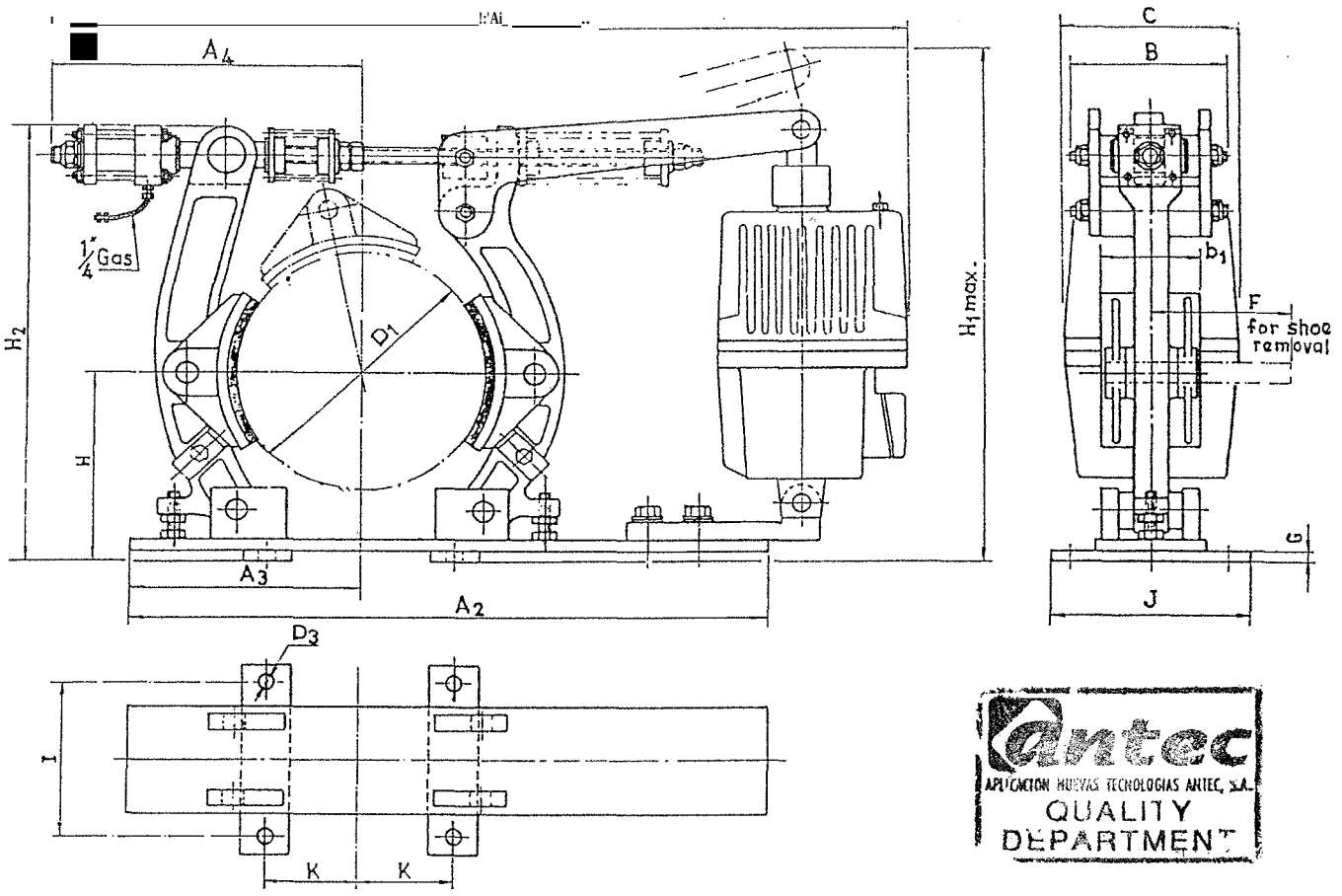
# BRAKES TYPE NAT- EH

A!SE Standard N.º 11

61.720 (I)

