SLOW-SPEED (“DYNAMIC”) AXLE WEIGHBRIDGES
6TH AUGUST 1987
NOTES FOR THE GUIDANCE OF ENFORCEMENT AND OTHER STAFF
CONCERNED WITH THE DESIGN, CONSTRUCTION, INSTALLATION,
TESTING AND USE OF SLOW SPEED (“DYNAMIC”) AXLE WEIGHERS

Introduction

1. These guidance notes provide enforcement staff with information on the procedure for
the check weighing of road vehicles on slow speed axle weighing equipment (commonly
known as dynamic axle weighers). The guidance notes do not apply to the weighing of
vehicles on conventional weighbridges for which there is a separate code of practice (GV
231) or to the use of wheel weigh pads designed for the weighing of stationary vehicles.
All references to present Acts and Statutory Instruments should be taken to also refer to
any new or revised similar legislation.

2. The weighing equipment comprises two units - the weighbeam set into a specially
prepared “apron” and the recording console remotely mounted and connected to the
weighbeam by a low voltage electrical cable. The console shows the load applied by
each axle of a vehicle passing over the weighbeam. It also prints this out as a weight on a
paper print roll together with the sum of the separate axle weights. Weights are
displayed and printed digitally in units of tonnes and kilogrammes to two decimal places.
The weighing apron, normally constructed of concrete, is designed to simulate a short
stretch of road. It is constructed to standards at least equivalent to those for the public
highways so that the loads transmitted to it by the axles being weighed will be
representative of the loads imposed on the highway.

3. The equipment is designed to determine the loads imposed by vehicles’ axles as they
pass over the weighbeam at a slow speed. This technique, commonly known as
“dynamic weighing” enables the weight check to be made with minimum delay. The
instrument will indicate the load transmitted by an axle to the weighbeam to within +/- 20
kg of the true applied weight. This allowance is made to accommodate slight variations
in recorded weights of vehicles weighed at low speed. Due to the nature of vehicle
suspensions, the load transmitted by individual axles - particularly by vehicles with
compensating suspension systems - may vary momentarily with the motion of the vehicle.
This variation occurs because the load transmitted to the highway by an individual axle,
although chiefly dependent on the vehicle’s total weight and design, is also partly based
on the fluctuating stresses in the axle’s suspension system - to an extent which depends
on the type of suspension system, on the profile of a normal road and on the relative
movement of the vehicle’s axles as they pass over the highway.

4. For this reason, the load imposed by an axle varies slightly as the vehicle moves along the
highway. As a result, the load on the axle measured with a fixed instrument mounted in
the road may change as the vehicle is moved over it. This can happen whether the
vehicle is stationary at the time of measurement or if it is moving at a slow speed. These
small variations in axle load are more commonly observed on axles forming part of a
bogie - particularly if the load compensating mechanism is not working properly - than with single, independently sprung axles. The presumed accuracy limited as laid down in the Weighing of motor Vehicles (Use of Dynamic Axle Weighing machines) Regulations 1978 No. 1180 are intended to accommodate these variations. In Northern Ireland the limits are given in the Motor Vehicles (Use of Dynamic Axle Weighing Machines) (Number 2) Regulations (NI) 1985 No. 133.

5. Slow speed axle weighers used for enforcement are manufactured in accordance with a specification approved by the Department of transport. They are tested and certified regularly by Trading Standards Officers (TSOs) by reference to National Standards. Axle weighing equipment is fully screened against radio interference. Tests conducted using transmitters tested and traceable to National Standards, transmitting on the most powerful of AM and FM frequencies, have been shown to have no appreciable effect upon the accuracy of the equipment.

Organisation of Weight Check Sites

6. The following procedures should be followed in organising and carrying out weight checks at Department of Transport axle weighbridge sites.

a) As far as possible, Department of Transport Examiners, TSOs and Police should agree a programme of weight checks to ensure full use of the weighbridge site, manpower and equipment. The programme should be circulated on a confidential basis in order to obtain as even a spread of activity as possible.

b) At a weight check the necessary traffic warning signs and other devices should be agreed with the senior Police Officer present at the check to ensure the safety of participating personnel and other road users.

c) Arrangements should be made so that prohibited vehicles could be securely parked without interfering with the check.

d) Where the stopping point is not adjacent to the weigh site adequate communication should be kept between the stopping points and weigh site by radio or car escort.

e) Information should be provided at the checkpoint to assist the drivers of prohibited vehicles to off load any excess weight, such as providing a list of local firms prepared to do unloading work, so as to make it easier to clear the offending vehicle as soon as possible.

f) Courts may question the competence of users of the weigher. Therefore only trained enforcement staff must use the weigher to avoid the risk of unacceptable weighings which could not be sustained as evidence in Court.

g) Police officers required to stop vehicles at checkpoints should be instructed before and, if necessary, during the check as to what vehicles should be stopped and what instructions
should be given to the drivers. Police officers who direct vehicles for weighing must be
authorised officers appointed by the Chief Constable.

h) A record should be kept of the date on which a check is held at each check site, how
long the check lasted (number of hours) and the number of vehicles check weighed. The
information should be passed to the local Traffic Area Office (separate instructions
concerning this procedure will be issued).

