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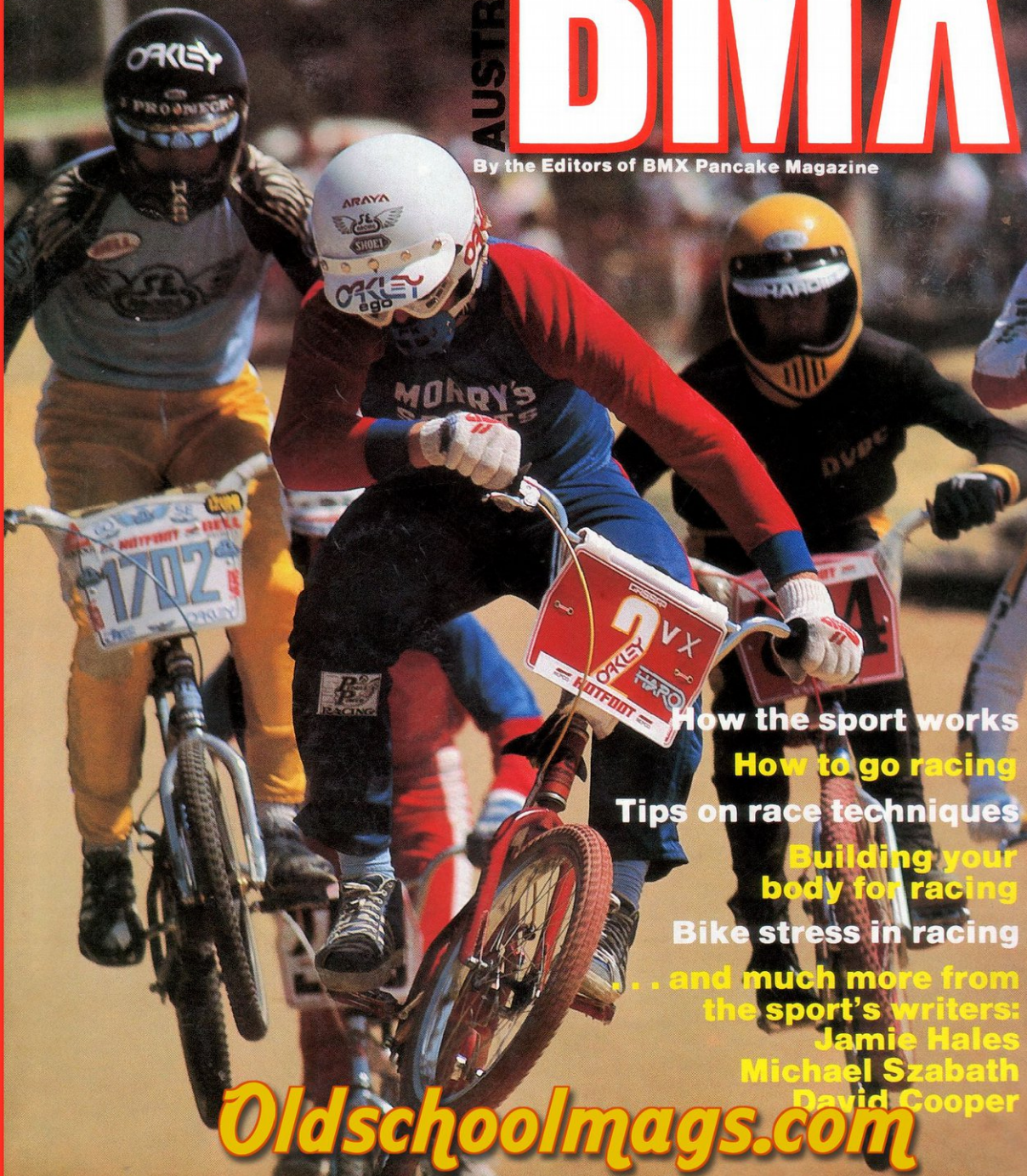
YEAR BOOK

AUSTRALIAN

BMX

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By the Editors of BMX Pancake Magazine



- How the sport works
- How to go racing
- Tips on race techniques
- Building your body for racing
- Bike stress in racing
- ... and much more from the sport's writers: Jamie Hales, Michael Szabath, David Cooper

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# YEAR BOOK

# AUSTRALIAN

# BMW

By the Editors of BMX Pancake Magazine







YEAR BOOK **AUSTRALIAN** **BMX**  
By the Editors of BMX Pancake Magazine



Club racing in BMX is fine and jolly good fun — but when you get to the annual National Title meeting and you're racing the best in the country in front of thousands of spectators, it's the training and dedication to riding BMX that's going to pay off. This picture was taken at the 1983 National Titles at Ashmore on Queensland's Gold Coast.

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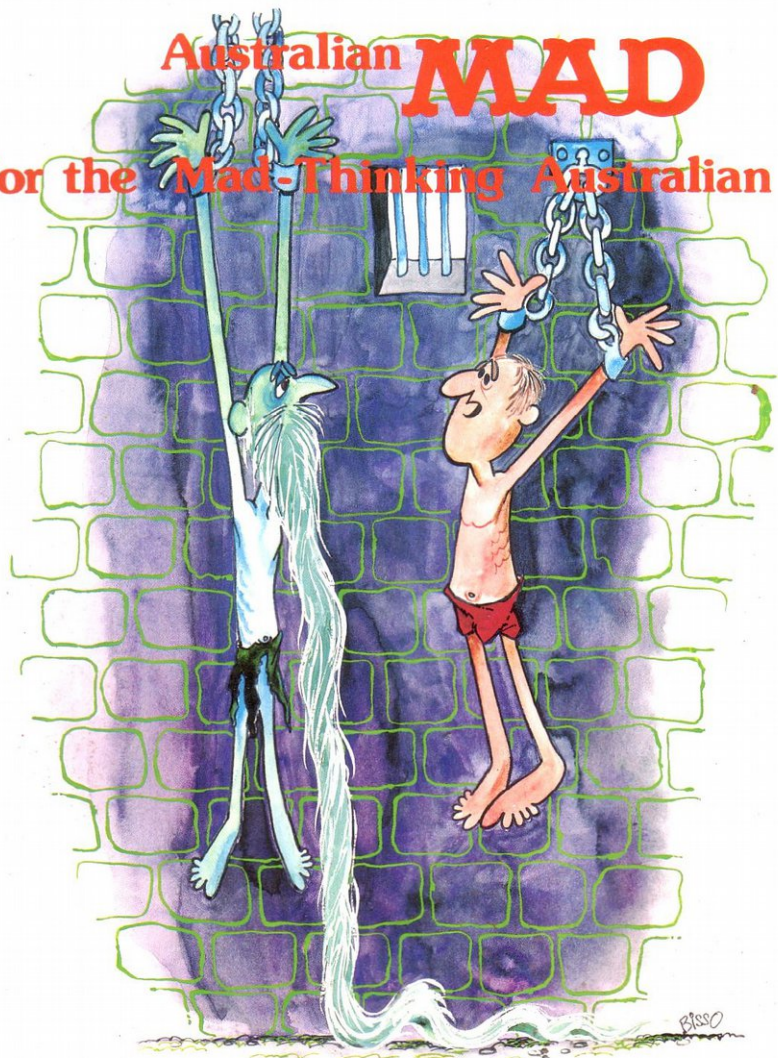
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By the Editors of BMX Pancake Magazine

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Intro

# HISTORY OF BMX

The sport of BMX has done for today's kids what hot rods did for returning servicemen in the late '40s and early '50s in America. It provided a meaning to what was merely a random pastime. When films like *On Any Sunday* (that classic which stunned the world with its simplicity, action and humour in the world of professional motocross riders) were being shot in the sand dunes of southern California, kids were attracted to the action like bees to honey. The film sets became a riot of youngsters on their modified pushbikes mimicking the stunts of the expert motorcycle riders up and down the sand dunes. So enthralled were the producers of the films that *On Any Sunday* included scenes of BMX racing which went a long way toward firing the imagination of the rest of America and, indeed, the rest of the world.

Now, 12 years later, the sport of BMX is established in its own right. Rules and regulations designed to enhance the safety of participants have been universally accepted and race venues and clubs organised and professionally promoted. Today's youngsters have, at their fingertips, a sport unlike anything their parents could have dreamed of 20 years ago. The important thing is it's relatively inexpensive, healthy and educational in the mechanical and personal skills sense.

Exact figures of tracks and participants are hard to come by. Old tracks close, new ones open around the corner with bigger and better facilities. It has been estimated that the US has more than 3000 registered tracks, each averaging 175 riders per meeting. That adds up to a lot of participation — and it's the kind of market that's needed to sustain an industry of its own. While some may decry commercialism entering sport, it's that industry that ends up being the

backbone of the whole thing; the people who make the bikes, the safety gear and the uniforms. The shops that retail to the public and who get behind their local branch of the sport. The circle goes on, one section ending up being dependent on the other.

Australia started late in BMX, but grew fast. The first bikes were adaptations of road cycles, then came the imports from America. Shortly after Australia spawned its own manufacturing industry while others tied in with Asian countries for supplies. What started out as a fairly loose leisure time activity is now bursting at the seams and on the verge of true professionalism. Australian riders are holding their own with the best from overseas and team interchanges are giving our isolated continent new techniques and fresh approaches every year.

Like Americans, Australian parents have shown over the years that they will get behind and support the activities of their children. That's one of the reasons why Australia has earned a reputation of being such a strong sporting-minded country. We have often lacked the facilities and the large budgets other countries channel into their sports (more population means more participants which means bigger industry to service them) but often, through sheer doggedness and the will not to be the underdog, have Australian sportsmen and women clawed their way to the top of a chosen activity, profession or sport.

One wonders what our kids did before television came along, and so we might also wonder what they did before BMX hit the scene. On any given weekend, it has been reckoned there's 30,000 or more kids pumping pedals around Australian BMX tracks. There's more than triple that number who follow the sport,

own the bike and some gear, but don't have the inclination to tough it out on the track.

BMX bikes, costing anything from \$150 upwards are said to now account for something like 70 percent of the cycle market and sales are reported to not have yet peaked. The rollover of used cycles seems to be running around the 2½ year mark, worn, torn or just well used gear is replaced almost annually with some of the more involved.

As Australians continually come to grips with this fascinating sport, and participation in it becomes more meaningful to the riders and to the industry, so the BMX explosion will settle down into almost a way of life. The editors of *BMX PANCAKE* have prepared this first edition of the Yearbook to try and encapsulate the sport as it is today and thus prepare the groundwork for an annual edition of the past year's activity.

The future of the Yearbook will, as always, depend much on the support of club office bearers — the people who hold the key to the publicity, the clubs, their champions and their track personnel need in order to provide industry with the exposure required to not only back the sport but also to research new and better products, lighter yet safer equipment at prices more and more people can afford.

In the light of that, we want to see BMX as being the sport that everyone can participate in, and one that all the riders can enjoy. As someone once said "Winning's not everything, it's how much you enjoy the excitement and thrill of participating."

We look forward to your company again next year.

**The editors  
BMX Yearbook.**



# How the Australian BMX Association operates



All competitors at BMX meetings have their bikes scrutineered by officials both for legality and safety. Regulations are quite rigid at most tracks, but it's all in the interests of fair competition and with the safety of riders at heart.

Although the dominant national association is the Australian BMX Association, two sanctioning bodies operate in Australia. The other is the NBA Australia Bicycle Moto Cross. The ABMXA is made up of delegates from State Associations and is an amateur body with all executive positions taken up on an honorary basis.

The NBA started in Victoria and is slowly building its list of sanctioning tracks outside of that State. Run more as a business, the NBA has paid executive on a full-time basis and has a more effective communication system with its members than does the ABMXA.

Formed in 1981 as a professional BMX consulting and sanctioning body by Alan Dorman in Victoria, the NBA stumbled a little in its early days because while its organisational system was simple, there is no less work load involved in operating in one State than in a number — all you do is multiply the amount of basic operations already in train.

Any organisation involved in administration needs constant attention, and this demands a large percentage of voluntary help. Most people only have

limited time they can devote to sport and family pastimes, and BMX is no exception. The NBA produced a rule book and a race track guide, based on a system that is easy to operate and simple to understand.

The NBA tracks must follow the system as it is laid out and use carbonised race sheets which they buy at cost from the NBA. In January 1982 the NBA had four race tracks operating in Victoria. By 1983 it had 10 tracks with another 5 or 6 preparing to join over the next 12 months.

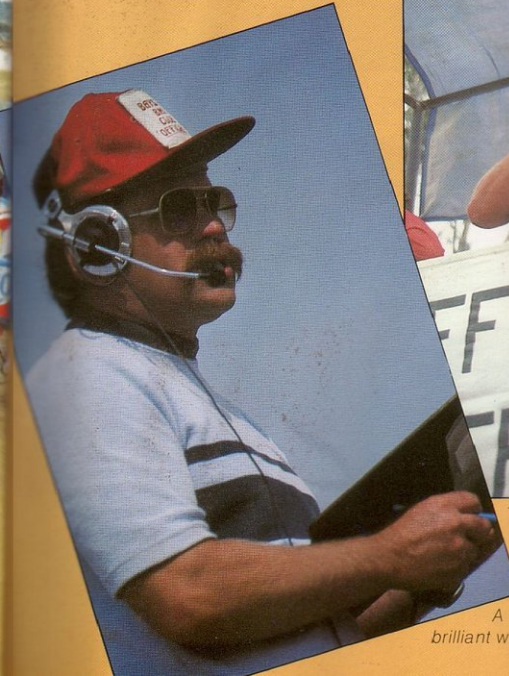
NBA riders are entered in motos (racing heats) in the order that they enter on the day. The NBA doesn't have rotational motos (where the entry list in each age is scrambled for each moto) so a rider could face the same competition most of the day. However, this is offset by a pre-gate selection, whereby you draw your start gate lane for each race — which avoids a rider getting stuck in the same lane all day.

When it first started to branch out into other States, the NBA quickly got 200 riders signed up — but the body carrying out NBA functions outside of Victoria tried to change the system and the result

was mass confusion. It got so bad the NBA pulled back to Victoria and only in 1983 has it again started to operate outside of the southern State. Steve Hamilton is now slowly building the NBA up again in NSW as State Manager.

As of April 1983 the NBA had 1200 members, of which 1000 were in Victoria, 28 in Tasmania and the rest in NSW. Alan Dorman is National Manager, Glenis Bignell is National Secretary and Chief Points Scorer, Gary Connell is National Race Director and John Mason is National Chief Steward. Then they have a National Pit Co-ordinator, Hank Lind, the Point Scorers are Carol Armstrong and Judy Flood, Gary Haseldine is National Promotions Co-ordinator and Les Kelly is National Commentator. These titles may seem confusing when one realises the NBA is a central body with 1200 members, and it is assumed when the organisation is truly national, these people will form the core of the training body for sanctioned tracks.

Where the NBA is winning out is in its central system of operation. Membership fees are \$15 a year. In return, members receive a license, rule book, monthly newspaper and take part in a



The trackside announcers work hard at BMX meetings calling races and keeping competitors and spectators informed. A few of them are almost brilliant with their constant patter.



Officials at BMX race meetings are generally parents who pitch in and help run the sport efficiently. They take up all duties, from flag marshalls to scoring and time keeping — the sport couldn't operate at all without their help.





novice and expert point score system on three different scales. Once a rider has won five first place trophies they automatically receive an expert license. The same when they move into a new age group — it's all done automatically by the central NBA body. If a rider attends a race meeting without their license, they automatically race expert and receive no point score for that day — the same applies if the rider doesn't have the correct number plate on the day ... no point score.

NBA riders receive District points, State points and National points throughout the year. District points go towards the number plate allocation for the next year. State points accumulate towards the top six riders in each age class, each of whom receives a State Plate from the NBA. National points are accumulated and only the No. 1 plate in each class receives a plate from NBA. If a rider doesn't win a State or National plate, they ride with their District number.

The Australian BMX Association runs its operations quite differently to the NBA. Tracks (and bear in mind the two

organisations are only interested in BMX racing) in each State choose to join either sanctioning body — or they can run racing independently, like Sydney's Metro-West track, which is free to stage meetings with either ABMXA or the NBA, or neither.

The State associations then affiliate with the ABMXA, allocating two delegates to the board of the ABMXA. Meetings are held every month via a national telephone hook-up, chaired by the president at the time. The ABMXA president and secretary change every year and the positions go to the State which is to host the next year's ABMXA National Age Titles. This has to be the biggest single event in the South Pacific racing calendar, drawing over 1700 entrants from all over Australia in 1983.

The ABMXA Nationals are the annual event, as are the affiliated State Age Titles. Most of the Titles are held within the first half of the year and you must only run your home State Titles. There is still visual confusion with plate numbers from State and National Titles. State winners from 1st to 8th can run those plates all year, as can National 1-8 plate

holders. The visual difference between the two on a race track is not as great as it might be.

The ABMXA, like its State affiliated associations, is somewhat tardy in communications back down the line. There is no newsletter to members (because, in effect, the ABMXA has no members, only the State associations) and it relies on the State associations to either provide a news service back through the tracks/clubs, or on the national media to keep those involved in the sport up to date on happenings. While the communication system is less than ideal, it may never change while the ABMXA structure remains as it is.

Some tracks under the ABMXA State associations started a computer scrambling system of motos. That is, no rider should face the same riders in an unfair number of motos at a race meeting — meaning that no rider should be able to get either all easy motos, or all hard motos. This is a system that works very well, and is being adopted by more and more tracks. Not only does the scrambling system alter the competitors in each moto, it also alters the start gate

line-up, serving two purposes at once.

If there is any glaring problem with the ABMXA, it is that the whole system is run on amateur sporting lines. Many people devote untold hours of time and effort to keeping the sport ticking along, but there is no real accessible central core with the time to service 'member' tracks and their entrants with meaningful communication, assistance with track promotion or the overall promotion of BMX as a whole.

At the end of 1982 the ABMXA was accepted as a member of the International BMX Federation, based in Holland. Australia's 25,000 registered riders, filed with the IBMXF means that Australia is the second largest BMX nation in the world on a per capita basis behind the USA.

A number of sanctioning bodies, stemming from the 'image names' of the sport in the USA, have tried to get going in Australia over the years. However, Australia in that sense is still traditionally British, and the amateur organisations have finally won out without any real effort and still retain the true national identity.

The biggest problem facing BMX in Australia in 1983 was the scuffle between amateur and professional riders. Many tracks have sponsors who put up pro purses of anything up to \$5000 per meeting. The conflict is coming not so much from the riders — some of whom are getting to the stage where, with bits and pieces from here and there, are beginning to be able to make a living from the sport — but from State bodies who are anxious not to relinquish the amateur status. Tracks are overcoming the problem whereby riders nominate as Pro riders for certain race meetings, and cannot race in the amateur events. But the amateurs can race in Pro events for trophies only.

#### The State Associations

One of the most lively and go-ahead of the States affiliated with the ABMXA is Victoria. The VBMXA is an association composed of its affiliated clubs throughout Victoria and is itself, a member of the VBMXA, within its State, is entitled to nominate two delegates to attend VBMXA meetings on the first Tuesday every second month. In this way each club has the opportunity to participate in decisions affecting the sport.

While the VBMXA acts as a governing body for State titles and sanctioned meetings, it also acts as a licensing body for riders, giving them insurance cover in case of an accident at official practices and race meetings.

One of the State association tasks is to promote the sport within their State. The following is text from a booklet the

VBMXA publishes for the guidance of clubs in running their race meetings:

#### 1. Advertising of Meetings

The extent to which you wish to advertise your meeting will very much depend on the type of meeting you intend to run. There are four basic meetings.

- Local or club meetings where only members of the club participate.
- District meetings where you open the meeting to other clubs or riders in the immediate district.
- Open meetings, where you draw riders from anywhere possible.
- Sanctioned open meetings. This is a fully sanctioned VBMXA meeting, drawing riders from all around the State. Before a club is eligible to hold a fully sanctioned meeting, the track *must* be passed as acceptable by the VBMXA inspectors and the club must have demonstrated an ability to run a large successful meeting.

For (a) and (b) type meetings, the local papers, TV stations and radio stations will provide good advertising, some local stations and papers have a free service for local clubs to allow them to advertise. Otherwise a wide distribution of posters and entry forms to local businesses and cycle shops should reach the majority of riders.

For (c) and (d) type meetings, you can use the above mediums for the local area, but you will need to ensure entry forms and posters are distributed to as many Melbourne and Country clubs as possible. If committee members are attending open meetings prior to four meetings make sure they ask the commentator to advertise your meeting.

#### 2. Sponsors

Most BMX clubs run close to the red-line in their bank balances and any outside help is always welcome.

Sponsors can be used in a variety of ways.

- To help set up the club and track by providing material and/or services necessary. In return the club generally agrees to allow a sign to be erected on a suitable spot on the track.
- The club can sell advertising space on the track to local business houses. A starting figure for negotiation would be \$50 per year plus the sign supplied.
- The club can allocate a certain class of racing to a sponsor, eg. 14 class Acme Tyre Service trophy. The sponsor generally supplies all trophies for his sponsored class. This can help considerably if a large meeting is to be held.

No doubt you, as a club, can think of further ways in which sponsors can help

— but always keep in mind — the sponsor requires value for money if he is to continue, so make sure the commentator at all meetings gives all sponsors plenty of recognition and if the club runs a newsletter some further advertising would be in order.

#### 3. Preparation of Entry Forms.

Basically, all entry forms must contain the same information, but there are some differences depending on how the club intends to process its entries (see section 4 Processing Entry Forms). Information required is as follows:

NAME	ADDRESS
TELEPHONE No.	MALE/FEMALE
AGE	DATE OF BIRTH (D.O.B.)
RACING NUMBER	
CLASS ENTERED	

If the club is running a large meeting some further information may be required for publicity or to help the commentator, eg. BIKE TYPE and SPONSOR, a list of major victories can also assist.

Some sample entry forms are attached. (Appendix A).

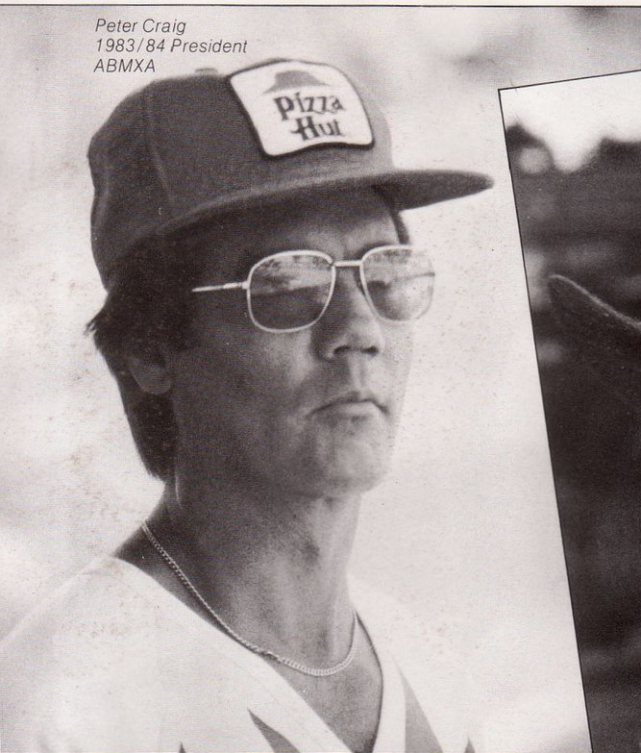
**PLEASE NOTE:** All entry forms should include an indemnification form which has to be signed by the parent or rider (if over 18).

#### 4. Processing of Entry Forms.

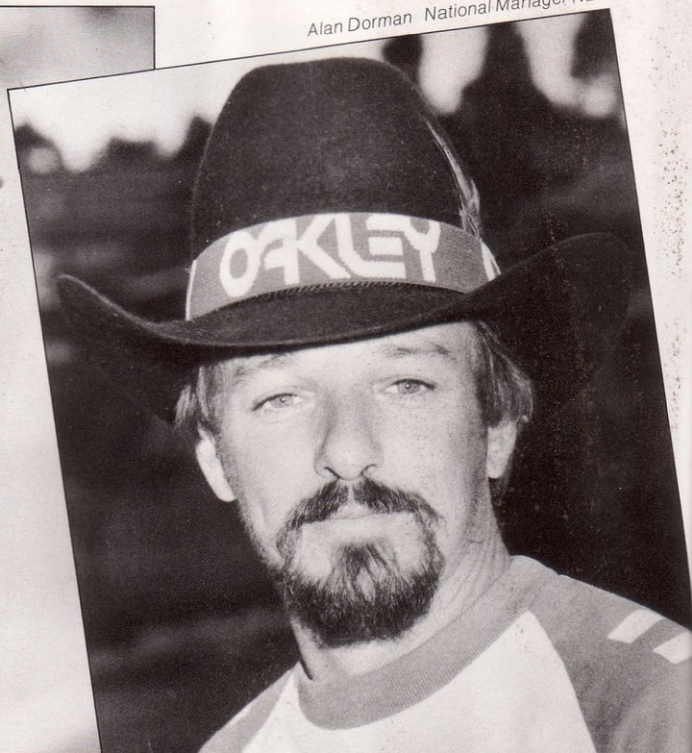
There are two methods of doing this.

- By computer: At present most of the larger meetings (200 + riders) are sent to Pegasus Computing P.O. Box 429, Ringwood, 3134. Pegasus tumbles all motos and supplies moto sheets and score sheets for a cost of 50c per rider. This can save considerable time and labour — especially for large meetings. Country clubs should note that closing dates for entries to be processed by computer should leave sufficient time to allow the moto sheets and score sheets to be mailed back — before the meeting.
- Manual processing: This requires 2-4 people to ensure accurate processing in a reasonable time.
  - On receipt of entries — all entries should be classified into age groups. An expanding file is handy to use as the entries can be grouped immediately they are received.
  - After entries have closed: Determine the number of riders in each age group, if there are more than a full gate, i.e. 6 or 8 depending on gate size, then 2 or more heats will be necessary, eg. If there are 12 riders in an age group and the club runs a 6 up gate then there will be 2 heats per moto. This required tumbling of each moto, i.e. mixing the riders in each succes-

Peter Craig  
1983/84 President  
ABMXA



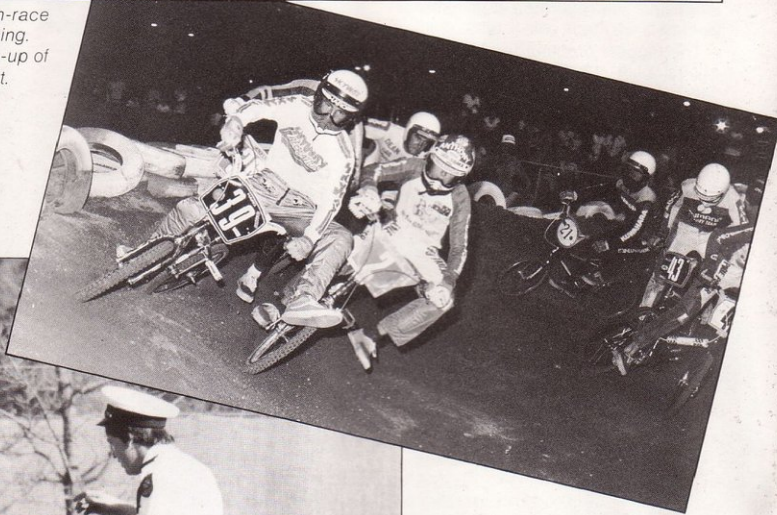
Alan Dorman National Manager NBA







Older riders often devote their between-race time to help the youngsters in their racing. Here a senior rider checks out the line-up of young riders as they prepare for a start.



In line with safety regulations for BMX, medical attendants are required to be at every race meeting. Some of the more radical tracks require their services often, but serious injuries have proved to be very rare in the sport.

sive race to make sure each rider rides against every other rider as much as is possible. Appendix B gives a tumbling table that can be used for up to 30 riders.

Once tumbling has been completed the moto race sheets can then be filled in (Appendix C). This is an exacting task which requires some time to ensure accurate copying. There are generally 4 copies of the moto sheets needed — one for the commentator, one for the pit marshal, one for the starter and one to pin up. Moto sheets should include the riders race number and (especially for the commentator) full name. Some room should be left on the commentary sheet for additional information, eg. bike type, sponsors name etc.

#### 5. Before Race Day.

- Prepare major officials list (see appendix D for list of duties). Head judge, chief steward, scorer, starter and commentator. Minor officials eg. corner stewards, finish line judges are usually found on the day of the meeting.
- Prepare check list of equipment needed for race day, eg. discs for finish line (for the riders to take to scorer to indicate placings), P.A. system, pens for scorers, clip boards, golf balls with numbers 1-6 for gate draw, brooms for track sweeping, flags (see appendix 1).
- It is legally essential for 2 qualified first aid attendants to be present at every race meeting. It is suggested that the club contact the local St. Johns Branch to ensure the riders are looked after properly.

#### 6. On Race Day.

- Set up P.A. system, scorers shelter, etc.
- Call for minor officials — chief steward to allocate positions on track.
- Ensure riders bikes are scrutineered before they commence practice — scrutineers should look mainly for safety features on bikes, eg. no reflectors or chain guards, brakes working, no loose headstem or bottom brackets etc.
- Pin up moto sheets for rider information.
- Ensure that races flow smoothly — there should be no long gaps between races or motos.

#### 7. Scoring Method and System

- As the riders finish the race the line judges give them a disc to indicate the riders placing. The rider takes this disc to the scorer's table where he/she presents the disc to the

scorer giving his/her race number and name.

- The scorer then records placings on the score sheets (Appendix E.).
- If club championship points are to be kept, it is suggested that a 52 column register be kept, where scores are recorded after each race meeting.
- Points: 1st — 3/4, 2nd — 2, 3rd — 3, 4th — 4, 5th — 5, 6th — 6, etc.

**PLEASE NOTE:** After all SANCTIONED OPEN MEETINGS, results must be sent to Mr. Bill Smithett, 4 Madura Crt., Mulgrave, 3170.

#### Track Design.

There is no set design for a track nor any set number of obstacles or type of obstacles. However it is of some assistance to be able to study existing track designs and incorporate some of their ideas into your track design. Most riders seem to agree that the ideal track length is one which can be completed in 30-40 seconds — approx. 950 — 1050ft. in length. Appendix F gives some diagrams of possible track designs.

#### Surface

Again there is no set material which has proved best for BMX tracks — just about everything has been tried and all have met with some degree of success. The ideal surface is one which gives some challenge to the riders but which will not cause injuries when a rider falls. Granite sand, builders sand, white clay sand have all been used, but plain dirt — especially with a good clay content is as good as any. However you should pay particular attention to drainage if you are going to hold meetings all year around. It is also handy to have a source of water nearby as during the summer most tracks hold together better if watered during a meeting.

#### VBMXA Export/Novice System

- Within the age classes shown the State Body will grade riders into
  - Expert
  - Novice
- Expert grading to be determined as follows:—
  - by receiving points for:—
  - Australian Plate Holder 20 points
  - Victorian State Plate 1 to 5 20 points
  - Victorian State Plate 6 to 9 10 points
  - Open Meeting Expert — 1st Place 10 points
  - Open Meeting Expert — 2nd Place 8 points
  - Open Meeting Expert — 3rd Place 6 points
  - Open Meeting Novice — 1st Place 5 points

Open Meeting Novice — 2nd Place 4 points  
Open Meeting Novice — 3rd Place 3 points

When a novice receives the total of 20 points, the rider becomes an expert.

Once classified an expert, the rider is not eligible to ride in novice finals.

- At all open sanctioned meetings expert and novice riders all ride together in heat motos. Best point score as per ABMXA rules to select riders for quarters, semis and finals as required, the next best eligible riders to novice finals.
- When a rider changes age groups he/she may go back into the novice class. This rider will then be advanced into the expert class after receiving 20 points as per points system.
- A novice who voluntarily nominates as expert will remain an expert in that class until his/her next birthday.
- Expert riders may apply in writing to their State Association for reclassification to novice after unsuccessfully competing at five (5) sanctioned open meetings.
- Issue of expert riders will be via Council Minutes Bi-monthly.
- Update by phone prior to each open meeting to the club running expert and novice.
- Club to post listings of expert riders on notice board prior to meeting.
- Prompt return of finals sheets with placings and names clearly marked is "AN ABSOLUTE MUST."

