Schlumberger

BOREHOLE COMPENSATED SONIC LOG

COUNTY
FIELD
LOCATION
WELL
COMPANY

COMPANY E G & G

WELL INEL # 1

FIELD WILDCAT

COUNTY BUTTE STATE IDAHO

LOCATION

API SERIAL NO.	SEC.	TWP	RANGE
	1	3N	29E

Other Services:
DIL
FDC/CNL/GR
BGT-CALIPER
HRT

Permanent Datum: GROUND LEVEL ; Elev.: 4874.8
Log Measured From GL 0 Ft. Above Perm. Datum
Drilling Measured From GL

Elev.: K.B. 4895
D.F.
G.L. 4874.8

Date	3/27/79	5/10/79	5/18/79	
Run No.	ONE	TWO	THREE	
Depth—Driller	3555 (STRAP)	9816	10333	
Depth—Logger (Schl.)	3553	9702	10125	
Btm. Log Interval	3551	9691	10122	
Top Log Interval	1296	3558	8792	
Casing—Driller	20 @ 1511	13 3/8@3559	13 3/8@ 3559	@
Casing—Logger	1511	3558	NOT LOGGED	
Bit Size	17.50	12.25	12.25	
Type Fluid in Hole	LSND	FRSEH WATER	WATER	
Dens. / Visc.	8.8 / 57	NA / NA	-- / --	/
pH / Fluid Loss	8.0 / 13.6ml	NA / NAml	-- / -- ml	/ ml
Source of Sample	MUD TANK	MUD TANK	MUD TANK	
Rm @ Meas. Temp.	8.57@ 70°F	15.5@58 °F	-- @ -- °F	@ °F
Rmf @ Meas. Temp.	8.94@ 59°F	15.5@58 °F	-- @ -- °F	@ °F
Rmc @ Meas. Temp.	12.86@ 70°F	-- @ --°F	-- @ -- °F	@ °F
Source: Rmf / Rmc	M / C	M	/	/
Rm @ BHT	5.22@ 116°F	3.94@ 228°F	1.80@ 257°F	@ °F
Circulation Stopped	3/27 @0130	0500	0200	
Logger on Bottom	3/27 @1300	1700	1930	
Max. Rec. Temp.	116 °F	228°F	257°F	°F
Equip. / Location	8060 EVSTN	7674 VERNAL	8056 EVSTN	/
Recorded By	ROONEY	GALES/VALENTI/BRADLEY		
Witnessed By Mr.	STRAWN/NELSON	/GOLDMAN/STRAWN		

FOLD HERE

The well name, location and borehole reference data were furnished by the customer.

SCALE CHANGES

Type Log	Depth	Scale Up Hole	Scale Down Hole

Run No.	ONE	TWO	THREE
Service Order No.	40303	33950	74054
Fluid Level	FULL	FULL	FULL

LOGGING DATA

Porosity Selectors				Depth	
Δt_m	Δt_f	Cp	ϕ Scale	From	To
51.3	189	1.0	20/TRK	3551	1296
51.3	189	1	20/TRK	2691	3558
51.3	189	100	20/TRK	10122	8792

REMARKS CALIPER MAX. OPENING = 14.8"
RUN 2- MAX CALIPER READING 15.8 IN. INVALID INTEGRATED TRAVEL TIME AT 9560-80 DUE TO CYCLE SKIP
CYCLE SKIP BELOW 9300 CORRECTED TO REPEAT RUN3-GR BACKUP SCALE 150-300

Velocity (ft/sec) = 1,000,000 / Interval Transit Time (microseconds per foot) API

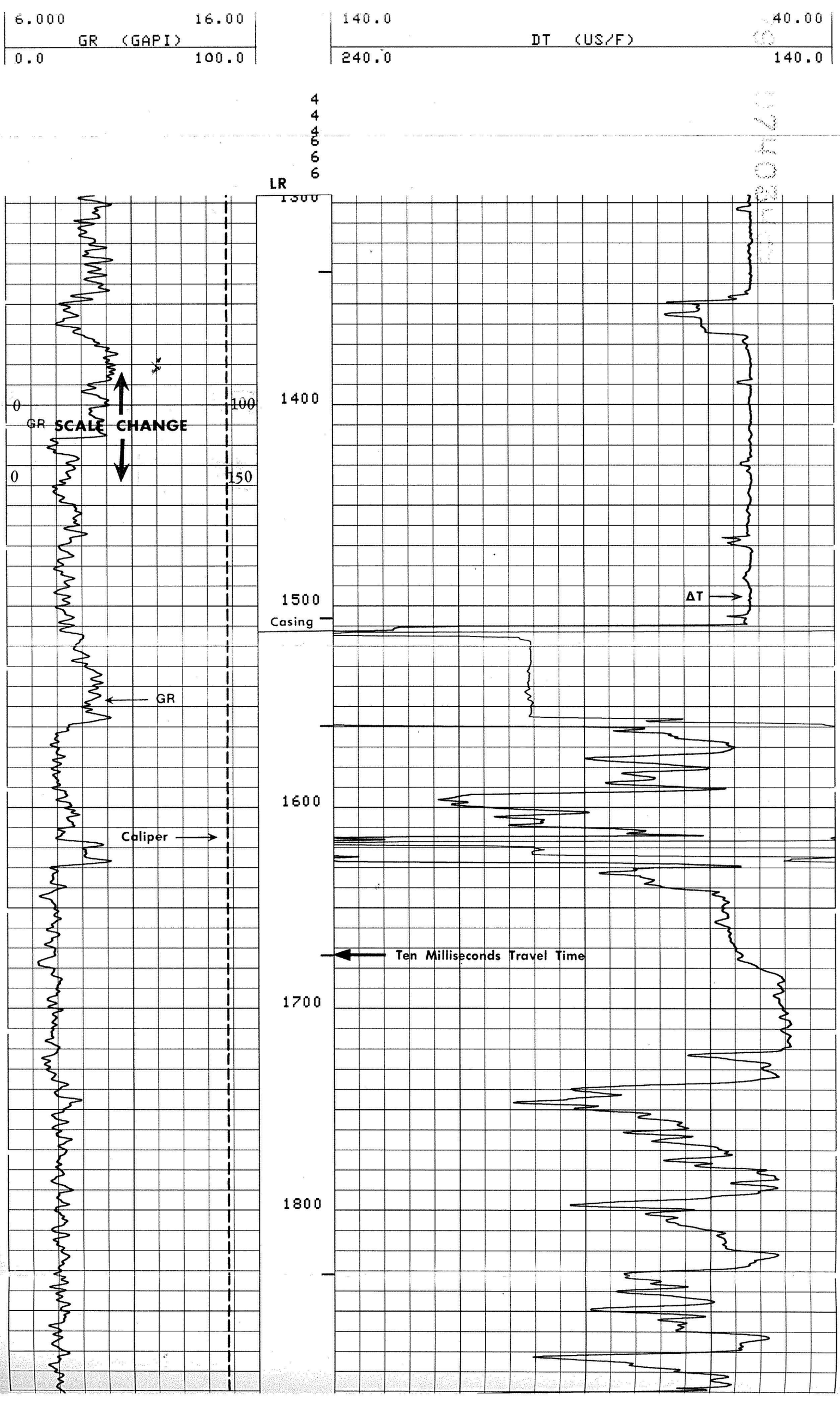
EQUIPMENT DATA

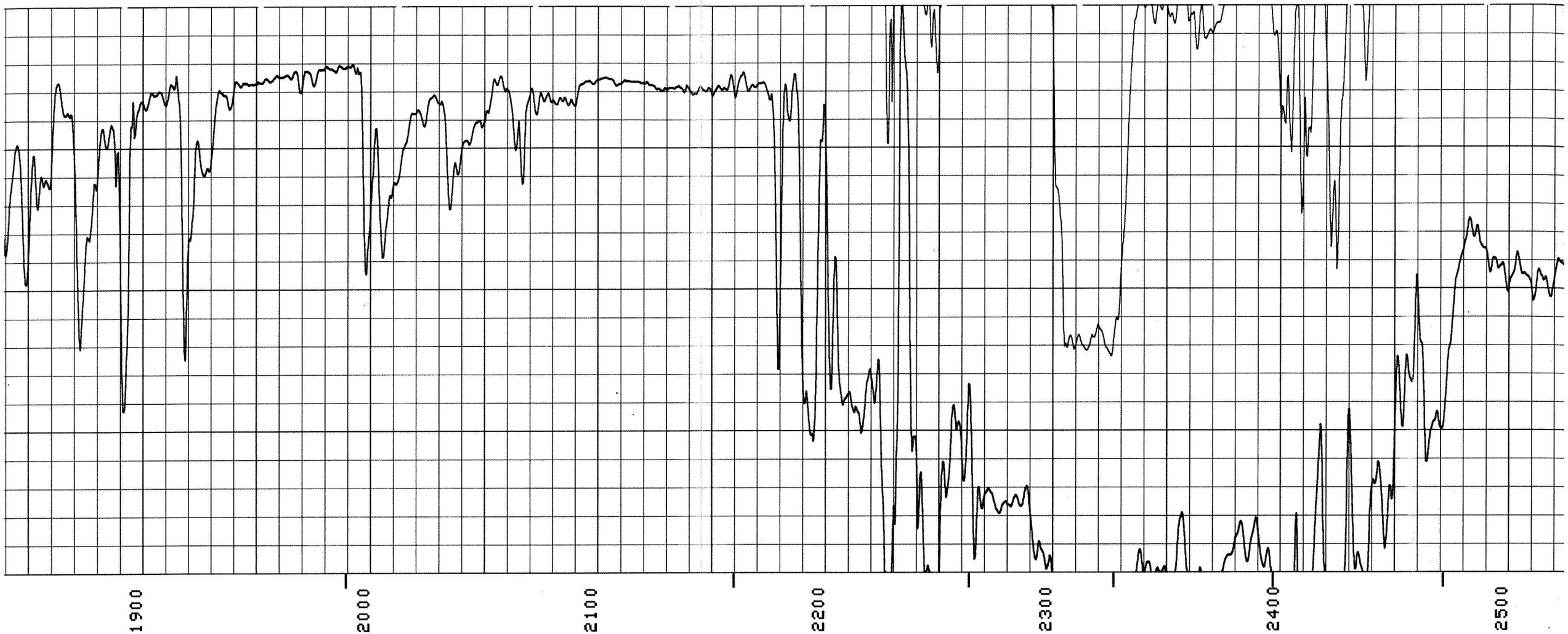
Sonic Panel No.	SLM	120	173	118
Sonic Cart No.		610	1028	637
Sonic Sonde No.		2030	2223	2036
Mem. Panel No.		CSU	ILP CA604	CSU
G.R. Cart. No.		684	540	1140
G.R. Panel No.	NLM	178	ILP CA604	124
Caliper No.	VCD	905	1269	578
TTR No.		CSU	1963	CSU
Centralizers: No.		ONE ONE	1	ONE
Type		CMEZ VCD	CMEZ	CMEZ
Standoffs: No.				
Type				
Time Const.-Sec.		AUTO	AUTO	AUTO
Speed - F.P.M.		60	30-60	30

