

# FCU Tracking

## Arriel "1" Preliminary Inspection / Hidden Damage Report

All work performed I.A.W. Arriel "1" Repair Manual No X-292-87-500-2 Update No. 9 Revision Date: 4/2002

Page 1 of 2

PIN in : 0164248850      SIN : C317B      WIO : M N/A

TSN :      TSO :      Variant : Arriel 1 D1      Date : 08/14/02

Owner :      Operator :

Tu.'s at arrival: 15, ~~17~~, 23, 28, 30, ~~35~~, 51, 58, 85, 92, 95, 111, 121, 125, ~~128~~, 158, 176, 183,  
198, 200, ~~203~~, 217, ~~230~~, ~~252A~~, ~~258~~, ~~263~~, 266A, 272, ~~298A~~, ~~321A~~

Reason for Induction: Investigation

FCU Cover p/n : 0164247730      s/n: 3444M

Inter. Body p/n : 0164347180      s/n: 6119M

Main Body p/n : 0164447180      s/n: 3474M

Pump Cover p/n : 716424783A      s/n: 1817M

P.R.V. p/n : 0074908250      s/n: G187B

F.C.U. Visual Damage : Minor scrapes on cover, and Anticipator Dial Bent

Start Blocks with the unit:	Yes : <input checked="" type="checkbox"/>	No : <input type="checkbox"/>	Comments:
Tamper Seals Missing :	Yes : <input type="checkbox"/>	No : <input checked="" type="checkbox"/>	Missing:
Lever Cracked:	Yes : <input type="checkbox"/>	No : <input checked="" type="checkbox"/>	Comments:
Anticipator housing bent:	Yes : <input type="checkbox"/>	No : <input checked="" type="checkbox"/>	Comments:
Fuel Valve housing bent:	Yes : <input type="checkbox"/>	No : <input checked="" type="checkbox"/>	Comments:
1S / 1S1 Anticipator Tension as per 73-20-01: Acceptable for Repair: Yes: <u>N/A</u> No: <u>N/A</u>			

Anticipator Fuel clean: Yes:  No:       Fuel Sample: Yes:  No:

Strainer Inspection :      NG: good      NTL: good      Main inlet: good

Fuel Filter clean :      Yes:  No:       Comments: Minute Particals

Deposits on chamber wall      Yes:  No:       Comments: Light Brown Deposites

Barostatic Chamber : No fluids

Unit Clean and Ready to Test:      Yes: N/A      No: N/A

Inspection performed:



Reviewed Date : 08/14/02



# FCU Tracking

## Arriel "1" Functional Test

Page 2 of 2

Variant : Arriel 1 <i>DI</i>	S/N : <i>C3170</i>	W/O : <i>M N/A</i>	Date : <i>08/14/02</i>
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Starting : *good*

Acceleration : *one point out on High side*

Static Droop : *All points out on High side*

Stability : *good*

Time of Response :	Limit : <i>3.5 seconds</i>	Recorded: <i>2.20 seconds</i>
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NTL Take Over :	Limit : <i>4300/4384 RPM</i>	Actual : <i>4336 RPM</i>
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Max NG :	Limits : <i>4858/4864 RPM</i>	Recorded: <i>4870 RPM 6 RPM High</i>
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Temperature Compensating Capsule :	TU 183	Yes : <input checked="" type="checkbox"/>	No : <input type="checkbox"/>
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Pre Tu183 Measurement note on bulb :	Actual : <i>N/A</i>	Measured: <i>N/A</i>
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Discrepancy Confirmed	Yes : <input type="checkbox"/>	No : <input checked="" type="checkbox"/>	Comments :
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Barostatic Chamber Dry	Yes: <input checked="" type="checkbox"/>	No: <input type="checkbox"/>	Comments:
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Decision:

Delta "P":	Guide: <i>N/A</i>	Valve: <i>N/A</i>	Clearance: <i>N/A</i>
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Diaphragm and spring replacement:	Yes: <i>N/A</i>	No: <i>N/A</i>
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Balancing Unit replaced:	Yes: <input type="checkbox"/>	No: <input checked="" type="checkbox"/>
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Test Bench Operator *M. J. [Signature]*