#### Standard Flag Code

**RED FLAG — WAVED** means assistance required from St. John's Ambulance.

**RAISED STATIONARY** means rider down and track blocked.

**YELLOW FLAG: — RAISED** means a protestable offence or infringement of rules has taken place and the Chief Steward must officiate to decide on the penalty applied.

**BLACK FLAG — Carried** only by the Chief Steward.

**RAISED** signifies a protest upheld and a penalty given OR an infringement proven and penalty given.

**WAVED** at waist level means the protest or infringement has been dismissed.

**RECALLS — FALSE STARTS:** At the riders briefing the method of recalling races or false starts must be explained. A distinctive sound signal is strongly recommended.

**NOTIFICATION TO STARTER THAT TRACK IS CLEAR: — At all tracks — a designated official in an advantageous position must signal to the Starter that it is safe to start the next Moto**



# STICK TO THE RULES AND YOU CAN'T GO WRONG

Stick to the rules. That's what riding safety is all about on Australia's growing number of BMX tracks.

Rules drawn up by the BMX Associations are a guide to the safety measures demanded by most tracks around the nation.

Bikes are checked before races to make sure they're safe to ride. Officials check for:

- Cracked, broken or distorted frames, forks, handlebars.
- Combined wheel and tyre diameters, in racing condition, must not exceed 533mm (21 inches).
- Both wheel hubs must be tight, with spokes tightly in place.
- Tyres must have tread with no splits or separations.
- Axles must not extend more than 6mm (1/4 inch) beyond the outer axle nut, without being adequately covered for protection.
- Cut axles must have no exposed sharp edges. The ends must be smoothed round.
- Handlebars must not exceed 660mm (26 inches) in width or height and must have ends plugged.
- Hand-grips must be tightly in place, with no torn ends.
- Bikes must have brakes in good working order, and at least one which locks the back wheel.
- Rear hand-brake cables must be secured to the bike's frame.
- All riders must have, and wear, proper safety equipment; helmets, long sleeves, long pants, shoes or boots.
- Padding on the bicycle is required. These pads must cover the gooseneck, handlebar brace bar and the top frame bar.
- Rider's attention is drawn to the following general safety requirements:
  - Reflector(s) or reflector brackets are not permitted.
  - All metal protrusions must be rubber

or plastic — covered and raw ends must be taped.

- Mudguards or carriers are not permitted.
- Bells, bike stands, toe clips or chain guards (chain wheel guard excepted) are not permitted.
- Seat support must be no higher than top of seat.

General race rules and requirements include that riders must walk their bicycles to the starting line and rolling starts are prohibited.

When a gate start is used, the front wheel MUST be placed against the gate, grounded and must remain stationary until the gate moves.

False starts are charged against the rider or riders who initiate them and may lead to a penalty. The offences are not accumulated from moto to moto.

The starter will use his judgment in handling riders who break the rules with regard to the start.

The lead rider, or the rider who has at least a wheel ahead of all other riders, has the right of way, but he must not interfere with the other riders in such a manner as to deliberately prevent another rider from riding to the best of his ability.

If a rider falls, or must stop on the track at any time, his first responsibility, if injured, is to place his bicycle and himself so the least possible interference is caused to others.

If a bike is disabled during a moto, the rider may straddle it, or the rider may hand push it across the finish line and receive the place he or she finished.

Cutting the track to gain advantage warrants disqualification for the moto.

The only time a rider may leave the track during a moto is if the rider is forced off it for safety reasons. This would include leaving the track to prevent running over another rider. Any rider who has to leave the track must re-enter at the nearest point possible

which does not shorten the distance to the finish or reduce the number of obstacles the rider has to take.

The rider must not interfere with the other riders to improve his position in the moto. A rider who forces another rider off the track can be penalised by the race director.

Riders must not help each other. Non-participants must not interfere, in any way, during motos, or two riders try to box in or take out another rider or riders. The penalty for doing so may be disqualification for the meeting, or other appropriate penalty, at the race director's discretion.

Tactical team riding is strictly prohibited.

Interference is doing anything deliberately to prevent another rider from riding to the best of his ability. Interference with another rider includes: jamming, ramming, or centre punching, improper use of feet and/or arms, body, bike or English.

Interference is often a complex offence, and is determined by the official as to the severity of it. He will determine whether it was deliberate or not. If an infraction or interference can be avoided, and is caused, the official may determine it as being deliberate. The race director will determine the appropriate penalty.

When an infraction is determined by the race director, the rider who committed it must be penalised. This will encourage honest, fair and good sportsmanlike competition. The race director has the right to approve re-runs.

Riders or officials are not allowed to use profanity. A breach of the rules can lead to disqualification.

Properly equipped medical aids must be available at all race meetings, either St. Johns Ambulance, a qualified nursing sister, doctor or qualified first-aid attendant.

## Australian Bicycle Moto Cross Association

# RULES & REGULATIONS

### INTRODUCTION

The Rules and Regulations of the ABMXA (which must be taken in conjunction with the Constitution of ABMXA) are formulated on behalf of and for the safety of all competitors and to encourage safe, honest, fair and good sportsmanlike competition.

The Rules and Regulations of the ABMXA are without prejudice to anyone, and may be amended or varied by the Committee of ABMXA as each new season begins or at such other times as the Committee may consider necessary.

### 1. GENERAL RULES

- (a) All riders must be a member of an Affiliated Club or Association before competing at any event, run under these rules.
- (b) Riders are required to be fully conversant with the Rules and Regulations and any supplement thereof which governs any event, and are (by reason of their entry therein) definitely bound by such Rules and Regulations.
- (c) The ABMXA racing season will be for one calendar year commencing on 1st January in each year.
- (d) Only riders officially entered may ride or practice on any track

- (e) An entrant declaring an incorrect age, either when joining an affiliated club or when registering for the day's event, and riding out of his or her age group, will lose all points accumulated, shall be disqualified for the day and may also be suspended for up to 12 months.
- (f) No pit racing and/or riding in spectator areas will be permitted at any event.
- (g) The rider is the only person responsible for ensuring that he or she is in the proper class, with the correct racing number.
- (h) Neither riders/passengers nor officials may, at any time, use profanity. Any rider/passenger who does may be subject to disqualification from the event.

### 2. RACING LICENCE

- (a) Riders and passengers at all events must have, in their possession, a current Racing Licence issued to them by their State Association. Provided however that:—
  - (i) Where a rider/passenger has joined a Club within the preceding two month period then the Race Director may accept, in lieu of

during the event. Racing Licence, a receipt bearing the stamp of that rider's Club which was issued at the time the rider paid all appropriate membership fees (included Racing Licence fee) and such information is clearly stated on such receipt; or

- (11) where a rider/passenger is the holder of a Racing Licence issued to him or her by a State Association which is a member of the ABMXA, then such Racing Licence may be accepted by the Race Director.
- (b) The date of birth shown on such Racing Licence shall be accepted as proof of the riders age; however should a rider produce a receipt (see (a) (i) above), then proof of age may be required to be sighted at the time of registration for the event.
- (c) The rider is responsible for ensuring that his or her Racing Licence contains the correct information. If the Racing Licence contains incorrect information, or should the Racing Licence be lost, then the rider must notify the appropriate Club official and a corrected or replacement Racing Licence will be issued and any fee as



may be determined by the State Association will be determined.

- (d) A rider/passenger must be able to produce his or her Racing Licence on request.

### 3. CLASSIFICATION

- (a) Age classes at all event, except as hereinafter provided, will be conducted as follows:—  
Under 5/ 5/ 6/ 7/ 8/ 9/ 10/ 11/12/ 13/ 14/ 15/ 16/ OPEN.
- (b) Where there are sufficient riders there will be classes as follows:—
- (i) Girls (Power Puffs), Sub Junior Ladies — 7 & Under, Junior Ladies — 8/9 Years, Intermediate 10/11 Years, Senior Ladies 12/13 Years/14 & over.
- (ii) Junior Side Hack Class — both rider and passenger must be 12 years of age or under.  
Senior Side Hack Class — both rider and passenger must be 13 years of age or over.
- (iii) Cruiser Class Open — 14 years and over.
- (c) Rider's age will be his or her age at commencement of event.
- (d) Four entrants will be required to constitute a class; if there are less than four, they shall compete in the next larger displacement class, or the Nomination Fee will be refunded. Any such jumps in class are not permanent and shall only apply to that event.
- (e) Riders will be permitted to enter only one age class per event, but may also enter (or qualify for) any appropriate Trophy Dashes, Open, Side Hack, (either as rider or passenger), Cruiser or other special racing that may be organised.
- (f) In the interest of increasing the standard of racing riders may enter an age class above their chronological age, and girls may enter a boy's class equal to or above their own chronological age, consistent however with Clause 3 (e).
- (g) Clubs may, at Club member only events, conduct racing in divisions other than as stated above.

### 4. ADVANCEMENT

- (a) Within the age classes shown in

Clauses 3 (a) and (b) above, Clubs may conduct

- (i) an Expert Division; and  
(ii) a Novice Division.
- (b) Riders may be classified as either a novice or an expert, and in the first instance, such classification shall be determined by the rider's Club.
- (c) A rider may start as a novice and then be advanced into the expert class.
- (d) Novices will be re-classified according to past finishes by the State Association.
- (e) A novice can request, in writing through Club Officials, to be advanced.
- (f) When a rider changes age groups, he or she may go back into the novice class.

### 5. MOTOS AND HEATS

When there is more than one heat in any class motos must be mixed on a random selection or mathematical progression basis.

### 6. POINTS ALLOCATION

- (a) In each moto, a rider earns and retains (subject to these Rules and Regulations) points related to his finishing position as follows:—
- |               |             |
|---------------|-------------|
| First Place   | — ¾ Point.  |
| Second Place  | — 2 Points. |
| Third Place   | — 3 Points. |
| Fourth Place  | — 4 Points. |
| Fifth place   | — 5 Points. |
| Sixth Place   | — 6 Points. |
| Seventh Place | — 7 Points. |
| Eighth Place  | — 8 Points. |
- With the lowest scores qualifying for finals.
- (b) If any rider does not cross the finish line, he or she will be deemed to have run last.
- (c) The Race Director may however refuse to allocate any points to a rider whom he deems, in the circumstances, not to have attempted to complete the moto in a reasonable time.
- (d) If a nominated rider does not start in his or her moto, then the race sheet is marked "NS" (non starter) for that moto.  
"NS" scores points.
- (e) A rider disqualified in a moto is marked on the race sheet as "DISQ".  
"DISQ" scores points.

### 7. TROPHY WINNERS

To determine trophy winners, the following method **MUST** be applied:— (subject to the proviso and Clause 9 hereof) (the first set of bracketed figures applies to 6 gate starts — the second to 8 gate starts)

- (a) Where the number of entrants does not exceed a full gate start — (6 or fewer) — (8 or fewer) — then
- each rider rides the same number of motos; then
- each rider rides in an EXTRA moto with trophies being awarded on total accumulated points; however
- should there be any ties in accumulated points placings then the results in the EXTRA moto are used to separate any such ties.
- (b) Where the number of entrants exceeds a full gate start but does not exceed three full gates starts — (7 to 18) — (9 to 24) — then
- each rider rides the same number of motos; with
- the top — (6) — (8) — riders on accumulated points proceeding to a full gate **final**, with any tie for the last **(6th) — (8th)** position at the gate being decided by a run-off.
- trophies are awarded according to placings in the final.
- (c) Where the number of entrants exceed three full gate starts — (19 or over) — (25 or over) — then
- each rider rides the same number of motos; with
- the top **(12) — (16)** riders on accumulated points proceeding to two full gate **SEMI-FINALS** with run-off (if necessary) for the last — **(12th) — (16th)** — position in the **SEMI-FINALS**.
- trophies are awarded according to placings in the **FINAL**.
- (d) Where the number of entrants exceed six full gate starts — (37 or over) — (49 or over) — then
- each rider rides the same number of motos; with
- the top **(24) — (32)** rid-

ers on accumulated points proceeding to four full gate **QUARTER FINALS** with run-offs (if necessary) for the last — **(24th) — (32nd)** — position in the **QUARTER FINAL**.

— the first — (3) — (4) — placegetters in each quarter final proceed to two full gate **Semi Finals**.

— trophies are awarded according to placings in the **FINAL**.

Clubs may, at Club member only events, vary these requirements to suit requirements for that particular Club member only event.

### 8. NUMBER OF MOTOS

The number of motos to be raced at a particular event will be determined having regard to:—

- (a) the total number of entrants; and  
(b) the time available for the conducting of the event.

### 9. ALTERATION TO RACE PROGRAMME

If it becomes imperative to reduce the time to be taken for an event (i.e. through inclement weather), one of the following methods may be applied by the Race Director.

- (a) reduce the number of motos to be raced by every entrant; or
- (b) cut out **QUALIFYING FINALS** and **FINALS**. At the end of the last moto the rider with the most points is then deemed to be the winner. If two or more competitors are on equal points, then —
- (i) firstly ties will be broken by fastest moto time by each competitor; but
- (ii) should such times not be available or be equal, then the best results in the last moto shall be used to break such ties.
- (iii) Add runoff

### 10. NUMBER PLATES

- (a) At all events a rider **MUST** at all times ride with a clearly visible number plate which is:—
- (i) securely attached to the handlebars in the area between the gooseneck and handlebar brace bar; and
- (ii) faces forward; and
- (iii) has attached to it his or her racing number.

- (b) At all events a rider **MUST** at all times ride with the racing number and/or letter combination which has—

- (i) been allocated to him or her by his or her Club; or
- (ii) been allocated to him or her through successful competition at the preceding Australian BMX Association Age Titles, or the preceding State Association Age Titles (provided such State Association is a member of the ABMXA); or
- (iii) been allocated where there may have been a duplication or racing numbers at any event by the Race Director, **PROVIDED HOWEVER** that this sub-clause shall not prevent a rider from riding with the race number referred to in (ii) above.

This racing number cannot be changed during the course of any event and place points will be awarded to that racing number only.

- (c) The only riders who will be entitled to race with a racing number between 1 to 10 (inclusive) shall be those riders referred to in sub-clause (b) (ii) above, and no Club (or Race Director) shall allocate numbers within that numeric group.
- (d) Notwithstanding the provisions of sub-clause (c) above, a Club may allocate to a rider a number within that numeric group as a result of Club Championship Competition, however such rider will only be entitled to ride with that racing number at that Club's Club member only events and in **no** other circumstances.
- (e) The racing number and/or letter combination must, with respect to each number and/or letter, contrast in colour to the number plate colour and any such number and/or letter must be at least 100mm (4 in) high and each portion thereof must be at least 12mm (½ in) in width.
- (f) Stickers must not cover racing number.
- (g) A rider may change his bicycle for motos, but he must use the same racing number for the entire event.

### 11. EQUIPMENT REQUIREMENTS

#### (a) Bicycle Equipment General Requirements

- (i) Bicycles, and outrigger where applicable, must be safe to ride and to race.
- (ii) Padding, which covers the gooseneck, handle bar, brace bar and top frame of the bicycle, is required in all categories.
- (iii) Cracked, broken or distorted frames, forks, handlebars or other equipment are not allowed.
- (iv) All wheel hubs must be tight, and have spokes tightly in place.
- (v) Where a tyre is manufactured in such a manner that there is no tread or limited tread in certain portions of the tyre, then same is acceptable in that condition, **however** generally tyres must have tread with no splits or separations.
- (vi) Axles must not extend more than 6mm (¼ in) beyond the outer axle nut, without being adequately covered for protection.
- (vii) Cut axles must have no exposed sharp edges, the ends must be smoothed to a rounded shape.
- (viii) Handlebars must not exceed 710mm (28 in) for a 20" bike and 790 (31 in) for cruisers, in width and must have ends plugged.
- (ix) Hand-grips must be tightly in place, and must not have torn ends.
- (x) Bicycles must have brakes which are in good working order and at least one brake which locks the back wheel.
- (xi) Rear hand-brake cables must be secured to the bicycle frame.
- (xii) Riders attention is drawn to the following general safety requirements:—
- reflector(s) or reflector brackets are not permitted.
- all metal protrusions must be rubber or plastic covered and raw ends must be taped.
- mudguards or carriers are not permitted.
- bells, bicycle stands, toe clips or chain guards (chain



wheel guard excepted) are not permitted.

— seat support must be no higher than top of seat (i.e. no "sissy bar").

(b) **Bicycle Equipment Special Requirements**

*BMX Category Bicycles*

There shall be no more than two wheels, and with respect to each of which, the combined wheel and tyre diameters, in racing condition, must not exceed 533mm (21 inches).

*Cruiser Category Bicycles*

There shall be no more than two wheels, and with respect to each of which, the combined wheel and tyre diameters, in racing condition, must not be less than 610mm (24 inches) or more than 685mm (27 inches).

*Side Hack Category Bicycles and Hacks*

(i) There shall be no more than three wheels, and with respect to each of which, the combined wheel and tyre diameters, in racing condition, must not exceed 533mm (21 in).

(ii) The width must not exceed 1 metre.

(iii) There shall only be one set of pedals.

(iv) The outrigger may be located on either side of the bicycle.

(v) Frame members of the side hack, constituting a potential hazard, shall be padded.

(vi) Exposed ends shall be plugged, covered or suitably radiused.

(vii) Passenger platform shall be secured and have a non-slip surface.

(viii) Front and rear brakes are mandatory.

(ix) The whole of the inward area of the hack wheel (above platform level) must be covered with a suitable rigid material which will not allow penetration by fingers to the spokes.

(c) *Personal Equipment Requirements*

(i) All riders, and passengers, must wear proper safety equipment, i.e. helmet, long sleeves, long pants, shoes or boots and suitable gloves are required.

(ii) Goggles are recommended.

(iii) Riders, and passengers, are not permitted to wear

any personal jewellery (necklets, earrings etc.) which could possibly be a safety hazard.

**12. RACE RULES AND REQUIREMENTS**

**General**

(a) All bicycles, and side hack outriggers, must be scrutineered for compliance with the provisions of Clause 12 hereof, prior to being raced in any event.

*Starts and Starting Procedure Procedure*

(b) Riders must walk their bicycles to the starting line.

(c) Rolling starts are prohibited and when a gate start is used, the front wheel **MUST** be placed against the gate and grounded, and **MUST** remain stationary until the gate moves.

(d) **Starting Call** — in instances other than when a mechanical starting device is used, the Starter must use the following standard starting call:— "Riders Ready" (pause) "Pedals **Set**" with the gate dropping on the word "**set**".

(c) **Starters** should not be changed, except in exceptional circumstances, during the course of any particular age group or category.

(f) **In Side Hack** events one of the passengers feet must be on the platform at the point of start.

(g) Riders 6 years and under may be assisted at the start by having their rear wheel clamped between the legs of an assistant. The assistant must not aid the rider in any other way.

*False Starts*

(h) False starts are charged against the rider or riders who initiate them and may lead to disqualification from the race.

*Start Lanes*

(i) Suggestion of white lines for lanes to distance of at least (10m) from starting point: Riders **MUST** not cause interference in the first 15 meters and white lines may be used as a guide to assist in policing that rule.

(j) **Race Falls** — If three or more of the race field comes down before the first obstacle the race will be re-run.

*Racing Generally*

(k) The lead rider, or the rider who

has at least a wheel ahead of all other riders, had the right of way, but he **must not deliberately prevent another rider from riding to the best of his ability.**

(l) If a rider falls or must stop on the track at any time, his first responsibility, if uninjured, is to place his bicycle and himself so that the least possible interference is caused to others.

(m) If a bicycle is disabled during a moto, the rider may straddle it, or the rider may "push" the bicycle across the finish line and receive the place he or she finished.

**PROVIDED HOWEVER** that a rider may only use one bicycle in any moto and a breach of this rule will result in the rider receiving no points for that moto.

(n) Cutting the track to gain advantage warrants disqualification for the moto.

(o) The only time a rider may leave the track during a moto, is if the rider is forced off it for safety reasons. This would include leaving the track to prevent running over another rider. Any rider who has to leave the track must re-enter at the nearest point possible which does not shorten the distance to the finish or reduce the number of obstacles the rider has to take. The rider must not, whilst re-entering the track, interfere with the other rider or improve his position in the moto. The rider who forces another rider off the track will be penalised if the Chief Steward so determines.

(p) Riders must not help each other, nor should nonparticipants interfere in any way during motos nor shall two riders try to box in or take out another rider or riders. The penalty for doing so may be disqualification for the meeting, or other appropriate penalty, at the Chief Stewards discretion.

(q) Tactical team riding is strictly prohibited.

(r) Interference is doing anything deliberately to prevent another rider from riding to the best of his ability. Interference with another rider includes: Jamming, Ramming, or Centre Punching, improper use of feet, arms, body or bike.

(s) **Interference is often a complex offence**, and it will be determined by the Officials as to the severity of it, the Official will determine whether it was deliberate or not.

**If an infraction or interference can be avoided, and is caused, the Official may determine it as being deliberate. The Chief Steward will determine the appropriate penalty. When an infraction is determined by the Chief Steward the rider who committed it may be penalised.**

(t) *In Side Hack Events*

(i) Passengers may assist in propelling the hack **provided one foot remains on the platform at all times** and both hands remain in contact with the hack.

(ii) At all times during and at the finish of the moto, both team members must be in their respective combination (i.e. rider/passenger) as at the starting position.

(iii) Should either team member **fall** during a moto the hack may not be propelled forward until both team members have regained their normal positions.

(u) *Flag Code:*  
Red flag — Held aloft in stationary position. Danger on track/Track closed. Yellow flag — Held aloft in stationary position. Report by Stewards on infringement.  
Black & White flag — finish.  
**NOTE:** Red flag waved by Track Marshall indicates **FIRST AID** required.

**13. PROTESTS**

(a) All protests must be brought to the attention of the Chief Steward who will direct the protest to the Steward concerned before making a decision.

(b) Only a competitor may file a protest against another competitor in the same moto.

(c) Riders in other motos, spectators, team managers or captains and other third parties **MAY NOT** file protests or become involved in any other way with a protest.

(d) If the provisions of (c) above are violated the protest may, at the discretion of the Chief Steward, be awarded to the per-

son being protested.  
(e) The Chief Stewards decision is **FINAL AND BINDING.**

**14. OFFICIALS**

The officials are volunteers who give their time to help youth enjoy fun, healthy sport and to teach youth good sportsmanship. Below are the titles and responsibilities of most of the officials associated with a BMX track.

(a) *Race Director* (or Track Director) is the general supervisor of all events.

The Race Director's duties include:—

(i) To ensure all safety requirements are met.

(ii) To ensure that all track personnel are ready and in position.

(iii) To ensure that all equipment is in place and functioning properly.

(iv) To ensure that all awards are distributed properly.

(v) To supervise the overall operation of the track.

(vi) To ensure that all forms such as moto sheets and results together with his written report, are, where applicable, mailed to the State Association's scorer the following day.

(b) *Chief Steward* is in control of the events as they are being run.

The Chief Steward's duties include:—

(i) To supervise the appointment and training of track stewards.

(ii) To ensure all track stewards are cognisant of these rules and regulations.

(iii) To ensure that all Rules and Regulations herein detailed are adhered to.

(iv) To handle all protests, rule on the activities of the event and to ensure that events are smoothly and fairly run.

(v) To ensure that any particular requirements for the event (in particular starting procedures, and number of motos to be run) are included in his instructions to riders and officials and presented prior to the commencement for that

event.

(c) *Safety Inspectors/Scrutineers*  
The Officials who ensure that all equipment requirements contained herein are complied with prior to any bicycle or hack outrigger or competitor competing in any moto. Such officials may also carry out further inspections during the course of the event where defects have occurred.

(d) *Registrar*  
The person(s) who signs in the riders.

(e) *Stager*  
The person(s) who assigns all riders their respective position on the starting line.

(f) *Gate positions are determined by the riders drawing numbers.*

(g) *Assistant Starter*  
The Official who assists the starter to ensure a fair start and to advise of any infringements.

(h) *Finish Judges*  
Officials who determine the finishing order of a moto.

(i) *Time Keepers*  
The Official(s) who record the time of the first three places in each moto.

(j) *Recorders*  
The Official(s) who records moto results.

(k) *Track Stewards*  
The Officials located around the track whose prime role is to ensure the safety of riders and spectators during an event.

The other major role of Track Steward is to detect interference and foul riding in his allotted section of the track and report same to Chief Steward when required.

Chief Stewards should select only fair-minded personnel with a good knowledge of the Rules and Regulations and their interpretation, to act as Track Stewards.

**15. FIRST AID STATION**

Properly equipped medical aides must be available at all events, specifically, either St. Johns Ambulance, qualified Nursing Sister, Doctor or qualified First Aider.



# A typical State BMX Association

So that BMX club members can gain a better insight into the structure of their organisations, we have, with the assistance of the VBMXA, constructed details of how the Victorian BMX Association works in an organisational sense. As well, we supply also details of the various sub-committees and their respective responsibilities.

Some States will, or course, differ slightly within their internal workings and, according to local laws and regulations, will have developed in a slightly different fashion. Clubs affiliated with the various State bodies are also subject to local regulations regarding their own formations, charters and functions.

The Victorian BMX Association is the controlling body within the State of Victoria, with 67 BMX clubs affiliated at the time of writing, and new ones being formed constantly.

The main objective of the VBMXA is to ensure riders are licenced and race meetings run according to the Rules and Regulations of the Australian BMX Association.

The VBMXA is made up of a President, Secretary, Treasurer and 14 Committee members. It has a constitution which governs its operations and several Sub Committees to handle specific areas. All positions are honorary.

An Executive Committee meeting is held on the last Tuesday of each month. On the first Tuesday of the following month a Council meeting made up of Club Delegates is held. The Minutes of the Executive meeting are read and items therein are discussed and voted upon by the Delegates.

The Delegates may bring forward any particular items their club feels need clarification. They also make suggestions to improve the running of clubs, race meetings or the VBMXA. Individuals should first contact the committee of their club who, in turn, pass on their ideas (or grievances).

Clubs become affiliated by paying a nominal fee to the VBMXA. They are then offered Public Liability Insurance, and become entitled to vote at Council Meetings, receive copies of the minutes of all meetings and any relevant correspondence received by the VBMXA.

The VBMXA obtains its revenue by issuing racing licences. All riders who compete in VBMXA sanctioned race meetings must be licenced. Part of the fee paid is the premium for an accident insurance which covers expenses, nett of medical benefits, and pays an income to those who are absent from their employment. One very good feature of this policy is the Dental & Orthodonty Benefit which is very important when looking to cover what can be a major expense.

VBMXA obtains further revenue by running its own race meetings. The 1983 titles are being run, by them, over seven meetings each on one day and

one or two days. They commenced in June 1982 and so far four rounds have been successfully run, with around 600 riders competing in each. The next three will be run on Decembr 5 & 19 1982 & February 20, 1983 with the final two day meeting on March 5 & 6, 1983 — the first weekend of Moomba Celebrations in Melbourne.

The titles are decided on accumulated points for motos only. The best five results (out of a maximum of seven meetings) are added to the compulsory two day meetings points and the nine lowest point scorers get Plates 1 to 9. Points are allocated on the basis of 3/4 for first 2 for second, 3 for third — through to 6 for sixth place. This scoring system has been on trial for several months and accepted unanimously by clubs running Open meetings.

The VBMXA was very fortunate to obtain Repco as the sole sponsor for the Title Series and ABC Sport (with guest compere Molly Meldrum) to televise all meetings. These organisations and the diligent workers of the VBMXA are making the series a great success.

The VBMXA is affiliated with the ABMXA as are all other States, the ACT & NT. Two General Meetings of the ABMXA are held each year and the functions of that Association are to ensure that; every State and Territory use the same Rules and Regulations for racing, major race meetings do not clash, give credibility to the sport at a national level by creating a united front and uniformity.

One prime function of the ABMXA is to conduct the Australian Age Titles at Easter each year. Each state will, in turn, act as host for these Titles. At Waverley, in Victoria the 1982 Titles had 1015 entries from all over Australia. It was a huge success and everyone who made the trip agreed it was worthwhile.

These Associations, all run by voluntary labour, are the backbone and strength of BMX and by keeping costs to the bare minimum allow kids of all ages to enjoy this exciting Sport. Parents also obtain enjoyment by assisting the younger generation become health and fitness conscious, build their self confidence, learn to take the good with the

bad and most of all have lots of fun with new friends.

The following is a brief outline of the objectives of the sub-committee's which make up the executive committee of the VBMXA for 1982.

Each sub committee head puts together a brief formal report at each executive committee meeting so an appropriate record of developments within the sub committee's, can be maintained.

## 1. Calendar and Sanctioning: —

Bill Smithett

The objective of this committee is to establish and maintain a complete racing calendar and the committee shall have power to sanction and allot dates for regular meetings and special meetings throughout the year. The committee shall be empowered to deliver or withdraw sanctions of meetings and may be involved in the establishment of zoning to enable all tracks to hold open meetings.

## 2. Riders Representative: —

Mick O'Brien

This sub-committee will be required to canvass and present the opinions of riders on any or all matters which affect them and their enjoyment of the sport and its administration. This committee man shall be expected to liaise fully with riders of all ages at open meetings and be available for discussion on matters of concern.

## 3. Area Co-ordinator: —

Tom Finnigan

The objectives of this sub-committee, shall be to establish three (3) representatives whose duty will be to liaise with country clubs in the Eastern, Northern and Western areas of the State. In accordance with the Constitution, the sub-committee members may represent, by proxy, country clubs at general meetings.

## 4. Steward's Committee —

Bob Ross

This sub-committee head will be charged with the responsibility of convening meetings, as necessary, of interested parties who are actually involved in the operation of open meetings to consider the application and interpretation of the "Race Rules and Regulations" and to recommend implementation of interpretations. This sub-committee Chairman will also be an Official Track Inspector of the VBMXA.

## 5. State Plate Series Co-ordinator. —

Bruce Ellery

This committee member shall be responsible for the co-ordination and efficient organisation of the State Plate Series for the 1983 titles. His duties will involve liaison with sponsors, track operators, the EDP score-keeping service and all others involved in the efficient running of the series. This sub-committee Chairman will also be an Official Track Inspector of the VBMXA.

## 6. Inter-Club Liaison Officer —

Brenda Lawn

An essential activity of the VBMXA for 1982, appears to be the promotion and development of Inter-Club Meetings in order to encourage the participation of new riders and the expansion of the sport. Accordingly, this Committee Head shall be in charge of communicating with, and co-ordinating, Inter-Club Competitions and establishing regular Inter-Club Programmes.

## 7. Publicity Officer. —

Bill Pinnell

The Publicity Officers' responsibilities will include liaison with and assistance to clubs in relation to the establishment of tracks, the organisation of race officials and generally, conveying informa-

tion from the VBMXA to clubs in relation to licensing, insurance, safety requirements, interpretation of rules, etc.,

## 8. The Secretary —

John Smith

The role of the Secretary shall be the control of the administration of the Association.

- All correspondence shall be handled by the Secretary.
- All Resolutions shall be recorded and followed up by the Secretary.
- Minutes: The Secretary shall oversee the preparation of and circulation of Minutes with the assistance of the Minute Secretary. He shall further compile a comprehensive register of all previous Minutes.
- Meetings: The Secretary shall control the convening of all meetings, preparing and issuing Agendas on the same.
- Constitution: The Secretary, at all times, carries a copy of the Constitution and advises the meetings of the validity of points raised.

On appointment of a professional secretarial service, the bulk of the "hack" work will be passed over to this service and the Secretary will act in a supervisory capacity to this service.

The Secretary shall also be in charge of promotions, sponsorships, etc., for the Association and will instigate appropriate meetings and communication with sponsors and other interested parties and will, in conjunction with our Promotional Advisors, liaise with the media re activities of the VBMXA.