The Use of Slow Speed Axle Weighers by Enforcement Officers

7. In any Court proceedings it may be necessary for the enforcement officer to prove the
accuracy and suitability of the weigher and the weighing process used for enforcement
purposes. It is therefore essential to ensure that the weigher is tested and certified at the
required intervals by a TSO in accordance with the procedure given in the main Code of
Practice [for dynamic axle weighers (GV 230)]. If a weigher is only used occasionally
for enforcement purposes it may be necessary to arrange for it to be tested before any
enforcement use from which legal proceedings flow. These tests must be conducted by a
TSO, who will provide a witness statement as to the equipment’s accuracy and suitability
for enforcement use.

8. Users must be aware of their responsibilities, the correct use of the equipment and what
action needs to be taken in different circumstances. One officer should be in charge of
operations at the weigh site and that person, or a delegated officer, should also be
responsible for all health and safety requirements.

9. if there is any doubt about the equipment’s accuracy or suitability for use, the local
Trading Standards Department should be informed. A weigher used in circumstances
which are outside the terms of the TSO’s certification may be considered to be
inaccurate in use and a TSO’s evidence as to its accuracy in normal test conditions will
not then be acceptable in Court.

Preparation for Slow Speed Weighing

10. The following procedure must be observed before each weighing check commences:-

a) Inspect the concrete apron, weighbeam and side plates for any sign of damage and mis-
alignment. The concrete apron must be clear of debris (such as stone) which could effect
the weighing.

b) Check that all cable connections are properly made.

c) Position console on a stable level surface and connect to a suitable power supply.
d) Switch on equipment and check Low (zero) and High (calibration) readings using the appropriate control switches. Ensure that the equipment has been switched on for a sufficient length of time so that the zero and calibration figures remain constant and check that the print-out is working correctly before use commences.

e) Instruct the police to commence stopping of vehicles for weighing. The site and its approaches must be marked by signs in accordance with police advice.

**Weighing of Vehicles**

11. Vehicles must be weighed in accordance with the following procedure:-

a) Each vehicle must be stopped a minimum distance of 6 metres from the weighbeam with all wheels on the concrete approach. Avoid stopping a vehicle off the concrete approach, for example on uneven ground, or with one or more wheels on the kerb. The driver must be given clear instructions and passengers told to remain in the vehicle during the weighing.

b) As errors may be caused by surges in the liquid loads of single compartment unbaffled tankers, liquids must be allowed to settle before weighing commences.

c) The enforcement officer in charge of the inspection must:-

   i) Ensure that a print of the zero and calibration occurs before and after each weighing.

   ii) Set the equipment in the dynamic mode.

   iii) Where appropriate, set the direction selector switch to suit the vehicle approach, and

   iv) Ensure that any residual information in the totalisor has been cleared.

d) A “LOW” weight push button is provided on the front panel of the instrument. The weight recorded by the weighing systems will not be affected or modified by the use of this facility. The purpose of this function is to prevent an overspeed indication which can occur when weighing vehicles with small wheels which approach the limit of operating speed. These vehicles are often small or low weight vehicles.

e) The driver must then be instructed to drive across the weighbeam at slow speed. The driver must not accelerate, use his brake, or change gear. This can normally be achieved by engaging lowest forward gear and driving at a tick-over speed over the weighbeam.

f) The vehicle must be observed at all times during the weighing procedure to ensure that a consistent speed is maintained and that all wheels pass over the beam. In cases where
drivers have difficulty complying with the procedure, such as drivers who do not understand English, the enforcement officers should guide them through by walking alongside the vehicle as it is weighed.

g) If a driver drives too fast during the weighing or uses the vehicles’ brakes to cause a sharp deceleration, causing a red or error print out, or no print out, to be registered the weighing must be disregarded. The vehicle must be weighed again until a satisfactory weighing and a correct print-out is provided.

h) After a satisfactory weighing, with a correct print out showing the weights as the loads on each axle, the operator must press the totaliser button to give a summation of these weights. The registration number of the vehicle must then be written on the roll adjacent to the print-out.

