

National Association of Lift Makers

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Director D M Fazakerley

NALM

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To: All Members
cc: The Technical Committee (1426)

30 September 1991

Dear Sir

GEARLESS MACHINES BRAKE LEVER PIVOT PINS

I have been advised by the Express Lift Co Ltd of a potential problem associated with the brake lever pivot pins on the early designs of their Gearless Machines which they feel other companies should be advised of in order that appropriate action can be taken.

An explanation and guidance is given on the attached sheet, would members please be guided accordingly and note the details and parts can be obtained from Lift Components Ltd, Unit D9, Canon Workshop, 18 Canon Drive, West India Dock Road, London E14 9SU, tel 071 515 5504 contact Mr B Hibberd.

EXPRESS TYPE 'D' AND 'E' GEARS

I have been asked to issue a reminder of the circular dated 7 June a further copy of which I am now pleased to enclose.

Yours faithfully



D M Fazakerley
Director

GEARED MACHINE BRAKE SOLENOID
WASHER REPLACEMENT

1. CONTRACTS AFFECTED

1.1 Potentially all 'D' and 'E' geared machines.

2. SYMPTOM

2.1 Lift stopping out of floor level.

3. FAULT

3.1 Disintegration of resilient stop washer inside brake solenoid causing operation of the brake to be retarded. (A batch of bought in stop washers have been supplied to an incorrect grade. These perish after prolonged contact with oil or grease).

4. REMEDY

4.1 Replace stop washer X31770 with a new washer X39527 manufactured from Nitrile rubber as follows:

4.2 Washers are identified as figure 1.

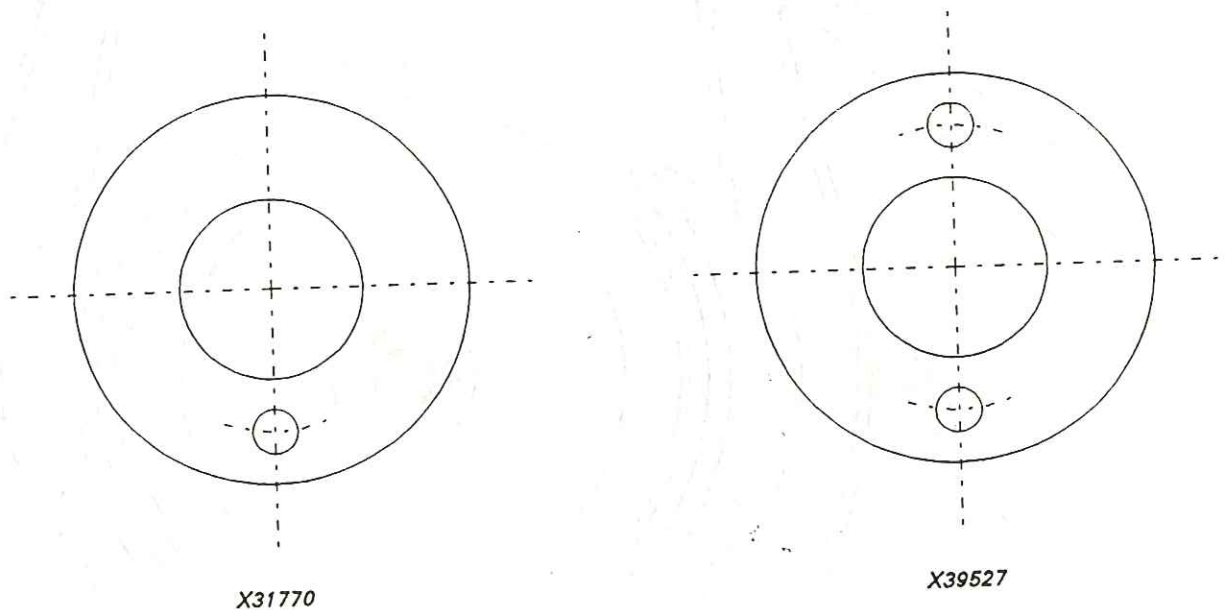


Figure 1 - Washer Identification

4.3 Appropriate service procedures should be observed when re-assembling brake components. Re-assembly should be in accordance with the attached details.

