

Operation

Tecalemit

OA 50572

CALIBRATION KIT

for

DE 5000

BRAKE TESTER

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FOR CALIBRATION

Kit

DE 5000

BRAKE TESTER

Technical Manual for DE 5000 Brake Tester
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1 CALIBRATION

1.1 Fig 1 illustrates the calibration kit OA 50572 which is used to apply a range of known forces to the brake force transducer, attached to the end of the motor gearbox torque arm.

1.2 The manufacture of the yard arm and its various elements is carried out to a high degree of accuracy and the calibration weight is adjusted to be within close limits of the required value. All equipment used in the manufacture and final inspection of this calibration equipment is traceable through Tecalemit's BS 5750 quality system to the appropriate National Standard.

2 FITTING THE CALIBRATION KIT

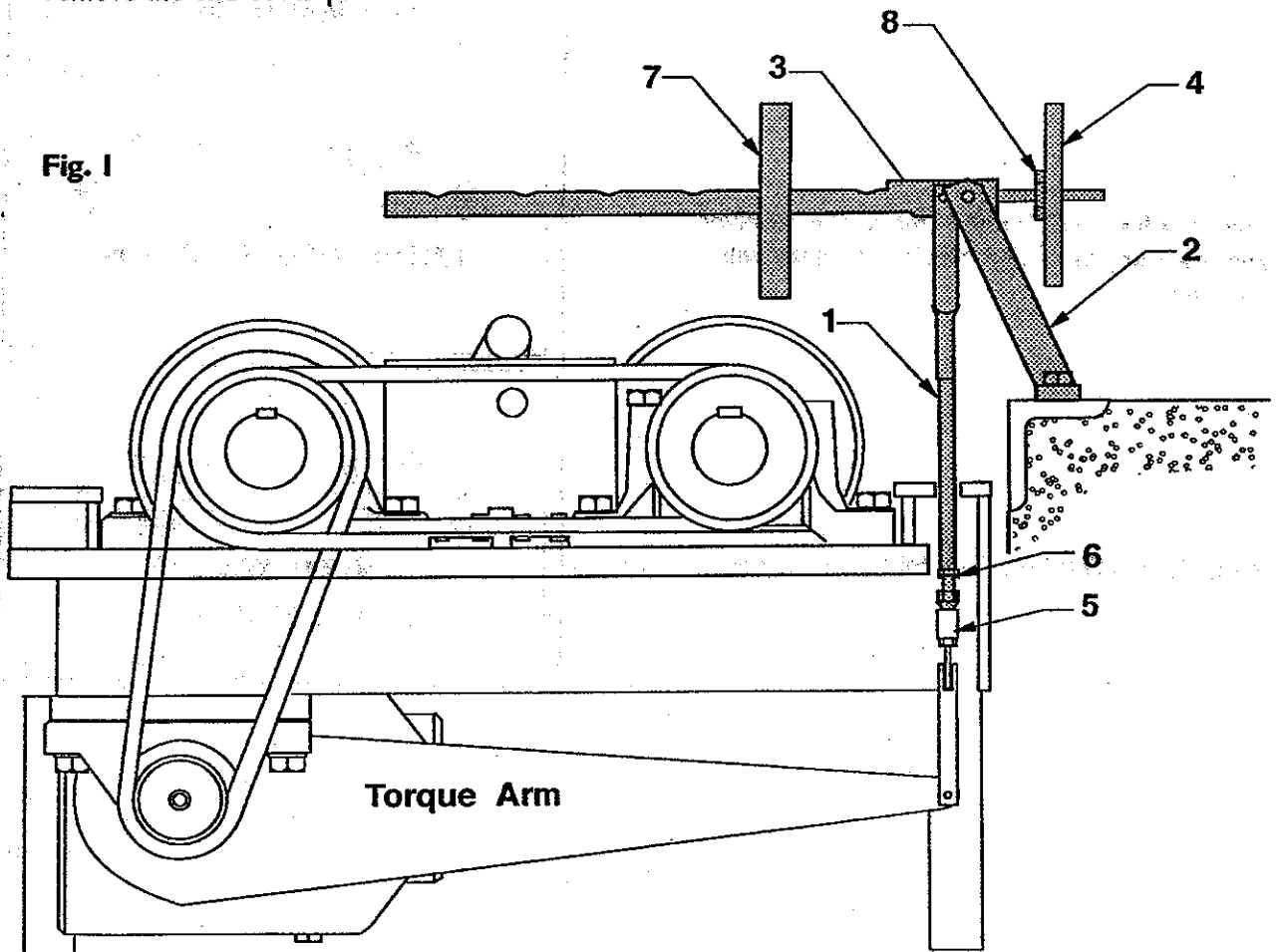
2.1 Before commencing any work, isolate the roller beds by rotating the isolator switch on the Controller to the 'O' position. Remove the "drive-off" cover plates that are situated between the rollers and foundation collar - each cover plate is retained by four M16 screws. Now remove the end cover plates.

