5 minimum**
- **All other wing fasteners: 3/8-inch, Grade 5 minimum**
- **Ball-lock pins prohibited for attachment**
- **Wing movement or adjustment during a run is prohibited.**

Spill Plates Must be:

- **Flat and vertical**
- **Inner and outer surfaces parallel**
- **Maximum thickness including trailing edge of wicker: 0.650 inch**
- **Wicker allowed on trailing edge only, must be flat/straight**
- **Spill plate size limit:**
- **No longer than 31 inches diagonally, from front bottom to back top**
- **Must fit within a 22-inch by 22-inch square box**
- **Lips or curves prohibited**
- **Spill plate must attach at a right angle, no radius at joint**

Safety Cable Requirement

- **An independent cable must wrap around each end of main wing element**
- **Cable must connect to both parachute release cables**
- **Purpose: ensures automatic parachute deployment if main element detaches or breaks**
- **Cable must be wrapped on the outside of the support structure and secured (e.g., taped or wired) to prevent sliding**

Wing Angle & Specifications

- **Main element angle:**
- **Max positive: 1°**
- **Min negative: -2° relative to racing surface**
- **Rear wing must remain unaltered from manufacturer specifications.**

ELECTRICAL

ELECTRICAL COMPONENTS

Permitted electrical/electronic components are limited to ignition systems, data recorders, electrical gauges/indicators, automated fire extinguishers, fuel systems, clutch control, and engine shutoff systems.

Timers to control pneumatic or electric fuel/clutch control valves are allowed, but all such functions must be activated by a wide-open throttle switch.

IGNITION SWITCH
Vehicles must have a functional on/off ignition switch within easy reach of the driver that can shut off the entire ignition system.

IGNITION SYSTEMS
Only IHRA-approved ignition systems/components may be used. The MSD 8771 is the only currently accepted unit. Individual cylinder timing is allowed. Any systems or components not listed must be approved by IHRA before use. Components must be used as per the manufacturer's instructions unless otherwise authorized. A maximum of two spark plugs per cylinder is allowed. Spark plug tubes are required and must be stainless steel or aluminum. Removable or pin-type timing pointers are not allowed.

ENGINE RPM CONTROLLER
Use of the MSD 8771 RPM controller is mandatory. Only the latest IHRA-approved firmware is permitted.

MAGNETOS
Only two magnetos allowed, limited to MSD Pro Mag models 8130 and 8140. All magnetos must be tested, certified, and sealed by MSD Ignition before competition use. Contact MSD for RMA and submit to their testing facility. OEM pin-out orientation must be maintained.

SYSTEM AIR PRESSURE SHUTOFF SWITCH
A normally open 120psi air pressure switch must be installed to prevent engine start if system air pressure is below 120psi. If air pressure drops during a run, the switch must cut ignition. It must be wired in series with the ignition "run enable" wire. It may optionally control throttle release and fuel shutoff but must not interrupt power to the Electrimotion Safety Device.

IHRA Top Fuel Regulations
Data Recorder

- **Data recorders are permitted if IHRA-accepted.**
- **Approved systems include: Racepak Pro III, Pro II, Pro 1B, and Pro I.**
- **May be used with manufacturer's digital dash.**

- **All Pro III outputs must be approved by IHRA Tech Department before use.**
- **Only IHRA-approved inputs may be used; non-approved inputs require IHRA acceptance.**
- **IHRA Tech has final authority over all sensors and inputs. Use of non-approved inputs may result in penalties.**
- **PRC Systems Event Data Recorders (models EDR1.0 or EDR 2.0) and Wire Assemblies (WA1.0 or WA 2.0) are permitted.**
- **Must be installed per manufacturer's instructions.**

Shutoff Device

- **Required: Electrimotion Top Fuel Safety Shutoff Controller Kit (models SB001FC, SB002FC, or CM3.0) and Receiver (RF001).**
- **Must disengage throttle, shut fuel pump, kill ignition, and deploy parachutes when "Wall RF Signal" activates.**
- **All functions must be data-logged.**

- System override only allowed via parachute deployment.
- Other uses of this equipment are prohibited. Tow Vehicles
- Full-size vehicles not allowed at the starting line; starting cart required (no larger than a standard golf cart without canopy).
- Full-size chase vehicles are permitted.

Warm-Ups

- Vehicle must stay fully within pit space during engine warm-up.
- Rear tires cannot extend past trailer.
- If in an end-spot or adjacent trailer doesn't fully block the vehicle, a tow vehicle must be parked beside it during warm-up.
- A pedal stop must limit throttle to 75% open.
- Pneumatic throttle devices are prohibited.

Jackstands

- Must provide a minimum of 7 inches ground clearance.

DRIVER

Arm Restraints Mandatory.

Credentials

A valid IHRA competition license is required.

Driver Restraint System

- Minimum 7-point harness meeting SFI 16.1 or 16.5 required.
- Belts may not be wrapped around frame rails or chassis tubing.
- All straps must be chassis-mounted per manufacturer specs.
- Brackets must be either welded or bolted; if bolted through chassis tube, bushings must be welded in place.
- Mounting bolts must be in double shear and be shoulder bolt designs.
- All belts must be covered in fire-resistant material.
- Seat belt mounts must be shielded with sheet metal or fireproof material.
- System must be recertified every two years.

Head and Neck Restraint

- Mandatory use of SFI 38.1 approved device from staging to return road.
- Must be properly installed and connected per manufacturer instructions.

- **Device must have a valid SFI label. Helmet**
- **Full-face helmet required (Snell SA2015/SA2020 or FIA 8860-2010, 8859-2015, 8859-2024, 8860-2018).**
- **Mandatory: Eject Helmet Removal System (PN SDR 890-01-30) or Stand 21 Lid Lifter (SFI 3.3).**

Protective Equipment

- **Mandatory:**
  - **Driver suit SFI 3.2A/20**
  - **SFI 3.3 long-sleeve shirt and pants**
  - **SFI 3.3/20 gloves and boots**
  - **Glove liners (flame-resistant)**
  - **SFI 3.3 socks, head sock, and 3.3/10 helmet skirt**
  - **One-piece driver suit**
  - **Suits must be recertified every 5 years.**