

- Both sides must be compliant with the spec's defined for the particular engine being checked (not an average).
- If the measurement is found to be non-compliant, it may be checked by two other tech officials (maximum three tests).

402 SWIFT, KA100, X30 and SSE ENGINE SPECIFICATION

- 402.1** All engine specifications shall be per the SKUSA website PDF links and rules below. The basic intent of the class is to run the engines as supplied by the manufacturer without modification or substitution of components. All engines used in SKUSA competition must be USA models originally sold in the USA. Links to Engine Spec PDFs: superkartsusa.com/rulebook.html
- 402.2 Carburetors, Air Box (Inlet Silencers) and Adapters**
- 402.2.1 Carburetors:** OEM as supplied from the engine manufacturer. Throttle shaft, butterfly and butterfly screw must remain stock. Surface finish of venturi and bore must remain as manufactured. All dimensions shown in PDF apply, no additional machining permitted. The color of diaphragms and gaskets is non-tech so long as the dimensions defined in the PDF fiche are observed. Auxiliary return spring is required for all butterfly type carbs.
- 402.2.2 Carburetors - SSE:**
- 402.2.2.1 Tillotson HB15A:** Venturi diameter is Max 34mm (1.339") – Throttle bore diameter maximum is 36mm (1.417") Must be run in position shown on fiche .pdf – Auxiliary return spring required.
- 402.2.2.2 Dellorto VHSH30:** Approved for usage on the SSE. All size jets, tubes and slides are legal so long as they are original Dellorto items. The carburetor must otherwise be run as supplied with no additional machine work or changes permitted.
- Two mounting systems are approved:**
- 402.2.2.2.1 A - IAME conveyor Z2NB41000,** rubber carb flange IZB-41551 and flange IZB-41350N may be used.
- 402.2.2.2.2 B - IAME conveyor IZB-41040** and the rubber carb mounting flange IFG-30900 Any external fuel pump may be used
- 402.2.3 Air Box/Inlet Silencer:** The position of the air box is non-tech. (Note special requirements for IAME Micro/Mini Swift, IAME X30, KA100 and SSE as posted in fiche / PDFs.) Large or full cover wraps / graphics / coatings are not permitted. The final determination of compliance rests with the tech inspector. If there is doubt about compliance, ask before using. Decals may be removed at the discretion of the tech inspector at any time to verify compliance (no additional holes). No additional holes other than the air intake tubes and one .200" water drain hole are permitted. One strip of tape may be used at the connection of the rubber mounting flange and the silencer body. One strip of tape may be used to secure the inlet tubes. Silicone or other sealant may be used to secure inlet tubes. Foam filter is required as noted in the factory documents. If the rubber adapter is reversible, it may only be cut on one side, with the altered one to be located inside the body of the silencer (rain conditions where no foam filter is required).
- 402.2.4 Reed Cage Assembly:** Only OEM fiberglass reeds are allowed with a minimum thickness of 0.012". Reeds must be OEM. Sanding, cutting or removal of any material is illegal. Manifold shape and design shall remain as manufactured. Grinding, polishing, trimming or reshaping the reed cage or manifold is illegal. Resurfacing the flat rubber contact surface to reeds and gasket surface and deburring and minor grinding at reed attachment screw holes are allowed. Reed cage plates shall remain as manufactured and not be altered in any way. Reed screws are non-tech.

