3.3 Brake Performance

Information	Method of Inspection	Reason for Rejection
Serious under inflation of tyres is not a reason for failure however a tester may decide not to conduct a brake test if tyre damage is likely. **When using a roller brake tester** the wheel not on the rollers must be braked and chocked against the reaction force. This is especially important for lightweight machines and those with small wheels. **In the case of a linked brake system,** it may not be possible to apply the brake of the wheel not being tested prior to starting the test. **If a roller brake test is repeated,** the chock should be removed, the machine resettled in the rollers and the chock replaced. **The retardation force of a side car brake** is not to be included unless it is operated by one of the motorcycle brake controls. **Cont'd ⬇**	A. ROLLER BRAKE TEST With the tester seated on the machine locate the front wheel in the rollers of the brake tester. Ensure that the machine is lined up in the straight ahead position and settled in the rollers. (see information column) Select the correct direction of operation so that the wheels rotate in the forward direction. 1. Start the brake rollers and allow the front wheel to stabilise. With the rear brake fully applied (see information column) gradually apply the front brake until maximum effort is achieved or the wheel locks and slips on the rollers. Note the reading at which the maximum braking effort is achieved and release the brake. Start the rollers, gradually increase the front brake effort to about half the maximum reading and observe the way it builds up. Hold steady and check for fluctuations. Release the brake and observe the way in which the braking effort reduces. **Cont'd ⬇**	1. a. a sticking or binding brake. (see information column) b. severe grab or judder. (see information column) c. a braking effort that does not rise or fall in proportion to the lever or pedal force applied d. excessive fluctuation of brake effort with steady application of the brake. (see information column). **Cont'd ⬇**

Information	Method of Inspection	Reason for Rejection
The efficiency of each system operated by a single brake control is the ratio of the total retarding force generated by that system divided by the weight of the machine and rider $\text{Efficiency \%} = \frac{\text{Total retarding force for one system}}{\text{Weight of machine plus rider (tester)}} \times 100$ **Most machines have two controls,** one operating the front wheel brake and the other the rear wheel brake. The efficiency for front and rear wheels can then be calculated as above, (or checked by a gradient test). **Where a linked or dual system** is operated by one control, the retarding force used in the efficiency calculation is the total from both wheels **when operated by that control only**. In this case, the other control will probably operate on one wheel. The reasons for failure 1 and 2 apply whether single or dual systems are fitted. **Motorcycles first registered on or after 1 January 1927 require two means of operating the brakes, one achieving a minimum efficiency of 30% and the other a minimum of 25%. Machines before this date are only required to have one means of operating the brakes, which shall have an efficiency of at least 30%.** **Cont'd ⬇**	Move the machine forward until the rear wheel is located in the rollers. Repeat procedures 3.3A1 and 3.3A2. Check the side car wheel brake if applicable (see information column) as in procedures 3.3A1 and 3.3A2. 2. Record the appropriate results of the brake test via the VTS Device, which will calculate the results. Where the VTS Device is unserviceable see the Introduction section paragraph 3.	2. a neither brake control achieves an efficiency of 30%. b the less effective brake control does not achieve an efficiency of 25% (Note: this RFR is only to be applied if 1 control achieves 30% and the other control fails to achieve 25%). c neither brake control achieves an efficiency of 25%.

3.3 Brake Performance

Information	Method of Inspection	Reason for Rejection
The tester may know that a higher brake efficiency is normally obtainable for the model tested, although the machine has passed the performance test. In this case the owner should be advised that the braking system appears to require adjustment or repair. **Where there is doubt about the effect** of a defect noted during the brake test, the tester may at their discretion, carry out a road test. (see Introduction item 10). **The assessment of bind, grab and judder** in sub-sections 3.3C and 3.3D can be performed at any appropriate point during the test. **If a motor bicycle wheel locks** on the operation of a brake control, the efficiency requirement of 30% is considered to have been met for that control. This does not apply to a braked wheel on a sidecar.		

Information	Method of Inspection	Reason for Rejection
As 3.3A	**B. PLATE BRAKE TEST** To calculate the brake efficiency it is necessary to determine the combined weight of the motorcycle and the tester while seated in the normal riding position. 1. At a steady speed of approximately 4 mph drive the machine onto the plate tester. As soon as the front wheel is on the plate high friction braking surface gradually apply the front brake until maximum effort is achieved or the wheel locks and skids. Note the way in which the brake effort increases and the maximum value achieved. Repeat procedure 1. above for the motorcycle rear wheel and in appropriate cases (see information column) the sidecar wheel. Calculate the efficiency of each braking system (see information column). **Cont'd ⬇**	1. a. a sticking or binding brake (see information column). b. severe grab or judder (see information column). c. a braking effort that does not rise or fall in proportion to the lever or pedal force applied. d. excessive fluctuation of brake effort with steady application of the brake (see information column). **Cont'd ⬇**

	Method of Inspection	Reason for Rejection
	Repeat procedures 1. and 2. above a second time to confirm any reasons for failure.	
	2. Record the appropriate results of the brake test via the VTS Device, which will calculate the results. Where the VTS Device is unserviceable see the Introduction section paragraph 3.	2. a neither brake control achieves an efficiency of 30%. b the less effective brake control does not achieve an efficiency of 25% (Note: this RFR is only to be applied if 1 control achieves 30% and the other control fails to achieve 25%). c neither brake control achieves an efficiency of 25%.

Information	Method of Inspection	Reason for Rejection
As 3.3A	**C. THE FLOOR TEST** The apparatus required for this test comprises a spring balance and system of pulleys so arranged that the effort required to pull a machine and rider forward against the brakes may be measured. The spring balance may be used to determine the weight of the motorcycle and rider. With the machine held upright and in a straight ahead position, attach the cable from the spring balance to the front of the motorcycle using a strap around the front forks or the headstock. The tester should sit astride the machine operating each brake in turn and note the readings while the assistant operates the spring balance system. 1. With each brake applied in turn record the effort required to move the motorcycle and rider forward. Record the appropriate results of the brake test via the VTS Device, which will calculate the results. Where the VTS Device is unserviceable see the Introduction section paragraph 3.	1. a neither brake control achieves an efficiency of 30%. b the less effective brake control does not achieve an efficiency of 25% (Note: this RFR is only to be applied if 1 control achieves 30% and the other control fails to achieve 25%). c neither brake control achieves an efficiency of 25%. d a sticking or binding brake (see information column). e severe grab or judder (see information column).

3.3 Brake Performance

Information	Method of Inspection	Reason for Rejection
As 3.3A and To check the efficiency of 25% one end of the platform must be raised to a height equivalent to 25% of the platform length (ie 700mm for a 2.8m platform). Similarly to check a 30% efficiency one end must be raised to a height equivalent to 30% of the platform length (ie 840mm for a 2.8m platform). Each brake must be tested separately and the tester must not exert any other retarding force.	**D. THE GRADIENT TEST** The equipment required for this test consists of a platform one end of which can be raised. Raise the end of the platform by the appropriate amount (see information column). 1. Sit astride the 'downhill' facing machine. Apply each brake in turn and confirm that the machine can be held stationary. Record the appropriate results of the brake test via the VTS Device. Where the VTS Device is unserviceable see the Introduction section paragraph 3.	1. a neither brake control achieves an efficiency of 30%. b the less effective brake control does not achieve an efficiency of 25% (Note: this RFR is only to be applied if 1 control achieves 30% and the other control fails to achieve 25%). c neither brake control achieves an efficiency of 25%. d a sticking or binding brake (see information column). e severe grab or judder (see information column).