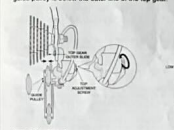
SIS ADJUSTMENT

If your bicycle is equipped with the Shimano Index System (SIS) you can pre-set the gear shifter to change gear simply by clicking the shifter up or down to the required gear. The next few pages and diagrams show how to set this up (if your dealer has not already done it). If you have any problems you should get your dealer to set the SIS up.

Top adjustment

Turn the top rear adjustment screw on the gear mechanism so that, looking from the rear, the guide pulley is below the outer line of the top gear.



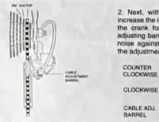
Low adjustment

Turn the low gear adjustment screw so that the guide pulley moves to a position directly below the low gear.

1. Operate the shifting lever to shift the chain from the top gear to 2nd gear.

"If the chain **will not move to the 2nd gear**, turn the cable adjusting barrel to increase the tension **1 (counter clockwise)**

"If the chain **moves past the 2nd gear**, decrease the tension **2 (clockwise)**



2. Next, with the chain on the 2nd gear, increase the inner cable tension while turning the crank forward. Stop turning the cable adjusting barrel just before the chain makes noise against the 3rd gear. This completes the adjustment.

Be sure to perform oil maintenance at each part of the transfer mechanism. The optimum oil is dry molybdenum oil or the equivalent.

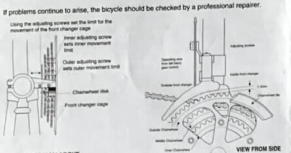
Front Derailleur

The adjustment of the sideways movement of the front changer is by means of two gear stop screws situated on the body of the changer mechanism. The inner screw limited the inner travel of the changer cage, the outer limits the outward movement

Use the following procedure for adjustment:

1. While turning the pedals forward select the middle (on a triple chainset) or the top chainring than select the smallest rear sprocket.
2. While turning the pedals adjust the inner screw on the front changer so that the chain will just drop into the lower ring with the gear lever fully forward.
3. Select the largest rear sprocket. If there is any evidence of chain rub adjust the inner screw until this just ceases.
4. With the chain still on the largest rear sprocket select the ring below the largest at the front. Adjust the outer screw so that the chain just selects the outer chainring when the gear lever is moved through its full arc range.

5. Select the smallest rear sprocket, if there is any evidence of chain rub adjust the outer screw until this just ceases. The lower edge of the outside plate should be positioned approximately 1-3 mm above the largest outside chainring. If a bicpace chain set is fitted as indicated on the chainring the clearance should be measured above the highest point of the ring.
6. If a chainwheel disk is fitted, make sure there is sufficient clearance between changer cage and chainwheel disk.
7. If problems continue to arise, the bicycle should be checked by a professional repairer.



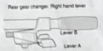
STI RAPIDIFIRE

STI Rapidfire lever uses two push levers mounted conveniently under the bar in front of the thumb. Using lever (A) you can shift one gear at a time, or shift down the entire block with a full stroke push. Using lever (B) you can shift up the sprocket with the same capability.

STI OPERATION

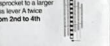
Rear Gear Operation

Right Hand Lever.



Lever (A) — operated by your right hand thumb pressing away from your body (shifting from a small sprocket to a larger sprocket)

1) To shift one gear at a time from a small sprocket press lever A once
Example: from 2nd to 3rd



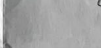
2) To shift two gears at a time from a small sprocket to a larger sprocket press lever A twice
Example: from 2nd to 4th

3) To shift three gears at a time from a small sprocket to a larger sprocket press lever A three times
Example: from 2nd to 5th

Lever (B) - operated by pulling with your your right hand forefinger or pushing with your thumb depending on model of shifter. (shifting from a large sprocket to a small sprocket)

When lever (B) is pulled once, there is a one-step shift from a larger gear to a smaller gear

Example: from 3rd to 2nd

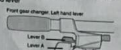


STI OPERATION

Front Gear Operation

You can shift the triple front chainwheels with the same precise STI action, 1 or 2 chainwheels at a time, using levers (A) and (B) on the left hand lever

Left Hand Lever.



Lever (A) - operated by your left hand thumb pressing away from your body (shifting from a small chainwheel to a larger chainwheel)

When it is pressed once, there is a shift of one gear from a smaller chainwheel to a larger chainwheel.
Example: from mid-range to largest chainwheel

Lever (B) - operated by pulling with your left hand forefinger or pushing with your thumb depending on model of shifter.
(shifting from a large chainwheel to a smaller chainwheel)

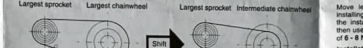
When it is pulled once, there is a shift of one gear from a large chainwheel to a smaller chainwheel.
Example: from largest chainwheel to mid-range

If your front gears do not operate smoothly, it may be that your front gear cable and front changer need adjustment. You can adjust your front gear cable by using the outer adjustment bolt on the left hand lever. This will shift your front changer so that it has minimum clearance between the chain and the inside left hand side of the chain guide.