i) After weighing, normal Road Traffic Act procedures should be followed as given in the Weighing of Motor Vehicles (use of Dynamic Axle Weighing Machines) Regulations 1978 No. 1180. In Northern Ireland the relevant legislation is the Weighing of Motor Vehicles (Use of Dynamic Axle Weighing Machine)(Number2) Regulations (NI) 1985 No. 133. The prescribed Certificate of Weight should be issued to the driver. The recorded weights should be assessed against the presumed accuracy limits laid down in the Regulations; compensating axles should be treated in accordance with the appropriate Construction and Use Regulations.

j) Ideally the print-roll for the complete day’s weighings should be left intact but then removed, dated and retained by the enforcement staff for 12 months. However, some Courts require prosecution reports to be accompanied by the weight ticket attached to the report with Photostat copies.

Procedure After Check-Weighing

12.a) If the vehicle is overloaded the driver should be interviewed and reported in line with the enforcement agency’s procedures.

b) The vehicle’s movement may be prohibited until the weight is reduced or adjusted.

c) The driver and operator and any other person causing or permitted use should be reported by the enforcement officer for all offences revealed. Where an enforcement officer has reason to believe that overloading is the result of action by other persons, either at the point of loading or elsewhere, this should also be reported so that further enquiries can be made and full responsibility established.

d) Where an articulated combination or draw-bar combination is prohibited, the prohibition remains in force until an enforcement officer is satisfied that the train weight of that particular combination and of its axles complies with the weight limits.
e) When completing the overload check report, the enforcement officer should ensure that the full facts are reported, so that any person not present at the check will understand the situation e.g. number and position of axles, type of vehicle, any striking feature about the load or its position on the vehicle. Where appropriate, a photograph of the vehicle and load might be helpful.

Abnormal Individual Loads

f) When weighing vehicles which are claimed to be operating under the ‘Special Types General Order’ (STGO) it must be remembered that they revert to the Construction and Use Regulations limits if they do not comply with the conditions of The Motor Vehicle (Authorisation of Special Types) General Order 1979. See Appendix 1, paragraph 9 for details concerning abnormal indivisible loads.

Loads Requiring Special Consideration

g) Vehicles carrying animals must be dealt with quickly and with due regard to the animals’ welfare - see Appendix 1 for details of how to deal with vehicles carrying livestock and other loads requiring special consideration. In addition, the requirements of the Animal Health Act 1981 must be followed with regard to the transfer or off-loading of animals. Details are given in Appendix 2.

Verification Procedure

13. At Appendix 3 are notes for the operational guidance of Trading Standards Officers concerned with the testing and certification of slow-speed axle weighers.

Initial Certification and Routine Inspection

14. At Appendix 4 are notes for the guidance of Highway Agent Authorities involved in construction initial certification, routine inspection, maintenance and remedial works at slow-speed axle weighbridge sites.
APPENDIX 1

LOADS REQUIRING SPECIAL CONSIDERATION

Vehicles Carrying Livestock

1. At the weigh site enforcement officers must ensure that any vehicle carrying livestock has priority, providing conditions permit, since it is essential that livestock are conveyed to their destination with the minimum of delay. The enforcement officers should expect the drivers of vehicles containing livestock to inform them of the nature of their load immediately on arrival at the weigh site.

2. Enforcement officers must be aware of the main hazards to animal welfare and the precautions which require particular attention at a weight check. These precautions are:-

   a) Ventilation - this is one of the most important factors affecting the welfare of animals in transit. Adequate ventilation should be provided when the vehicle is stationary, even for short periods. Re-adjustment of the ventilation may be necessary when the journey is resumed;

   b) Exhaust fumes - to avoid causing the animals distress, the vehicle must be moved away from other vehicles at the earliest opportunity;

   c) Exposure to extremes of temperature - during hot weather the vehicle should, if possible, be parked in the shade and where there is a current of fresh air. In very cold weather the vehicle should again, if possible, be parked in a sheltered place;

   d) Feeding and watering - animals in transit should be fed and watered according to their needs. If any unexpected and prolonged delay could cause difficulty in complying with this requirement, the authorised officer will be informed by the driver.

3. If after check weighing the vehicle is found to be overloaded it will be necessary to keep the animals on board until a further vehicle has been obtained. The transhipment of animals must always be in accordance with the relevant legal requirements (see Appendix 2). Local movement of the overloaded vehicle should be permitted by the enforcement officers if this enables unnecessary hardship to the animals to be avoided.