## 9. Treasurer. —

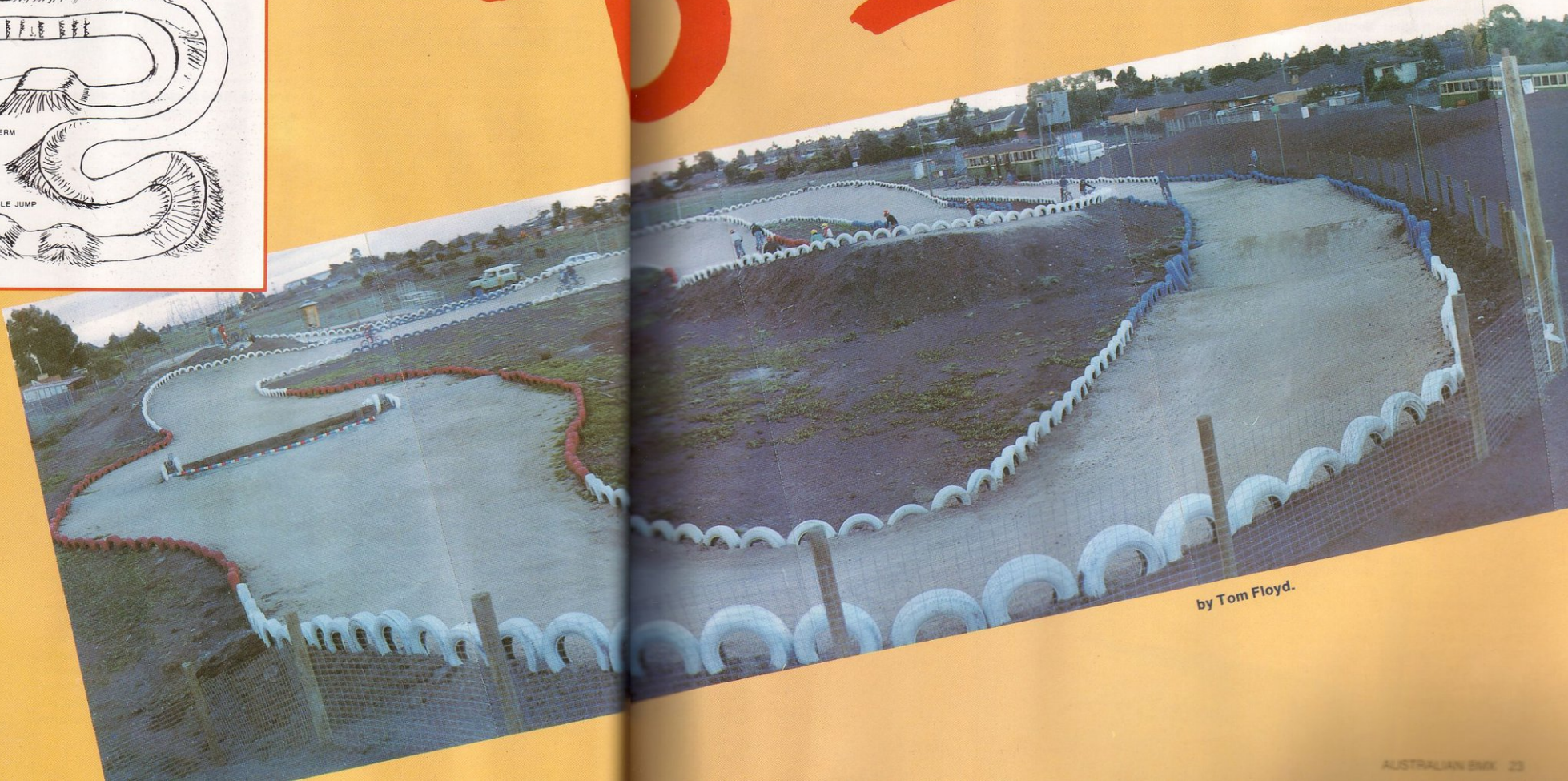
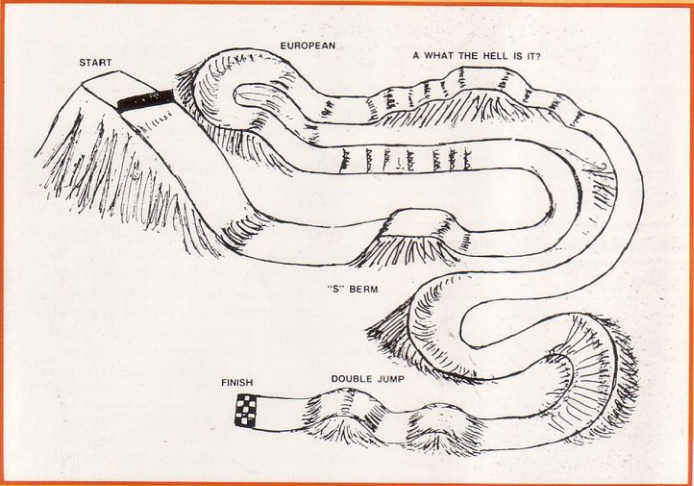
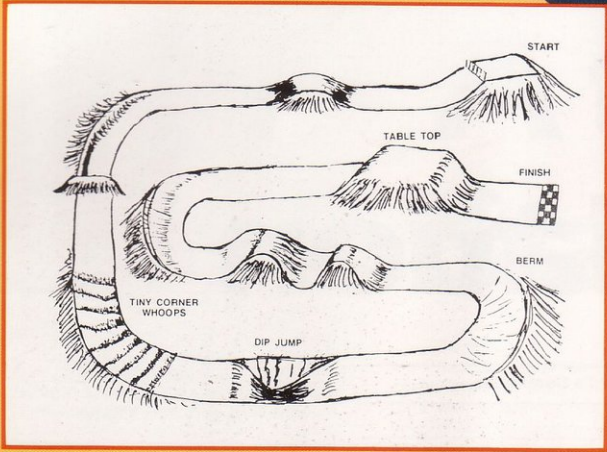
Trevor Yeo.

The Treasurer shall fully control the finances of the Association, shall be involved in the setting of license and Club Affiliation Dues and shall compile projections on the future finances of the Association. He shall further advise the Committee on investments that maybe made on behalf of the Association and maintain control over the cash flow.



HOW TO

# Build a BMX track



by Tom Floyd.



Like racing cars, or motorcycles, a BMX bike is an expensive investment to go street cruising on. A municipality with a young population is no place to be if you're a budding BMXer and the area doesn't have a race track. Here's some tips on how to get one going ...

If you're looking for a BMX track in your local area, and finding the problems seemingly insurmountable, you'll probably do better by getting together a bunch of kids whose common interest is BMX racing. In other words, someone has got to assume control of the situation (preferably someone with organisational ability). The first move is to form a local club, or a branch (or chapter) of a larger club which may be nearby, but too far away for regular racing. Some tips of how to form a club are to be found elsewhere in this Yearbook.

The formation of a club gives the people that matter (eg, local councillors, business houses and the like) a properly-formed body to talk to. The numbers of members in the club are going to add weight to the request for help on behalf of the local BMXers.

The next logical step is to look for a suitable site, a piece of land big enough to take the track as well as the other areas needed for parking, spectators and facilities. At this point it doesn't matter what size the land is because the big question that needs to be answered is whether or not the club can get access to the land, and do what is needed to build a track.

The specific details of what the track might entail don't matter too much in the first approach because your ultimate track design will largely depend on the

size and shape of the land available. It can be a sort of a Catch-22 situation; what comes first, the chicken or the egg. Do you first design the most appropriate track and then look for the land to fit it on, or do you find the land and then design the track. More often than not you'll find the latter course is the easiest.

Unless the land is owned by a council, in which case its use could be handled under a 'community project' file, the rights to reshape the land and use it for racing is going to cost money. A normal agreement might run for five to 10 years, or a private owner may want an initial year-by-year agreement so they can view the viability of the operation. Land costs money just sitting there (despite the fact that in most areas of Australia it would also be appreciating in value) and no owner is going to allow their land to be carved up, reshaped and generally stomped all over unless there is some form of return.

Your planning must also involve public risk insurance. The local council will advise you of the minimums required both for its own land and land leased from a private landlord — but if you are negotiating with a private landlord, they will require you to carry as much public risk insurance as possible, and completely indemnify them from liability.

So, it can be seen that there is a lot of pre-planning to be done to build a first class proposal for an application to use the land. If the application is well-presented, well documented and properly thought out the club will stand a far better chance of obtaining a good hearing. Never approach an application of a magnitude like a race track lightly with the information other people need on scraps of paper or straight from the head. It just won't work — the approach has got to be as professional as it is possible to make it.

It will be as well to appoint a local accountant as (hopefully) honorary

treasurer, and for the club to get alongside a solicitor to handle its legal problems. While a local BMX track may seem a simple operation, it is a competitive venue, the public is invited to watch and allowed to enter the land so the club and its members, as well as the owners of the land, need legal protection in many ways. Only a qualified solicitor can guide the club (which would rapidly be heading towards also becoming a promoter) through this maze of legalese.

### Designing the track

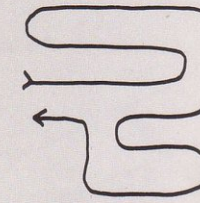
The land you have chosen, and been granted the use of, will dictate the basic character of the track. A dead flat block of land is not conducive to constructing a downhill track. Apart from the enormous expense of the earthmoving machinery, think of the racers themselves and the safety marshalls if the track ends up down in a crevice — if a crash occurs, and they will frequently, it would be impractical for the marshalls and first aid people to be sliding down embankments, then scrambling back up again for racing to resume — among other considerations.

What a BMX club should be looking for is an agreement for the landlord (council or private) to prepare the basic track with earthmoving machinery. This is far easier and cheaper for a council (in real terms, because the piper still needs to be paid in one form or another) which has the machinery and manpower available while a landlord would need to dig into their pocket and pay up front for this work.

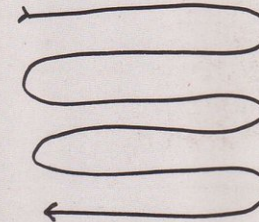
*When designing a track, listen to the riders. They know what type of track presents a challenge, and what is interesting and what's not. Here a 13 year old rider heads for the other side of a tabletop on a track near Tamworth.*



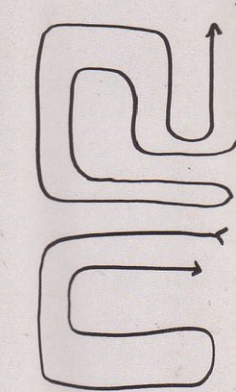
### THOUGHTS ON BMX TRACK CONFIGURATIONS



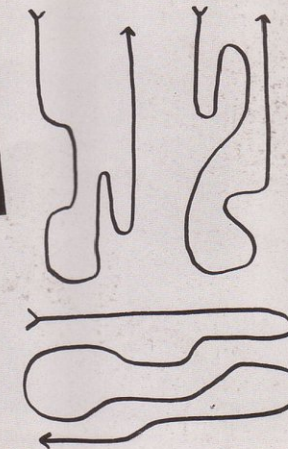
SWITCHBACK DOWNHILL LAND



FLAT BUILT UP LAND



NARROW LAND



While a suggestion for land for a track may turn a landlord green with shock, the applying club should have its argument well-documented. It needs to be able to show the landlord that it will conduct money-raising ventures to assist with the cost (if not repay the whole setting-up cost over a certain period of time) and will at all times beautify and upgrade the surroundings so that, should the club ever decide to move to another track, or disband, the owner needs only to grade the track flat and the remainder of the land is still in good condition.

The club needs to be quite open about its intentions. It should estimate the average size of its planned meetings, how many racers will be involved, how many spectators, car park areas and general facilities like toilets, first aid, food and refreshments, pit area and spectator mounds will be required. It should be noted also in this planning what permanency these areas will entail. If the club can gain a long term lease, then buildings can be erected from fund-raising drives to save the task of pitching tents or using buses and the like every time a race day falls due.

Such buildings, while the need to be approved by council, need not be to residential status — but should be of sound construction, weather and vandal proof and blend in with the surroundings as much as possible. The club should canvass local business houses for some form of sponsorship, which might take the form of the provision of materials at cost (or better) in return for meaningful publicity.

There is no need to try to get everything done all at once, and then find the club is in financial difficulties before it stages its first race. Plan the facilities to meet the immediate needs of members, racers, officials and facilities. The toilet areas are probably the first item to consider and the local council would be only too happy to provide guidelines on the best way to provide these in the early stages. Each area would present its own problems with toilet areas, and it could prove to be one of the biggest, but very necessary costs. Portable toilets can also be hired.

The council will also need to know the hours the track needs to be used, and



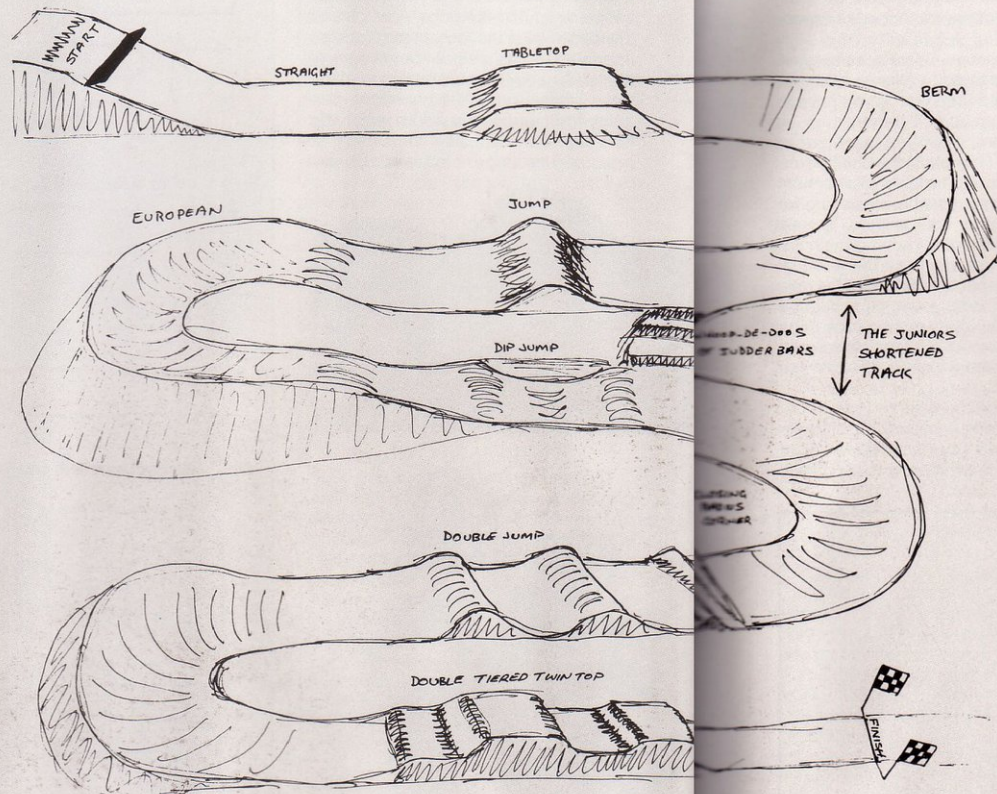
the club may have to reach a compromise on this question depending how close to residential areas the track is to be sited. If spectator and participants' cars can be parked in orderly fashion on the land, all the better, but one of the biggest hurdles will be the public address system. Naturally everyone at the track needs to know what is going on at all times, so look at the direction of the prevailing winds, the distance the track is from local residents, how far a loud-speaker system will carry and where the speakers are best to be placed to allow maximum coverage with the least volume. Remember, there are no engine noises involved, so you wouldn't be looking at a system anywhere near like would be provided for the local show-ground or speedway.

While most clubs will not have the luxury of appointing the ideal piece of land as their site, one with some natural falls and rises will help the creation of the basic design enormously. Truck loads of filling and dirt will need to be brought in anyway for spectator mounds, jumps, berms. Many great tracks have, in fact, been constructed on dead level sites through the inspired use of imported filling.

The starting point of designing a track is not really its length, but the time it will take racers to ride it. A track requiring an open class rider to take 40-45 seconds to complete the ride seems to be about ideal, but one of such length will give the little people some tough times. It is a good idea if a shorter course could be incorporated by cutting out one of the tougher sections using a by-pass so the little people get a ride of about 35-40 seconds. Its generally more than enough for most of them.

There's no need to pay for the services of an engineer or architect to design the track. Club officials should take the time to look at other tracks, where possible, and utilise the best ideas from

### AN IMAGINARY TRACK WITH MOST FEATURES



them. Why start with a blank sheet of paper and build in all the problems everyone else is having? Talk to the other clubs, find out what's wrong with their track and make sure the same problems are not going to crop up in your layout.

Bear in mind the main points of a BMX track:

- The wide variation of age groups wanting to race.
- The strength and power variations between rider groups.
- Spectators need shade in summer, some shelter in winter, so keep as many trees on the land as possible. The racers also need similar facilities, they are the ones providing the show.
- A good percentage of the club's financial resources will come from food and refreshment facilities.
- Don't make the track too easy. Apart from looking out for food and drink sales, competitors want a challenging track, not something they can duplicate on the front lawn of their home.

Depending on the size of the club membership, the start width should be able to handle six to eight riders side by side without them getting their handlebars tangled, with a starting gate high enough that a rider can't jump it. The remainder of the track should have sufficient room for riders to make passing manoeuvres. Once you force the riders into single file on a narrow track the race is almost over.

A cement starting pad should be designed so it is laid wider than the start gate and with enough length for at least three BMX bikes end to end, plus some room for officials. Four bike lengths of concrete is better for it allows handlers and officials to be standing on concrete instead of mud in case of prior rain. The cement pad needs to be angled very slightly towards the start gate to facilitate easier initial movement of the bikes

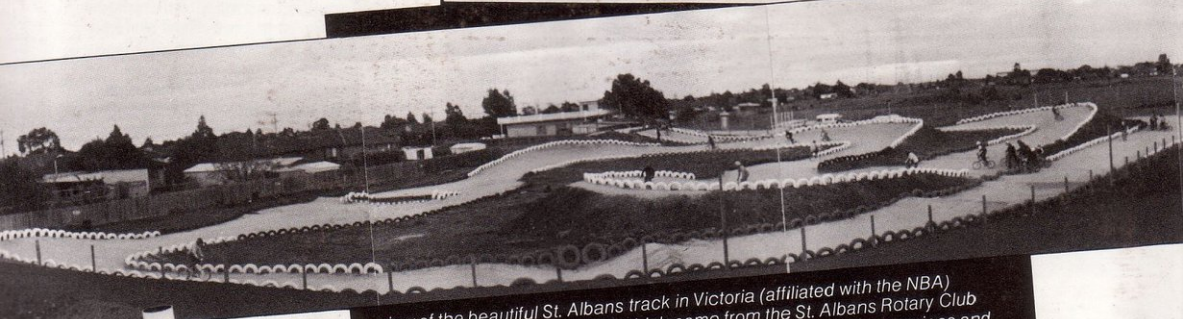
but the gate should be designed so that it doesn't create a wedge at the bottom to catch the front wheels of the bikes.

The rear side of the gate should ideally be painted with the front wheel positions of the bikes, and maybe even numbered across the gate so riders know their start positions. Remember there will always be new riders coming up. It's easy to get carried along with all the veterans who know the ropes and begin, after a period of running races, to forget that new members will often be ill-at-ease, nervous and uncertain of all the procedures. They, too, will get more comfortable with a race meeting more quickly if the race organisation sets everything out in an easy-to-follow manner. The veterans may sniff at the idea, but a club's new members are its very life blood.

Take notice of rider's comments who have raced on other tracks. Most parents will want to put in their five cents worth, but its a riders' track, not a parents track. The straights need to be wide and interesting. That is to say, rather than design a dead flat straight, add a rise or two, or a speed bump to make it interesting. It might even be roughed up a bit on the level sections.

Above all, the entire track should be interesting and testing. No one wants an armchair ride, least of all the riders — but keep it all safe. While it is a competitive venue, and you'll find out just how competitive kids can be when they take to the track, it's also largely for fun. An unsafe track that creates and causes accidents may draw larger crowds initially, but it won't be too long before there's no one left to watch riding on it.

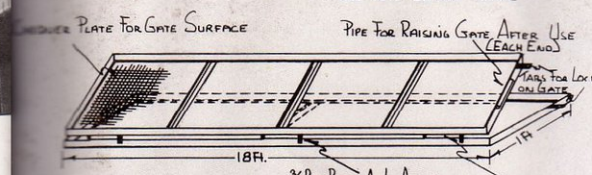
The ideal track should incorporate all the best of BMX racing; sweepers, berms, camels, whoops, europeans and bumpy corners. Not only should riders get experience in riding fast, but they should also have to acquire riding skills so they can take the tricky bit fast or slow



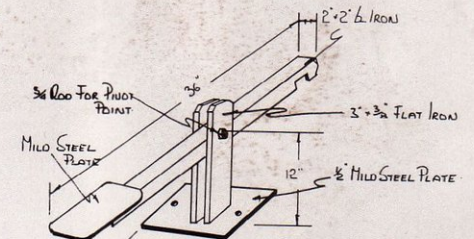
view of the beautiful St. Albans track in Victoria (affiliated with the NBA) built at a cost of over \$18,000 which came from the St. Albans Rotary Club members services and (\$7500) and a matching figure from the rotary club's members services and materials. The St. Albans BMX club raised almost \$3,500 from raffles and social nights. However, this has not yet finished all the detailing of the track — but it has been voted, already, one of the most outstanding tracks in Australia.

### STARTING GATE

- PRINCIPLE OF OPERATION
1. GATE RAISED
  2. GATE RELEASED
  3. FALLS INTO BOTTOM FRAME



MEASUREMENTS ARE GIVEN AS A GUIDE LINE ONLY!  
THE GATE CAN BE USED TO START SIX COMFORTABLY.



- GATE RELEASE MECH. PRINCIPLE OF OPERATION
1. STARTING GATE RAILED INTO START POSITION
  2. CATCH HOOKS ON TO TOP OF STARTING GATE
  3. STARTER STOMPS ON FOOT PAD
  4. STARTING MECH. RAISES
  5. GATE DROPS





A portion of a track built near Port Macquarie. Here a young licensed rider shows how best to handle the tracks' double small jumps — in a single leap.

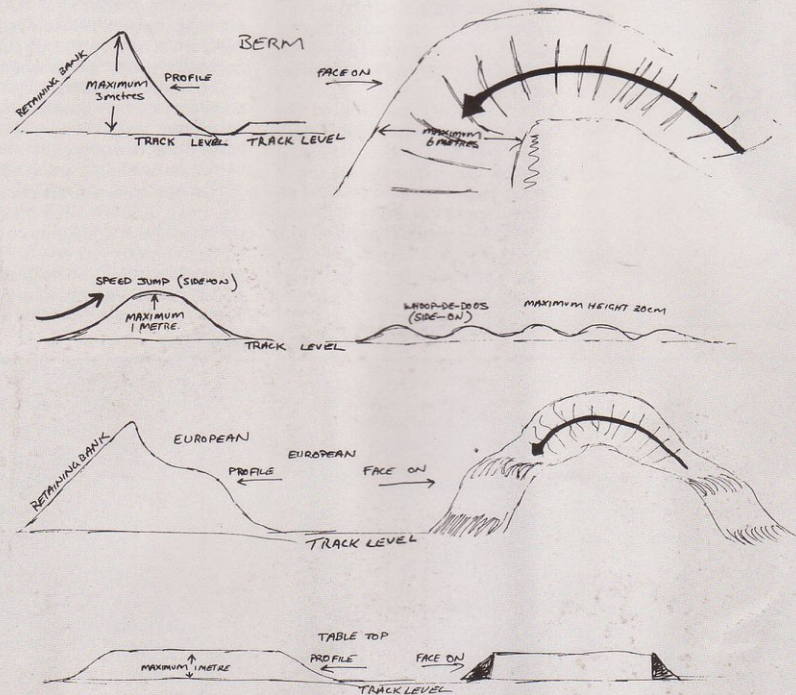
without falling off the bike. Berms should be able to accommodate at least three or four riders abreast and have a smooth exit. The outer edges should be constructed so riders cannot easily overshoot them.

Vary the corners where possible, fast and slow, easy and tricky — add that skill factor into race craft so it's not just straights joined up with corners.

Jumps are another important part of your design. They shouldn't be absolute bike breakers. Remember, for the most part it's the parents who are paying for the bikes and for their upkeep. There's little point in designing jumps which are going to continually have the parents' hands in their pockets to rebuild the bike for the next meeting. Jumps should be placed so they don't get the race pace down too much, and so that riders can safely negotiate whatever it is after the jump.

Don't put a jump on a very slow section of the track — if only for the little people who will have to get off and push the bike up the hill in order to get over it.

### JUMPS



A good jump will send the riders into the air so it negates the hot shots trying to speed jump them. A series of jumps (large or small) called whoop-de-dooos should be incorporated. Small ones of eight to 10 in line should be about 10cm deep and can be incorporated in one of the faster corners to make it really interesting. Larger whoop-de-dooos should be constructed high enough and far enough apart that only a hot rider can jump all of them at once.

The finish straight might incorporate a jump or tabletop some distance before the line — even if to ensure the race is by no means over until the leader has crossed the line. There's nothing worse than having an easy corner and a dead straight to the finish. Before the riders have got out of the corner everyone's attention is back to the start because they know it's all over bar the shouting.

The club's racing committee needs to set up sub-committees (see how these things begin to multiply? Now you know what happens with governments and councils.) to follow through on the many things relating to the track. A track maintenance committee will be needed to keep the place in shape, and also to listen to racers' ideas on changes from time to time. The continuing interest of riders and spectators can only be maintained by periodically altering the nature of the track and presenting riders with new and fresh challenges.

Then a committee is needed (and most parents are prepared to help here on a roster basis) for facilities like toilets, catering and first aid management. Then another committee will be needed to control spectators, parking and any 'no enter' areas of the land.

All of this isn't as overwhelming as it may first appear. Each sub-committee need only be two or three people with casual assistants each meeting. But no one person can tackle the whole operation on their own. One person does, however, need to be in complete control of a meeting (the chief steward) with virtually no other function other than ensure the many pieces of the meeting blend together and work properly so the race officials can go about their race program without being interfered with by having to give decisions on this, that and the other thing all day. The chief steward makes final decisions.

The race officials include starters, marshalls, judges, pit managers, time keepers, and placegetter marshalls. As all of these people are probably going to be parents, and all volunteer for their respective tasks, those parents that decide not to volunteer should reserve their opinions for club meetings, not make a terrible scene at the track for something that has rubbed them up the wrong way. No voluntary official relishes the task of standing out in the hot sun all

day only to be abused by a parent sitting under an umbrella sipping cold orange juice and tucking into cold chicken and salad. If parents want a say in the running of the race meeting they should also be prepared to pitch in and assist the club with it in whatever small way they can manage, otherwise it becomes a mammoth energy-sapping exercise for the enthusiastic ones who are almost expected to front up and "do their duty" week in and week out.

All concerned should bear in mind at all times that BMX racing has been deve-

loped and organised for kids young and old. The little people need a lot of attention while the big guys nearing 18 and 20 years of age (and more) need to be treated like adults — providing they earn that right through their behaviour and attitude. Those big guys who are willing can do great things for the youngsters if only they keep their feet on the ground and the purpose of the sport in perspective.



Remember to design in all the areas required for entry form filling out, scoring and all the other official duties which, if they're not able to be done with enough room and proper facilities will certainly lead to mistakes and ultimate confusion.





by Trent Williams and Jamie Hales

We've covered in part one of these articles how to get the body in shape. What we haven't talked about is the machine that beautiful body is going to pound into the earth in this year's racing season. Unless you know your machine, really know it, all the body training in the world is going to come to nought shortly after the gate drops on your first race. No racer of any note, regardless of the type of bike he or she is using, can give their best unless they know what to expect from the bike in a given set of circumstances.

## The 2-pedal start

First up is balancing the bike while waiting for a start — and this takes a lot of practice — each minute of which is fully worthwhile. Nose your bike into a kerb, or up against a wall, and practice for as long as you need until you can nose it in and remain upright for as long as you like without putting your feet down or wobbling the handlebars around excessively. It's not easy. You've got to relax, square yourself off on the saddle, get the pedals horizontal ... and practice, practice, practice. This will also help you with your slow-running balance.

Another feat to practice at is setting up a series of empty drink cans about two metres apart in a straight line. Starting at one end, ride slowly in and out of each alternate can. When you reach the end, turn the bike back the way you came, without touching the ground with your feet (this is all about balance, remember?) and wind your way back again. Gradually you will get faster and faster as you learn the responses of your bike. When you get to be going too fast, close the cans up a little and try it again from slow speed.

Having achieved an A-level in both practices, now go and find some rough terrain, ground with loose metal on it, slippery ground and wet ground. Ride over this varying terrain as often as you can for as long as you can manage. You won't find all these conditions at the same race meeting, but sooner or later

you're going to come across them all. What use is it to say "I can't ride in this stuff because I fall off?" Much better to be able to remain calm, composed and super cool by being confident enough in you and your bike's ability to say "No worries, it's all the same to me!"

If you've ever seen motorcycle trial riders in action, you'll know what it means to be able to place your bike almost anywhere, at any speed, and be able to get over, across, through, around or under any obstacle. You're not born with this sort of ability, it's something almost all of us have to work hard at to achieve.

Your practice should include the terrain mentioned earlier, and you should work at going into corners harder and harder, hitting the undulations and jumps at varying velocities (but working up gradually when you have mastered each speed), negotiating off-camber corners without sliding out or falling off and work at braking hard but keeping the pedal power on and at the ready to shoot away as soon as you release the brakes. Practice hard at maintaining traction and holding your balance on all kinds of riding surfaces until you know exactly what your bike is going to do in any given circumstance.

There's little point going to the track to make out you're a star until you can ride like a star. That doesn't mean you've got to be up there winning every race, but it does mean you've got to be a quick, safe rider who is in complete control of body and bike at all times. You'll become a star when you're in control while everyone else is losing theirs. Learn the fastest way around a corner, the best angle to come out of it onto a straight, how far up a berm to ride for the fastest and most comfortable way around it, how to ride the ripples and the whoop-do-dooos. To become a good and successful racer you've got to practice, practice, practice.

Why do some hot shots look as though the bike was made for them? Because they've taken the trouble to adjust the whole thing to suit their body shape and style of riding. There's no set formula for the various adjustments you can make, it's entirely up to how you ride and what makes you feel good. Raise or

lower the handlebars and rotate them forward or backwards. At the same time you need to find your correct seat adjustment. The only criteria with the seat height is that the saddle should be out of the way of your rear end when your up and stomping on the pedals. You'll encounter very few races where-by you can pedal around the track sitting on the saddle.

Having achieved the saddle height, adjust the handlebars so the handgrips are not interfering with your legs when straight or turned — neither should you need to lean forward too far to be able to reach the grips. Maybe a different model handlebar with another bend shape in it will suit you better ... only you can tell from trial and error and sussing out the adjustments that feel good and enable you to deliver the most power with a modicum of comfort. If you've not adjusted the bike for some semblance of comfort you'll get squirrely and won't be able to get the best out of your bike — and you'd better do something about it if you want to be first to the flag in future.

Like motorised racing, cars and bikes, you shouldn't neglect tyre pressures. On track surface with good traction (regardless if the track is hard or soft, you're looking for tyre grip) you can run relatively high tyre pressures. If the surface is bumpy or hard and slippery, lower the tyre pressures to allow more rubber to grip the track. Experiment during your practice sessions, it doesn't take much to raise and lower your tyre pressures with a hand pump (it's also good exercise, too) and you'll be surprised how much difference it makes. Be sure to keep a note in your bike specification book of the pressures that suit you best on the different surfaces.

The drive system is another very important area to have properly set up. The drive train consists of the cranks, chain wheel, chain and rear sprocket and there's a few things you can look at in these items to give you a power boost. If you can afford it in your early racing days, buy a couple of sets of gearing sprockets. The normal seems to be 43/16, but depending on how you ride, and your body makeup, you might go for a harder or easier gearing. Initially it's probably best to choose easier gearing



that gets you out of the start quickly. However, using such a gearing you're going to have to ensure the body is in good shape because often you'll find yourself first out of the gate and having to pedal like a piston engine to stay there. But it will also give you a quicker mark out of the slower corners. Certainly younger riders should opt for easier gearing rather than labouring with slow crank turns when they lack the real leg power to spin them. Check out our gearing story for the full information.