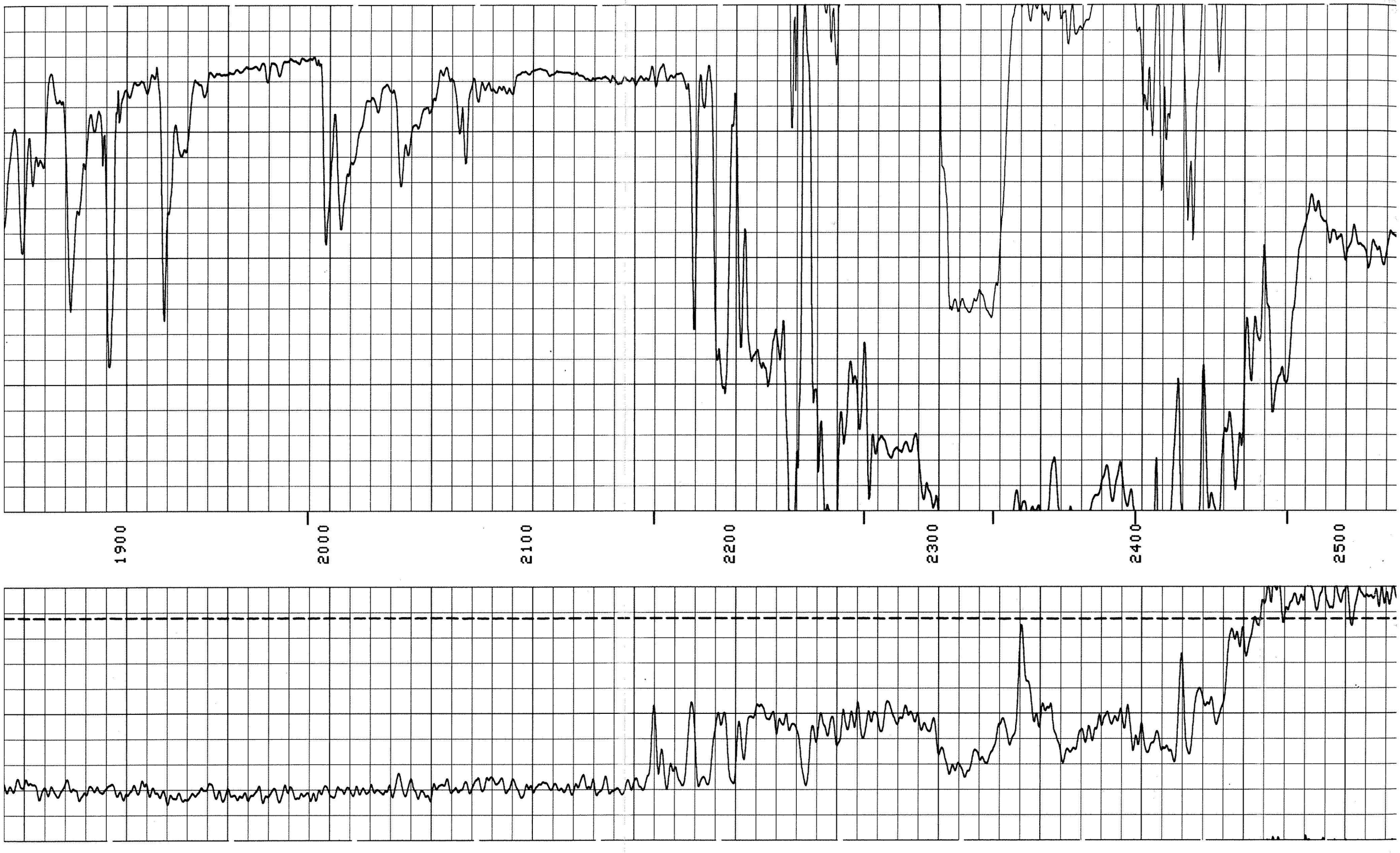
CALIBRATION DATA

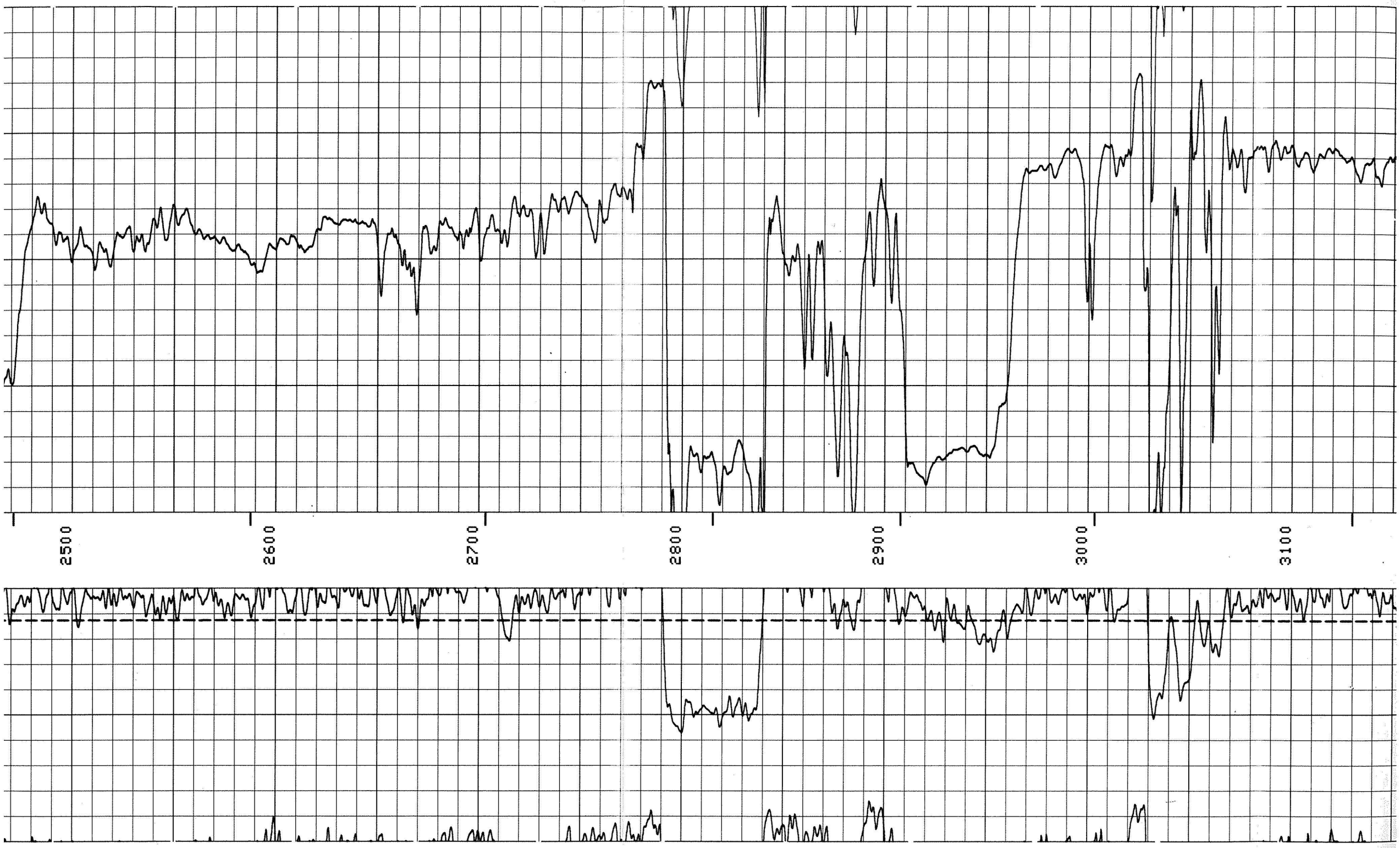
GR	BKG. CPS	41	140	44.43
	Source CPS	182	560	189.50
	Tc Sec	AUTO	AUTO	AUTO

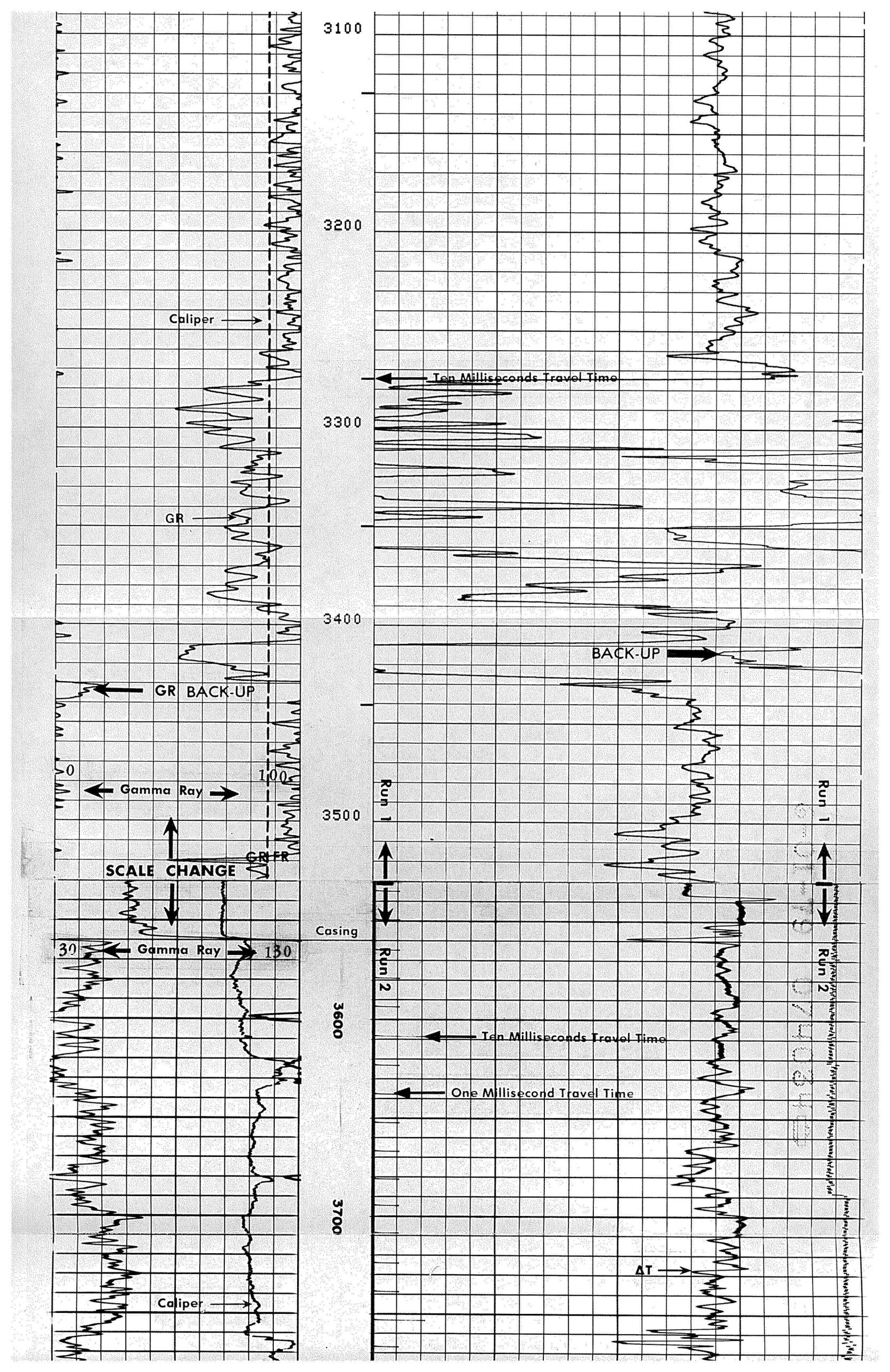
DT (US/F)	40.00	140.0	
DT (US/F)	140.0	240.0	
CALI (IN)	6.000	16.00	
GR (GAPI)	0.0	100.0	


