Certain documents or portions of documents related to this training may be exempt from disclosure under the California Public Records Act on one or more of the following grounds:

a. They are records dealing with security and safety procedures that are exempt pursuant to Government Code Section 6254(f). (Northern California Police Practices Project v. Craig (1979) 90 Cal.App.3d 116, 121-122.);
b. They are materials for which the City of San Rafael does not hold the copyright or have permission to publish.

Where exempt material can be reasonably segregated from nonexempt material in these records, the exempt material has been redacted and the nonexempt material is shown. Where it is not reasonably possible to segregate out the exempt material, the Department is withholding the entire document from disclosure.

OBJECTIVES:

The purpose of the San Rafael Police Department to conduct it's own in-house training for basic law enforcement motorcycle operation is:

To facilitate a structure and standard of training, that has been shown over the years, to be effective in the safe operation of the enforcement motorcycle. This style of riding will emulate the style that was used by the San Bernardino Sheriff's Department Motor School sponsored by the San Bernardino Sheriff's Department EVOC Center and the former San Mateo Motorcycle School. This motorcycle course is instructed by SRPD personnel that are California P.O.S.T. certified instructors. The certified motor instructors will be: Officer Greg Cella and Officer Mike Costello

PRACTICAL APPLICATION AND DRILLS:

(See the attached Motorcycle Training Course and In Service Refresher Manual for lesson plan and skills & practice exercises).

Safety: Each student officer is told in the very beginning to ride within their ability. Common sense and good judgment are critical. Any action short of this will result in immediate remediation or termination of training.

ADDITIONAL TRAINING:

The goal of this course is to complete the training within 120 hours. However, to establish a margin for corrections in techniques, an additional 40 hours will be considered to total 160 hours of training. If the officer is able to accomplish the prerequisites, required skills and techniques of law enforcement riding within 120 hours, the training will not be prolonged. Evaluations will be made each day of training.

LOGISTICS:

- Kawasaki Police 1000 motorcycle
- Helmet, (DOT approved)
- Protective shatter resistant glasses, (sunglasses during daytime hours.)
- Leather gloves
- Department issued jumpsuit or utility uniform
- High-top boots of leather construction. (High enough to provide ankle protection. NO COWBOY OR SHARP TOED BOOTS).
- Duty belt with all appropriate gear.

cc: Stephen Willis, Chief of Police for City of Sausalito

INDEMNITY, HOLD HARMLESS AND RELEASE
BY CITY/TOWN OF Sausalito
IN FAVOR OF THE CITY OF SAN RAFAEL POLICE DEPARTMENT

WHEREAS, the Sausalito Police Department is seeking the assistance of the San Rafael Police Department in the area of Police motorcycle training; and

WHEREAS, the San Rafael Police Department has officers that provide the necessary training and the Sausalito Police Department has a(n) officer(s) in need of such training; and

WHEREAS, the Sausalito Police Department shall provide the trainee with all necessary safety equipment and a motorcycle to be used during this training.

NOW THEREFORE, In consideration of a motorcycle training course being conducted by the CITY OF SAN RAFAEL (hereinafter "San Rafael") and its allowing employees of the CITY/TOWN OF Sausalito (hereinafter referred to as "Contracting Agency") to take part in said course, Contracting Agency agrees to indemnify, defend, and hold harmless San Rafael, its officers, agents and employees, from and against any and all claims, loss, liability, damages, actions, and expenses of any kind including attorneys' fees, resulting from injury to or death of persons, including to employees of Contracting Agency, arising out of or in any way connected with Contracting Agency's participating in the motorcycle training course.

This agreement shall remain in full force and effect unless Contracting Party gives written notice terminating such agreement to the City of San Rafael Chief of Police, at least 30 days before the effective date of such termination.

DATED: August 28, 1995

Brock T. Turner
CONTRACTING AGENCY

DATED: _____

_____
CITY OF SAN RAFAEL

SAN RAFAEL POLICE MOTORCYCLE TRAINING COURSE AND IN SERVICE REFRESHER

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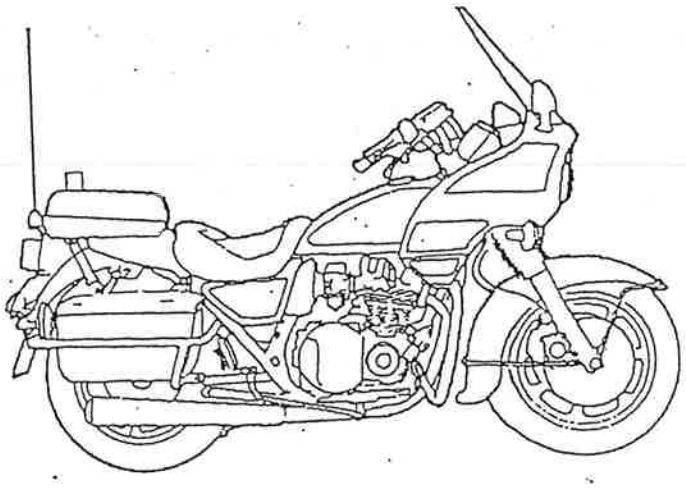


LESSON PLAN

PREPARED BY

ALAN GRIEVE
GREG CELLA

GUIDELINES
FOR
BASIC ENFORCEMENT MOTORCYCLE TRAINING
0 TO 80 HOUR EVALUATION PERIOD / 80 HOUR BASIC COURSE

MISSION: The purpose of the San Rafael Police Department to conducting it's own in-house training for basic enforcement motorcycle is:

1. To facilitate a structure and standard of training, that has been shown over the years, to be effective in the safe operation of the enforcement motorcycle.

2. This style of riding will emulate the **Balance / Counter Balance** style that was once used by the San Mateo Motor School when it was in operation and the **San Bernardino Basic Enforcement Motorcycle School / CHP style**. These motor schools were / are State certified schools.

3. The training staff will consist of past or present **SRPD** motor officers that have received a certificate of completion from the San Mateo Motor School style of riding, or who has received a certificate of completion from the San Rafael Police Department in house 80 Hour Basic Course and who have completed a POST approved Motorcycle Instructors Course.

4. The certified instructors may ask past or present motor officers to assist in this training. During training of potential motor officers using non certified assistants, a certified instructor will be present.

CONSIDERATION FOR TRAINING:

1. A six month interval shall have elapsed if the applicant had previously attended and unsuccessfully completed the course, for what ever reason. A written description of personal skills development during the elapsed six month period, or more, and any injuries sustained during this skills development period or from the previous unsuccessful basic course.

2. Each new applicant that has not been trained or was sent to outside training by another Police Department will provide a brief personal history that includes a description of motorcycle riding experience, enforcement motorcycle riding experience and the dates of previous motorcycle training, whether or not completed.

3. The above two requested requirements may be waived, in writing, by the Chief of Police or his/her designee if the Chief believes that a liability issue is not present.

BASIC LAW ENFORCEMENT MOTORCYCLE TRAINING COURSE

September 5 - 29, 1995

DATE: August 25, 1995

TO: P. Robert Krolak, Chief of Police

FROM: Gregory P. Cella, M/C Training Officer

SUBJECT: **Basic Motorcycle Training Course for Officer David Cron, San Rafael P.D. and Officer Sam Villeggiante, Sausalito P.D.**

COURSE:

This training course will be conducted in San Rafael, California. This course will take a minimum of 120 hrs. and up to 160 hrs. to complete. Each training day will be scheduled for 10 hrs. which will start promptly at 0700 hrs. and conclude at 1700 hrs.. The students will meet at 519 Fourth Street, San Rafael, California. A 45 minute lunch and periodic breaks will be included in consideration of the officer's physical condition, heat and the motorcycle's mechanics. This course will be conducted strictly on Kawasaki Police 1000 motorcycles.

Officers Cron, Reynolds and Villegiante will participate in the skills practice training and the Basic Motorcycle Training Course. All officers who successfully complete this course will receive a certificate of completion from the San Rafael Police Department Training Unit.

JUSTIFICATION:

In law enforcement motorcycle riding, the officer is traditionally assigned the task of police enforcement with the emphasis on accident reduction. By this, each officer must enforce the vehicle code and be highly visible to deter potential and flagrant violators. In order to accomplish this, the motorcycle officer must be able to ride proficiently to a level that reaction becomes second nature. The motorcycle officer must be able to obtain a full control of the motorcycle at all times. To accomplish this, training must be provided to the officer to build self-confidence in themselves and their motorcycle. The officer must obtain knowledge of their abilities and know the limitations of the machine they are riding. The training will offer the officer education on the workings of the motorcycle and teach the officer through repetition, techniques of law enforcement riding. The instruction staff will use every means to provide the best possible training to produce a safe and confident rider. During this training, instructors will evaluate each rider and their abilities based on the minimum qualifications to pass. Should the officer not meet these qualifications, the instruction staff will make the recommendation to the proper Police Department to terminate training.

GUIDELINES
FOR
BASIC ENFORCEMENT MOTORCYCLE TRAINING
0 TO 80 HOUR EVALUATION PERIOD / 80 HOUR BASIC COURSE

OBJECTIVE TRAINING / EVALUATION PROCESS:

1. Prior to the beginning of training, the instructors will decide if there is a conflict with the fair evaluation of a trainee due to personal preferences or prejudices. It will be left up to the individual instructor to disqualify themselves, or if the conflict is apparent and not recognized by an instructor, then the issue will be discussed with the training Sergeant. The training Sergeant will then make a recommendation, with all the information available, whether there exists a conflict or not and whether the trainee will receive a fair evaluation and conversely that a student will not be favored if that student does not meet the training requirements of the program.

2. Initially, there will be an 80 hour, or less, evaluation period to determine the ability of the applicant. If the applicant displays a natural ability to master the skills of the 80 hour basic course while in the evaluation period, then the primary instructors will evaluate the student as if in the 80 hour basic course. Conversely, if a student displays obvious deficiencies and inability to master the ground level basics, then a decision by the instructors to terminate the evaluation period early will be made. A unanimous consensus of the primary instructors will decide if the evaluation period will be terminated.

3. The appraisal of student proficiency shall be made on an individual rather than a competitive basis.

4. Individual proficiency in riding skills, judgment and confidence should be assessed daily by each instructor. Notes, cumulative evaluations or a training record shall be maintained for each student to support decisions concerning the continued training of each student.

5. Training shall include exercises and riding practices on a variety of surfaces, terrain and traffic conditions.

6. There shall be two instructors present during training, unless otherwise agreed upon by the instructors and the training sergeant, for the purposes of safety and training quality.

7. A proficiency test for critical skills should be administered to each student during the fourth, fifth or sixth day of the course. Unsatisfactory performance in this test will provide sufficient cause for the termination of training. The proficiency requires competence, consistency and safety in the full range of riding skills.

8. Each student will be assigned to a designated riding training officer, after successfully completing the initial skills portion of the training, for additional training and evaluation on actual enforcement riding. The field training officer will be briefed on areas of possible weaknesses that have to be monitored. A daily observation / evaluation report will be completed by the riding training officer. Only after successfully completing the skills and the enforcement training will the trainee be recommended for solo riding.

TERMINATION OF TRAINING:

1. Each student who is consistently unable to demonstrate the required riding skills or fails to consistently improve in the development of riding skills will be terminated from training.

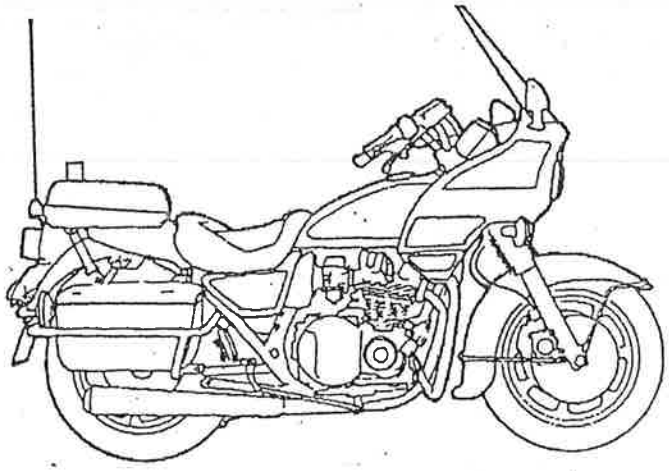
2. Termination from training should be done as soon as practical and before the student is required to perform drills or exercises that are beyond the student's skills.

3. Upon termination of the training, a memo will be initiated explaining the skill deficiencies that are the reason for the termination.

FOLLOW-UP TRAINING:

1. The motorcycle training staff will conduct in service training for all part time and full time motor officers. The training will be used to enhance the riders skills. The purpose of the training will be that of safety consideration. All riders shall participate in the training. Failure to participate will mean the rider will be suspended from riding until the training has been successfully completed.

SAN RAFAEL POLICE MOTORCYCLE TRAINING COURSE AND IN SERVICE REFRESHER



POST SAFETY QUALIFICATIONS

A. Each student shall be of sufficient stature to safely control a typical enforcement motorcycle.

B. Soles of training boots shall not exceed three quarters of one inch.

GUIDELINES
FOR
BASIC ENFORCEMENT MOTORCYCLE TRAINING
0 TO 80 HOUR EVALUATION PERIOD / 80 HOUR BASIC COURSE

2. For the purposes of safety, any rider deemed not safe by the training staff will be referred to the training divisions supervisor for a remedial training program.

3. All **Basic** and **In service** training will be documented. All participating riders will be evaluated. All documentation will become part of the riders permanent training file.

4. The **Basic** and **In service** training will consist of the 40 MPH decel (MANDATORY), the 30 MPH cone weave (MANDATORY), the Eliminator "S" pattern (MANDATORY) and the 180 Diminishing (MANDATORY), as well as various cone patterns. All exercises will be of **POST** specifications. San Bernardino / CHP / San Mateo specification cone patterns and exercises may also be used by the instructors.

5. The in service training will consist of a minimum of four (4) hours of actual training time on a monthly basis. All in service and part time Motor Officers **must** qualify quarterly.

CERTIFIED INSTRUCTORS

GREG CELLA
MIKE COSTELLO
ALAN GRIEVE
CHARLES " KATO " SAMUELS

B. DAILY MAINTENANCE (cont)

1. Upon completion of training, each trainee should contact their Department Supervisor to receive training on the maintenance required by their individual Department. Each officer should develop a routine daily inspection of the equipment that includes but is not limited to:

(a) Oil

(1) Motorcycle overheating is a major cause of engine failure. Since it is an air-cooled machine, it depends on oil as a cooling agent. Therefore, it is vital that the proper oil level be maintained at all times.

(b) Tires

(1) Maintenance of specified tire pressure is important for proper tire mileage, safety, and proper handling. Each officer is responsible for maintaining proper tire pressure on his machine.

Based on the recommended pressure for the new tires presently on Kawasaki motorcycles, you will inflate them to 36 pounds (cold), regardless of the weight of the rider or load. See the motorcycle manual for other makes. The officer is responsible for advising his Department mechanic when tire replacement is necessary.

(c) Gasoline

(1) Always shut off the engine before refueling. Care should be taken not to over-fill the tank. A definite fire hazard exists, if gasoline is allowed to spill over onto the hot engine. Another disadvantage of over-filling tanks is that the gasoline will stain the paint on the tank. The tank should be filled to about one inch from the top. Be certain that the tank cap is seated properly and securely.

(d) Chains

(1) For proper operation of the motorcycle and extended chain life, specified chain tension and lubrication must be maintained. You will be shown by your instructor(s) what proper chain tension is. However adjustments of the chain

15. Students in training will not be allowed to ride the motorcycle to and from home or to and from their hotel during the course of training.

E. RIGHTING A DOWNED MOTORCYCLE

1. Each student will be shown how to properly raise a downed motorcycle without causing an injury to the back.

2. Each student shall demonstrate ability to perform the righting of a downed motorcycle.

3. Thereafter and throughout the training course, the buddy system will prevail and a student with a motorcycle down will wait for assistance in righting the motorcycle.

F. REPORTING AN INJURY

1. Prior to the assignment of training, the student will be asked to identify any pre-existing injury or medical restriction that may affect the ability to safely participate in training.

2. A student may be required to provide a physician's certification of medical fitness in order to participate in training.

3. A student incurring any injury during the course of training shall report the injury immediately to the nearest available instructor.

MAINTENANCE

A. GENERAL

1. Your responsibilities are simple, but important.

(a) Major repairs and adjustments such as carburetors, chains, brakes, etc., are the responsibility of a qualified motorcycle mechanic.
(b) Under no circumstances will the individual student make such repairs and adjustments.
(c) If a problem develops during the course of training immediately notify a training officer and arrangements will be made to have the problem corrected.

B. DAILY MAINTENANCE

should only be made by a qualified mechanic. Chains should be lubricated at 200 to 300 miles or 2 to 3 times a week. Lubrication of the chain should take place when the chain is "hot" and the motorcycle is going to set for a while (after a tour of duty).

NOMENCLATURE

A. GENERAL

1. Ability to ride well will necessitate your knowing the general characteristics, nomenclature, and function of your motorcycle. This same knowledge will be valuable when inspecting the machine, determining repairs needed and properly describing work to be performed. Your instructor will specify important items of nomenclature and their purposes. For you to ride well and safely, it will be necessary that you may learn, not only how to properly operate all the various controls, but to do so automatically and rapidly. With proper explanation and demonstration by the instructor and application on your part, this ability should come rapidly. During your training, you must learn to operate these controls accurately without looking at them. Your safety will depend upon the speed and accuracy of your reflexes.

B. THROTTLE

1. The throttle is closed with the right handle grip turned all the way outward or clockwise. The throttle is fully opened by turning the handle grip all the way inward, or counter clockwise. With all adjustments correct, a warm engine should idle with the throttle closed.

C. CLUTCH

1. The clutch hand-lever is located on the left handle bar and is operated with the left hand. The clutch is disengaged by squeezing the control lever to the handle bar. It is engaged by slowly releasing the control lever to its extended position.

D. GEAR SHIFT (KZ 1000)

1. Transmission gears are shifted by a foot-operated gear shift lever and pedal. Pushing the pedal all the way down with the toe (full strokes) shifts the transmission into the next lower gear. Pushing the pedal all the way down with the heel shifts the transmission into the next higher gear. The operator must release the pedal after

each gear change, in order to allow the pedal to return to its central position. The pedal must return to its central position before another gear change can be made. When placing the transmission in neutral, put it in first gear then push the pedal down once with the heel. When in neutral, a green light located between the speedometer and tachometer will come on. When starting the KZ-1000, the clutch must be disengaged even when the transmission is in the neutral position.

With the engine running and the motorcycle is standing still, difficulty may be encountered in shifting into first gear. This is because transmission gears are not turning and shifting parts are not lined up to permit engagement. When this difficulty is experienced, do not, under any circumstances, attempt to force the shift. This will result in a broken or damaged shifting mechanism. Very slightly engage the clutch and, at the same time, apply pressure to the shifting lever. This procedure sets transmission gears in motion and the shift can be made with ease. If the engine is turned off with the machine in gear, apply light foot pressure to the shifting lever and at the same time, roll the machine a foot or so in either direction.