The length of the crank arm is important, too. The little people would generally feel better with cranks about 165-170mm long, as they grow progressing to something around 175mm while the big guys will almost certainly run a crank of 180mm. The varying length cranks you fit in experiments may also require a slight adjustment to the saddle or handlebars — or both. Note down in your bike specification book which ones suit you best and what the gains and losses are with each.

Having worked away at your riding skills, and set your bike up to where you feel most comfortable with it, the next most important thing to learn is getting the bike out of the gate. At any top meeting you'll see the hot shots practising gate starts all over the place. If you lose half a bike length coming out of the gate it means you've got to work that much harder just to pick up that distance. It's not easy. If you can't get some practice with gate starts at your local track, try to build one yourself with the help of some friends.

Most serious racers are building a practice gate at home because it's really the only way you can get plenty of time practising the two-pedal balance that the winners agree is necessary to get a hole shot. By getting in a lot of practice you'll eventually gain that important sixth-sense necessary to know just when the gate is about to drop and you're already stomping as it begins to fall. You might find it easier to start with your most powerful leg forward, — in this way the gate is almost dead flat and you've begun to move forward as your leg hits its power stroke. Keep working at it, a good surge out of the gate is worth plenty during the race.

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*Those gate starts are all-important.*

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*Make sure you practice them until you*

---

*know you can make a good start just*

---

*about any time.*

After you've attended a few race meetings, sit down with your parents and friends and try to pinpoint your weaknesses that have become evident. These are the areas you should tackle and practice most. There is little point in practising the things you are good at, because you will not improve them by any degree of the margin you can improve your weaknesses.

If there are five turns in your local track, and you're falling behind the pack on each turn by one second (which doesn't sound much) you've lost five seconds by the end of the race. That can be almost the length of a straight. Think, then, how much better your good points would need to be to make up that five seconds — you'd need a rocket attached to your rear wheel!

If the corners, or a particular type of corner is giving you problems, ride the corner as many times as you can (you don't have to cover the whole track each time) and get a parent or friend to help




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*The early days of Australian BMX, hard-wearing regular clothes soon gave way to the specially-designed racing uniforms.*

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*It's a tense time waiting below the starting grid. It's nice to have a mate (or even a dad) about, but if a guy has to go it alone, he will!*



you try and work out where it is you're going wrong and how you might correct it. It might be you're going too high and slow, or making a rounder corner of it. You'll find racing conditions might force you away from your newly-found line on occasions, but that's because the important thing is to get into the corner first so you can ride the race you like best, not be forced to ride everyone else's race. It's what they call competition.

Having worked out the corners and the starts, you might find you're running out of steam before the end of the race. That's where your body conditioning we

spoke about in the body building story comes in. As well as doing that you might try doing a lot of practice riding uphill. This will help to increase your stamina and endurance and make a flat race much easier for you. Practice also gaining speeds on the worst type of ground you can find (without going as far as breaking your bike). This is good training to give you absolute confidence in you and your bike, and the smoother race track will then present you with few problems you can't handle.

The only thing you can't duplicate in practice is race riding against other racers. Race craft comes only by expe-

rience. But if you have prepared your body and your bike, and you know your bike well and what it will do for you, every race meeting is going to be better and better for you ... and you'll be enjoying it more and more.

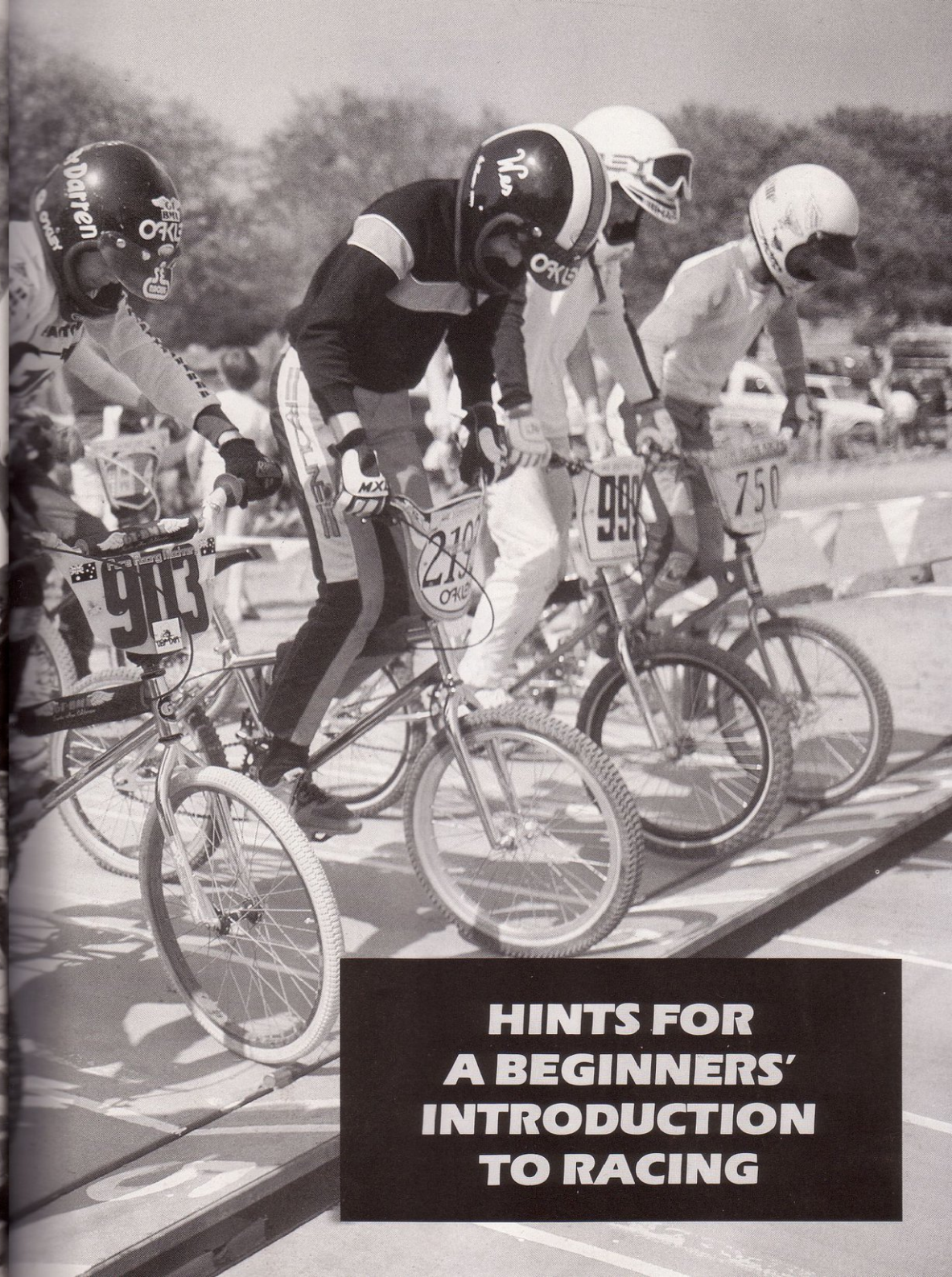
*Life can be lonely out on the track —*

*especially when something goes*

*wrong!*







**HINTS FOR  
A BEGINNERS'  
INTRODUCTION  
TO RACING**



There are two types of race meetings in BMX, Club and Inter-Club; and Open Meetings. Club and Inter-Club are meetings where club members and interested persons attend. They are held on weekends, sometimes Friday nights in summer, mostly on Saturdays and Sundays. These meetings are an ideal place for new riders to start and learn the basics. They can also observe and question the senior riders on a wide range of subjects — some seniors often cover them when they conduct clinics for their State bodies. Most clubs organise training sessions where their senior riders will offer their assistance and advice to newcomers.

Open meetings are only for licenced riders. More often than not they are held on Sundays, generally starting around 10am. These are meetings where new riders can watch the top riders in action. By observing their riding styles and techniques there is a lot to be learned.

#### Hints for new riders

Beginners should contact their State Association either by going to a track where race meetings are held, telephoning a State representative or by asking another rider who participates already.

The beginner should ask the State Association for information on race venues, dates and where the clinics are held by top riders. These are usually at local schools and tracks, and it is one of the best methods of learning as items covered start from the base level and progress through bike preparation, safety features and many of the things one needs to know about racing.

Armed with this knowledge the new rider should try to attend a race meeting, particularly a club meeting, or an open meeting if a club one can't be arranged. Then the rider should compete for a while and learn the basics. From that initial few outings they will be looking to improve and move into the next phase, for novices.

The novice area is for riders who are beginning to improve their technique and who want to be more serious about pre-race training and conditioning. A training program should be organised which will lead up to peak performance for each race meeting. If the novice finds it difficult to arrange such a training program, they should talk to their school physical education instructor, or discuss their requirements with a local fitness centre who may be able and willing to help. Try to ride your bike as much as possible, get the feel of it, know what it will do. Don't smoke, either.

The conditioning areas to concentrate on are nutrition, fitness and racing techniques. One very good technique, anyway, is to be sure to have a good night of restful sleep the night before a race.

Once the body is in top shape from a fitness program (see our body building story) it is important the rider be also mentally prepared and be able to have total concentration once at the starting

*The family that races together ... kids young and old, mums and dads ... they're all there to get the gear together, feed the hungry hordes, and get today's and tomorrow's champions on to the track ...*





gate. It may sound silly, but you've got to concentrate on concentration. Once you have been allocated your start position at the gate, think only of yourself and plan your race in your mind. You should be running the race through your mind, knowing what it is you are aiming to do once the gate drops, but be careful and keep yourself alert to make instant adjustments in your race plan should an accident happen during your race. Keep telling yourself that you can win, you can be first into that corner ... and you will.

Over a period of time you will notch up the necessary wins to move to the expert class — this is where the competition really starts to heat up. To be successful in expert you need to train even harder than before and become more dedicated than ever if you want to beat the hot shots and take home the metal.

In the expert class potential sponsors will be watching you. What they look for is a combination of:

- Riding ability and style.
- Your appearance, both on and off the track.
- The condition of your equipment, and your handling of it.

- Good sportsmanship, which includes accepting losses or accidents gracefully.

- Personality and behaviour when mixing with other people.

Sponsors are looking for riders who will create a good image and thereby help sell their products. It's a hard road to the top, and it's even harder to stay there. Everyone, and that's everyone, wants to beat the number one plate holder in their class — anyone can do it providing they have the will and the dedication to work for it.



◀ Life can be lonely out on the track — especially when something goes wrong!





# Heavy lids in the neck

Stack hats worn by some kids on and off the BMX circuit aren't worth an empty soft drink can. This means thousands of BMXers might be risking serious neck or spinal injuries. We have been talking to leading doctor about the dangers...

A heavy crash helmet, you figure, will stop you bloodying your head if you bite the dust.

But what about your neck and spinal column...

BMXers wearing helmets that are too heavy run serious risks, warns a leading doctor.

Dr John Yeo, a spinal specialist at Sydney's Royal North Shore Hospital, blames adults for dangerous helmets.

"I have heard of some commercial BMX organisers actually banning light-weight helmets on small children in

favour of heavier, more expensive ones," he told us.

"Heavy helmets are bad news for youngsters. A 2kg helmet on a child of, say, four or five can double the weight his neck has to carry. This becomes like a cannonball if he flies through the air during a race."

BMX has now reached a stage in Australia where the sport is setting its own standards of safety. The sport is maturing quickly at club level and safety is a prime factor.

But until manufacturers come up with specially made BMX helmets, helmets will always be a question mark.

Back to Dr Yeo. "It could be a couple of years before the Standards Association of Australia gets sorted out on BMX helmets," he says.

The SAA has a standard dating from 1977 for general sporting helmets. It is designed to cover hang-gliding, canoeing, horse riding, street cycling and a host of other sports.

What it does not take into account is that kids of four to 10 need lightweight helmets that cannot be penetrated by pedals or handlebars.

Mr Jack Moncrief of the Standards Association tells us: "We have been looking at a couple of helmets by Bell and National that are a vast improvement on what a lot of riders use."

"But the committee which sets the standards feels that helmets are the joint responsibility of potential users and manufacturers."

"If clubs can convince manufacturers there is a market for BMX helmets, par-

# can be a pain warns doctor

ticularly in the younger age bracket you can be sure the manufacturers will come up with something."

That adds up to talk and a question of profit. Meantime, BMX riders have to search hard for the next best thing.

Well-meaning parents buy heavy helmets to protect a child's brain. What they don't know is that they are exposing his neck to possible injury if he hits the ground.

When BMX racing first kicked off in Australia there was widespread use of motorcycle helmets at BMX meetings.

Full-face helmets were popular because it was thought they would also protect the neck. Many neck injuries have long since proved otherwise.

Dr Yeo says he thinks it's great that YEARBOOK is trying to get the safety

helmet message across to its readers.

"It will minimise the risk if they are aware of the helmet problem," he adds.

Here's Dr Yeo's prescription for helmet safety:

- Riders under 10 years old should wear a helmet as close as possible to 500g. The problem is to find a helmet of this weight which can withstand penetration from a brake handle.
- Over age 10, depending on the size of the rider, you can go up to 1kg, remembering that the helmet should have a few more coats of fibreglass and be of greater substance for the more vigorous rider.
- Helmets should be designed to protect the temples. There are vital veins above and in front of the ears.
- Consider the sort of impact you are

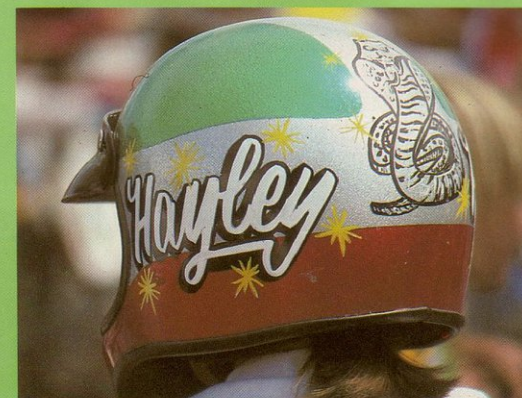
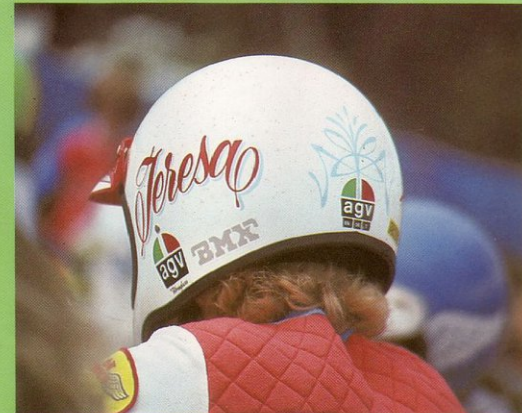
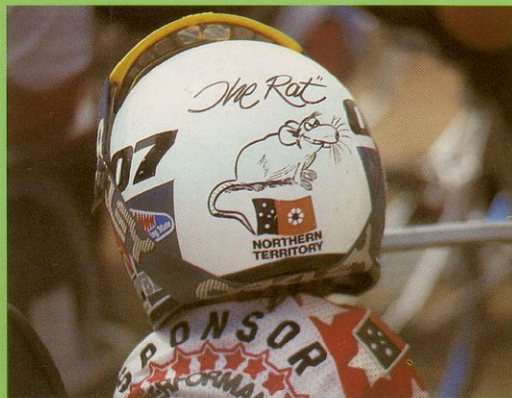
likely to have, the speed you are riding and if the helmet will stand up to it.

- The design should prevent penetration of skull and face.
- Above all the helmet should be lightweight, to likely impacts, and of a substance that will prevent absorb penetration.

Dr Yeo says his hospital's Traffic and Accident Research Unit is equipped to handle the job of developing a BMX helmet.

"But they've had to shelve the idea because it's an off-road sport."

Impacts were inevitable in BMX riding and parents should decide whether the risk is justified before allowing children as young as four to compete.





# BMX BODY BUILDING

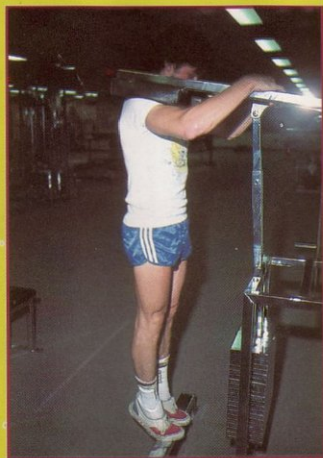
By Jamie Hales and Trent Williams

To be a winner in BMX racing it's just not enough to spend big dollars on the best equipment and then not have the body power to make the best use of the ultra-light, super-techno radical machine. Not only that, but championship BMX riding means riding hard — and when you ride hard if you take a tumble you're also going to come down hard, too.

Building up your body will not only give you all the power you're particular makeup can provide, but it will also enable you to absorb the knocks and shocks that are part and parcel of any close competition speed sport. As well, a healthy and fit body generally means good mental health — alertness, quick reflexes and stamina are all by-products of getting the body in shape for your particular sport.

At most meetings, and certainly championship meetings, you're called on to ride often during the meeting. You don't want to be known as 'one-lap Larry', the rider who is ultra-quick and powerful first time out on a given day, then who quickly runs out of puff and fails in the semi-finals.

The professionals of any sport devote a particular time frame each day to fitness and body preparation, and there is no way they could reach the pinnacles of professionalism if that regimentation had not been a part of their daily lives for many years prior. One would need to be a truly superb natural athlete to enter the



ranks of professionalism within their first couple of years of competition.

Serious amateurs don't necessarily have to go that far, but a BMX rider needs to be in the best shape he or she can possibly be, given the normal responsibilities they have in the various age groups to schooling, exam year and other home commitments.

BMX riders, generally need to gain good pedal power, arm, shoulder and back strength in order to get the best from themselves and their bike. For very little outlay, a basic set of exercise gear

can be put together and most exercises can be done to music which helps at those times when it all seems a bit tedious. Group sessions are also helpful, but little benefit is gained by only doing a bunch of exercises once a week.

The human muscles have a tendency to have short memories and they need reminding constantly what is being asked of them. Exercises done once a week only are certainly better than nothing, but the benefits are not going to be very helpful. Daily, or every second day, sets of exercises are the best because although muscles have this forgetfulness they also require rest periods. Strenuous programs, such as those used by weightlifters and athletes using equipment like Nautilus actually break down muscle tissue in one workout and then rest the following day to allow the tissue to strengthen and rejuvenate. The new tissue is stronger and healthier than the old. Anyone really wanting to get into bodybuilding should read some of the books available on the subject — most of which are totally absorbing and show how almost anybody can double and triple their power and strength virtually within months by adopting the correct exercise programs.

Bike pedalling is a good part of the training, helping to build up stamina, but it's not enough on its own. Youngsters can undergo light weight training, but it's not generally recommended that

anyone under 16 years get involved in what weightlifters call 'pumping iron' while their bodies are still growing at the rate that young teenagers are prone to. The basic concept of lifting weights is that strength and power is developed best by moving more resistance (or weight) for a low number of repetitions. This can also be done with the system known as the "Bull-worker" whereby pulling and pushing a spring-loaded system, and holding the pull or push for certain lengths of time, achieves very much the same result.

Stamina, on the other hand, is built up by moving a lighter resistance for a much greater number of repetitions — which is also where your bike riding training comes in. Like track and field athletes, a bike rider trains for both fast starts and sprints by a program of slow riding interspersed with fast, furious short bursts.

When you consider a BMX track will be somewhere between 200-400m long, and involve anything from three to six straights coupled up by turns — which often mean a very brief spell of free-wheeling followed by a short sprints — you can easily make up your own program of riding exercises to get your legs, arms, shoulders and back ready and willing to do this work for you.

You don't need to sit beside a start gate for very long watching the top riders take off to realise where you've got to concentrate in order to get a good start — which can be 50 percent of your race strategy and skill. The top league riders will balance the bike against the gate with their most powerful leg at the back. This is because the first thrust on the pedals, coupled with the throwing forward of the body, gets the bike rolling. The power then comes from the second thrust and onwards. Too much thrust, or a misjudged pedal thrust at the gate can make the rear wheel break away and while you're trying to get it all back into a straight line the rest of the field is already away and pumping.

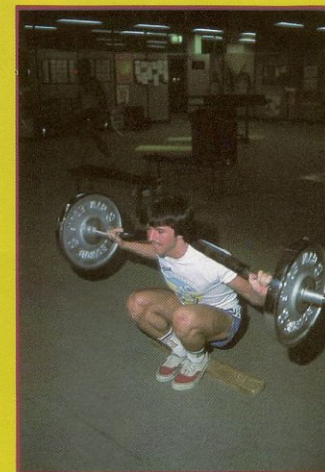
Starts are more skill than anything, and it's practice that's going to make you confident of getting a good start rather than bags of power at the crank. How many tracks have you been to lately where the winner, more often than not, comes from one of the first two riders into the first corner — barring accidents, of course.

The areas of the body to concentrate on conditioning are the leg, thigh and hip to give flexibility and strength for pedal power. The upper torso needs also to be strengthened for pulling on the handlebars. Strength in this area enables the racer to create a power leverage plat-

form, pulling on the bars in order to be able to push down the pedals. The greater the arm resistance on the bars, the harder the racer can pedal. The force against force, like a cricket bat against a fast delivery, can create immense power and speed. In fact, the racer in top condition is most trying to pull and push his bike apart.

An underweight beginner, and this can mean from the age of 10 and upwards should exercise three times a week on alternate days. Exercise must be done regularly to be of benefit and unless feeling tired or exhausted a planned workout should not be missed. Youngsters should get between eight and ten hours sleep and should rest as much as possible. When undertaking a planned program of exercising and/or weight training, other strenuous activities should be curtailed until the youngster has gained sufficient weight and developed a good physique. Many broken bones and other bodily damage comes about because the body is not ready for strenuous activity or body contact sport.

Diet is an important part of a program



to gain weight on a frail frame. There is no need to stuff too much food into a growing body at regular meal times, it is better, however, to try to eat between meals. Eat an early breakfast, then a late breakfast followed by an early lunch and a late lunch. If dinner is eaten at around six in the evening take a sandwich and two glasses of milk about eight or nine in the evening. Try to get the habit of drinking plenty of milk with all meals, it is great for weight gaining. A good body-building drink is two glasses of milk, one cup of powdered formula, such as Sustagen,

two scoops of ice cream, one egg and malt. Mix it in a blender.

Training with weights and/or the 'Bull-worker' system is one of the best ways I know of building a powerful body — and it doesn't take more than a couple of hours over a week. Weights are probably better because they are a constant weight, whereas some types of spring-loaded devices (even rowing machines and such) can lose their spring tension. Once you start to develop body power you're not sure if the exercises are getting easier because of your increased power, or because the springs are losing their tension. However, for casual trainees, such as BMX riders, this would hardly prove a problem.

Youngsters starting out with weights should begin by lifting the empty bar. A set of exercises come with each bar set (which can be got from good sports stores for less than \$100) and to save dollars initially you can buy a set piecemeal. Using the bar on its own first the weights are increased over a period of weeks by one or two kilos at a time. Underweight youngsters should train in conjunction with weight-gaining foods and drinks.

If, in the early stages, it's not possible to reach each exercise quota, bring the numbers of repetitions back to suit. After a period of time the longer repetitions will come as easily as the shortened program. Above all, don't strain, and don't struggle with it. Work out until a pleasantly-tired feeling is evident. Never work out until you feel exhausted.

Exercise bikes are good, particularly those which have self-regulating pedal resistance. Using one will go a long way towards building up pedalling stamina. A weight training bench (also available for less than \$100 at good stores) is ideal for youngsters, for exercises other than weight training can be performed on and with them as well.

For very little outlay, and particularly where exercising space is a premium, dumbbells are ideal for the upper body. It is best to buy the type which have interchangeable weights so you can start with light weights and gradually build up.

There are many books available in Australia on conditioning and preparing the body for sport. We are not looking here to become a world title holder for beautiful bodies, simply to condition the body so you can realise maximum satisfaction from your abilities in BMX competition. Buy a couple of these books and read them well. The majority are written by experts in their fields and they should serve you well if you follow programs suitable to your body shape and makeup.



# WORKING OUT FOR BMX RACING

By Jamie Hales

Before anybody even thinks about working out for racing, they must first take some things into consideration.

(1) Are they really serious enough about racing to consider a gym course?

(2) Do they think they will get enough out of it to justify the expense?

(3) Are they going to be serious about the training and attend regularly, or are they going to fade out of it?

To decide if you're serious enough to do a gym course, first go to a few of your favourite tracks and have a ride around. If you can ride around all of the tracks as fast as you can go, without getting uncoordinated or crashing, then it may be time for you to start working out. Until then you should forget about going to a gym. The reason for this is: if you start going to gym before you *really* handle your bike well, you're going to be in big trouble. It's like putting a V-8 engine into a billy cart — it can't handle the power.

If you are too strong and fast for your present racing skills — race jumping and cornering — you'll find yourself crashing all over the track. If you're having trouble with tackling jumps now, imagine how much trouble you would be in if you were going even faster!! So if you find that your race skills aren't quite up to scratch, then keep on practicing. By the time you can cover the obstacles easily, you'll probably be a bit faster and stronger anyway from the extra exercise you'll have done.

## Choosing a Gym

Try and find a gym which you can attend at least three times a week. Some have separate facilities for men and women, which would be a lot more convenient because you could attend any time the gym is open. If the gym has a spa and sauna, all the better, as these help your muscles to relax after a hard

workout. However these are not essential, the main thing is to make sure the gym has fairly good equipment. Make sure it at least has a leg extension/leg curl machine, a full set of weights — bar bells and dumb-bells — perhaps a leg press machine and, for sure, a shower and change room. One thing to keep in mind is that the more facilities it has the more the gym is going to cost!

When starting gym work, it is better to join for a year than to pay per visit. The reason for this is that if you join for a year you're committed to it by handing over your money — if you don't attend it's your own money that you are wasting. If you pay per visit, you may some of the time neglect to go because of the lack of a financial commitment. So join up, that way you'll get extra incentive to stay with it.

## Type of Program

When you join a gym, the first thing that happens is the instructor will make you do a physical test. This will most likely be a fitness test. The way they do it, is they hook you up to a machine which monitors your heart rate, and the amount of load or work you are doing. These tests are usually done on an exercise bike (so you should feel at home). Then they calculate the state of fitness you're in, according to the average in your age group. BMX racers are usually a bit above the average for their age (naturally). After the test, or evaluation, the instructor will draw up a program for you. Before that, make sure you tell him that you are training for BMX racing. He may need a bit of educating so a few copies of BMX Pancake magazine would more than educate him. Make sure you point out that BMX requires:

Strength — for zappy acceleration, Flexibility — so you can handle all the

obstacles — also so that you don't tear any muscles while crashing.

Good cardiovascular system (heart and lungs) for quick recovery of oxygen after a race — also so you don't burn out at the end of the day when finals come around.

## What a Program Should Include

First of all have a warm-up. Warm-ups are super important. If you do not do a warm-up and go straight into a program you take the chance of pulling or straining a muscle. The reason your body needs a warm-up is that your muscles need two things to function properly — they need to be warm, and to have a good blood supply flowing to bring oxygen to the muscles. As you warm up your muscles will stretch a little too, which is important, so you do not injure them by over-loading or over-stretching.

The main areas to concentrate on are: Legs, Arms and shoulders, stomach.

The legs, of course, are the most important for fast acceleration. But you must remember that forward motion does not come from your legs alone. When you're racing you're pulling up on the bars as *well* as pushing on the pedals. It is your whole body transferring the power to the pedals, not just your legs. Stomach muscles are important for flexibility in your racing — they help in areas such as race jumping and bunny hopping, where weight displacement and the ability to lift your bike off the ground is very important.

## Weight and Repetitions

When doing exercises that require weights, try not to overdo it. Some people try to show off at the gym by lifting very heavy weights — which is fine if you're on some sort of ego trip over your

body. However, if you're in the serious business of training for BMX racing, you will be much better off if you steer away from the real heavy weights. The reason for this is that the average BMX race usually lasts around 30-40 seconds, so you will be a lot better off if you base your training on an average weight with more reps (repetitions) which should take up to about 30 seconds for each set. It is impossible for me to specify a particular weight for each exercise. There is such a variety of age in BMX that it would be crazy to say "weight X is the one everyone should use".

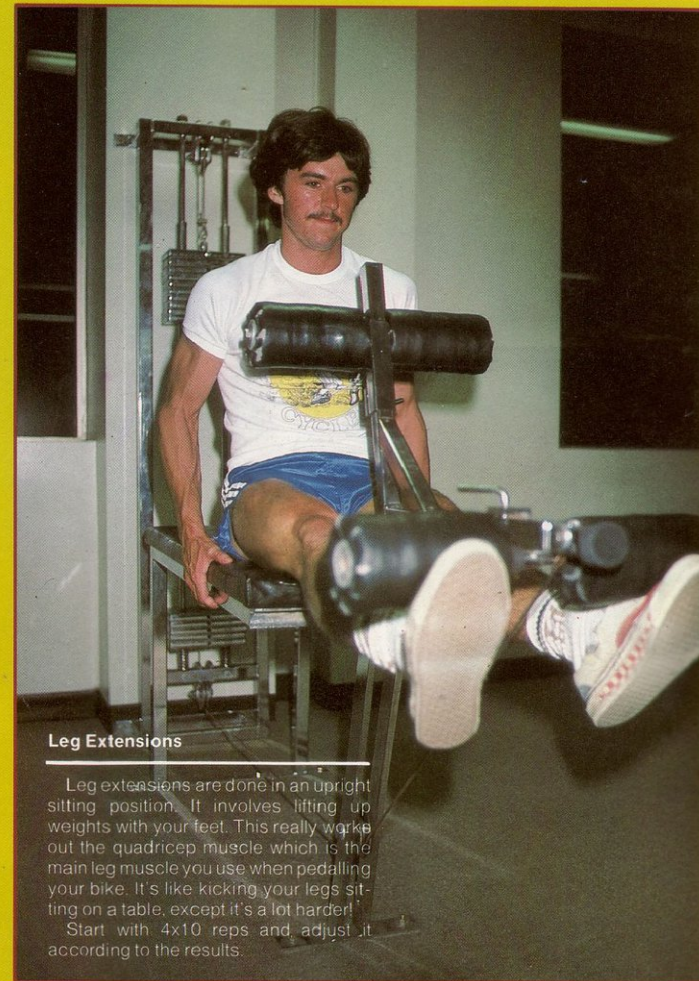
The best idea is to get the instructor to recommend a weight. Try the weight, at the end of your sets of reps you should just about have your pants falling off. In other words at the end of the last set you should only be able to *just* lift it. If at the end of your sets of reps it is still easy to lift, increase the weight. If you can't make it through your sets of reps, then decrease the weight.

Reps should be in sets of 10-15, in groups of four. For example, if you're doing situps you would do 4 lots of 15. Between each lot have at least a 30 second rest, enough to get your strength back. Another good reason to steer away from the heavy weight low rep syndrome is, when you do this your muscles will get used to this power lift training — they become very large and a bit shorter. Now I know for older guys extremely large muscles are attractive to members of the opposite sex — but because of the nature of that type of training, you would not be as long winded as you need to be for BMX racing. Also with the shortening of the muscles, you lose a lot of the flexibility also needed to be an effective BMX racer.

## Types of Exercises

### Leg Curls

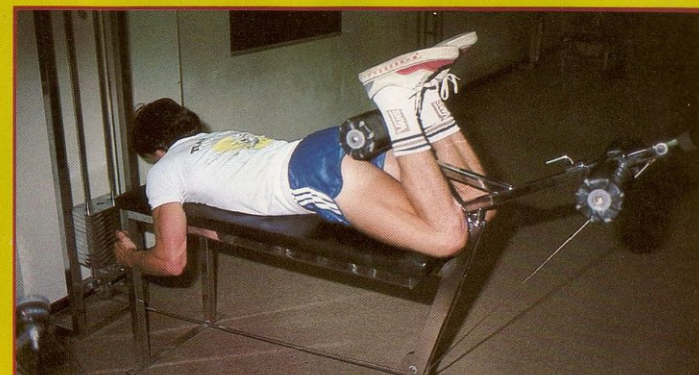
Leg curls are done on the same piece of equipment as leg extensions. They involve lying on your stomach and lifting a weight with the back of your ankles. You will find that leg curls are a lot harder than leg extensions, as a result, the weight will be a lot smaller. To give you an idea how much smaller it will be, I use 120lb on the leg extension and only 40lb on leg curls!



