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THE UNITED KINGDOM VEHICLE APPROVAL AUTHORITY

Rev 1/03



COMMUNICATION CONCERNING THE APPROVAL GRANTED OF A
REPLACEMENT BRAKE LINING ASSEMBLY OR REPLACEMENT DRUM
LINING PURSUANT TO ECE REGULATION NO: 90.01

Approval No: 90R-01183 / 3264

1. Applicant's name and address:

Juratek Ltd. Unit 16, Carcroft Enterprise Park, Station Road, Doncaster DN6 8DD

2. Manufacturer's name and address:

3. Make and type of brake lining assembly: DP7765

4. Make and type of brake lining: M10B

5. Vehicles/axles/brakes for which the brake lining assembly/drum brake lining type qualifies as original brake lining assembly: Not applicable

6. Vehicles/axles/brakes for which the brake lining assembly/drum brake lining type qualifies as replacement brake lining assembly: See Manufacturer's Information Documents

An executive agency of the Department for Transport



- 7. Submitted for approval on: 30 October 2006
- 8. Technical Service responsible for approval tests: Vehicle Certification Agency
- 8.1 Date of test report: 14 August 2006, 2 October 2006, 20 November 2006, and 12 October 2006.
- 8.2 Number of test report: VSG076368, VSG078083, VSG078084, and VSG075132.

9. Approval GRANTED

10. Place: BRISTOL

11. Date: 19 DECEMBER 2006

12. Signature: 

A. W. STENNING
Head of Product Certification

13. Annexed to this communication is a list of documents in the approval file deposited at the administrative services having delivered the approval and which can be obtained upon request.

VSG076362



30/10/06	VCA Job No	VSG076362
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Dear Ted,

Please find enclosed the necessary documentation for you to submit applications for approval for various brake lining assemblies DP7765 in M10B material pursuant to ECE Regulation No. 90/1. This application is on behalf of Juratek Ltd and cross-references to our DP M10B application details. We would like the application made to the VCA; I have addressed the formal letter of application accordingly.

The documents contained are: -

1. Formal letter of application
2. Manufacturers declarations
3. Lab test results :-
 - Friction test results
 - Shear test results
 - Compressibility test results
4. Vehicle fitment details
5. Disc pad assembly drawings
6. General disc pad marking drawing

Please note: Allocated with E11 90R-01183/3264 as a provisional number. This approval is based on VSG076368, VSG078083 and VSG078084 plus additional OE Materials testing on VSG075132.

Yours sincerely,



Susan Owens
Q.B.T.



30/10/06	VCA Job No	VSG076362
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For vehicles / axles / brakes for which the lining assembly qualifies as replacement brake lining assembly, see following application list.

Assembly Number	Equivalent to	Also supplied as Assembly Number
DP7765 M10B	Equivalent to	SLB115 Ieca-M10B
	Equivalent to	

Yours faithfully



Susan Owens
Q.B.T.



30/10/06	VCA Job No	VSG076362
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Manufacturer's Declaration

for granting of Approval for replacement brake lining according to ECE Regulation No. 90/1.

We, the company

declare herewith that

Replacement pad assemblies DP7765 M10B

are produced in our factory

We certify that no application has been made regarding this permission/approval by us or by companies appointed by us in countries which as contract parties would also be entitled to grant permission/approval.

We are aware of the following: -

A type marking of vehicles/vehicle components of the above mentioned type with the officially assigned approval mark can only be granted if the products have been manufactured in the above mentioned factory or at one of our listed and approved manufacturing sites, and if they comply with the official approval documents.

Companies manufacturing products for our company or under license may not use the officially assigned approval mark for vehicles/vehicle components produced at their factories unless they are listed as an approved manufacturing site, and fully comply with our quality procedures.

A marking of vehicles/vehicle components of the above mentioned type with different factory or trade marks but the same approval mark is only permissible if written consent has been obtained from the Vehicle Certification Agency.