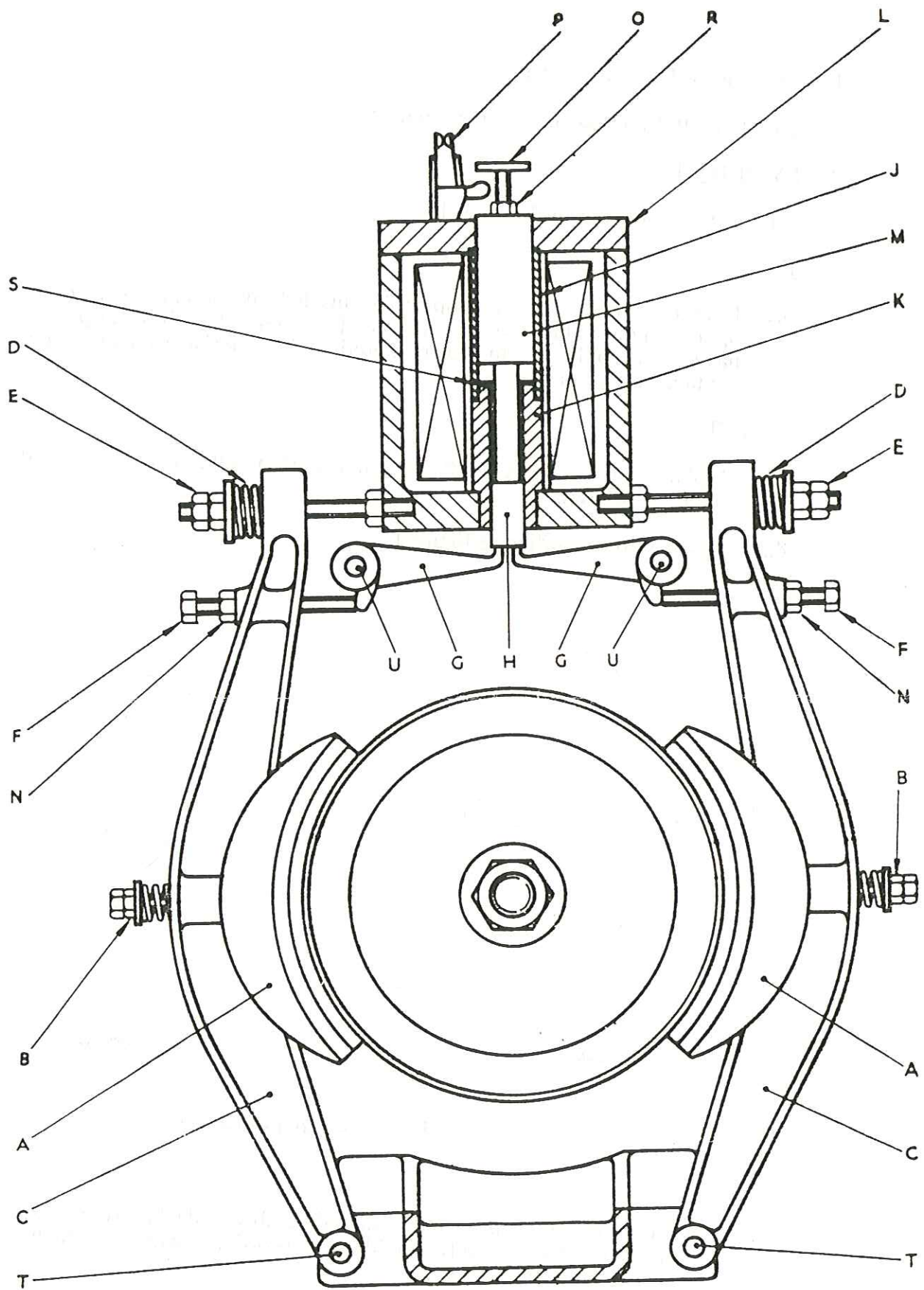


FIGURE 2 - BRAKE MECHANISM

INSTALLATION OF 'D' & 'E' MACHINE BRAKES

1. DESCRIPTION

These brakes are of the floating shoe type, that is the shoe can rock on its brake arm into alignment with the brake drum. Each brake arm has its own brake spring and the pair of brake arms is operated by a single magnet which is fixed to the gearbox. Energising the magnet causes plunger M to thrust on and rotate the levers G, which push on thrust screws F and thus lift the shoes A from the drum (Refer to figure 2).

2. WORKS INSPECTION AND TEST

The brake mechanism must be assembled to its particular gear unit and if necessary, the shoes must be 'run in' and the brake adjusted so that the following points are fulfilled (Refer to figure 2 throughout).

- 2.1 The brake drum must be true within .05mm (.002 in).
- 2.2 The surface of the brake drum and shoes must be free from grease and oil.
- 2.3 The hinge pins T & U must be lubricated and the brake arms C and levers G must rotate freely on them.
- 2.4 The shoes A must rock freely on the brake arms C but be held by springs B so that they do not fall by their own weight, after being positioned by contact with the brake drum.
- 2.5 The rivets holding the brake linings must be countersunk well down, and the shoes must contact the drum substantially centrally and over $\frac{3}{4}$ of their area. In all other parts their must be more than 0.38mm (0.015 in) clearance between shoe and drum. In obtaining these figures the thickness of the lining shall not be reduced below 0.58mm (0.023 in).
- 2.6 The inside surfaces of the bronze guide bush J and the steel core K should be liberally treated with MOS_2 grease SLB 5 before the plunger is inserted. See that the plunger assembly M-H, can move up and down freely but not rotate. The guide tube J must engage with the fixed core K and spigot into the cover plate L. With the plunger M seated on the resilient stop washer S (thrust screws F withdrawn to allow levers G to fall clear from push rod H), check that the plunger M is substantially central in the hole in the cover plate L, and that when the magnet is energised with 100 volts minimum, clearance between plunger M and cover plate L is not less than 0.45mm (0.018 in).
- 2.7 With thrust screws F screwed back so that the operating levers are clear of the push rod H, apply the shoes A to the drum by adjusting the brake springs D to the length shown below and lock with nut E.

