

## Miguel Tapias and his achievements

By Mike Ricketts

### Introduction

From the outset, I need to give some background to my connection with the Arisco motorcycle and the path that it has taken me on. My initial interest stems back to a visit I made in early 2016 to the motorcycle museum in Barcelona (now closed) and the Museu de la Moto at Bassella. On display at the museums were examples of the Arisco – the air-cooled version was at Barcelona and the water-cooled version at Bassella. These motorcycles were completely unknown to me at the time.



***(1) The air cooled Arisco in the above photograph was in the Museo de la Moto de Barcelona in 2016***

I started to research the Arisco in more detail so that I could update my photo captions and add more details but there was relatively little printed data in the public domain. As a result of what I could find, I became more and more intrigued by the exploits of Senor Miguel Tapias Tudó, the Arisco moto creator. Whilst initially, I intended that this article was just going to chart the development of the Arisco motorcycle, it soon became apparent that, to do justice to the work of Senor Tapias, it was necessary to go much further back

and into areas where I had little knowledge. This retrospective therefore includes his role in the development of

Formula F-IV racing in Spain, his subsequent dominant role in Spanish Karting and the progression of his motorcycle project.

### **Miguel Tapias – Early Life**

Miguel Tapias Tudó was born in Terrassa on 07 August 1933. Terrassa is the third largest city in the province of Barcelona, situated in the east central region of Catalonia, Spain. Terrassa is 20 kilometres from Barcelona.

Miguel Tapias trained as a draughtsman. He went on to create a company – Miguel Tapias Construcciones Mecánicas – in Calle de la Riba, Terrassa. Here he manufactured and marketed trailers for motorbikes and industrial tools. There is anecdotal evidence that he had grown frustrated with the poor quality of industrial tools then on the market and he believed, correctly, that he could produce a better-quality product.

### **Spanish Formula IV**

Señor Tapias had a passion for motor racing. With his practical technical skills and his flair for design, in 1965 he built his first Formula IV (F-IV) race car – the MT-1. The Formula IV concept had originated in France and was set as a class below Formula Junior and was aimed at single seat, amateur drivers who were unable to initially enter Formula Junior through cost constraints. The initial technical specifications and limitations for the formula were relatively basic – engines could be single or twin cylinders with a maximum capacity of 250 cc. The size of the cars was restricted by setting a minimum distance of 1.5 metres between the centre lines of the axles. The Formula was particularly popular in Catalonia and Spain where the chassis could be produced locally, and the engines easily sourced from local motorcycle manufacturers, mainly Bultaco, Ossa and locally built Ducati. The Ducati motorcycles were built under licence in Barcelona by Mototrans between 1958 and 1982. A number of F-IV manufacturers emerged, including Selex-Artés of Barcelona and Hispakart.

The MT-1 was powered by a single cylinder, air cooled, two stroke, 200 cc Bultaco engine that delivered 24 CV via a four-speed gearbox. Tapias constructed his own differential with drum brakes at the output of this. The front suspension was by oscillating arms with a stabilizer bar and single-acting shock absorbers, while the rear was single-arm with rigid

semi-axles, the original had Vespa wheels with 4 x 18 Pirelli tyres.



***(2) The unique Tapias MT-1 – still in its original condition and never restored - is in the Carlos Beltran private collection in Barcelona (Photo: Carlos Beltran)***

Encouraged by the performance of the first car, in 1966, Miguel Tapias went on to create an additional car – the MT-2 and presented it at the 1966 Barcelona Motor Show. The MT-2 was fitted with a single cylinder, air cooled, two stroke 250 cc Bultaco engine, producing around 36 CV, that was transmitted via a five-speed gearbox, by chain to the rear wheels.

I photographed the MT-2 at the Collection Automobiles Salvador Claret (CASC) at Sils (Girona). Señor Pepe Pérez was involved with the MT-2 and collaborated in its design and subsequent modifications. Señor Pérez used this car competitively from October 1966 until the end of 1969, during which time he contested between 25 and 30 events with considerable success.





### ***(3) The Tapias F-IV MT2 photographed at CASC in Sils (Girona)***

The car underwent some further modifications during this period, the most obvious being the nose (which was initially domed) and, from early 1969, the addition of two lateral air scoops to improve engine cooling, as seen in the photos. During this period, Pepe Pérez, achieved 11 podium places (3 wins, 4 seconds and 4 third places).

In 1967, Miguel Tapias unveiled the MT3 – his last Formula IV car. There were further technical improvements, and the car had some success at the hands of different drivers, notably Jorge Fuentes (a well-known kart driver). On the MT-3, Miguel Tapias tested the single cylinder, air cooled, two stroke, 360 cc Bultaco engine with surprising results.

