

The true experience of trials riding will be achievement with the combination of man and machine

The world of trials riding

An interview with European Trials Champion **MICK ANDREWS**

Would you please give us a brief explanation of trials riding?

Trials riding is a motorcycle sport competition in which a circuit, made up of several differing sections, is travelled. The sections themselves are comprised of difficult terrain that is generally impassable to any other machine except a trials motorcycle. The object is to maintain forward motion with both feet on the foot pegs overcoming all obstacles along the path.

Would you like to say a word regarding what is attractive about trials riding?

After trying other motorcycle sports, trials riding seemed to offer a challenge to a rider to attempt to travel over a seemingly impassable trail. It is, compared to high-speed racing sports, a safe sport which develops the maximum amount of coordination between the rider and his machine. One really becomes the master of his machine and, also, the trials course.

What has prompted you to enter the trials riding world?

In England, very much like Japan, land is at a premium. Therefore, you can't just take a motorcycle and ride anywhere you like. And in order to enjoy sport motorcycling, you almost necessarily have to join a motorcycle club. Now, one of the major functions of a club is to organize competition trials events, and if you are at all interested, it is simply a natural course that you participate in these events.

When you visited YAMAHA in Japan, what impressed you most about their facilities?

About the time that my current contract was up, I was contacted by YAMAHA who was, at that time, in the process of developing a trials machine. I travelled to Japan to visit the facilities, was very impressed with their manufacturing processes; they have a fantastic set-up for the manufacture of competition motorcycles, and I felt that it would be a real challenge to work with YAMAHA from the beginning as the new machine was being developed and to be a part of the development.

What points did you take care of, when developing the YAMAHA Trials machine, TY250?

When we first arrived in January, the Yamaha trials machine was nearing completion and therefore, the changes I recommended were minor. Considering that all types of people, from beginners to experts, would be riding this machine, I suggested that changes be made in the steering, suspension and foot pegs. To improve machine performance in the most important speed ranges, we made some changes in the engine structure and gear ratios.

Mick Andrews

Beginning very early, Mick developed an interest in motorcycle sports and by the time he was 15 he had started competition riding. From those initial attempts he has gone on to become the European Trials champion in both 1971 and 1972.

This 29-year-old champion, who was born in Derbyshire, England, is also, the second man ever to win the rugged Scottish Six Day trials event for three years in a row.

In February of 1973, Mick travelled to Japan when he played an important role in the development of YAMAHA's new trials machines. He returned to Japan later in the year to test the results and to plan his campaigns with YAMAHA both in promotion and in championship events.

According to Mick, after testing the new machine, it will be the one to watch at the trials events.

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This is trials riding

TRIALS

Trials riding, which was developed in England, is one of the world's fastest growing motorcycle sports. Originally, about 70 years ago, trials riding was utilized to test the performance of motorcycles by riding them over terrain with varying degrees of severity, and, very soon, progressed into a sport for those who were seriously interested. In those early days, the sections were very hard on the motorcycles, and the expression "try" seemed to express what the riders were doing. Hence, the word soon evolved into "Trials."

As the years progressed, so did the motorcycles, and the trials purpose shifted from testing the motorcycle's ability to testing that of the rider. As newer and better machines were being developed, more sophisticated riding techniques were brought out, and trials riding enthusiasts soon became masters of balance and throttle control. **Trials riding is a motorcycle sport which, unlike road racing or motocross, does not necessarily depend on the clock, and which is very much like a gymnastic event in that grace and form are the important factors.** Trials riding has been referred to as the violin of motorcycle sports.

The development of trials riding techniques greatly lends itself to the rider in other motorcycle sports and also aids in ordinary riding where quick reflexes and precise control are more than beneficial in emergency conditions. For this reason alone, many motorcycle riding schools are amplifying techniques which were first developed and are used extensively by trials riders in order to produce riders who will have automatic safety-oriented reflexes. The trials riding event itself can be as varied as one's imagination. A trials event is usually composed of several sections of riding paths which have varying difficulty, and the object of the event is that the contestants attempt to ride through the sections, incurring as few demerits as possible. In each of the sections, there is a judge to determine and record the performance of each rider as he rides through, and the winner of the event is the rider who has passed through the sections accumulating the least number of points.

Trials riding can be considered among the safer sports, and by its very composition, is ideal for any and all members of the family since the real skill, balance and throttle control, is not contingent upon age. And, due to the increase in family-oriented sports, trials riding has taken a firm step forward, becoming more and more popular every day.