Apttl 00






| BRAKE TYPE | THRUST TYPE | NUMBER TYPE | TORQUE Nm. | WEIGHT Kg. | PRUM WIDTH b2. | SHOE WIDTH b1 | DIMENSIONS Dt | A1 | A2 | A3 | A4 | B | C | D3 | F | G | H | H1 | H2 | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8" 203 | 255 356 | I I | 420 | 180 280 | 34 39 | B3 | 77 | 203 | 779 789 | 510 | 185 | 288 | 116 | 160 | 17,5 | 125 | 19 | 178 | 411 507 | 373 | 146 | 190 | 83 |
| 10" 254 | 255 356 | I I | 501 | 210 370 | 40 45 | 95 | 89 | 254 | 825 843 | 580 | no | 320 | 116 | 160 | 17,5 | 130 | 19 | 213 | 419 515 | 397 | 159 | 200 | 102 |
| 13" 330 | 356 506 806 | II | 825 | 500 800 1350 | 69 72 73 | 146 | 140 | 330 | 967 SSZ 9S2 | 690 | 2S0 | 377 | 155 | 160 171 171 | 20,5 | 180 | 28 | 251 | 572 637 652 | 613 | 228 | 280 | 146 |
| 16" 406 | 50S BOG 1.3 OS | II | 950 | 760 1.'3&1 2.050 | S7 100 121 | 171 | 165 | 406 | 1.154 1.154 1.155 | 800 | 310 | 4S5 465 455 | 159 | 171 171 230 | 27 | 210 | 34 | 308 | S5S 671 806 | 730 | 273 | 330 | 190,5 |
| 19" 482 | 806 1.306 2.006 | n | 1.055 | 1.3S0 1150 3.500 | 141 162 164 | 222 | 216 | 482 | 1.169 1.180 1.180 | 94-0 | 365 | 463 | 190 | 171 230 230 | 27 | 240 | 30 | 336 | 730 792 79.2 | 805 | 330 | 390 | 235 |

NOTE: Thhydre ulic brql<ing torquez is for direct hydr ulic systqm with Q prassura. on th<Z p<ZdCll of 30 Kg.

ANTEC, guards for itself every possibility of change of measurements and/or design.

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F.O.T. 56 - Rev. 1 - 9/86 - I. C. SAMPER, S.A.

## 1.- GENERAL

The NAT-EH, NDT-EH and NFT-EH derivated of NAT, NDT and NFT types, ate brakes that have two independent braking systems:

A braking without current hy means of a spring wich release is made by a electro-hydraulic thruster.

A hydraulic braking by means of a pedal when the brake is electrically released. The hydraulic braking torque is diffeJ:ent of the normal torgue.

Never use the two braking systems at the same time.

## 2.- MOUNTING

To fit the brake to the pulley, proceed as follow :

2.1 Check that the brake sent surface is parallel to the axis of the pulley shaft, and that the shaft is properly squared up. Check that the anchor holes match the brake anchor, and that they are properly centred with the pulley.

2.2 Open the brake arm (5), extract the bolt (6) and turning the arm upv1ards, slide the !:;;take base under the pulley untiJ its fitting position is reached.

On heavy brakes, it may be best fully to dismount the arm (5) or even the base (12) so that the brake is easier to fit.

If the brake acts on a free shaft and it can be fitted on the pulley by an axial movement after lessening the stops (3) and the nut (4).

2.3 Close the brake arm and fit the bolt with its safety sliprings.

2.4 Centre the brake on the pulley, adjusting brake height by wedging any necessary inserte under the base. If the brake is properly fitted, the X-X' axes should match.

2.5 Align the brake with the side surface of the pulley so that the pulley stands out evenly on both sides of the shoe.

2.6 Screw the brake base to the bench with the 4 screws provides.

2.7 Wire up the the thrustor, checking that the connection on the strip of terminals are set for the correct mains voltage, and that the connecting wire is held tight by its packing gland.





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2.8 Power up the brake and check that the thruster rod can complete 1cs full travel. If the thruster does not rise to **the top, *check*** :

Oil level.

Bracking torque.