Although only the three cars were built, surprisingly (and fortunately) they have all survived. The original MT-1 is in a private collection whereas the Pérez family placed the MT-2 with CASC in the early 1990s, where it remains on display. The remaining car, MT-3, is in the Museu de la Ciència i de la Tècnica de Catalunya (MNACTEC) in Terrassa. It is in their additional storage area and, at present, isn't on display in the main public area.



**(4)** Whilst many people are familiar with Bultaco as a motorcycle manufacturer, those from outside Spain often forget that engines are at their heart. CEMOTO, the name of the company that manufactures them, means "Compañía Española de Motores"

This F-IV car photographed below, is on display at the “Made in Spain” Exhibition in Alcalá de Henares (Madrid). The chassis of the car is a Hispakart and was apparently commissioned by Luis de Baviera. The engine is a 350 cc, two stroke, single cylinder, air cooled unit, believed to be an original TSS 350 engine, of which only 57 units were made.

The Formula F-IV category was increasingly replaced by the F-1430 in the early 1970s.

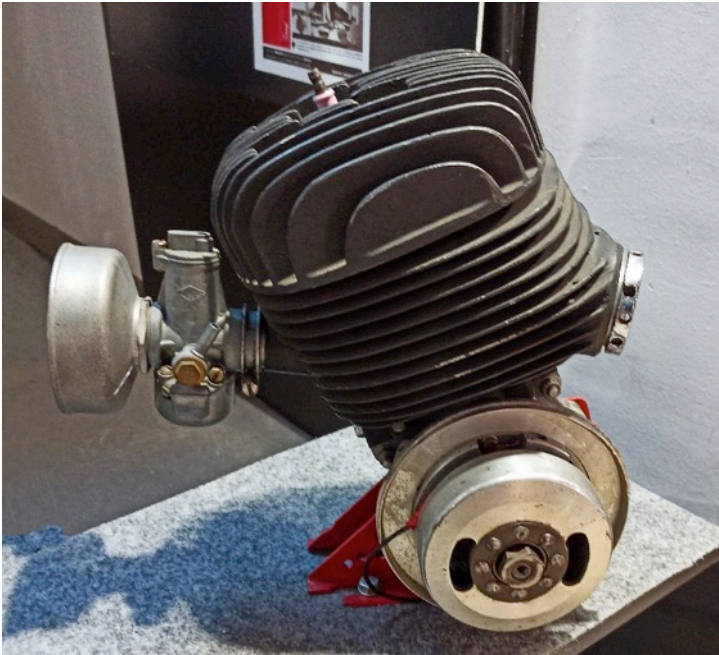


***(5) Hispakart/Bultaco F-IV car on display at the “Made in Spain” Exhibition in Alcalá de Henares (Madrid)***

### **Karting and the birth of MTK**

In 1968, and due in part to the relationship he had with karting drivers and enthusiasts, including Pepe Pérez and Jorge Fuentes, Señor Tapias started to manufacture kart chassis and created the company MTK (Miguel Tapias Kart) in Vallparadís street 63, also in Terrassa.

His initial Karts were powered by Montesa 100 cc engines before, in 1969, he started to produce his own Arisco engines. In many quarters, Miguel Tapias was seen as the driving force behind Spanish Karting especially as his MTK/Arisco Karts were much more affordable than those available for import and, more importantly, they were of a similar quality.



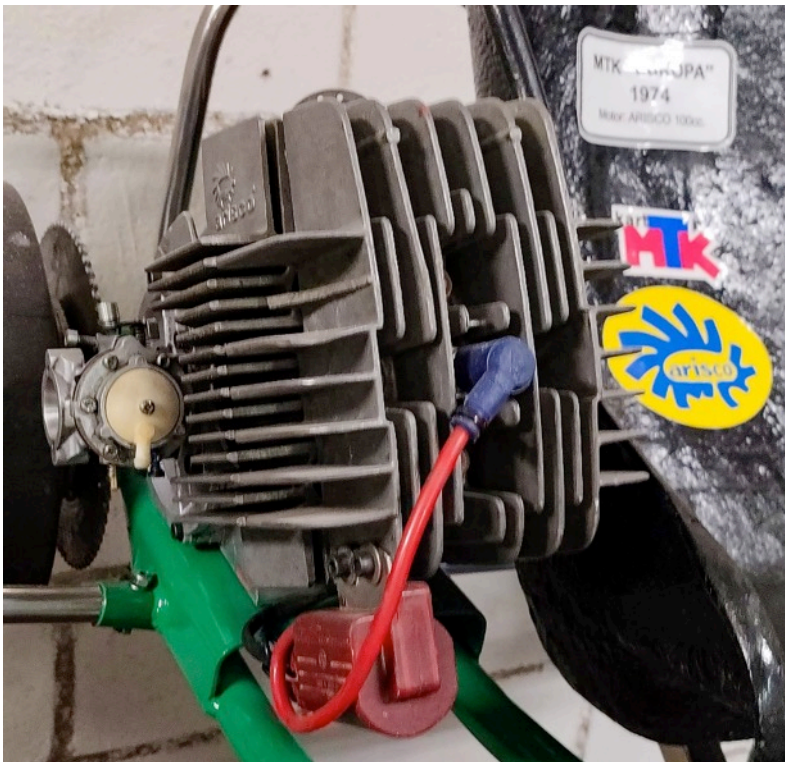
**(6)** The engine on the left is a Montesa M100. These 100 cc, air cooled, single cylinder units were regularly used in Karts. This one was photographed in July 2021 at the Museu de la Moto in Bassella, where it was on display as part of their Montesa 75 years exhibition.