TRIALS EVENTS

If a motorcycle enthusiast is interested in trials riding, there are a few fundamentals that he should know and accomplish before entering a trials event.

The first step is to buy a trials machine. There are a few modified trail models available, but if one is serious and interested in the sport, it would be for better to purchase a machine which has been designed from the ground up to be ridden in trials events. **Once the rider has his trials machine, he should attempt to join a local trials riding club or a motorcycle club which sponsors various competition events including trials riding.**

Through the club or by oneself, an interested trials rider should practice, practice, and practice. The sections encountered when riding will be, to say the very least, difficult, and there are certain fundamental techniques, such as ultra-slow-speed balance and precision throttle control, which should be thoroughly understood before attempting competition events. Basically, the best practice can be obtained in locations that represent the trials sections. That is, practice riding over large rocks and logs, utilizing only the amount of power necessary to go over and shift your weight accordingly.

Practice riding along the side of steep inclines, turning in as small a radius as possible and balancing your bike at a speed just above its stalling speed. Wheelies could be encountered in an event, but are not a requirement. A wheelie, when learned, yields considerable information regarding throttle control and balance so should not be completely overlooked. With practice comes expertise and the fundamental techniques will naturally grow and expand into more sophisticated techniques. Proper clothes are also necessary. They should be durable and comfortable. Boots should offer ankle and leg support. Gloves and helmet are also recommended for absolute safety.

Following the practice and the acquisition of certain skills, the interested trials rider should then seek to enter an event. Again, the best procedure is to follow the organization of a local club. Upon preparing yourself and your machine for the event, you should make the proper arrangements with the event officials, well in advance, to enter. The officials will, in turn, assign a number to you and give you a brief explanation of the course, either by a map or verbally. Once the event is understood, you should then familiarize yourself with all sections in order to be best prepared, and then the trials event is up to you...good luck!

THE LURE OF TRIALS

Trials riding, which dates back to the turn of the century, was developed initially to test the endurance of the motorcycles of those times. However, with major improvements in the machines, trials has become a test of rider ability as it concerns balance, control and maneuverability. The lure of trials riding, of course, depends upon the individual, but the sport itself has such variation that it is able to offer enjoyment to a wider range of interest. Unlike motorcycle racing, trials events are centered around balance and ballerina-like control of the motorcycle.

The trials sections are made up of paths which, at first glance, may look impassable. However, with the proper practice and experience, most of these paths can be ridden without as much as a lowered foot. **The thrill that one obtains when he has gone through a section "clean," or without accumulating any points, is very fulfilling in that it gives the rider a real sense of accomplishment because he has overcome the section and mastered its pitfalls.** Viewing trials riding from a physical point of view, when riding through a difficult section where a maximum amount of body shifts are necessary to maintain the correct balance, all body muscles are tensed and ready to move at an instant. In this way, the entire body is thoroughly exercised and a very healthy muscle tone is maintained. Also, since trials riding can be done all year long, there is no seasonal "slump" where one can get out of condition.

The mental appeal of trials riding is also there in two very big ways. The first is in one's ability to "read" a section, which is determining the correct path to follow and how to overcome each obstacle. The second is in mental conditioning; one must approach all obstacles with confidence in both himself and his machine.

The rider must at all times be assured that he is under complete control and that no obstacle poses either a surprise or a threat.

In the course of any trials event, the competition usually becomes very keen, and it's assuring to know that, barring very few exceptions, all contestants are pretty much equal, because the initial expense is not out of sight and ability does not depend on age...only experience and practice.

PLEASURE OF TRIALS

Trials riding has become one of the fastest growing motorcycle sports because it is essentially one which offers an intricate amount of fun for anyone who is interested. **Trials riding contains all of the thrills and excitement found in trail riding where one is able to ride paths that cars cannot travel, and, in doing so, is able to visit rather remote places which are noted for their natural beauty.** The trials machine is able to go even one step further...it's able to ride over paths where the trail machine would falter and fall by the wayside, and, in this respect, one could have the advantage of viewing, first hand, regions which are virtually inaccessible. Equally paramount is the sense of balance and throttle control that one can learn on a trials machine. These fundamental techniques are basic to riding anywhere and, once learned, yield riders with ability to react positively and in the safest possible manner in any emergency situation. **Trials riding, since it is not a function of time as in a road race, can be considered the safest among the motorcycle sports and therefore most appealing to all members of any family.**

The pleasures that can be derived by the family are also plentiful. As a group, the family can "hike" on motorcycles, enjoying and experiencing outings that are not only a little competitive, but also rewarding for the common interest generated, not to mention the many places one can visit. **Trials riding offers the opportunity to bridge the gap and bring the family back to its original function...to live and love as a unit for the benefit and well-being of the entire group.**

Trials riding also offers the pleasure of succeeding, whether it be in an event where you have just passed through a section...perfectly becoming the master of that section and knowing that you maintain complete control...or in showing your young son how to clean and replace a spark plug. Success means many things to many different people... however, to borrow a note from one rather famous philosopher...success can be simply a life well lived, or a child well raised.