Cable tension adjustment

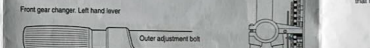
1. Set the chain to the **largest rear sprocket**, and, at the front, use the Rapidfire to **shift from the largest chainwheel to the intermediate chainwheel.**

Largest sprocket Largest chainwheel Largest sprocket Intermediate chainwheel



2. Adjust, by using the outer adjustment bolt, so that there is the minimum clearance, but so that the chain and the plate (inside the chain guide) do not contact.

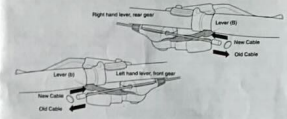
Front gear changer. Left hand lever



Gear Inner Wire Replacement & Connection

For the rear, press lever (B) six times or more, and then, for the front, press lever (b) three or four times.

Push out the old cable through the lever cover and replace with the new cable.



Never remove the lever cover.
Do not loosen the lever cover installation bolt.

STI Adjustment — Noise prevention mechanism

If chain noise occurs, due to overshifting, when a shift is made from the smallest chainwheel to the intermediate chainwheel, the overshifting can be adjusted by gently pressing lever (b) to move the front derailleur slightly toward the small chain wheel, thus activating the noise prevention mechanism.

Installation to the Handlebar

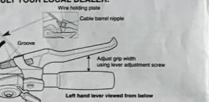
Move lever (a) (and lever (A) when installing the right hand lever) so that the installation bolt can be seen and then use an Allen key to install a torque of **6 - 8 Nm (4.5 - 6lb-ft).**

Installation of the brake cables

Use the 1.6 mm diameter inner cable and the 5 mm diameter outer casing.

1. Insert the cable barrel nipple through the brake lever body.
2. Mount the nipple into the retaining hole in the lever.
3. Ensure the brake adjusting bolt and nut are seated correctly in the lever.
4. Adjust the lever adjustment screw to obtain the desired grip width
5. Before riding, test the brakes several times to ensure everything is seated correctly and that the brakes are functioning properly. Readjust as necessary.

IF IN DOUBT ABOUT BRAKE FUNCTIONING CONSULT YOUR LOCAL DEALER.



Falcon

CYCLES LTD

INSTRUCTION LEAFLET AND GUARANTEE

RIGID FRAME AND FORKS Ð LIFETIME
All rigid frames and forks (with the exception of suspension forks, suspension frames and rear shocks) - lifetime warranty.

COMPONENT PARTS Ð 1 YEAR
All other components (including suspension forks, suspension frames and rear shocks) - 1 year warranty.

All the above warranties apply, provided the bicycle has been properly cared for, maintained and used, and are warranted against manufacturing or material defects for the warranty period stated. This warranty is applicable from the date of purchase for the original owner only, who must produce proof of purchase in order to validate any claim. Claims must be submitted through your retailer. This warranty does not include labour and transportation charge. The company can accept no responsibility for consequential or special damage. This warranty applies only in the case of defective components and does not cover the effects of normal wear and tear or damage caused by accident, abuse, excessive loads, neglect, improper assembly, alteration of original specification, improper maintenance or the addition of any item inconsistent with the original intended use of the cycle.

No bicycle is indestructible and no claims will be accepted for damage caused by improper use, competition use, stunt riding, ramp jumping, leaping or similar activities. Our bicycles conform to BS 6102: Part 1: 1992 as set by the British Institute Testing Services. We reserve the right to change or amend any specifications within this brochure without notice. All information and specifications within this brochure are correct at the time of going to press.

NOTICE

In offering this warranty, Falcon Cycles Ltd in no way seeks to diminish the statutory rights of the consumer.

Please refer to our website for the latest information.
http://www.falconcycles.co.uk

FALCON CYCLES LTD, P.O. BOX 3, BRIDGE STREET, BRIGG, NORTH LINCOLNSHIRE, DN20 8PB
TEL: (01652) 656000 FAX: (01652) 650040

NMD 04-04

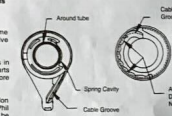
GRIP SHIFT Service Instructions

Lubrication

If re-greasing should become necessary due to excessive exposure to water and grit:

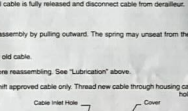
1. Disassemble and wash parts in kerosene or degreaser. Blow parts clean with compressed air before lubricating.
2. Using a silicone based teflon grease, apply to areas shown. Phil Wood waterproof grease may be substituted.

! WARNING: Do not use lithium grease



Cable Changes

1. Rotate Grip Shift until cable is fully released and disconnect cable from derailleur.
2. Remove cover.
3. Separate Grip Shift assembly by pulling outward. The spring may unseat from the spring cavity.
4. Remove and discard old cable.
5. Lubricate shifter before reassembling. See "Lubrication" above.
6. Replace with Grip Shift approved cable only. Thread new cable through housing cable inlet hole.



7. Loop the cable around housing. Exit cable through barrel adjuster.
8. Put the spring in spring cavity. If necessary apply a small amount of grease to hold spring in place.
9. Slide grip over housing. Rotate grip to align gear indicator mark with the largest number on grip. Lift the loop of cable off the housing and lay the cable into the groove in grip. Push the grip inward while pulling the cable out of the barrel adjuster until grip is flush with housing.

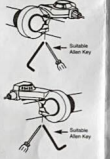
10. Replace cover.
11. Check for proper assembly by rotating grip and listening for indexing clicks.
12. Adjust indexing per derailleur manufacturers specifications.