After his experience with the Montesa engines, Miguel Tapias came to appreciate the advantages of the rotary valve Italian engines and decided to take that route, when designing his own engine. Arisco engines evolved continuously throughout their production. As Miguel Tapias either discovered or was advised of a problem, he engineered a solution almost immediately. An obvious example was the air cooling and the changes that he made to the cylinder head fins. On the later engines, the Arisco logo is cast into the cylinder fins, as can be seen on these examples.



**(7)** The earliest Arisco engines had a small plaque attached to the cylinder head fins to identify them, like in the example photographed.





(8) On this example you can see the logo cast into the fins. In addition, the dark orange unit is the Motoplat Ignition Coil. The label on the seat identifies this Kart as a MTK Europa dating from 1974.

The MTK Karts were successful in competition, most notably in 1970 when Esteve Bassols became the Spanish Champion driving an MTK with a Montesa engine. Further success came in 1971 when Jorge Fuentes became the Catalan Champion driving an MTK with an Arisco engine.

Miguel Tapias was a visionary and he saw a possible opportunity to develop his engine and create a 250-cc motorcycle. I have read that, at one time, he had hoped to put the bike into production, but financial constraints and administrative hurdles proved to be too costly. Instead, he developed the bike to be a home grown 250 cc road race machine.

### **The Situation in Spain 1970 - 1980**

Before following the development of the bike, it is necessary to understand the fiscal and political situation in Spain in the 1970s. During the late Franco era, Spain faced a chronic trade deficit and external financial shocks, such as the oil crisis. To address these challenges, the country implemented measures to limit imports and boost exports between 1970 and 1980. These included an import deposit requirement (this obliged an importer to deposit an amount equivalent to 25% of the value of their imports in a non-interest-bearing account for six months), a selective import licensing system, and a devaluation of the peseta. While these measures improved the trade balance, they also had negative

impacts on the domestic economy. As Spain prepared to join the EEC in 1986, it gradually liberalized its trade regime.

The import restrictions served to protect the home motorcycle industry – an industry that was mainly based on small capacity machines, rarely exceeding 350 cc. This protectionism held back the invasion of the Japanese manufacturers that had already decimated the market in the UK and elsewhere in Europe. However, this same isolation led to a lack of development and competitiveness from the main Spanish manufacturers. These discrepancies were increasingly obvious in the world of motorcycle competition – leaving aside the 50/80cc classes.

Taking the 18-year period from 1963 to 1980 (1960 to 1962 was not contested in Spain) according to Real Federacion Motociclista Espanola (RFME) data, the Spanish 250cc Road Race Championships were won by a rider on a:

Derbi x 9,

Bultaco x 5,

Ossa x 3 and Montesa x 1.

By comparison, for the same period, using FIM data, the World 250cc Road Race Championships were won by a rider on a:

Yamaha x 7,

Honda x 3,

Kawasaki x 3,

Harley Davidson (Aermacchi) x 3,

Benelli x 1 and

Morbidelli x 1.

Over the 1975 – 80 period, only one rider on a Spanish bike scored any points in the 250cc category and that was Benjamin Grau, who finished third in the 1975 Spanish GP on a Derbi. The next Spanish built motorcycle to score any points in the 250cc class was the Antonio Cobas Siroko Rotax in 1981.

