



# FUEL ALTERED

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### DESIGNATION

FA, preceded by car number.

Reserved for naturally aspirated or supercharged, nitro-burning Fuel Alteredds

### ENGINE

#### ENGINE BLOCK SPECS

- Dry sump system tank must be within framerails.
- 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

#### FUEL INJECTION

- Throttle blades must have visible contrast for identification.

#### FUEL SYSTEM

- Braided steel lines with steel fittings mandatory inside cockpit.
- Fuel cells allowed; pressurized tanks prohibited.
- Only nitromethane (minimum 80%) and methanol permitted.

#### INTAKE MANIFOLD

- Manifold studs must be aluminum break-away and 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

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- 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
- 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 or aluminum only; no cast/composite.
- Must be secured with 5/16" steel studs (min 4130) and steel/titanium nuts.
- HEMI style heads: Must use SFI 14.4 ballistic bag or metallic spark plug cover/shield. Shield must be made of a minimum of .083" Titanium, or .093" aluminum.

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### **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.
- 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**

- Full-floating or live axle assemblies with steel axles are mandatory; titanium or other materials are prohibited.
- Maintenance per manufacturer is required.

### **Reverser and Safety Shields**

- Reverser and neutral lockout release pin are required.
- Release pin must have a cable lanyard that is accessible by the driver or safety crew
- Ballistic shield meeting SFI Spec 4.1 required for reverser components.

### **Transmission**

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- Automatic transmissions and torque converters are not allowed.

### Brakes

- Driver-controlled, non-automated four-wheel hydraulic disc brakes required with dual master cylinders.
- 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 x 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

- 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).
- Oil pans and headers are excluded from ground clearance measurements.

### MOUNTING HARDWARE

### PARACHUTE

- Dual parachutes required.

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- 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.

## **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.
- Cylinder must be securely mounted with proper reinforcement if on tinwork or chassis.

## **PARACHUTE CABLES**

- Must use reinforced ends and proper crimps.
- Any wire through body/tinwork must be protected by a fixed barrier.

## **ROLL CAGE**

- Must meet SFI Spec 10.1 or 10.5.
- Recertification yearly by IHRA with serialized sticker.
- Routing of lines and wiring inside chassis allowed.

## **ROLL-CAGE PADDING**

- Must meet SFI Spec 45.2.
- All padding must be securely attached and flame-retardant covered.

## **WHEELBASE**

- Max: 125 inches (measured on long side).
- Side-to-side variation: max 2 inches.

## **TOW-STRAP HOOPS**

- Required on front lower chassis.
- Must accommodate 2" tow hook.

## **WHEELS AND TIRES**

### TIRES

Tires must meet size specifications when mounted and inflated to the manufacturer's recommended pressures. Any tires currently supplied by a manufacturer or distributor must be accessible to all participants in the class. Refer to IHRA General Regulations 5:1.

### WHEELS

Front wheels must meet SFI Spec 15.2. Rear 16-inch bead lock wheels must meet SFI Spec 15.3 or 15.4. Modifications or lightening not done by the manufacturer are prohibited. Wire wheels, rear wheel discs, and covers are prohibited. Titanium wheel studs are not allowed.

## SHIELDING

### IHRA Fuel Altered Safety Requirements (Summary)

#### Seat Requirements

- Seat bucket must be aluminum or steel.
- Seat insert must be custom-fit energy-absorbing foam, labeled with driver name, car serial number, and manufacture date.
- Minimum  $\frac{3}{4}$ " foam on seat bottom, fully contoured to driver, and IHRA-approved.
- Flame-retardant seat covering required.
- No pillows, boosters, or extra padding allowed.

## ELECTRICAL

### ELECTRICAL COMPONENTS

Permitted electrical/electronic components are limited to ignition systems, data recorders, electrical gauges/indicators, automated fire extinguishers, fuel systems, and engine shutoff systems. Timers to control pneumatic or electric fuel control valves are allowed, but all such functions must be activated by a wide-open throttle switch. No clutch control allowed.

### 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

Any ignition system/component may be used. 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.

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### **MAGNETOS**

**Maximum two magnetos allowed.**

### **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.**

## **SUPPORT GROUP**

### **IHRA Fuel Altered Regulations Summary**

#### **Data Recorder**

- **Data recorders are permitted**
- **May be used with manufacturer's digital dash.**
- **IHRA Tech has final authority over all sensors and inputs. Use of non-approved inputs may result in penalties.**

#### **Fire Extinguisher System**

- **Must meet SFI Spec 17.1.**
- **Minimum 20-pound IHRA-approved fire system required.**
- **At least 15 pounds must be directed into the engine compartment (nozzles in front of headers).**
- **Remaining 5 pounds should go to the driver's area (nozzle at feet).**
- **Install per manufacturer specs; gauges must be visible.**
- **Fire activation cables must be routed inside framerail past engine/bellhousing.**
- **Brackets must be aluminum or steel; carbon fiber bottles are not allowed.**
- **System must be manually activated (can also use pneumatic or thermal activation).**

#### **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**

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- 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. Refer to IHRA General Regulations Section 10:3.

### **Credentials**

A valid IHRA 2B competition license is required. See IHRA General Regulations 10:4.

### **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. See IHRA General Regulations 10:5.

### **Fresh Air System**

- Recommended: 3000 PSI, 112 cubic inch system.
- Must be built/authorized by helmet manufacturer.
- Helmet must meet FIA, SFI, and/or Snell specs with air system installed.



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- Compressed air only, from a constant-pressure supply.
- Bottle must meet DOT 1800-lb spec and be engraved accordingly.
- Secure mounting mandatory; no hose clamps or zip ties. See IHRA General Regulations 9:8.

### **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/SA2025 or FIA 8860-2010, 8859-2015, 8859-2024, 8860-2018).
- Chin strap use is required. See IHRA General Regulations 10:7.

### **Protective Equipment**

- **Mandatory:**
  - One Piece 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
- An SFI 3.3/20 shoe extending 6" above heel can replace 3.3/20 boot.