WARNING - When shifting down to a lower gear, do not shift at such a high speed that the engine is suddenly jerked into high RPM or into the red zone. Not only can this cause engine damage, but the rear wheel may skid and cause an accident. Downshifting should be done below 6,000 RPM for each gear.

E. FUEL TANK

1. Unleaded gasoline should be used in the fuel tank. Avoid filling the tank in the rain or where heavy dust is blowing so that the fuel does not get contaminated.

WARNING - Never fill the tank completely to the top! As the gasoline expands in the warm tank, it may overflow from the vents in the tank cap. Always put in gasoline with ignition switch turned off, and the motorcycle away from any source of sparks or open flame.

F. BRAKING

1. Close the throttle completely, leaving the clutch engaged (except when shifting the gears) so that the engine will help slow down the motorcycle. Shift down one gear at a time so that you are finally in first gear just when you get completely stopped. When stopping, always apply both brakes at the same time if stopping

quickly; normally the front brake should be applied a little more that the rear. Downshift or fully disengage the clutch as necessary to keep the engine from stalling or to stop more quickly. Never lock the brakes and cause the tire to skid. When Turning a corner it is better not to brake at all, but if this is unavoidable, use only the rear brake. For emergency braking, disregard downshifting, and concentrate on applying the brakes as hard as possible without skidding.

(a) Rear Brake Pedal

(1) The rear brake pedal is located on the right side just above the right foot board. It is applied by pushing down. This exerts pressure on the rear brake only. Sufficient pressure will lock the rear wheel on any roadway surface at any speed.

(b) Front Wheel Brake

(1) The front wheel brake is located on the right handle bar adjacent to the throttle and is activated with the right hand. It is applied by squeezing the lever toward the handle bar. This brake is designed so that, on normal roadway surface, the front wheel should not lock. It may be locked, however, where the road is slippery or covered with loose material.

G. SWITCHES, BUTTONS, AND VALVES

1. The location will be shown and demonstrated by the instructors, followed by explanation of:

(a) Gas shut-off and reserve supply valve.
(b) Headlight high/low beam switch.
(c) Red emergency lights switch.
(d) Flasher switch.
(e) Turn indicator switch.
(f) Horn button.
(g) Siren automatic switch.
(h) Choke lever.

H. SPEEDOMETER AND TACHOMETER

1. The speedometer shows the speed of the motorcycle. The odometer shows the total distance the motorcycle has been ridden. The trip mileage is a resetable odometer. Turn clockwise the protruding knob from the left side of the speedometer to reset the trip mileage.

2. The tachometer shows the speed of the engine. The tachometer scale above the RPM is marked in red. This speed range is above the recommended maximum engine speed and is above the range for good performance.

Use caution - operation in excess of 8500 RPM will overstress the engine and may cause serious engine damage.

I. INDICATOR LIGHTS

1. There are six indicator lights on the switch panel, and one in the tachometer face.

(a) Neutral Indicator Light:

(1) The green light indicator shows when the transmission is in neutral.

(b) High Beam Indicator Light:

(1) The blue indicator light shows when the headlight is on high beam.

(c) Oil Pressure Warning Light:

(1) The red warning light comes on anytime the ignition switch is on, but the engine is not producing sufficient oil pressure. Immediately after the engine starts, the light should go off and remains off, as long as the engine is running over 1300 RPM. If the light remains on, stop the engine immediately to avoid serious damage. Determine the cause and correct it, before further operation.

(d) Pursuit Indicator Light

(1) The red indicator light comes on when the pursuit lights are turned on.

(e) Hazard Flasher Indicator Light

(1) The orange Indicator light flashes on and off when the hazard flasher is operating.

(f) Left Turn Signal Indicator Light

(1) The left orange indicator light flashes on and off when the turn signal switch is turned on left.
(2) Newer models have self canceling turn signals.

(g) Right Turn Signal Indicator Light

(1) The right orange indicator light flashes on and off when the turn signal switch is turned on right.
(2) Newer models have self canceling turn signals.

J. STARTING THE ENGINE

1. Check that the steering is unlocked. Turn the engine stop switch to "RUN". Turn the ignition switch on. Make certain the gears are in neutral. The green neutral indicator light should be lighted. If the engine is cold, pull out the choke button leaving the throttle completely closed. Push the starter button with the clutch lever pulled in until the engine starts. Warm up at less than 2000 RPM operating the choke lever. When the engine is warm enough to idle (approximately one minute after starting) without use of the choke lever, push the choke button in.

2. NOTE - When the engine is already warm or on hot days (higher than 95 degrees), open the throttle part way instead of using the choke lever, before starting the engine.

K. POSITION AND POSTURE

1. Sit squarely and firmly in the saddle with the shoulders erect and the stomach in. Hold the grips naturally, with the elbows slightly bent. Lean slightly forward with knees in against the tank, so that a sudden acceleration of the motorcycle will not throw you off balance. Anticipate the power surge and maintain your proper balance and position. Keep your back straight and your chest raised. This not only looks better, but you will find it is far more comfortable and less tiring. An additional reason for this position is the reduction of strain on the kidneys. With the back bowed, the kidneys tend to swing forward (away from the inner wall of the back) and are unsupported. In this position, the pounding and vibration of the motorcycle can more readily fatigue or injure them. Conversely, with the back straight, the kidneys are supported against the inner wall of the back and less strain results. When riding, or after long rides, if you experience backaches or an abnormal frequent desire to urinate, your position is probably incorrect.

. RIDING

A. AUTOMOBILES VS MOTORCYCLES

1. When you were learning to drive a car, you probably made a number of errors coordinating the clutch and throttle smoothly when starting. Too little power caused the engine to stall when the clutch was engaged. Too much power caused the car to jump or jerk. The same results for the same causes exist when starting a motorcycle, with the added danger that too much power may throw you off balance, or cause the rear wheel to spin and possibly cause the machine to fall. Proper coordination is imperative.

2. Slipping The Clutch

   (a) When driving a car, the clutch may not be slipped for any length of time without causing damage. For example, a car on a slight grade could be held motionless by slipping the clutch only enough to overcome the pull of gravity. If prolonged the clutch would burn out. This is not true of a motorcycle. A motorcycle clutch is built to be slipped for prolonged periods of time without damage.

B. IMPORTANCE OF SLIPPING A MOTORCYCLE CLUTCH

1. It is almost impossible to ride a motorcycle well, without knowing how and when to slip the clutch.

   (a) At slow speeds the machine will progress with a series of jerks (known as lugging).

   (b) Lugging is very hard on the motorcycle, especially the rear chain.

   (c) Lugging is fatiguing, uncomfortable, and dangerous to the rider.

   (d) The clutch, when properly used, acts as a cushion or buffer between the engine and the rear wheel.

2. A very experienced rider can hold a constant low speed using only the throttle. Furthermore, a motorcycle throttle is far more sensitive than the throttle in a car. Use the throttle to control your power, and use your clutch to draw from this power as you need it to control your speed. Keep in mind improper clutch usage is a jerking machine, a clanking rear chain, or the inability to hold the desired precise speed.

3. How To Slip The Clutch

(a) Ride with your left hand firmly on the clutch. Hold the throttle to a reasonably steady RPM. Pick up the desired speed by slightly releasing the clutch lever. When riding on the open road or in an area where the speed can be controlled by the throttle, select a gear which will allow the machine to run smoothly and leave the clutch fully engaged. Even though motorcycle clutches are well built, they will not stand the friction and heat generated by prolonged slipping at higher speeds.

C. STOPPING THE MOTORCYCLE

1. General

(a) Most experienced people have little difficulty in stopping a car. A car will not fall over when stopped, and both feet are free to operate the clutch and brake before, during, and after the stop. Stopping a motorcycle is accomplished with the use of both hand and foot brake, leaving one foot to maintain balance when stopping.

2. Emergency Stops

(a) An emergency stop is simultaneously executed by:
(1) Turning off the throttle
(2) Disengaging the clutch
(3) Applying a controlled squeezing pressure to the front brake
(4) Applying rear brake in a controlled manner.

(b) NOTE - Don't worry about down-shifting. Keep your right foot on the brake to the end of the stop, putting your left foot on the ground upon completion of the stop. Prolonged sliding of the rear wheel usually will cause a side slip or fishtail action of the rear wheel. This fishtailing action occurs by any (even slight) leaning or turning of the machine while the rear wheel is sliding. This side-slipping action can be controlled by releasing pressure to the rear wheel brake for an instant. Most emergency stops can be avoided by defensive riding.

3. Broadsliding

(a) Broadsliding (or lying the motorcycle down), in lieu of upright emergency stopping procedure, is contrary to safe operating procedure. Once a motorcycle is laid down, a traffic accident has occurred. Keeping

the motorcycle upright allows not only braking to slower speed prior to impact, but keeps the ability to maneuver out of the accident, should the opportunity present itself.

4. Turning the Motorcycle

(a) Motorcycle Inherent Stability

(1) Inertia

Any mass in motion will continue in motion in the same straight line, unless acted upon by some external force. This is also one of Newtons laws of gravity.

(2) Stability

Given a chance to do so, your motorcycle will stay upright at any reasonable speed. In fact, the higher the speed, the more difficult it is to force it down.

(3) Gyroscopic action

The heavy wheels and tires, chains, clutch and flywheel, and crank shaft of your machine all rotate in the plane of your travel and at right angles to the ground. The faster you travel, the greater the force necessary to change the motorcycle from an upright position.

Motorcycles turn at higher speeds by leaning in the desired direction, keeping your body at the same angle as the machine. At very low speeds, it is necessary to turn the handlebars as well as lean.

5. Why Motorcycles Turn When Leaned

(a) As mentioned before, at higher speeds, turn by merely leaning in the direction of the desired turn. The greater the lean, the lesser the radius of the curve. The possible leaning without gravity pulling the machine over on its side is determined by the centrifugal force incurred. The higher the speed and the shorter the radius of the curve, along with centrifugal force, requires more lean.

(b) Adjust Lean To Speed And Radius Of Curves

(1) If a curve has a constant radius, and the lean

for that radius and speed is correct, the starting angle of lean will remain constant through the curve.

(c) Insufficient Angle Of Lean

(1) Insufficient lean, going into a curve, will cause running off the road on the outside edge of the curve. Therefore, increase the lean.

(e) Leaning Too Much

(1) Too much lean, going into a curve, will cause running off the road on the inside edge of the curve. Partially straighten up the motorcycle and decrease lean angle.

(f) Tires

(1) Motorcycle tires are made with tread that extends onto the sidewalls. To a novice rider, it may seem that the wheels will slip out from under the motorcycle, if it is leaned over too far. This is not true, provided that the roadway surface has reasonably good traction.

(g) Dragging The Underside Of The Motorcycle

(1) When a motorcycle has been leaned over to a certain degree, parts of the underside of the motorcycle will scrape the roadway. On a hard surface, this scraping will produce a loud and startling noise. When done at night, this scraping will produce a visible shower of sparks. Dragging the underside of the motorcycle should be avoided. It can be dangerous and unnecessarily damages the equipment.

(h) Value Of Understanding Principles

(1) It may seem that a slide rule will be required to ride curves. Such is obviously not true, for many persons have learned to ride a motorcycle not knowing or thinking why they do certain things. However, understanding the principles, in the long run, will produce better riders and enable faster learning. After some practical application, re-read the material, then come back and talk it over with the instructor.

(i) Speed And Curves

(1) Every curve has a designated safe speed at which it can be ridden on a motorcycle. When safe speed is exceeded, even the best rider will have trouble completing the curve. Learn to estimate this critical speed and stay below it. As experience increases, both judgement and the ability to take curves faster will improve.

6. HIGH SPEED WOBBLE

(a) A high speed wobble is a violent shaking of the front wheel. It usually occurs during periods of high speed. It is not an everyday occurrence, but it has happened. "Pseudo" motorcycle riding experts would have people believe there is no such thing as a "high speed wobble". If you believe that, look for a very dangerous suprise.

(b) Some rider techniques for preventing high speed wobbles:

(1) Cutting across pavement joints at a fairly sharp angle will minimize the possibility of upsetting the front wheel stability.

(2) Maximize control of the motorcycle and provide a dampening effect, by keeping both hands on the handlebars at all times during high speed operation.

(3) Some concrete roadways have a highly irregular anti-skid pattern brushed into the pavement. Use caution because this type of roadway surface tends to induce an unstable conditions.

CONCLUSION

A. A manual is a training tool and a guideline; through experience, you learn dynamics of safe motorcycle riding. Something new is learned as you continue to ride. Benefit from your mistakes and the mistakes of others. Respect your motorcycle and take care of it.

HINTS AND TIPS

A. PREVENTIVE MAINTENANCE

1. Have motorcycle serviced as directed by a mechanic of or operator's manual.
2. Report any unusual change in sound or performance of your motorcycle.
3. Clean (wipe down) motorcycle daily, check for cracks in frame, brackets, etc. Check for loose or missing nuts and bolts.
4. Check all lights, siren, and horn daily. Replace burned out bulbs promptly. Pre-ride check: cases, chain, tires, kick stand, leaks, and wires.
5. Check for cracked, out of round or unbalanced wheels and tires.
6. Check tire pressure and condition weekly (don't over or under inflate).
7. Check engine oil at every gas fill-up.

B. OPERATING TIPS

1. Don't ride the clutch or brakes.
2. Don't over-rev engine, don't lug engine.
3. Don't spin tires when accelerating.
4. Don't speed shift, use your clutch properly.
5. Don't idle engine for extended periods of time when standing still.

C. DEFENSIVE RIDING

1. Be alert, be in control, know your motorcycle, and know your own abilities.
2. Protective clothing, glasses, gloves, and boots.

3. Keep your distance, don't follow too closely.

4. Reduce speeds on wet, oily or gravel covered streets and turns.

5. Avoid prolonged riding in driver's blind spot.

6. Drive in lane farthest away from parked cars.

7. Where to ride in lane, oil spill, etc.

D. OTHER HAZARDS

1. Dogs, don't kick, children playing, balls, toys, etc.

2. Cars discharging passengers.

3. Weather conditions, wind, fog, rain, etc.

4. Roadway, R/R tracks, painted markings, leaves, sand.

5. Trucks with duals, sand to dump, unstable loads.

6. Bots dots.

E. THINGS TO WATCH FOR

1. Don't trust red lights, stop signs and mirrors.

2. #1 danger is intersections, blind and otherwise.

3. Where to ride: freeways, one-way streets, etc.

4. Other driver will see, but not register.

5. Assume the worst from other drivers, compensate.

6. Freeway ramps, sand, gravel, broken down cars, and cans.

7. Driveways, pedestrians.

F. THINGS TO KNOW

1. 60% of motorcycle accidents involve riders with less than one year riding experience regardless of age.

2. Over 15 million motorcycles in U.S.

3. Most serious or fatal accidents involve cars at intersections.

4. Parking of motorcycles on a traffic stop, gloves, and gun hand.

5. Other traffic, eye and head movement , mirrors.

6. Lateral distance and speed adjustments.

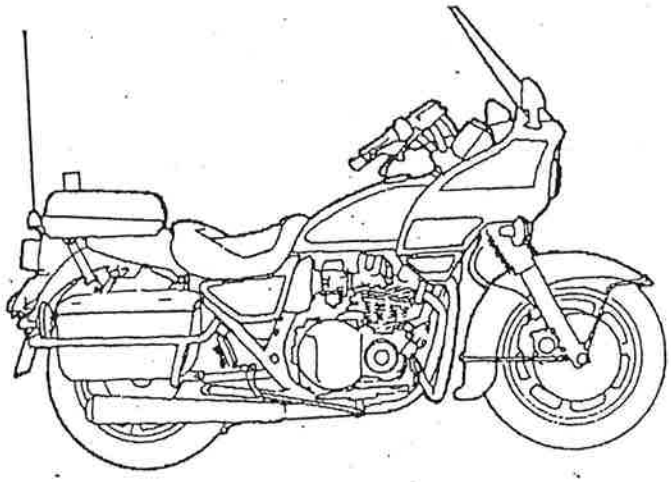
7. Double riders passing.

8. Parking hazards, traffic stops, hills, soft surfaces.

9. Night riding, headlight adjustment, slow down.

10. Keep feet up and knees tight against tank.

SAN RAFAEL POLICE MOTORCYCLE TRAINING COURSE AND IN SERVICE REFRESHER



PREPARED BY

ALAN GRIEVE
GREG CELLA

SKILL AND PRACTICE EXERCISES

SAN RAFAEL POLICE
MOTORCYCLE TRAINING

14 IMPORTANT DON'TS

1. Don't ride in the oil slick in the center of traffic lanes.
2. Don;t ride side by side with another officer, going into a curve.
3. Don't go into a curve or turn too fast.
4. Don't try to lay the motorcycle down in an attempt to avoid an accident.
5. Don't fail to check the motorcycle daily for defects.
6. Don't stay in the drivers blind spot too long.
7. Don't overestimate your abilities, know your motorcycle.
8. Don't let your attention wander. Be alert.
9. Don't depend on another driver to see you.
10. Don't trust the other driver to do what is legal or right.
11. Don't use one brake, a combination is better.
12. Don't fail to react in an emergency.
13. Don't let speed dictate your riding style, safety should be first.
14. Don't let the power of the pen overtake clear thinking.

SAN RAFAEL POLICE
MOTORCYCLE TRAINING

One of the primary objectives of motorcycle training is to teach the student basic techniques that will make him a better rider, in that, he will gain the expertise to avoid a potential accident or, if unavoidable, minimize the consequences. The following are some of the techniques used by the instructors. Also listed are the corresponding results that usually occur if the student cannot master the technique.

Training Technique	
Head and eye placement (look where you want to go)	1. Improper positioning 2. Lack of control 3. Hitting objects
Coordinated clutch and throttle	1. Lack of control 2. Motor stalling 3. Dropping motorcycle 4. Damage and injury
Controlled braking (Proper use of front & rear brake)	1. Not slowing fast enough 2. Locking brake/s 3. Rear brake fade 4. Crashing/damage/injury
Keep both feet on foot boards (not on ground)	1. Lack of control 2. Injury to foot 3. Poor clutch/throttle control 4. Lack of confidence
Surface appraisal (overall awareness of hazards)	1. Sliding in oil or sand 2. Hitting objects 3. Dropping motorcycle 4. Damage and injury

"Safety is the key word in the training program. Every effort is directed towards making the student a safer rider. On the other had, a failure to properly learn pertinent safety techniques can, and in most cases will, be a determining factor for a student's failure to pass the course.

SAN RAFAEL POLICE
MOTORCYCLE TRAINING

LESSON: Figure Eight

OBJECTIVES:

1. Ride figure 8 pattern while remaining inside specified area.
2. Teaches student balance and coordination.
3. Exercise simulates in-field turning maneuvers requiring small areas.

INTRODUCTION:

Demonstrated by instructor. No brakes used on figure eight. Rider must stay inside of line. Smooth flowing rhythm.
Use of brake will allow the student to practice lock to lock and counter balance.