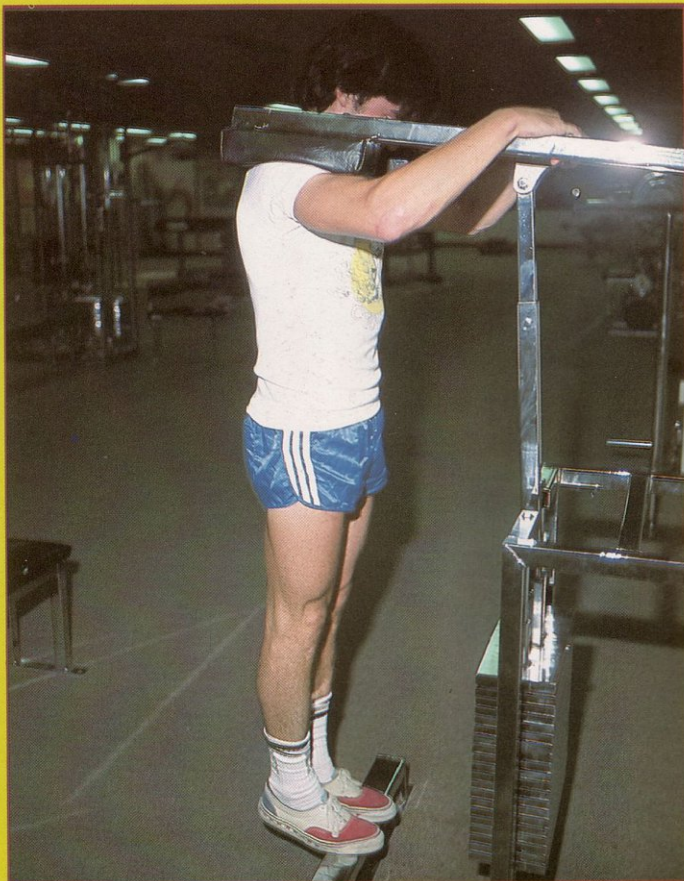
Leg Extensions

Leg extensions are done in an upright sitting position. It involves lifting up weights with your feet. This really works out the quadricep muscle which is the main leg muscle you use when pedalling your bike. It's like kicking your legs sitting on a table, except it's a lot harder!

Start with 4x10 reps and adjust it according to the results.







### Calf Raises

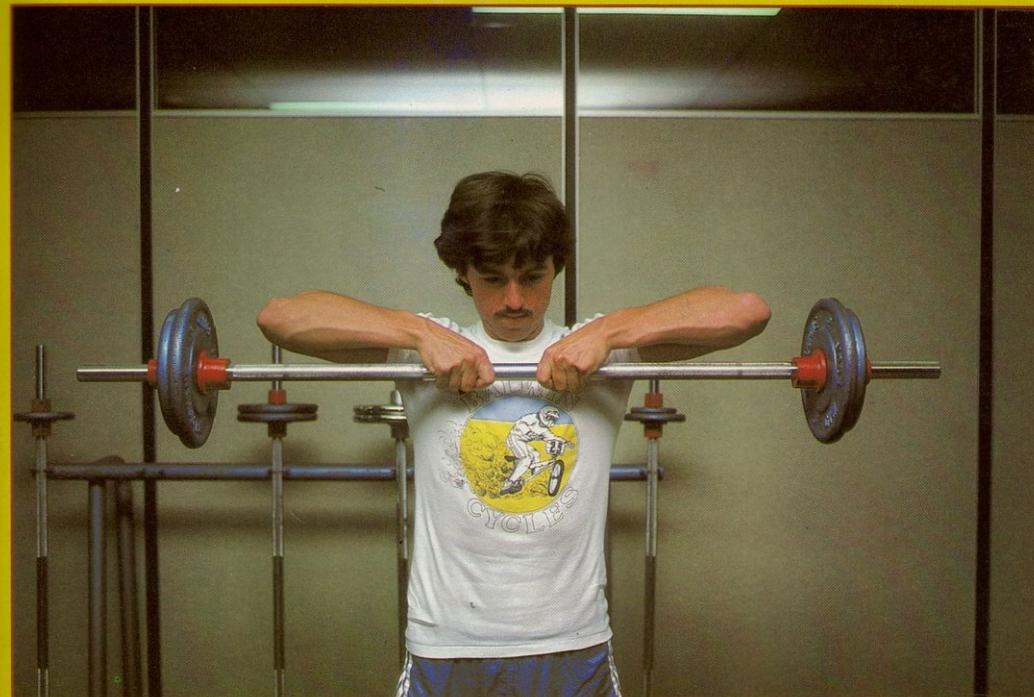
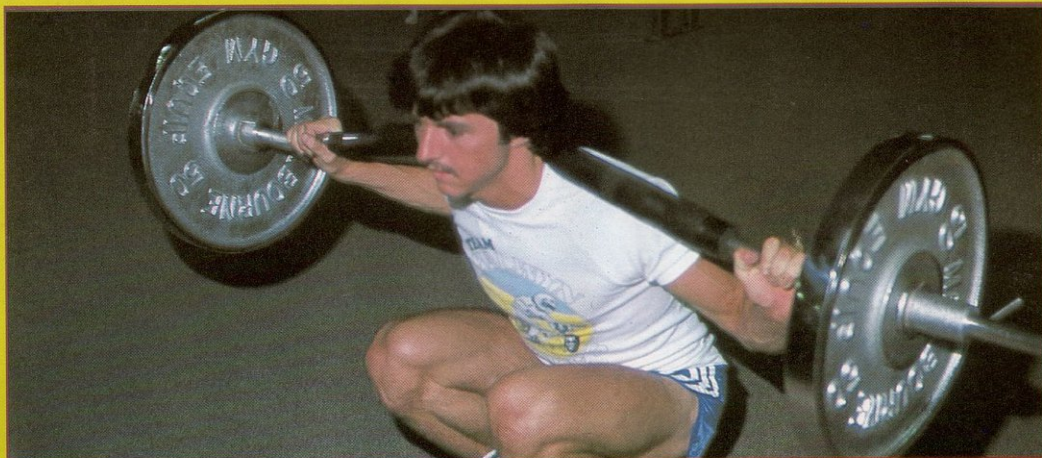
This exercise is for the calf muscle only, and will really help with flexibility of your foot. Standing on your toes, lift a weighted bar (I use 400lb) which is on your shoulders up and down, by lifting your heels up and down. It is also a good idea to relieve your spine a bit after this one as in "squats and weights."

### Squats with Weights

This is another leg exercise, a special barbell with a curve on it and padding is required. With the bar placed behind the back of the neck, resting on the top of the spine, squat down. Make sure you keep your back straight. I use 100lb weight on squats.

Squat as low as you can go, and then stand up straight again. After this exercise it is a good idea to hang from the chin-up bar for a little while, this is to stretch the spine a bit, because it compresses during this exercise.

Try 4x10 reps and adjust accordingly.



### Bar Bell Curl

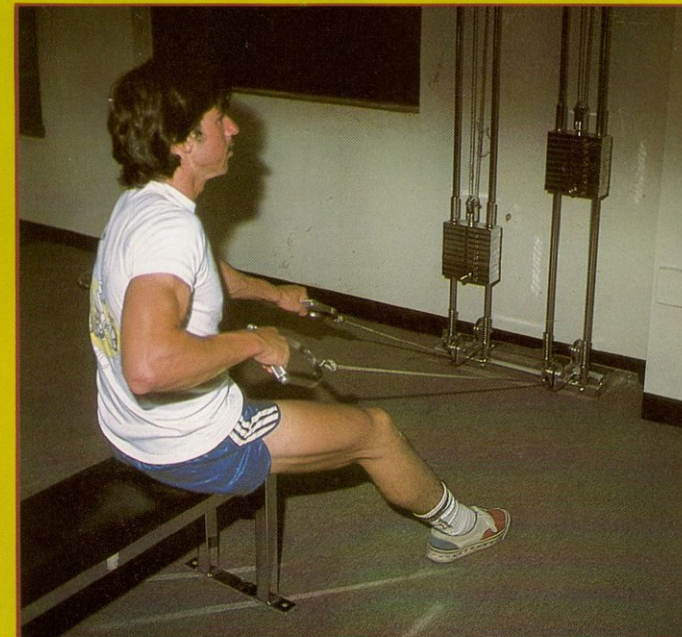
This is just for general arm strength. Start by resting the barbell on your hips, with your palms facing forwards, and then slowly bring it up to your neck, making a semi-circle with the bar, then back down again. For this I use 70lbs.

Try 4x10 reps, then adjust accordingly.

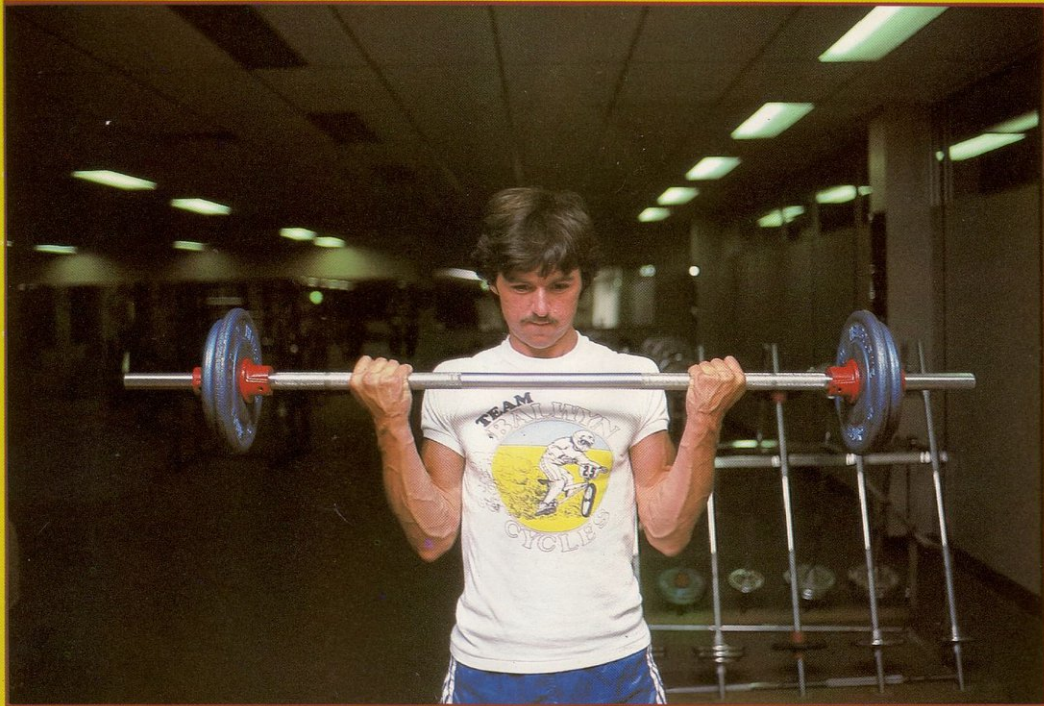
### Bar Pull

The idea of this exercise is to copy the action of pulling on your handlebars. Sitting down on a bench in front of the wall pulleys, you take the handles and pull them towards you — alternating them as if in a pedalling motion. Don't do this with a *real* heavy weight. Just a medium weight. I use 50lb. Do it for about 30 seconds, in other words, as long as your average race lasts.

Try 3x30 seconds as fast as you can go, then adjust.







### Upright Rowing

This is an excellent idea for the pulling dept. Holding the centre of the barbell, pull it up in a straight line towards your chin. When you do this your hands should not go more than about 2 inches from your chest. Then drop it down again to your waist. I use 70lb again for this one.

Try 4x10 reps, then adjust accordingly.



### Sit-Ups

If you don't know how these are done, you're in big trouble. Try and find a slanted sit-up bench if you can. Always do them with your knees bent.

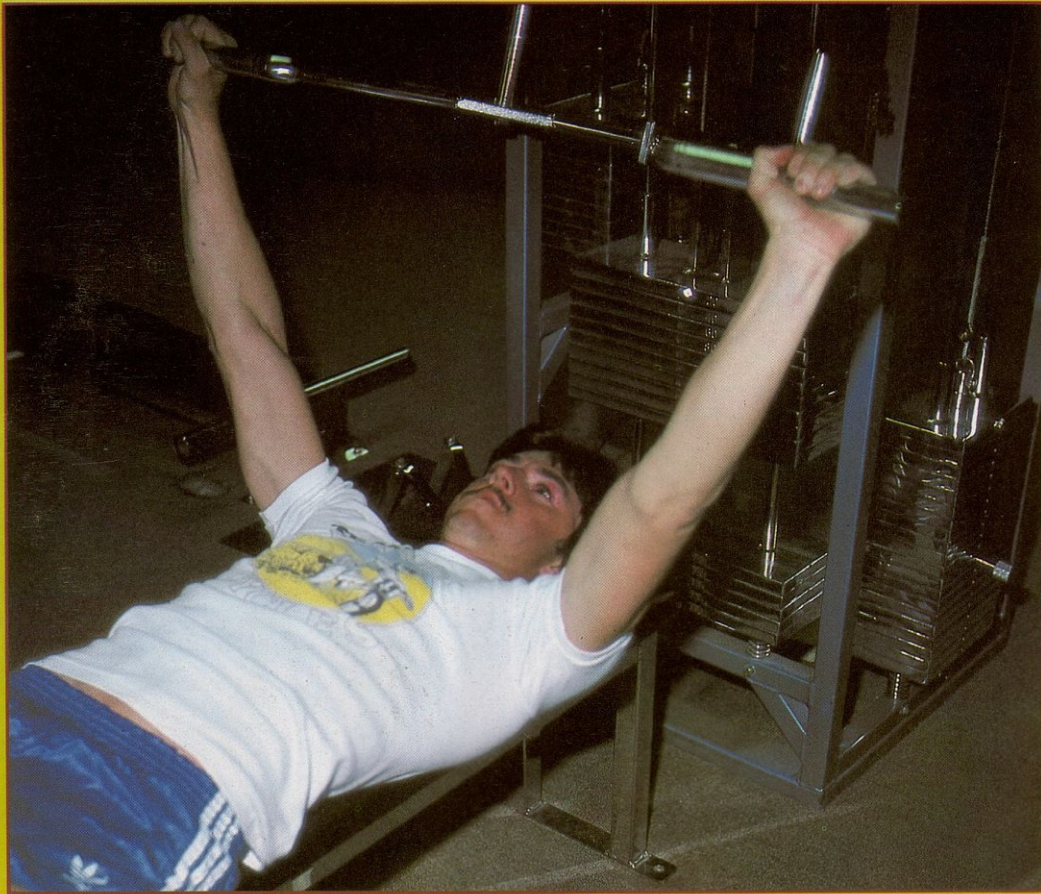


### Lateral Pull

This is for upper body and shoulder strength. Sitting down, you draw the bar down until it rests on the back of your neck, then up again until your arms are fully extended. For this one I use 120lb.

Try 4x10 reps, then adjust accordingly.



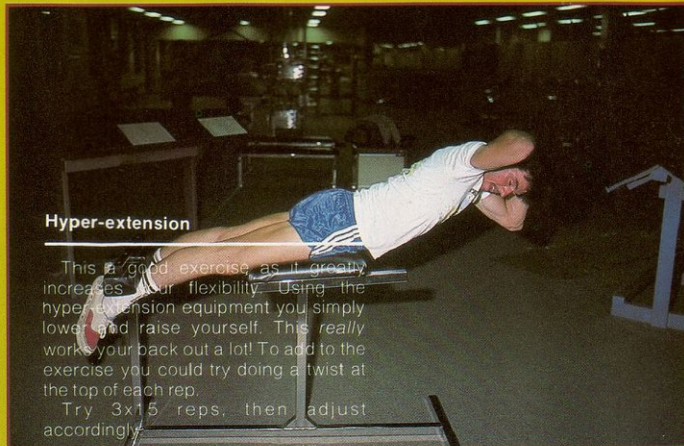


### Bench Press

This is for general arm strength. Lying on your back you push a bar or barbell up until your arms are fully extended, then down until it just touches your chest. On the bench press machine it is impossible for you to touch it on your chest. So just lower the handles until it is near it's stop.

Try 3x10 reps, then adjust accordingly.

Apart from the exercises with weights there are some others which are also very good for BMX racing.



### Hyper-extension

This is a good exercise as it greatly increases your flexibility. Using the hyper-extension equipment you simply lower and raise yourself. This really works your back out a lot! To add to the exercise you could try doing a twist at the top of each rep.

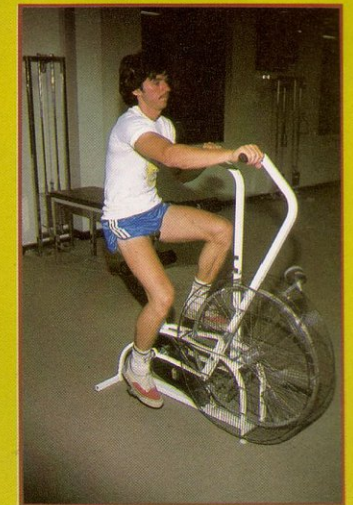
Try 3x15 reps, then adjust accordingly.



### Dips

These are done on dipping bars. With your legs crossed raise and lower yourself to the limits of your arms. In other words as low as you can go, then as high as you can go. This isn't easy believe me!

Try 2 x max (as many as you can do, twice.)



As well as a warm-up, it is a good idea to have a warm-down. This would involve having a slow pedal on an exercise bike for about 2 minutes, to even out the blood flow.



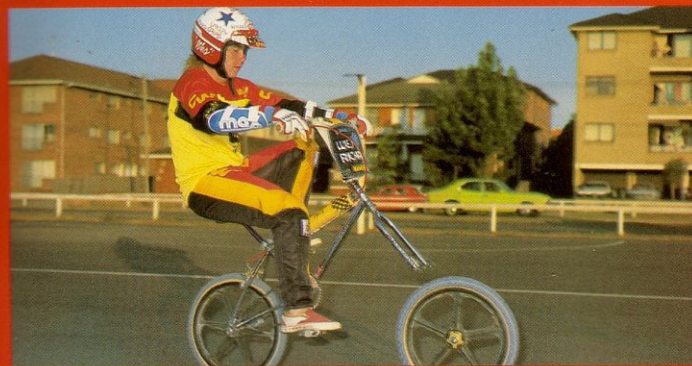
# GETTING TOTALLY RADICAL ON A QUARTER PIPE

By Michael Szabath

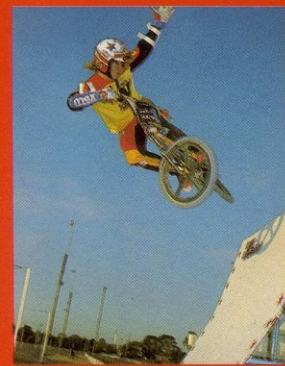
If you have ever wondered how to defy gravity and become totally radical, go get your safety gear, helmet, pads and gloves, put them on, then let's have your undivided attention. Wes Richards of CW Racing will take us into the realms of insanity where anything is possible using a ¼ pipe ramp. Remember our hero, has been doing these tricks for sometime now and it has taken him a lot of practice to perfect them. Under no circumstances attempt to get total air, unless you know how to handle the bike and yourself from lesser altitudes first, and make sure that you wear your safety gear at all times.



Tongued hip hanger.



Mono Wheeling.



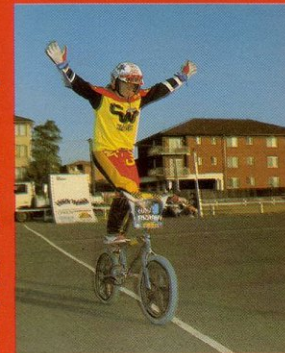
One handed hip hanger.



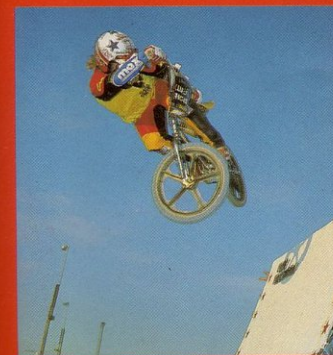
Ramp aerial.



One handed — one footed 180 degree turn.



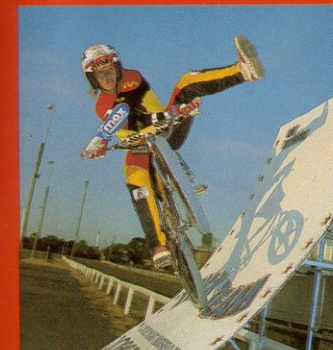
Free style stand up.



Hip hanging aerial.



Aerial tabletop.



Free style "X" up.



## 180 DEGREE KICK TURN

The easiest trick of all is the 180 degree kick turn. Depending on what side you prefer to do the turn, approach the ramp accordingly. If you feel best pivoting to the right, then make your run hitting the left side of the ramp. This will ensure that you will spin around and still have something to land on. If not, you will wipeout over the side.

Start by only travelling up the ramp a short distance. Assume a coasting stance just before beginning the ascent. Lean forward, putting your weight over the front wheel. Apply the rear brake, in our case Wes is using a "coaster" or back pedal, fully on. Whip your hips towards the left while lifting and swinging the handlebars through 180 degrees to the right. Remember to keep your body weight balanced over the spinning bike. This stops you from toppling over backwards and landing on your pride. Complete the turn by aiming the machine straight down the ramp. Release the brake before the rear wheel touches, shifting the weight backwards, otherwise you will exist over the bars. The front wheel makes contact with terra-firma using your legs as shock absorbers and you are safe once again. As you get more experience, try to go a little higher each time. Finally when you really know how to conduct yourself, go to the max.

Hit the incline as fast as you dare, and at the peak of the travel, the back wheel should be  $\frac{3}{4}$  of the way up the ramp as you throw your hips out, with the front way up there in the sky. If you have done your homework, you then make a copy-book re-entry and land safer than the Space-Shuttle.



Assume the coaster stance ...



... lean forward over the front wheel ...



... keep weight centred as the bike comes around ...



Apply the brake, swing the hips, pull on the bars ...



... aim bike straight down the ramp, release brake, lean back ...



... ride away gradually.



## FREESTYLE STAND UP

"How's your heart?" KURTHUMP! KURTHUMP! Well, while it slows down, let's try a "Freestyle Stand Up", this is the latest craze to hit town.

Travelling in a straight line, not too fast, grip the handle bars firmly, then stand up on the pedals, making sure that you have perfect control over the bike by centering your weight. Jump up so that one foot rests on the top bar of the frame and the other just behind the seat pole. Balance is the key word here. When you feel comfortable, lift one hand off the bars. At this stage if anything goes wrong you can quickly replace the hand to steady yourself. Now, lift the other hand off, making sure your weight is central. With all systems go, straighten up to your full height and extend the arms up over your head.

"Great! Now how do I get out of this?" Simple. You either bail out or you reverse the steps until you feel the reassuring nudge of the seat against your behind.



Travelling in a straight line, lift backside off the saddle ...



... when balanced, jump up so that one foot is on top bar, the other is behind the seat ...



Release hand from one bar — but be ready to replace it ...



... let the other bar go and balance ...



... raise arms as high as they will go.



## ONE HANDED HIP HANGER

This, folks, is deadly serious. any slip-up can lead to disaster. You not only leap high into the air but you also let go of the bars with one hand. Check for safety equipment. "That's nice! What's it doing in the wardrobe?" It should be on your person, before attempting this neat trick.

Again, approach the ramp on the opposite side to what you want to do the jump to. If you're going to swing to the right then hit the incline on the left side or vice-versa. Our man prefers to do things to the right, so he rides in on the left. Simple! Go for it at a fair rate of knots, as the faster you make your run the greater the jump will be. Lift your bottom off the seat as you begin the ascent. The bike continues up over the lip as your momentum carries you towards vertical. Leaning forward over the front wheel, make sure that your lower legs are kept close to the bike. Throw the back out to the left and jam the handle bars to your left thigh.

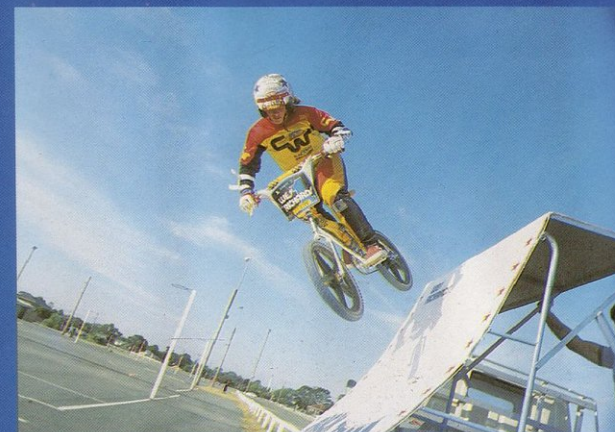
Do not use the brake for this trick. Release your left hand and in the fraction of second that you have before gravity takes over, fling your arm as high as it will go. You begin to plunge, so grab the handle bars, make the final corrections so that the bike is facing straight down the ramp. Make sure that the rear wheel touches first, lean back, then guide the front wheel down leaving the way open for a perfect exit.



... Approach the ramp at a fast clip ...



... the ramp will propel you. Swing hips. Legs are close to the bike, jam the bars into your left hip ...



... grab bars, lean back, make final corrections for re-entry ...



... get into coaster stance and lean forward ...



... throw arm up and push bike around with hips ...



... with bike straight, head down the ramp, legs back.



## FREESTYLE X-UP

This is the radest of rad, it is a Free-style X-up. Perform this feat well and you'll have everyone oohing and aahing with envy. Once again don't forget your protective gear.

Our rider makes his approach on the left as he will be swinging to the right. Do not go flat out, in order to execute this trick as the bike will continue over the top, but rather maintain a medium pace. As you begin to climb lift yourself off the saddle and centre your body weight over the front wheel. Apply the brake fully on, swing the hips while at the same time pulling the handle bars around. Shift your weight over the back wheel and stiffen the right leg. At the same time lift your other leg clear of the pedal and extend it as far as possible to the side. Remember this is all happening in fractions of a second, so while the bike is still pivoting, turn the bars through 180 degrees, so that your arms are in the shape of an "X", hence the name of the trick.

All good things eventually have to end. You have defied gravity for long enough and it is now taking over with a vengeance. The bike begins to plunge earthward. Quickly replace the extended leg back to the pedal, untangle your arms, lean back and make the necessary corrections to complete the 180 degree turn of the bike. Don't forget the all-important brake. Release is now quickly before the front wheel touches the ramp or you will experience concrete halt.

Guide the wheel down and proceed to ride away, amidst the thundering roar of the crowd.



Do not approach too fast for this one ...



... take the old coaster stance again ...



... jam brake on, lean forward, swing hips, lift leg ...



... centre weight, spin bars to form X ...

... reverse the steps, lean back and finish.





## FLY OUT, DROP IN

This trick, the Fly Out, Drop In is positively *dangerous* and is not to be attempted unless you are an **experienced Aero-freak** and wearing full safety gear.

Rev the legs to the limit as you begin the run up to the ramp. You will need all the thrust that you can muster, in order to clear the launching pad.

Stand up on the pedals as you hit the deck and lean over the front wheel so that it stays down. *Do not touch the brake*, but rather let your momentum take over. The shape of the incline will propell you upwards from the ramp.

As you reach maximum altitude, quickly turn the bike through 90 degrees so that your left leg is very close to the ramp. Your booster rockets are now empty and you start to fall back to earth. Place all your weight onto the left foot as it makes contact with the ledge at the top. Lean towards the back of the ramp otherwise the bike will drag you down the front as you place the other foot on the platform also.

Get your balance and continue to turn the bike around a further 90 degrees making sure that the back wheel is firmly touching the top of the ramp. Make any necessary adjustments, at this stage for your re-entry. When you have complete balance and control, place one foot onto the pedal, pick a spot for the front wheel to go to, straight down the ramp, apply the brake fully and continue to lean back. When you are really comfortable lift the left foot onto the other pedal and balance for a brief second.

At this stage the bike should be horizontal to the ramp and you must be sitting upright, being careful to be neither too far forward or back, otherwise you will make an early drop in onto your head. As the front begins to plunge earthward, release the coaster brake and lean back. After the wheel touches down safely, continue to lean back and ride clear of the ramp.



Approach ramp as fast as possible ...

... as you come down make sure you can reach the ledge ...



... be upright as the bike is parrallel to the ground ...



... leave the brake, stand up and lean forward ...



... all the weight has to be on your left leg, and lean back ...



... if you have complete control place other foot onto pedal. The bike is aimed back down the ramp ...



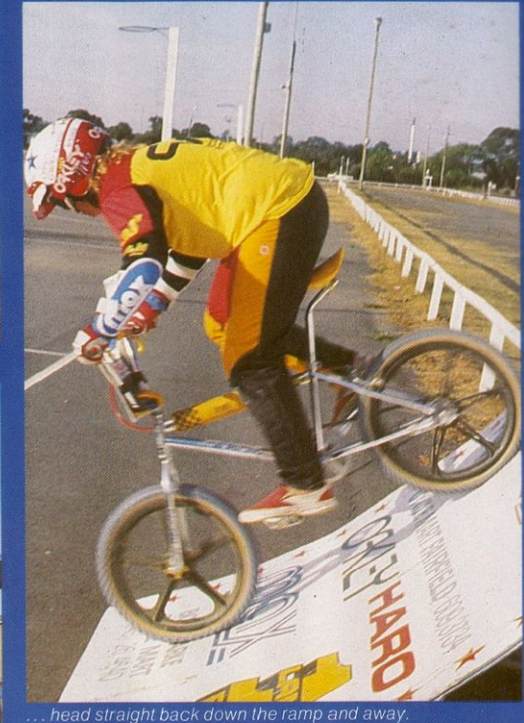
... release brake and lean back ...



... turn through 90 degrees so left leg is close to ramp ...



... get your balance, swing bike around, jam the brake on ...



... head straight back down the ramp and away.



## AIR-OUT TABLE TOP

Once again if you are going to do a clockwise jump, hit the ramp on the left hand side. Really pump those legs again for this trick, as the more speed that you can get up, the higher you will go and result in greater air-time. Remember your safety gear.

Proceed up the jump, stand up making sure that the pedals are level and keep your weight over the front. Leave the brake alone. Let the shape of the ramp propel you up. Grip the bars very tight and apply pedal pressure with your feet. Whip the rear end out to the left, start a 180 degree turn, and centre your weight. Crank the handle bar tightly against your left thigh and push the bike out from under you with your feet. The aim here is to get the machine totally parallel to the ground so as to look really spectacular. As you fall, reverse the previous steps.

Continue to complete the 180 degree pivot, line up your bike facing straight down the ramp, then prepare to head for the ground. Bring the back wheel down first using your legs to absorb the shock. The front makes contact and you are safe once more.



With pedals level, stand up and lean forward ...



... no brakes are needed, the shape of the ramp will get you airborne ...

... grip bars and apply pedals pressure, whip rear end out, crank bars hard left — you must get parallel to the ground ...



... as you are pivoting, lean back and start to reverse the steps ...



... line the bike up straight down the ramp ...



... land back wheel first and lean back, ride away.



## 360 DEGREE SPIN

OK, you've had enough madness for one day, now for the next trick you stay on the ground and go into a 360 degree spin. Approach the target area at a moderate speed, keeping a watchful eye on where you will be pivoting to. Make sure that you have perfect balance, stand up and lean forward as you pull the front off the ground as high as you can. Shift your body weight to the side so that it sets up a swinging motion.

Congratulations, the bike has gone through a quarter of its spin, there is only 270 degrees more to go. Make sure that the handlebars are turned in the opposite direction to that in which you are travelling, otherwise you lose the momentum that is needed and drop down, spoiling the act. As you turn into the 180 degree position straighten your arms and shift your weight so as to continue the swing.