It was in this lack of an affordable, competitive, Spanish bike that Miguel Tapias saw an opportunity for a new, 250cc racer, built at an affordable price but with good performance



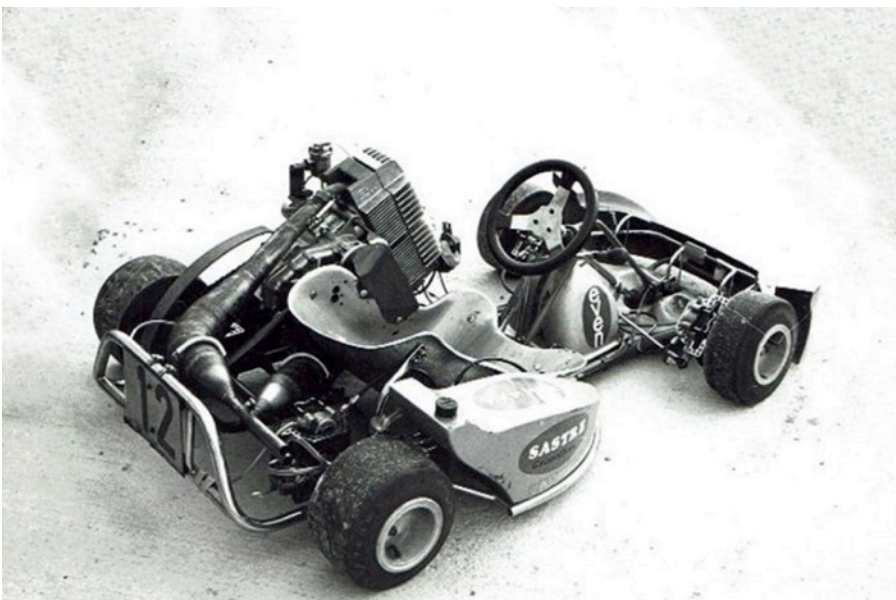
based on the road going bike that he intended to build in series. However, faced with difficulties with homologation, other bureaucratic obstacles and massive costs, he eventually he decided to pursue the race bike concept and dropped his plans for a series build.



**(9)** The 1976 Yamaha TZ250 – this is a TZ250C from 1976 in the photo – revolutionised the 250cc class. It replaced the air-cooled Yamaha TD1 and TD2, 250cc racers with a water cooled, two stroke, twin cylinder racer, initially in a tubular frame. The TZ250 was a massive success story, introduced in 1973, it remained in production through to 2004.

### **The birth of the Arisco 250cc Motorcycle**

Miguel Tapias had a design in mind for his 250cc twin cylinder engine and his solution was to superimpose two of his Arisco Kart engines on themselves. He began work on this in early 1976 and the initial prototype engine was mounted in a Kart for testing.

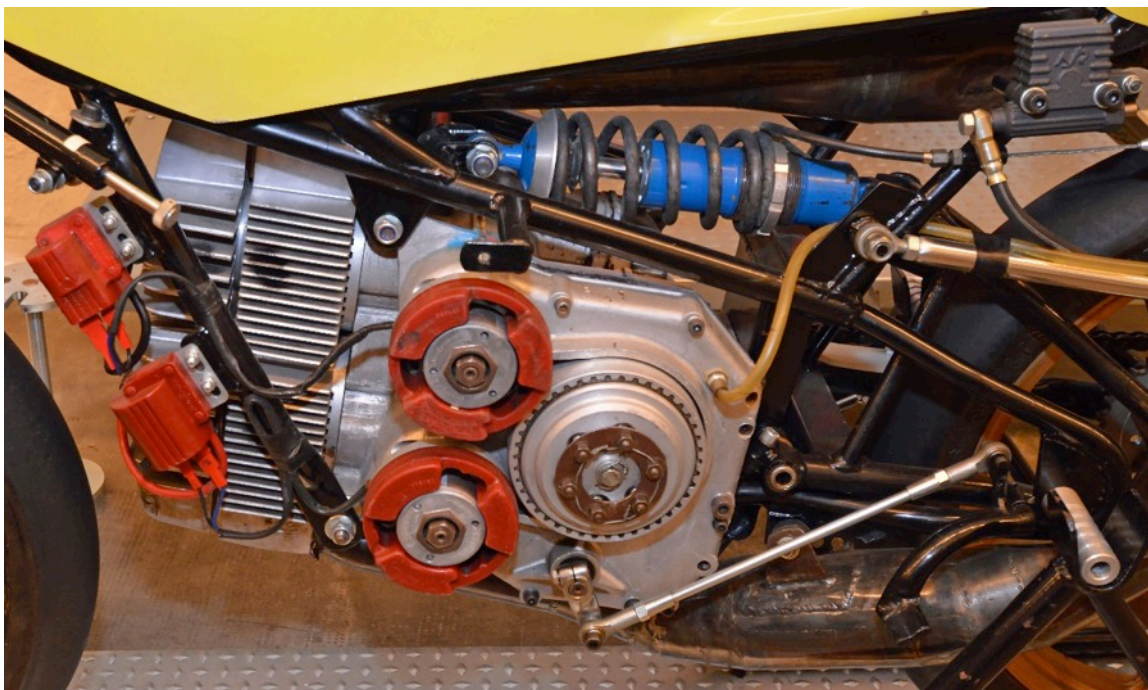


**(10)** This rare black and white photograph of the twin cylinder engine mounted in a Kart is reproduced here with the kind permission of Senor Francesc Balsebre of Egarakarts.