APPLICATION:

1. Student observation
   A. Look for smooth application of throttle, clutch & balance when making turns.
   B. Maintaining of slow speed so as not to cross line when turning, yet not stalling.
   C. Feet should not touch ground.

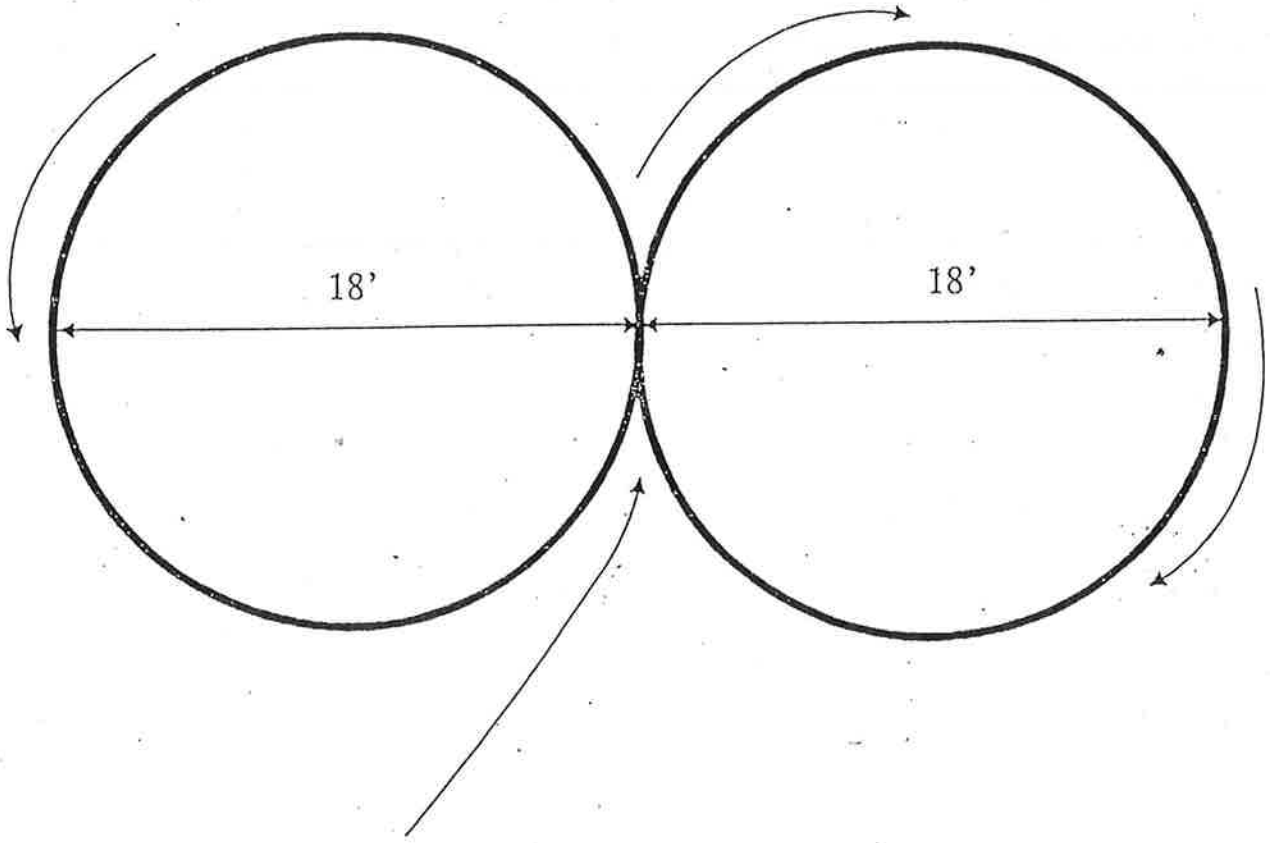
SAN RAFAEL POLICE
MOTORCYCLE TRAINING

FIGURE EIGHT PATTERN
NO BRAKE EXERCISE

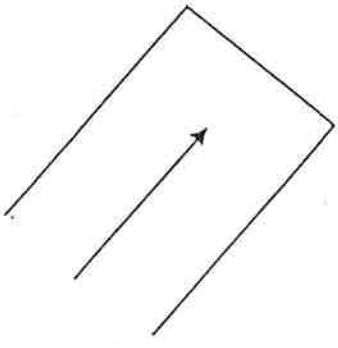
PATTERN 1 AND 1A

AND

BRAKE EXERCISE FOR COUNTER BALANCE



INSTRUCTORS POSITION
ANYWHERE OUTSIDE OF
THE PATTERN



Student enters figure eight near center of pattern, then remains within circles. Natural flow of pattern forms the figure eight

SAN RAFAEL POLICE
MOTORCYCLE TRAINING

LESSON: Off Set 90 Degree Turns (flat)

OBJECTIVES:

1. Ride within coned area of a series of 90 degree turns.
2. Promotes control of motorcycle at slow speed in a confined area.
3. Lock to lock turns required.
4. Proper balance, control and coordination of clutch, and throttle taught.
5. Inspires confidence of student in control of the motorcycle while making turning movements on the street.

INTRODUCTION:

Demonstrated by instructor(s). Enters coned pattern area making smooth "U" turns without using brakes. Repeated in opposite direction.

APPLICATION:

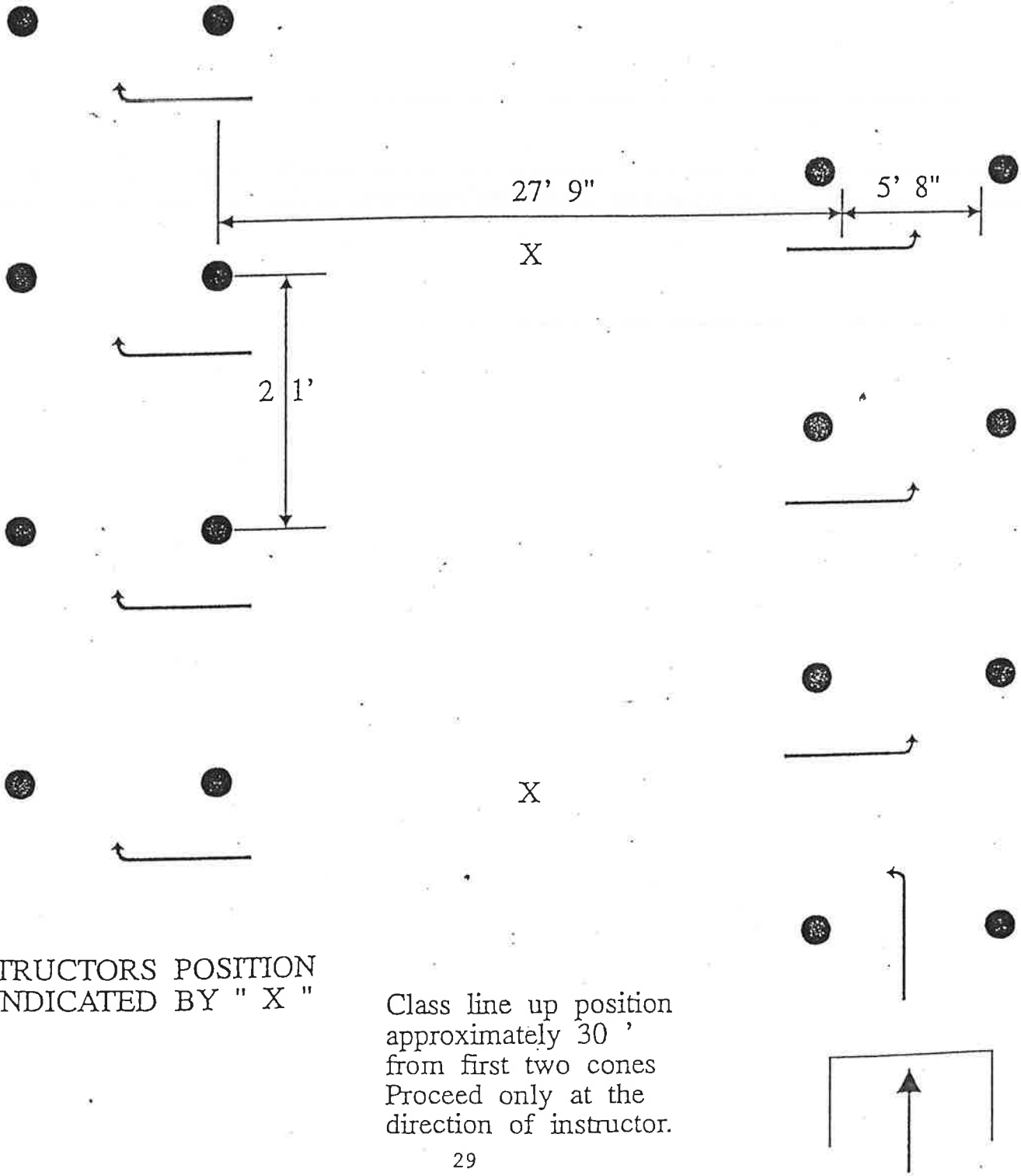
1. Student observations
   A. Smooth and slow operation of motorcycle by student.
   B. Look for proper application of throttle, and clutch along with balance.
   C. Feet should be on footboards, head/eye should be in proper demonstrated position.
   D. Cones not to be touched, remain inside the coned area.

SAN RAFAEL POLICE
MOTORCYCLE TRAINING

OFF SET 90 DEGREE TURNS
NO BRAKE EXERCISE

AND

BRAKING EXERCISE FOR COUNTER BALANCE
PATTERN #2 AND 2A



INSTRUCTORS POSITION
IS INDICATED BY " X "

Class line up position approximately 30 ' from first two cones Proceed only at the direction of instructor.

SAN RAFAEL POLICE
MOTORCYCLE TRAINING

LESSON: Intersection

OBJECTIVES:

1. Ride within coned intersections.
2. Promotes complete control of motorcycle at slow speed in enclosed area.
3. Assists in beginning lock to lock turns & preparation for 18' enclosed circle and other exercises.
4. Proper balance, control & coordination of clutch and throttle.
5. Inspires confidence in student.
6. Represents turning situations in field operations.

INTRODUCTION:

Demonstrated by instructor. Enters either right or left turn Completes three times in each direction, exits and begins in opposite direction.

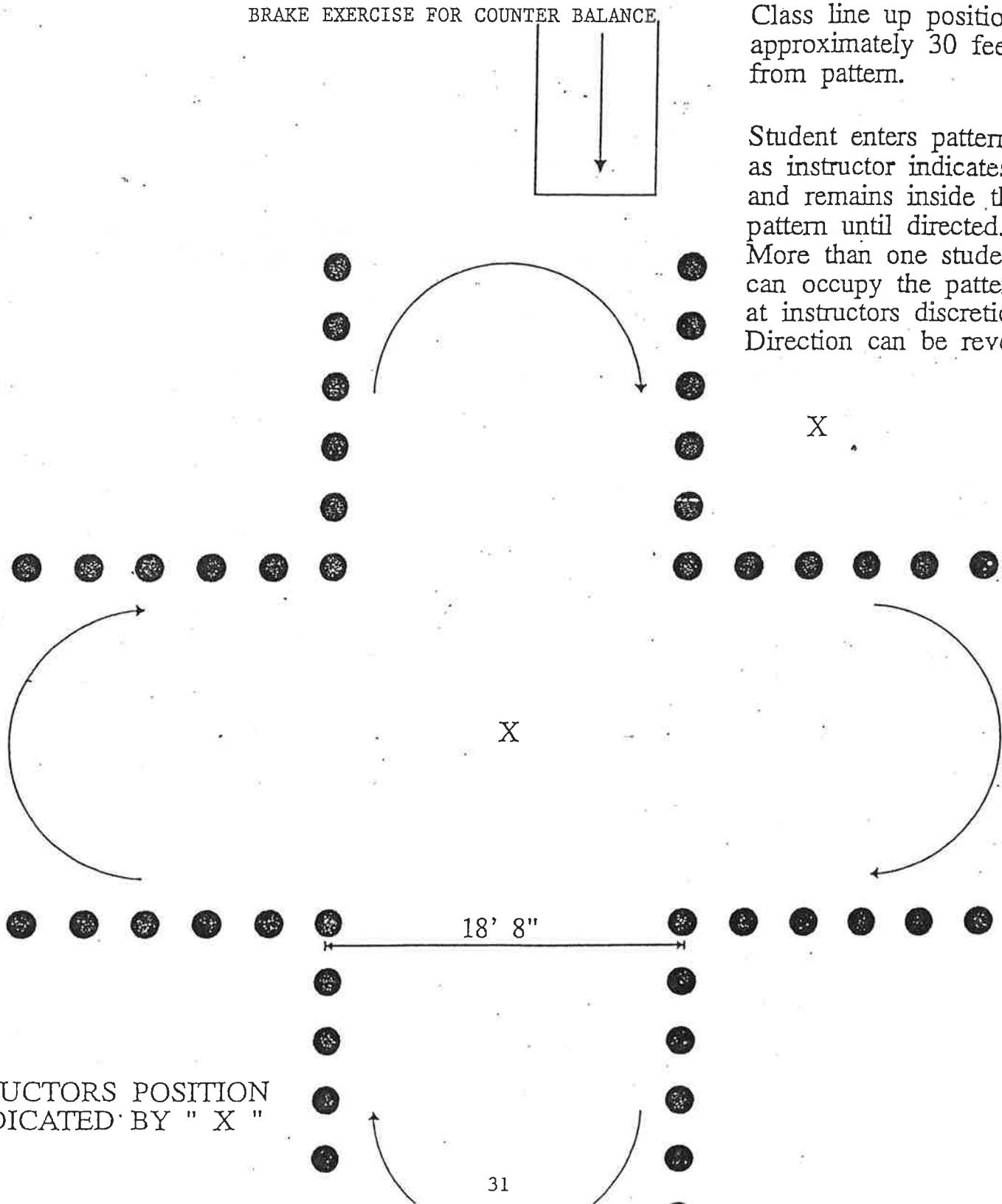
APPLICATION:

1. Student observations
   - A. Look for proper balance, clutch and throttle application by student.
   - B. Use throttle to keep motorcycle upright.
   - C. Students should have no trouble, feet should not touch ground, cones should not be touched.
   - D. Correctly done, student to remain inside coned intersection.

SAN RAFAEL POLICE
MOTORCYCLE TRAINING

INTERSECTION PATTERN
NO BRAKE EXERCISE
AND
BRAKE EXERCISE FOR COUNTER BALANCE

PATTERN #3 AND #3A



Class line up position approximately 30 feet from pattern.

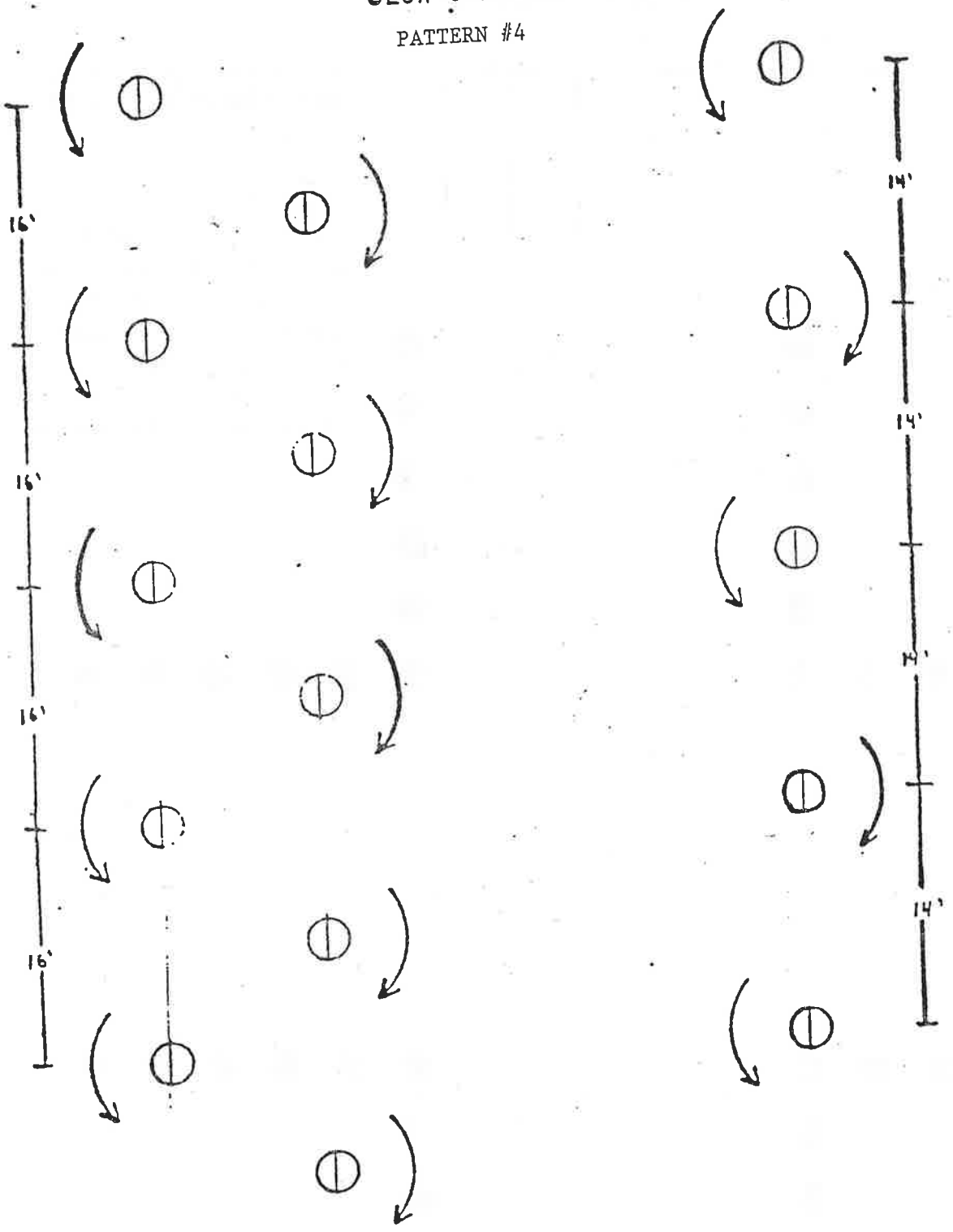
Student enters pattern as instructor indicates, and remains inside the pattern until directed. More than one student can occupy the pattern at instructors discretion. Direction can be reversed

INSTRUCTORS POSITION IS INDICATED BY " X "

SAN RAFAEL POLICE
MOTORCYCLE TRAINING

SLOW CONE WEAVES

PATTERN #4



SAN RAFAEL POLICE
MOTORCYCLE TRAINING

LESSON: Pavement Ride

OBJECTIVES:

1. Open ride not confined to small specific area.
2. Follow leader exercise putting student in riding situations incorporation minor obstacles and difficulties.
3. Proper acceleration, gear selection, braking and body positions.
4. Designed to use between other skill exercises to loosen and relax students.