REVOSHIFT

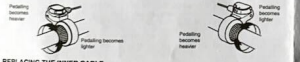
MOUNTING THE SHIFTING LEVER

Install the brake lever in a position where it will not obstruct brake operation. Do not use in a combination which causes brake operation to be obstructed.

Tightening torque:
2 Nm (1.5lb -ft)



GEAR SHIFTING OPERATION



REPLACING THE INNER CABLE

1. Turn the lever to the initial position (low position for the front lever; top position for the rear lever).

2. Loosen the lever fixing bolt, and then rotate the lever until the cover fixing bolt can be removed (Fig. 1)
After this, remove the cover fixing bolt and then remove the cover (Fig 2)

FIG. 1

FIG. 2

3. Pull out the inner cable and replace it with the new inner cable (Fig. 3)

FIG. 3

4. After installing the cover, rotate the lever to return it to its original position, then tighten the inner fixing bolt.

TYRE CARE AND WHEEL ADJUSTMENTS

To obtain maximum life and full benefit from your tyres, it is essential to maintain the recommended pressure indicated on the tyre sidewall.
Unnecessary hard braking and skidding greatly reduces tyre life. Make sure your tyres do not come into contact with oil, petrol, paraffin or other rubber solvents.
Make sure that your wheels run true and are in correct alignment to avoid chafing the tyre sidewall against the bicycle frame or fork tubes.
Tyres should regularly be inspected for wear and cuts. Check that the tyre tread pattern is clearly showing all around the outside edge of the tyre. Check there are not any breaks, cuts or uneven wear in the tyre. Tyres should be replaced if damaged.
Tyre punctures can be caused by careless riding over sharp stones, holes in the road, or by hitting curbstones.
If you are storing your bicycle for a long period of time, it is advisable to store the machine with the tyres off the ground to prevent them from becoming distorted.
To inflate tyres, a foot pump or normal bicycle inflator fitted with a suitable valve connector should be used along with an accurate tyre pressure gauge.
Wheels should be checked regularly for spoke tension. Perform this check more frequently if the bicycle is used on rough roads.

STANDARD REAR WHEEL - ADJUSTMENT AND REMOVAL

To Remove Wheel

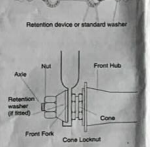
Move the chain onto the smallest rear sprocket. Disengage the brake quick release lever if your bicycle is so equipped. Loosen both axle nuts by turning in a counter clockwise direction. Pull the derailleur mechanism gear for additional clearance. Remove the rear wheel by sliding forward and out of the frame.
To install wheel, locate the top section of the chain on the small sprocket and replace the wheel into the frame by pushing back and centralising between the chainstays. While holding the wheel in this position, tighten the axle nuts in a clockwise direction.
The wheel should turn freely and have very little side play.
Reset rear brake quick release mechanism and check brake for proper operation.

Quick Release Rear Wheel

Removal and installation of rear wheel fitted with quick release mechanism. Use same procedure as for standard rear wheel, with the exception of loosening axle nuts. Operate the quick release lever by pulling away from the wheel and turning release lever 180° to release the wheel.
When installing the rear wheel, use the same closing and adjusting procedure as outlined for quick release front wheel.
Check quick release lever is in the correct and fully locked position before each ride.
Reset rear brake quick release mechanism and check brake for proper operation.

Front wheel

Remove axle nuts, washers, and axle retention device if fitted. The axle cone bearing adjustment should permit smooth rotation of wheel. Cone locknut should be securely fastened against axle cone to prevent loosening. Place the front wheel between the fork blades with axle retention device and the projecting prongs of the retention device secure by fitting the slot in the fork or with standard washers securely placed in position on to the wheel axle in the place of the retention washer.
Replace locking washers and nuts at both ends gradually and alternately in order to keep the wheel centered.

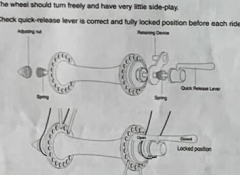


CAUTION:
Front wheel must be installed with retention devices securely placed into slots of fork blades or washers if fitted. This will ensure positive locking of front wheel to front fork.

TYRE CARE AND WHEEL ADJUSTMENTS CONTINUED

QUICK RELEASE FRONT WHEEL

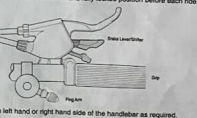
1. To remove the front wheel, first release the front wheel brake. Then open the quick-release lever on the axle and pull the wheel from the forks.
2. To install, fit wheel into forks with quick release lever on the left side. Close quick-release, and tighten adjuster until snug. Release quick-release lever and further tighten adjuster approximately 3/4 of a turn. Lock and check that the quick-release has embossed the fork ends. It may be necessary to tighten or loosen the adjuster slightly. Make certain to reset the quick-release front brake to ensure proper operation.
3. Wheel must be clear frame and fork by at least 1/16".
4. The wheel should turn freely and have very little side-play.
5. Check quick-release lever is correct and fully locked position before each ride.



! WARNING! Do not attempt to ride the cycle until you are absolutely sure that the quick release lever is fully closed and securely tightened. Children should check with their parents to ensure that this has been tightened correctly.