6.000
16.00
GR (GAPI)
0.0
100.0
140.0
40.00
DT (US/F)
240.0
140.0
LR
1300
1400
1500
1600
1700
1800
0
100
GR SCALE CHANGE
0
150
GR
Caliper
Casing
ΔT
Ten Milliseconds Travel Time


1900
2000
2100
2200
2300
2400
2500


1900
2000
2100
2200
2300
2400
2500


2500
2600
2700
2800
2900
3000
3100


3100
3200
3300
3400
3500
3600
3700
Caliper
GR
GR BACK-UP
0
100
Gamma Ray
GR FR
SCALE CHANGE
30
Gamma Ray
130
Caliper
Casing
Run 1
Run 2
Ten Milliseconds Travel Time
One Millisecond Travel Time
BACK-UP
Run 1
Run 2
Ten Milliseconds Travel Time
ΔT

ΔT

ΔT BACK-UP

ΔT

3800

3900

4000

4100

4200

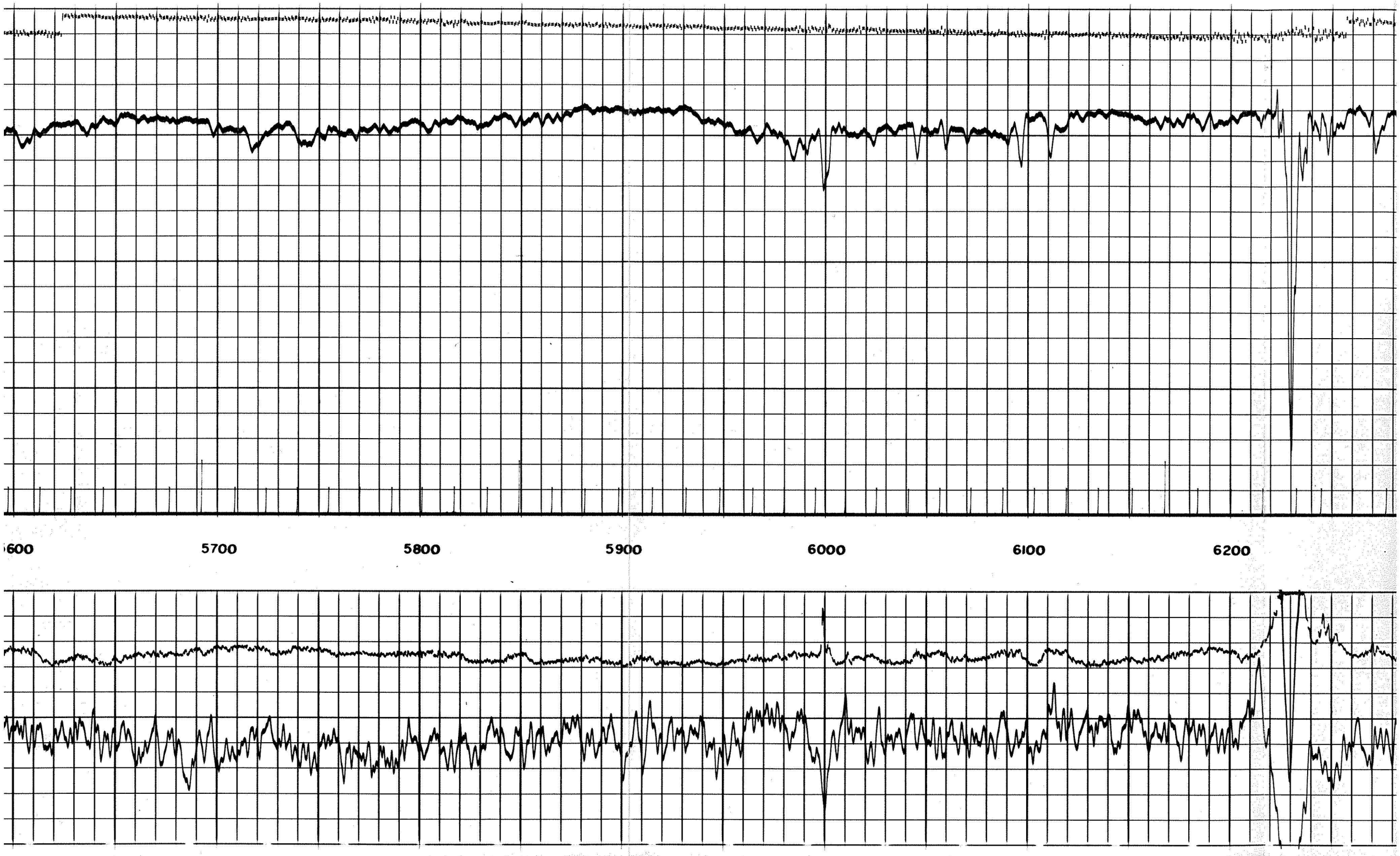
4300

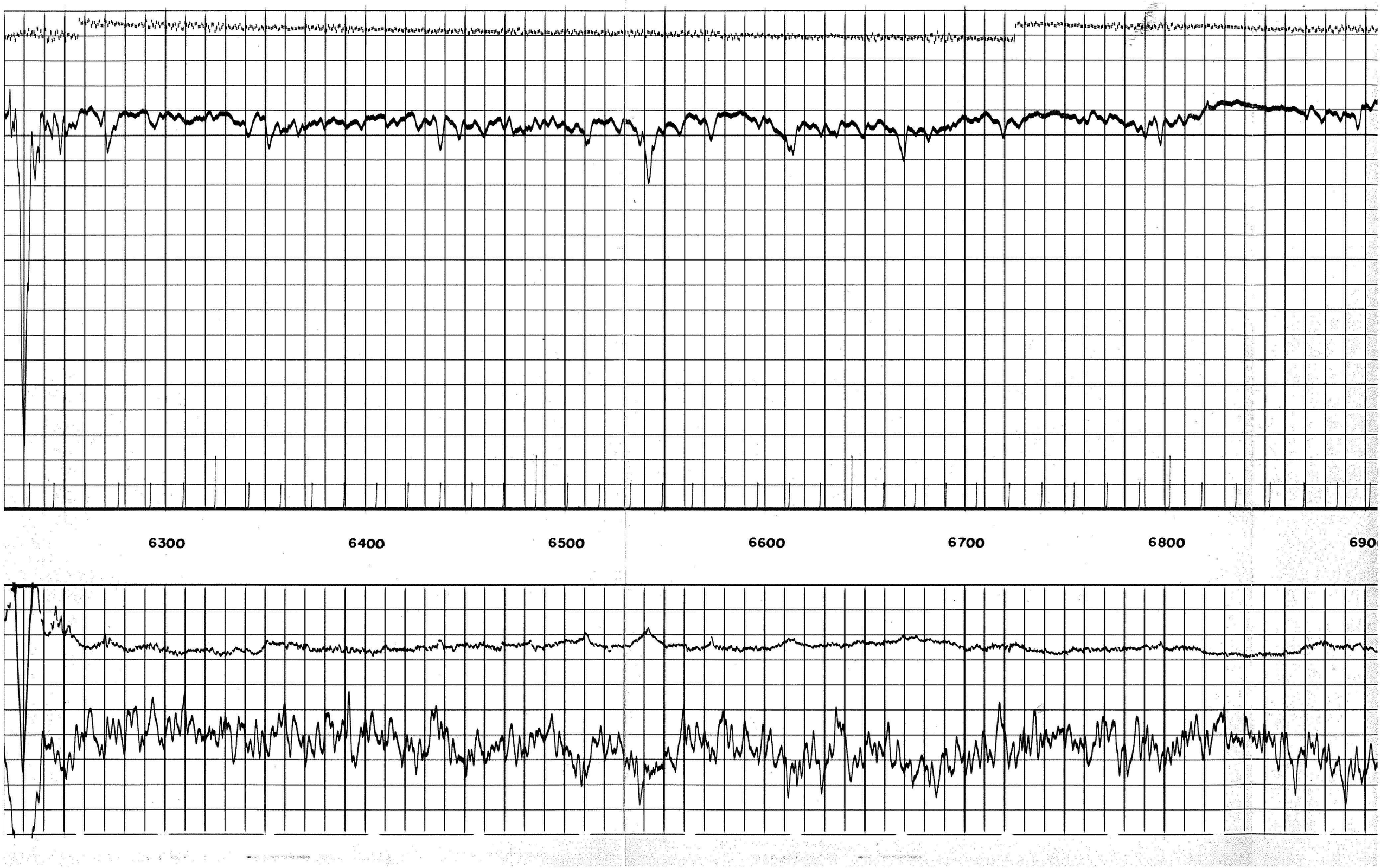
Caliper

GR BACK-UP

4400 4500 4600 4700 4800 4900 5000

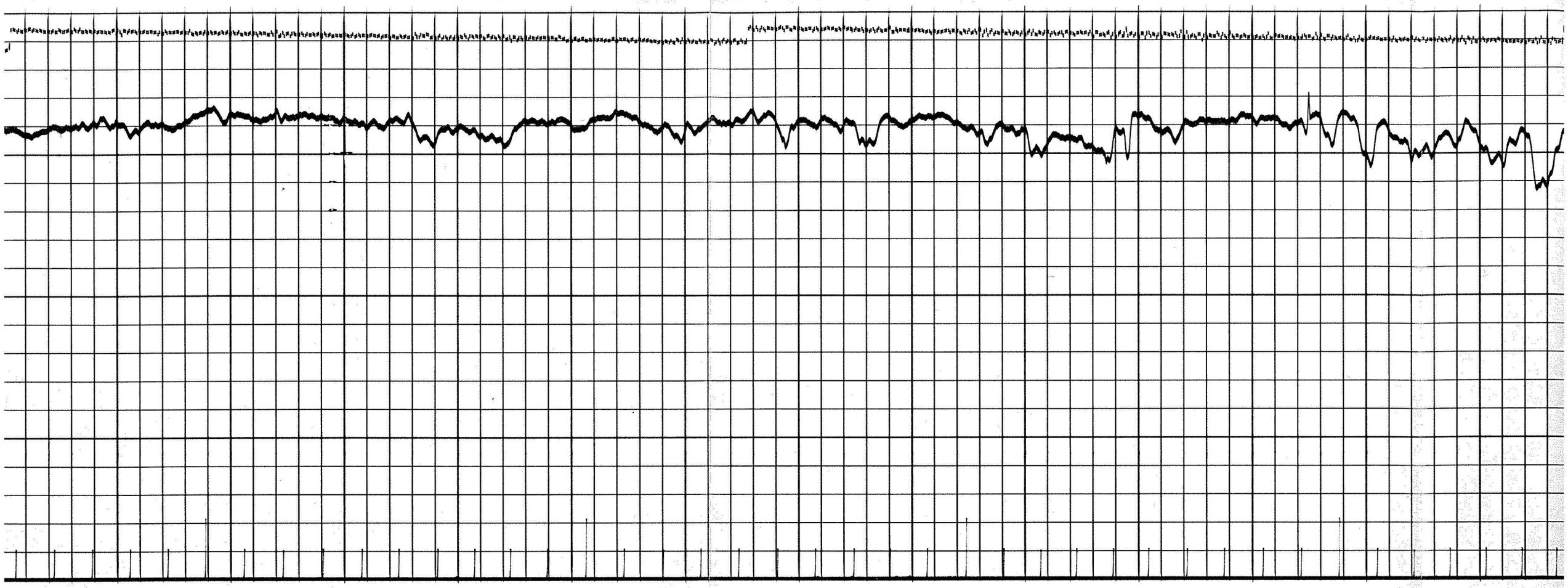
5000 5100 5200 5300 5400 5500 5600


600
5700