Date : *8-14-02*



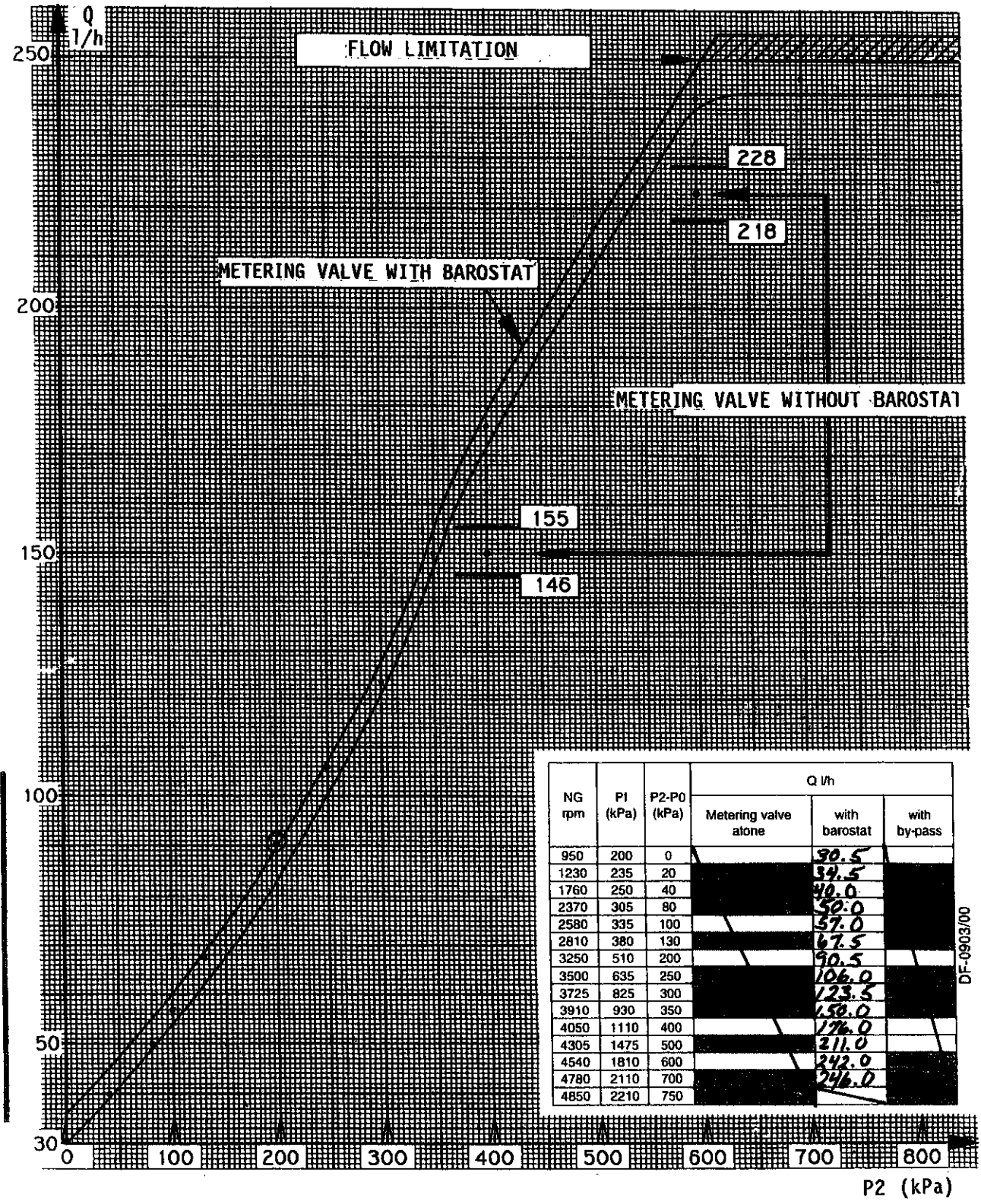
Review Date: *08/14/02*



# C317B  
08/14/02



**TURBOMECA**  
**ARRIEL 1 TURBOSHAFT ENGINE**  
**REPAIR MANUAL**



Curve 1 - Acceleration curve

D1

The information included in this manual is covered by the notice appearing on the first page

#C317B  
08/14/02



**TURBOMECA**  
**ARRIEL I TURBOSHAFT ENGINE**  
**REPAIR MANUAL**

ALPHA	15°	20°	25°	30°	35°	40°	45°
P2 (kPa)	0	25	35	75	200	350	490
NG (rpm)	950	1000	1500	2000	3250	3910	4140
PI (kPa)	200	230	250	320	510	800	1210
Q (l/h)	13 ± 2	18 ± 2	29 ± 2	45 ± 2	70 ± 2	100 ± 5	155 ± 10
(l/h) setting	14.5	19.0	28.5	45.0	71.5	105.0	148.0