FITMENT OF BELL

1. Remove screw from bell clamp.
2. Position, in a convenient spot near the left hand or right hand handlebar grip.
3. Replace screw & tighten securely.
4. Rotate the "Ping Arm" to a comfortable position.
5. Check quick-release lever is correct and fully locked position before each ride.



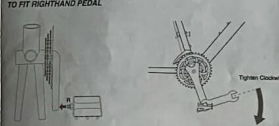
Position Bell on left hand or right hand side of the handlebar as required.

⚠ WARNING

PEDAL IDENTIFICATION

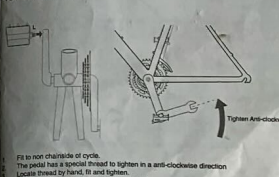
Check for the letters "L" or "R" on the ends of the pedals to show which side the pedal needs to be fitted to.

TO FIT RIGHTHAND PEDAL



1. Fit to chainside of cycle.
2. The pedal tightens in a clockwise direction
3. Locate thread by hand, fit and tighten.
4. Use spanner to finish tightening (be careful)

TO FIT LEFTHAND PEDAL



1. Fit to non chainside of cycle.
2. The pedal has a special thread to tighten in a anti-clockwise direction
3. Locate thread by hand, fit and tighten.
4. Use spanner to finish tightening (be careful)

FALCON CYCLES LTD

This bike has been designed, developed and sourced fully built by Falcon Cycles Ltd. North Lincolnshire.

Falcon has carefully selected and developed the product with some of the best suppliers throughout the world. These suppliers have satisfied the exacting quality standards that have been developed by Falcon, a company with over a century long reputation for quality and craftmanship.

All Falcon Cycles Ltd are built to conform to British Standards.
Suspension frames and forks and rear shock absorbers are covered by a separate guarantee.

Included in this manual are details on how to prepare your bicycle for riding, how to maintain your bicycle to keep it roadworthy, information on accessories and recommendations and tips for a safe and correct riding position.

Please ensure that the Bicycle Log Sheet below is completed at the time of purchase. The details will be of value to the police in the unfortunate event of your bicycle ever being lost or stolen. They also act as a record of your guarantee.

Complete this **Section** and keep it in a safe place. In the event of your machine being lost or stolen this information should be passed on to the police.

Name .....

Address .....

Model Name & Type .....

Serial No. ..... Frame Size & Colour .....

Extras and Identifying Marks .....

FRAME NUMBER

The frame number is located on the BS6102 label at the bottom of the seat tube or stamped on the bottom bracket shell or seat tube. We strongly recommend that you have either the frame number or your post code stamped on to your bicycle.

CONFORMS WITH
BS 6102
1992 : Part 1
Falcon Cycles Ltd. DN20 8PE

Dealer's Address or Stamp | Date of purchase

Service	Highly Recommended for safety & support of warranty claims. At 6-monthly intervals or more frequently if high mileage or subject to heavy use.		
Dealer Stamp:	Dealer Stamp:	Dealer Stamp:	Dealer Stamp:
Date:	Date:	Date:	Date:

YOUR BICYCLE — OWNER'S RESPONSIBILITY

In this leaflet we describe and illustrate how to ride safely and keep your bicycle in a safe trouble free operating condition.

Owner's Responsibility and Important Points

Point 1 Carefully and thoroughly read this leaflet and follow the instructions.

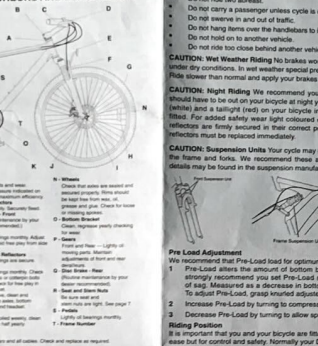
Point 2 Any major service or adjustments on your bicycle should be carried out by a professional repairer, however if this service is not available and you wish to make adjustments yourself, this manual contains important tips on how to do it.

CAUTION: Any adjustments you make are entirely at your own risk.

Point 3 To use your bicycle for freestyle and stunt riding, competitive events, off-road use or any similar activities can be dangerous and you are warned that you assume the risk for personal injury, damages or losses incurred from such use. The Retailer shall not be liable to the purchaser of the bicycle or to third parties for consequential or special damages.

Point 4 Bicycles are built with a variety of equipment and accessories, and you should familiarise yourself with their function and purpose, to make sure you can operate them correctly.