A little checking beforehand will save many regrets

Preparation inspection

Preliminary Checks Before Riding

The preliminary checks should begin two or three days before the trials event. The machine should be thoroughly cleaned (after the last event), inspected and lubricated. The day before the event, the machine should be ridden over a trials section to assure that all operations are in good order. Afterward, the machine should be cleaned in preparation of the trials event.

Engine Checks

The engine should be cleaned and carefully inspected for cracks and leaks. The plug should be pulled, cleaned and inspected. If necessary, the plug should be adjusted or replaced. It is always wise to carry a spare plug when you ride. Also, check all ignition wires for fraying and loose connections. As a matter of procedure, always check the gas tank valve for proper position and that the high-voltage wire is securely attached to the spark plug.

Machine Waterproofing

The amount of waterproofing required differs with machine, but, essentially, the ignition, electrical generating system, and brakes should either be enclosed or certain preventative measures taken, such as spraying the ignition with special liquids which are available commercially for just this purpose. Also, it is wise to have covers on the control cables to prevent water from entering.

Tire Pressure Adjustment

The tire pressures for trials riding are much lower than for other motorcycle sports. This pressure can be as low as four or five pounds per square inch, and there are a few specially-developed trials tires available. It should be noted that since the tires are at a low pressure, tire "creeping" is a potential problem and can be eliminated by fitting one or two security bolts to each tire.

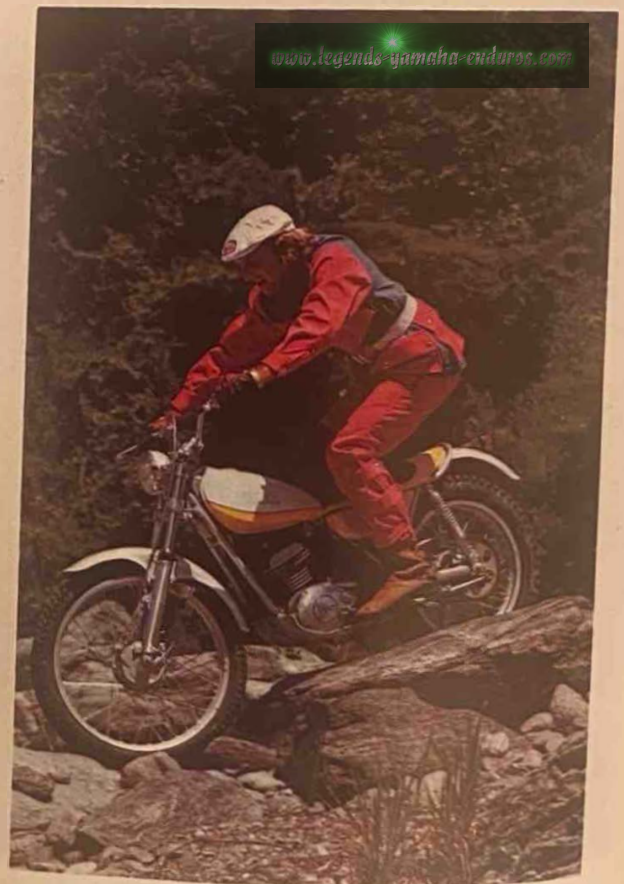
Suspension Adjustment

If you are fortunate enough to be riding a machine which has adjustable shock absorbers, you can make the suspension agree with the section more easily. With an adjustable suspension system and a little experimenting with various sections, you should be able to "tailor" your bike to give you the best performance for each section.

Trials Riding Clothes

Cold, water and rocks.....every possible situation can occur at the trials event

Basically, the clothes worn trials riding should be durable; waterproof, however the clothes should not be tightly sealed; large enough to allow maximum freedom of movement; and have adequate pockets. The boots should also be durable, waterproof, offer leg and ankle support, and be comfortable.