Susan Owens
Q.B.T.



30/10/06	VCA Job No	VSG076362
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Friction test results

Conducted in accordance with Annex 8, of ECE Regulation No. 90 Rev1 including supplement 2 to the 01 series of amendments. (TRANS/SC1/WP29/GRRF/R90 Rev 1).

Type of assembly: Part Number DP11011 in material 1019B
(Previously agreed single test reference)

Type of test:	Constant torque (para. 2.2.2.2)
$\mu_{op: 1}$	0.311
$\mu_{op: 2}$	0.332
$\mu_{min:}$	0.208
$\mu_{max:}$	0.431

Test dates: 08/06/2006



Susan Owens
Q.B.T.



30/10/06	VCA Job No	VSG076362
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Bench tests

Manufacturer:			
Type of brake lining assy:	DP11011 M10B	Page	1/2

1. Shear strength test¹
(5.3.2.1 of ECE Regulation No. 90 Rev 1)

- Sample

Type of assembly: DP11011 M10B

Shear area [cm²]: 43.24

- Shear strength measured

Mean value [N/cm²]: 634.6

Required [N/cm²]: 250

Test date: 08/06/2006

1) Test procedure according to ISO Standard 6312 (2001)



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30/10/06	VCA Job No	VSG076362	
Manufacturer:			
Type of brake lining assy:	DP11011 M10B	Page	2/2

2. Compressibility test²
(5.3.2.2 of ECE Regulation No. 90 Rev 1)

- Sample

Type: III
Type of assembly: DP11011 M10B
Thickness, d_0 (nominal value) [mm]: 12.9
Pad area [cm²]: 43.24
Ram dia (corresponding to caliper piston dia) [mm]: 51.48

- Compressibility at specific surface pressure of 8000 kPa

Measured at ambient temperature

$$\text{Mean value: } \frac{d_4 - d'_3}{d_0} = 0.23 \%$$

Required: $\leq 2\%$

Measured at 400°C

$$\text{Mean value: } \frac{d_4 - d'_3}{d_0} = 0.838\%$$

Required: $\leq 5\%$

Test dates: 085/062/2006

2) Test procedure according to ISO Standard 6310 (2001)



Susan Owens
Q.B.T.