2.2 Identify the brake force transducer, which is almost in line with the outboard end of the rollers and attached to the end of the motor gearbox torque arm. Vertically above, and in line with the torque arm, are two M10 tapped holes in the upper face of the foundation collar.

2.3 Assemble the calibration arm to the roller bed by feeding the strut (1) through the clearance hole between the cover plate fixing points and then bolting the beam support (2) to the foundation frame with the two M10 screws supplied. *Do not fit the Calibration Weight (7) at this time.*

2.4 Locate the cone at the end of the adjustable strut (1) in the hole of the brake force transducer (5), directly above the link to the torque arm. Adjust the strut (1) until the yard arm (3) is horizontal and tighten the lock nut (6). Now adjust the position of the balance weight (4) until the cone is just engaged with the transducer but **NOT** imposing any force on the transducer, then tighten the lock nut (8).

Fig. 1



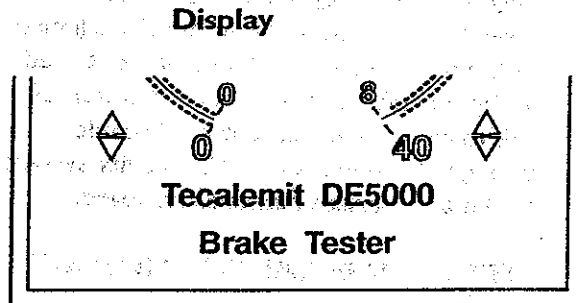
3 CALIBRATION ADJUSTMENT

3.1 Rotate the mains isolator on the side of the Controller to 'I' and allow a five minute warm up period before commencing with the following.

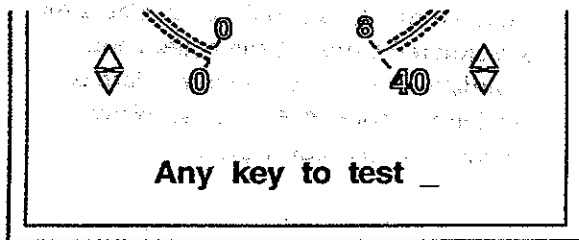
The purpose of this procedure is to set the software 'Gain' and establish the zero offsets for forward and reverse operation.

Action Required

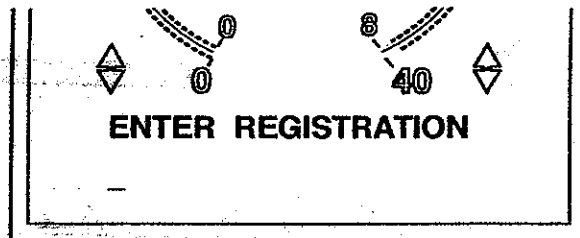
After the warm up period the display will alternate between this:



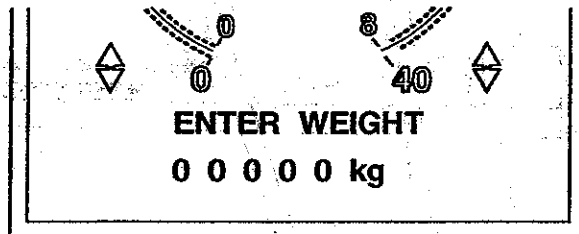
and this:



Point the Remote Control Unit at the receiver and press any key. The Message Display will change to:

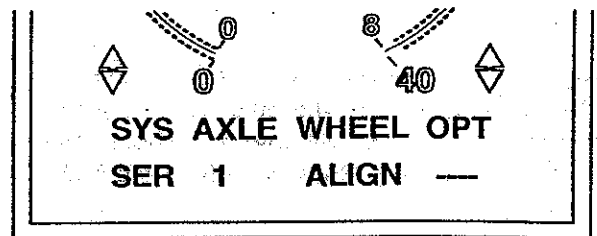


Press the ENTER key. The MD changes to:



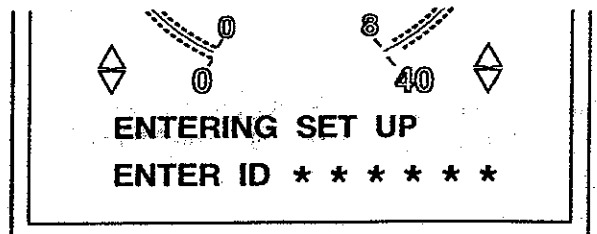
DE 5000 Calibration Kit

Press ENTER again to change the MD to:



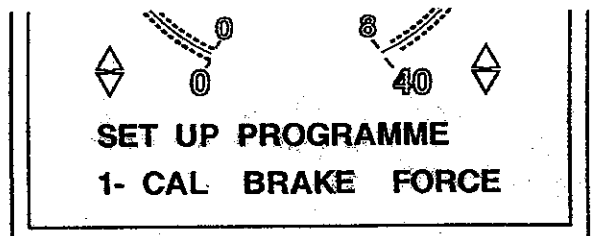
Using the RCU enter the word 'SET'.

The MD will now read:



Enter the Identification Code GAR.

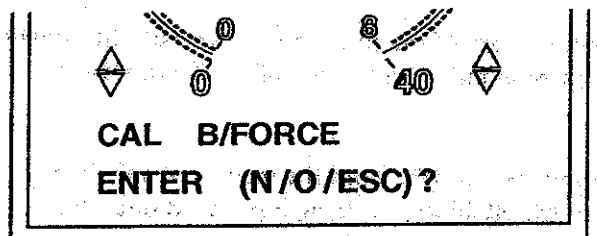
The MD will now read:



Press the ENTER key.

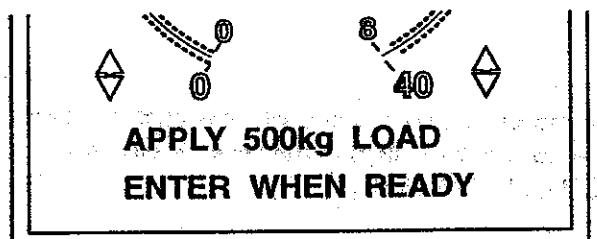
The MD will now read:

The system is now asking which roller bed is to be calibrated:
the Nearside - N or the Offside - O
or do you want to Escape - ESC.

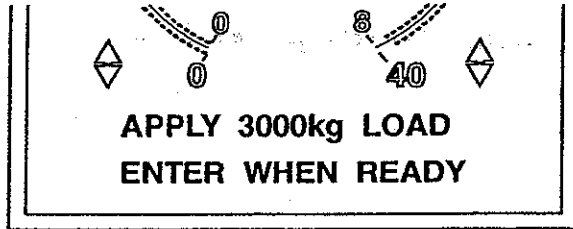


Assume the nearside is to be calibrated and press N.