5800
5900
6000
6100
6200

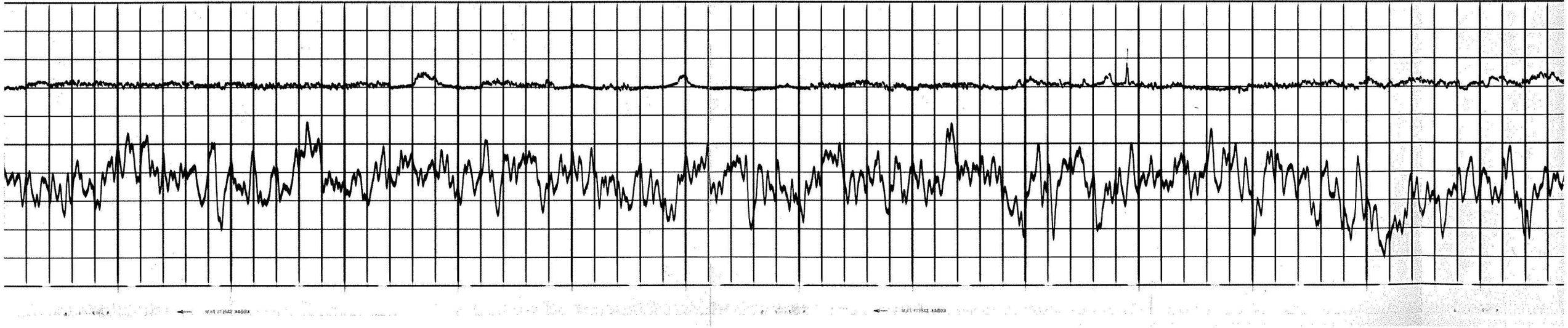

6300
6400
6500
6600
6700
6800
690

6900 7000 7100 7200 7300 7400 7500

7500 7600 7700 7800 7900 8000 8100

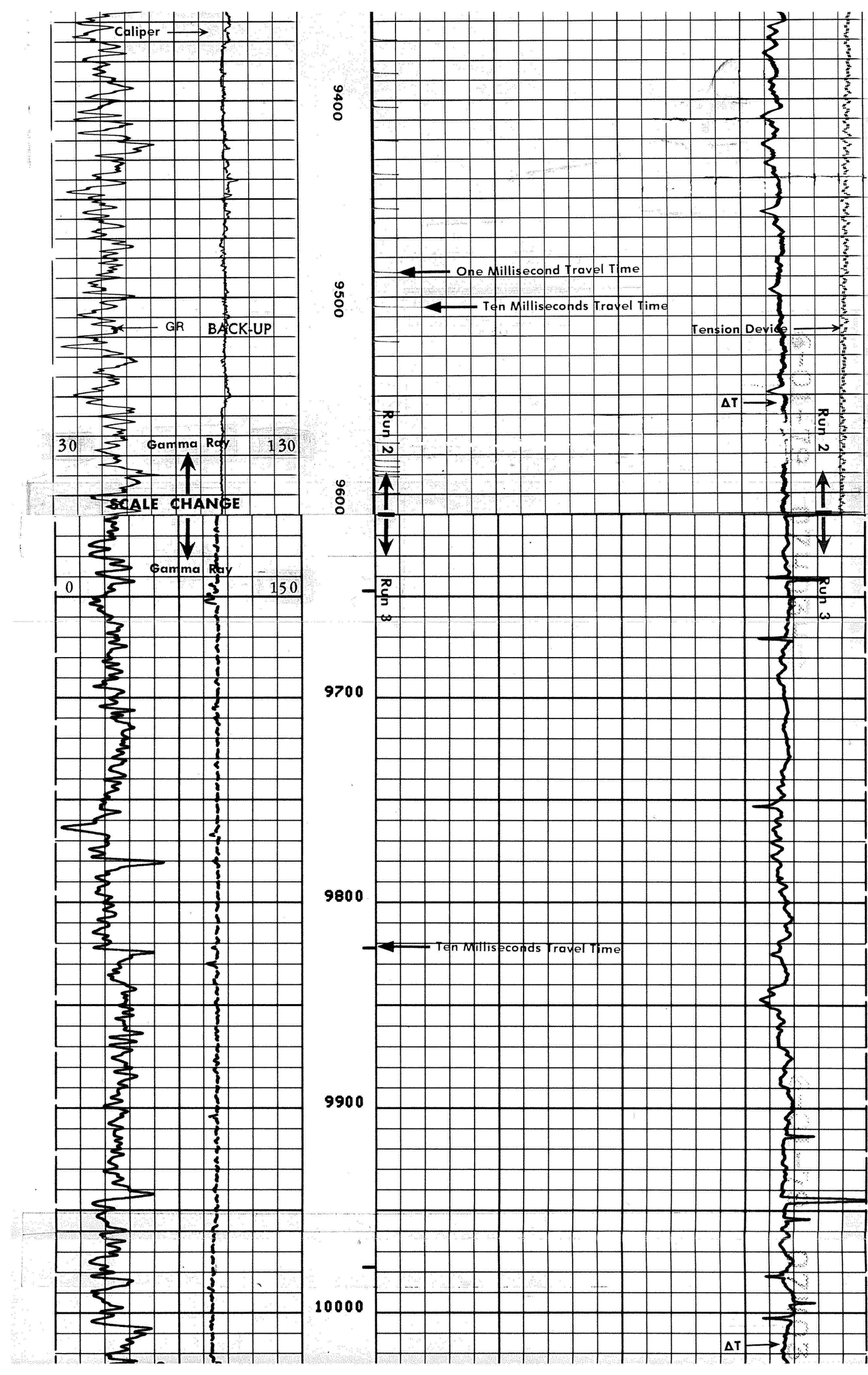


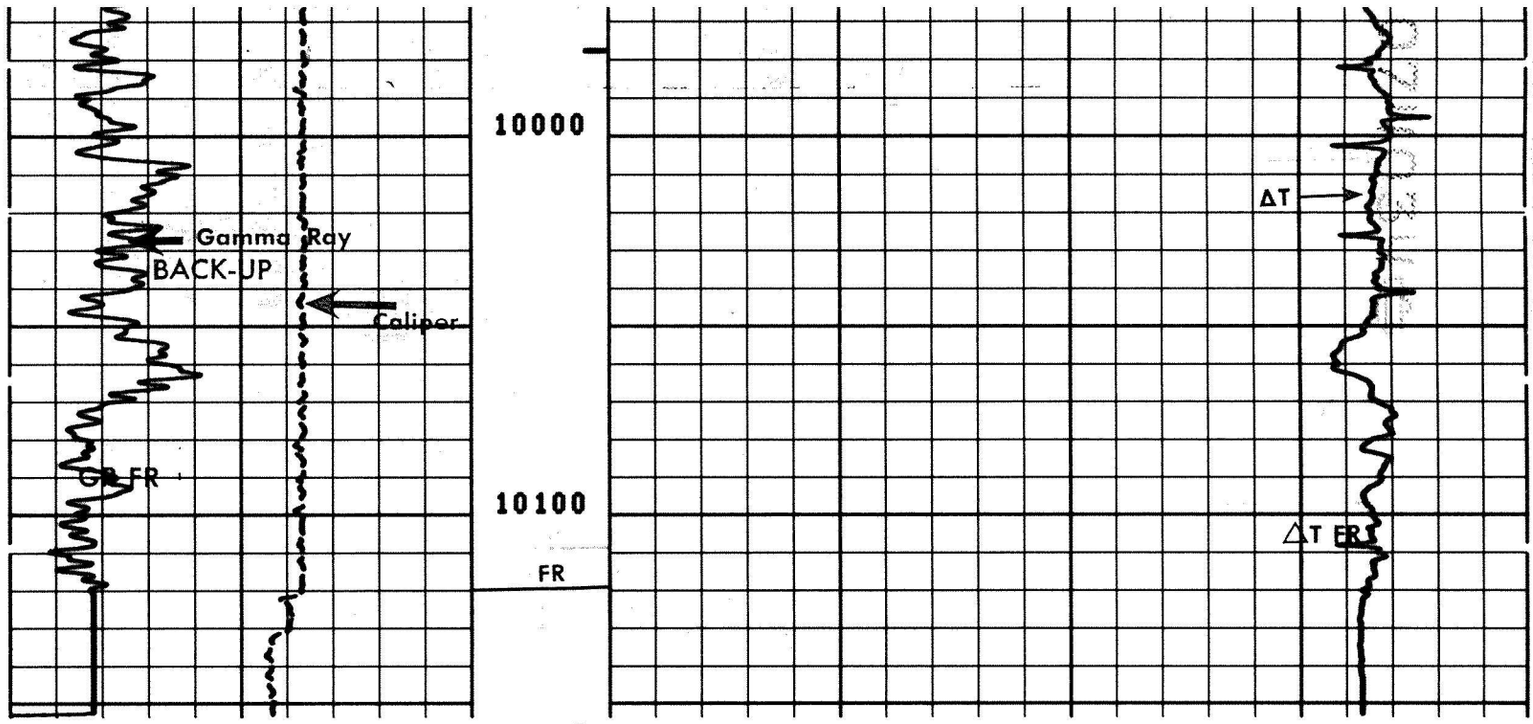
00 8200 8300 8400 8500 8600 8700



8800 8900 9000 9100 9200 9300 9400

Caliper


Caliper
GR
BACK-UP
30
Gamma Ray
130
SCALE CHANGE
Gamma Ray
0
150
9400
9500
9600
9700
9800
9900
10000
One Millisecond Travel Time
Ten Milliseconds Travel Time
Tension Device
ΔT
Run 2
Run 3
Ten Milliseconds Travel Time
ΔT



CALI(IN)
6.000 16.00
GR (GAPI)
0.0 150.0

DT (US/F)
140.0 40.00
DT (US/F)
240.0 140.0

CALI(IN)
6.000 16.00
GR (GAPI)
0.0 100.0

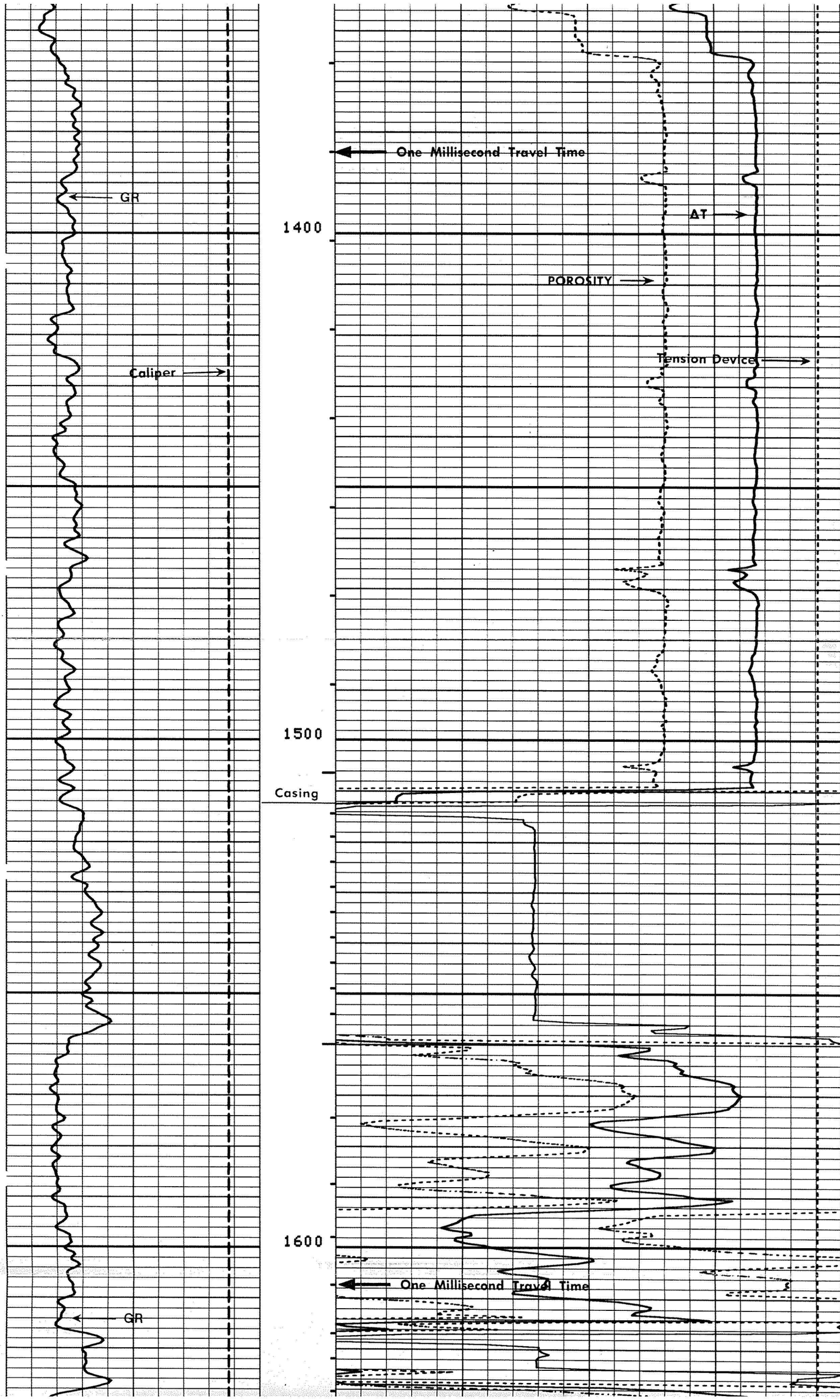
TENS(LB)
10000. 0.0
DT (US/F)
140.0 40.00
DT (US/F)
240.0 140.0
SPHI( )
0.3000 -0.100