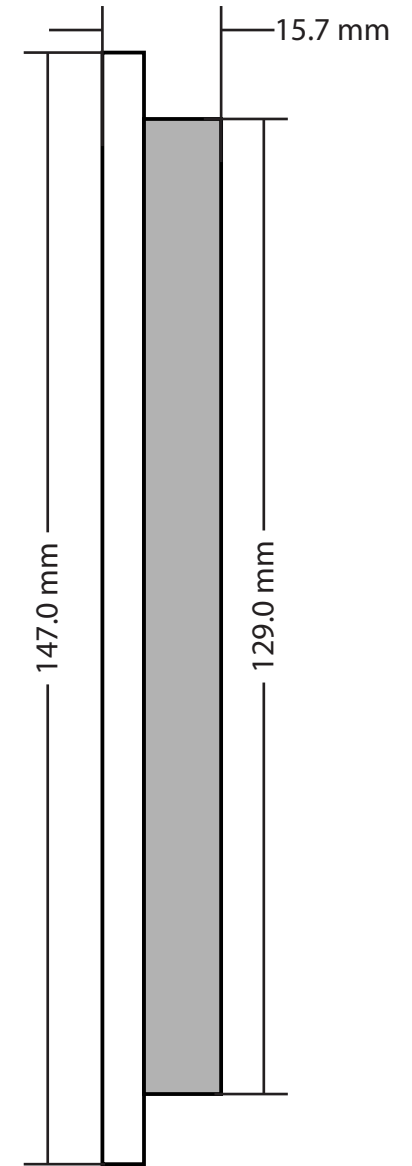
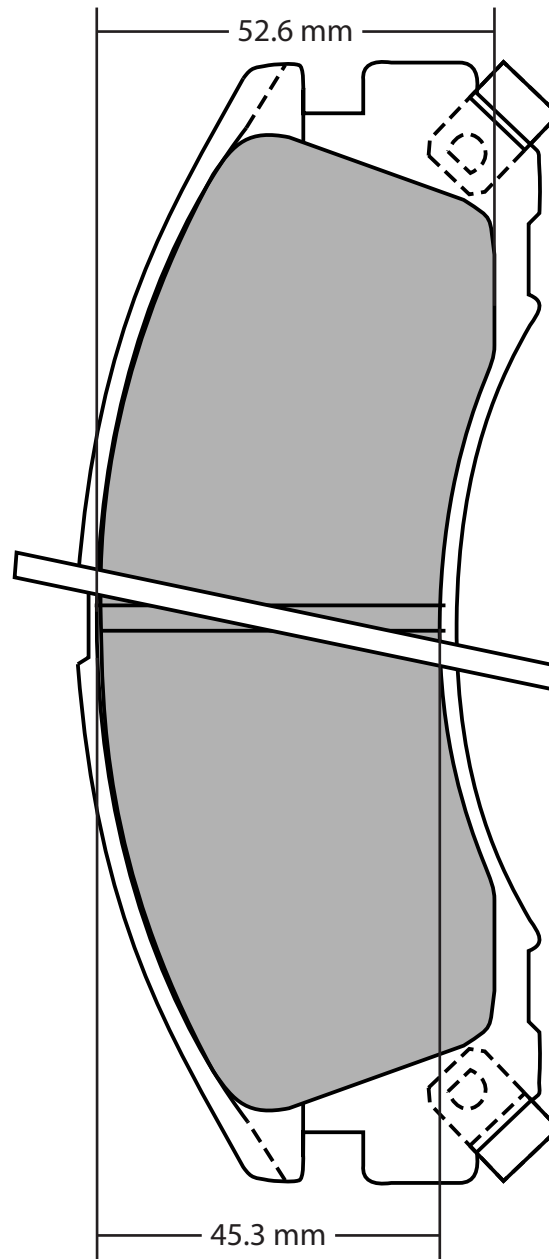
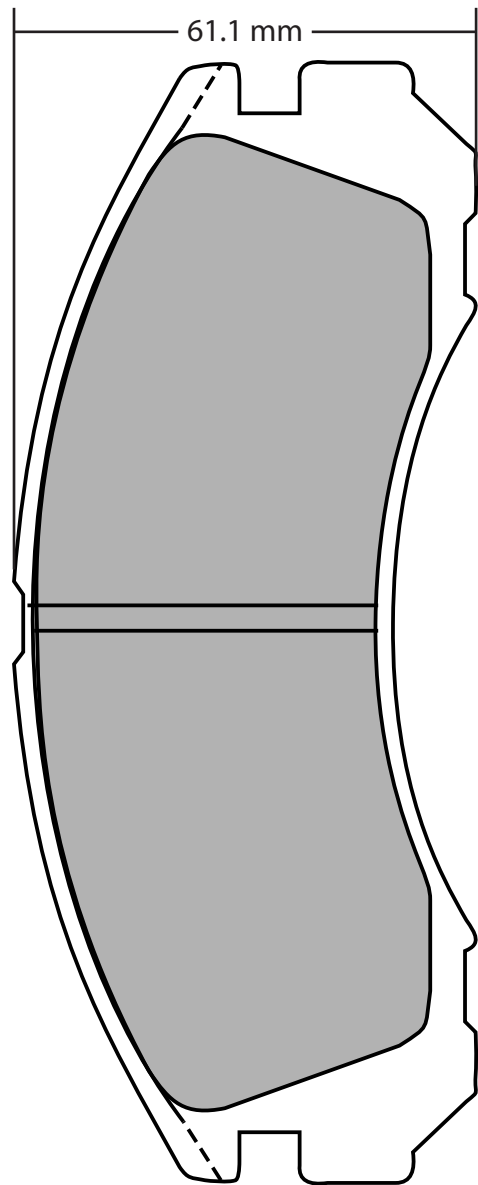