Perishable Loads

4. Authorised officers should give special consideration to any vehicle carrying a load which is perishable or is subject to rapid deterioration. Such loads include, for example, perishable foods, ready mixed concrete etc.

High Value Loads
5. Many drivers of high value loads carry and produce an easily recognisable card for display to the Police Officer stopping their vehicle. It must be noted that these vehicles are not exempt from the normal enforcement process.

**Dangerous Loads**

6. Drivers of vehicles carrying inflammable, corrosive and other dangerous loads should be fully aware of the legislation relating to the load. Enforcement officers must ascertain the nature of such loads after stopping the vehicle.

**Customs Sealed Load**

7. If a customs sealed load has to have the seal broken to allow excessive weight to be removed, a Customs Officer will have to attend to supervise the breaking open and re-sealing of the load. It is the responsibility of the driver, vehicle operator or their agent to arrange for this to be done.

**Tankers**

8. ‘Swash’ of liquid in tankers can be produced by sharp acceleration or braking and can cause erratic weighing results due to the movement of the liquid load. Many tankers are equipped with baffles or divided into compartments so that excessive ‘swash’ of liquids is inhibited, but in order to keep the movement of the liquid load to a minimum the vehicle must be driven smoothly.

   Enforcement officers must ensure that the drivers of loaded tankers move their vehicles smoothly over the weighplate and do not subject their vehicles to sudden acceleration or braking.

**Abnormal Indivisible Loads**

9. Abnormal indivisible loads are subject to special requirements but are liable to be check weighed. Enforcement officers should expect to be informed by the driver of a vehicle conveying an abnormal indivisible load of the nature of the load and any special conditions attached to its movement. The driver should produce to the enforcement officer any documents relating to that load, its weight or routing, which should be carried with them to show that the appropriate authorities have been notified and authorisation given for the journey being undertaken.
APPENDIX 2

SPECIFIC REQUIREMENTS RELATING TO THE TRANSFER OR OFF-LOADING OF ANIMALS FROM VEHICLES WHICH ARE FOUND TO BE OVERLOADED

1. Enforcement officers should be aware that specific legislation (The Animal Health Act 1981) is designed to prevent the spread of animal disease. They should ensure that enforcement procedures do not conflict with the Act’s requirements relating to the movement and transhipment of animals. Before commencing any enforcement activity likely to involve the check-weighing of vehicles conveying livestock enforcement officers should be fully aware of any outbreak of animal disease and any current restrictions on the movement or transhipment of animals.

2. In normal circumstances and in the absence of an outbreak of animal disease or controls on the movement of animals, cattle and sheep can be offloaded or transferred from one vehicle to another without restriction. However, special controls are permanently in force in relation to the movement and transhipment of swine. Attention should be paid to the type of Licence under which the pigs are being transported (no mixing of pigs).

3. When any vehicle carrying livestock is found to be overloaded and is prohibited until the load is reduce, it is the responsibility of the person in charge of the animals to ensure that the requirements of the Animal health Act are complied if animals have to be offloaded or transferred. Offloading or transfer of animals to another vehicle may have to take place at a nearby cattle market or farm where suitable facilities exist. But where it is safe to do so, a transfer could take place directly from one vehicle to another. Loads of mixed livestock or aggressive animals such as bulls or boars may need special attention and facilities. Attention should be paid to the requirements of Schedule 2 of the Transit of Animals (Road and Rail) Order 1975 re loading of different types/ages of animals.

4. Where there is an outbreak of animal disease with controls on the movement of animals (as during the period for the compulsory dipping of sheep) or where swine are carried then the transfer or offloading of the excess animals carried on a vehicle found to be overloaded are subject to special requirements. In these circumstances the transfer to another vehicle or offloading of animals may only be done under a specific authority from the Divisional Veterinary Officer of the Ministry of Agriculture, Fisheries and Food (DVO-MAFF), or the Department of Agriculture and Fisheries in Scotland (DAFS). This authority must be obtained by the person in charge of the animals before any transfer or offloading takes place; it may be given verbally and confirmed in writing later. Failure to comply with these requirements may result in the offender being prosecuted. The requirements re transfer or off-loading of sheep applies only when sheep are passing through an infected area. It follows, therefore, that in a National Compulsory Dipping Period when the whole of Great Britain is an Infected Area, there can be no “passing
through”. Similar provision applies to cattle under the Food and Mouth Disease Order 1983 when they are passing through an Infected Area.

5. Local and restricted movement of a vehicle carrying livestock which is found to be overloaded, should be permitted by enforcement officers to avoid unnecessary hardship to animals or to facilitate transfer or offloading of animals.