Trials riding is a gentleman's sport, therefore the rules is strict

Trials language

I.S.D.T.
International Six Day Trials is the largest reliability trials and occurs in September each year. The '73 trials will be held in the U.S.A.

Awards
These are the acknowledgements given for competition performance and are divided among the classes of competitors. It should be noted that a competitor's performance, whether good or bad, is based upon complying with the particular rules of the course, such as time checks, controls, special tests and observed sections.

Intermediate
This is the middle class of the trials rider classification. The expert class is above, and the novice class is below.

Wheelie
The technique of riding with the rear wheel on the ground and the front wheel raised. A wheelie is easily accomplished with a trials machine, but isn't a requirement for competition. It can be said that by using this technique, a rider will cultivate a better ability to balance his machine.

Expert
A trials rider who has reached the highest class. The intermediate class and novice class are below this rank.

S.S.D.T.
Scottish Six-Day Trials is the largest observation trials in the world and is held in Scotland in March each year.

Entry
Participant in a race. Entry refers to the rider who makes an application to ride in the trials event.

Observer
A qualified person who has been designated to observe a section or a portion of a section, and whose duty it is to grade the performance of the competitors as they pass through his particular section.

Observation Trials
This is a scored trials whereby the riding techniques when passing through various sections of the course are observed. There are also rallye type trials which are called reliability trials.

Clean
Describes the competitor if he rides through a section without stopping or touching either foot to the ground. That is, a "clean" performance.

Course
A designation given the entire length of the competition run and is generally comprised of several sections of varying difficulty and free sections, should they be considered necessary.

Course Marking
Because the success of a trials event is determined by the route travelled and its difficulty, the path that should be followed should be determined by a rider who is experienced in all of the pitfalls which are likely to arise. The use of colored cards placed in obvious locations (generally to the rider's left and as high as possible), with letters designating directions, are widely used. As an example, large blue cards with either "LEFT" or "L," large red cards with either "RIGHT" or "R," and large white cards with "STRAIGHT ON" or "SO" printed on them are quite often used.

Sign On
This is the procedure or formality that a competitor performs whereby he informs the trials event officials (e.g. chief marshal) that he is to begin the course.

Sign Off
This is the procedure or formality that a competitor performs whereby he informs the trials event officials that he has completed the course.

Stair Case
Either a natural or man-made formation in an upward grade or hill that very much resembles stairs with steps of varying heights.

Steep Hill
A sharp incline on which, going up, there is little or no grip with the front wheel, and going down, there is little or no grip with the rear wheel.

Stop
The rider is considered stopped when the front wheel of his machine ceases to revolve in the direction of the course, or if his forward motion is aided by some outside assistance.

Stone
A general description of the smaller, naturally-concreted mass which usually lie loose or can be easily loosened in a section.

Special Test
A special test is generally devised as an eliminator in the case of a tie or if the course produced an unusually large number of "clean" riders. These special tests may or may not be timed, and they can have a seemingly infinite variation, just as the sections themselves.

Section Cards
Cards indicating where observed sections begin and end. Usually these section cards are printed with the section name, and in the event there are sub-sections, these will be numbered consecutively.

Tight Corner
A tight corner is generally referred to as a turn where it is necessary that the rider turn the handle bars to their full-lock position in order to negotiate this turn.

Novice
A general designation applied to a beginning competitor; or a more accepted ruling is that a novice is a competitor who has not won any award in any trials event, or if a competitor does not win an award higher than second class in any trials event organized by any club within a district (open-to-centre) within three seasons immediately following the season in which he won a novice award, he may again be allowed to compete in the novice class.

Back Marker or Rear Judge
This refers to a trials event official who, after the last competitor has begun the course, will wait approximately fifteen minutes and then begin the course himself. As the official passes through each section, if he encounters a rider who, in the official's opinion is not able to continue, due to either machine or rider fault, the official will pass this rider eliminating him from the event. This is done primarily to help someone who is seriously stuck. That is, the official will help free the rider and send him along, but if the rider is unable to continue, he will be cleared from the path allowing the next event to continue with maximum safety.

Footing
Describes the performance of the competitor if he touches the ground more than once with his foot.

Best Performance
Performance is the character of the ride which the competitor displayed as he travelled through the course. The best performance refers to, of course, the rider whose riding character was, according to the rules and regulations of the trials event, better than the rest. That is, he passed through the course with the least number of points or demerits.

Mud
Mud found within trials sections can be of many varieties and each should be handled differently, such as loose mud, which has a fairly firm foundation and is not deep, may be passed through in second gear. In any case, be constantly on the alert for sudden lurches and be quick to compensate with the correct body balance and throttle control.