After testing in the Kart, proved the feasibility of the design, Miguel Tapias built a tubular frame to house the engine, with the rear swingarm incorporating a Selex shock absorber. The engine(s) ran with separate carburation, separate Motobloc ignition systems, separate crankshafts etc. The cylinders had a 56 mm x 50.6 mm bore and stroke giving a total displacement of just over 249 cc. His design of superimposing the two engines in the build, whilst positioning the exhaust ports at the top and bottom, meant that he gained a very narrow profile with the exhausts mounted above and below the engine.

In its earliest form, the engine had Bing 28mm carburettors (but later plans were to use laterally mounted Amal carburettors), rotary valves and a six-speed gearbox and was estimated to provide 45 CV. The engine could reach 11,000 RPM but the usable power spread was assessed at between 8,800 and 9,500 RPM. Stopping power was supplied by RECMO discs, front and rear.

The bike underwent testing at the Calafat circuit, with Salvador Cañellas the Test Rider. In 1977, the first Arisco motorcycle – although still incomplete – was presented at the Barcelona Motor Show.

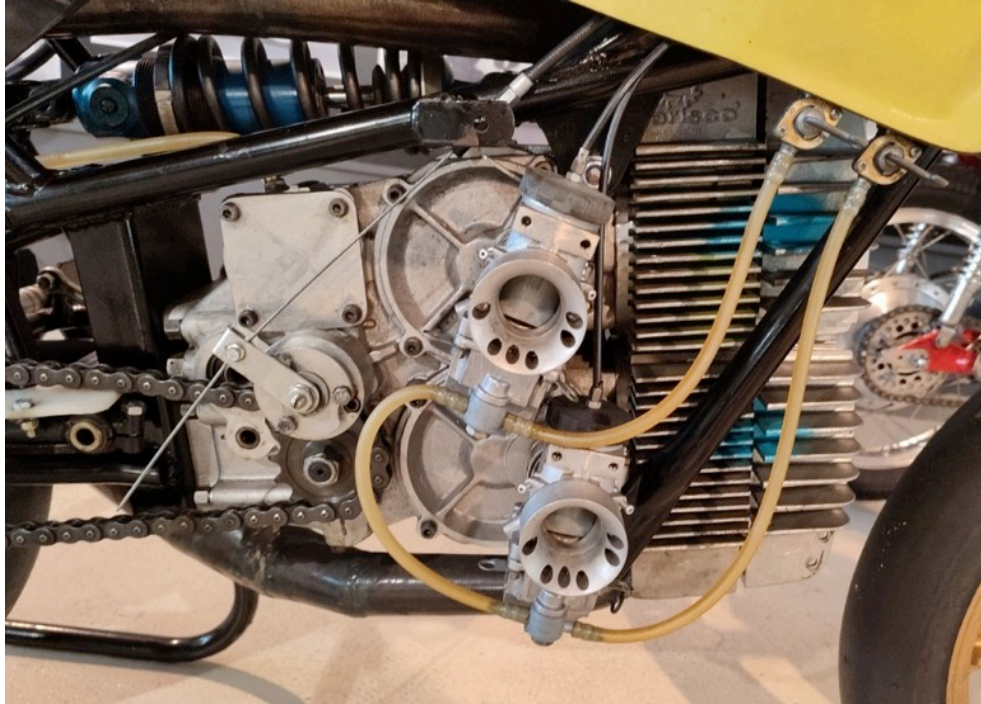


***(11) The engine, in 1978, was mounted in a multi-tubular chassis***

In the photos above and below, the engine and ancillaries are easily seen here. The separate Motobloc ignition systems are obvious, as is the dry clutch, the lateral carburetors and the large, central, Selex shock absorber.



In 1977, the magazine Solo Moto were invited to test the first Arisco moto at the Calafat circuit and they published a detailed appraisal of the potential of the bike and of those areas that would need to be addressed. Then, in 1978, they offered an Arisco 250cc as the prize in the Solo Moto Criterium series, sponsored by AGV.