6. The transfer of animals between vehicles is likely to come within the following circumstances:-

a) **Cattle or Sheep**

In normal circumstances there are no restrictions on the movement of these animals and they may be transferred from one vehicle to another without specific authority. In circumstances where movement controls or a disease situation exists an authority to transfer animals between one vehicle and another must be obtained from the DVO-MAFF/DAFS.

b) **Swine**

The transfer of swine from one vehicle to another is prohibited at all times. An authority to transfer swine between vehicles must be obtained from the DVO-MAFF/DAFS.

c) **Additional Requirements**

In any case where animals are transferred from one vehicle to another, the vehicle into which the animals are transferred must be thoroughly cleaned out before any loading takes place, unless that vehicle had immediately prior to loading been carrying similar animals originating at the same farm and no other animals had been carried. In any case, where animals are transferred from one vehicle to another the person having charge of the animals on the first vehicle must give to the person taking charge of the animals on the second vehicle sufficient information to enable the completion of the animal movement records required by the Transit of Animals (Road and Rail) Order 1975 to take place.

7. It is the responsibility of the person in charge of the animals to comply with the requirements. Non compliance may result in the prosecution of offenders. Enforcement procedures should not conflict with the requirements of the Animal Health Act.

8. If foreign vehicles are found to contain any animals, then the local Trading Standards Department or police Animal Health Officers must be informed immediately. Enforcement officers should be aware of the requirements for quarantine under the appropriate legislation concerning Rabies.
APPENDIX 3

VERIFICATION AND SPECIFICATION OF SLOW SPEED (“DYNAMIC”) AXLE WEIGHERS

FOR THE OPERATIONAL GUIDANCE OF TRADING STANDARDS OFFICERS AND THE INFORMATION OF OTHER ENFORCEMENT AGENCIES

Specification

1. Slow speed axle weighers used for the enforcement of the Road Traffic Acts shall be manufactured in accordance with the specification approved by the Department of Transport for that purpose. The manufacturer or their agent shall certify that each machine they supply is so constructed.

Limits of Accuracy

2. Whenever tested by the direct application of weights traceable to National Standards, distributed evenly across the weighbeam, the weigher shall indicate the weight applied to within the tolerance +/- 10 kg, when new or after repair, adjustment, alteration or replacement which, in the opinion of a Trading Standards Officer (TSO), could have affected its accuracy. When otherwise tested the weigher shall indicate the weight applied to within a tolerance of +/- 20 kg. These tolerances are in line with the requirements of the Weights and Measures Regulations 1963 No. 1710 for similar machines approved for trade.

3. When tested by the passage of vehicles whose weights have previously been determined on a conventional weighbridge satisfying the requirements of the Weights and Measures Regulations 1963 No. 1710 as amended, the total weight of the vehicle as determined by the aggregation of the weights recorded by the loads on each of its individual axles shall not differ from that indicated on the conventional weighbridge by more than +/- 100 kg multiplied by the number of axles.

Methods of Testing and Certification

4. The accuracy of dynamic weighers shall be assessed in accordance with the following procedure. Tests must be carried out by a TSO.

a) Static Test

   i) This test shall be applied when new, after repair, adjustment, alteration or replacement which, in the opinion of the TSO, could have affected the weigher’s accuracy, or whenever deemed necessary by the TSO. The weigher shall be
tested after installation in situ, or if this is not possible, at the manufacturer’s premises.

ii) Weights used for the test must be test weights or working standard weights as defined by the Weights and Measures (Local and Working Standard Weights and Testing Equipment) Regulations 1986 No. 1685, or other weights of a similar accuracy regarded as acceptable for the purpose by the TSO.

iii) The weigher shall be tested by the direct application of weights at 1 tonne intervals up to a load considered appropriate by the TSO with regard to the intended use of the machine, being at least 12 tonnes and at intermediate intervals if the TSO considers this to be necessary, with both increasing and decreasing loads. The load shall be as reasonably as practical evenly distributed on the weighbeam throughout the test. The digital read out, print roll and any remote read outs shall be checked at each stage, and must be within the limits of accuracy stated in paragraph 2.

iv) The TSO must record the results of the test in the following format and keep the record for at least 12 months. In England and Wales a witness statement made under Section 9 of the Criminal Justice Act 1967 should be used and in Northern Ireland a statement under Section 1 of the Criminal Justice (Miscellaneous Provisions) Act (NI) 1968 should be used. In Scotland the TSO should retain the results and send a copy to the local Procurator Fiscal, traffic police and Department of Transport Traffic Area Examiner.