Grading
Grading is the means of judging the riding techniques within a section. There are the 0-1-3-5 method, and the 0-1-2-3-5 method which has recently been used. The difference in these two methods depends on whether footing should be graded for two times or more, or for three times or more. It is generally considered that the 0-1-3-5 method is an easier method of the two, but the 0-1-2-3-5 should be used if there is little difference in the competitors' techniques.

Riding Number
Designates the order in which a rider begins the event, but doesn't necessarily mean that he will finish in the same order.

Reliability Trials
These are, more generally, endurance trials where the sections are not established and rallye-type trials are performed in a restricted time on a specially designated road. The International Six Day Trials represent reliability trials.

Rock
A general description of the larger, naturally-concreted mass of stony obstacles which lie in a section, and which may either be ridden over or passed around. These rocks may or may not be firmly implanted in the earth.

One-Day Trials
Trials events which are, as the name indicates, performed during the course of a single day which has been designated as special for the particular event. Distinguished from longer trials events which take place over several days.

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Besides confidence, the three most important points in trials riding are...balance, throttle control, and section reading.

Basic trials technique

1 Full-Lock Turning



Approach the turn in low gear with the engine idling. Fully turn the handle bars until they're almost to the locking position, and turn as tightly as possible. At this time, by steering, leaning with, and leaning-out. When you feel you have completed turning right, next by turning left. Then attempt to drive your bike in a figure 8. Until you achieve a fine balance in making slight adjustments in steering, throttle, and body movements, you will not be able to negotiate a minimum radius turn.

If the throttle is suddenly opened, the machine will rear up and attempt to go forward. Throttling from an idling position is very difficult, and because of its difficulty, it is often required during a trial, therefore, it is important to gain enough practice to be able to control your machine freely.

2 Wheelie



The technique of riding with the rear wheel on the ground and the front wheel raised is called a wheelie. A wheelie is easily accomplished with a little practice, but isn't a prerequisite for competitiveness. It can be used that by using the technique, a rider will develop a better ability to control the machine.

3 Body Lean (Body English)



When you have attained the best balance, your line will have optimum traction, and the outcome is achieved by constantly shifting your weight. Once balance is achieved, you'll be in a good or close to the throttle and appropriately shift your body for the best effect. This combination of control is necessary because riding which is guided only by experience.

4 Riding Among Trees



Depending upon the density of the trees and undergrowth, the speed at which the section is ridden will differ. The same danger, of course, the slower the speed, all of the same techniques explained here can be utilized under a section with trees. However, one note of caution should be remembered due to the varying shadows, many obstacles are very difficult to see and therefore pose as potential hazards unless treated very carefully.

5 Riding Over a Log



The technique for riding over large obstacles can be attained by training with a relatively large log, and you must approach the obstacle with confidence. Using low gear, open the throttle and move your body backward just before the front wheel contacts the log. After the front wheel moves over the log, move your body back and close the throttle allowing the rear wheel to coast over the log.

6 Rocky Streams



In many cases, a stream may be so muddy that the condition of its bottom cannot be seen. Whether the bottom can be seen or not seen, one should enter the stream cautiously, taking care about the operation of the machine, especially as it concerns throttle operation. After entering the stream, try to select a narrow path avoiding, if possible, moss-covered rocks and large stones. Also, it should be noted that just after leaving the stream, one should check the operation of the brakes for safety.

7 Steep Slopes, Going Up and Going Down



Of course, the steeper the slope, the more difficulty will be encountered, however, with the correct techniques, even those which seem impossible can be overcome. When going up, the most important factor is to close the throttle as you ascend and shift your body forward to prevent the bike from falling. When going down, the load on the front wheel increases and the traction by the back wheel decreases, therefore the rider should shift his weight forward the rear of the machine while carefully using the engine as the primary braking force.

10 Riding Through Deep Water



Generally, if deep water is encountered in a trials section, the bottom will be neither hard nor flat, and quite frequently many obstacles are hidden beneath the surface to catch the unwary. One should enter the water and proceed slowly and cautiously with the machine under power in a low gear. If a rock through the water cannot be readily detected, you might take the opportunity of watching someone else attempt passage before you and carefully note the rider's transition.