Arm stop screws (3).

3.- REGULATION

3.1 Arm position adjustment.

With electric current the brake arms open, separating the shoe:3 from the pulley. 'l'he whole brake linkaqe is thus **left** floating until the arm stop screws (3) touch the base, \>!hen they are loch:ed into position.

To adjust arm stop (3) position

Release the lock nut.

Loosen or tighten the screw (3).

Re-tighten the lock nut.

Once the posU:::lon of the arms is properly adjusted, check that

- Both arms open evenly, with the shoes being removed the same distance (gap) from the pulley (measured at the height of the shoe bolt).

The thrustor can rise freely to the top of its travel.

NOTE:

The brakes leave our factory with the arm stops set for a pre-determined pulley position. Final adjustment must be made once the brake is actually mounted.

3.2 Shoe position adjustment.

In braking position, the shoes must adapt freely to the pulley surface. But when the brake is open, the shoe, which pivot on a bolt, may tend to rub againts the pulley at some point, giving rise to excessive lining wear as well as heat and vibration problems. To avoid this, shoe position must be adjusted as follow:

Disconnect the brake voltage vhiJ.e the shoes are pressing againts the pulley.



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Loosen the two shoe stop screws (8).

Bring the shoe stops forwz:,rd until they touch the shoe :J 1 without prNJsing **too hard**

- Tighten and lock the screws.

Once shoe position is properly adjusted, check that when the brake is open the separation or gap between the pulley and the shoes is even over the whole of the arc covered.

NOTE:

The brakes leave our factory with the shoe stops set :Eo.r a pre-determined pulley position. Final adjustment must be made once the brake is actually mounted.

3.3 RESERVE travel adjustment

On this type of brake, when there is no electric current the arms (5) via the shoes (10) close on the pulley wi.th the full force of the braking spring.

When there is electric power, the t:hrustor rod (11) rJ.ses to the top of its travel, pushes the lever and opens the pulley arms in an openinq- stroke *"V".*

When the power is disconnected, the thustor stops acting and, due to the action of the braking spring, the arms close on the pulley and at the same time the lever and rod of the thruster descend.

As the lining wear, the arms close more on the pulley and the thruster rod drops further in its downvard stroke.

To guarantee full braking, the full force of the spring must be transmitted to the brake arms. The rod must therefore never touch the end at its lovest point. A RESEf\VE TRAVEL 111r 11 should be envisaged between the lowest rod position and the stop in order to offset lining wear in the normal course of braking work. This reserve must be watched and restored when its lenght drops to half the figure indicated in the tables. This is done as follows (with the pulley cold):

With the brake power off, loosen lock-nuts (7) by approx. four turns.

Tighten nut (4) so that the thruster rod (11) rises and recovery begins. Connectthe thrustor power to stabilize recovery. Repeat this operation several times unti 1 the reserve travel shown in the table is reached.

- Lock the lock-nuts.



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NO'TE!3 :

The brakes leave our works with a reserve calculated :Eor *a* set pulley iameter. Correct adjustment must be made with a cold pulley once the brake is actually mounted.

Once the reserve is adjusted, readjust the arm position by means of the stops (3).

3.4 Braking torgue regulation.

The regulation of the braking torgue is made changing the length "An of the sprinq by means of the nut 2 accord.inr; to the attached tables, with the current off, and after the adjusting of the arms position and travel reserve.

The cylinder (15), during the whole regulation, behave l5ke a solid between the nut (4) and the arm. To get that the piston of the cylinder return, when disappear the hydraulic pressure, and open the shoes, the auxiliary spring (13) must be fit at the length of the table by means of the nuts (7). Is important this length because if the force of the spring is low the shoes do not open, and if the force is high the seals of the master cylinder can be damaged.

## 4.- MAINTENANCE

To obtain satisfactory service from the brake over a long period, regular attention must be given to the following points:

4 1 Watch the nT" HESERVE lenght. When it is down to half the figure in the table, this reserve must be recovered as indicated in point 2.3.