INTRODUCTION:

Students will follow instructor. Instructors to ride along side the students, noting reactions, control, balance and coordination.

APPLICATION:

1. Student observations
   - A. Look for proper body position & judgement of students.
   - B. Students must continually be looking around (head and eye on a swivel)
   - C. Look for coordination and control of motorcycle be each student (speed, tailgating, etc.)

Note: No diagram, no specific course.

SAN RAFAEL POLICE
MOTORCYCLE TRAINING

LESSON: Short Cone Weave

OBJECTIVES:

1. Cones straight, weave through pattern incorporating lock to lock turns, rear brake, and maintaining friction point.
2. Continues to teach balance along with throttle, clutch and brake coordination an control.
3. Represents heavy traffic situation and lane changing, looking ahead.

INTRODUCTION:

Demonstrated by instructor(s). Motorcycle slaloms through exercise in smooth flowing motion.

APPLICATION:

1. Student observations
   A. Look for smoothness and control during lock to lock turn.
   B. No elongated sweeping turns used.
   C. Feet should not touch ground and cones should not be touched.

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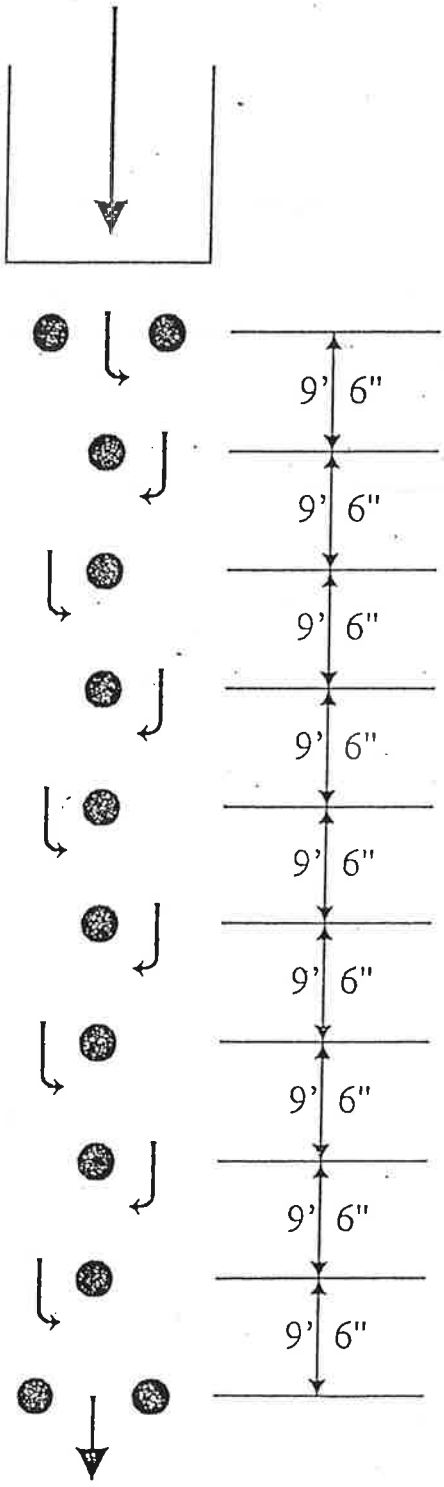
MOTORCYCLE TRAINING

SHORT CONE WEAVE PATTERN

PATTERN # 5

Class line up position approximately 20 feet from first set of cones. Entire class starts at either end, as indicated by instructor



X

X

INSTRUCTORS POSITION IS INDICATED BY " X "

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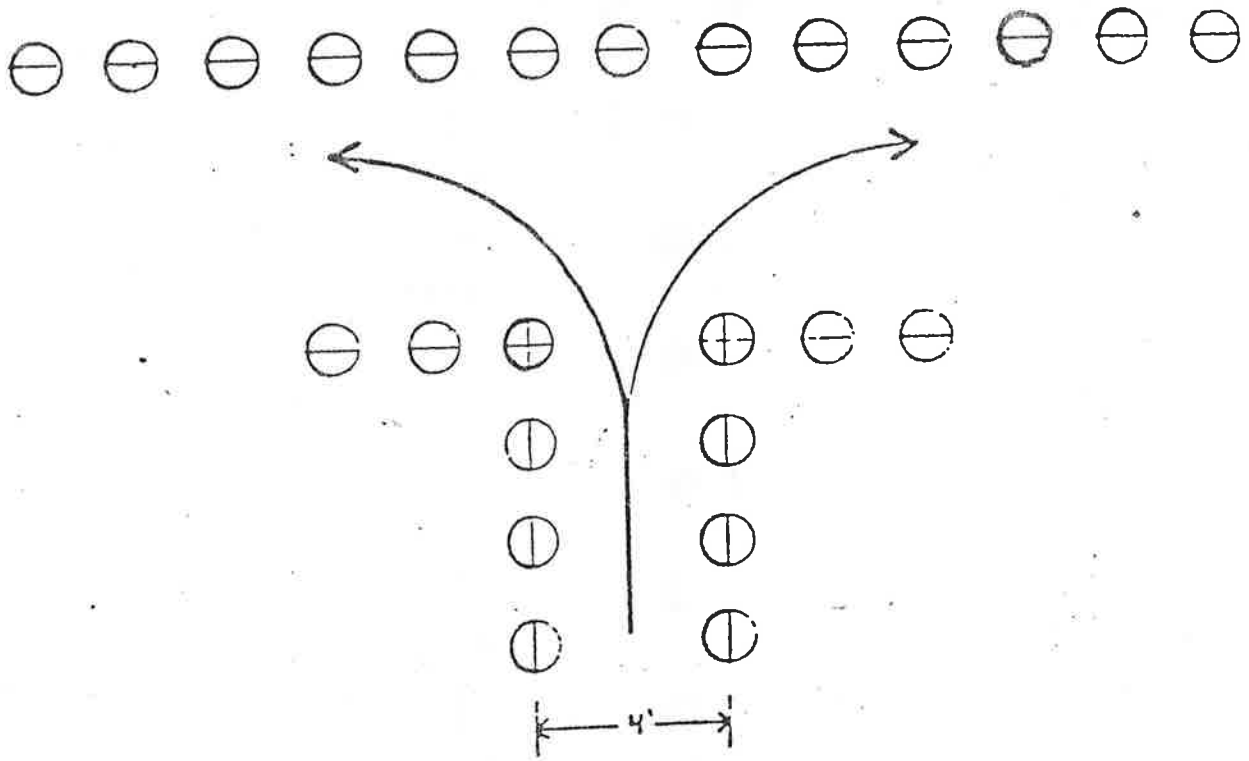
MOTORCYCLE TRAINING

"T" STOP AND TURN DRILL

PATTERN # 6 AND # 6A



SAN RAFAEL POLICE
MOTORCYCLE TRAINING

LESSON: Board Drags

OBJECTIVES:

1. Ride in a large circle in both directions dragging foot boards.
2. Student gains confidence in leaning motorcycle to maximum.
3. Represents limited turning situations if field operations.

INTRODUCTION:

Demonstrated by instructor. Enters either to right or left turn. Completes three circles, exits circle and begins in opposite direction.

APPLICATION:

1. Student observations
   - A. Look for proper balance & clutch, and throttle application by student.
   - B. Use throttle to keep motorcycle upright.
   - C. Students should have no trouble, feet should not touch ground.

Note: Demonstration only, no diagram

SAN RAFAEL POLICE
MOTORCYCLE TRAINING

LESSON: "S" Curves

OBJECTIVES:

1. Coned, weave pattern incorporating lock to lock turns causing change of direction.
2. Excellent development of balance, coordination and control of clutch, and throttle.
3. Simulates in-town traffic conditions at slow speeds. Weaving between vehicles.
4. Three to four cone patterns set up, each increasing in difficulty.
5. Promotes confidence in students when completed.

INTRODUCTION:

Demonstrated by instructor starting with easiest exercise, progressing to the most difficult (instructor has to be proficient). Smooth, flowing motion through patterns.

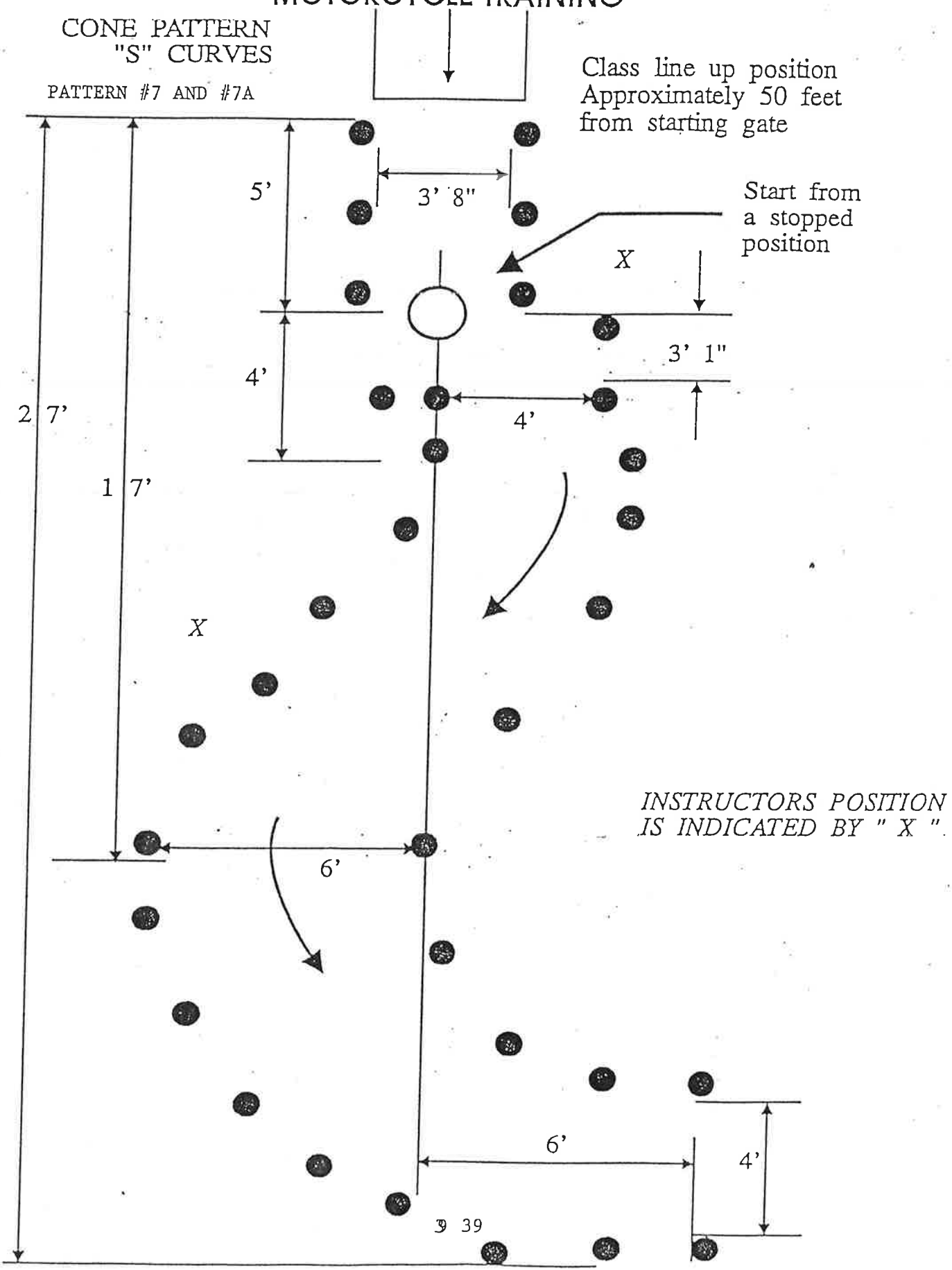
APPLICATION:

1. Student observations
   A. Proper lock to lock turns along with smooth coordination of clutch, and throttle.
   B. Look for proper balance and control. Tendency to drop motorcycle due to slow speed's, and stalling.
   C. Feet should not touch ground and cones not to be touched .
2. Individual work may be needed.