MAKE	MODEL 1	MODEL 2	MODEL 3	MODEL 4	MODEL 5	F/R	D	A	T	E	OE Caliper Manufacturer	S/V Dr	Disc / Drum /	Max Th Disc / Shoe Width
DP7765	DODGE	Stealth	3.0i V6 Turbo			F	01	91			Akebono	V	276	
DP7765	MITSUBISHI	Challenger	2.5 TD			F	11	98	03	00	Akebono	V	276	24
DP7765	MITSUBISHI	Challenger	3.0i V6			F	11	98	03	00	Akebono	V	276	24
DP7765	MITSUBISHI	Eclipse	2.0, 2.0 Turbo (4x4)			F	01	93	04	96		V	276	24
DP7765	MITSUBISHI	Eclipse	2.0, 2.0 Turbo (4x4)			F	01	93	04	96		V	277.0	24
DP7765	MITSUBISHI	FTO	2.0i V6 24V	GP, GPR, GPX		F	05	99				V	276	24
DP7765	MITSUBISHI	Galant (88-->3/93)	2.0, 2.0 16V (E33), 2.0 16V 4x4 (E39)			F	05	90	03	93	Sumitomo	V	275	25
DP7765	MITSUBISHI	Galant (3/93-->4/97)	2.0i V6 24V (E54)			F	03	93	04	97	Akebono	V	276	24
DP7765	MITSUBISHI	Galant (3/93-->4/97)	2.5i V6 24V 4x4 (E88)			F	03	93	04	97	Akebono	V	276	24
DP7765	MITSUBISHI	Galant (4/97-->)	2.4i 16V (EA3)			F	08	99			Sumitomo	V	256.0	24
DP7765	MITSUBISHI	Galant (4/97-->)	2.5i V6 24V (EA5)			F	12	97	09	98	Akebono	V	256.0	24
DP7765	MITSUBISHI	Galant (4/97-->)	2.5i V6 24V (EA5)			F	09	98			Akebono	V	276	24
DP7765	MITSUBISHI	Galant (4/97-->)	VR-4, VR-4 Estate (Type S)	2.5i V6 24V 4x4 Twin Turbo		F	04	97			Akebono	V	294	24
DP7765	MITSUBISHI	Montero (-->12/00)	2.5, 2.8, Turbo Diesel			F	04	91	11	97	Akebono	V	276	24
DP7765	MITSUBISHI	Montero (-->12/00)	2.5, 2.8, Turbo Diesel			F	11	97	12	00	Akebono	V	276.0	27
DP7765	MITSUBISHI	Montero (-->12/00)	2.5, 2.8, Turbo Diesel			F	04	91	11	97	Akebono	V	276	24
DP7765	MITSUBISHI	Montero (-->12/00)	2.5, 2.8, Turbo Diesel			F	11	97	12	00	Akebono	V	276.0	27
DP7765	MITSUBISHI	Montero (-->12/00)	3.0 V6			F	04	91	11	97	Akebono	V	276	24
DP7765	MITSUBISHI	Montero (-->12/00)	3.0 V6			F	11	97	12	00	Akebono	V	276.0	27
DP7765	MITSUBISHI	Montero (-->12/00)	3.0 V6			F	04	91	11	97	Akebono	V	276	24
DP7765	MITSUBISHI	Montero (-->12/00)	3.0 V6			F	11	97	12	00	Akebono	V	276.0	27
DP7765	MITSUBISHI	Montero (-->12/00)	3.5 V6			F	04	91	11	97	Akebono	V	276	27
DP7765	MITSUBISHI	Montero (-->12/00)	3.5 V6			F	11	97	12	00	Akebono	V	276.0	27
DP7765	MITSUBISHI	Montero (-->12/00)	3.5 V6			F	04	91	11	97	Akebono	V	276	27
DP7765	MITSUBISHI	Montero (-->12/00)	3.5 V6			F	11	97	12	00	Akebono	V	276.0	27
DP7765	MITSUBISHI	Outlander	2.0i 16V			F	04	03			Akebono	V		