LOCATION OF PARTS WITH ROUTINE MAINTENANCE CHECKS AND LUBRICATION



A - Headset
Remove, clean and regrease bearings yearly (including 3 replacements required)
B - Stem Bolts
Ensure stem nuts and bolts are tight. See page 7
C - Handlebars
Check handlebar bolt is tight. Check brake levers securely mounted to bars and brakes stop properly and efficiently. See page 7
D - Brakes
Lightly oil exposed cables monthly. Maintain adjustment and replace brake blocks when worn. Brake cables should last one year
E - Reflectors (front & rear)
Ensure reflectors are secure and undamaged. Replace if damaged
F - Front Suspension unit
(Dealer adjustment only)
G - Tyres
Check for cuts and wear. Maintain pressures (inflated tyre will for maximum efficiency grease and gas. Check for loose or missing spokes.
I - Quick Release Mechanism
(Routine maintenance by your dealer recommended.)
J - Wheel Hubs
Grease bearings monthly. Adjust bearings to avoid free play (front and rear)
K - Pedals with Reflectors
Check for cracks or fittings are secure.
L - Cranks
Grease bearings monthly. Check that axle bolts or collarets bolts are tight. Check for free play in crank bearings
M - Bearings
Yearly, remove, clean and regrease hub axles, bottom bracket set and headset.
N - Chain
Keep lightly oiled sparingly, clean (Dealer adjustment only)
O - Rear Suspension Unit
Lightly oil bearings monthly.
P - Frame Number
R - Wheels
Check that spokes are sealed and prevent properly. Rims should be kept free from wax, oil, grease and gas. Check for loose or missing spokes.
S - Bottom Bracket
(Clean, regrease yearly checking for wear)
T - Gears
Front and Rear — Lightly oil moving parts. Maintain adjustments of front and rear derailleurs.
U - Disc Brake - Rear
(Routine maintenance by your dealer recommended)
V - Seat and Seat Bolts
Seat bolt and seat nuts are tight. See page 7
W - Pedals
Lightly oil bearings monthly.
T - Frame Number

Refer to table of Recommended torque values - page 7

Half Yearly — Remove wheel, clean, lubricate chain, lubricate derailleur gears and all cables. Check and replace as required.

NB — Wash cycle weekly with warm soapy water and polish dry with a soft cloth

SAFE CYCLING AND SAFETY TIPS

Before you ride your bicycle at any time make sure it is in a safe operating condition. Particularly check that your:-

- Bicycle's nuts, bolts and parts are tight and not worn or damaged.
- Riding position is comfortable.
- Brakes are operating effectively
- Steering is free with no excessive play.
- Wheels run true and hub bearings are correctly adjusted.
- Wheels are properly secured and locked to frame/fork.
- Tyres are in good condition and inflated to correct pressure.
- Pedals are securely tightened to pedal cranks.
- Gears are correctly adjusted.
- All reflectors are in position.

After you have made any adjustments to your bicycle, check that all nuts and bolts are securely tightened and that the tyres are free from kinks and fixed securely to the bicycle frame.

Every six months (more frequently if high mileage or subject to heavy use) your bicycle should be professionally checked to ensure that it is in correct and safe working order. A 'Service Record' is provided for your use.

Do Not's when riding

- Do not ride on same side of road as oncoming traffic.
- Do not ride two abreast.
- Do not carry a passenger unless cycle is equipped to do so.
- Do not swerve in and out of traffic.
- Do not hang items over the handlebars to impede steering or catch in the front wheel.
- Do not hold on to another vehicle.
- Do not ride too close behind another vehicle.

CAUTION: Wet Weather Riding No brakes work as well under wet or icy conditions as they do under dry conditions. In wet weather special precautions must be taken to assure safe stopping. Ride slower than normal and apply your brakes well in advance of anticipated stops.

CAUTION: Night Riding We recommend you minimise the time you ride after dark. If you should have to be out on your bicycle at night you must to comply with the law, use a headlight (white) and a taillight (red) on your bicycle in addition to the all-around reflectors that are fitted. For added safety wear light coloured clothing with reflective stripes. Check that the reflectors are firmly secured in their correct position and clean and not obscured. Damaged reflectors must be replaced immediately.

CAUTION: Suspension Units Your cycle may be fitted with suspension units built into parts of the frame and forks. We recommend these are serviced by your dealer as required. More details may be found in the suspension manufacturer's handbook.

Pre Load Adjustment
We recommend that Pre-Load load for optimum safe riding should be set as follows.

1 Pre-Load alters the amount of bottom bracket drop when seated on the saddle. We strongly recommend you set Pre-Load so as to experience no more than 1" (25mm) of sag. Measured as a decrease in bottom bracket height.
To adjust Pre-Load, grasp knurled adjuster (A) and spring, and either:
2 Increase Pre-Load by turning to compress the spring
3 Decrease Pre-Load by turning to allow spring extension.

Riding Position
It is important that you and your bicycle are fitted to each other, not only for comfort and riding ease but for control and safety. Normally your Dealer will custom fit your bicycle to you but the following few pages should help you to find your most comfortable, safe and efficient position.

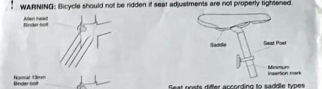
SEAT

Seat Adjustment
Loosen the nut on the seat-post clamp enough to allow the saddle to move forward and back. The seat can then be aligned forward and back and the angle can also be adjusted (it is recommended that the seat be parallel to the ground).

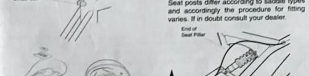
To adjust the seat up and down, loosen the binder-bolt on the seat tube, position the seat and re-tighten the binder-bolt.

CAUTION: Insert the seat-post to a point above the insertion mark. THE MINIMUM INSERTION MARK should not be visible. Securely tighten the seat-post binder bolt/nut to 30 Nm by using a 6 mm Allen key or a 13 mm spanner. Test by grasping the seat and attempting to turn. Keep tightening until the seat will no longer turn.