SAN RAFAEL POLICE
MOTORCYCLE TRAINING

CONE PATTERN
"S" CURVES

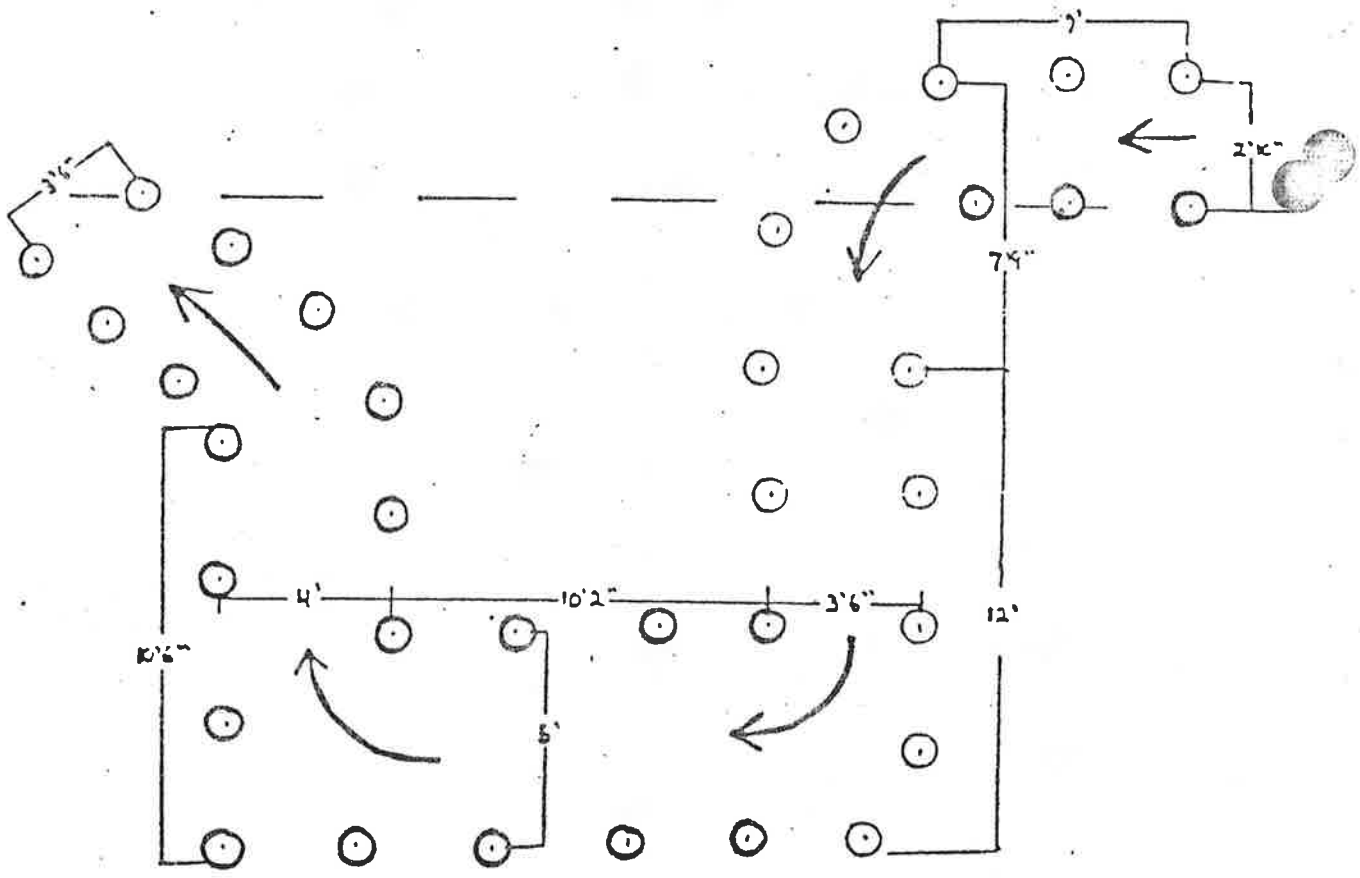
PATTERN #7 AND #7A



SAN RAFAEL POLICE
MOTORCYCLE TRAINING

SHORT CONE PATTERN

PATTERN #8 AND #8A



SAN RAFAEL POLICE
MOTORCYCLE TRAINING

CONE PATTERN
" S " CURVES

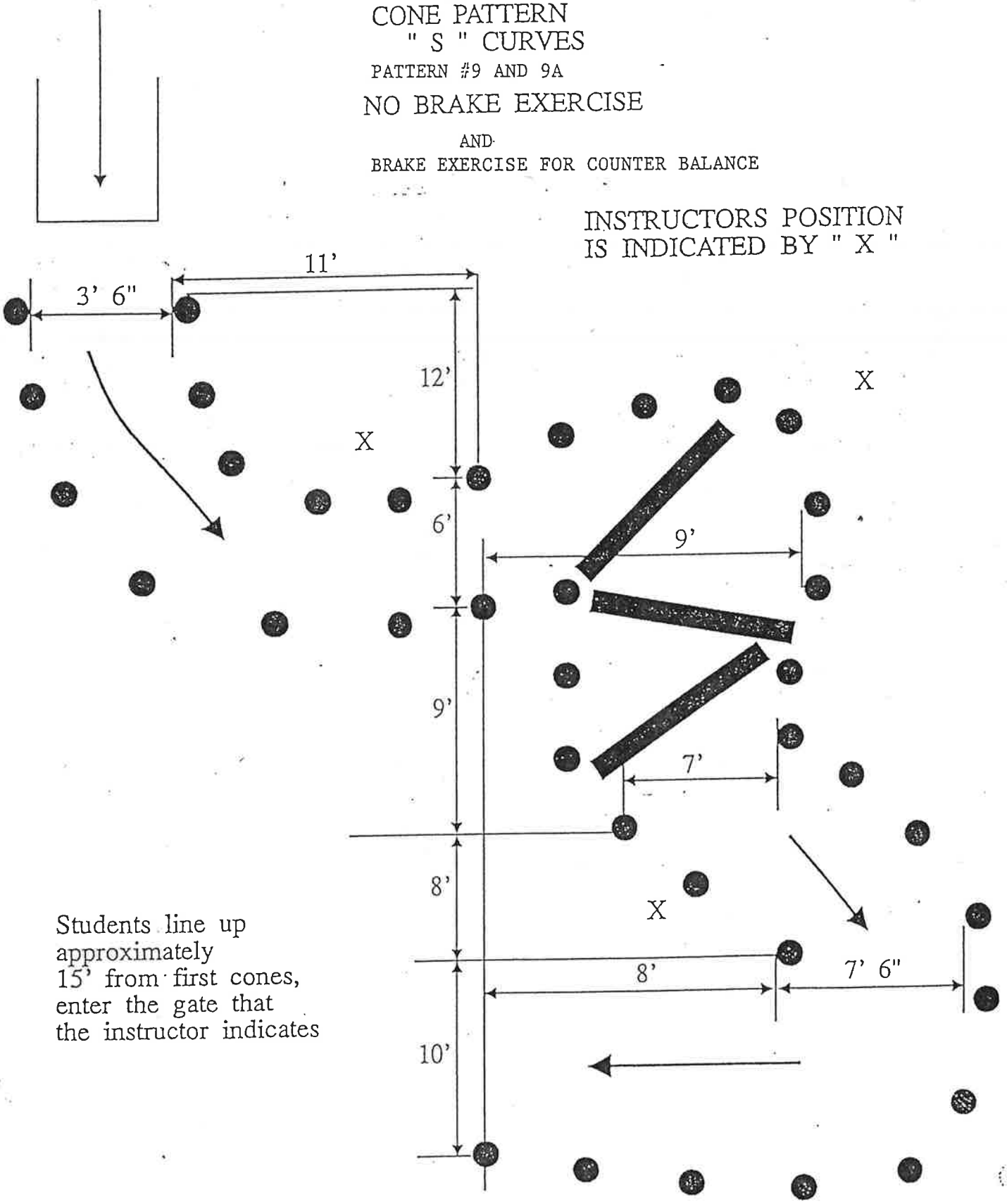
PATTERN #9 AND 9A

NO BRAKE EXERCISE

AND

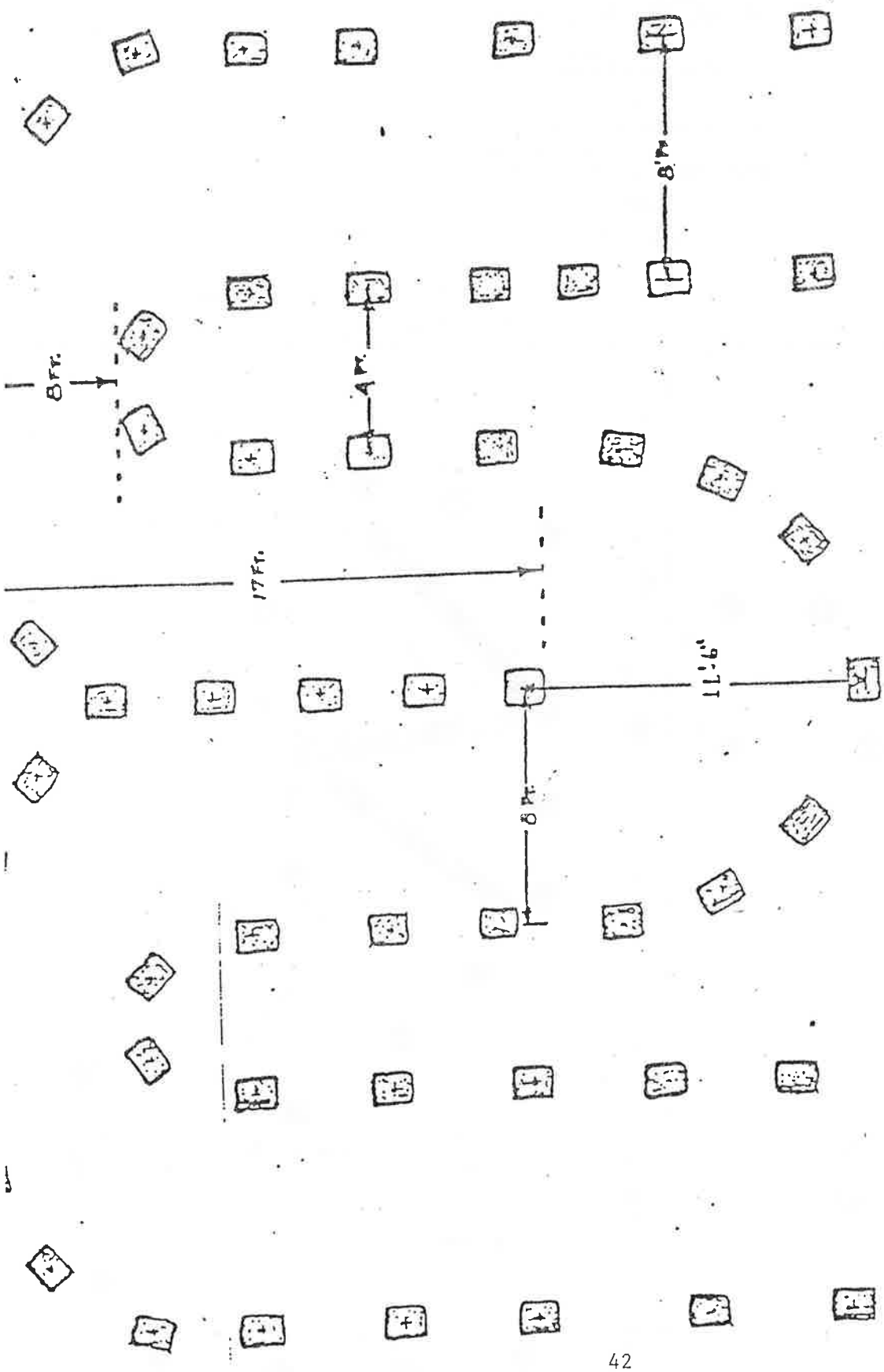
BRAKE EXERCISE FOR COUNTER BALANCE

INSTRUCTORS POSITION
IS INDICATED BY " X "



Students line up approximately 15' from first cones, enter the gate that the instructor indicates

SAN RAFAEL POLICE
MOTORCYCLE TRAINING



PATTERN # 10

FOR DRESS & STRIPPED M/C'S.

NO BRAKES AFTER 1ST TURNS.

SAN RAFAEL POLICE
MOTORCYCLE TRAINING

LESSON: Stopping on a Curve

OBJECTIVES:

1. Bring the motorcycle to a stop on a curve.
2. Promotes control of motorcycle using clutch, throttle, and brake.
3. Inspires confidence of rider in controlling the stopping or braking ability of the motorcycle in a leaning mode.

INTRODUCTION:

Demonstrated by instructor. Using the 18' or 24' cone pattern to simulate a curve in the roadway. Uses the radius of the cone pattern in each direction. Lean in the direction of the curve, then upright the motorcycle, as braking begins.

APPLICATION:

1. Student observations
   - A. Smooth operation of motorcycle by rider.
   - B. Look for proper application of front, and rear brakes. (all fingers on front brake)
   - C. Look for proper application of throttle, and clutch.
   - D. Watch speed, advising to students to down shift.

SAN RAFAEL POLICE
MOTORCYCLE TRAINING

LESSON: "S" Curves

OBJECTIVES:

1. Coned, weave pattern incorporating lock to lock turns causing change of direction.
2. Excellent development of balance, coordination and control of clutch, and throttle.
3. Simulates in-town traffic conditions at slow speeds. Weaving between vehicles.
4. Three to four cone patterns set up, each increasing in difficulty.
5. Promotes confidence in students when completed.

INTRODUCTION:

Demonstrated by instructor starting with easiest exercise, progressing to the most difficult (instructor has to be proficient). Smooth, flowing motion through patterns.

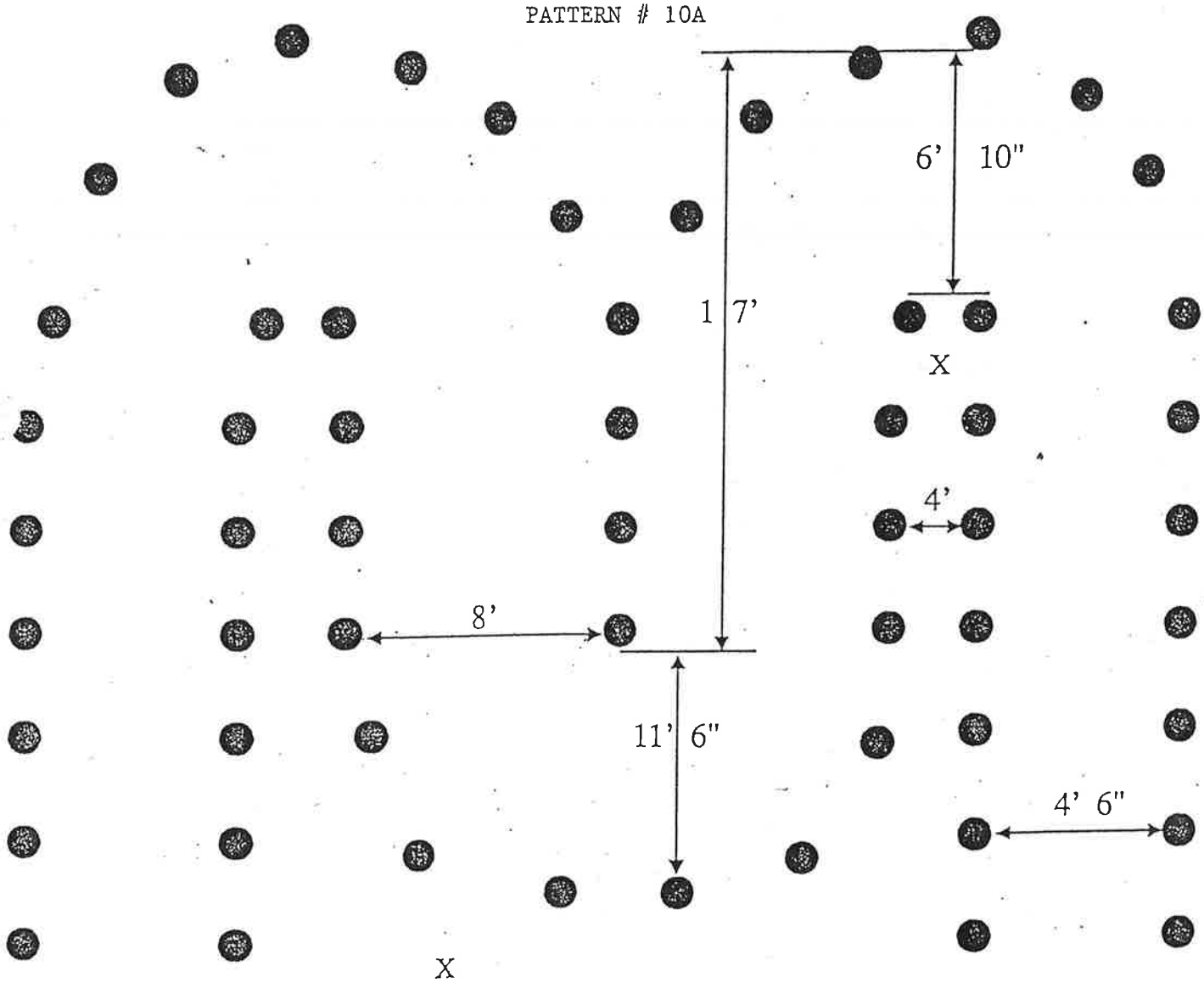
APPLICATION:

1. Student observations
   A. Proper lock to lock turns along with smooth coordination of clutch, and throttle.
   B. Look for proper balance and control. Tendency to drop motorcycle due to slow speed's, and stalling.
   C. Feet should not touch ground and cones not to be touched .
2. Individual work may be needed.

SAN RAFAEL POLICE
MOTORCYCLE TRAINING

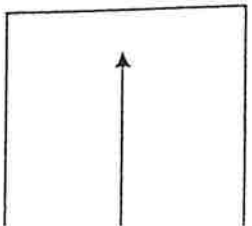
CONE PATTERN
"S" CURVES
NO BRAKE EXERCISE

PATTERN # 10A



INSTRUCTORS POSITION
IS INDICATED BY " X "

CLASS LINEUP
POSITION APPROX.
50 FEET FROM
PATTERN CAN
CHANGE FROM
RIGHT TO LEFT



SAN RAFAEL POLICE
MOTORCYCLE TRAINING

LESSON: 180 Decel

OBJECTIVES:

1. Coned, weave pattern incorporating lock to lock turns causing change of direction.
2. Excellent development of balance, coordination and control of clutch, throttle and brakes. (front & rear)
3. Simulates in-town traffic conditions at slow speeds. Weaving between vehicles.
4. Promotes confidence in students when completed.

INTRODUCTION:

Demonstrated by instructor. Smoothness should be maintained through exercise. Once cone pattern is entered brakes will not be used after a designated point.

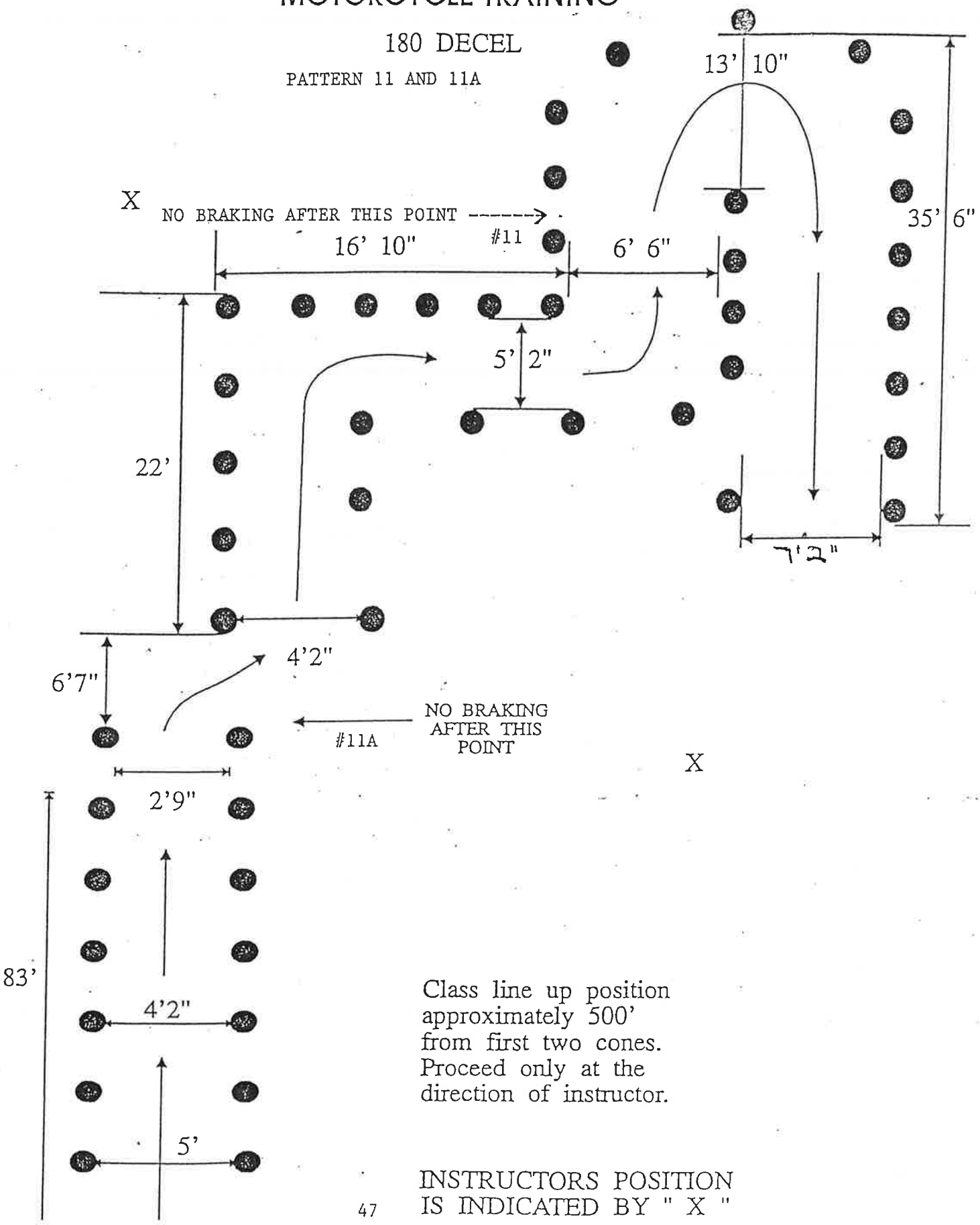
APPLICATION:

1. Student observations
   A. Proper lock to lock turns along with smooth coordination of clutch, throttle, and brakes.
   B. Look for proper balance and control. Tendency to drop motorcycle due to slow speed's, and stalling.
   C. Feet should not touch ground and cones not to be touched .
2. Individual work may be needed.

SAN RAFAEL POLICE
MOTORCYCLE TRAINING

180 DECEL

PATTERN 11 AND 11A



Class line up position approximately 500' from first two cones. Proceed only at the direction of instructor.

INSTRUCTORS POSITION IS INDICATED BY " X "

SAN RAFAEL POLICE
MOTORCYCLE TRAINING

PATTERN #12

LESSON: Proficiency Course

OBJECTIVES:

1. Ride within a coned area of portions of all the cone patterns used throughout first weeks training.
2. Promotes control of motorcycle using all of riders skills.
3. Inspires confidence of student in that any riding situation can be handled with ease.

INTRODUCTION:

Demonstrated by instructor. Enters the coned pattern area following the prescribed course, using clutch, throttle, and braking to attain an acceptable scoring. Scoring is not to see how fast the pattern can be completed, but how the rider handles the course. A minimum time of one minute twenty five seconds (1:25) to a maximum time of one minute (1:40) should be stressed.

APPLICATION:

1. Student observations
   - A. Smooth and controlled operation of motorcycle by rider.
   - B. Look for proper application of throttle, clutch, braking, and balance.
   - C. Stress that control, not speed is what is being judged.
   - D. If rider appears to be overriding, stop the exercise.

SAN RAFAEL POLICE
MOTORCYCLE TRAINING

LESSON: Slow Ride

OBJECTIVES:

1. Ride straight line slow as possible.
2. Ultimate teaching of balance at extremely slow speed, heavy traffic situations.
3. Proper control and coordination of throttle, and clutch.
4. Promotes confidence in students ability to operate motorcycle at slow speeds.

INTRODUCTION:

Instructor demonstrates using proper control of throttle, and clutch while maintaining as straight a course as possible.

APPLICATION:

1. Student observations
   A. Watch for lateral movement to keep speed down. Direction straight as possible.
   B. Should not over-rev engine, maintain proper coordination of throttle, and clutch.
   C. Feet should not touch ground, cones not touched.
2. Students lined abreast, last one to reach given area wins (competitive spirit will cause effort on student's part to increase).

Note: No diagram, self explanatory

SAN RAFAEL POLICE
MOTORCYCLE TRAINING

LESSON: 40 Decel

OBJECTIVES:

1. Approach cone pattern, braking area first, then enter "L" shaped, full-wheel, locked left turn, then right turn to exit.
2. Third gear, 40 MPH.
3. Throttle off, disengage clutch while applying brakes (front/rear) start downshifting to first gear.
4. Enter "L" shaped pattern very slowly and exit as indicated.