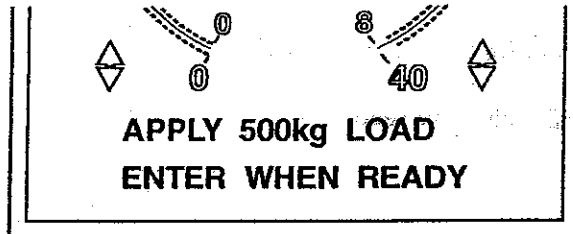
The MD will now read:



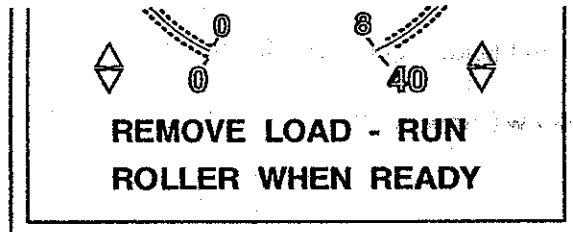
Locate the 13Kg calibration weight (7) in the 500Kg notch position on the yard arm and press the ENTER key. There will now be a short delay while the system reads the load before the MD changes to:



Move the weight to the 3000Kg position and press ENTER. After a short delay the MD will read:



This process is repeated three times, during which the system will be gradually refining its setting until the MD reads:



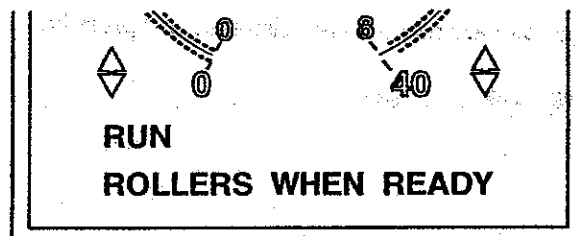
WARNING

The next part of the procedure is to run the rollers. *It is therefore most important that nobody should be permitted in the vicinity of the rollers or drive chains.*

Remove the weight from the yard arm and then press the RUN key, holding it pressed until the MD instructs you to release.



The motor control system will now automatically reset to run the rollers in the reverse direction and the MD will display:



Press and hold the RUN key until the MD changes to:



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CALIBRATION CHECK

The calibration adjustment procedure will have set the gain and zero offsets. The next procedure is to check the actual readings at various points throughout the full range of brake force measurement.

At the end of the calibration adjustment procedure the MD will change to:

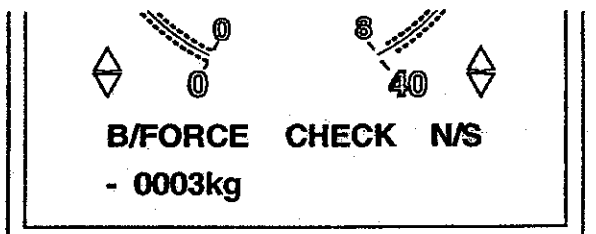
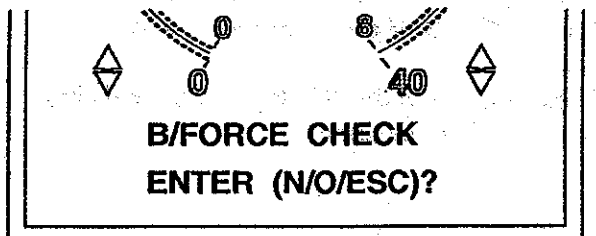
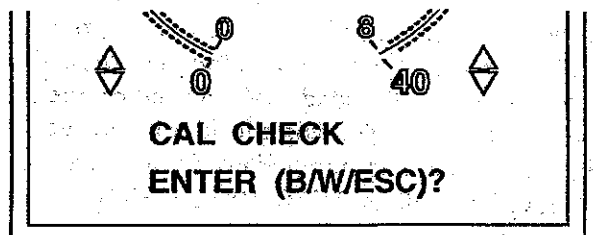
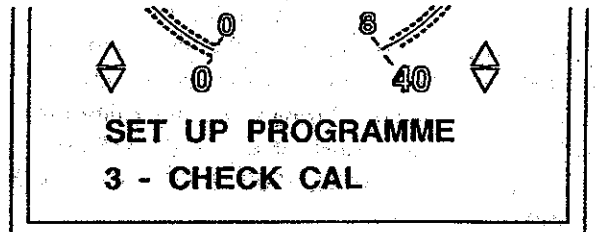
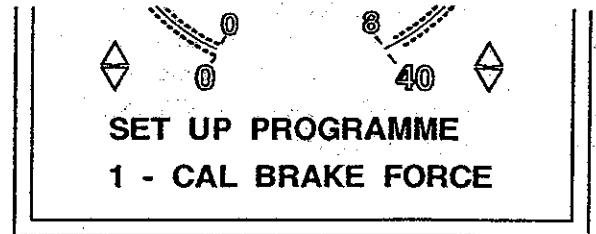
Using the + key, advance to programme 3.