WARNING: Bicycle should not be ridden if seat adjustments are not properly tightened.



Seat posts differ according to saddle types and accordingly the procedure for fitting varies. If in doubt consult your dealer.



Seat Pillar adjustment— Suspension frames.Take care when inserting seat pillar that the protruding end cannot interfere with the frame suspension unit during use. If in doubt consult you dealer about adjustment.

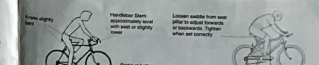
CYCLING POSITION — Seat

Saddle Angle
The seat should be horizontal or parallel with the ground. Slight variation around the horizontal may suit individual comfort but if excessive angles are felt necessary check other aspects of your position.

Saddle Height
The correct seat height is determined by sitting on the seat with your leg fully extended. Your heel (in flat shoes) should just touch the pedal when it is positioned at its lowest point. When riding normally with the ball of your foot on the pedal your knee should be slightly flexed at the bottom of the pedal stroke (see diagram following).

Saddle Forwards/Backwards Position
With the ball of one foot on the pedal and the cranks parallel to the ground the saddle should be adjusted fore-wards or forwards to a position whereby the pedal centre is directly below the knee joint.

Very small changes in saddle position can have a substantial effect on performance and comfort. Consequently, whenever you make a change to your saddle position, make only *lease* but for control and safety. Normally your Dealer will custom fit your bicycle to you but the following few pages should help you to find your most comfortable, safe and efficient position.



HANDLEBARS AND STEMS

As your cycle may be fitted with a standard 'quill' stem or an A-Head stem, you must always check that all the bolts are tight before cycling.

STANDARD STEM: Loosen expander bolt so that expander wedge is not tight in bottom of handlebar stem. Gently tap the top of the expander bolt to further loosen the wedge if necessary. When the expander wedge is loose, move the handlebars up or down until you find the optimum height at which you can easily reach the brake levers and comfortably grasp the handlebars. Usually this height is level with, or slightly lower than, the top of the saddle. Be sure the stem is in line with the front wheel.

CAUTION: A minimum insertion ring is marked on the handlebar stem and this marking should remain in the head tube. Under no circumstances should the minimum height insertion mark be visible on the handlebar stem. It must be down in the head tube.
When desirable height has been achieved, align the handlebar with the front wheel and securely tighten expander bolt. It is extremely important to tighten the expander bolt sufficiently, so that when the wheel is held between your legs and the handlebars are twisted, the handlebars do not move. Do not over tighten, as it may increase risk of injury to the rider. Position grip portion of handlebars horizontally and securely tighten the binder bolt.

Note: On models equipped with stem mounted gear levers the levers may be moved up or down to the rider's most comfortable position. When moving them, be certain that the levers face upwards and that the cables are not twisted.

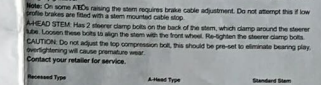
Refer to table of recommended torque values on page 7.

Note: Whenever the handlebar stem is removed from the head tube then the expander bolt should be lightly greased.

Note: On some A'Ds raising the stem requires brake cable adjustment. Do not attempt this if low profile brakes are fitted with a stem mounted cable stop.

A-HEAD STEM: Have 2 steerer clamp bolts on the back of the stem, which clamp around the steerer tube. Loosen these bolts to align the stem with the front wheel. Re-tighten the steerer clamp bolts.

CAUTION: Do not adjust the top compression bolt, this should be pre-set to eliminate bearing play, overtightening will cause premature wear.
Contact your retailer for service.



Handlebar Position
The position of the handlebar should be set to allow a comfortable and easy reach of gear control and brake levers.

When riding, your weight should be so balanced that your hands rest lightly on the handlebars. This prevents strain on wrists and forearms when pedalling. If you alter the riding position, remember to tighten all stem and bars bolts securely.

Refer to table of recommended torque values - page 7.

CAUTION:
NEVER EXTEND THE HANDLEBAR STEM OR SEAT POST ABOVE THE MINIMUM INSERTION MARK AS THIS IS DANGEROUS

COTTERLESS CRANKS ADJUSTMENT

IMPORTANT
Please check if the chainwheel and cranks of your new bicycle are of the cotter less type as illustrated on page 3.
If so, to ensure trouble free operation it is important that the nuts securing these item to the bottom bracket axle are tightened as securely as possible.
It is strongly recommended that the tightness of the nuts be **checked after the first two weeks of use** and a maximum of three monthly intervals thereafter.