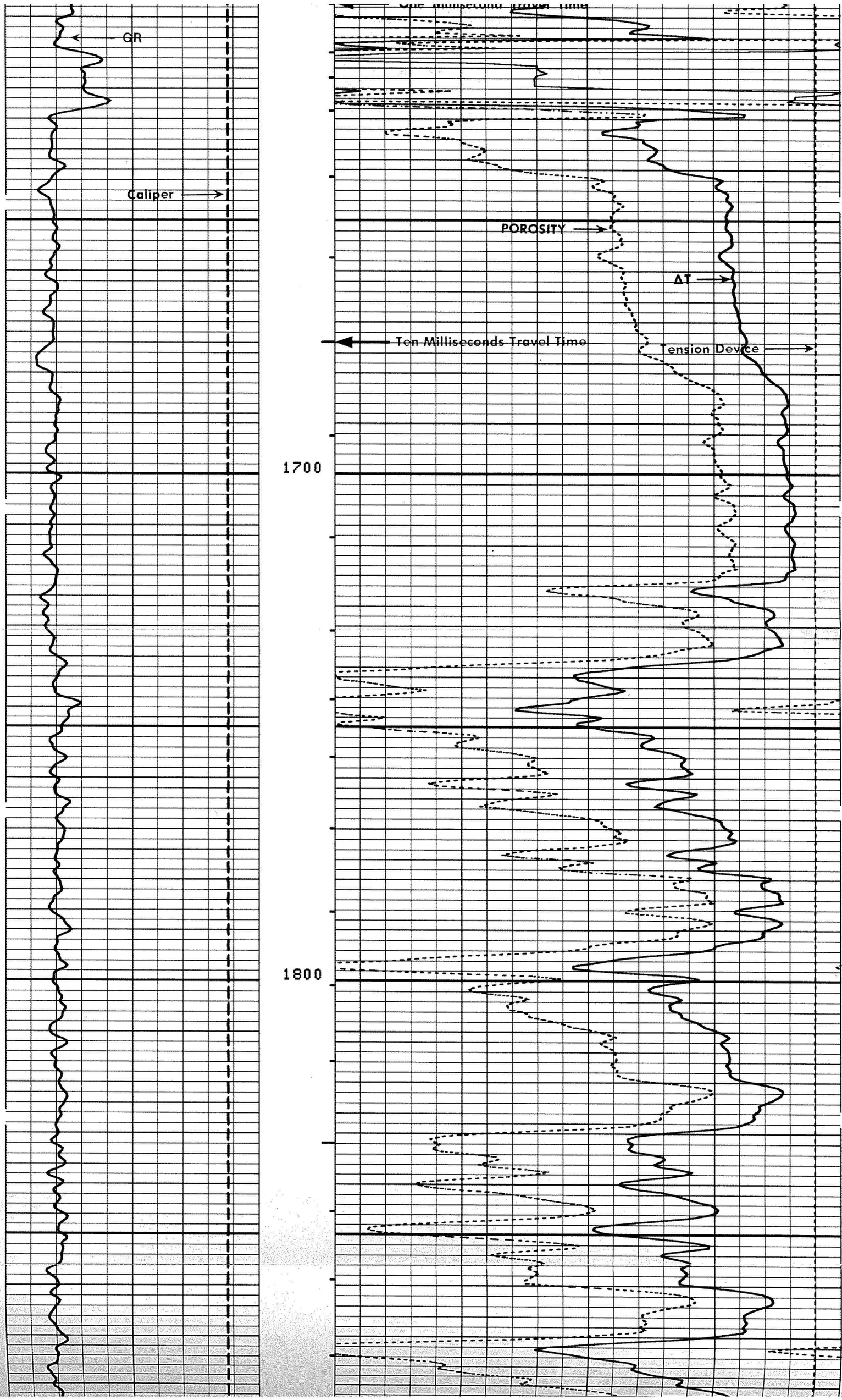
LR
1300

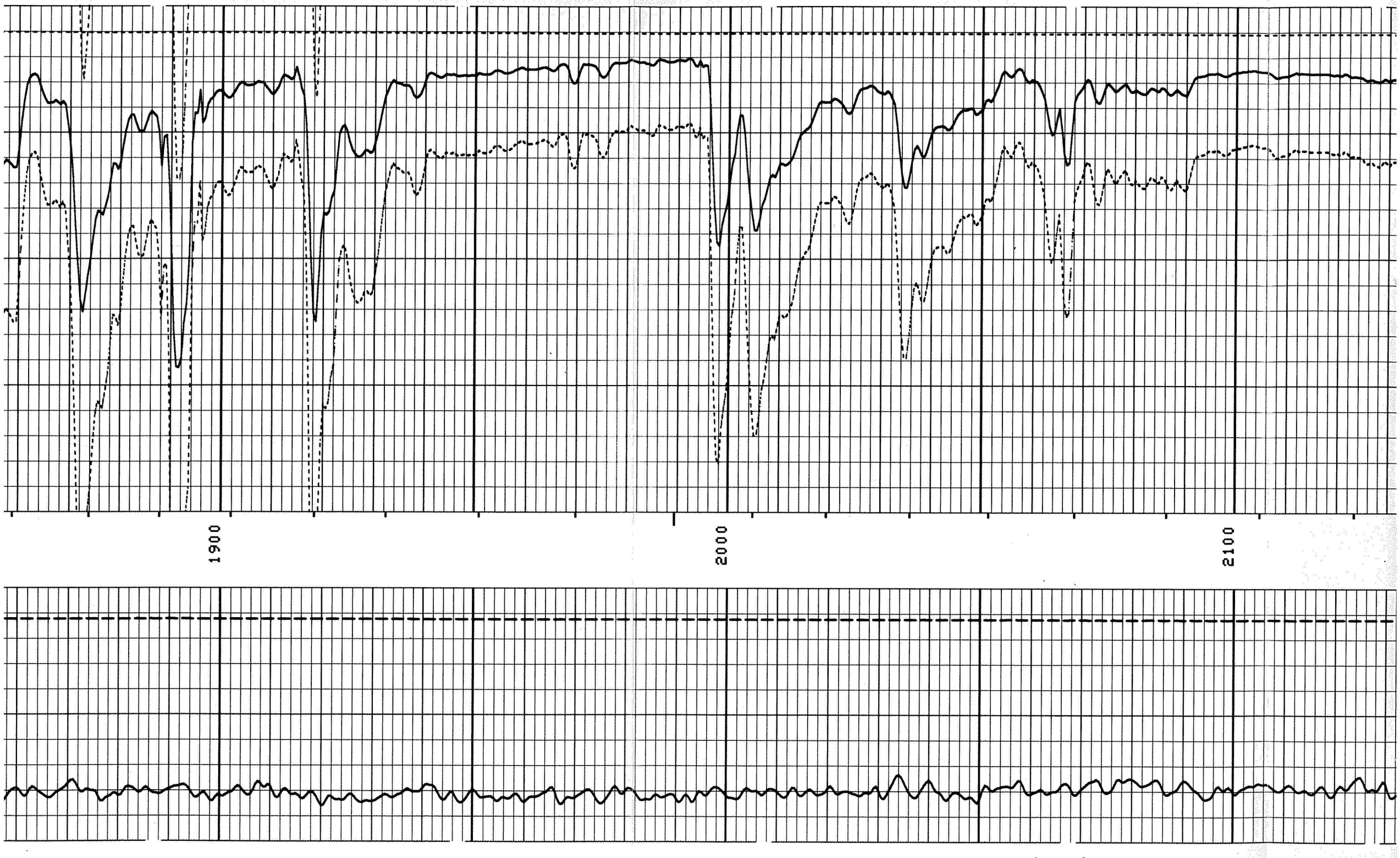
Run 1

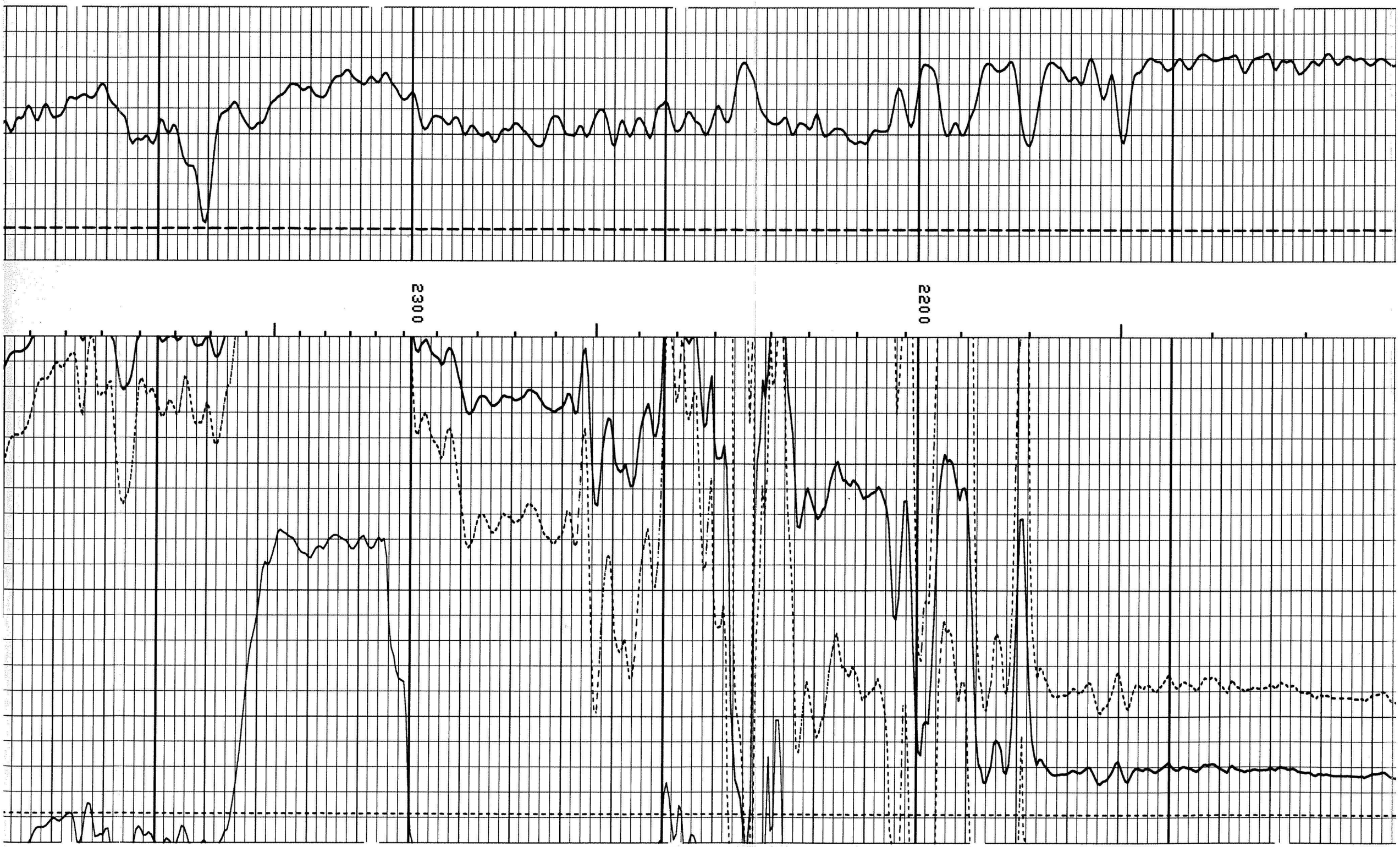
ΔT IN Casing ≒ 57 MS