- 402.2.5 Reed Cage Assembly - SSE:** Single reed petals (no two stage systems). Minimum petal thickness .012". Stops and stiffeners are open. No modifications to the reed box or manifold.
- 402.3 Starter Batteries:** Must be of a sealed or dry cell design. All batteries used must be of enough capacity to start the engine.
- 402.3.1 Mounting:** All batteries are to be labeled with the kart number. THIS IS A TECH ITEM. They are to be affixed in one of the following manners: (1) Factory IAME box and velcro strap with one 175-lb tie wrap, or (2) Aftermarket battery box with minimum of two 175-lb tie wraps, at least one of which is installed around the chassis.
- 402.4 Starters:** It is expected that the competitor can demonstrate on-board starting when requested by a tech official.
- 402.4.1** In the event of a starting system component failure, an auxiliary starter may be used without penalty. The intent of this rule update is to allow temporary auxiliary starting for engines in the event of a starter system failure. It is not intended to replace the on-board system. Use of an auxiliary starter on consecutive race days may result in penalties being assessed. A small hole is allowed in the side pod to facilitate the use of an auxiliary starter in the event of starting a 'loaded up' engine. The use of universal joints to clear a non-drilled side pod is discouraged.
- 402.4.2** Regardless of the starting method employed, all starting system components (including charging system) must always be installed per OEM specifications. Failure to comply with this requirement will result in disqualification.
- 402.4.3** Any competitor using auxiliary starting may be subject to additional tech to verify complete starter system installation and legitimate component failure at the discretion of the Race Director.
- 402.5 Clutch:** OEM as per engine manufacturer PDF. Clutch engagement must not exceed 6000 RPM (Swift 5000 RPM). Slip must not be adjustable. Clutch components may not contain significant amounts of any oil or grease. Saturated friction surfaces are grounds for exclusion. Drive sprocket and drum to be OEM factory supplied - no after-market items allowed. Only OEM drums without holes are permitted per the factory fiche
- 402.5.1 Optional test procedure:** Place kart on stand in a safe location with axle free to turn with no obstructions. Start engine. Apply throttle a few times to ensure response. Holding throttle and brake on at same time, apply full throttle against full braking without tire rotation. It may require a few attempts to get a clean pull. Read either competitor's gauge or have a clip-on tech gauge to read RPM at highest reading. RPM's exceeding 6000 for X30 and KA100 (5000 for SWIFT) are non-compliant. A specified carburetor setting may be required.
- 402.6 Exhaust:** All exhaust components, including header, are to remain intact during the race and until technical inspection. Intact is defined as complete as manufactured with no cracks, modifications, or missing components. Leaks at the header juncture or at end cap may result in penalties. It is highly recommended to seal these areas with silicone sealant. No repairs are allowed without prior approval of the Technical Director.
- 402.6.1** All exhaust silencers and headers to be run as factory supplied with no alterations. Details for each individual engine are shown in the factory fiche documents.

402.6.1.1 The following factory fiche muffler dimensions have been revised.

Factory Fiche	Page	New Dimension
Mini Swift	6	T: 600 +/- 3
KA100	7	M: 692 +/- 3
X30	10	T: 690 +/- 3

- 402.6.2 All engines / all classes:** No spacers allowed between the header and the cylinder - single factory OEM gasket only - minimum thickness 1.3mm
- 402.6.3** Any means to by-pass an exhaust restrictor is grounds for disqualification. This includes but is not limited to leaking exhaust manifolds, gaskets, or connection joints.

402.6.4 Exhaust Headers for Restricted Classes:

CLASS	IAME PART#	DIAMETER
Micro Swift	A85365	16mm
KA100 Junior	IAH-02011	22mm
X30 Junior	X30125370J	22.7

- 402.6.5 SSE Pipe and Silencer:** As factory supplied with kit (pipe 21/M/18 - silencer Elto - 28mm straight tube U-bend). Up to a 20mm thick aluminum spacer with 1mm gasket both sides allowed. May be run without the aluminum spacer with a one 1mm gasket.

- 402.7 Cylinder damage:** Cylinders that have internal damage may not be acceptable for SKUSA competition. Small nicks in ports from debris such as broken circlips, ring segments and the like are acceptable on any edge of the port. Larger damage on the top of the port may not be acceptable if the damage is above the height of the top of the exhaust port. Wrist pin damage resulting in grooving of the cylinder above the top of the exhaust port is not acceptable. It is strongly recommended that any questionable cylinder be approved in advance, at the Tech Director's discretion for a specific event.
- 402.8 Crankcases:** Main bearing pockets may be repaired with inserts, but the crankshaft centerline must not be altered. All other dimensions must remain as published in the specifications.
- 402.9 Piston/Wrist Pins/Ring:** As supplied by manufacturer; must conform to dimensions in PDF. No modifications allowed. Circlips are non-tech.
- 402.10 Radiator (X30 and SSE):** One aftermarket radiator allowed to replace the IAME radiator, subject to the following: No auxiliary fans; No additional scoops, air dams or other aerodynamic additions, Water pump is non-tech but must be powered from axle. Electric pumps not allowed. Thermostat optional. Height 50cm maximum from ground (excluding filler cap). Maximum dimension: Height: 19.5" Width: 12" Depth: 3.250" (496mm x 305mm x 83mm). Shield on rear allowed to prevent damage from track debris.
- 402.10.1** SSE may use multiple radiators.
- 402.11 Spark Plugs:** Only the following spark plugs may be used:
- 402.11.1 Swift:** NGK BR_EG or B_EG or DENSO W_ESZU or Autolite AR50, AR51, AR52 and AR53.
- 402.11.2 KA100:** NGK B10EG, NGK BR10EG, NGK 6252K-105, NGK R6254-105
- 402.11.3 X30:** NGK R6252K-105 or NGK R6254E-105. In the event of a rain race, NGK BR10EG may be used.
- 402.11.4 SSE:** NGK R6252K-105, NGK R6254E-105, NGK BR10EG, NGK B10EG.
- 402.11.5** 18.5mm minimum length - all plugs, all classes. Also see [Section 401.3](#)
- 402.12 Spark Plug Caps:** Only the following are allowed: PVL (IAME part number 10544) or NGK (Part number TB05EMA).
- 402.13 Ignition Timing - Swift:** Open
- 402.14 Ignition Timing - KA100:** 0.106" BTBC Max // 0.080" BTDC Min
- 402.15 Ignition Timing - SSE:** 0.090" BTDC Max
- 402.16 Ignition Timing - X30:**
- Key thickness open.
 - Keyway slot width in the flywheel and the crankshaft is 0.103"
 - Four holes in the stator are open.