DP7765	MITSUBISHI	Outlander	2.4i 16V			F	04	03			Akebono	V		
DP7765	MITSUBISHI	Shogun / Pajero (91-->00)	2.5 Turbo Diesel	SWB (V240)		F	04	91	04	00	Akebono	V	276	24
DP7765	MITSUBISHI	Shogun / Pajero (91-->00)	2.5 Turbo Diesel	LWB (V440)		F	04	91	04	00	Akebono	V	276	24
DP7765	MITSUBISHI	Shogun / Pajero (91-->00)	2.8 Turbo Diesel	SWB (V260)		F	04	91	04	00	Akebono	V	276	24
DP7765	MITSUBISHI	Shogun / Pajero (91-->00)	2.8 Turbo Diesel	LWB (V460)	non ABS	F	04	91	04	00	Akebono	V	276	24
DP7765	MITSUBISHI	Shogun / Pajero (91-->00)	2.8 Turbo Diesel	LWB (V460)	ABS	F	04	91	04	00	Akebono	V	276	27
DP7765	MITSUBISHI	Shogun / Pajero (91-->00)	3.0 V6	SWB (V230)		F	04	91	04	00	Akebono	V	276	24
DP7765	MITSUBISHI	Shogun / Pajero (91-->00)	3.0 V6	LWB (V430)		F	04	91	04	00	Akebono	V	276	24
DP7765	MITSUBISHI	Shogun / Pajero (91-->00)	3.5 V6	SWB (V250)		F	04	91	04	00	Akebono	V	276	27
DP7765	MITSUBISHI	Shogun / Pajero (91-->00)	3.5 V6	LWB (V450)		F	04	91	04	00	Akebono	V	276	27
DP7765	MITSUBISHI	Shogun / Pajero (04/00-->)	2.5 Turbo Diesel			F	04	00			Akebono	V	277.0	22
DP7765	MITSUBISHI	Shogun / Pajero (04/00-->)	3.2 TDi			F	04	00			Akebono	V	277.0	22
DP7765	MITSUBISHI	Shogun / Pajero (04/00-->)	3.5i V6			F	04	00			Akebono	V	277.0	22
DP7765	MITSUBISHI	Shogun Sport	2.5 TD			F	03	00			Akebono	V	276	24
DP7765	MITSUBISHI	Shogun Sport	3.0i V6			F	03	00			Akebono	V	276	24
DP7765	MITSUBISHI	Sigma	3.0 (F16A, F07W)			F	01	90	05	91	Akebono	V	276	24
DP7765	MITSUBISHI	Sigma	3.0 (F16A, F07W)			F	05	91	03	96	Akebono	V	277.0	24
DP7765	MITSUBISHI	Space Gear	2.4i, 2.5 D (PA, PB, PD, Series)			F	01	95			Akebono	V	276.0	24
DP7765	MITSUBISHI	Space Runner	2.0 (N21W)			F	09	99	05	00	Sumitomo	V	256	24
DP7765	MITSUBISHI	Spacewagon (01/99-->12/01)	2.0i			F	01	99	12	01	Akebono	V		
DP7765	MITSUBISHI	Spacewagon (01/99-->12/01)	2.4i			F	01	99	12	01	Akebono	V		
DP7765	MITSUBISHI	3000 GT Coupe	3.0 V6 24V Turbo 4x4			F	04	92	01	00	Akebono	V	296	30
DP7765	MITSUBISHI	L200	2.4i 4x4			F	06	95	01	96	Akebono	V	277	22
DP7765	MITSUBISHI	L200	2.5 4x4 Turbo Diesel (K34T)			F	06	95	01	96	Akebono	V	277	22
DP7765	MITSUBISHI	L400	2.0	4x4		F	09	96			Akebono	V	276.0	24
DP7765	MITSUBISHI	L400	2.4	4x4		F	09	96			Akebono	V	276.0	24
DP7765	MITSUBISHI	L400	2.5 Turbo Diesel	4x4		F	09	96			Akebono	V	276.0	24