11 Adverse Camber



Adverse camber riding can be effectively avoided when riding along a slope where traction is not good, such as on a rocky slope. The idea is to lean the bike toward or with the slope and shift your body away or adverse to the slope. This gives the maximum amount of weight, or center of gravity, at a point which will pass directly through the path that the wheels are tracking, and in this manner, traction will be greatly increased.

8 Riding in a Groove



Riding the motorcycle in a deep rut or a narrow groove results in a more difficult steering operation. The important factors are to keep your balance, control your speed, and carefully watch the ground.

9 Riding over a Large Rock



Large rock ridges, if they are not too steeply banked in the earth, and loose when hit, but very likely will have a tendency to move. Again, the correct mental attitude is important so that the rock must be approached with confidence. To ride over a large rock, one should open the throttle and lean the bike as an important factor is to prevent the rock from shifting which might cause the rider to lose his balance. The remainder of the technique is the same as when riding over a log.

12 "U" Turn on a Slope (Rock)



Ascending a slope in order to make a U-turn, which is often encountered in trials riding, you should open the throttle and lean your machine against, with the same fact as the parallel movement along the slope. Then, closing the throttle, as your speed decreases, manipulate the handle bars as when turning around, and disengage the back straight using the engine brake.

13 Reading a Section

The art of correctly reading a section is acquired by experience and differs according to rider preferences. Reading a section is basically looking over a section, by walking through it, watching another rider pass through it, to determine which path to follow and which gear to use. Also, when reading a section, one should determine how each major obstacle is to be cleared so that when the section is ridden, it will lead no unexpected surprises.

TY250A

FEATURES



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Engine (7-port "Torque Induction")

Retaining all of the characteristics that have made YAMAHA 2-stroke engines the favorite of world champions, the YAMAHA Technical Group has made some major modifications so that the engine will have greater pulling power at very low speeds with amazing smoothness, yet be versatile enough for easy open-road riding such as required in between sections.



L-Type Keystone Ring

An L-type keystone ring is used on the piston of the TY250 because it yields better sealing characteristics. When the engine of the trials machine is operated hard at low speeds, the engine tends to become very hot causing expansion to occur thereby reducing compression. Even under extreme riding conditions, the L-type keystone ring offers better service.



Transmission

The gear ratios have been especially selected so that all trials sections and all obstacles can be overcome. This is accomplished by maintaining speed-power ranges that comfortably overlap reducing the rigor of riding. This 5-speed transmission utilizes 1, 2 and sometimes 3 for the sections and 4 and 5 for open-road riding or for travelling in between sections.

Autolube

A first on any trials bike; automatic oil and gas mixing. The YAMAHA-developed Autolube system continuously monitors the engine speed and throttle opening to supply precisely the right amount of oil to be mixed with the gasoline for all operating conditions. With this system, the engine is cleaner burning and longer lasting.

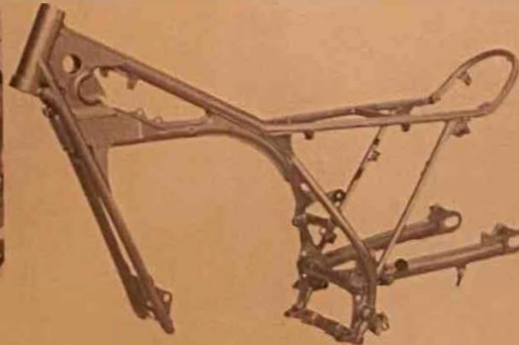
Flywheel and Magneto

The mass of the flywheel and magneto are carefully selected in any engine to obtain a smoother operation eliminating the pulsing associated with the combustion stroke. In the TY250, this mass is super critical in that it must maintain a dead-smooth operation even at ultra-low speeds, yet light enough to respond to the throttle instantly.



Chain Tensioner and Oiler

The tensioner on the chain serves to maintain a more uniform strain on the links. This is essential in trials riding due to the sudden change in torque requirements which arise. The rear swing arm is utilized as a small oil reservoir which drips oil on the chain while riding, increasing the lubrication characteristics and lengthening the serviceable life of the chain.



Frame

The frame for the TY250 is an extra-special diamond type which has been constructed of slim, high-tensile-strength tubing to offer a more dynamic ability to withstand stresses and strains encountered from the roughest sections imaginable.



Brakes

The brakes are waterproof and dustproof so the bike can be ridden anywhere with the assurance of absolute safety. Also, they are fade-free and, therefore, will not fail when actuated repeatedly. The brakes are rugged, but lightweight, and due to the magnesium die-cast construction, are able to withstand impacts from rocks and other obstacles along the section.



YAMAHA



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