Apply the coaster brake as the bike approaches the 360 degree mark. Lean back so that you get a good angle onto the pedals. Let the brake off, start pumping the legs and allow the front wheel to come down and to touch the ground, making sure that your balance is maintained, enabling you to ride off into the sunset.



Approach your target area at moderate speed...



... lift front wheel and shift weight to start spin ...



... now there's only 270 degrees to go ...



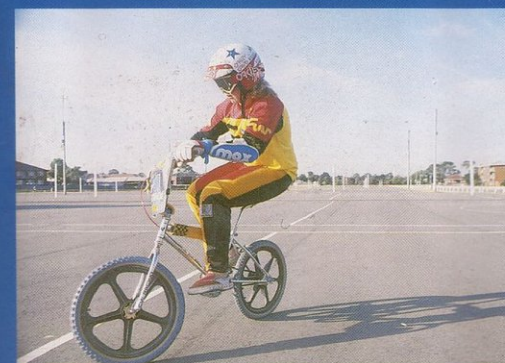
◀ ... bars must be turned opposite to direction of travel ...



... nearly there ...



... lean right back and start to pedal, allow front wheel to come down ...



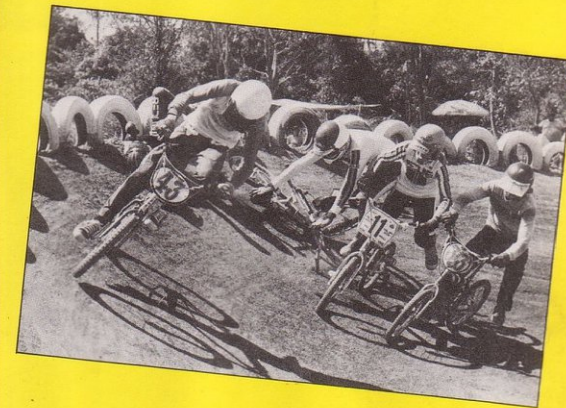
... maintain good balance and ride away.

Remember — these tricks are definitely **D-A-N-G-E-R-O-U-S**, and must not be attempted without wearing, helmet, pads and gloves. Make sure that you can do the feats on smaller ramps first. Do racing drivers and riders think that protective gear is only for the birds? Absolutely not, for many a racer has walked away from crashes where their car or bike has been totaled, because of the safety equipment involved.



# The *thrills & spills* of '83

● Pictures by Kevin Hoare ● Graham Smith ● Michael Szabath ● W. Jackson ●

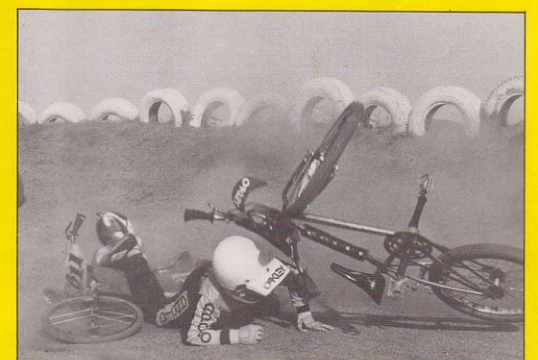
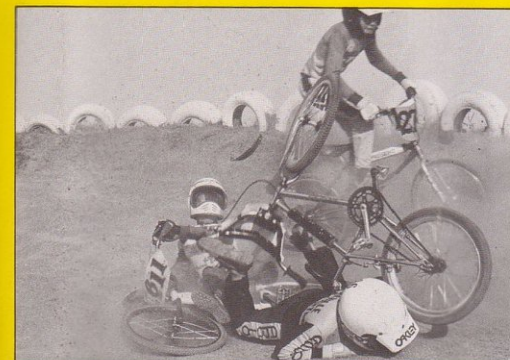






Just about every BMXer, at one time or another, is going to come a cropper, taste dirt or meet Mother Earth. It's part and parcel of competition, particularly hard, furious, close competition when every point counts.

BMX rules, generally, don't favour intentional barging or a premeditated action taken to try and bring a rider down ... and competitors today have huge amounts of respect for each other both on and off the track. Authorities say that the demeanour between competitors today is the best it's ever been in the sport — though exceptions do occur from time to time in the heat of the moment.



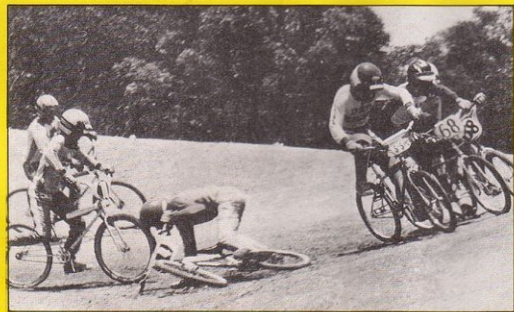
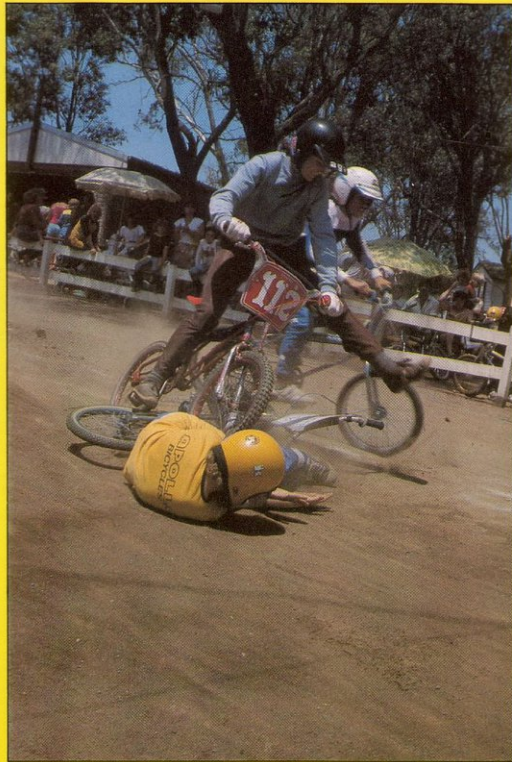




We publish these pictures as part of BMX competition because that's exactly what it is. There's no black mark against a rider for stepping off a bike, or going down with it. Often that's the only way out of a sticky situation which might otherwise have the rider sailing over the edge of a tall berm with worse results.

In fact, Pancake takes its hat off to these spillers, all of whom rose again to ride another moto — and often that takes some guts, fortitude and a little derring-do to get on again even though you may be hurting all over and know you'll have a bundle of aches for the rest of the week.

To the stars of these pictures, we salute you. If you hadn't had the true spirit of competition, and been going your hardest, it may never have happened. More power to you all!





# RACE TUNING YOUR BIKE

By Dave Cooper and Trent Williams

To get the most out of your racing you've got to get the most out of your bike, simple as that. Only when you know your bike is 100 percent can you go out on the track, give it your all and be totally confident. Your race bike has got to be an extension of yourself — it has to respond to your reflexes. The only way to do this is to get to know your bike inside out.

A bike is a relatively simple machine compared to motorised forms of racing, but, like any precision, high performance piece of machinery there are a lot of things that can go wrong. Not only are there things that go wrong, but it's the little things that slow you down that really make the difference. The difference between a well prepared bike and a totally dialed bike.

Only you, the racer, knows whether your bike feels right. That's why it's important to know how to tune your bike to race perfection yourself. Most of the top riders in Australia don't work on their own bikes, they have their sponsors take care of it, or their local bike shop tunes it for them. This doesn't mean they drop it off then pick it up when ready. Usually they take their bike for a spin after each little alteration. A mechanic could spend an hour working on a bike until its mechanically perfect, then, when the racer takes it for a ride, spend another half an hour making it feel right.

Unfortunately not everyone can afford to have their bikes fixed by an experienced mechanic and you can save yourself a few bucks by doing it yourself

I would go as far as to defy any strong rider with great stamina, age for age, to beat a lesser built rider with equal race skill who is riding a well-tuned bike against the bigger guy on an old barge. When you can make your bike do what you need it to do, when you want it done (and that means split second manoeuvres) without worrying what the heck the front or back is going to be doing when you try to come out of it all, then you've got yourself a race machine. The rest is up to you to improve your skill to match the bike's capabilities.

In engine-powered racing, both bikes and cars, there's an old saying "speed costs money — how fast do you want to go." That's not entirely true with BMX. If



*Before every race meeting check the rear brake lever for position and movement. The lever should pull easily and without grabbing. If it is sticky or jerky, go right back through the brake system adjusting, oiling and making the brake cable free. If necessary, you may need to remove the cable at both ends and hang it from a beam, then drip oil down the inside from the top, allowing it to run right through the inner cable and appear at the bottom. If the cable is frayed near the outer casing, replace it.*

you buy the best basic equipment you can afford, and keep it maintained, then tune it properly — the only reason you won't be up there with the heavies is because you've neglected to build yourself up to take advantage of this lightning bolt you've got under you. OK?

This article will deal with the bike itself, later we'll look at the various ways you

can go about getting the body well maintained and tuned up.

## **The bike generally**

At the risk of offending some makers, it must be said that there's little point in fronting up to a BMX race meeting with a \$100 special that weighs half a ton, has a mild steel frame and coaster brake inside the rear hub. You'll still get a ride,

but it won't be too long before you get tired of eating everyone else's dust. Even if it's going to cut your pocket money for the next six months, go for the best you can afford — if you're going to get serious about this whole thing, that is — and tune the basic bike well until you can afford some of the trick "go-get-em" equipment to cut those precious fractions of a second from your race times.

Always keep the bike in good shape, even though it will mean tearing most of it down after each race meeting and cleaning and checking the whole machine. A BMX race meeting will leave dirt and grit in every moving part and if left there it will ruin parts very quickly. When you get to know your bike properly you will become aware of rubbing and grating sounds which shouldn't be there, and you'll also feel that something is not right somewhere. Only a good strip-down, careful check, clean and re-lubrication will show where the problem lies. Once the bike is back together, a test ride will tell you if the problem then lies in wrong adjustment or out of true moving parts.

When you're stripping your bike the first few times, until you get to know how it all goes together correctly, be sure to look at how you're taking it apart. If necessary keep some fine string and pieces of paper handy and tag things as they come apart. Don't be afraid to make notes on the paper ... it's your bike, you're responsible for it and its performance. The only way you can do this properly is to get completely familiar with it. Once you are experienced in rebuilding your bike all of your friends will marvel at your skill and knowledge — you could even get to be so good they'll ask you to rebuild their bikes, too. I know famous racing mechanics who started in similar fashion.

When you first buy your BMX bike, buy a set of tools to fit its parts. If you're stuck, it only costs a few dollars to have a bike shop do some of the more complicated work. Don't ever expect to be able to disassemble and rebuild your bike using a screwdriver and crescent spanner from your garden toolshed. These two items will often come in quite handy and should be a part of your tool kit, but there are some special tools that you should buy such as Allen keys, tyre



*The top bar pad serves a double purpose. As well as being a safety measure, it also keeps the brake cable firmly attached alongside the bar. What you don't want in a race is for your hands or legs to get tangled up in a free-floating brake cable!*

levers, philips head screwdriver, cone spanners, spoke tool and the special spanners and tools needed for your particular type of crank (that's probably the most difficult area of all for the owner to work on, and you do need the special tools). The shop from where you purchase your bike should be able to supply them. If not you should make sure you can buy these tools before finally deciding on buying the bike — otherwise every time you want to pull the bike fully apart you're going to have to make the trip to a shop and pay them to remove and replace the crank.

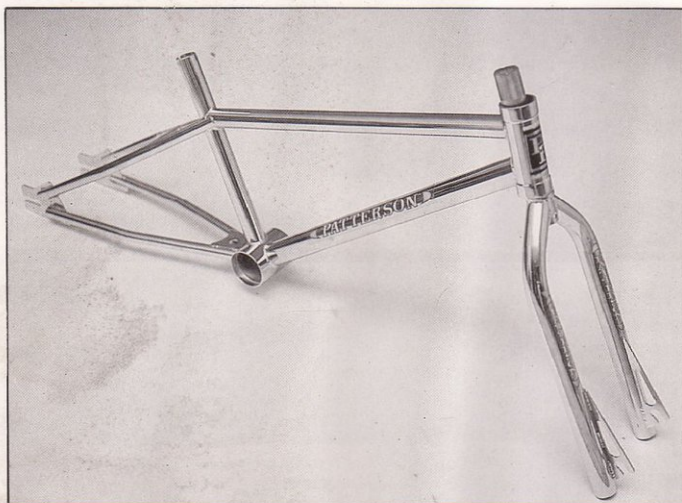
Always use a clean area of your garage, or carport, sweep it free from dirt and grit before you start work. If possible, have a large sheet of heavy calico, plastic or other material available that you can lay down on the floor and work within the parameters of that. It will help ensure you don't lose parts and will assist to keep dirt and grit from the parts you've cleaned and re-lubricated.

One of those one litre plastic ice cream containers is a good idea for cleaning your parts in. A quantity of spirits (methylated spirits or mineral turpentine will do, but don't bring any flame or

intense heat near your workplace) poured into the container will act nicely as a wash basin. Be sure to dry all washed parts thoroughly before re-lubricating, otherwise the spirit will tend to dilute the lubricant. Keep a clean cloth for the final 'polish' on your washed parts and inspect the parts well before re-lubricating them for any signs of wear and tear, or pitting in the numerous ball bearings and their races.

An old toothbrush is another inexpensive, but important, item in your tool kit. Use it to brush the chain and hubs and sprockets clean after soaking in the spirits. After cleaning the chain thoroughly, it should be hung to drip dry, then inspected for any stretching or widening of the holes in the links. When it is completely dry, re-lubricate it by either soaking it in a container of oil, or running the oil down the hanging chain. The lubricant must be allowed to penetrate completely through all of the links. Hang the chain again to allow excess lubricant to run off, finally running a lint-free cloth along the chain to again soak up any excess. A spray lube can be easier, quicker, and you don't need to remove the chain.





After every race pull your bike down to at least this stage and clean everything on it, as well as every piece you take off it. You'll do your bike good, and get to know it better, too.

When you get into the stripping of your bike you'll quickly realise the need for the right tools. Once you start using the wrong tools, and nuts and threads start to burr over and strip, then you're really headed for trouble the next time you're at a race meeting and you need to change some items over between races. Suddenly the correct tools won't do the job properly, you get frustrated because time is slipping away and your efforts of getting ready for that meeting suddenly have been entirely wasted. Disassemble and rebuild your bike with care, with plenty of thought and with patience ... it will all pay off in the long run.

#### Brakes

One of the most important areas of your bike are the brakes. Maybe you're not expecting to have to use them too often, but when you want to you need to be sure they are going to work — and will work exactly as you expect them to for the amount of pressure you exert on the brake lever.

It is generally, or we could say universally accepted that hand operated brakes in BMX racing are all the go. This

enables you to do what you need to do with your pedals without the back coaster brake coming on. The most widely used on BMX bikes is the side-pull system. Pulling the hand lever operates the cable that pulls the calipers together. The rubber blocks then squash against the wheel rim.

Check your brake system constantly and thoroughly whenever you get the chance. Don't hesitate to pull the brakes apart, clean and lubricate them whenever you are carrying out maintenance. Inspect the lever operation for wear, tear and tightness.

Remove the cable and drip sewing machine oil down its interior so the cable will slide, hanging the cable and casing up to allow the oil to run through. Make sure the cable itself is not unwinding or fraying where it enters the casing, and also that it can be tightened in the adjustment nut area without spreading apart.

Do not let oil or cleaning spirit get onto your brake blocks. The spirit will eat the rubber, the oil will lessen braking efficiency. If they have been contaminated, throw the blocks away and fit new ones.

Make sure the rubbers pull evenly onto the rim of the wheel and that the system releases quickly. If the gripping system doesn't release evenly then you haven't cleaned it all properly, or adjustments need to be checked. Any unevenness in the grip will probably be the brake arms or the brake spring not centred properly. If so, release the pivot bolt nut, re-centre the system and retighten the nut. Check that the cable has been pulled tightly through the adjusting barrel so you are getting maximum pull on the hand lever.

Position the hand lever so your first two fingers (at least) can reach it comfortably while you are riding. You shouldn't have to stretch or search for the lever, nor should you have to look at what you are doing.

#### Wheels and hubs.

You can adjust spoked wheels to quite a large degree by loosening and tightening the spokes with a spoke tool. Aluminium or nylon-type mag wheels are all one piece and only the hubs are adjustable. On some types of "mag" wheels a bend or a kink can be removed by placing the rim in a deep freezer overnight, so the story goes, but I must say that I have never had such an experience. If I've bent a "mag" badly enough that it hasn't sprung back into shape on its own then I've taken a deep breath and replaced the wheel. There's really no point in getting into your very next race meeting only to find your wheel starts to wobble out of the first turn.

With spoked wheels, if the wheel is slightly buckled but hasn't any serious kinks or dents, there's every chance you can straighten the rim by adjusting the spokes. A kink is generally too bad when either the brake rubbers keep grabbing in one spot or the tyre wears badly in one position. A dent is also too bad to keep using for the same reason. Also you may find your tyre keeps popping out of the rim. If you find you keep on denting the rims, try more tyre pressure or heavier duty rims.

To true a wheel, find the area out of line by twirling the wheel in the frame. Hold a piece of chalk on the edge of the frame, almost touching the rim. As the wheel twirls the chalk will hit the rim at the place requiring attention. You may need to do this on both sides of the wheel, depending where the buckle has

occurred. Using a spoke tool, tighten the spokes a quarter of a turn on the side of the rim that needs to be pulled back into line, and loosen the spokes on the side showing the buckle. Only tighten and loosen the spokes one turn at a time, checking when you have done each spoke to within one or two of the effected area to gauge progress. If you can't get out the wobble in the rim, and you've been patient with tightening and loosening the spokes, you probably need a new rim. Bashing the rim with a hammer to straighten it will not do the job. But it takes experience to learn how to try to get a buckle out.

A wheel is only as good as its hub.. If you've got a gritty or worn hub it's going to take more effort on your part to turn the wheel, the bike will not be as responsive as it should and you are going to get very tired, very quickly. Front hubs are a piece of cake to remove and replace, but you need the right cone spanners to do the job properly. Count the bearings in each side of the hub when you have pulled it apart and make sure you put the same number back again after washing, drying, polishing, and re-lubricating. Many bikes today have their bearings housed in races, so this step is becoming out-moded. Always use grease in the hubs, not oil. Grease is longer lasting than oil and should be used everywhere there are bearings. If you have no grease, and you really need to reassemble the bike, load up the area with heavy oil — but be sure at the first opportunity to pull the parts down again and pack them with grease. Oil will keep draining out and cannot provide the protection that grease will.

On a normal road bike the hubs should be re-packed at least once a year. If you're racing on a very dusty and gritty BMX track, do it at least after every second meeting, but preferably after each day's racing. Once you're used to it, the job doesn't take that long, but it's going to give your bike parts longer life and better performance.

The rear hubs are a little more complicated, but you can get to the bearings generally without messing it around too much. Some hubs with a freewheel built in have a different amount of bearings on each side. Count them carefully when you pull it apart and make sure you

know which side each amount go into. Clean the rear chain sprocket at the same time, but there's no need to lubricate it other than wiping a thin film of oil on it. The lubrication on the chain will do the job. If your hub axles don't come with lock washers, pick up some from your local bike shop. They help a lot in keeping your wheel in position on the forks.

Take care when adjusting the hubs for tightness. This needs to be done first with the wheel out of the forks, and checked again after tightening the axle in the forks. Turn the axle cone until the sideplay goes out of the wheel, and the hub just binds up. Then loosen the cone nut slightly until the wheel spins free but with no side play. If your bearings and housings are in good shape there should be no sideplay at the point where you just back off the nut slightly from binding. Place the wheel into the forks, true it up so it runs in the centre for them, and nip each side of the axle up before cranking the wheels nuts tight. Having done that, make a final check of the brakes to be sure they are running free and centred with the rim. If not, loosen the pivot nut and adjust either the calipers or the spring — or both, then retighten the pivot nut and lock it.

#### The drive train.

So many parts are interdependent on each other that I regard the drive train as being the pedals, crank and bottom bracket, chain wheel and chain. Its difficult to discuss one without the other.

Most good BMX bikes come with alloy 9/16 and 1/2in. pedals. If you're using rubber pedals you really should throw them out and replace them with pedals which feature more grip. Remember some of your racing could be done in the wet (as in the Nationals finals in Qld this year) and rubber pedals just are not the thing to be wearing in wet conditions. If you're buying replacements, be sure to take your crank with you because both the pedal thread and its diameter differ in some models. Remember that the right pedal has a normal right-hand thread while the left screws in the opposite direction (so it's not going to come undone while you're out there standing on them!). Also, most pedals, but not all, have bearings which need to be greased quite often and you need to watch the fact the the bearings in them

are matched sets due to the taper of the pedal axle.

When taking the pedals apart count the ball bearings and make sure they go back into the same housing they came from. Keep all pedal nuts right, make sure there's no freeplay in the adjusting cone and remember to always replace the dust cap.

Two main types of cranks are used in BMX: the one-piece and the cotterless. Cranks are made of alloy, chrome-moly or high tensile steel. Three piece alloy cranks are common for the little people as they are lighter.

Special tools are needed to remove the cotterless crank so if that's what your bike is equipped with make sure you have one on hand for your maintenance. The crank will be on quite tight so although you need to exert some energy even with the special tool, take it easy when forcing it off to avoid damage.

A crank held on by a cotter pin only needs the cotter nut loosened back to the point where it is flush with the end of the thread. Then, with a piece of wood to protect the metal, strike the wood to force out the cotter pin. Once the pin is loosened, take off the nut and withdraw the cotter pin, the crank should come off with a slight tap to the inner edge. When replacing the crank, make sure the cotter pin "flat" is in the correct place in relationship to the wedge cutout on the hanger.

To remove the bottom bracket only take out the left hand side locking or nut and the hanger cup to expose one set of bearings. When you remove the bearings be careful not to lose any, count them and put them aside. Then you can withdraw the axle and reach the right hand bearings without disturbing the right hand side hanger cup. The adjustment for tightness and play when reassembling the hanger is done with the hanger cup, and locked into position with the lock ring or nut.

If you reach the stage where you want to replace a one-piece crank with an alloy set you will probably need a conversion spindle or axle set. When you buy it make sure the axle, or spindle, is long enough so the cranks don't strike the frame as they rotate.

When you come to look at the chain-wheel you'll see why I regard the drive



system as a whole. With one-piece cranks there is a drive pin on the crank that fits a hole in the chainwheel. Therefore, in order to remove the chainwheel (maybe to change wheels for a different gear ratio) you need to first take out the crank. The other types of cranks have spiders and quick-change sprockets, meaning you can alter your chainwheel for another gear ratio simply by undoing five bolts around the spokes. Chainwheel teeth sometimes get bent, or even broken. Bent ones can often be straightened with a strong pair of vice grips or a shifting spanner for make-do repairs on race day without removing it from the bike.

Changing the chainwheel for a different gear ratio (using one with more or less teeth for a faster or slower pedalling ratio to bike speed) is no problem, but you've got to watch the rear wheel hanger slots in the frame. A smaller chainwheel up front will give the effect of making the chain longer, so you need to take up the slack at the rear wheel adjustment. Watch that you're not going to run out of adjustment at the back otherwise you won't be able to alter gear ratios too easily. The rear freewheel can be changed for another size as well, but the job is quite a deal more difficult than with the chainwheel. If you do run out of adjustment, and this is something you want to work out back home before you leave for the track, it might be as well to buy another shorter chain and fit that at the same time you alter your gear ratios.

A well set up drive chain needs the chainwheel and the rear freewheel to be perfectly aligned. If it's not you're going to run the risk of running the chain off the rails in hot competition. Also, a well adjusted alignment means less wear on the chain and both sprockets. You can shim out (or in) the rear sprocket enough on either side of the rear wheel to get the correct line which can be found by looking directly down on the drive train from above and getting a line straight through both sprockets.

Another handy tool is the chain tool, used to remove a link in the chain to either shorten, lengthen or remove the chain from the bike. Check the chain regularly for loose links and tight links. A work chain will also wear the two sprockets very quickly and often by the



*Check the head stem and neck before races. Take it out, clean it, make necessary adjustments and replace at the height you need it. Make sure the head bolts are nice and tight, and that the bars are not going to revolve on you in the heat of a race. If they still slip when the bolts are tight, knurl the bar thread with a chisel to provide extra grip. When adjusting the head stem clean and lubricate the bearings and adjust for tightness. Make sure the stem doesn't grip when you turn the bars, it should turn smoothly and easily. Don't raise the bars higher than necessary. For strength you need to leave enough stem in the head of the frame so it clamps well and won't pull out.*

time you notice the chain is worn (if you don't carry out regular maintenance) all three can need replacing. Which proves how regular maintenance can save you money.

#### Steering head

Just because you can't see inside it never neglect the steering head of your bike. The head is the section housing the top of the front forks, and which also accepts the stem of the handlebars. When disassembling it be very careful because some of the ball bearings and their housings come out facing upwards, others come out facing down. The bearings have a nasty habit of dropping out and bouncing all over the floor.

To disassemble the unit, first remove the handlebar stem and then in sequence the locknut, lockwasher and adjustment cone. You need to hold the forks in the head until you have the adjusting cone all the way off the thread otherwise your ball bearings start to

drop around like Lotto balls. Allow the top set of ball bearings to drop into a container or a rag, count them and put them aside. Then remove the forks which will release the bottom set of ball bearings. Again, catch them all, count them and put them aside. You should have the same number when you replace them.

Check all the bearings and housings for wear, replace any which are worn. If you are replacing the forks make sure you get the size that fit your bike, they generally come in a 100-125mm head tube. A tip on replacing your bearings. Spread grease around the housing on which the ball bearings run and they will stay put while you re-assemble. The same applies if you've lost or mixed the balls. Apply some grease and fit on the balls. The race is full when you have one less ball than it takes to fill the outside of the housing tightly. To replace the forks, fit the lower bearing set first, insert the head of the forks and fit the top set, then



wind on the adjustment cone and lock washer, tighten until the forks turn freely but without any sideplay, then thread and tighten the locknut.

#### Handlebars

You can virtually choose any type of handlebar that suits your purpose and the same applies to the headstem. The most important thing there is the headstem for it controls the height of the handlebar as well as the fore and aft pitch of them. In both types the unit is held in the head by a wedge-shaped lug that expands in the head when the top expander bolt is tightened. You need to be careful when removing the headstem that the expanding wedge at the bottom isn't loosened too much otherwise it will fall inside the frame. Not that this is a great problem, for you only need to turn the frame upside down and it will fall out again. The wedge, although the top expander bolt is loosened, will not release immediately. It will probably require a knock on the bolt to force it down and away from its grip on the inside of the fork stem. Once the headstem is loose you can raise or lower the handlebars, or adjust them side to side. Then retighten the expander bolt. On some headstems the fore and aft tilt is held fast by Allen nuts rather than a single binder bolt. Be careful when raising the handlebars that you do not raise them so far that there is not enough stem remaining in the head for strength. Some headstems have a height mark on them which is the maximum that should be



above the locknut on the head. Choose your handlebar grips carefully. There are some excellent moulded sets on the market that perform very well and are most comfortable. Don't settle for uncomfortable handgrips even if you are wearing gloves.

#### Saddles

The seat of your BMX bike is a personal choice. We all have different shapes and a different amount of padding. Try some seats before you decide on yours, make sure it is comfortable and wide enough because often when racing you're going to come down on that seat with a bang. A slender, hard seat can have you eating your meals standing up for a week after a situation like that. Choose also strong seat pole, preferably made from metal like chromoly or like. A mild steel seat pole, however shiny and chromed, is going to let you down in a competition situation just when you need it to stand up to the test. A broken seat pole can be just so dangerous that it's not even worth talking about. Go for strength.

#### Tyres and tubes

It almost goes without saying that both the tyres and tubes should be in good condition for BMX competition. Only you can decide from your own riding style and the various tracks you will ride on as to what type of tyre is going to suit you best under various conditions, but whatever they may be, you need to keep them in good condition. You should have a good quality puncture repair outfit on hand in any case. Every time you

are carrying out maintenance on your bike, make a visual check on the tyres for anything embedded in the tread. If you find anything, slivers of steel, a small tack or even wood, take off the tyre to remove it. This also gives you the opportunity to check, by running your fingers around the inside of the tyre, if the foreign body has penetrated right through. If so, check your tube or it may have been seriously weakened in that area. To do this insert the valve, lock it in and pump up the tube. Sink the tube in a tub of water, or the swimming pool if you have one and any pin pricks there will release a tiny stream of bubbles. But check carefully, you may have a slow leak that only releases three or four bubbles in a minute — and that will be the one that will catch you out when you least need it.

Always remove and replace the tyre and tube with tyre levers to avoid pinching the tube (and causing another leak). If your tyre is deflating, and there's no outward evidence why, first check your valve under water, it may only need replacing, or a piece of grit could have wedged the valve slightly open. Most of the better quality BMX tyres (Gumwalls) can be fitted by hand with no risk to the tube.



# Gearing:

Story by Jamie Hales  
Gear chart by Champion Cycles

# WHAT AND WHAT NOT TO DO

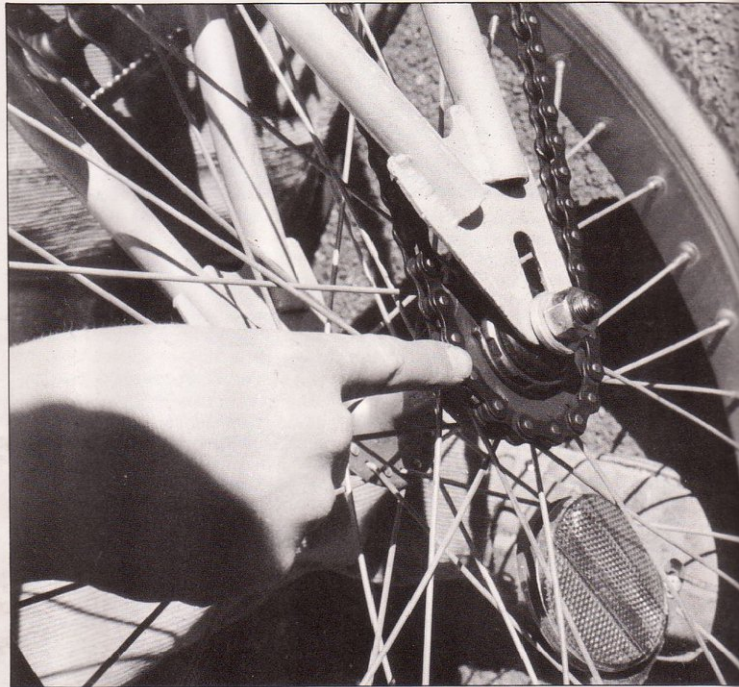
Pictures by Roger Grant  
Technical information by Dave Cooper

Not many people know it, but gearing and crank length are two of the most important things to take into consideration when setting up a race bike. It is amazing how many people don't realise how much difference it can make! So we're going to try and delve into the mysteries of gearing — read on and all will be revealed.