Spring length - D machine - 48mm ($1\frac{7}{8}$ "
 E machine - 57mm ($2\frac{1}{4}$ "
- 2.8 With the magnet energised see that the operating plate O is clear of the reducing switch P. Now screw in the thrust screws F until the levers G both just touch, but do not thrust on the plunger H. Then further screw in each thrust screw F $\frac{2}{3}$ rds of a turn. This will give approximately 3mm (0.12 in) plunger stroke for D and E brakes.

2.9 With the magnet de-energised check that both levers G are in equal contact with the plunger H, and if not adjust the appropriate thrust screw F against the loose lever until the slack is just taken up.

2.10 With magnet energised check the operation of the reducing switch.

Check that the plunger stroke is approximately 3mm (0.12 in) for D and E brakes.

Check that the brake shoes are lifted clear of the drum.

2.11 Lock the thrust screws F with nuts N, and the operating plate O with nut R, and re-check.

3. SITE ADJUSTMENT

After installation adjust as follows: (Refer to figure 2 throughout).

3.1 Provisionally set the springs to the length given below.

3.2 Run the machine and adjust the thrust screw F until the brake shoes are just heard to touch lightly on the drum. With the machine stationary and the brake de-energised check that the ends of both levers G support the weight of the plunger equally. If necessary re-adjust the screw of the side on which the lever is not touching the plunger.

Run the machine and check that the shoes can be rocked slightly by hand, which is generally an indication that there is sufficient running clearance to prevent heating of the drum. Slight rubbing of the shoes will not overheat the drum and the aim is to use the minimum possible stroke. After a period of running check that that drum is not, in fact, overheated.

3.3 As a guide it should be noted that the stroke of the plunger is approximately 3mm ($1/8$ in) for D and E brakes.

3.4 Adjust the operating plate O of the brake reducing switch so that the minimum contact gap is obtained which will safely break to arc (approximately 0.8mm ($1/32$ in)).

3.5 If necessary the brake springs may be re-adjusted to give the required stopping characteristics and the stop should be as soft as possible consistent with obtaining the requisite accuracy.

Care should be taken to adjust each spring by the same amount so that their lengths remain equal.

4. MAINTENANCE

4.1 The brake plunger and bronze liner should be periodically checked for old grease build-up or dryness. In either case the plunger and liner should be wiped clean and fresh grease SLB 5 applied sparingly and evenly over both surfaces.

4.2 The brake should be re-adjusted in accordance with paragraph 3.2 above, when the plunger stroke has increased to 5mm ($3/16$ in) for D and E brakes.