Table 2 - Starting curve

D1

# 23178  
08/14/02



DAMPING CHECK

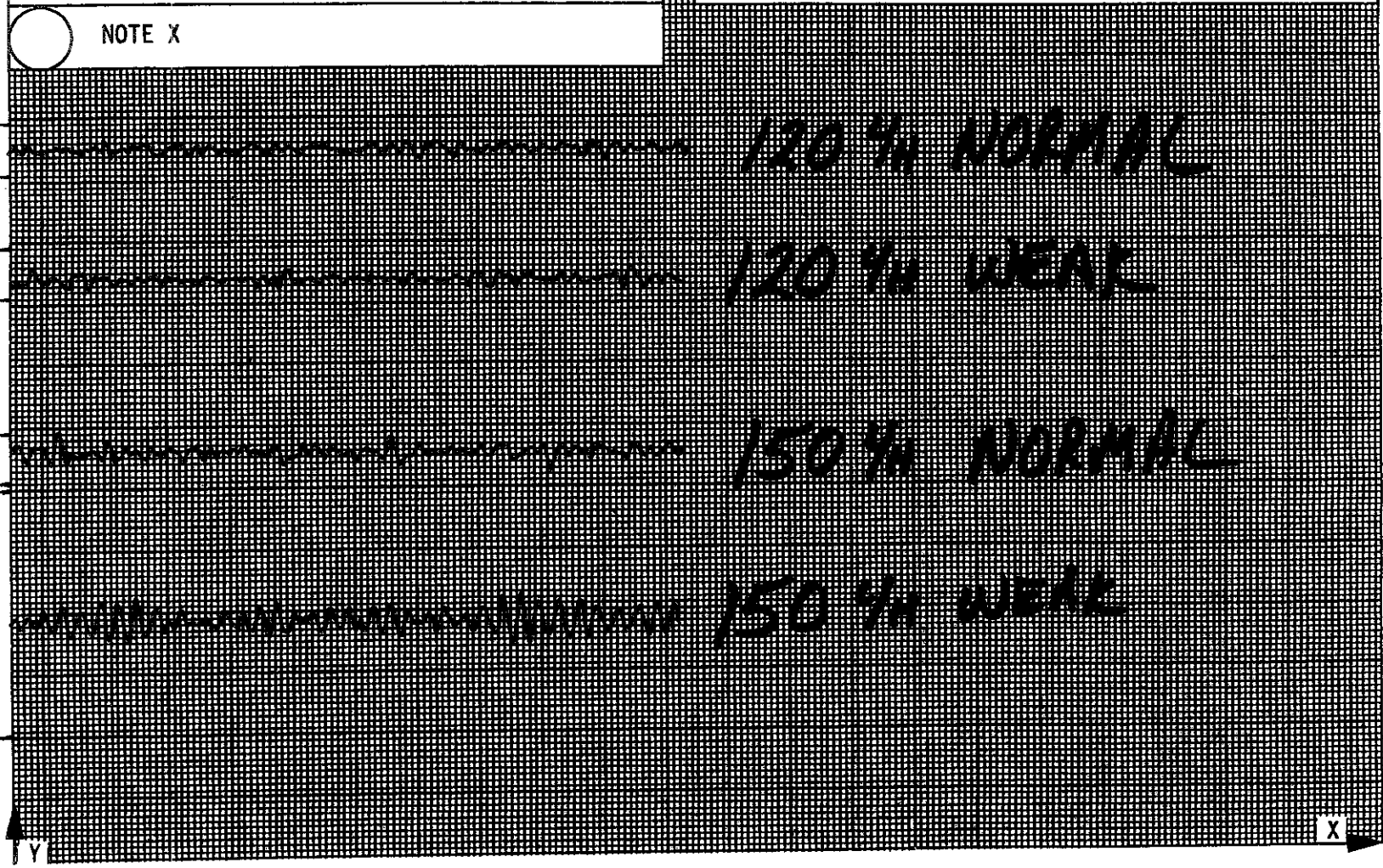
X — TIME BASE — (0.8s) or (1 s) = 10 DIV  
Y — 50 mV = 10 DIV.