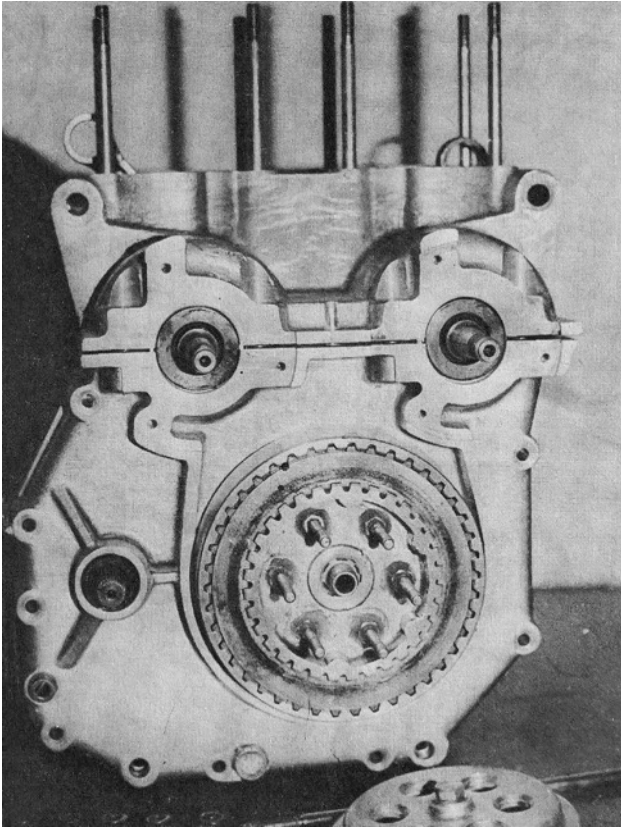


(12) In 1978 that series was won by Domingo “Mingo” Gil and “his” Arisco was subsequently sold on and is now at the Ramon MAGRIÑÀ Collection at Masllorenc (Catalonia), where I photographed it this year.

**(13) The ex-Domingo “Mingo” Gil Arisco moto**

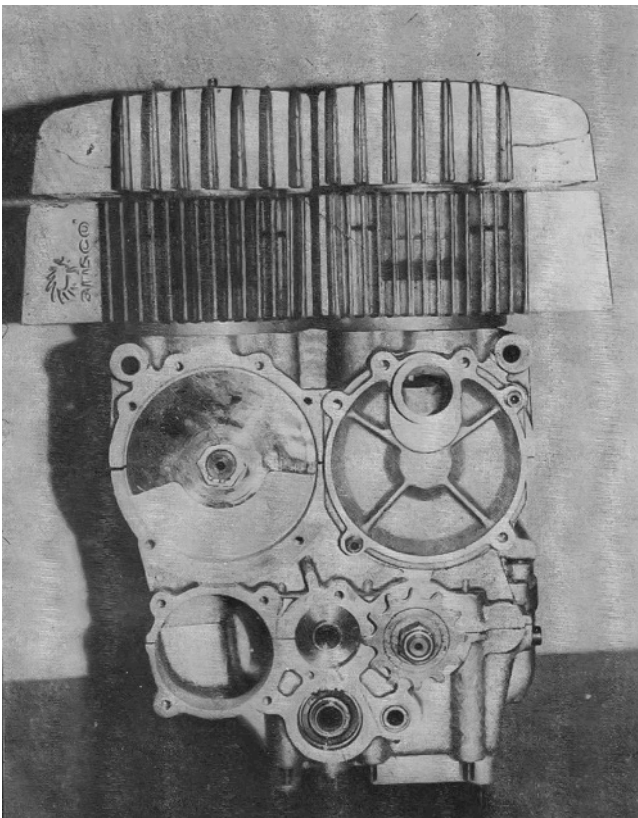






This photo shows the closed casings of the left-hand side of the engine, waiting for the cylinders to be mounted.

***(14) This photograph first appeared in Solo Moto #115, dated November 1977 and is reproduced here by kind permission of Solo Moto.***