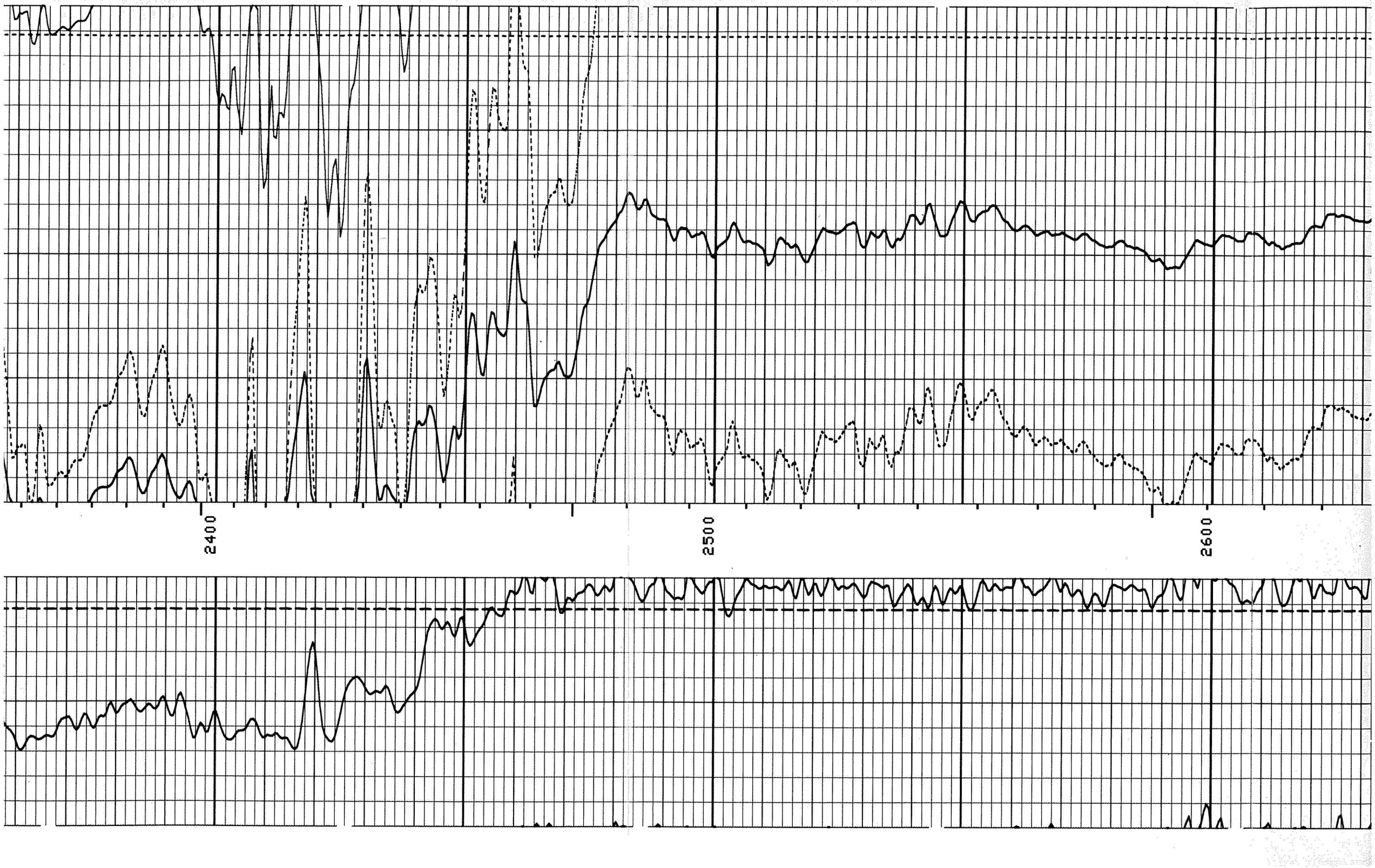
Ten Milliseconds Travel Time


GR
Caliper
GR
One Millisecond Travel Time
ΔT
POROSITY
Tension Device
1400
1500
Casing
1600
One Millisecond Travel Time