STABILITY

X — TIME BASE (4 s) or (5 s) = 10 DIV.  
Y — 200 mV = 10 DIV. = 4.2 1/n<sub>1</sub>

NOTE X

Curve 6 - Stability and damping checks

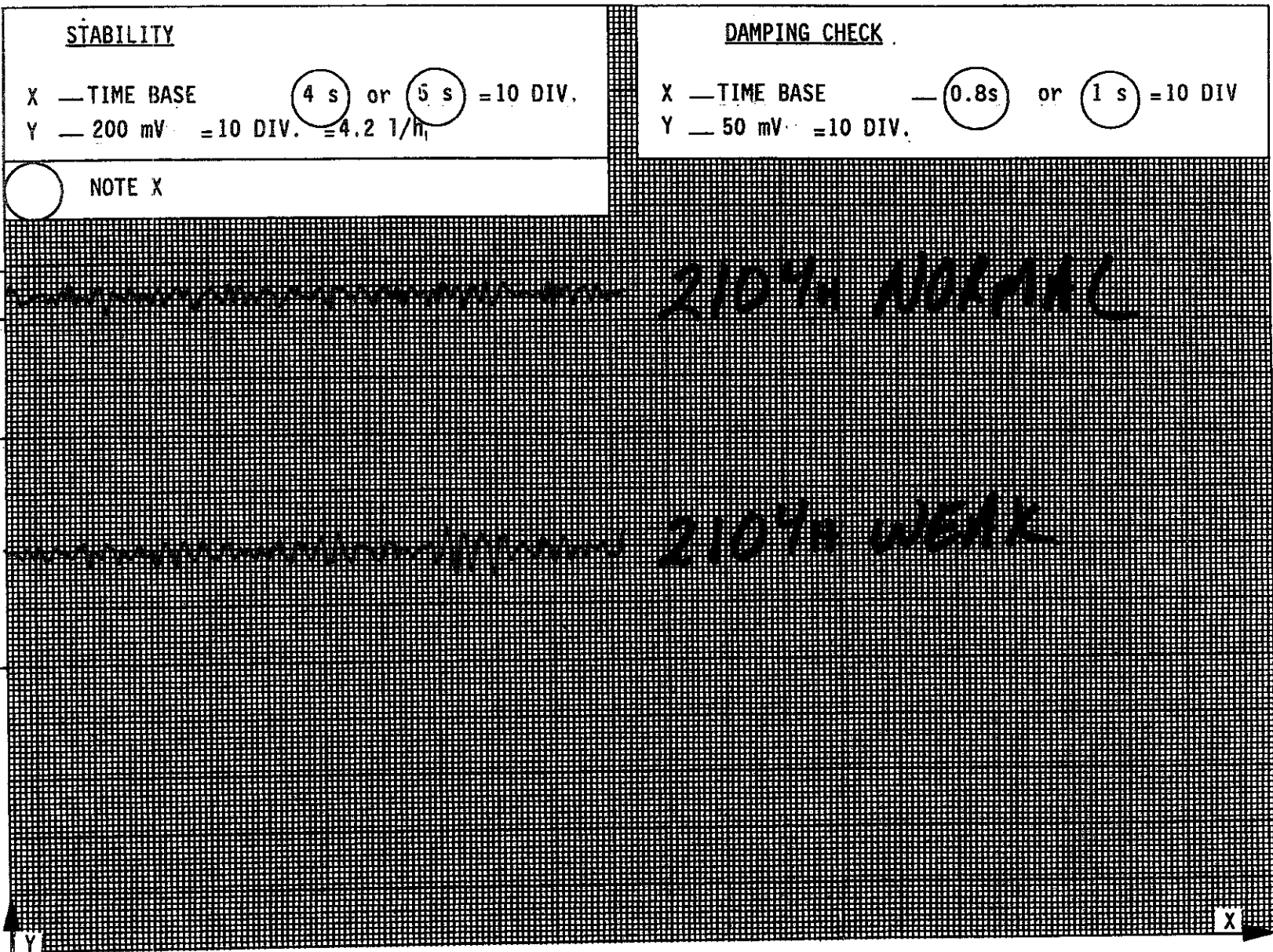


NORMAL → 8 small black  
WEAK → 4 big black

D1



# C3178  
08/14/02



DAMPING CHECK

X — TIME BASE — (0.8s) or (1 s) = 10 DIV  
Y — 50 mV = 10 DIV.