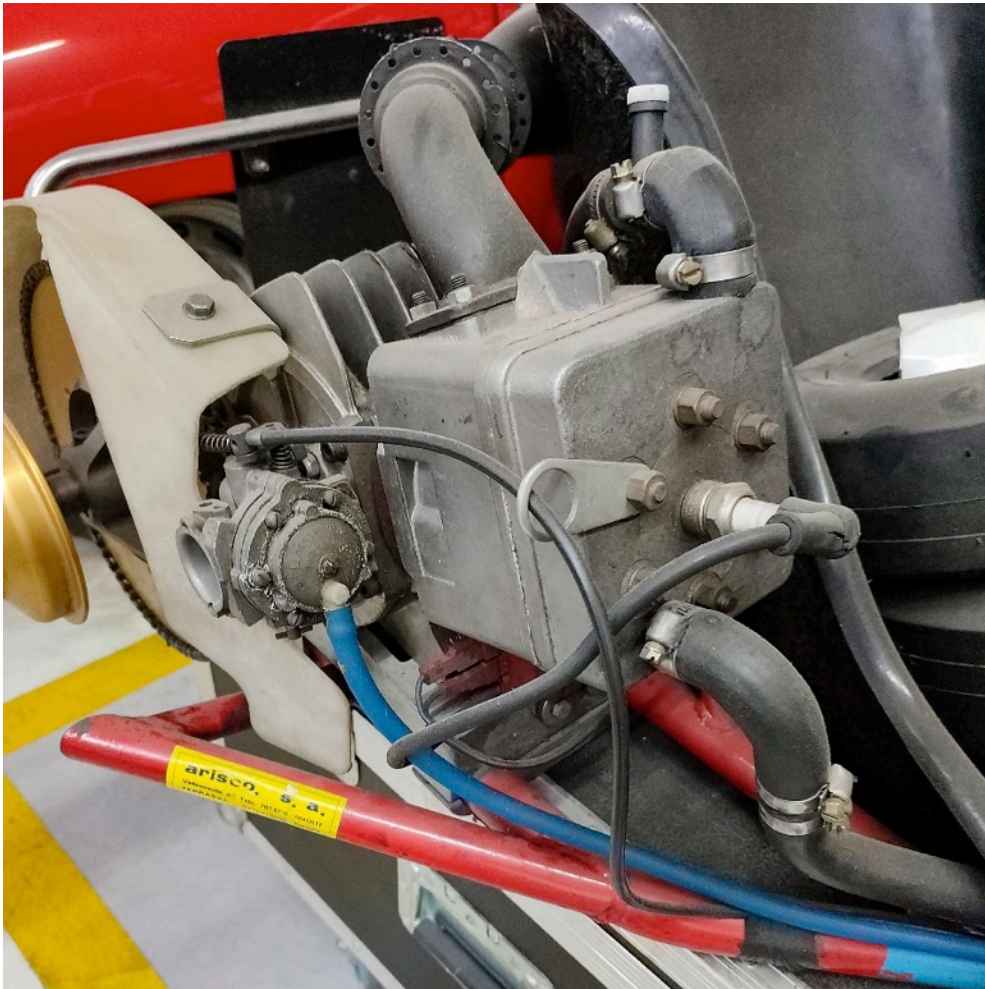
This photo shows the almost complete engine, waiting for the carburetors and rotary valves.

***(15) This photograph first appeared in Solo Moto #115, dated November 1977 and is reproduced here by kind permission of Solo Moto.***

It is believed that about 14 air cooled units were built in total, but I have no exact knowledge of how many still survive, or their exact whereabouts. I know for certain of four; the one at the Museu de la Moto in Bassella, the one at the “Made in Spain” Exhibition in Alcalá de Henares (Madrid), the one at MNACTEC Terrassa and the one in the Ramon MAGRIÑÀ Collection. There may be examples in private collections elsewhere.

### **Arisco moto – the final design and development**

Señor Tapias had already developed liquid cooled variants of the Arisco engines, and they were being used in the MTK Karts, as can be seen in this example below. The conversion of the Arisco moto engine to liquid cooling was the next logical step.



***(16) A liquid cooled Arisco engine as fitted in a MTK Kart***

What was to be the final embodiment of the Arisco moto project included a radical new monocoque frame, as seen in the photographs.