GR
Caliper
One Millisecond Travel Time
POROSITY
ΔT
Ten Milliseconds Travel Time
Tension Device
1700
1800

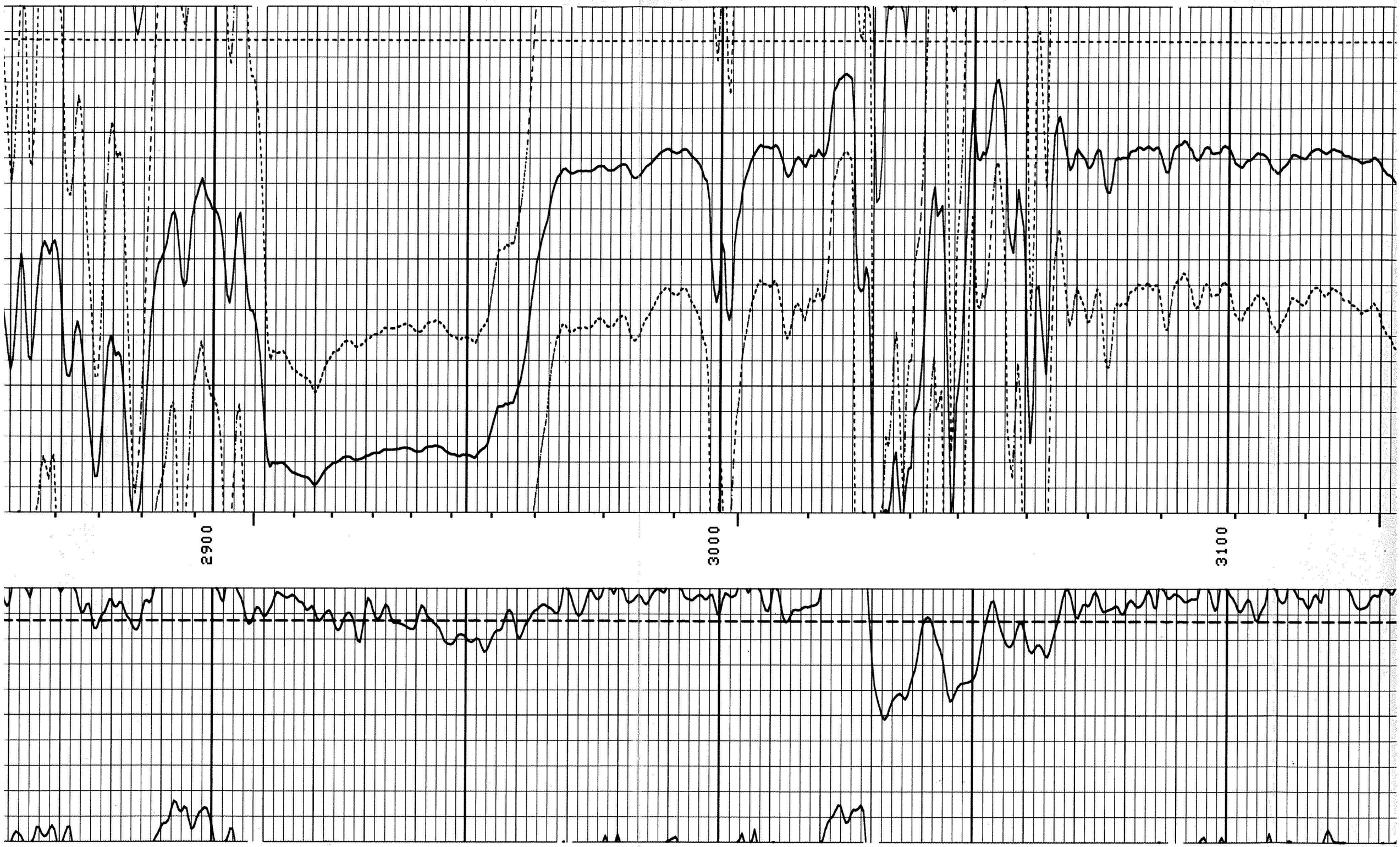

1900
2000
2100


2300
2200


2400
2500
2600

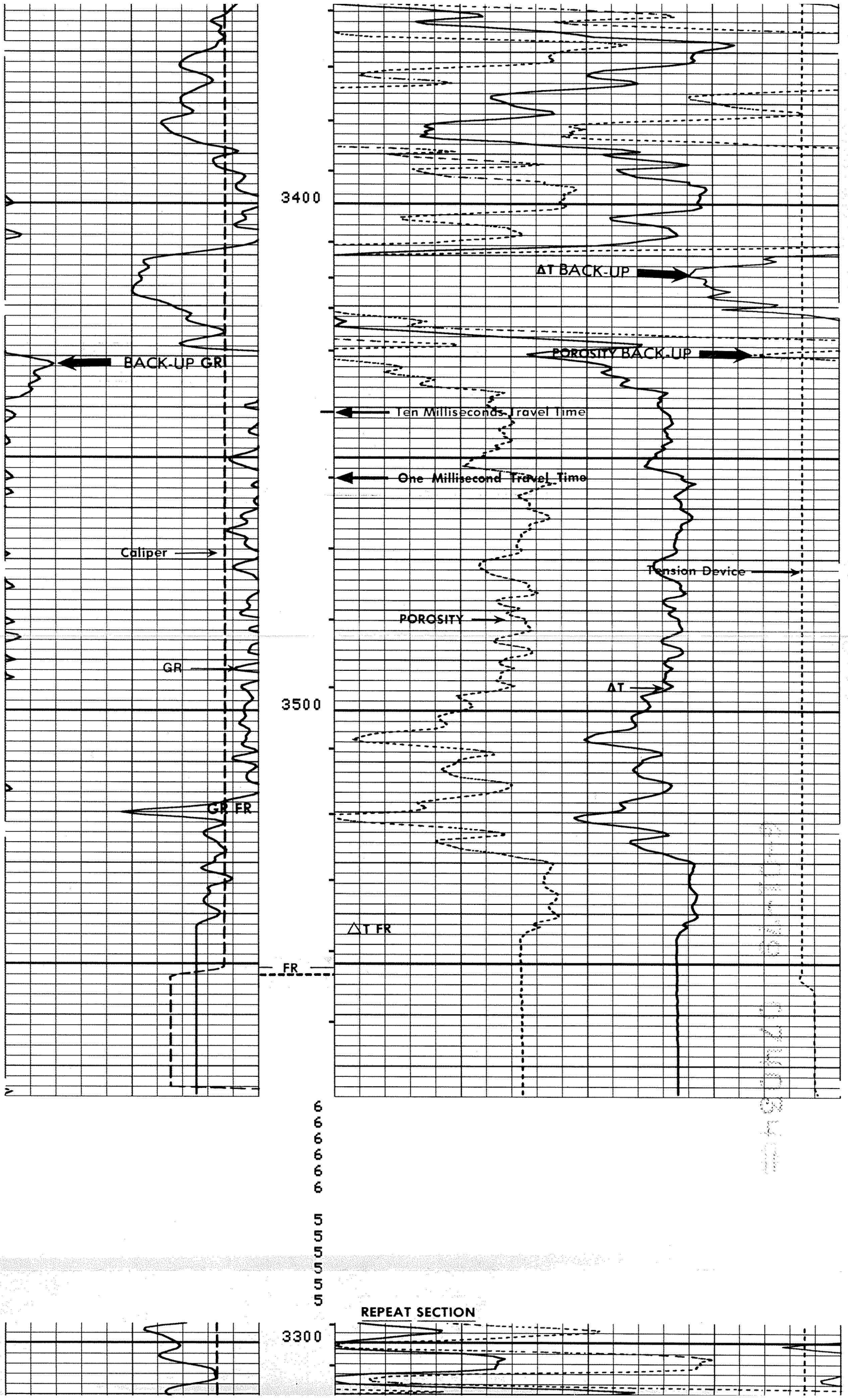
2700

2800

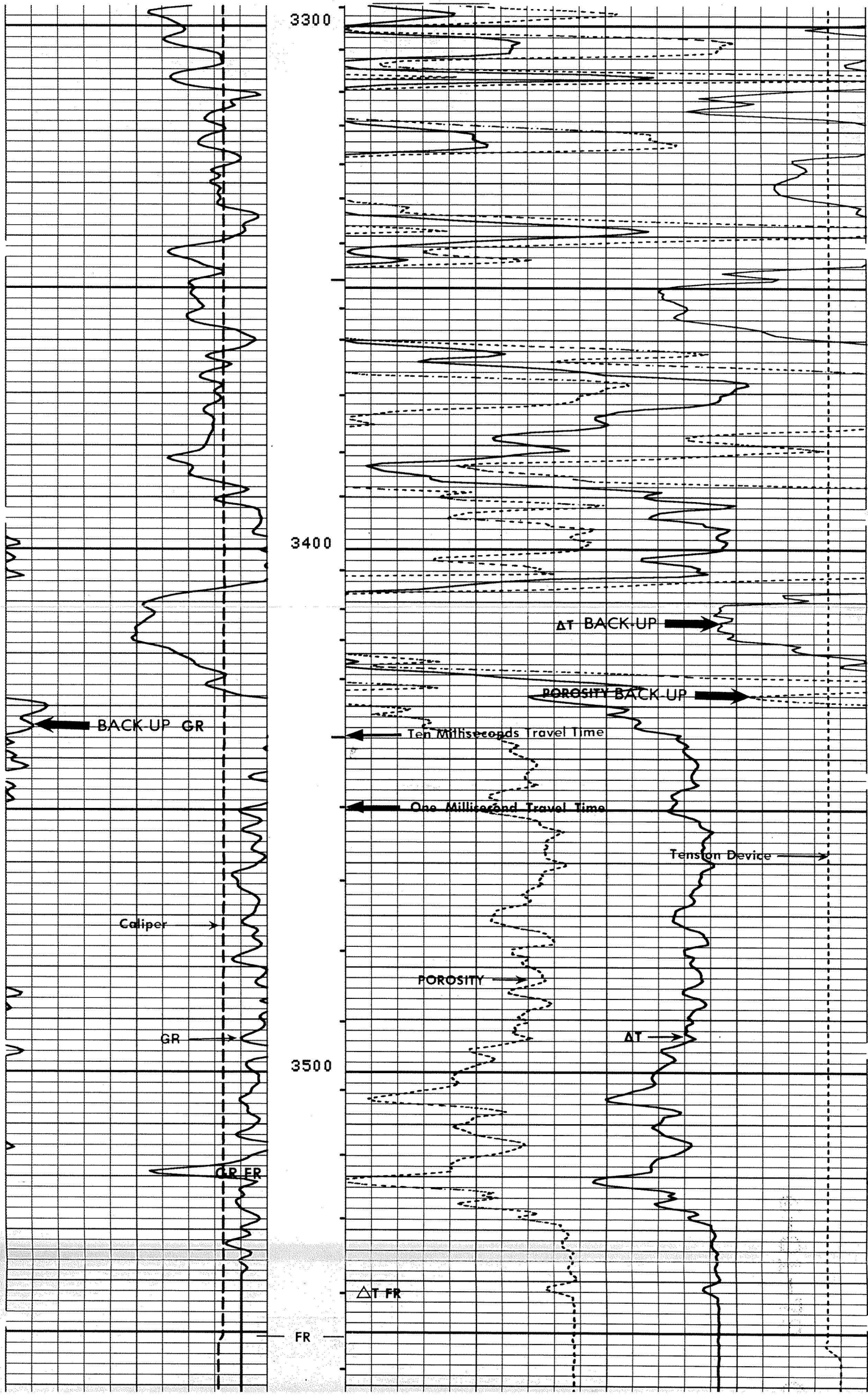

2900
3000
3100

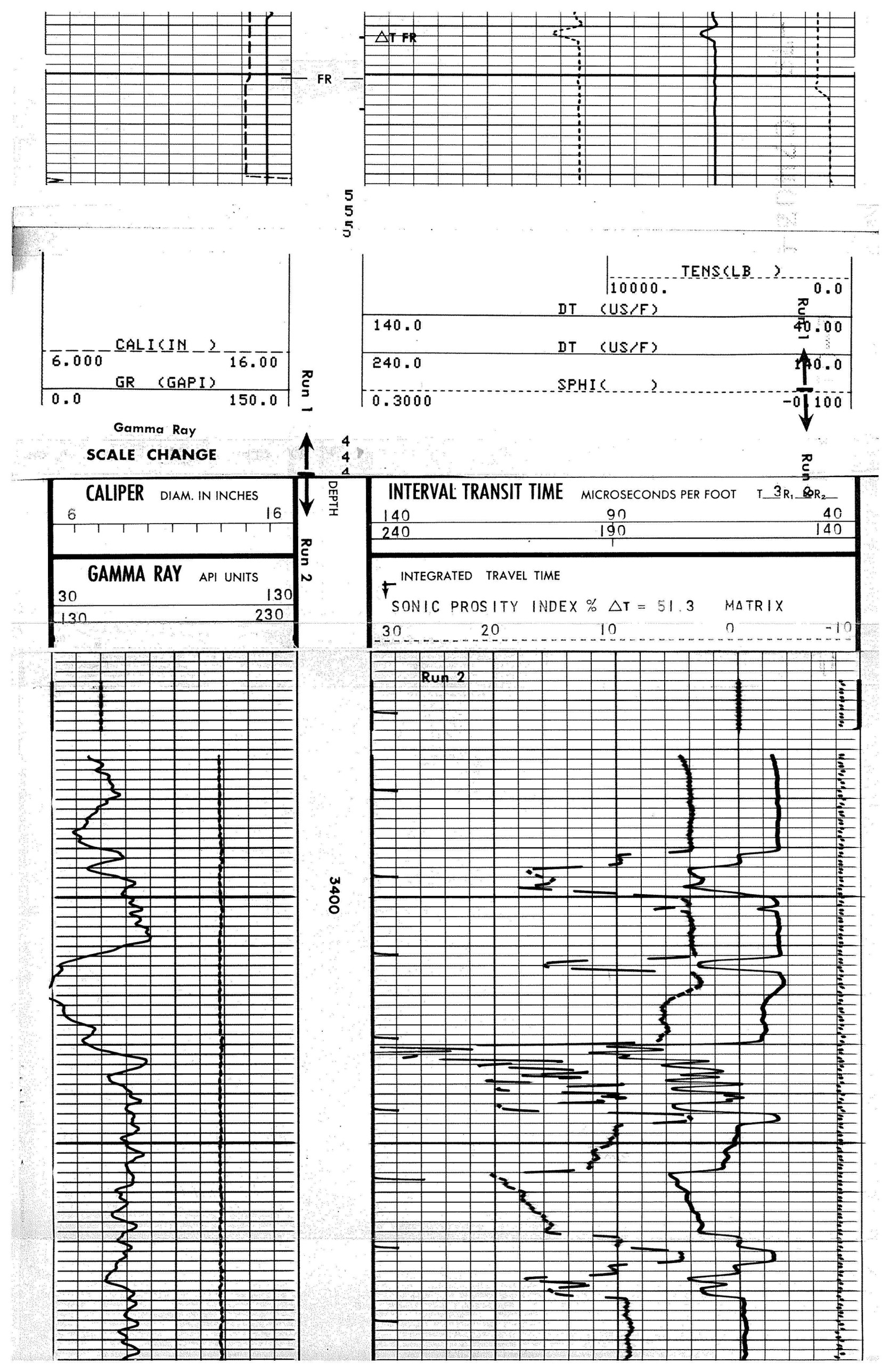
3200

3300


3400
BACK-UP GR
ΔT BACK-UP
POROSITY BACK-UP
Ten Milliseconds Travel Time
One Millisecond Travel Time
Caliper
Tension Device
POROSITY
GR
ΔT
3500
GR FR
ΔT FR
FR
REPEAT SECTION
3300

REPEAT SECTION




ΔT FR
FR
5550
CALI(IN)
6.000
16.00
GR (GAPI)
0.0