b) Dynamic Weigh Tests

i) A dynamic weigh test shall be carried out by a TSO when the weigher is first installed, or after a repair, adjustment, alteration or replacement which, in the opinion of a TSO could have affected its accuracy, every 6 months, but the weigher may be tested more frequently if the TSO considers this to be necessary.

ii) Three vehicles loaded to their maximum capacity or as near thereto as practicable shall be used. These must be a 2 axle rigid (nominally 16 tons), a 4 axle rigid and an arctic with a tri-axle semi-trailer. These vehicles should be fitted with conventional leaf spring suspension on all axles which form part of a compensating bogie arrangement.

iii) Each vehicle shall be first weighed in a single weighing on a conventional weighbridge satisfying the requirements of the Weights and Measures Regulations 1963 No. 1710 as amended, to ascertain the total weight.

iv) Each vehicle shall be taken to the dynamic weigher and a series of 9 test runs across the weighbeam undertaken at various speeds which are within the capability of the machine such that no error indications are printed (usually a correct run is indicated by a black print-out). The passage of the vehicle should
be aligned such that there are 5 test runs on the centre of the weighbeam, 2 to the offside and 2 to the nearside.

v) This test should be repeated with each vehicle and the weigher shall be deemed to be accurate provided that the total weight of each vehicle as determined by the aggregation of the weights recorded as the loads on each of its individual axles is within a tolerance calculated at the rate of +/- 100 kg per axle, when compared with the initial weight established on the conventional weighbridge. Further, for each vehicle the individual weights recorded as the loads on each axle shall not vary by more than +/- 100 kg from the average weight when all the results for each individual axle recorded by the weigher are averaged. Vehicles provided with compensating arrangements should have their axle loadings assessed as a combined weight, the tolerance being +/- 100 kg multiplied by the number of axles in the compensating arrangement.

vi) A 10th run should then be made at a speed in excess of the weigher’s speed specification to ensure that the overspeed device functions in accordance with the manufacturer’s specification.

vii) The certificate of test (Annex A) shall be signed by the TSO on completion of the test and incorporated in a “Section 9” witness statement in England and Wales. In Scotland and Northern Ireland a similar procedure to that outlined in paragraph 4(a) (iv) above should be followed. The certificate should be retained together with the print roll for each test as an indication of the weigher’s accuracy valid for the period of up to 1 year.

Initial Installation and Setting up of the Weighing Equipment when New or after Repairs etc.

5. i) When new or after any repair, adjustment, alteration or replacement, which could in the opinion of the TSO have affected the equipment’s accuracy, the weighing equipment shall be tested as described in paragraphs 4(a) and (b). For the purpose of carrying out the tests described in 4(b) and if appropriate for those in 4(a), the weighbeam shall be placed into position in the pit as described in paragraphs 5(c) (ii) and (iii) below and adjusted so that it is centrally located within the pit. The height of each corner of the top surface of the weighbeam relative to the adjacent top surface of the steel surround shall be determined to within 0.5 mm by use of a spirit level and feeler gauge. The heights shall be recorded with the other results of the tests.

ii) On satisfactory completion of the tests, the position of the weighbeam relative to the steel frame surround of the pit shall be permanently recorded by alignment marks each at least 20 mm long and 0.5 mm wide scribed or chiselled into the edge of the top surface of the weighbeam at the approximate midpoint of each side of the weighbeam and correspondingly on the immediately adjacent edge of the top face on the steel surround.
iii) This procedure shall be repeated for each site and pit with which that particular weighbeam is to be used.

iv) In the case of initial installation following repairs etc., any superfluous locating marks from previous initial tests of this type shall be removed from the surfaces of the weighbeam and steel surround in order to prevent confusion.
## Certificate of Accuracy - Dynamic Axle Weigher

### Annex A

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<th>Date</th>
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### Table: Axle Load Data

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<th>Axle 7</th>
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### General Observations

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NOTES FOR GUIDANCE OF HIGHWAY AGENT AUTHORITIES INVOLVED IN CONSTRUCTION, INITIAL CERTIFICATION, ROUTINE INSPECTION, MAINTENANCE AND REMEDIAL WORKS

1. INTRODUCTION

1.1 Slow speed (“Dynamic”) axle weighers measure axle loadings to an accuracy of +/- 20 kg in 20 tonnes. The Code of Practice governing their construction and use requires the concrete approach and exit aprons to be constructed to a tolerance of +/- 3 mm with a maximum deviation of 3 mm under a 3 metre straight edge. These tolerances are only achieved if the slabs are constructed with a greater than normal degree of attention paid to all aspects of construction. Research has shown these tolerances are required only within 8 metres of the edges of the weighbeam, thereafter +/- 6 mm is adequate.