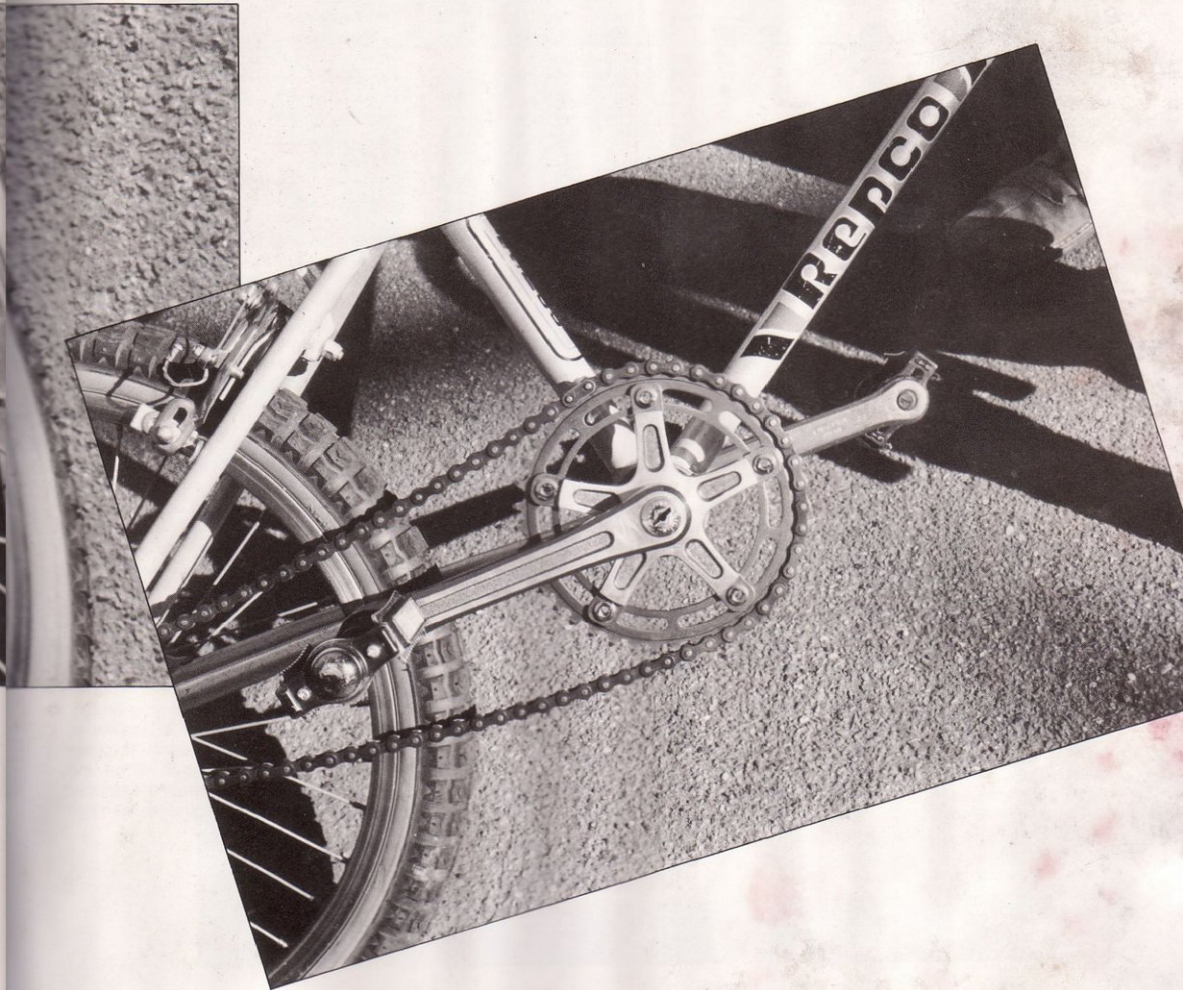
A lot of people ask what gearing length I'm running. I don't mind this, but sometimes it's fathers asking for their son, who often are much smaller and therefore should run a totally different gear. It's not uncommon for riders a few years younger, even other open riders to find out what I'm running and then change their own gearing. If I am asked by someone what gearing I think they should run, it is really difficult to give an answer. I don't know how they ride, or how strong they are, so it's impossible for me to recommend a gear ratio for them without this information.

Most racers these days tend to run 'easy' gears. The reason for this is that an easy gear will give better acceleration out of the gate. This is called 'gearing for the start'. The only drawback is that guys with harder gearing will pass you further down the straight as you get wound out.

What you have to do is learn how to spin your legs fast. To do this most guys put very easy gears on their bike, like 41 or 40-16, then practice riding their bike flat-out down hills, at the local track, and up to the local shops. This gets your legs used to spinning and gets you used to going fast.



*When talking about gearing on a BMX bike you are really only talking about two main parts; the front chain wheel and the rear sprocket. Both come in a variety of sizes each size of which depends upon the number of teeth on the sprocket. The accompanying gearing chart shows the relationship between the teeth of the front and back sprockets. If you are in doubt about gearing, discuss it either with a helpful senior racer at your local track, or your local bike shop.*





Some people get confused as to what is the difference between 'hard' and 'easy' gears. Basically an easy gear means that you will be pedalling more revolutions to cover the same distance as a rider with a harder gear. This is why some bikes feel easier to pedal than others. "Great", you say to yourself, "I'll run easy gears from now on and I will accelerate faster"! But think ... when pedalling flat out with an easy gear your top speed wont be as great as your top speed when running a harder gear. Guys that run easy gears are called spinners, for obvious reasons. When running a hard gear you say you are 'pushing' a hard gear.

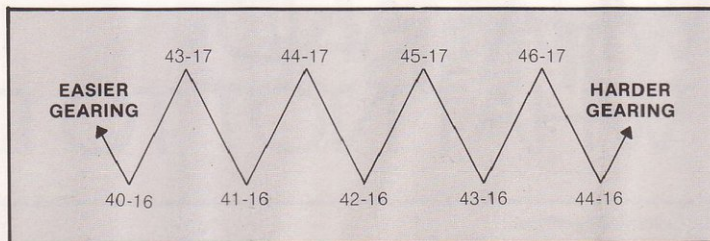
Having 44 teeth on the front cog and 16 teeth on the rear cog, used to be the average gear that everyone ran. These days most guys are 43-16 or 42-16. To make your gearing easier you put a smaller chainring on the front or a larger sprocket on the rear. Naturally, if you want to make your gearing harder, you put a larger chainring on the front or a smaller sprocket on the rear.

There are arguments for and against spinning. Spinners say it is much faster out of the gate and if you learn to spin properly there is not much chance of getting passed. Racers who push hard gears admit that it is hard to get out of the gate but you can make up for it when you wind up in the straight.

I'm inclined to spin because I feel that the start is the most important part of the race, especially in Pro racing. If you can get out in front you can control the race, you can pick the best lines, and, if the lead is big enough, you can avoid any tangles that almost always occur in the pack. Also, depending on the track, easy gearing is an advantage in tight turns because you lose so much speed and plenty of acceleration is needed to get out of turns fast.

When I'm going to a race I try to think of the track and what it's like. Before I ride I check out the track layout and gear my bike accordingly. I try to gear my bike so that I'm spun out about 3/4 of the way down the first straight. Gearing is a give and take thing. You need a good start but you also want a bit of acceleration when you're near the end of the straight.

Most riders keep a 16 tooth cog on the rear and change the front sprocket. However sometimes you need an in-between gear, say between 43 and 42-16. To split these gears you need a 17 tooth cog on the rear. The following diagram demonstrates how it works.



Now it gets complicated unless you have a gear chart. Anyway, all gears can be figured out into inches. This means that for every single rotation of the cranks you travel a certain distance.

To figure out what this distance is you need to take the wheel size, 20, then multiply that by the number of teeth on the front sprocket say, 44, and divide the answer by the size of the cog on the rear, 16. Then you use pi (3.14) to figure out how far you have travelled. This is too complicated really, especially as you don't really need to know exactly how far you have travelled.

The figures you see on the gear chart are only the first half of the equation so we will only worry about the first part. A 20 (inch wheel) multiplied by 44 (teeth on front sprocket) equals 880, divide this by 16 (teeth on rear sprocket), the results is 55. That is the figure you will see on your gear chart and if you don't have one you can make your own following this simple (?) equation.

Try to practice against equal or stronger riders when the opportunity presents itself. In this way you can go for maximum effort and see who has the speed approaching the turn. You probably won't know what gearing they're running, but you'll soon find out how far up or down to go after checking out the sprints.

The little riders should run easier gearing than the older riders on the same track. As their bodies grow and their limbs get longer and stronger they can up the pedalling work load.

Remember the crank arm length because a longer crank makes it easier to pedal harder gearing. If you change to harder gearing and find it just a little tough, longer cranks may be just the change needed to dial in exactly right. Younger riders are generally advised not to run cranks that are too long because they can cause too much side-to-side bike movement.

Watch the track surface, too. Indoor tracks usually call for easier gearing because the rear tyre gets better traction. Spinners have a tendency to blow pedals more on bouncy ground of outdoors tracks than do the pumpers. When rear wheel traction tends to be lost on rougher tracks, taller gearing will help compensate.

So now you know all there is to know about gearing you can now amaze your family and friends with your new-found knowledge. Remember, all you cruiser riders, to substitute 24" or 26" instead of 20" in the equation. The easier the gear is, the smaller the number will be, the harder the gear is, the bigger the number will be. Remember that and you can't go wrong.

## GEAR CHART for 20 inch Sew-up Tyre

(Actual inflated Diameter 19 inches)

		FRONT SPROCKET												
		36	37	38	39	40	41	42	43	44	45	46	47	48
R	14	48.9	50.3	51.6	53.0	54.3	55.7	57.0	58.4	59.8	61.1	62.5	63.9	65.2
E	15	45.6	46.9	48.2	49.4	50.7	52.0	53.2	54.5	55.8	57.0	58.3	59.6	60.9
A	16	42.8	43.9	45.2	46.3	47.5	48.8	50.0	51.1	52.3	53.3	54.7	55.8	57.0
R	17	40.5	41.4	42.5	43.6	44.7	45.9	47.0	48.1	49.2	50.3	51.4	52.5	53.7
	18	38.0	39.1	40.1	41.2	42.3	43.3	44.4	45.4	46.5	48.0	48.6	50.0	50.7
C	19	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0	45.0	46.0	47.0	48.0
O	20	34.2	35.2	36.1	37.1	38.0	39.0	40.0	40.9	41.8	42.8	43.8	44.7	45.8
G	21	32.6	33.5	34.4	35.3	36.2	37.1	38.0	39.0	40.0	40.7	41.7	42.5	43.4

## GEAR CHART for 20 x 1.75 Tyre

(Actual inflated Diameter 19.5 inches)

		FRONT SPROCKET												
		36	37	38	39	40	41	42	43	44	45	46	47	48
R	14	50.2	51.6	53.0	54.4	55.7	57.1	58.5	59.9	61.3	62.7	64.1	65.5	66.9
E	15	46.8	48.1	49.4	50.7	52.0	53.3	54.6	55.9	57.2	58.5	59.8	61.1	62.4
A	16	43.9	45.1	46.3	47.5	48.8	50.0	51.2	52.4	53.7	54.9	56.1	57.3	58.5
R	17	41.3	42.5	43.6	44.7	45.9	47.0	48.2	49.4	50.5	51.7	52.8	53.9	55.1
	18	39.0	40.1	41.2	42.3	43.3	44.4	45.5	46.6	47.7	48.8	49.9	51.0	52.0
C	19	37.0	38.0	39.0	40.0	41.1	42.1	43.1	44.1	45.2	46.2	47.2	48.2	49.3
O	20	35.1	36.1	37.1	38.1	39.0	40.0	41.0	41.9	42.9	43.9	44.9	45.9	46.8
G	21	33.4	34.4	35.3	36.2	37.1	38.1	39.0	39.9	40.9	41.8	42.7	43.7	44.6

## GEAR CHART for 20 x 1-3/8 Tyre

(Actual inflated Diameter 21 inches)

		FRONT SPROCKET												
		36	37	38	39	40	41	42	43	44	45	46	47	48
R	14	54.0	55.5	57.0	58.5	60.0	61.5	63.0	64.5	66.0	67.5	69.0	70.5	72.0
E	15	50.4	51.8	53.2	54.6	56.0	57.4	58.8	60.2	61.6	63.0	64.4	65.8	67.2
A	16	47.3	48.6	49.9	51.2	52.5	53.9	55.2	56.5	57.8	59.1	60.4	61.7	63.0
R	17	44.5	45.7	47.0	48.2	49.4	50.7	51.9	53.2	54.4	55.6	56.9	58.1	59.3
	18	42.0	43.2	44.4	45.5	46.7	47.9	49.0	50.2	51.4	52.5	53.7	54.9	56.0
C	19	39.8	40.9	42.0	43.1	44.2	45.4	46.4	47.5	48.7	49.8	50.9	52.0	53.1
O	20	37.8	38.9	39.9	41.0	42.0	43.0	44.1	45.2	46.2	47.3	48.3	49.4	50.4
G	21	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0	45.0	46.0	47.0	48.0

## GEAR CHART for 24 x 1.75 Tyre

(Actual inflated Diameter 23.5 inches)

		FRONT SPROCKET										
		34	35	36	37	38	39	40	41	42	43	44
R	14	57.1	58.8	60.4	62.0	63.7	65.6	67.2	68.9	70.5	72.1	73.8
E	15	53.4	54.8	56.4	58.1	59.5	61.1	62.8	64.2	65.8	67.5	68.9
A	16	50.1	51.5	52.9	54.3	55.9	57.3	58.8	60.2	61.9	63.2	64.6
R	17	47.0	48.4	49.9	51.2	52.6	53.8	55.2	56.6	58.1	59.5	60.9
	18	44.4	45.6	47.0	48.4	49.6	51.0	52.2	53.6	54.8	56.2	57.3
C	19	42.1	43.2	44.4	45.9	47.0	48.2	49.6	50.8	51.9	53.1	54.5
O	20	40.0	41.1	42.3	43.5	44.7	45.9	47.0	48.2	49.4	50.5	51.7
G	21	38.1	39.3	40.2	41.4	42.5	43.7	44.7	45.8	47.0	48.2	49.4





## STRESS IN YOUR RACER

by Michael Szabath

In this day and age when everyone tends to suffer some sort of stress or pressure from our lifestyle, we can take some pleasure from the fact that it is not confined to us humans only. How many of you have ever stopped to think about the humble BMX racing bike and the stresses that are constantly placed upon it? What happens everytime you go crazy, when you get air, and it takes forever and a day to land — then suddenly the wheels jolt into contact with the hard ground? Or when a 16-stone youngster delicately distributes his bulk astride his gleaming machine and begins to pump like hell?

There are little Gremlins or forces constantly working to destroy your pride and joy and the chief nasty — has the sole job of pressing downwards on the frame. He is asleep, until you sit down on the bike, then he suddenly awakens with a quiet force acting towards the ground.

Some activities are normal and safeguards are built into the bike to stop any destruction of the components. It's only when you start to really hit the jumps with huge leaps and suddenly come crashing back to earth, that this head Gremlin slips into overtime with a well co-ordinated army, all wanting to DESTROY!

At the point of contact one is desperately trying to rip the forks and head tube away from the rest of the frame. Another is sitting on the handle bars forcing downwards with all his might, while yet another two are acting on your pedals trying to tear the bottom bracket out and spear it into the ground. The rest of the pack is forcing the rear stays upward in a huge cricle. This operation would do the SAS Commandos proud. Unfortunately, these forces sometimes get the better of things resulting in one broken frame, forks or handlebars.

The people who build bikes are con-

stantly on the lookout for better methods of safeguarding your hard earned investment. They spend huge sums of money in an effort to minimise the effects of these Gremlins or stresses, all of which are hard to detect with the naked eye — for sometimes it is all taking place within the confines of the metal itself. Most of the time you only become aware of the problem when something breaks on the bike. Early warning of impending damage may show itself in the form of the paint cracking near a joint, but this is not always the case.

Stresses are of two types. First, there are those that are of a steady load. A good example of these are steel girder bridges that rest on stone or brick piers. They are supported on either end and the centre hangs in mid-air. The other type, the Gremlins that we referred to earlier, act in cycles, no I don't mean bicycles, but rather, a recurrent series. These are called cyclic or intermittent

stresses. It is this second type that cause all the damage. The constant bending then straightening of the tubing in your bike, no matter how minute, induces the metal to change its characteristics thus becoming weaker until finally WHAMMO!

How many of you know that everytime your bike lands after your latest head-in-the-clouds stuff, there is twice your body weight acting down upon your trusty old mount. Hear it creak and moan? Imagine most 15 year old riders weigh about 9 stone. That's like an 18 stone guy flying through the air and suddenly landing on top of you. Everything is constantly flexing on the bike, the axle in the forks, the forks in the head tube and so on.

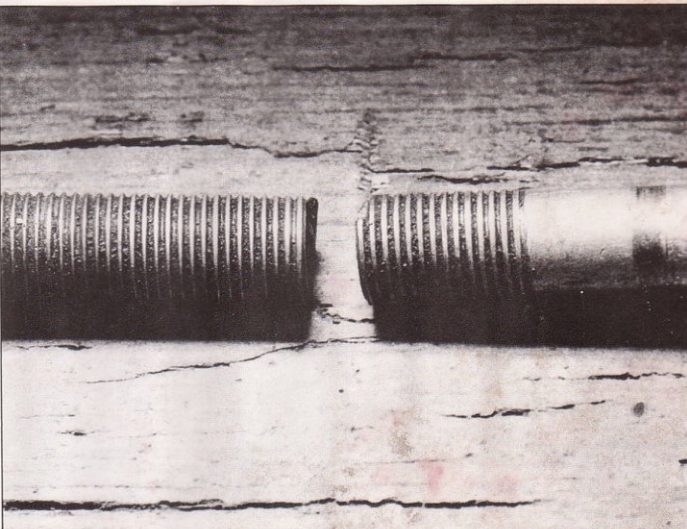
In order to understand all of this we must look at the structure of metals. They are made up of little solar system-like particles called atoms. These in turn form grains. In mild steel these grains are of a very irregular shape with lots of air gaps, thus for this reason, engineers rarely use water pipe for bike frames as it is too brittle. Here is where the alloys came into their own. The most popular is CHROME—MOLY or, wait for it, Chromium Molybdenum. This super alloy was developed by aircraft manufactures after wanting a metal that could withstand incredible stress loads. It doesn't lose its strength when welded as there is extreme heat needed to fuse the pieces. The tiny particles are very uniform throughout and are closely knitted together. When a piece of metal is heated, the particles tend to expand or enlarge thus becoming brittle. This is, however not the case with the alloys as they are extremely hard.

The resistance to our little band of forces is determined by a metal's surface strength. Thus on a very hard exterior, there is less chance of scratching. This scratch can lead to a crack when acted upon by recurrent stresses.

There are two ways of measuring strength in metals. One is by its ability to resist bending. This is called yield. The other is known as tensile which is the ability to resist stretching. Chrome-Moly has a very high rating in both departments. It is because of this that it is the obvious choice of many bike building firms. Naturally they don't want to build a bike that will bend too easily.

A good way to demonstrate what happens in a bike frame when it flexes is to take a wire coat hanger and bend it back and forth about one point. Notice what is happening to the metal. There is a great deal of friction as the particles are rearranged within the piece. Eventually the coat hanger can take no more and it snaps. A frame, too, will bend back and forth until it reaches its limit.

In designing a bike, the engineer must look at ways in minimizing the effects of flexing, which in turn causes breakage. He has a number of options available.



The wheel is constantly being forced back and forth. This stress travels to the axle and if great enough will snap it like a twig.



First he can add gussets. In doing so he must make sure that this plate is not stronger than the tubes that it is welded to, otherwise all that is being done is to transfer the stress to the end of the gusset where the tube will quickly fatigue to the point that it will break. Some manufacturers prefer to drill holes through the plates to further assist the dissipation of our little Gremlins handy work, while others like to hollow out one side of the brace to form a curved side. A popular method is to place two thin plates offset to the centre to distribute the load over a bigger area.

The second thing at his disposal is to taper certain parts of the bike, like the pedal shaft. There is extreme stress placed on the rotating shaft where it comes into contact with the ball bearing races. This tapering allows the stresses to be relieved along the entire length of the shaft. Curved tubes are also used so as to draw the forces away from the welds, which are stress points.

Welding of bike components can cause considerable damage to the surrounding metal, in the area known as the Heat Affected Zone. This area is usually 25mm all around the weld and the particles become enlarged, making the metal very brittle within this vicinity. For this reason, the welding process that must be employed should have tremendous heat but be localised to a small area so as not to damage the grains of the steel in a larger area. Another problem arises from this. The greater the concentration of heat, the greater the possibility of metal shrinkage or warping.

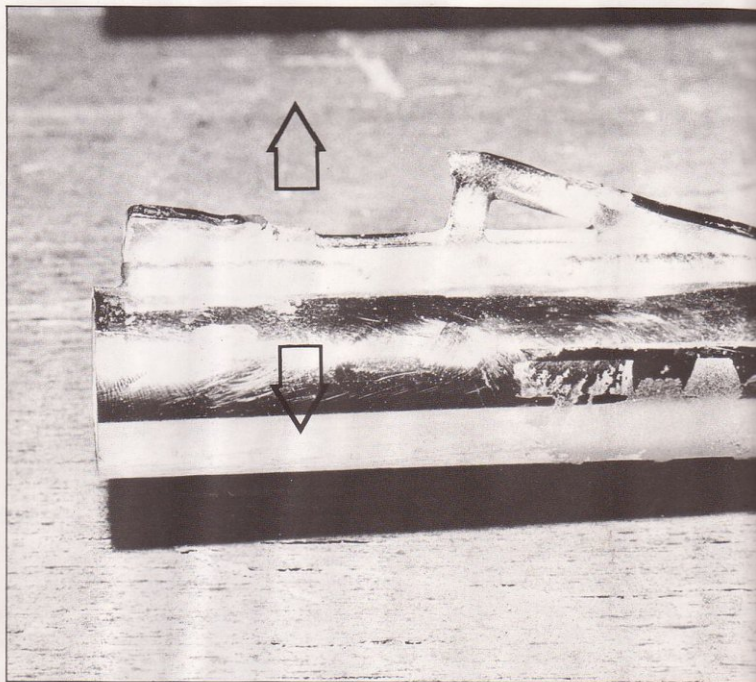
Metals must not be allowed to cool too quickly or they will form very big, irregular crystals which causes everything to be extremely brittle. The cooling rate must be controlled with great care. Various methods have been devised so as to return the welded metal to its pre-fused state.

The first method is by using heat treatment. Certain bike parts like pedal shafts, cranks and fork stems are placed in a special oven that balances the carbon content of the metals, it is then dipped into heated oil.

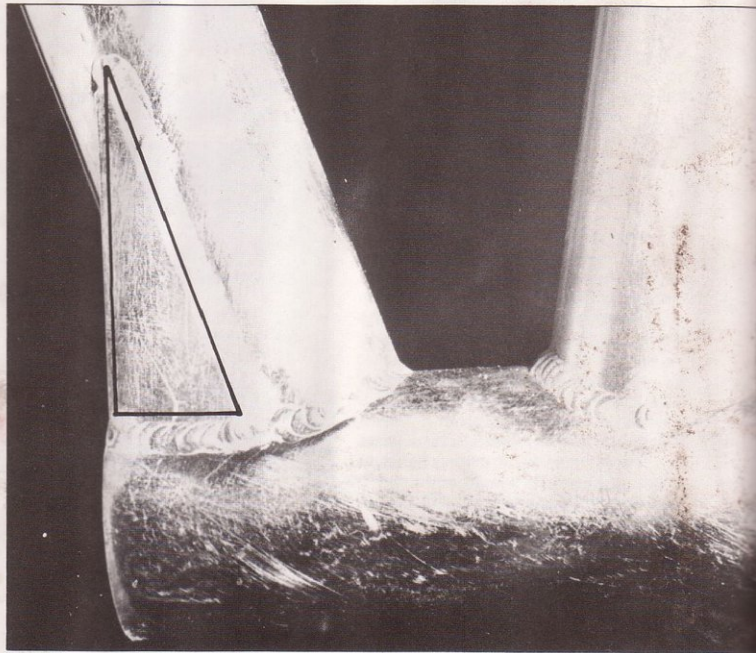
The second is stress-relieving. After the pieces have cooled off, they are reheated in a furnace then allowed to cool off at room temperature.

This article is meant to give some insight into what actually happens when BMX bikes are designed and the stresses that it consequently suffers. If something does break on your bike, don't think that you bought a lemon, for a lot of people have spent countless hours and huge sums of money in order to try to prevent such occurrences.

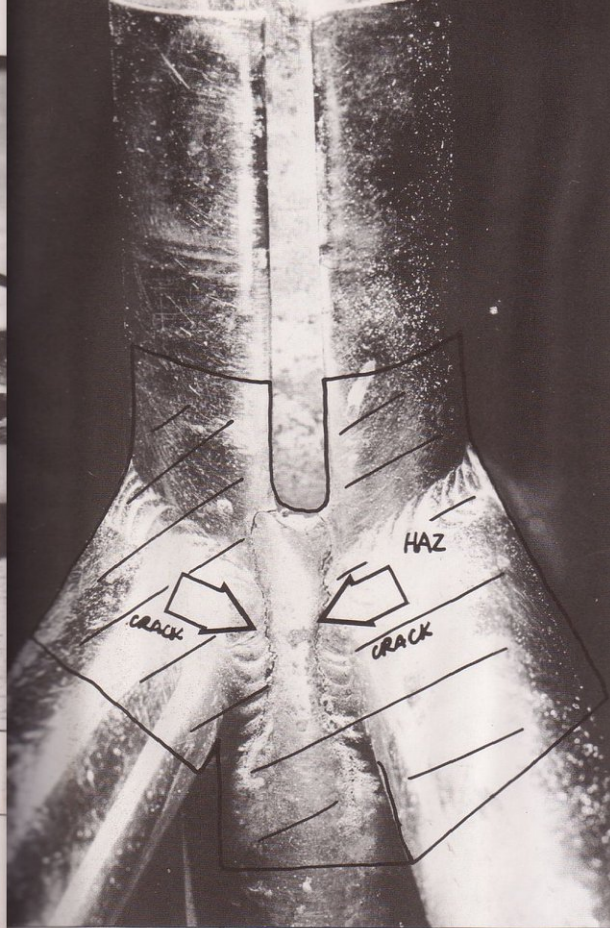
Our thanks to the Engineering Students of the Institute of Technology for their kind assistance in helping to put together this story.



On impact, a cyclic stress is set up. The wheel wants to pull forward from the forks. When you take off for your next jump the force acts backward. This constantly bending then straightening, eventually weakens the metal and finally snaps as this fork did.

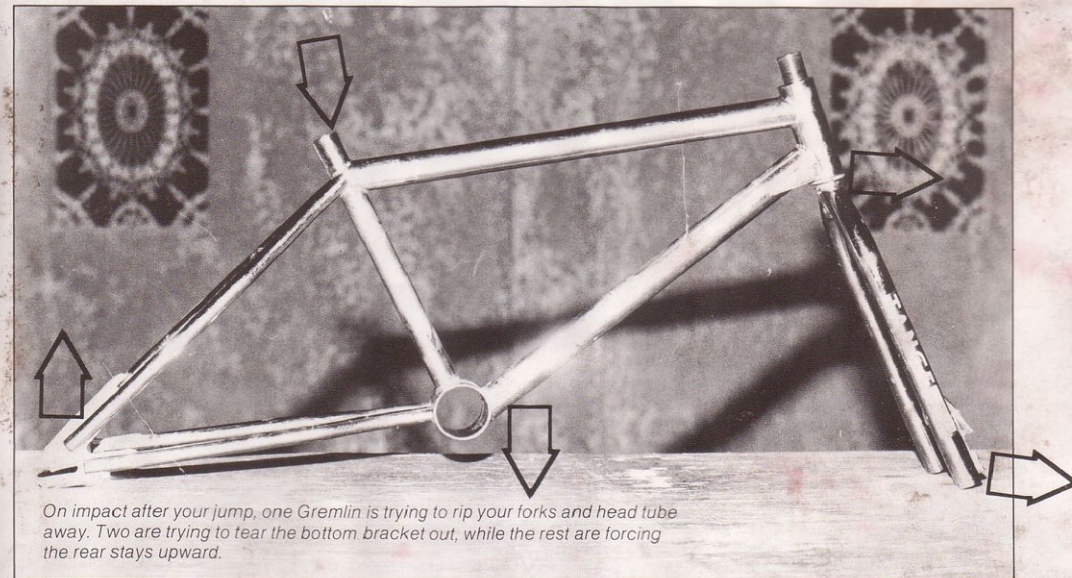
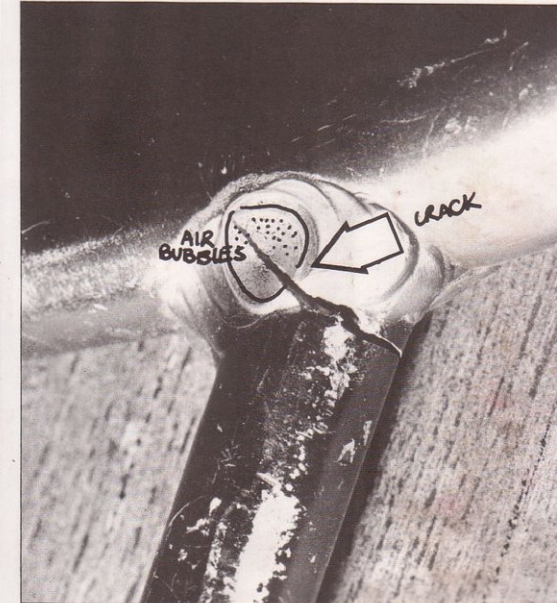


Gussets minimize the effects of flexing. If the plates are too strong they only succeed in transferring the stress to another area, which will quickly fatigue. This manufacturer opted for a very small plate.



The area between the rear forks is a weak point on most bikes. The metal is weakened after welding, as the heat enlarges the particles to make it very brittle. This area is known as the heat affected zone (HAZ). Constant pounding over a jump has caused a crack to develop at the base of the weld.

Imperfect welds can cause stresses to develop. In this case, there are lots of air bubbles in the weld thus it is a weak link. As you lift your bike for a jump, you pull the handle bars up. This contracts the inside of the weld and when you land, you press down, which stretches the joint. The weld would have broken first, then the thin tube bracing.



On impact after your jump, one Gremlin is trying to rip your forks and head tube away. Two are trying to tear the bottom bracket out, while the rest are forcing the rear stays upward.



# RACE GEAR IS ALL THE GO!

BMX race gear, those colourful threads you see on the race tracks not only look terrific, but they're made for another purpose as well — safety. There are few BMX riders who haven't taken a tumble at one time or another in the heat of competition, and the majority of BMX gear available in Australia is designed to ensure you come out of those incidents with the least scratches and bruises possible.

It's probably right to say that many BMX racers are as much in love with wearing their racing togs as they are in the sport itself. And with the vast array of snazzy-looking gear available today, it's no wonder the entrants at BMX meetings make one of the most colourful scenes you can find.

Like most sets of clothing, youngsters grow up — and grow out of their BMX racing gear. But in the time it takes to do that, they certainly get good service from it.

When a youngster is starting out, their race speeds are relatively slow and most tumbles don't amount to much more than a bump and a graze. So it's not entirely necessary to go for the most expensive gear initially — as long as the shirt and pants you buy are well padded and the stitching and material is serviceable, that's about all you need while the racers are tiny tots. We'll come to helmets, shoes and gloves later.

As the young BMXers begin to grow, and their racing speeds are getting quicker, it's time to look at the proper nylon gear. There's little point in looking great at the start, take a tumble in the race and have your great looking set of threads literally fall apart as soon as you hit the deck.

The first people in Australia to get into making BMX race gear full time was Brian and Jan Pearse. They started a company called Peddle Power some years ago simply because their own kids had started racing BMX and couldn't get good gear to race in. Today, after many ups and downs in the marketplace, Peddle Power leads the industry and makes uniforms for most BMX bike brands (for the factory teams) as well as consumer look-alike items for sale through retail stores and bike shops.

Peddle Power keeps up with the times, improving their product and bring-



Mrs Trelour at the workbench preparing to cut out red material to fill a custom order placed by BMXers.



Racing Mate BMX race gear will completely outfit a rider with the exception of shoes and socks.



Sewing of the strong nylon BMX pants also requires strong threads, so commercial-style sewing machines are used. As they say in the sport 'your clothing is only as good as the seams.'

ing out new lines constantly, but like many small companies servicing a wide-ranging industry, they often suffer from lack of production capacity to keep up with the varied demand, operating from the Brisbane suburb of Jindalee, Peddle Power is a well-known name in BMX circles and you can see the company's distinctive PP patches on race gear at any meeting you care to attend in

Australia.

While Peddle Power may be the market leader, smaller individuals and also companies are starting to move into the BMX gear scene. Mrs Trelour, wife of an ex-Speedway star and mother of BMX racers, started making BMX racing gear for the same reason the Pearse family did — her kids wanted better gear. But Mrs Trelour delves into custom gear,



Jan Pearse handles the workshop of Peddle Power, often rolling up her sleeves and getting into the production side of things when the pressure is on. Here she uses a commercial material cutter to cut out the patterns for BMX pants.