STABILITY

X — TIME BASE (4 s) or (5 s) = 10 DIV.  
Y — 200 mV = 10 DIV. = 4.2 1/n<sub>1</sub>

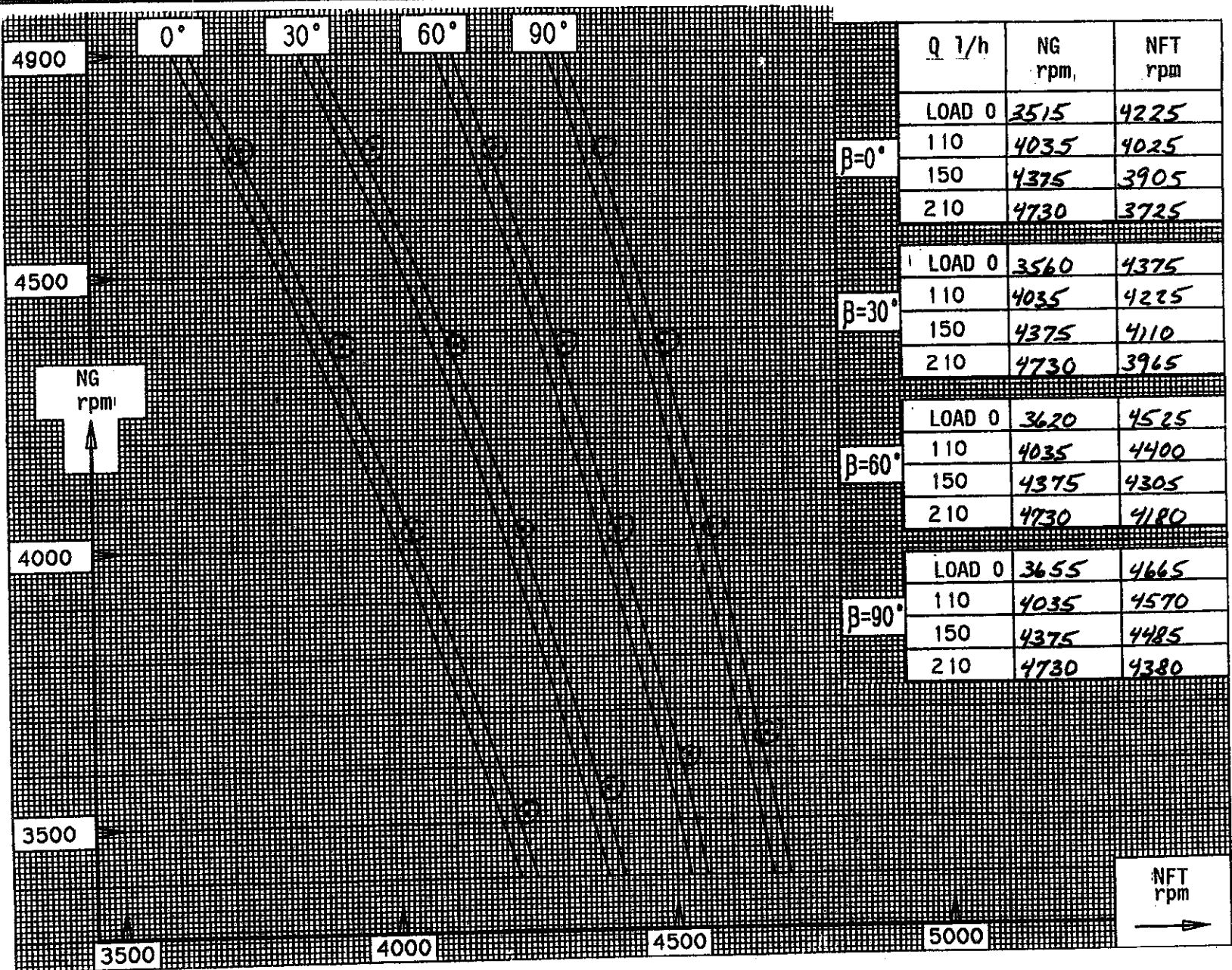
NOTE X

Curve 6 - Stability and damping checks

D1

normal → 8 small black  
weak → 4 Big Black.