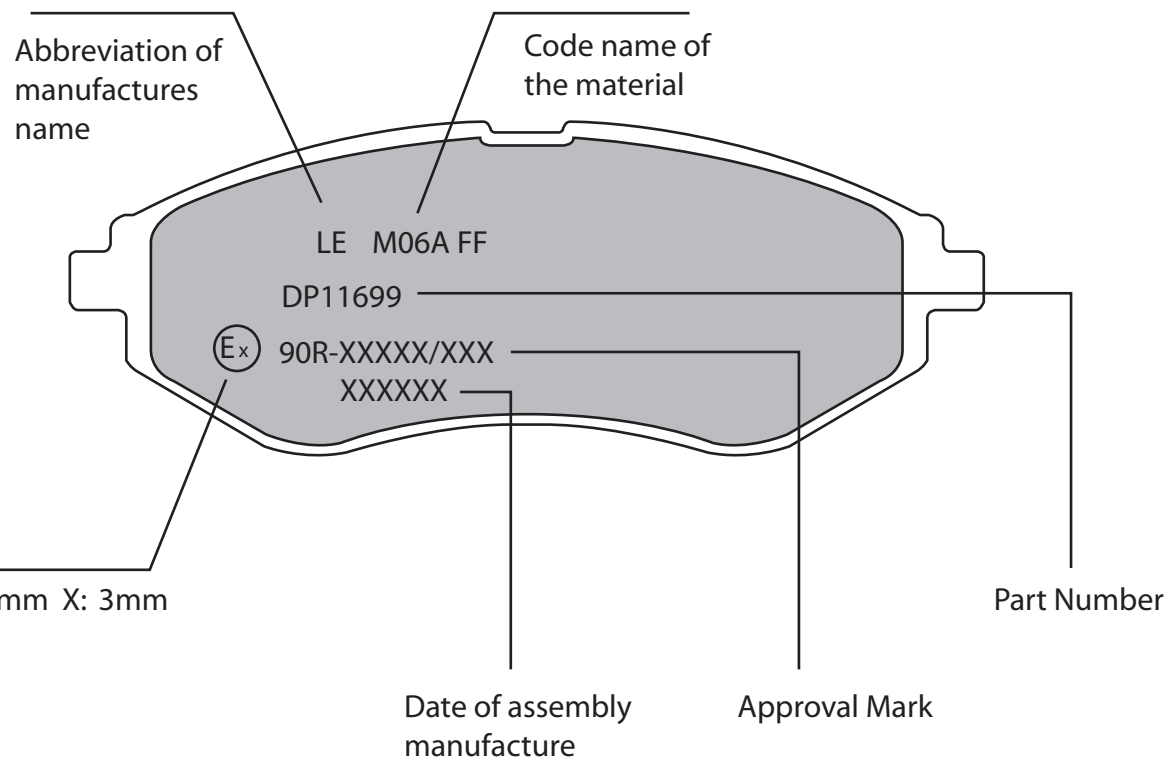


CALIPER ACTUATION	BRAKING SPLIT F/R, DIAG or H / I	CALIPER PISTON DIA	HERST NUMBER	TYP / SCHL NUMBER	MAX SPEED Km/h	80% V MAX Km/h	VEHICLE /		ENERGY FACTOR .5 MV 2	MAXIMUM ROLLING RADIUS	INERTIA UNLADEN	VEHICLE INERTIA LADEN
							AXLE WEIGHT UN-LADEN	VEHICLE WEIGHT LADEN				
Hyd	Diag								0	0.33	0	
Hyd	Diag		7107	264, 265	175	140	1900	2510	24598000	0.33	79.66035	105.235515
Hyd	Diag		7107	264, 265	175	140	1900	2510	24598000	0.33	79.66035	105.235515
Hyd	Diag		1048	301	220	176	1310	1635	25322880	0.33	54.923715	68.5498275
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Hyd	Diag								0	0.33	0	
Hyd	Diag		7107	450, 417, 451,	207	166	1480	1900	26052192	0.33	62.05122	79.66035
Hyd	Diag		7107	450, 417, 451,	207	166	1480	1900	26052192	0.33	62.05122	79.66035
Hyd	Diag		7107	450, 417, 451,	207	166	1480	1900	26052192	0.33	62.05122	79.66035
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Hyd	Diag		7107	246, 247, 248,	248	198	1335	1890	37197619	0.33	55.9718775	79.241085
Hyd	Diag		7107	246, 247, 248,	248	198	1335	1890	37197619	0.33	55.9718775	79.241085
Hyd	Diag		7107	473, 474, 475,	165	132	1550	2750	23958000	0.33	64.986075	115.297875
Hyd	Diag		7107	473, 474, 475,	165	132	1550	2750	23958000	0.33	64.986075	115.297875
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Hyd	Diag		7107	473, 474, 475,	165	132	1550	2750	23958000	0.33	64.986075	115.297875
Hyd	Diag		7107	473, 474, 475,	165	132	1550	2750	23958000	0.33	64.986075	115.297875
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Hyd	Diag		7107	271, 273, 290	170	136	1930	2810	25986880	0.33	80.918145	117.813465