TABLE OF RECOMMENDED TORQUE VALUES

DESCRIPTION	TORQUE
Stem Expander Bolt (where fitted)	20Nm 15lb-ft
A-Head Steerer Clamp Bolts (where fitted)	20Nm 15lb-ft
Stem Binder Bolt	30Nm 19lb-ft
Brake Fixing Bolt (non disc) Applies to both front and rear brake	8Nm 4lb-ft
Front Axle Nut	30Nm 22lb-ft
Crank Wheel Securing Bolt	38Nm 28lb-ft
Pedal	40Nm 30lb-ft
1/2Cartridge Cable Fixing Bolt	4Nm 3lb-ft
3/8Cartridge Cable Fixing Bolt	4Nm 3lb-ft
Rear Axle Nut	40Nm 29lb-ft
Seat Pin (Hangerstrap Head)	35Nm 26lb-ft
Seat Pin (Allen Head)	35Nm 26lb-ft
Front and Rear Reflector Mounting Nut	2.5Nm 2lb-ft
Saddle Clamp Bolt	30Nm 22lb-ft
1/2Cartridge Clamp Bolt	5.5Nm 4lb-ft

BRAKES

WARNING
For safe riding it is important to completely understand the operation of your bicycle's brake system. Improper use of your bicycle's brake system may result in a loss of control or an accident, which could lead to severe injury Because each bicycle may handle differently, be sure to learn the proper braking technique (including brake lever pressure and bicycle control characteristics) and operation of your bicycle. This can be done by consulting your professional bicycle dealer and this owner's manual, and by practicing your riding and braking technique.

The bicycle is equipped with two independent brake mechanisms. One on the front wheel and the other on the rear wheel. The brakes are operated by hand levers fastened to the handlebars. The right lever controls the front brake and the left lever controls the rear brake.

To stop with safety:
1 Operate the rear brake (left lever) slightly before the front brake (right lever).
2 Apply firm pressure to both front and rear brake levers.

CAUTION: If the front brake is applied with too much pressure, the rider may be thrown off the bicycle.

3 Never apply the front brake on a turn. This is especially dangerous when cornering or riding on slippery or loose surface roads.

CAUTION: Brakes are less effective in wet weather. Ride slower and allow more distance for stopping.

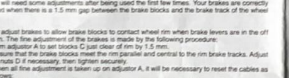
Note: Go not ride your bicycle if the braking system is not working correctly. If you are in doubt, take your bicycle to your dealer.

BRAKE ADJUSTMENT PROCEDURE — Caliper brakes

The brakes on your bicycle should have been adjusted correctly by your dealer; however, as cables do stretch, it is important to check the adjustment of your brakes after your first ride. Most brakes will need some adjustments after being used the first few times. Your brakes are correctly adjusted when there is a 1.5 mm gap between the brake blocks and the brake track of the wheel rim.

Do not adjust brakes to allow brake blocks to contact wheel rim when brake levers are in the off position. The fine adjustment of the brakes is made by the following procedure:
1. Turn adjuster A to set blocks C just clear of rim by 1.5 mm.
2. Ensure that the brake blocks meet the rim parallel and central to the rim brake tracks. Adjust by nuts D if necessary, then tighten securely.
3. When all fine adjustment is taken up on adjustor A, it will be necessary to reset the cables as follows:
   a. Turn adjustor A all the way down as far as it will go into its mounting.
   b. Loosen cable clamp bolt B. Press both brake shoes firmly against wheel rim.
   c. Pull brake cable wire through its clamp bolt B.
   d. Tighten cable clamp bolt B securely.

Note: If one brake shoe is closer to the rim than the other first check that the wheel has been centred between the forks then adjust the brakes as necessary.



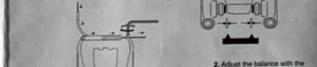
To adjust brakes that have central Caliper adjuster simply turn screw as shown until brakes centralise.

BRAKE MAINTENANCE — Caliper brakes

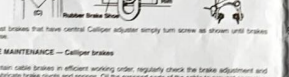
To maintain cable brakes in efficient working order, regularly check the brake adjustment and lightly lubricate brake pivots and springs. Oil the exposed parts of the cable to prevent corrosion. Slow or inefficient braking often indicates that the brake cables thereafter require lubrication. As this job requires the removal of the complete brake cable, we recommend strongly that this service is done professionally.

Note: To assure smooth braking, wheels must run true and be correctly adjusted, with the rim brake tracks free from dents and kinks. The brake blocks should be in correct alignment with the rim brake track. See your dealer if you are in any doubt.
regarding wheel and brake adjustment.

Protect yourself from frayed cable ends by maintaining the end pieces fitted over the cable ends.



Brakes should function freely and release fully. If brakes bind, first check for lever stress and proper lubrication. If brakes still bind, return your bicycle to your dealer for adjustment.



To centre wide spit brakes first discover the retaining nut and then centre the brake using a spanner on the front retaining nut.
CAUTION: Before riding, test your brakes. Make sure that the quick release mechanism is returned to its normal correct position, otherwise your brakes will not operate effectively.

'V' BRAKE SYSTEM

INNER CABLE QUICK RELEASE

To release the brake inner cable from the V brake, squeeze the two brake arms together until the brake blocks contact the rim and remove the inner cable pipe from the cable end bracket.
To re-connect again squeeze the two brake arms together and relocate the inner cable pipe in the cable end bracket.

INNER CABLE ADJUSTMENT

1. Pass the inner cable through the inner cable lead, and after setting so that the total of the clearances between the left and right shoes and the rim is 2 mm, tighten the cable fixing bolt.

2. Adjust the balance with the spring tension adjustment screws.

3. Depress the brake lever about 10 times as in normal brake operation and check that everything is operating correctly and that the shoe clearance is correct before using the brakes.

BRAKE MAINTENANCE — Disc Brakes

Your cycle may arrive with factory fitted disc brakes — the latest technology in cycle braking!