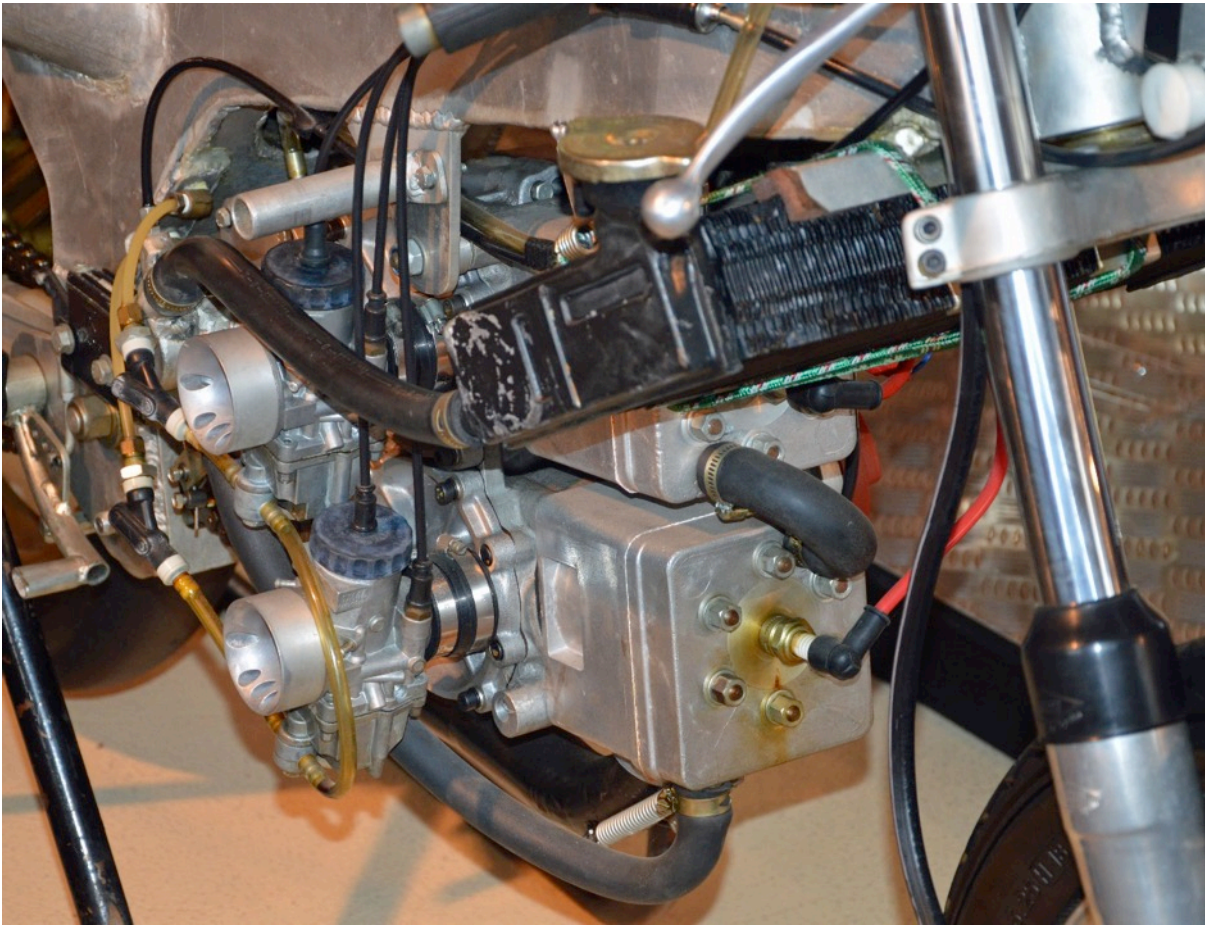


***(17) The liquid cooled Arisco variant***

The angled radiator can be seen mounted under the front of the fuel tank and you will notice that there is now a more conventional rear suspension set-up. The more distinctive separation between the two cylinders is more obvious on this liquid cooled variant and is clearer in the next photo. It is believed that by this version, the engine was producing approximately 50 CV.

**(18)** I was fortunate enough to see this bike when it was on public display. To the best of my knowledge, this is the only liquid cooled version that Señor Tapias built and the only version of this frame. This unique motorcycle remains in the possession of the Tapias family.





Tragically, Miguel Tapias became ill with Parkinson's Disease in the early 1980s and died on the 24 May 1995 at his home in Terrassa. He was survived by his wife, a son and a daughter.

Most people assessing his legacy will point to the success of the MTK Karts and yet knowledge of the Arisco moto project is not that well known outside of the circles of motorcycle road racing enthusiasts. The death of General Franco and the subsequent changes to Spanish Government policies opened up Spain and its markets to imports from Japan etc. The all-conquering Yamaha TZs entered national level competitions and effectively removed the need for a home-grown competitor like the Arisco.

However, I have found that the story of Miguel Tapias and the Arisco moto is that of a dedicated and talented genius. A man, whose single-minded approach to design and problem solving, almost led to a small workshop in Terrassa taking on the might of a major Japanese motorcycle factory on the track.

On a personal note, I was somewhat saddened that the life and achievements of Señor Tapias have attracted so little recognition, in his own country and abroad.

## Mike Ricketts

### *Author and information search*

“My interest with Miguel Tapias stems from my fascination with the Arisco Moto and, the more I researched, the more fascinated I became by Señor Tapias. I have always felt that he was under appreciated”.

### **(19)** Air cooled Arisco moto 250cc