1.2 The axle weighers are used to checking both normal and abnormal vehicles, including those with multi-wheeled axles, and the tolerances therefore need to be achieved not only in normal wheeltracks, but across the full trafficked width of the aprons.

1.3 Some enforcement prosecutions in respect of over-weight vehicles have been dismissed because the defendants demonstrated that the checkweighings had been carried out on sites with concrete aprons which failed to meet these stringent surface level tolerance requirements of the Code of Practice. It is therefore essential that Agent Authorities ensure that the sites as initially constructed have stable, non-rocking concrete approach aprons which comply with the specified level tolerances. Any new site with aprons found to be out of level tolerance or unstable should be remedied before it becomes operational and aprons which deteriorate for any reason to such an extent that the surfaces fail to meet the Code of Practice level requirements or become unstable should be repaired as quickly as possible.

1.4 Specific level checking procedures are described below, with advice on methods of inspecting and repairing concrete aprons. It should be noted that successful repair work to the surface of aprons is unlikely to be carried out be relatively inexperienced operatives.

2. CONSTRUCTION OF SITES AND INITIAL CERTIFICATION

2.1 The Engineer for the Works shall ensure that slow speed axle weigher sites are constructed to Department of Transport Drawings Numbers 1, 2 and 3 in accordance with the Specification for Road and Bridge Works, except for surface level tolerances which shall comply with the requirements of the Code of Practice governing the construction and use of the weighbridge sites.
2.2 Compliance with the surface level requirements of the Code of Practice shall be determined when construction is complete and before the site is first used for enforcement purposes, by the Chief officer of the highway Agent Authority in whose area the site is located, whether or not he was the Engineer for the Works. When he is satisfied that the site is stable and complies with the surface level requirements, he shall issue a Certificate of Compliance to the Trading Standards Officer responsible for the enforcement operation of the site, who will forward a copy to the appropriate Supervising Traffic Examiner in the Department of Transport’s Traffic Area Office. A model form of Certificate of Compliance is included in the Appendix to these notes.

3. POST-CONSTRUCTION CHECKING OF SURFACE TOLERANCES AND APRON STABILITY

3.1 The concrete aprons and weighbeam installations should ideally be examined either after a period of rain or after being purposely wetted to locate any areas of ponding in relatively low areas. The limits of such areas should be marked out with waterproof crayon, except that low areas smaller than a 150 mm diameter circle may be disregarded.

3.2 Levels shall be taken on the fabricated steel surround to the weighbeam pit, using a precise level and staff together capable of giving direct readings of 0.1 mm and a steel centre-punch used to form a prominent, permanent level datum mark on the fabricated surround at a suitable point which minimises the extent of the remedial works having regard to the Code of Practice requirement of +/- 3 mm in 3 metres.

3.3 A 400 mm x 400 mm grid of level control points shall be marked out on the aprons, for 8 metres distance from each longer inside edge of the fabricated steel surround. Beyond these 8 metre limits, surface levels are not critical. Setting out lines for these level grids are shown on Department of Transport drawing Number 4A, a photo reduced copy of which is included in the Appendix to these notes.

3.4 Levels shall be taken on all these points using the precise level and staff. In the event of adjacent level differing by more than 2 mm or in low areas determined from an inspection of the wet aprons, the level intervals should be decreased sufficiently to determine any remedial work areas within the 8 metre limits.

3.5 In the event of remedial works being necessary to rectify high or low areas of the aprons, these shall be carried out by competent operatives using the methods recommended in the DTp/C & CA Manual for the “Maintenance and Repair of Concrete Roads” published by HMSO and the level checks repeated.

3.6 When the Trading Standards Officer has been informed that the site is complete and the level compliance check satisfactory, he will arrange for full scale vehicle loading tests to check the calibration of the electronic weighbridge equipment.
3.7 At this state the Highway Agency Authority staff should carry out a simple check on the stability of the concrete slabs comprising the aprons by using the precise level and staff to monitor any change in level at the corners of each slab as the adjacent joints are crossed at slow walking speed by a rigid 2-axle vehicle plated at approximately 16 tonnes and with a rear axle loading of 10 tonnes +/- ½ tonne. The maximum movement should be recorded as the rear axle crosses the edge of the slab being levelled with the front axle on the adjacent slab. Any residual movements should also be recorded. Movements in excess of +/- 3 mm should be investigated and if necessary remedial works carried out as recommended in the DTp/C & CA Manual referred to above. The level checks described in paragraph 3.4 should be repeated after any works to remedy slab instability and high or low apron areas rectified as described in paragraph 3.5.