If you have purchased your cycle from a professional cycle shop your brakes should have been set up correctly. They only have to do routine maintenance as the brake pads wear. (This is explained later on in this section).

If you purchased your cycle from a mail-order source you may have to set up the brakes before you use your cycle.

The notes that follow are not exhaustive. If you need further assistance, please refer to the disc brake leaflet that should accompany the cycle. If you do not have such a leaflet please take your cycle to a professional cycle shop.

BRAKE LEVER AND BRAKE PAD TRAVEL ADJUSTMENT.

You can alter the amount of braking pressure by altering the travel of the brake lever and by the proximity of the brake pads to the brake disc.

To alter the travel of the brake lever adjust screw A (see Fig. 1). Unscrewing screw A reduces the amount of lever travel and by tightening it increases the lever travel. If you have fully unscrewed screw A and the lever travel is still excessive you will have to adjust the space between the pads and the disc.

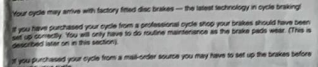


Fig.1

BRAKE LEVER AND BRAKE PAD TRAVEL ADJUSTMENT — cont.

Tighten screw A (Fig. 1) up to the brake lever. Go to Fig. 2 and insert a 2.5mm Allen key into the smaller hole inside allen key hole B. Rotating the allen key clockwise pushes the outer brake pad forward by approx. 0.8 mm. After each turn, check the brake travel, and the braking performance.

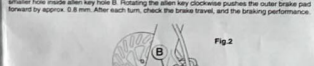


Fig.2

Once the correct amount of travel has been reached, centre the brake Calliper on the disc by adjusting screw C (Fig. 3). When the brake pads are centered on the disc the wheel should spin freely, though there may be a slight amount of noise until the pads "bed" in.

If your cycle came from, or has recently been overhauled by a professional repair shop, you should be able to maintain good braking performance by adjusting screw C (Fig. 3).

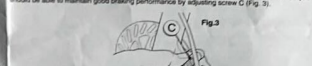


Fig.3

BRAKE PAD WEAR AND REPLACEMENT

When you check your brake pads due to rolling performance, check their thickness. If they are less than 1 mm thick (Fig. 4) they will need replacing.

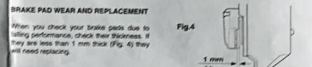


Fig.4

To fit new pads, remove the brake Calliper from the fork or frame by unscrewing allen bolts D (Fig. 5). Unscrew, (anti-clockwise), the smaller allen bolt inside allen bolt B (Fig. 2). Lift up and pull the inner pad forwards, using the protruding part E (Fig. 6). Slide a thin slot screwdriver under the outer pad (Fig. 7) and lift it up. Hold the screwdriver in this position and remove the pad with a pair of long-nosed pliers

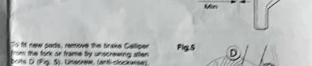
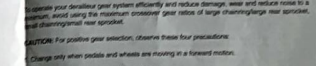


Fig.5



Remove the springs from the the worn out pads and fit them onto the new pads. Replace the new pads, keeping them slightly inclined, into the seat of the Calliper. Check that the spring hooks correctly onto the small piston. (When pulling downwards the pads should not come out). Refit the Calliper to the frame and adjust screw C (Fig. 3) until the pads and the disc are centered and the wheel spins freely. (Again there may be some noise from the brake until it "beds in")

DERAILLEUR GEARS INTRODUCTION

The derailleur gear is so named because it works on the derailling principle to move the chain from one sprocket to another. The number of gears is determined by multiplying the number of sprockets on the rear freewheel by the number of chainrings on the front crank set.

By using different combinations of sprocket and chainwheel sizes, a wide range of gear ratios are available. The highest gear is when the large chainwheel is coupled with the small sprocket and the lowest gear is when the small chainwheel is combined with the largest rear sprocket.

The wide range of gears allows you to combat all prevailing conditions while pedalling at the constant and efficient rate of sixty revolutions per minute.

DERAILLEUR GEAR MAINTENANCE

To help ensure that your derailleur gear works efficiently and to prolong its life, it must be kept clean and free from excess dirt build up and should be properly lubricated.

GEAR CHANGING

The rider's left gear lever controls the front derailleur and chain wheels.

The right gear lever controls the rear derailleur and sprockets.

The large rear sprockets generate low gears for hill climbing. The small rear sprockets develop high gear ratios for speed work and downhill riding.

The small front chainring produces low gear ratios while the larger front chainrings produce higher gear ratios.

To operate your derailleur gear system efficiently and reduce damage, wear and reduce noise to a minimum, avoid using the extreme crossover gear ratios of large chainring/large rear sprocket, and chainring/small rear sprocket.

CAUTION: For positive gear selection, observe these four precautions:

1 Change only when pedals and wheels are moving in a forward motion.
2 Reduce pedal pressure while changing gears.
3 Never back pedal when changing gear.
4 Never force the gear levers.

Gear selection should be made in anticipation of need since forward motion of the bicycle is required when changing gear. It is advisable to change to the gear before actually needing it in order to be ready for the power gear when you start up. On hills, change gear early while still maintaining forward pedaling speed.