- Four stator holding screws are 0.187" No-Go minimum diameter.
- Procedure for inspection using the top drawing on the factory fiche on page 7 is as follows:
 - Install a dial indicator into the spark plug hole and zero at top dead center – Rotate the engine at least one turn of the indicator before TDC – Rotate the engine until the needle just arrives at TDC – The thin line on the flywheel must strike somewhere within the wider molded center line on the stator, or to the right side of this line

402.17 Reed cage screws are non-tech.

402.18 No external modifications of any type allowed including air scoops or heat retention additions.

402.19 The IAME profile gauges must be able to enter the head or header area completely in order to verify the configuration/shape. It is the responsibility of the competitor to ensure the components are free of excess carbon buildup. In post race inspection, the competitor will be given the opportunity to clean the head or header with a rag (**one minute**, no abrasives, **chemical cleaners** or scrapers allowed). If the gauge still will not properly enter to verify the shape, disqualification may occur.

402.20 Bearings, Seals, O-rings, and Gaskets: may be replaced with equivalent from aftermarket suppliers. No ceramic or exotic material bearing allowed. Changing cylinder base gasket thickness to adjust port duration is allowed. Changing head shim to adjust squish is allowed.

402.21 Ports: must remain as manufactured condition. No grinding or polishing of any kind.

ENGINE	EXHAUST	EXHAUST LIGHT TEST	INLET
Swift	1.230"	1.095"	0.585"
KA100	1.420"	1.295"	
X30	1.340"	1.215"	
SSE	1.200"		

402.22 Fuel System: No additional components are permitted. No external fuel pumps. Any fuel filter, if utilized, must be placed between the fuel tank and carburetor.

402.23 Head Squish Minimums: See **401.10** for solder specifications.

SWIFT	KA100	X30	SSE
0.025"	0.041"	0.035"	0.039"

403 KZ ENGINE SPECIFICATIONS

403.1 The intent of SKUSA is for KZ to run under the current CIK/FIA Regulations with minor deviations as posted for the event. ALL current CIK-FIA Rules and Regulations for KZ engines, standards and their components will be enforced, unless specified otherwise in this rulebook. The approved engines are those currently or formerly approved by CIK-FIA. All competitors using the KZ engines must be prepared to present the technical inspector a PRINTED COPY of the CIK engine paperwork for the engine, airbox, pipe and silencer in use. Inability to do so may result in disqualification. **Only one engine and one chassis may be sealed for use. Also refer to 401.6 (engine) and 102.1, 107.6 and 303.1 (chassis).**

403.2 Port measurement: Method for measuring the opening angles of the inlet and exhaust ports. In order to make the measurement more accurate, a 0.20 mm thick and 5 mm wide wedge will be used to establish the start and finish of the measurement. This wedge will be gripped at the chord axis of each port, between the edge of the upper part of the piston ring or of the piston and its intersection with the edge of the inlet or exhaust port. The position by which the gripping of the wedge will permit measurement of the largest possible angle will be considered as the beginning and the end of the measurement of the angle. This wedge may be set in position through the inside of the cylinder or through the duct of the exhaust

port to be checked. It will not be mandatory on any account for the wedge to be placed in a horizontal or vertical position. The reading will be carried out using a graduated disc with a minimum diameter of 200 mm or a digital display measuring device operated by a coder.

404 SPEC HONDA SHIFTER SPECIFICATION

Honda Engine Specifications have been moved to a separate document.

<https://www.superkartsusa.com/dmdocuments/2022-SKUSA-Spec-Honda.pdf>

405 ENGINE CLAIMING

- 405.1** Only SKUSA, IAME, or the Importer(or their representative) may claim an engine. Such a claim will supply the owner of the engine a complete, new engine package with all components, including: motor, clutch, carburetor, air box, exhaust system, radiator (if supplied in kit), and electrical system. In addition, a payment of \$500 in certified funds or cash will be made to the engine owner.