Curve 4 - Static droop curve



Q 1/h	NG rpm	NFT rpm
LOAD 0	3515	4225
110	4035	4025
150	4375	3905
210	4730	3725
<b>β=0°</b>		
LOAD 0	3560	4375
110	4035	4225
150	4375	4110
210	4730	3965
<b>β=30°</b>		
LOAD 0	3620	4525
110	4035	4400
150	4375	4305
210	4730	4180
<b>β=60°</b>		
LOAD 0	3655	4665
110	4035	4570
150	4375	4485
210	4730	4380
<b>β=90°</b>		

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REPAIR MANUAL

#C 3178  
8-14-02

Limite 4858/4864 RPM

NG 4870 RPM (236.544) NPT 3969 RPM

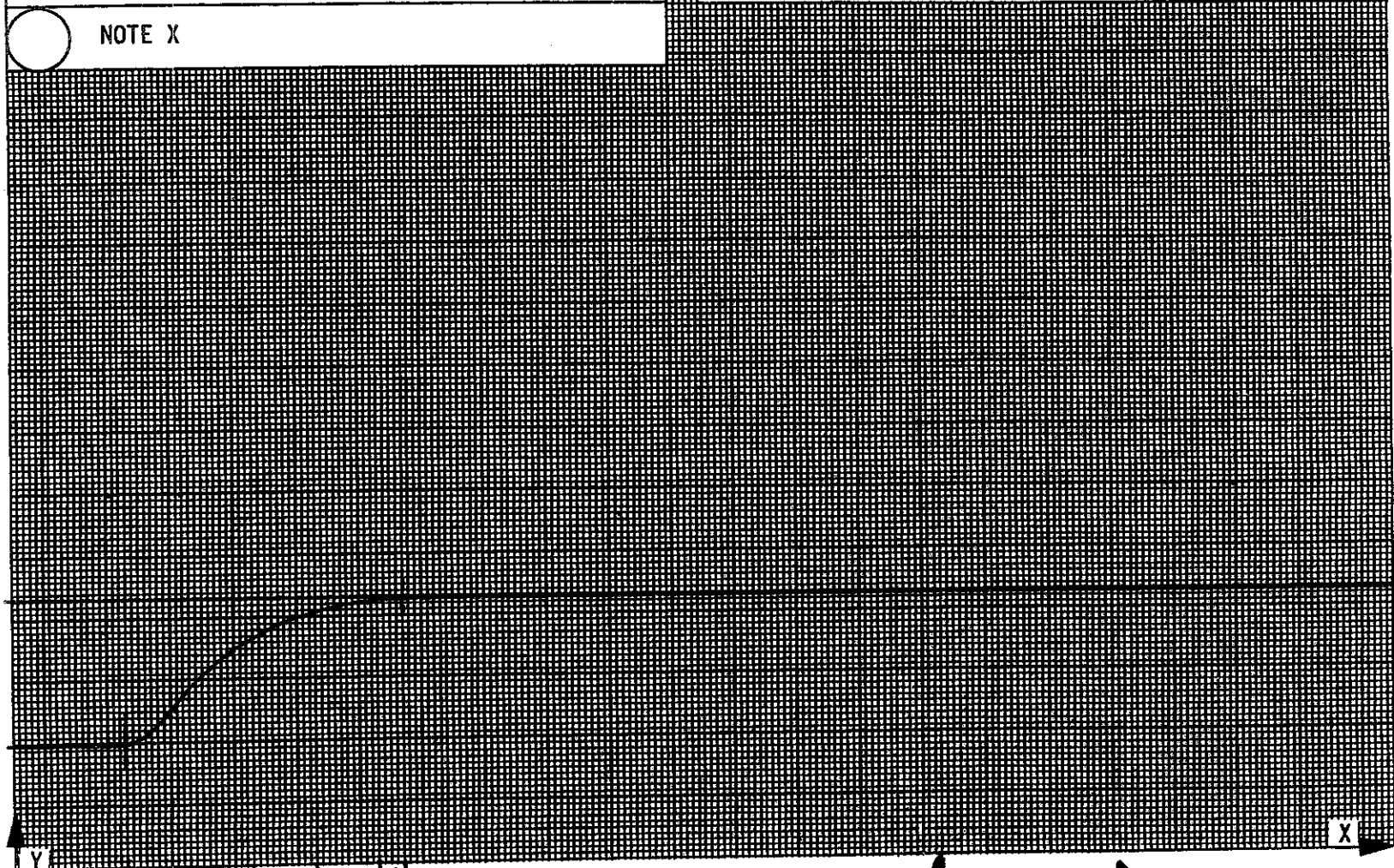
STABILITY

X — TIME BASE — (4 s) or (5 s) = 10 DIV.  
Y — 200 mV = 10 DIV. = 4.2 1/n<sub>1</sub>

DAMPING CHECK

X — TIME BASE — (0.8s) or (1 s) = 10 DIV  
Y — 50 mV = 10 DIV.

NOTE X



2.20 seconds T.O.R.

Time Limite ≤ 3.5 seconds

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# C3178  
08/19/02



Curve 6 - Stability and damping checks

D1