INTRODUCTION:

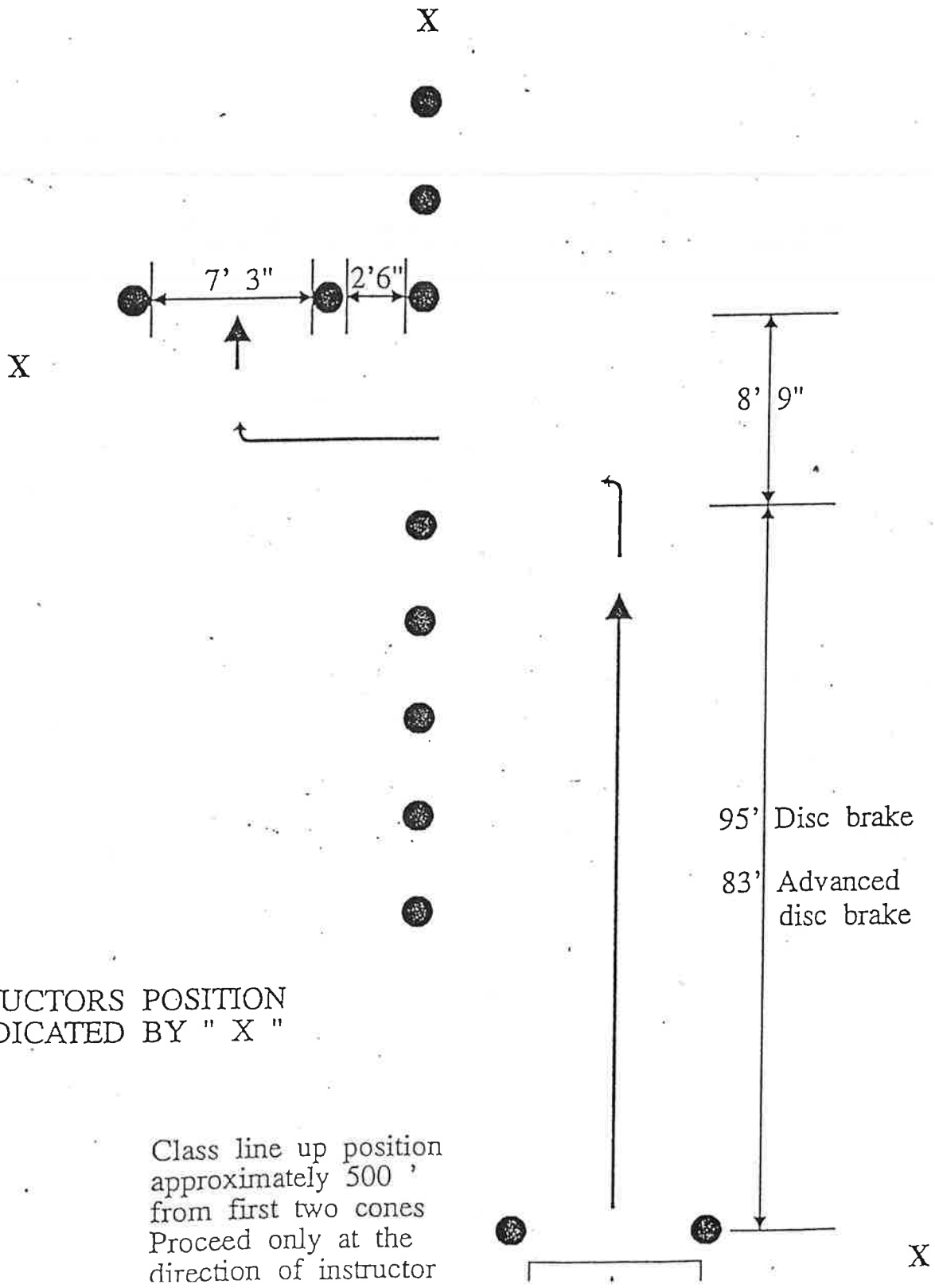
Demonstrated by instructor(s). Should produce an impending skid (not a full wheel lock up) along with controlled slowing of motorcycle.

APPLICATION:

1. Student observations
   A. Proper use of coordinated brake and clutch application. No constant skid.
   B. No loss of control of motorcycle (riding through cones at end of "L" shaped pattern).
   C. Proper judgement used while stopping or slowing.

SAN RAFAEL POLICE
MOTORCYCLE TRAINING

40 DECEL
(EMERGENCY BRAKING)



INSTRUCTORS POSITION
IS INDICATED BY " X "

Class line up position approximately 500 ' from first two cones Proceed only at the direction of instructor

SAN RAFAEL POLICE
MOTORCYCLE TRAINING

LESSON: 30 MPH Cone Weave (Harley Davidson)
35 MPH Cone Weave (Kawasaki)

OBJECTIVES:

1. Cones straight, weave through pattern using body weight in a side to side motion.

2. Continues to teach balance along with throttle, clutch coordination, and control.

3. Represents heavy traffic situation, lane changing, and looking ahead.

INTRODUCTION:

Demonstrated by instructor(s). Motorcycle slaloms through exercise in smooth flowing motion.

APPLICATION:

1. Student observations

   A. Look for smoothness, and control during side to side motion. Rhythm should be developed.

   B. Speed between 30 and 35 MPH.

   C. Feet should not touch ground, and cones should not be touched.

SAN RAFAEL POLICE
MOTORCYCLE TRAINING

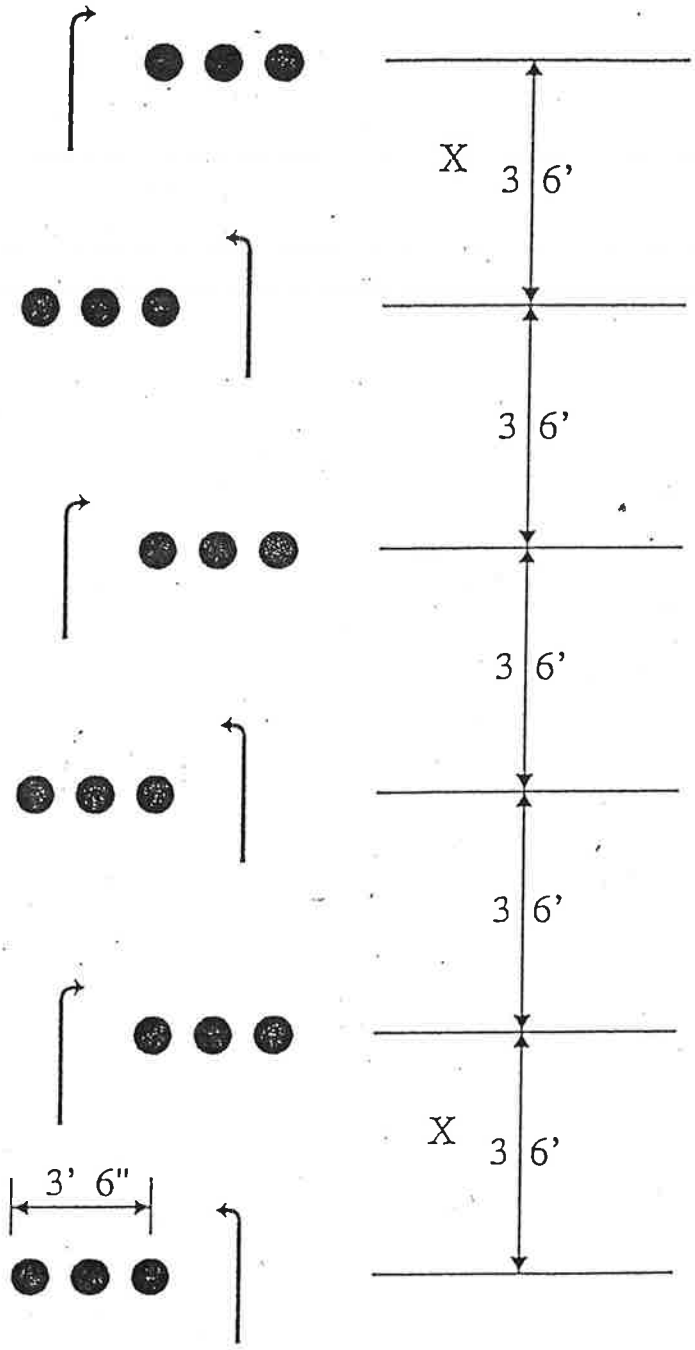
30 MILE PER HOUR CONE WEAVE

NO BRAKE EXERCISE

Instructor radar position approx. 75 feet from last set of cones

X

REMOVE CONE ON CENTER LINE FOR FULL DRESS MOTORCYCLES (optional)



Class line up position approximately 500 ' from first three cones Proceed only at the direction of instructor,

INSTRUCTORS POSITION IS INDICATED BY " X

SAN RAFAEL POLICE
MOTORCYCLE TRAINING

LESSON: Dirt Riding

OBJECTIVES:

1. Dirt riding is an effort to aid students in operating the motorcycle in a less than ideal situation that from time to time is encountered on the street.

2. Represents oil, loose dirt/gravel, rutted roads, etc.

3. Sharpens control and coordination of throttle and rear brake.

4. Maximum lack of control with minimum chance of injury during training.

INTRODUCTION:

Students follow instructor using off-road course incorporating gravel, sand and dirt surfaces. Deep ruts, trenches, washboard surfaces and steep inclines will be encountered. Broadsliding (box slides) and straight line skids will be demonstrated for student application.

APPLICATION:

1. Student observations

   A. Look for student judgement, tendency to override present capabilities.

   B. Look for balance, coordination and control.

2. Confidence will be acquired by each student.

Note: No diagram, no specific course.

SAN RAFAEL POLICE
MOTORCYCLE TRAINING

LESSON: Apexing

OBJECTIVES:

1. Student must be able to maintain an entrance speed of 35 MPH and increase speed through the curves to exit at 43 MPH.

2. Student must be able to cause the motorcycle to lean to a given direction by applying pressure to the appropriate handgrip.

3. Teaches student to look up and through the curves.

4. Teaches student to increase speed and lean in a curve in order to decrease the radius of a curve.

5. Teaches students that if he uses brakes while in a curve motorcycle will go wide and tends to straighten up.

INTRODUCTION:

Demonstrated by instructor. The student will see that by increasing speed and lean the motorcycle can hold a tight line by using the apexing method.

APPLICATION:

1. Student observations

   A. Advise student to give sufficient pressure on the inside handlebar grip to stay within the cone pattern.

2. Student should relax.

   A. Don't counter balance to effect lean angle.

   B. Don't brake while performing exercise. Lean into curves while increasing speed for control.

   C. Look through the curves, using deep entry method before leaning.

SAN RAFAEL POLICE
MOTORCYCLE TRAINING

LESSON: Countersteering

OBJECTIVES:

1. Student must be able to cause the motorcycle to lean to a given direction by applying pressure to the appropriate handgrip.

2. Teaches student to keep head, and eyes up during critical street riding event.

3. Teaches student to use other methods to avoid accident, other than relying on brakes.

INTRODUCTION:

Demonstrated by instructor, while riding at the group of students. Instructor will push the left handlebar to the left just before reaching the students. They will observe that the front wheel will first go right and then the motorcycle turns left.

APPLICATION:

1. Student observations

   A. Advise the student to give sufficient pressure on inside of handlebar grip to deflect front wheel.

2. Student should relax.

   A. Does not counteract weight shift by opposite body lean angle.

   B. Does not brake while performing exercise, and leans sharply in both parts of exercise.

   C. Speed is constant, and keep feet firmly on footboards.

HURT STUDY

Motorcycle Accident Cause Factors and Identification of Countermeasures

Findings, Recommendations and Proposed Countermeasures

This research study was conducted by H.H. Hurt and staff at the Traffic Safety Center of the University of Southern California and is a recognized landmark piece of motorcycle safety research. Essentially, an in-depth, on-scene investigation was performed on 900 motorcycle accidents in the Los Angeles area. Additionally Hurt and staff analyzed 3600 motorcycle traffic accident reports in the same geographic area.

Data concerning the general motorcycle riding population was also collected at 505 of the accident sites relative to the time-of-day, day-of-week and environmental conditions that matched the accidents. These exposure data enable the reader to make comparisons and determine factors which are over-represented.

The final report itself is several hundred pages in length and should be a resource document in the motorcycle safety professional's library. The information which follows is simply what was found in the study, the recommendation and the proposed countermeasures, and it provides you with a succinct source of information.

This information is reprinted from:

> Motorcycle Accident Cause Factors and Identification of Countermeasures. Volume I: Technical Report, Hurt, H.H., Ouellet, J.V., and Thom, D.R., Traffic Safety Center, University of Southern California, Los Angeles, California 90007, Contract No. DOT HS-5-01160, January 1981 (Final Report)

The entire document is available through the National Technical Information Service, Springfield, Virginia 22161.

12.0 FINDINGS, RECOMMENDATIONS AND PROPOSED COUNTERMEASURES

12.1 Findings

Throughout the accident and exposure data there are special observations which relate to accident and injury causation and characteristics of the motorcycle accidents studied. These findings are summarized as follows:

1. Approximately three-fourths of these motorcycle accidents involved collision with another vehicle, which was most usually a passenger automobile.

2. Approximately one-forth of these motorcycle accidents were single vehicle accidents involving the motorcycle colliding with the roadway or some fixed object in the environment.

3. Vehicle failure accounted for less than 3% of these motorcycle accidents, and most of those were single vehicle accidents where control was lost due to a puncture flat.

4. In the single vehicle accidents, motorcycle rider error was present as the accident precipitating factor in about two-thirds of the cases, with the typical error being a slide-out and fall due to overbraking or running wide on a curve due to excess speed or under-cornering.

5. Roadway defects (pavement ridges, potholes, etc.) were the accident cause of 2% of the accidents; animal involvement was 1% of the accidents.

6. In the multiple vehicle accidents, the driver of the other vehicle violated the motorcycle right-of-way and caused the accident in two-thirds of those accidents.

7. The failure of motorists to detect and recognize motorcycles in traffic is the predominating cause of motorcycle accidents. The driver of the other vehicle involved in collision with the motorcycle did not see the motorcycle before the collision, or did not see the motorcycle until too late to avoid the collision.

8. Deliberate hostile action by a motorist against a motorcycle rider is a rare accident cause.

9. The most frequent accident configuration is the motorcycle proceeding straight then the automobile makes a left turn in front of the oncoming motorcycle.

10. Intersections are the most likely place for the motorcycle accident, with the other vehicle violating the motorcycle right-of-way, and often violating traffic controls.

11. Weather is not a factor in 98% of motorcycle accidents.

12. Most motorcycle accidents involve a short trip associated with shopping, errands, friends, entertainment or recreation, and the accident is likely to happen in very short time close to the trip origin.

13. The view of the motorcycle or the other vehicle involved in the accident is limited by glare or obstructed by other vehicles in almost half of the multiple vehicle accidents.

14. Conspicuity of the motorcycle is a critical factor in the multiple vehicle accidents, and accident involvement is significantly reduced by the use of motorcycle headlamps-on in daylight and the wearing of high visibility yellow, orange or bright red jackets.

15. Fuel system leaks and spills were present in 62% of the motorcycle accidents in the post-crash phase. This represents an undue hazard for fire.

16. The median pre-crash speed was 29.8 mph, and the median crash speed was 21.5 mph, and the one-in-a-thousand crash speed is approximately 86 mph.

17. The typical motorcycle pre-crash lines-of-sight to the traffic hazard portray no contribution of the limits of peripheral vision; more that three-fourths of all accident hazards are within 45 degrees of either side of straight ahead.

18. Conspicuity of the motorcycle is most critical for the frontal surfaces of the motorcycle and rider.

19. Vehicle defects related to accident causation are rare and likely to be due to deficient or defective maintenance.

20. Motorcycle riders between the ages of 16 and 24 are significantly over-represented in accidents; motorcycle riders between the ages of 30 and 50 are significantly underrepresented.

21. Although the majority of the accident-involved motorcycle riders are male (96%), the female motorcycle riders are significantly overrepresented in the accident data.

22. Craftsmen, laborers, and students comprise most of the accident-involved motorcycle riders but the professionals, sales workers, and craftsmen are underrepresented and the laborers, students, and unemployed are overrepresented in the accidents.

23. Motorcycle riders with previous recent traffic citations and accidents are overrepresented in the accident data.

24. The motorcycle riders involved in accidents are essentially without training; 92% were self-taught or learned from family or friends. Motorcycle rider training experience reduces accident involvement and is related to reduced injuries in the event of accidents.

25. More than half of the accident-involved motorcycle riders had less than 5 months experience on the accident motorcycle, although the total street riding experience was almost 3 years. Motorcycle riders with dirt bike experience are significantly underrepresented in the accident data.

26. Lack of attention to the driving task is a common factor for the motorcyclist in an accident.

27. Almost half of the fatal accidents show alcohol involvement.

28. Motorcycle riders in these accidents showed significant collision avoidance problems. Most riders would overbrake and skid the rear wheel, and under brake the front wheel greatly reducing collision avoidance deceleration. The ability to countersteer and swerve was essentially absent.

29. The typical motorcycle accident allows the motorcyclist just less than 2 seconds to complete all collision avoidance action.

30. Passenger carrying motorcycles are not overrepresented in the accident data.

31. The driver of the other vehicles involved in collision with the motorcycle are not distinguished from other accident populations except that the ages of 20 to 29, and beyond 65 are overrepresented. Also these drivers are generally unfamiliar with motorcycles.

32. The large displacement motorcycles are underrepresented in accidents but they are associated with higher injury severity when involved in accidents.

33. Any effect of motorcycle color on accident involvement is not determinable from these data, but is expected to be insignificant because the frontal surfaces are most often presented to the other vehicle involved in the collision.

34. Motorcycles equipped with fairings and windshields are underrepresented in accidents, most likely because of the contribution to conspicuity and the association with more experienced and trained riders.

35. Motorcycle riders in these accidents were significantly without motorcycle license, without any license, or with license revoked.

36. Motorcycle modifications such as those associated with the Semi-Chopper or Cafe Racer are definitely overrepresented in accidents.

37. The likelihood of injury is extremely high in these motorcycle accidents; 98% of the multiple vehicle collisions and 96% of the single vehicle accidents resulted in some kind of injury to the motorcycle rider; 45% resulted in more than a minor injury.

38. Half of the injuries to the somatic regions were to the ankle-foot, lower leg, knee, and thigh-upper leg.

39. Crash bars are not an effective injury countermeasure; the reduction of injury to the ankle-foot is balanced by increase of injury to the thigh-upper leg, knee, and lower leg.

40. The use of heavy boots, jacket, gloves, etc., is effective in preventing or reducing abrasions and lacerations, which are frequent but rarely severe injuries.

41. Groin injuries were sustained by the motorcyclist in at least 13% of the accidents, which typified by multiple vehicle collision in frontal impact at higher than average speed.

42. Injury severity increases with speed, alcohol involvement and motorcycle size.

43. Seventy-three percent of the accident-involved motorcycle riders used no eye protection, and it is likely that the wind on the unprotected eyes contributed in impairment of vision which delayed hazard detection.

44. Approximately 50% of the motorcycle riders in traffic were using safety helmets but only 40% of the accident-involved motorcycle riders were wearing helmets at the time of the accident.

45. Voluntary safety helmet use by those accident-involved motorcycle riders was lowest for untrained, uneducated, young motorcycle riders on hot days and short trips.