The MD now reads:

Press the ENTER key.
The MD now becomes:

Here the B refers to brake force and the W refers to weight. Press the B key and the MD will change to:

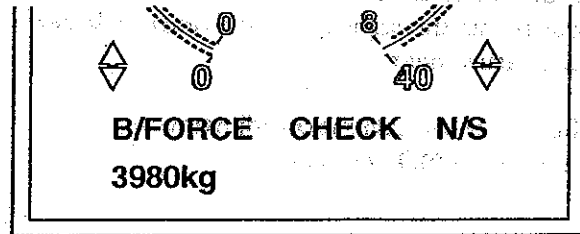
Press the N key to select nearside.
The MD changes to:
The figure that appears on the bottom line is the static offset due to chain and bearing stiffeners.



WARNING

The next part of the procedure is to run the rollers. *It is therefore most important that nobody should be permitted in the vicinity of the rollers or drive chains.*

Now place the 13Kg calibration weight on the 4000Kg position of the yard arm and press the RUN key to run the rollers. The indicated reading should be within 3% of the 4000Kg, i.e. between 3890 and 4120Kg.

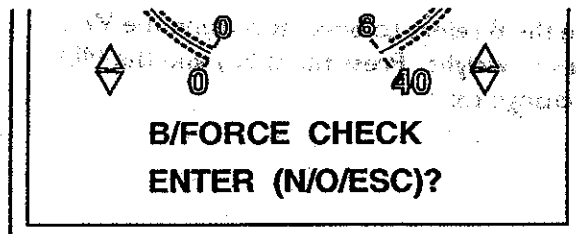


Allow the rollers to stop and then move the weight to the next position on the yard arm and repeat the process of running the rollers and observing the reading. Using the 13Kg calibration weight will permit a check of any of the following points: 4000, 3500, 3000, 2500, 2000, 1500, 1000 and 500.

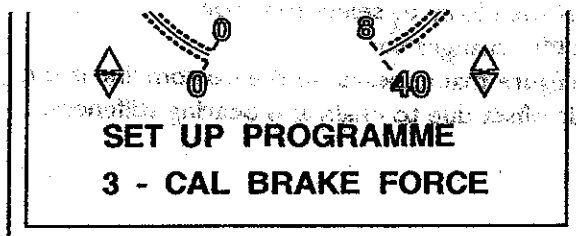
If the brake tester is used to test Class V and VII vehicles, it is necessary to check other points at the lower part of the range and for this purpose a 1.3Kg weight is provided. When used on the yard arm the corresponding check point will be 1/10th of the reading stamped on the arm, i.e. 400, 350, 300, 250, 200, 150, 100 and 50Kg.

In determining the accuracy for statutory tests, the permitted limits of error are $\pm 3\text{Kg}$ below 100Kg and $\pm 3\%$ of the calibration point.

Having completed the check press the ESC key and the MD will become:



Press the ESC key to obtain:



Using the - key change the programme to 1, transfer the calibration kit to the O/S roller bed and repeat the calibration adjustment and calibration check procedure for the offside roller bed.