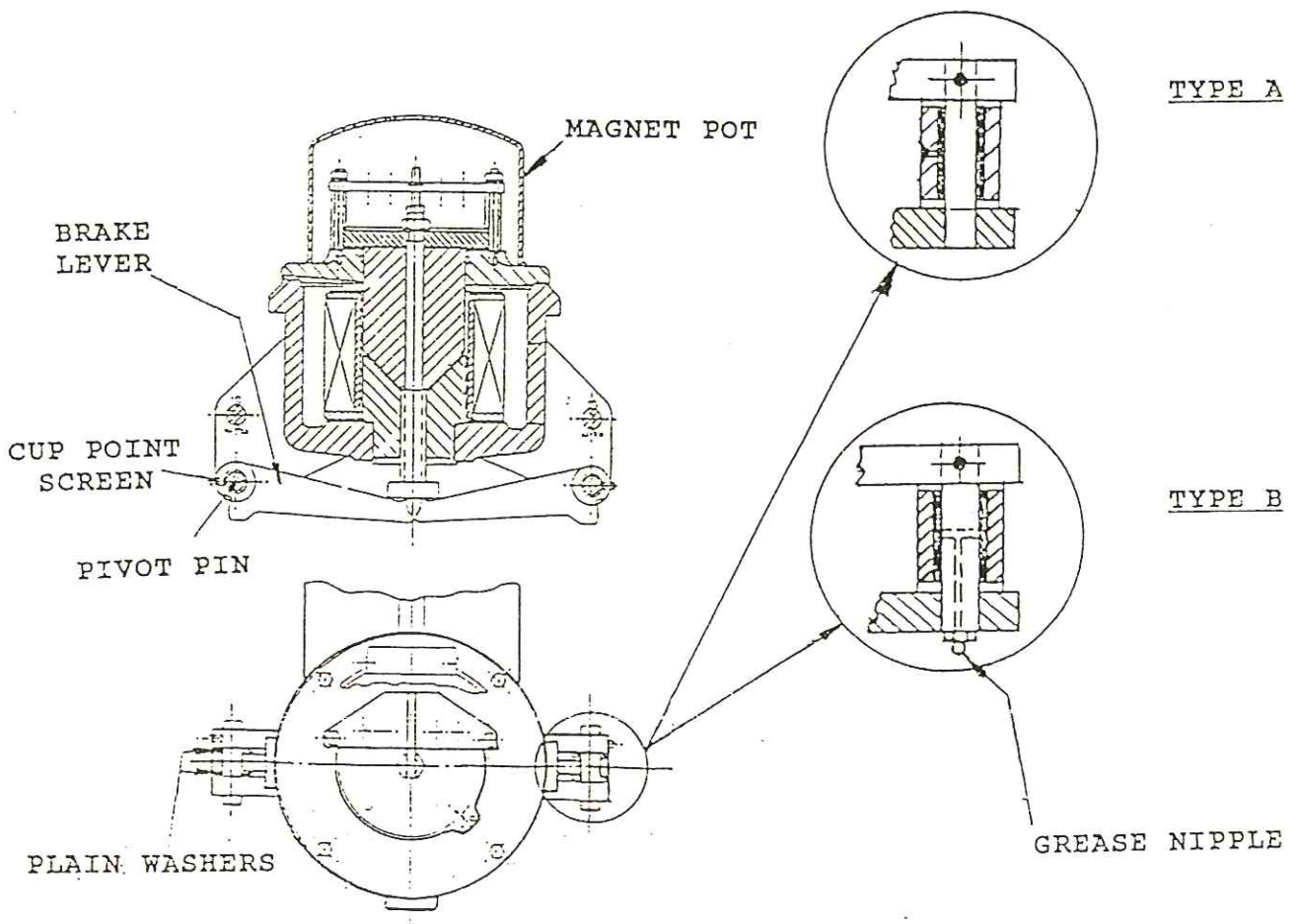
BRAKE LEVER PIVOT PINS ON EXPRESS LIFT COMPANY GEARLESS MACHINES

TYPES P, Q, R, S, T, U, V

The lubrication of the brake pivot pins on early designs of Express Lift gearless machines has been found to be limited in some instances. Lubrication of these pivot pins can be improved by the fitting of the latest design which incorporates cross holes and a grease nipple in the end of the pin.

We recommend that the brake lever arms are inspected at the next routine service visit and any gearless machines with the earlier design (Type A) are changed to the latest design (Type B).

Details and parts for this change can be obtained from Lift Components Ltd.



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To: All Members
cc: The Technical Committee (Code No: 1381)

7 June 1991

Dear Sir

EXPRESS TYPE 'D' AND 'E' GEARS

The Express Lift Co Ltd have informed the Association they have recently experienced situations with lifts stopping out of floor level as a result of the operation of the geared machine brake being retarded.

Investigations have identified that this problem results from the disintegration of the resilient stop washer inside the brake solenoid and analysis of the faulty washers has shown that they have been supplied from an incorrect grade of material.

This particular type of washer has been in use since 1983 but as far as the Company can ascertain only one batch of faulty washers has been supplied to them. However, as it is possible that gears manufactured prior to 1983 have had the washer changed in service it is not possible to determine the washer material by simple inspection, the company is therefore recommending that all 'D' and 'E' gears are checked and the washer changed where appropriate. If inspection shows that a leather washer has been fitted (pre-1983) then this need not be replaced.

The potentially faulty washer is only fitted to type 'D' and 'E' gears and the gear type can be identified from the nameplate. This type number incorporates the year of design eg 'D87', 'E89'.

Details for the replacement of the resilient stop washer are enclosed and nitrile washers (Drawing Number X39527) can be obtained from the Quality Engineering Department at the Companies Head Office in Northampton.

It would be appreciated if members could advise those installations where the change is carried out by other than the Express Lift Co Ltd in order that the Company can maintain comprehensive records.

Please be guided accordingly.

Yours faithfully



D M Fazakerley
Director

John Innsball 278-8070

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To: All Members
cc: The Technical Committee (1426)


1 October 1991

Dear Sir,

Express Type 'D' and 'E' Gears

Please find enclosed a copy of the covering letter to circular dated 7th June which should have accompanied recent circular dated 30th September.

Yours faithfully,


D M Fazakerley
Director