46. The most deadly injuries to the accident victims were injuries to the chest and head.

47. The use of the safety helmet is the single critical factor in the prevention of reduction of head injury; The safety helmet which complies with FMVSS 218 is a significantly effective injury countermeasure.

48. Safety helmet use caused no attenuation of critical traffic sounds, no limitation of pre-crash visual field, and no fatigue or loss of attention; no element of accident causation

was related to helmet use.

49. FMVSS 218 provides a high level of protection in traffic accidents, and needs modification only to increase coverage at the back of the head and demonstrate impact protection of the front of full facial coverage helmets, and insure all adult sizes for traffic use are covered by the standard.

50. Helmeted riders and passengers showed significantly lower head and neck injury for all types of injury, at all levels of injury severity.

51. The increased coverage of the full facial coverage helmet increases protection, and significantly reduces face injuries.

52. There is no liability for neck injury by wearing a safety helmet; helmeted riders had less neck injuries than unhelmeted riders. Only four minor injuries were attributable to helmet use, and in each case the helmet prevented possible critical or fatal head injury.

53. Sixty percent of the motorcyclists were not wearing safety helmets at the time of the accident. Of this group, 26% said they did not wear helmets because they were uncomfortable and inconvenient, and 53% simply had no expectation of accident involvement.

54. Valid motorcycle exposure data can be obtained only from collection at the traffic site. Motor vehicle or drivers license data presents information which is completely unrelated to actual use.

55. Less that 10% of the motorcycle riders involved in these accidents had insurance of any kind to provide medical care or replace property.

12.2 Recommendations and Proposed Countermeasures

Training

Specialized motorcycle rider training courses were not readily available during the times of accident or exposure data collection. Consequently there were not many riders who had the advantage of such specialized motorcycle rider training, and the majority of the riders interviewed were untrained and had learned whatever they knew about motorcycles from their own experience or from family and friends. This lack of training was a significant factor in accident involvement and it is clear that motorcycle riders benefit greatly from such specialized training and could develop important skills, strategies, and attitudes to limit accident involvement and reduce injury severity.

The Motorcycle Rider Course of the Motorcycle Safety Foundation should be the prerequisite (or at least corequisite) of licensing and use of a motorcycle in traffic. This course is well developed and has proven effective by containing the basic ingredients for safe operation of motorcycles in traffic. An additional focus of the MSF Motorcycle Rider Course should be to incorporate the critical areas of knowledge on safe traffic strategy and collision avoidance skills which were shown to be especially critical by this research.

If the training is not associated with some aspect of licensing or traffic enforcement, other avenues of safety education will face great difficulty because the target group of laborers, students, and unemployed will be an abstract and mobile body with limited prospects of effective communication.

Research is needed to develop effective training methods for collision avoidance braking skills on contemporary motorcycles, and also to investigate the benefits of interconnected brake systems, e.g. Moto Guzzi T-3, and antilock or antiskid brake systems, e.g. TRRL Lucas-Girling Norton 850.

Licensing

The accident-involved motorcycle riders are shown to be significantly without license, or any special motorcycle license endorsement. This is a reliable indication that these riders do not have the necessary skills and traffic strategies to operate safely in traffic, especially when so many of those accidents will be caused by another driver. All motorcycle riders in traffic should have the basic license plus a special endorsement or supplementary license for motorcycle operation.

The special license for motorcycle operation should require special examinations of substance and authority, so that emphasis and attention to safe operation of the motorcycle is given a true priority. Some brief "Simon says" type of written examination and casual riding examination by an unqualified remote observer serves no effective purpose and demeans the object of licensing. The written and traffic rider examinations should be realistic and authoritative.

The demonstration programs conducted by NHTSA Traffic Safety Programs in San Diego and Sacramento, California, have shown an appropriate and effective level of attention to this problem and should be instituted as a basic requirement as soon as possible. A detailed examination with authority and substance is necessary to provide the proper emphasis and attention to the critical accident involvement of the unlicensed motorcycle riders.

Law Enforcement

Law enforcement has a special contribution to make in the

prevention of motorcycle accidents. Some of these contributions are simple and some are very difficult: dirt bikes in traffic are an obvious hazard; motorcycle riders without license are not easy to detect or stop without cause, and alcohol involved motorcycle riders are far more difficult to detect than alcohol involved automobile drivers. The excess involvement of the unlicensed rider in all accidents, and the alcohol-involved rider in fatal accidents, demands enforcement action, but legal requirements of due cause for a traffic stop may limit this action. The data of this research should provide the basis of "due cause" for preliminary enforcement action and screening of traffic for unlicensed riders.

One fundamental communication system is available through the motorcycle rider under citation for traffic violation. The data of this research show that driver improvement is vital to those motorcycle riders who have had traffic violations or accidents, and experience has shown that a special motorcycle "traffic school" is an effective alternative to the payment of fine for citation. Advantage should be made of this contact opportunity to require a special motorcycle traffic school for motorcycle riders with traffic citations so that critical information can be given to these likely accident candidates.

One impression developed during this research, and encountered in many motorcycle accident investigations throughout the various states, was the lack of punitive action for the culpable driver of the other vehicle involved in the accident with the motorcycle. The outward appearance is that the offending driver is rarely faced with effective prosecution of right-of-way violations, negligent or reckless driving causing injury, or even vehicular manslaughter. Often there is the incorrect impression of excess speed or recklessness of the motorcycle rider. In most cases there is not an adequate collection of evidence and accurate reconstruction of the accident because of the police traffic accident investigator's unfamiliarity with motorcycle accident analysis. Many times there is simply the impression that "this was just another motorcycle accident." This lack of effective punitive action needs research for a more precise definition of the problem and evaluation for accident countermeasures.

Protective Equipment

This research shows that there is a critical need for the use of protective equipment by every motorcycle rider. The contemporary motorcycle safety helmet provides a spectacular reduction of head AND neck injury, without any adverse effect on vision or hearing, or vulnerability for other injury. This research shows NO reason for any motorcyclist to be without a safety helmet.

Eye protection is vital to preserve vision as well as protect the eyes and face. The failure to wear eye protection appears as

an unreasonably frequent factor for the accident-involved rider, and the use of contemporary eye protection involves only benefit and no hazard. Of course, the safety helmet is the most convenient foundation for eye protection such as a face shield.

The traditional heavy jacket, gloves, pants, and boots are clearly effective in reducing the most common abrasions, i.e. "road rash." An important improvement would be to insure that the upper torso garment be an effective contribution to conspicuity.

Conspicuity

The driver of the other vehicle involved in collision with the motorcycle DID NOT SEE the motorcycle, or did not see the motorcycle until it was too late to avoid the collision. In some instances, it was clear that there was some view obstruction or limitation of vision for the other vehicle of the motorcycle (usually stationary or mobile vehicles); and this points out the need for the motorcycle rider to develop traffic strategy so that he can SEE AND BE SEEN in traffic. This should be the most important component of any motorcycle rider training program.

However, the most frequent case was truly that of the other vehicle driver failing to detect the motorcycle in traffic. In such cases it was clear that this research are conclusive in the favorable factors to increase conspicuity: headlamp on in daytime is highly effective; bright upper torso garments are very helpful, while war surplus army jackets are deadly, and fairings and windshields apparently make the small silhouette of the motorcycle larger and more conspicuous.

The conspicuity problem is a complex one and in greatest part it is a problem of the frontal surfaces of the motorcycle. The simple countermeasures listed above are surely effective, but more fundamental scientific research may uncover additional effective treatments based upon human factors, e.g. the "Q-switch" based on the Bartley effect, Vetter "Leading Edge Lights" to increase contrast conspicuity in the frontal regions, etc.

Federal motor vehicle safety standards

Federal Motor Vehicle Safety Standard 218 governing motorcycle safety helmets provides a high level of protection for the typical traffic accident, and appears to need only minor modifications. The coverage for impact attenuation should be extended to include the lower back of the head, and full facial coverage helmets should demonstrate some sort of impact attenuation by the chin piece. Helmet conditioning prior to test could be more realistic, and retention system test should include some component of side force.

The data of this accident research do not indicate the need for more severe requirements of impact, penetration and retention performance. In fact, it is recommended that the present minimum

performance standards be maintained because more severe standards would have an undesirable and adverse effect on the minimum cost of a qualified helmet.

All adult sizes of safety helmets should be covered by this standard so that all motorcycle riders will have the assurance of a qualified helmet for protection. The application of the standard in past time to "medium size" only has created considerable questions among consumers, and decreased the public confidence in the standard.

Federal Motor Vehicle Safety Standard 119 governing new pneumatic tires appears to provide adequate guarantees of safe equipment. The few accidents due to puncture flats were not defect related and there were no standard-related problems of tires and wheels. The future increasing applications of tubeless tires which resist sudden deflation punctures will reduce this small area of accident causation.

Federal Motor Vehicle Safety Standard 122 establishes equipment and performance requirements for motorcycle brake systems. There were no standard-related problems discovered in these accident investigations; the very few brake mechanical problems were entirely related to defective or deficient maintenance. On the other hand, these accident cases showed significant rider problems of effective braking for collision avoidance. Research is needed to investigate the potential improvement in collision avoidance performance by the use of interconnected and antilock or antiskid brake systems. Effective collision avoidance braking was a significant deficiency in these accident data with the typical accident-involved motorcycle rider skidding the rear tire but not using the front brake. It is possible that specialized rider training can not be an adequate countermeasure to improve collision avoidance braking, and the first objective should be to investigate the benefits of a well-designed inter-connected front and rear brake system.

Federal Motor Vehicle Safety Standard 123 specifies the requirements for motorcycle controls and displays, stands, and footrests. The majority of the motorcycles examined in this research conformed to the standard, even though manufactured before the effective date of the standard. In a few instances, the validity of the standard was confirmed, e.g. a non-conforming, pre-standard motorcycle gave supporting evidence, with the rider precrash action of front hand brake use but downshifting with the right foot rather than left foot rear braking. The limited cases of a sidestand not retracted and grounding out involved pre-standard or modified motorcycles, and standard compliance would have prevented the associated loss of control.

There is a significant post-crash fire hazard at most motorcycle accidents, due to fuel spill and leaks, In greatest part, this is due to the post-crash posture of the motorcycle lying

down on its side, far from the normal containment orientation of the fuel system. While it is expected that some fuel loss may occur in such post-crash posture, future improvements should focus on reducing this hazard. The tank cap must not protrude to cause groin injury or allow opening by the events of the typical crash impact, the carburetors should not continue to receive fuel from the tank to spill or leak, and the tank structure and fuel lines should demonstrate some minimum resistance to violation or damage in typical crash impacts. In contemporary time the fuel system configuration of the Honda Gold Wing demonstrates most of these features desirable for crashworthiness.

The accident research showed no contributions to accident causation from cable controls, wheels and rims, lack of side reflectors, or rear view mirrors.

7.17 Motorcycle Rider Collision Avoidance Performance

Of course, the collision avoidance performance of an accident-involved motorcycle rider is expected to show problems and failures. Each one of the 900 on-scene, in-depth accident case was completely reconstructed to provide all details of the precrash events. The motorcycle rider's precrash actions were determined and evaluated to determine the collision avoidance performance.

One of the most critical factors in reconstructing the sequence of pre-crash events is the chronology of those events. The speeds, accelerations, distances, and directions were determined in each case and the time available for collision avoidance was determined. The time available to the motorcycle rider for collision avoidance begins with the initiation of the precipitating event and terminates with the crash impact. For example, an automobile in traffic approaching the motorcycle path begins a left turn in front of the oncoming motorcycle, the rider later detects that motion, decides on rear braking, applies the rear brake and skids into the left-turning automobile. That total time from the automobile beginning the left turn until crash impact is derived for each of the 900 on-scene, in-depth investigations.

Table 7.17.1 shows that time available for collision avoidance for all 900 cases. The median value is less that 1.9 seconds. It is typical that the motorcycle rider must detect, decide, and react to a traffic hazard in less than two seconds. Any significant delay in the hazard detection, decision, and control action will preclude success of collision avoidance.

Consider that typical case specified where the automobile turns left in front of the oncoming motorcycle. If the motorcycle initial speed is 35 mph, an attainable braking distance is 50' if both front and rear brakes are used well. If the rider requires 1 second total reaction time for detection, decision, and neuromuscular and vehicle reaction, then a total of 3 seconds and 100' are required for a safe stop. The fundamental problem is a

serious lack of time for success in collision avoidance; two seconds are available but three seconds are required. The proper evasive action must be taken and executed well without any delay.

But the accident-involved motorcycle riders made errors of the collision avoidance action and execution. Table 7.17.2 shows the evasive action taken by the rider and evaluates the execution and choice of action. Within the data shown are several basic problems. Emergency braking skills are required for success in collision avoidance maneuvers, however both brakes were used in only 17.0% of the accidents (and many times not used well). The most common action was to use the rear brake only (18.5%) or the rear brake and swerve (11.7%). This failure to use the front brake is a critical element in collision avoidance because proper use of the front brake would have avoided many of the collisions or greatly reduced the severity.

The execution of the evasive action was correct in 15.6% of the accident cases, or 23.8% of the time some evasive action was attempted. A typical problem would be as follows: An oncoming automobile turns left in front of the motorcyle; the rider locks up the rear wheel by over braking, slides out and falls to the roadway, and slides into the automobile. Another example would be as follows: With a violation of his right-of-way, the motorcycle rider applies both brakes, overbrakes at the front, locks up the front wheel, slides out and falls to the roadway. Skidding from overbraking was the most common execution problem, and usually resulted in a loss of control of the motorcycle. Many accident-involved riders would describe their pre-crash action as "laying the bike down" to avoid the crash, when in reality the accident evidence pointed to a simple case of overbraking at the rear wheel, slide out and fall with complete loss of control by the rider. A controlled "lay down and slide" was verified in only 8 accident cases and in fact was the wrong choice of evasive action in 6 of those 8 cases.

In the pre-crash actions shown in Table 7.17.2, it is seen that the accident-involved rider demonstrates poor choice of evasive action and executes that choice poorly. Overbraking at the rear wheel and underbraking at the front wheel is a common combination of errors. But foremost in these data is the fact that 31.9% of the riders did NOTHING in the way of evasive action in the precrash time.

Table 7.17.3 provides a cross-tabulation of collision avoidance action and the evaluation of that choice of action. Note that the use of the rear brake only was a very poor choice, as were most of the decisions made by the accident-involved riders.

Table 7.17.4 evaluates the execution of the chosen collision avoidance action. Most of the execution failures in braking involved skidding, particularly for the rear wheel since it was utilized the most often. The attempts to swerve were very badly

executed, with most failures illustrating no concise collision avoidance capability of the accident-involved rider. The ability to intentionally countersteer and generate the sudden swerve was generally unknown by these riders.

These data are not intended to substantiate any need for high speed, high performance rider training as a countermeasure in accident prevention. However, they show that these accident-involved riders did not demonstrate some basic motorcycle riding skills in that instant when a hazard was presented.

For comparison, the motorcycle rider was asked about his own braking habits, and in particular, the frequency of front brake use. Table 7.17.5 shows the accident-involved rider's utilization of the front brake, which is far greater than that shown in the analysis of the accident events. Those riders state that they "usually" or "always" use the front brake a total of 73.5% of the time. This would indicate relatively high use of the front brake and an expectation of the motorcycle to have acceptable stopping performance. The data shown previously in Tables 7.17.2, 7.17.3, and 7.17.4 regarding front brake use did not rely upon rider opinion or statement. Suspension displacements, control positions, skid patches, skidmarks, tire circumferential striations, etc., were analyzed by the research team to distinguish the actual function of the front brake to provide these data.

Regardless of the circumstances, the accident-involved rider is most likely to reconstruct the accident events without qualification or objectivity and respond affirmatively. Such opinions regarding brake use must not be considered factual.

TABLE 7.17.2 MOTORCYCLE EVASIVE ACTION (OSIDs)

Category Label	Code	Absolute Frequency	Relative Frequency (%)	Adjusted Frequency (%)
Evasive Action Taken				
None	0.	283	31.4	31.9
Rear Brake Only	1.	164	18.2	18.5
Front Brake Only	2.	7	0.8	0.8
Both Brakes	3.	151	16.8	17.0
Swerve Only	4.	74	8.2	8.4
Lay Down & Slide	5.	8	0.9	0.9
Accelerate	6.	8	0.9	0.9
Rear Brake & Swerve	7.	104	11.6	11.7
Front Brake & Swerve	8.	4	0.4	0.5
Both Brakes & Swerve	9.	77	8.6	8.7
Accelerate & Swerve	10.	1	0.1	0.1
Other	12.	5	0.6	0.6
Unknown	98.	14	1.6	Missing
	TOTAL	900	100.0	100.0
Evasive Action Properly Executed?				
Yes	1.	140	15.6	23.8
No	2.	449	49.9	76.2
Unknown	8.	14	1.6	Missing
N.A.	9.	297	33.0	Missing
	TOTAL	900	100.0	100.0
Evasive Action Proper For Situation?				
Yes	1.	263	29.2	43.7
Probable	2.	7	0.8	1.2
Undecided	3.	1	0.1	0.2
Improbable	4.	4	0.4	0.7
No	5.	327	36.3	54.3
Unknown	8.	9	1.0	Missing
N.A.	9.	289	32.1	Missing
	TOTAL	900	100.0	100.0

TABLE 7.17.3 MOTORCYCLE EVASIVE ACTION TYPE BY PROPRIETY OF EVASIVE ACTION (OSIDs)