4.2 Watch lining thickness every time the reserve is recovered. When lining thickness is less than 3 mm. at its lowest point, change the shoes.

After a shoe change, the nTn RESERVE must be readjusted.

4.3 Watch the state of the pulley surface. It should be smooth, without scratches and completely clean.

4.4 Lic]htly grease the brake articulation marked as "Bn, ensuring that no oil or grease falls onto the pulley or linings. The other articulation *have* self lubricated bushes.

*4.*5 Check the thrnsto-c oi.l }Pvel. It leaves our works with the correct level of SHELF Tellus C Oil 15.

4.6 Change the thrustor oil once a year or whenever any loss of colour or original characteristics are observed.

For oil changes, see the service intructions on data sheet O1.15O.

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## 5.- CHANGING SHOES

When the lining of any of the shoes is worn down to a set minimum thic:knes[.:;, bo!:l1 shoes mu5t be replacE: a:_:; follov;;:::;: 4.1 vlith brake power off, open the brake arms (5) by raising the two arm stop screws (3), leaving a space between the screw and the base of the brake, loosening the arm nut (4) and opening the arm.

5.2 Di:::;mount bolt (9) and turn the sho,:::; (lO) around the:: pulley until it reaches position 'S'.

5.3 Pull the shoe out sideways.

5.4 Fit the new shoe by going throught the same operations in reverse order:.

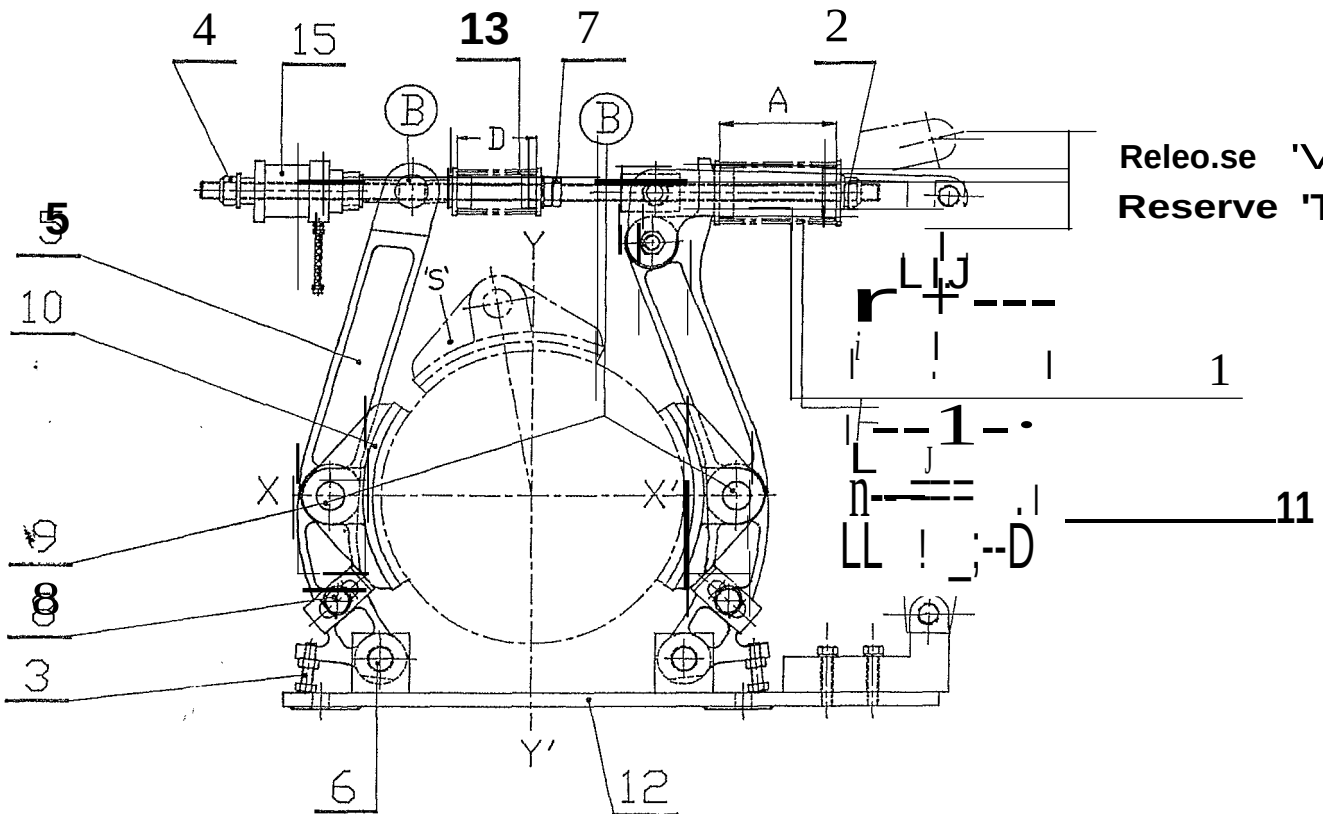
5.5 Adjust the brake as per the instructions below, paying special attention to the reserve travel. Point 2.