Hyd	Diag		7107	271, 273, 290	170	136	1930	2810	25986880	0.33	80.918145	117.813465
Hyd	Diag		7107	271, 273, 290	170	136	1930	2810	25986880	0.33	80.918145	117.813465
Hyd	Diag		7107	264, 265	175	140	1900	2510	24598000	0.33	79.66035	105.235515
Hyd	Diag		7107	264, 265	175	140	1900	2510	24598000	0.33	79.66035	105.235515
Hyd	Diag		7107	470, 471	230	184	1420	2070	35040960	0.33	59.53563	86.787855
Hyd	Diag		7107	470, 471	230	184	1420	2070	35040960	0.33	59.53563	86.787855
Hyd	Diag		7107	227, 228, 229,	165	132	1625	2700	23522400	0.33	68.1305625	113.20155
Hyd	Diag		7107	268, 270	190	152	1435	1920	22179840	0.33	60.1645275	80.49888
Hyd	Diag		7107	262, 263	185	148	1685	2260	24751520	0.33	70.6461525	94.75389
Hyd	Diag		7107	262, 263	185	148	1685	2260	24751520	0.33	70.6461525	94.75389
Hyd	Diag		7107	252	250	200	1805	2120	42400000	0.33	75.6773325	88.88418
Hyd	Diag		7431	501, 502, 503,	164	131	1390	2830	24357018	0.33	58.277835	118.651995
Hyd	Diag		7431	501, 502, 503,	164	131	1390	2830	24357018	0.33	58.277835	118.651995
Hyd	Diag		7107	528	138	110	1620	2700	16454016	0.33	67.92093	113.20155
Hyd	Diag		7107	528	138	110	1620	2700	16454016	0.33	67.92093	113.20155
Hyd	Diag		7107	528	138	110	1620	2700	16454016	0.33	67.92093	113.20155





Material Area		Drawn By	Description		Issue No.	Part No.	 DP7765 18-05-06 Not To Scale
5353.2 mm			Disc Pad Assembly		1		
Modification	Initial Date	Date	General Tolerance		± 0.25mm		



E: 4.5mm X: 3mm

Material Area			Drawn By	Description Disc Pad Assembly	Issue No.	Part No.
					1	
Modification	Initial Date	Date		General Tolerance	$\pm 0.25\text{mm}$	Not To Scale