Evasive Action	Count / Row Pct / Col Pct / Tot Pct	Proper Evasive Action?							
		Yes	Probable	Undecided	Improbable	No	Unknown	N/A	Row Total
None		4	0	0	0	3	0	276	283
		1.4	0.0	0.0	0.0	1.1	0.0	97.5	31.4
		1.5	0.0	0.0	0.0	0.9	0.0	95.5	
		0.4	0.0	0.0	0.0	0.3	0.0	30.7	
Rear Brake		15	2	1	1	142	0	3	164
		9.1	1.2	0.6	0.6	86.6	0.0	1.8	18.2
		5.7	28.6	100.0	25.0	43.4	0.0	1.0	
		1.7	0.2	0.1	0.1	15.8	0.0	0.3	
Front Brake		2	1	0	0	3	0	1	7
		28.6	14.3	0.0	0.0	42.9	0.0	14.3	0.8
		0.8	14.3	0.0	0.0	0.9	0.0	0.3	
		0.2	0.1	0.0	0.0	0.3	0.0	0.1	
Both Brakes		125	2	.0	1	21	0	2	151
		82.8	1.3	0.0	0.7	13.9	0.0	1.3	16.8
		47.5	28.6	0.0	25.0	6.4	0.0	0.7	
		13.9	0.2	0.0	0.1	2.3	0.0	0.2	
Swerve		23	2	0	1	47	0	1	74
		31.1	2.7	0.0	1.4	63.5	0.0	1.4	8.2
		8.7	28.6	0.0	25.0	14.4	0.0	0.3	
		2.6	0.2	0.0	0.1	5.2	0.0	0.1	
Lay Down-Slide		2	0	0	0	6	0	0	8
		25.0	0.0	0.0	0.0	75.0	0.0	0.0	0.9
		0.8	0.0	0.0	0.0	1.8	0.0	0.0	
		0.2	0.0	0.0	0.0	0.7	0.0	0.0	
Accelerate		5	0	0	0	3	0	0	8
		62.5	0.0	0.0	0.0	37.5	0.0	0.0	0.9
		1.9	0.0	0.0	0.0	0.9	0.0	0.0	
		0.6	0.0	0.0	0.0	0.3	0.0	0.0	
1 and 4 Rear Brake and Swerve		12	0	0	0	92	0	0	104
		11.5	0.0	0.0	0.0	88.5	0.0	0.0	
		4.6	0.0	0.0	0.0	28.1	0.0	0.0	
		1.3	0.0	0.0	0.0	10.2	0.0	0.0	
2 and 4 Front Brake and Swerve		0	0	0	0	4	0	0	4
		0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.4
		0.0	0.0	0.0	0.0	1.2	0.0	0.0	
		0.0	0.0	0.0	0.0	0.4	0.0	0.0	
3 and 4 Both Brake and Swerve		71	0	0	0	4	0	0	77
		92.2	0.0	0.0	0.0	5.2	0.0	2.6	8.6
		27.0	0.0	0.0	0.0	1.2	0.0	0.7	
		7.9	0.0	0.0	0.0	0.4	0.0	0.2	
4 and 6 Swerve and Accelerate		0	0	0	0	1	0	0	1
		0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.1
		0.0	0.0	0.0	0.0	0.3	0.0	0.0	
		0.0	0.0	0.0	0.0	0.1	0.0	0.0	
Other		3	0	0	1	1	0	0	5
		60.0	0.0	0.0	20.0	20.0	0.0	0.0	0.6
		1.1	0.0	0.0	25.0	0.3	0.0	0.0	
		0.3	0.0	0.0	0.1	0.1	0.0	0.0	
Unknown		1	0	0	0	0	9	4	14
		7.1	0.0	0.0	0.0	0.0	64.3	28.6	1.6
		0.4	0.0	0.0	0.0	0.0	100.0	1.4	
		0.1	0.0	0.0	0.0	0.0	1.0	0.4	
Column Total		263	7	1	4	327	9	289	900
		29.2	0.8	0.1	0.4	36.3	1.0	32.0	100.0

TABLE 7.17.4. MOTORCYCLE EVASIVE ACTION TYPE BY PROPER EXECUTION OF EVASIVE ACTION (OSIDs)

Evasive Action / Count / Row Pct / Col Pct / Tot Pct	Properly Executed? Yes	No	Unknown	N/A	Row Total
None	4 1.4 3.9 0.4	1 0.4 0.2 0.1	0 0.0 0.0 0.0	278 98.2 93.6 30.9	283 31.4
Rear Brake	22 13.4 15.7 2.4	134 81.7 29.8 14.9	3 1.8 21.4 0.3	5 3.0 1.7 0.6	164 18.2
Front Brake	1 14.3 0.7 0.1	5 71.4 1.1 0.6	0 0.0 0.0 0.0	1 14.3 0.3 0.1	7 0.8
Both Brakes	48 31.8 34.3 5.3	98 64.9 21.8 10.9	2 1.3 14.3 0.2	3 2.0 1.0 0.3	151 16.8
Swerve	8 10.8 5.7 0.9	65 87.8 14.5 7.2	0 0.0 0.0 0.0	1 1.4 0.3 0.1	74 8.2
Lay Down-Slide	7 87.5 5.0 0.8	1 12.5 0.2 0.1	0 0.0 0.0 0.0	0 0.0 0.0 0.0	8 0.9
Accelerate	4 50.0 2.9 0.4	2 25.0 0.4 0.2	0 0.0 0.0 0.0	2 25.0 0.7 0.2	8 0.9
1 and 4	10 9.6 7.1 1.1	93 89.4 20.7 10.3	0 0.0 0.0 0.0	1 1.0 0.3 0.1	104 11.6
2 and 4	0 0.0 0.0 0.0	4 100.0 0.9 0.4	0 0.0 0.0 0.0	0 0.0 0.0 0.0	4 0.4
3 and 4	32 41.6 22.9 3.6	43 55.8 9.6 4.8	0 0.0 0.0 0.0	2 2.6 0.7 0.2	77 8.6
4 and 6	0 0.0 0.0 0.0	1 100.0 0.2 0.1	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 0.1
Other	3 60.0 2.1 0.3	2 40.0 0.4 0.2	0 0.0 0.0 0.0	0 0.0 0.0 0.0	5 0.6
Unknown	1 7.1 0.7 0.1	0 0.0 0.0 0.0	9 64.3 64.3 1.0	4 28.6 1.3 0.4	14 1.6
Column Total	140 15.6	449 49.9	14 1.6	297 33.0	900 100.0

GRADING PROCEDURE FOR RIDING ABILITY

A. The following will be the rating key that is to be used during motorcycle training.

1. Score (1) Unsatisfactory: This rating reflects that the rider's performance is unacceptable.

2. Score (2) Weak: This rating reflects that the rider has been able to perform a small portion of the event, but still has some minor problems to overcome.

3. Score (3) Improvement Needed: This rating reflects that the rider has been able to perform the majority of the event, but still has some minor problems to overcome.

4. Score (4) Qualified: This rating reflects that the rider has passed the event in a satisfactory manner.

5. Score (5) Above Average: This rating reflects that the rider is very well qualified in the event and has displayed a higher that average skill ability.

6. If a rider receives a rating score of 1 or 2 in any training event or events, that score will be deemed unacceptable, even though other areas are acceptable.

7. During the first few training days it is highly probable that some of the rider's will receive a score of 1 or 2.

8. Scoring Examples: If a rider puts his foot down one time during any event his score would be 3. If his foot touches two or three times the score is 2. Four or more touches is unsatisfactory.

   If the rider is having trouble with clutch friction point in all of the events the scoring would be 1. If the rider has difficulty only when the event by it's nature has the clutch arm fully extended, then the score would be a three.

   If the rider knocks cones over and rides out of the pattern without attempting to "correct" his score is 1. If the rider knocks one cone over, then continues through the pattern without knocking down cones, the score is 3.

   If the rider hits cones but they continue to stand, the score is 3. A score of 4 is determined when the rider makes it through the pattern without hitting cones, or putting his foot down.

A score of 5 is determined when the rider displays all of the elements of "perfect control", including balance and posture. A score of 5 is difficult to get, but not impossible.

9. Instructor's will record the riders progress on a day to day basis. The instructors will complete a form titled "INSTRUCTORS WORKSHEET" on each student that he is assigned to observe, making notations at the time of the observations.

10. Instructor's will use the "INSTRUCTORS WORKSHEET" to generate a "EVALUATION REPORT". The "EVALUATION REPORT" will be turned into the class instructor along with the "INSTRUCTORS WORKSHEET".

INSTRUCTORS WORKSHEET

FIGURE 8'S & CIRCLES #1 & 1A

( ) Foot down ( ) Motorcycle down ( ) Head or eyes down ( ) Clutch / throttle control ( ) Maintain friction point ( ) Smooth out pattern ( ) Tighten up pattern ( ) Counter balance

Comments: _____

INSTRUCTORS WORKSHEET

INTERSECTIONS #3 & 3A

( ) Hits cones ( ) Cones Down ( ) Foot down ( ) Motorcycle down ( ) Head or eyes down ( ) Clutch / throttle control ( ) Maintain friction point ( ) Lacks concentration ( ) Rode out of pattern ( ) Late head turns ( ) Scrapes boards ( ) Shifts in saddle ( ) Too fast ( ) Counter balance

Comments: _____

INSTRUCTORS WORKSHEET

DIRT RIDING

( ) Understands concept ( ) Let off the rear brake

Comments: _____

INSTRUCTORS WORKSHEET

OFFSET 90 DEGREE TURNS #2 & 2A

( ) Hits cones ( ) Cones down ( ) Foot down
( ) Motorcycle down ( ) Head or eyes down
( ) Clutch/throttlle control ( ) Late head turns ( ) Knees out ( ) Rode out of pattern ( ) Too fast ( ) Cover the clutch ( ) Lacks concentration ( ) Too slow ( ) Over the lines ( ) Pumping clutch ( ) Pumping throttle ( ) Counter balance

Comments: _____

_____

_____

INSTRUCTORS WORKSHEET

SLOW CONES # 4 & 4A

( ) Hits cones ( ) Cones down ( ) Foot down
( ) Motorcycle down ( ) Head or eyes down
( ) Clutch throttle control ( ) Rode out of pattern
( ) Skips cones ( ) Too wide ( ) Rides brake
( ) Rythem / counter balance

Comments: _____

_____

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_____

_____

INSTRUCTORS WORKSHEET

SHORT CONES #5 & 5A

( ) Hits cones ( ) Cones down ( ) Foot down
( ) Motorcycle down ( ) Head or eyes down
( ) Clutch throttle control ( ) Lacks concentration
( ) Rode out of pattern ( ) Over-braking
( ) Pumping clutch ( ) Pumping throttle ( ) Skips cones
( ) Too wide ( ) Counter balance

Comments: _____

_____

_____

_____

INSTRUCTORS WORKSHEET

40 MPH DECEL

( ) Covers clutch ( ) Pre-braking before cones
( ) More front brake ( ) Rear braking before front braking
( ) Locks rear brake ( ) Locks front brake ( )Throttle open
( ) Stomps rear brake ( ) Skids through cones
( ) Clutch out ( ) Heel not on board ( ) Cones down
( ) Covers front brake ( ) Covers rear brake
( ) Anticipation ( ) Too slow ( ) Finger braking
RECORDED SPEEDS ( ) ( ) ( ) ( ) ( ) ( ) ( )
Comments: _____

INSRUCTORS WORKSHEET

SERPENTINE

( ) Head or eyes down ( ) Hits other riders( )Lags behind
( ) Misses shifts ( ) Motorcycle down ( ) Not agressive
( ) Over-rides ability ( ) Wide turns
( ) Poor combo braking ( ) ___ Finger braking
( ) Counter balance

Comments: _____

INSTRUCTORS WORKSHEET

'S' CURVES #7 & 7A

( ) Hits cones ( ) Cones down ( ) Foot down
( ) Motorcycle down ( ) Head or eyes down
( ) Clutch / throttle control( ) Rode out of pattern
( ) Pumping Clutch ( ) Pumping throttle ( ) Braking
( ) Counter balance

Comments: _____

INSTRUCTORS WORKSHEET

Short cone pattern #8 & 8A

( ) Hits cones ( ) Cones down ( ) Foot down
( ) Motorcycle down ( ) Head or eyes down
( ) Clutch / throttle control( ) Rode out of pattern
( ) Pumping Clutch ( ) Pumping throttle ( ) Braking
( ) Counter balance

Comments: _____

INSTRUCTORS WORKSHEET

'S' CURVES # 9 & 9A

( ) Hits cones ( ) Cones down ( ) Motorcycle down
( ) Foot down ( ) Head or eyes down
( ) Clutch / throttle control ( ) Rode out of pattern
( ) Pumping clutch ( ) Pumping throttle ( ) Braking
( ) Counter balance

Comments: _____

INSTRUCTORS WORKSHEET

BOARD DRAGS

( ) Understands concept ( ) Timid

Comments: _____

INSTRUCTORS WORKSHEET

'S' CURVES # 10 & 10A (Eliminator)

( ) Hits cones ( ) Cones down ( ) Motorcycle down
( ) Foot down ( ) Head or eyes down
( ) Clutch / throttle control ( ) Rode out of pattern
( ) Pumping clutch ( ) Pumping throttle ( ) Braking
( ) Counter balance ( ) Lacks concentration

Comments: _____

INSTRUCTORS WORKSHEET

180 DECEL #11 & 11A

( ) Hits cones ( ) Cones down ( ) Motorcycle down
( ) Foot down ( ) Head or eyes down
( ) Clutch / throttle control ( ) Rode out of pattern
( ) Pumping clutch ( ) Pumping throttle ( ) Braking
( ) Counter balance

Comments: _____

INSTRUCTORS WORKSHEET

30 MPH CONE WEAVE

( ) Hits cones ( ) Cones down ( )Skips cones ( )Too slow

Recorded speeds ____ ____ ____ ____ ____ ____

Comments: _____

INSTRUCTORS WORKSHEET

PROFICIENCY RIDE # 12

( ) Hit cones ( ) Cones down ( ) Foot down
( ) Motorcycle down ( ) Cover clutch
( ) Over-rides ability ( ) Rode out of pattern
RECORDED TIMES _____ _____ _____ _____

Comments: _____

INSTRUCTORS WORKSHEET

COUNTERSTEERING

( ) Understands concept ( ) Timid

Comments: _____

INSTRUCTORS WORKSHEET

SLOW RIDE (SLOW RACE)

( ) Understands concept ( ) Poor balance

Comments: _____

INSTRUCTORS WORKSHEET

'S' CURVES # 9 & 9A

( ) Hits cones ( ) Cones down ( ) Motorcycle down
( ) Foot down ( ) Head or eyes down
( ) Clutch / throttle control ( ) Rode out of pattern
( ) Pumping clutch ( ) Pumping throttle ( ) Braking
( ) Counter balance

Comments: _____

INSTRUCTORS WORKSHEET

'S' CURVES #7 & 7A

( ) Hits cones ( ) Cones down ( ) Foot down
( ) Motorcycle down ( ) Head or eyes down
( ) Clutch / throttle control( ) Rode out of pattern
( ) Pumping Clutch ( ) Pumping throttle ( ) Braking
( ) Counter balance

Comments: _____

INSTRUCTORS WORKSHEET

INTERSECTIONS #3 & 3A

( ) Hits cones ( ) Cones Down ( ) Foot down
( ) Motorcycle down ( ) Head or eyes down ( ) Clutch / throttle control ( ) Maintain friction point ( ) Lacks concentration ( ) Rode out of pattern ( ) Late head turns
( ) Scrapes boards ( ) Shifts in saddle ( ) Too fast
( ) Counter balance

Comments: _____

INSTRUCTORS WORKSHEET

30 MPH CONE WEAVE

( ) Hits cones ( ) Cones down ( )Skips cones ( )Too slow

Recorded speeds ____ ____ ____ ____ ____ ____

Comments: _____

_____

_____

_____

_____

_____

_____

INSTRUCTORS WORKSHEET

40 MPH DECEL

( ) Covers clutch ( ) Pre-braking before cones

( ) More front brake ( ) Rear braking before front braking

( ) Locks rear brake ( ) Locks front brake ( )Throttle open

( ) Stomps rear brake ( ) Skids through cones

( ) Clutch out ( ) Heel not on board ( ) Cones down

( ) Covers front brake ( ) Covers rear brake

( ) Anticipation ( ) Too slow ( ) Finger braking

RECORDED SPEEDS ( ) ( ) ( ) ( ) ( ) ( ) ( )

Comments: _____

_____

_____

INSTRUCTORS WORKSHEET

'S' CURVES # 10 & 10A (Eliminator)

( ) Hits cones ( ) Cones down ( ) Motorcycle down

( ) Foot down ( ) Head or eyes down

( ) Clutch / throttle control ( ) Rode out of pattern

( ) Pumping clutch ( ) Pumping throttle ( ) Braking

( ) Counter balance ( ) Lacks concentration

Comments: _____

_____

_____

_____

_____

SAN RAFAEL POLICE DEPARTMENT
MOTORCYCLE TRAINING EVALUATION

REPORT #_____

TRAINEE _____ ID# _____ TRAINER _____ ID# _____ DATE _____

RATING INSTRUCTIONS: RATINGS OF 1 OR 2 MUST BE COMMENTED ON. YOU ARE ENCOURAGED TO COMMENT ON ANY BEHAVIOR YOU WISH ON A RATING OF 3, 4, OR 5. CHECK THE "NO" BOX IF NOT OBSERVED. IF THE TRAINEE FAILS TO RESPOND TO TRAINING, CHECK THE "N.R.T." BOX, AND ADD COMMENTS ON THE REAR.

RATING SCALE

	NOT ACCEPTABLE			ACCEPTABLE		SUPERIOR		CATEGORIES
						"NO"	"NRT"	
								ATTITUDE
___	1	2	3	4	5	___	___	1. TOWARDS CRITICISM
___	1	2	3	4	5	___	___	2. TOWARDS TRAINING
								SKILLS
___	1	2	3	4	5	___	___	3. JUDGEMENT
___	1	2	3	4	5	___	___	4. BALANCE
___	1	2	3	4	5	___	___	5. COUNTER BALANCE
___	1	2	3	4	5	___	___	6. CLUTCH & THROTTLE
___	1	2	3	4	5	___	___	7. BRAKING - REAR
___	1	2	3	4	5	___	___	8. BRAKING - FRONT
___	1	2	3	4	5	___	___	9. BRAKING - COMBINATION
___	1	2	3	4	5	___	___	10. VEHICLE POSITION / PLACEMENT
___	1	2	3	4	5	___	___	11. SURFACE APPRAISAL
___	1	2	3	4	5	___	___	12. EYE CONTROL
								EXERCISE PRACTICE SKILLS
___	1	2	3	4	5	___	___	13. SLOW CONE WEAVE
___	1	2	3	4	5	___	___	14. BOARD DRAGS
___	1	2	3	4	5	___	___	15. FIGURE 8 (LOCK TO LOCK)
___	1	2	3	4	5	___	___	16. DIMINISHING 180°
___	1	2	3	4	5	___	___	17. LEFT & RIGHT LOCK TO LOCK 360°
___	1	2	3	4	5	___	___	18. "T" INTERSECTION
___	1	2	3	4	5	___	___	19. CURB PULLOUTS
___	1	2	3	4	5	___	___	20. STRAIGHT DIRT SKIDS
___	1	2	3	4	5	___	___	21. STRAIGHT ASPHALT SKIDS
___	1	2	3	4	5	___	___	22. DIRT 90's
___	1	2	3	4	5	___	___	23. ASPHALT 90's
___	1	2	3	4	5	___	___	24. SLOW RACE
___	1	2	3	4	5	___	___	25. BUMP & GO
___	1	2	3	4	5	___	___	26. ELIMINATOR
___	1	2	3	4	5	___	___	27. 360° "MONSTER"
___	1	2	3	4	5	___	___	28. 90° OFF SET
								MANDATORY WEAVES AND DECELS
___	1	2	3	4	5	___	___	29. 30 MPH WEAVE
___	1	2	3	4	5	___	___	30. 40 MPH DECEL
___	1	2	3	4	5	___	___	31. SERPENTINE

___ MINUTES OF REMEDIAL TRAINING TIME (EXPLAIN)

TRAINEE'S INITIALS:_____ **TRAINER'S INITIALS:**_____

NARRATIVE COMMENTS

Most Acceptable Performance of the Day:

Least Acceptable Performance of the Day:

Additional Comments:

Trainee's Signature

Trainer's Signature