Shirts are also silk screened by Peddle Power on the premises — there's almost nothing the company can't do in the BMX clothing line.



Peddle Power's clothing is all inspected personally by Jan Pearse, and she won't let anything that's not perfect go through.

designing and making more one-off styles than she does multiples of the same thing. In fact, she prefers to stick to making individualised custom gear.

In order to be able to take the skids and slides, almost all racing BMX gear is made from heavy duty nylon. That's about where the similarity stops. The nylon material only comes in a limited range of colours, so it's up to the

designers and individuals to make what they can from a range of about six basic colours.

Operating from Sydney's western suburbs, Mrs Trelour, because of her limited output, only has access to about five colours, red, white, blue, green and black. But that's normally more than enough for most people to come up with something entirely individual. Mrs Tre-

our also designs and makes up casual BMX jackets, and will tackle just about anything else people want, such as hats and the like.

The Racing Mate brand of clothing, from Sydney's inner western suburbs company of Race & Rally, is a marketing move into BMX by the company's owner, Peter Mulder. A long established firm in the motor racing world, Race & Rally branched out into BMX a couple of years ago and has its own brand of gear made up by outside designers and make-up firms. Not only dealing in shirts and pants, racing mate has also gone into helmets, gloves and a host of bike accessories to cater for the BMX market.

Other distributors bring in overseas gear and retail it mainly through bike shops, or where BMX bikes are sold.

Shoes for racing have long been the bugbear of Australian BMXers. Those who can afford it try and buy Vans racing shoes, made in the USA. While sensibly priced in USA, they reach astronomical cost proportions in Australia (if you can find them for sale) but they have what all racers are looking for — a good, soft and flexible, grippy sole. Most Australian products in the sandshoes/cum/race shoe line use hard rubber or plastic for the soles and these are definitely not suitable for racing as they provide little or no grip to the pedals. Regardless what type of racing shoe you look at, the uppers don't matter as much and need only to serve to keep the shoes on the feet. It is the soft grippy soles you must look for.

Gloves should be worn when racing BMX because a fall on a dirt or stoney track can play games with trying to write in class at school on Monday when you're suffering a badly rashed hand because you didn't bother to wear gloves. The Racing Mate gloves are in high demand, as are motorcycle motor-cross gloves which are soft, padded and light. Plain woollen gloves, such as those worn to school, just don't quite come up to scratch (pardon the pun).

There are specially-designed and constructed BMX helmets on the market, and these are your first choice. The helmets are light and serviceable and designed for youngsters. It's better not to go for the motorcycle-type helmet because they are too heavy for youngsters racing and apart from straining the neck can cause more injury in a fall because of the weight. All styles are available for BMX — open-face jet-style as well as full-face — plus all the accessories to go with them.

The helmet should be a firm fit on the head without being tight. A loose helmet can easily fall over a youngster's eyes during a race with the inevitable result. Like all BMX gear, as you're dealing with growing children, gear doesn't always fit for as long as you would like. However, if



you team up with parents with older children, and younger, a good swap/barter system can be a financial blessing.

Race organisers suggest BMXers wear socks with their race shows. Ankles are just as prone as hands to getting skinned in a fall. Some racers wear two pair and buy a size larger shoe just for the added protection they afford.

It's hardly necessary in BMX to wear goggles or visors, and almost all racers wear their helmet with no eye covering at all.

If you look carefully at the various styles of nylon pants in BMX you'll find some are vented in necessary areas to provide much-needed air flow, particularly during Australia's hot summers. More and more manufacturers are including venting in their products for wearer comfort both during and after riding.

The shirts are generally made from an open mesh material with logos and names silk screened into them. Some are padded, others are not. If not, most riders wear at least elbow pads. The pants are normally padded in all the right spots, anyway.

As advances are made overseas, where generally the sport is more advanced than in Australia, so other people are looking at entirely new ranges of BMX apparel. One such person is Paul Semmelweis, distributor of CW bikes and former partner in Sydney's PJ Cycles. Paul, a young guy who has come up through the ranks of BMX isn't stopping at just bringing out shirt and nylons (pants). He's going the whole bit and has spent months and months researching for better ways of manufacturing better products. Being something of a perfectionist, Paul has waited until he is entirely satisfied that his product meets his own rigid standards, and the range goes on sale about September this year, just in time for the Christmas rush.

No doubt, as BMX progresses, there will be more and more people getting into the clothing side of things. But at this time, the market rests just about solely in the hands of those four people, Peddle Power, Mrs Trelour, Racing Mate and, now, Paul Semmelweis.

For accessories for your bike, Racing Mate, Paul Semmelweis, and Melbourne's Steve Cassap are the people doing most of the Custom work, with Invada from Sydney becoming one of the market leaders in racing plates and planning to branch into other accessories.

Most bike shops have a range of clothing and accessories, but many are allied with certain brands. Some will go more for Apollo and Kuwahara and JMC (World of Wheels shops) while others will feature brands like Mongoose. There are a number of makes on the



*This is a sample of the range of custom BMX clothing made by Sydney's Mrs Trelour.*



*A set of look-alike Hutch racing gear made by Mrs Trelour for her son. She refuses to make gear identical to the factory gear because she feels it takes away the individualism of the factory riders.*

market, most of whom seem to just place their bikes and gear out in shops and hope customers will come in and fall over them.

In the main you'll see brands being advertised like Apollo, Kuwahara, JMC, Mongoose, Repco, Patterson and Crossrider — which are the brands we've heard most about.

If you want to get a certain factory

brand of gear, try your local bike shop, or wherever near you BMX bikes are sold. If they haven't got it, more often than not if you leave a small deposit they'll ferret around and try to locate what you want.

## *Eating right for BMX racing*

The serious BMX racers will tell you that getting to the top not only involves physical training, practice and psychological work-up but also some control over what you eat. BMX is like 'the survival of the fittest'. The healthier you are the better your chances in racing.

The energy, or move-juice needed is supplied by carbohydrates, fats and protein in food. A few days before a big meeting heavy foods that take a long time to digest should be drastically cut down (meat, cheese and eggs) and carbohydrate supplies built up (bread, pasta, oatmeal and wheatgerm).

The latter contain cellulose which is not digested, thus fat and protein reserves are used for energy.

Natural sugar, as found in milk and fruit is recommended to build up energy supply. But beware, fuel not used in

activity is stored as body fat. Too much can be as disadvantageous as too little.

Avoid alcohol the night before race day. As the drink-driving advertisements explain, alcohol slows reaction. Someone brain-drained will take longer to react to the gate dropping and can lose precious seconds in their race.

Coffee is a stimulant and therefore preferable to soft drinks that only supply confectionary sugar. Wheat products absorb the acid activated by nerves. Even the Pros get nervous so take along bread, rolls, wheat-bars and high-fibre foods to relax the tense rider. Munch on Weet-Bix and Cornflakes rather than chips and nuts.

Bananas are really prime. Two medium bananas provide more carbohydrates than a Bic Mac, are more satisfying (as they fill you up) and are easily

digested — which means more energy output, quicker.

Some riders turn to sugar candy for a lazer-burst of energy just before finals. A chocolate bar provides the zap needed to keep going. A Mars bar, alone, provides 58 grams of carbohydrates, which is 2½ times that of a banana, or equivalent to two cheeseburgers. However, as soon as confectionary sugar is absorbed it leaves you feeling low and tached out, and this should be avoided.

General health should always be considered to keep your body dialed in. If you feel 100 percent healthy, all the more chance you will perform better on the track.

**By Rita Sgro**







WHEN LITTLE KIDS GROW UP FROM REAL LITTLE KIDS TO REAL BIG LITTLE KIDS THEY NEED BIGGER WHEELS, RIGHT? WELL, THE REAL SMART GUYS AT THE CUTIE BOOBS PRAM CO.

HAVE GOT INTO THE BMX SCENE FOR THIS VERY REASON—NOT WITH PRAMS (NURD), BUT WITH THEIR VERY OWN REVO BMX BIKE.

# THE INCREDIBLE "NAPPYLINER"

©EGDCC 1983

AND WHO SHOULD GIVE IT ITS FIRST TRACK TEST, NONE OTHER THAN THAT SUPREME EXPONENT OF SUBTLE WHEELING—HAVOC!



G'DAY YOUSE, NOW, THIS HERE'S A BIKE WHAT I'M GONNA RUIN...ER TEST. HE, HE...

AND ACCESSORIES—WELL, YOU CAN'T SEE THE BIKE FOR 'EM. IT'S GOT MORE BITS 'N' PIECES ON IT THAN A LADY GOIN' TO A POSH BALL.

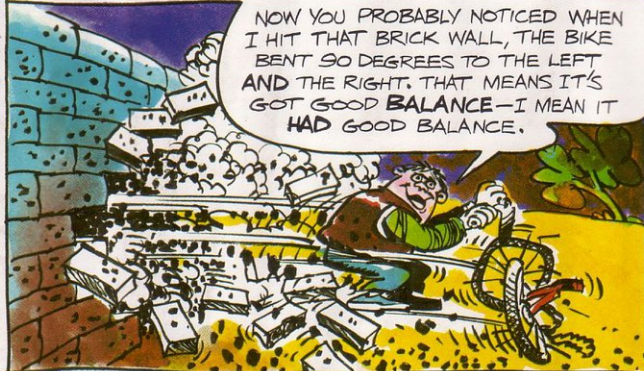


\*HAVOC RECKONS A FRONT WHEEL IS AN ACCESSORY

Y'KNOW, SOME BIKES Y'DON'T WANT T'GET OFF. WELL, THIS ONE YA CAN'T THE SADDLE GETS STUCK IN THE BACK O' YER DAKS... AND THE PEDDLES ARE 'BOUT AS FUNCTIONAL AS A COUPLE OF SQUASHED JAM TINS.



FIRST OFF READERS THE FRAME'S ROTTEN! I'VE SEEN BETTER TUBES WITH SOFT DRINK IN 'EM.



NOW YOU PROBABLY NOTICED WHEN I HIT THAT BRICK WALL, THE BIKE BENT SO DEGREES TO THE LEFT AND THE RIGHT. THAT MEANS IT'S GOT GOOD BALANCE—I MEAN IT HAD GOOD BALANCE.



SO BMXERS, WHAT DO WE FINISH UP WITH? WELL...ER...

...A REAL MESS, SEE YOUSE.

# AUSTRALIAN CLUBS

## NEW SOUTH WALES

**Argenton BMX Club**  
5 Byron St Cardiff North 2285.

**Ballina BMX Club**  
Cherry St Ballina.

**Batemens Bay BMX Club**  
P.O. Box 438 Batemens Bay 2536.

**Bathurst Police Boys BMX Club**  
18 Edgell St Bathurst 2795.  
Track: 100 Orange Rd opp. Golf Club (monthly).

**Belmont BMX Club**  
22 Butaba Rd Belmont Nth 2280.

**Blacktown City BMX Club**  
27 Tudor Ave Blacktown 2148.  
Track: Lucretia & Seven Hills Rds (fortnights).

**Blayney BMX Club**  
2 Carcoar St Blayney 2799.

**Blue Mountains BMX Club**  
PO Box 58 Hazelbrook 2779.

**Cardiff BMX Club**  
PO Box 217 Cardiff 2258.  
Track: Rear Cardiff Soccer Club (Sundays).

**Cardiff Salvation Army BMX Club**  
423 Main Rd Argenton.  
Track: Main Rd Argenton.

**Casino BMX Club**  
Mulherin Cycle Co Barker St Casino 2470.

**Castle Hill BMX Club**  
39 Keswick Ave Castle Hill 2154.  
Track: Gilbert Rd Reserve (fortnights).

**Central Coast BMX Club**  
PO Box 51 Long Jetty 2260.  
Track: Anzac Rd Tuggerah behind McDonalds (every three weeks).

**Clarence Valley BMX Club**  
2 Smith St Grafton 2460.  
Tracks: 1. Hoof St (Sundays); 2. Vere St (fortnights).

**Cronulla Raiders BMX Club**  
13 Kingsway Cronulla 2230.  
Track: Holt & Taren Point Rds.

**Dubbo Police Boys BMX Club**  
9 Leonard St Dubbo 2830.  
Track: End Dubbo St Brocklehurst (fortnights).

**East Coast BMX Club**  
10/464 Pacific Highway Artarmon 2064.

**Forbes BMX Club**  
PO Box 477 Forbes 2871.

**Gosford BMX Club**  
136 Showground Rd Gosford 2250.

**Gunnedah BMX Club**  
Gordon Turner M/ cycles 92 Little Barber St Gunnedah 2380.

**Kempitor Park BMX Club**  
PO Box 554 Nowra 2540.  
Track: 3 km Sth Nowra (first Sat each month).

**Kingscliffe BMX Club**  
PO Box 45 Bandora Point 2486.  
Track: Cudgen Rd Kingscliffe (Saturdays).

**Koonawarra BMX Club**  
50 Edgeworth Ave Kanahooka 2530.  
Track: Gilba Road (second Sundays).

**Lismore BMX Club**  
1 Pleasant St. Goonellabah 2480.

**Maitland BMX Club**  
401 High St Maitland 2320.

**Manly-Warringah BMX Club**  
PO Box 18 Seaforth 2092.  
Track: Off Oxford Falls Rd West (every Sat & Sun).

**Metro-West BMX Club**  
PO Box 187 Carlingford 2118.  
Track: Liverpool R'way Green Valley (Friday nights).

**Minto Parkland BMX Club**  
31 Conjolia Cresc. Leumeah 2560.

**Moree BMX Club**  
PO Box 53 East Moree 2400.

**Murwillumbah BMX Club**  
62 Main St Murwillumbah 2484.

**Narrabri BMX Club**  
L&M Spares Tanya Arg. Maitland St Narrabri 2390.  
Track: Cameron Park (second Sundays).

**Newcastle Velodrome BMX Club**  
30 Griffiths St Charlestown 2290.

**Orange BMX Club**  
RMB 6 Bathurst Rd Orange 2800.

**Parkes BMX Club**  
29 Barton St Parkes 2870.  
Track: Eugowra Rd Parkes (second Sundays).

**Port Macquarie BMX Club**  
PO Box 695 Port Macquarie 2444.  
Track: Kemp St near Halfcourt Tennis (first & third Sundays).

**Redhead BMX Club**  
25 Steel St Redhead 2301.

**Ryde-Eastwood BMX Club**  
PO Box 38 Eastwood 2122.  
Track: Blenheim Rd near Channel 10 (every fortnight).

**Singleton BMX Club**  
PO Box 349 Singleton 2330.  
Track: Blaxland Ave Sports Centre (twice monthly).

**Southlake BMX Club**  
130 Ocean St Mt St Thomas 2500.  
Track: Reddall Parade Warilla (Sunday fortnights).

**Strathfield BMX Club**  
PO Box 56 Homebush West 2140.

**Sutherland Shire BMX Club**  
16 Awatea Place Engadine 2233.  
Track: Menai Forest BMX Park Barden Rd (second Sundays).

**Tamworth City BMX Club**  
49 Peel St Tamworth 2340.  
Track: Markus & Peels Sts (fortnights).

**Tweed-Coolangatta BMX Club**  
58 Pacific Highway Sth Tweed Heads 2486.  
Track: Behind Arkinstall Tennis Courts (Saturday fortnights).

**Twin Swans BMX Club**  
19 Granville St Inverell 2360.

**Upper Blue Mountains BMX Club**  
Grandview Hotel, Great Westn Hwy Wentworth Falls 2782.  
Track: 1 km from Katoomba Station (last Sundays).

**Wagga Wagga BMX Club**  
35 Grove St Wagga Wagga 2650.  
Track: Huthwaite St (Sunday fortnights).

**Wilson's BMX Team**  
10 Tongarra Rd Albion Park Rail.

**Western Districts BMX Club**  
PO Box 6 Cambridge Park 2760.

**Woodberry & Districts BMX Club**  
Shop 3, Kookaburra Pde Woodberry 2322.

**TASMANIA**

**Devonport BMX Club**  
11 Berrigan Rd Devonport 7310.  
Track: Maidstone Pk Sports Complex (fortnights).

**Huon Valley BMX Club**  
10 Main Rd, Huonville 7109.

**Tracks BMX Club**  
6 Lennox Ave Lutang, Hobart 7000.  
Track: Brooker Hwy New Town (every second Sat & Sun).

**NORTHERN TERRITORY**

**Jingili BMX Club**  
PO Box 42040 Casuarina 5792.  
Track: Freshwater & Rothdale Rds (two weeks race, one week off).

**Red Centre BMX Club**  
PO Box 3011 Alice Springs 5750.  
Track: Blatherskite Park (Sat winter, Fri nights summer).

**Wanguri BMX Club**  
Darwin.

## VICTORIA

**Ballarat BMX Club**  
PO Box 694 Ballarat 3350.  
Track: Old Victoria Park Velodrome (last Sundays).

**Barwon Eagles BMX Club**  
PO Box 179 Belmont 3216.  
Track: South Barwon Reserve (first Sundays).

**Bayside BMX Club**  
PO Box 151 Nth Brighton 3186.  
Track: Elsternwick Park (twice monthly).

**Bellarine BMX Club**  
80 Queenscliff Rd Newcomb 3219.  
Track: Grinter Reserve (third Sunday each month).

**Bendigo BMX Club**  
410 High St Golden Square Bendigo 3550.

**Berwick City**  
489 Princes Highway Narre Warren 3805.

**Birallee Park BMX Club**  
PO Box 49 Wodonga 3690.  
Track: Birallee Park off Melrose Dr (Saturdays).

**Blue Lake BMX Club**  
PO Box 2076 Mount Gambier 5290.  
Track: Hastings-Cunningham Res (Sunday fortnights).

**Bourkies BMX Club**  
220 Mitcham Rd Mitcham 3132.

**Bundoora BMX Club**  
Shop 11, Denison Mall Bundoora 3083.

**Campaspe BMX Club**  
4 Tyler St Echuca 3625.  
Track: Echuca Sports Complex (every third week).

**Crank & Chain BMX Club**  
PO Box 83 Thomastown 3074.

**Dandenong BMX Club**  
89A Foster St Dandenong 3175.

**Diamond Valley BMX Club**  
365 Greensborough Rd Watsonia 3087.

**Eagle BMX Club**  
64-66 Ryrle St Geelong 3220.

**Eaglehawk-Bendigo BMX Club**  
32 Webster St Bendigo 3550.  
Track: Cal-Gully Oval Eaglehawk (every third week).

**Eastfield BMX Club**  
48 Taronga Cresc Croydon 3136.  
Track: Croydon (monthly).

**Eram Park BMX Club**  
24 Renshaw St Doncaster East 3109.  
Track: Eram Park (twice monthly).

**Frankston BMX Club**  
41 Pratt Ave Frankston 3199.

**Greensborough BMX Club**  
22 Main St Greensborough 3088.

**Heidelberg BMX Club**  
Community Centre Wunwan St Mcl eod 3085.

**Inverloch BMX Club**  
1 Edgar St Inverloch 3996.  
Track: Cuttris St (last Sat each month).

**Junction BMX Club**  
207 Camberwell Road East Hawthorne 3123.

**Kass BMX Club**  
Shop 49, Bentford Square Forest Hill 3131.

**Kyabram District BMX Club**  
RMB 1375 Tongala 3621.  
Track: Racecourse Rd (every third Sunday).



**Lara BMX Club**  
PO Box 72 Lara 3212.  
Track: Kees Rd (monthly).

**Lilydale & District BMX Club**  
30 Manchester Rd Mooroolbark 3138.

**Mac Cycles BMX Club**  
PO Box 410. Boronia 3155.  
Track: Wadhurst Rd (twice month home & away).

**Mildura BMX Club**  
72 Lime Ave. Mildura 3500.

**Mitcham BMX Club**  
477 Whitehorse Rd Mitcham 3132.

**Moorabbin BMX Club**  
30 Rosewarne Ave Cheltenham 3192.

**Mornington BMX Club**  
PO Box 85 Mornington 3931.

**Northcote BMX Club**  
483 High St Northcote 3070.

**Pegasus BMX Club**  
36 Jackson Court East Doncaster 3109.

**Phillip Island BMX Club**  
PO Box 194 Cowes 3922.

**Prahran BMX Club**  
135-137 Commercial Rd South Yarra 3141.

**Radial Riders BMX Club**  
79-83 Bridge St Bulleen 3105.

**Sea Lake BMX Club**  
PO Box 72 Woomelang 3485.

**Sebastapol BMX Club**  
206 Albert St Sebastapol 3356.  
Track: Burnett St (fortnights).

**Shepparton BMX Club**  
73 Sutcliffe St Shepparton 3630.  
Track: Velodrome (every three weeks)

**Southern Eastern BMX Club**  
Track: Centre Rd (every two months).

**Speedie BMX Club**  
20 Yertchuck Ave Ashwood.

**St Albans BMX Club**  
191 Williams St St Albans 3021.  
Track: Navaro Pade & Yarmouth Ave (monthly).

**Sunbury BMX Club**  
PO Box 208 Sunbury 3429.  
Track: Cornish St (every third Sunday).

**Tower Valley BMX Club**  
Tudor Lodge Hall Rd St Warrandyte 3113.

**Velodrome BMX Club**  
36 Main Rd Tingira Heights.  
Track: Chatham Rd Broadmeadow (Fri Summer, Sun Winter).

**Warrnambool Y BMX Club**  
741 Raglan Pde Warrnambool 3280.

**Waverley BMX Club**  
PO Box 378 Glen Waverley 3150.  
Track: Cnr Fren Tree G & Blackburn Sts (monthly).

**AUSTRALIAN CAPITAL TERRITORY**

**BMX Dickson Club**  
11 Berrigan Rd Dickson ACT 2602.  
Track: Union Raceway Dickson St (Saturdays).

**Belconnen BMX Club**  
53 Denny St Latham ACT 2615.  
Track: Copeland Drive Melba.

**MCC of Canberra Inc BMX Division**  
PO Box 180 Jamison ACT 2614.  
Track: Fairbairn Park Piallago Ave.

**Tuggeranong BMX Club**  
7 Leach St Monash ACT 2904.  
Track: Wheeler Cresc Wanniasa.

**Canberra BMX Club**  
52-Crozier Circuit Karnbah ACT 2902.

**SOUTH AUSTRALIA**

**Cross Keys BMX Club**  
18 Julia Road Para Hills 5096.  
Track: Cnr Kings & Cross Keys Rds (second Sundays).

**Elizabeth BMX Club**  
PO Box 251 Elizabeth 5112.  
Track: Wormna Road (Sundays).

**Happy Valley BMX Club**  
Shop 62, Mitcham Shopp Centre 119 Belair Rd Torrens Park 5062.  
Track: Taylors Road (Saturdays).

**Keith & District BMX Club**  
Mrs L. C. Kirvan Keith SA 5267.

**Millicent & District BMX Club**  
PO Box 306 Millicent 5280.  
Track: Fifth Street (second Sundays).

**Mount Gambier BMX Club**  
PO Box 2976 Mt Gambier 5290.

**Port Augusta YMCA BMX Club**  
PO Box 532 Port Augusta 5700.  
Track: Power Crescent (Sundays).

**Port Pirie BMX Club**  
PO Box 287 Port Pirie 5540.

**Tea Tree Gully BMX Club**  
PO Box 221 St Agnes 5097.  
Track: North East & Bus Roads (Saturdays).

**Unley BMX Club**  
Fern St Fullarton.

**Whyalla BMX Club**  
PO Box 363 Whyalla 5600.

**QUEENSLAND**

**Ashmore Gold Coast BMX Club**  
PO Box 5812 Gold Coast Mail Centre 4217.  
Ashmore Village Park (second Saturdays).

**Ayr BMX Club**  
Bucham Cycles c/- PO Ayr 4807.

**Bundaberg BMX Club**  
11 Sledman St Bundaberg 4670.  
Track: Off Enterprise Street (second Sundays).

**Cairns BMX Club**  
PO Box 723 Cairns 4870.  
Track: Scott St Showgrounds (Saturdays).

**Caloundra BMX Club**  
8 Carlton Ave Caloundra 4551.

**Capricorn Coast BMX Club**  
Sport & Tackle, James St Yeppoon 4703.

**Centenary BMX Club**  
36 Moolingal St Jindalee 4075.  
Track: Loffs Road Jamberee Hghts (second Saturdays).

**Clifton BMX Club**  
Bruce Hamiltons Garage King St Clifton 4361.

**Collinsville BMX Club**  
36 Flinders Street Collinsville 4804.  
Track: Near the swimming pool (every third week).

**Gap BMX Club**  
18 Ryleland St Grovely 4054.

**Innissail & District BMX Club**  
PO Box 558 Innissail 4860.  
Track: Wrights Park Corinda St (Sunday mornings).

**Island BMX Club**  
PO Box 1157 Mt Isa 4825.  
Track: Leichhardt River off Fourth Ave (Sundays).

**Ipswich BMX Club**  
80 Wildly Street Raceview, Ipswich 4305.

**Kingaroy BMX Club**  
112 Haly Street Kingaroy 4610.

**Kirwan BMX Club**  
705 Ross River Rd Kirwan 4810.  
Track: Duckworth St Garbutt, (Sundays).

**Kallangur BMX Club**  
28 Brickworks Rd Kallangur 4503.

**Logan City BMX Club**  
2 Greenview Ave Rochdale 4123.

**Mt Isa BMX Club**  
PO Box 1157 Mt Isa 4825.

**Mareeba BMX Club**  
PO Box 269 Mareeba 4880.  
Track: Abbott St Mareeba (Sunday mornings).

**Maryborough BMX Club**  
PO Box 14 Maryborough 4650.  
Track: Speedway Bruce Highway.

**Malanda & District**  
5 Lynch Street Malanda 4885.

**Nambour BMX Club**  
20 Blackall Terrace Nambour 4560.  
Track: New track, Yandina Sports Complex.

**Nerang BMX Club**  
PO Box 49 Nerang 4211.  
Track: Price St (second Saturdays).

**Noosa Starjamer BMX Club**  
20 Eagle Drive Tewantin 4565.  
Track: Leisure Centre Weyba Road (every two weeks).

**Pioneer BMX Club**  
164 Victoria St Mackay 4740.

**Redlands BMX Club**  
PO Box 59 Capalaba 4157.  
Track: Mt Cotton Rd Capalaba (second Saturdays).

**South Johnstone BMX Club**  
14 Henderson St St Johnstone 4859.

**Springwood BMX Club**  
20 Barbaralla Drive Springwood 4127.

**Suncity BMX Club**  
PO Box 44 Maroochydore 4558.

**Toogoolawah BMX Club**  
Esk Co-Operative Cressbrook St Toogoolawah 4313.

**Toowoombah BMX Club**  
PO Box 5232 Toowoombah 4350.

**Townsville BMX Club**  
Bridge Cycle Centre Anne St Aitkenvale 4814.

**Walkerston BMX Club**  
PO Box Playstowe 4741.

**Weipa BMX Club**  
PO Box 461 Weipa 4874.

**Windsor BMX Club**  
125 Cowie St Castledine 4034.

**Wynnum District BMX Club**  
36 Talwong St Manly West 4179.

**WESTERN AUSTRALIA**

**Action Park BMX Club**  
19 Whitworth Place Dianella 6062.  
Track: Victoria Rd Malaga (Wednesdays & Sundays).

**Albany BMX Club**  
15 Bohemia Rd Albany 6330.  
Track: Sanford Rd & North Rd (Sundays).

**Bunbury BMX Club**  
50 Strickland St Bunbury 6230.  
Track: Albert Road (Wednesday nights).

**Busselton**  
60 Duchess St Busselton 6280.  
Track: Strelly St (Sunday mornings).

**Collie BMX Club**  
18 Palmer Rd Collie 6225.  
Track: Wallsend St (Alternate Sun & Fri).

**Dandalee BMX Club**  
60 Felspar St Narrogin 6312.

**Eastern Goldfields BMX Club**  
144 Addis St Kalgoorlie 6430.  
Track: Marshall St (Sundays).

**Fremantle BMX Club**  
7 Rinaldo Crescent Coolbellup 6163.  
Track: Carrington & Lefroy Sts (Saturdays).

**Geraldton BMX Club**  
16 Petchell St Rangeway, Geraldton 6530.  
Track: Utakarra Rd (Friday nights).

**Glen Forrest BMX Club**  
17 William St Glen Forrest 6071.  
Track: Gravel Rd off Hardy Road (Saturdays).

**Kalamunda BMX Club**  
Kalamunda 6076.  
Track: Gladys Road (Sundays).

**Kelmscott BMX Club**  
PO Box 164 Kelmscott 6111.  
Track: John Dunn Oval (Saturdays).

**Manjimup BMX Club**  
50 Clarke Street Manjimup 6258.  
Track: Collier St (alternate Saturdays).

**Newman BMX Club**  
17 Wilara St Newman 6753.

**Port Hedland BMX Club**  
PO Box 99 Port Hedland 6721.  
Track: Darlot Street (Friday nights).

**Rockingham Kiwana BMX Club**  
PO Box 282 Rockingham 6168.  
Track: Point Peron Rd (second Saturdays).

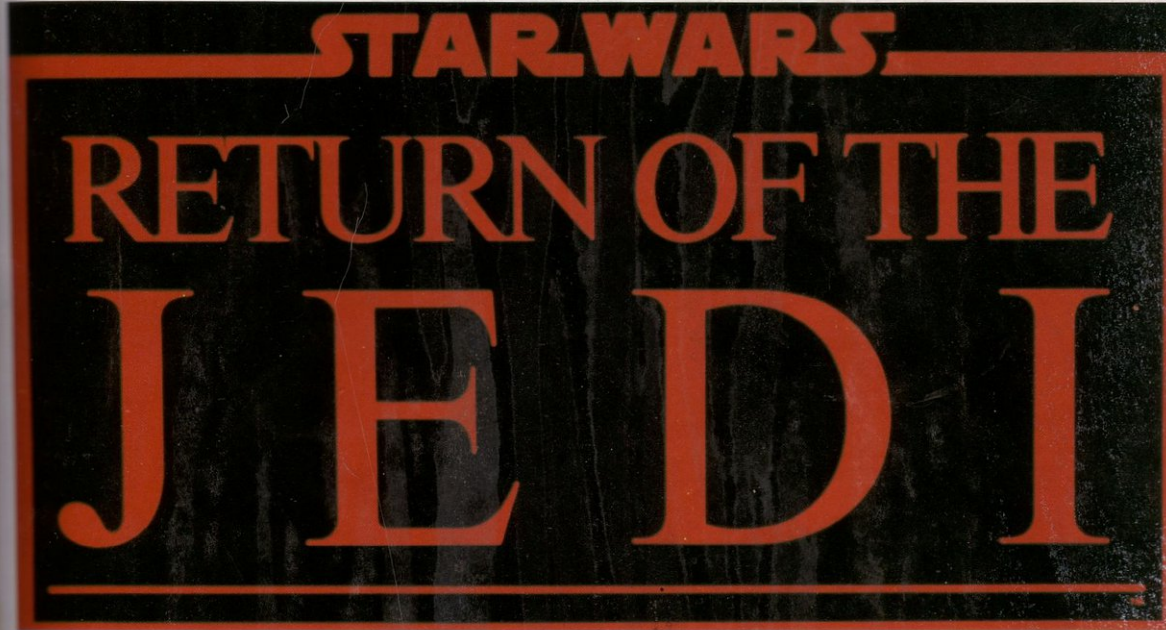
**Southern Districts BMX Club**  
PO Box 74 Kwinana 6167.  
Track: Atkinson Rd (second Saturdays).

**Top Rider BMX Club**  
288 Carr St Leederville 6007.  
Track: Harman Rd (Saturdays).

**Wanneroo BMX Club**  
Mary Street Wanneroo.

**Westside BMX Club**  
PO Box 129 North Beach 6020.  
Track: 120 Delawney St (Sunday mornings).

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BMXers have their own version of sidecar racing called sidehacks — or Hacks for short. You've got to first learn to ride a bike properly before you can do justice to a Hack, and to your willing passenger.