Remark:

When new shoes are fitted, lining contact with the pulley may not be perfect. Any sliqht mi:::;fittinqs will correct them.elves over the fjrst few br.aking operations.

NOTE:

Al'-ITE.C 1 S.IL can supply spare shoes vlith the lining fitted.



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'1'1\BLE OF THRUST()[( S'I'fWKES & AUXILilWY Si?R.ING LE:NG'I'!I

| HODEL | S'I'POKE | | Si?FING LENGTH |
|---|---|---|---|
| | 'T'ota 1 (mm) | Re:led;c:;e (rom) | Re::oerv2 (mm) | (D) (rnm) |
| NI-\T-EH-8 11 /255 | 50 | 30 | 20 | 41 |
| N;.ZiT-·.& H-··B"/356 | GO | 35 | 25 | 41 |
| NAT···EH-10ul255 | 50 | 35 | 15 | 41 |
| NArr--EH-10"/356 | 60 | 40 | 20 | 4-1 |
| NAT··EH-13"13b6 | 60 | 40 | 20 | 41 |
| NAT-EH··13!!1506 | 60 | 40 | 20 | 41 |
| NA'I'--EH--13 HI 806 | 60 | 40 | 20 | 41 |
| NAT-EH-16"1506 | 60 | 45 | 15 | 41 |
| NA'I'-EH-1.6"1806 | 60 | 45 | 15 | 41 |
| NAT-EH-16HI1306 | 60 | 45 | 15 | 41 |
| NAT--EH-19"/806 | 60 | 45 | 15 | 41 |
| NA'I'-EH-19"11306 | 60 | 45 | 15 | 41 |
| NAT--EH-19"12006 | 60 | 45 | 15 | 41 |
| ND'I'-EH-2001255 | 50 | 30 | 20 | 41 |
| NDT--EH-2001356 | 60 | 35 | 25 | 41 |
| NDT·E:I-I-250/255 | 50 | 35 | 15 | 41 |
| NDT-EH-2501356 | GO | 40 | 20 | 41 |
| NOT-EH--3151356 | 60 | 43 | 17 | 41 |
| NDT-EH-3151506 | 60 | 43 | 17 | 41 |
| NDT-EH-3151806 | 60 | 43 | 17 | 41 |
| NDT--EH-400150 6 | 60 | 45 | 15 | 41 |
| NDT-EH-4001806 | 60 | 45 | 15 | 41 |
| NDT-EH-40011306 | 60 | 45 | 15 | 41 |
| NDT--EH-5001806 | 60 | 45 | 15 | 41 |
| NDT-EH-50011306 | 60 | 45 | 15 | 41 |
| ND'r-EH-50012006 | 60 | 45 | 15 | 41 |
| NFT-EH-2001255 | 50 | 30 | 20 | 41 |
| NFT-EH-2001356 | 60 | 35 | 25 | 41 |
| NFT-EH-2501255 | 50 | 35 | 15 | 4-1 |
| NFT-EH-250/356 | 60 | 40 | 20 | 41 |
| NF'l'-EH-3501356 | 60 | 40 | 20 | 41 |
| NFT-EH-3501506 | 60 | 40 | 20 | 41 |
| NFT-EH-3501806 | 60 | 40 | 20 | 41 |
| NFT-EH-4501506 | 60 | 45 | 15 | 41 |
| NF'r-EH-4501806 | 60 | 45 | 15 | 41 |
| NFT-EH-45011306 | 60 | 45 | 15 | 41 |
| NFT-EH-5301806 | 60 | 45 | 15 | 41 |
| NFT-EH-530/1306 | 60 | 45 | 15 | 41 |
| NF'I'--EH-530/2006 | 60 | 45 | 15 | 41 |