3.8 Levels taken within the 8 metre limits on aprons which comply with the level tolerances requirements of the Code of Practice, after remedial works if necessary, should be plotted on copies of Department of Transport Drawing Number 4A or to a similar size and format and 2 copies forwarded to the Trading Standards Officer with the Certificate of Compliance referred to in paragraph 2.2. Levels taken beyond the 8 metre limits should be recorded and retained for possible future reference.

4. ROUTINE INSPECTIONS

4.1 Surface level compliance checks, but on an 800 mm x 800 mm grid, should be repeated annually when the accuracy of the weigher is being checked in the prescribed manner by the Trading Standards officer and at any other time deemed necessary by the Trading Standards Officer, the Senior Traffic Officer of the Chief Officer of the Highway Agent Authority. In the event of any relative movement of the aprons being revealed by this check, a full 400 mm x 400 mm grid level survey and slab stability check should immediately be completed as described in paragraphs 3.1 to 3.7, and the need for any remedial works discussed with the appropriate Supervising Traffic Examiner, DTp, who will notify Traffic Area Co-ordination Division (TACD) who will authorise the necessary works. On subsequent completion of a satisfactory annual level compliance survey, the drawings and Certificate of Compliance referred to in paragraph 3.8 shall be forwarded to the Trading Standards Officer.

4.2 Some seasonal variation in level of the apron is possible and should not cause concern so long as slab stability is not affected and the overall level tolerances relative to the datum on the fabricated steel surround are not exceeded.

4.3 In the event of the fabricated steel surround requiring to be disturbed or renewed, the level datum shall be transferred to a suitable temporary datum, prior to being transferred back to the original or replacement surround on completion of the maintenance works.

4.4 Some aprons may develop structural cracks. In addition to the routine level surveys referred to in paragraph 4.1 the aprons should therefore be checked for general structural condition at least annually and preferably in winter at a time when they may have been salted but are not covered by snow. Aprons examined just as the salted surface has dried (after inclement weather) will highlight any evidence of micro-cracking which would not normally be visible. Cracked aprons should be particularly checked for stability and level compliance and arrangements made with the appropriate Supervising Authority.
Traffic Examiner, DTp, who will, if necessary, consult TACD, DTp, London to secure funds and approval for their early replacement if successive checks show continuing deterioration.

5. MAINTENANCE AND REMEDIAL WORKS

5.1 The DTp/C and CA Manual for the Maintenance and Repair of Concrete Roads contains detailed guidance in the following types of remedial works. (Any reference in the Manual to road pavements or carriageway should be assumed to be equally relevant to the concrete aprons of weighbridge sites).

i) Re-sealing Joint Grooves

ii) Thin Bonded Surface Repairs

iii) Thin Bonded Joint Arris Repairs

iv) Full Depth Repairs (Jointed Slabs)

v) Full Depth Repairs (Continuously Reinforced Slabs and Roadbases)

vi) Stitched Crack Repairs

vii) Slab Lifting

viii) Pressure Grouting

ix) Vacuum Grouting

x) Surface Texturing Hardened Concrete by Grooving

xi) Surface Texturing Hardened by Surface Dressing

xii) Bump Cutting

xiii) Bay Replacement Repair

xiv) Openings and Reinstatements

xv) Sealing Cracks

5.2 Remedying of high, out of tolerance areas of hardened concrete may be carried out by surface grinding along, if the thickness of the excess concrete is relatively small, or with bush hammering followed by surface grinding for thicker excess concrete. The works should reduce the levels of the apron to within tolerance, and not necessarily to zero tolerance since this may produce undesirable undulations in the apron’s surface.
TRADING STANDARDS DEPARTMENT

STATEMENT OF WITNESS

[C. J. ACT 1967 Sect. 6, M.C. RULES 1951, p. 70]

COUNTY COUNCIL

Name: ____________________________

Address of Office

(And tel.)

Occupation: ____________________________

Age (if under 21, date of birth, or over: 21)

I am a qualified Land Surveyor employed by County Council.

I visited the Dynamic Axle Weigher on the A 4 At

. I surveyed the concrete aprons of the axle weigher either side of the weighbeam in accordance with the requirements of the Department of Transport and found them to comply with the tolerances stated in the Code of Practice for Dynamic Axle Weighers. A drawing showing the results of my survey is attached.

This statement (consisting of 1 pages each signed by me) is true to the best of my knowledge and belief and I acknowledge that, if it is tendered in evidence, I shall be liable to prosecution if I have wilfully stated it to be anything which I know to be false or do not believe to be true.

Dated the ______________ day of ______________ (Signed): ____________________________

taken/witnessed by: ____________________________

1985