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TABLE OF BRAKING TORQUES & BRAKING SPRING LENGTH

| MODEL | "A" LENGTH / TORQUE | | | |
|---|---|---|---|---|
| | Legth (mm) | Torque (Nm) | Legth (mm) | Torque (Nm) |
| NAT-EH-8"/255 | 110 | 100 | 92 | 200 |
| NAT-EH-8"/356 | 113 | 140 | 96 | 280 |
| NAT-EH-10"/255 | 111 | 110 | 96 | 210 |
| NAT-EH-10"/356 | 115 | 190 | 98 | 370 |
| NAT-EH-13"/356 | 113 | 250 | 98 | 500 |
| NAT-EH-13"/506 | 138 | 400 | 115 | 800 |
| NAT-EH-13"/806 | 166 | 680 | 139 | 1350 |
| NAT-EH-16"/506 | 141 | 380 | 123 | 760 |
| NAT-EH-16"/806 | 150 | 680 | 121 | 1350 |
| NAT-EH-16"/1306 | 173 | 1030 | 151 | 2050 |
| NAT-EH-19"/806 | 153 | 680 | 127 | 1350 |
| NAT-EH-19"/1306, | 175 | 1080 | 153 | 2150 |
| NAT-EH-19"/2006 | 215 | 1750 | 186 | 3500 |
| NDT-EH-200/255 | 110 | 100 | 91 | 200 |
| NDT-EH--200/356 | 113 | 140 | 96 | 280 |
| NDT-EH-250/255 | 111 | 110 | 96 | 210 |
| NDT-EH:-250/356 | 115 | 190 | 97 | 370 |
| NDT-EH-315/356 | 113 | 240 | 97 | 480 |
| NDT-EH-315/506 | 138 | 380 | q6 | 750 |
| NDT-EH-315/806 | 166 | 650 | 138 | 1300 |
| NDT-EH-400/506 | 141' | 380 | 123 | 750 |
| NDT-EH-400/806 | 150 | 660 | 121 | 1320 |
| NDT-EH-400/1306 | 173 | 1000 | 151 | 2000 |
| NDT-EH-500/806 | 153 | 700 | 127 | 1400 |
| NDT-EH-500/1306 | 175 | 1100 | 153 | 2200 |
| NDT-EH-500/2006 | 215 | 1830 | 185 | 3650 |
| NFT-EH-200/255 | 110 | 90 | 92 | 180 |
| NFT-EH-200/356 | 113 | 140 | 96 | 280 |
| NFT-EH-250/255 | III | 110 | 96 | 210 |
| NFT-EH-250/356 | 115 | 190' | 98 | 370 |
| NFT-EH-350/356 | 113 | 270 | 98 | 530 |
| NFT-EH-350/506 | 138 | 420 | 115 | 840 |
| NFT-EH-350/806 | 166 | 720 | 139 | 1430 |
| NFT-EH-450/506 | 141 | 430 | 12 | 850 |
| NFT-EH-450/806 | 150 | 750 | 121 | 1500 |
| NFT-EH-450/1306 | 173 | 1150 | 151 | 2300 |
| NFT-EH-530/806 | 153 | 730 | 127 | 1450- |
| NFT-EH-530/1306 | 175 | 1180 | 153 | 2350 |
| NFT-EH-530/2006 | 215 | 1930 | 186 | 3850 |

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