150.0
Run 1
TENS(LB)
10000.
0.0
DT (US/F)
140.0
40.00
DT (US/F)
240.0
140.0
SPHI( )
0.3000
-0.100
Run 1
Gamma Ray
SCALE CHANGE
4440
DEPTH
CALIPER DIAM. IN INCHES
6
16
Run 2
GAMMA RAY API UNITS
30
130
130
230
INTERVAL TRANSIT TIME MICROSECONDS PER FOOT
T 3R1 2R2
140
90
40
240
190
140
INTEGRATED TRAVEL TIME
SONIC POSITY INDEX % Δt = 51.3 MATRIX
30
20
10
0
-10
Run 2
3400

Tension Device

One Millisecond Travel Time

Ten Millisecond Travel Time

ΔT

POROSITY

3500

Casing

3600

3700

GR

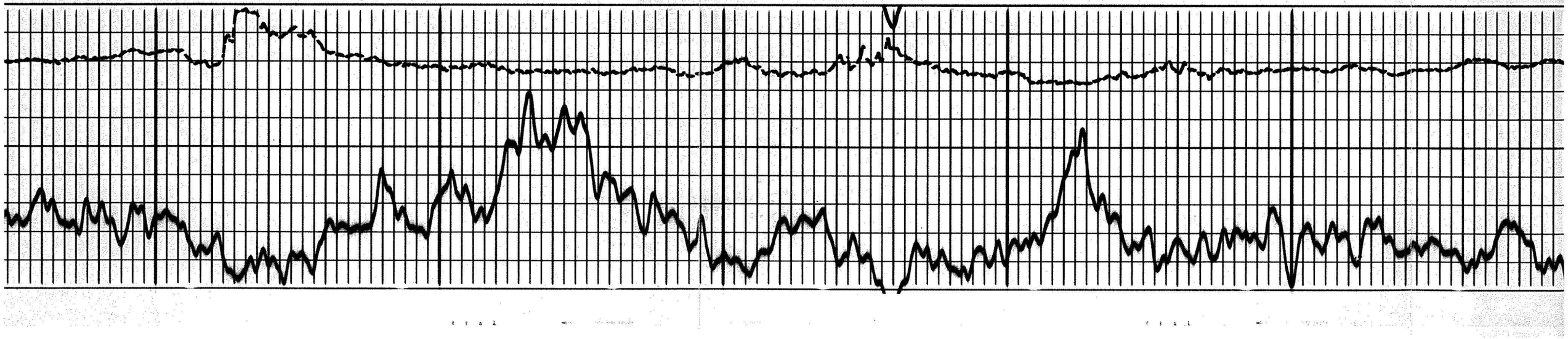
Caliper

GR BACK-UP

3800

3900

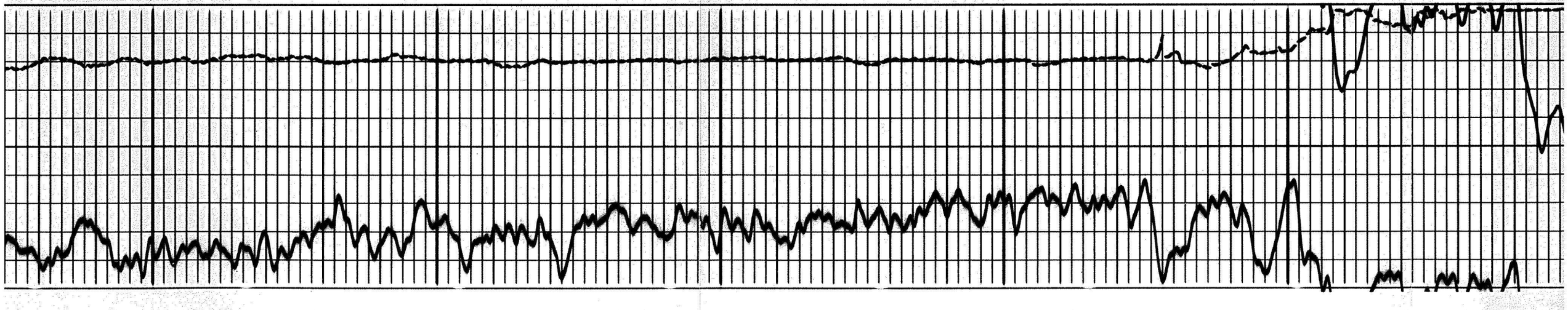
4

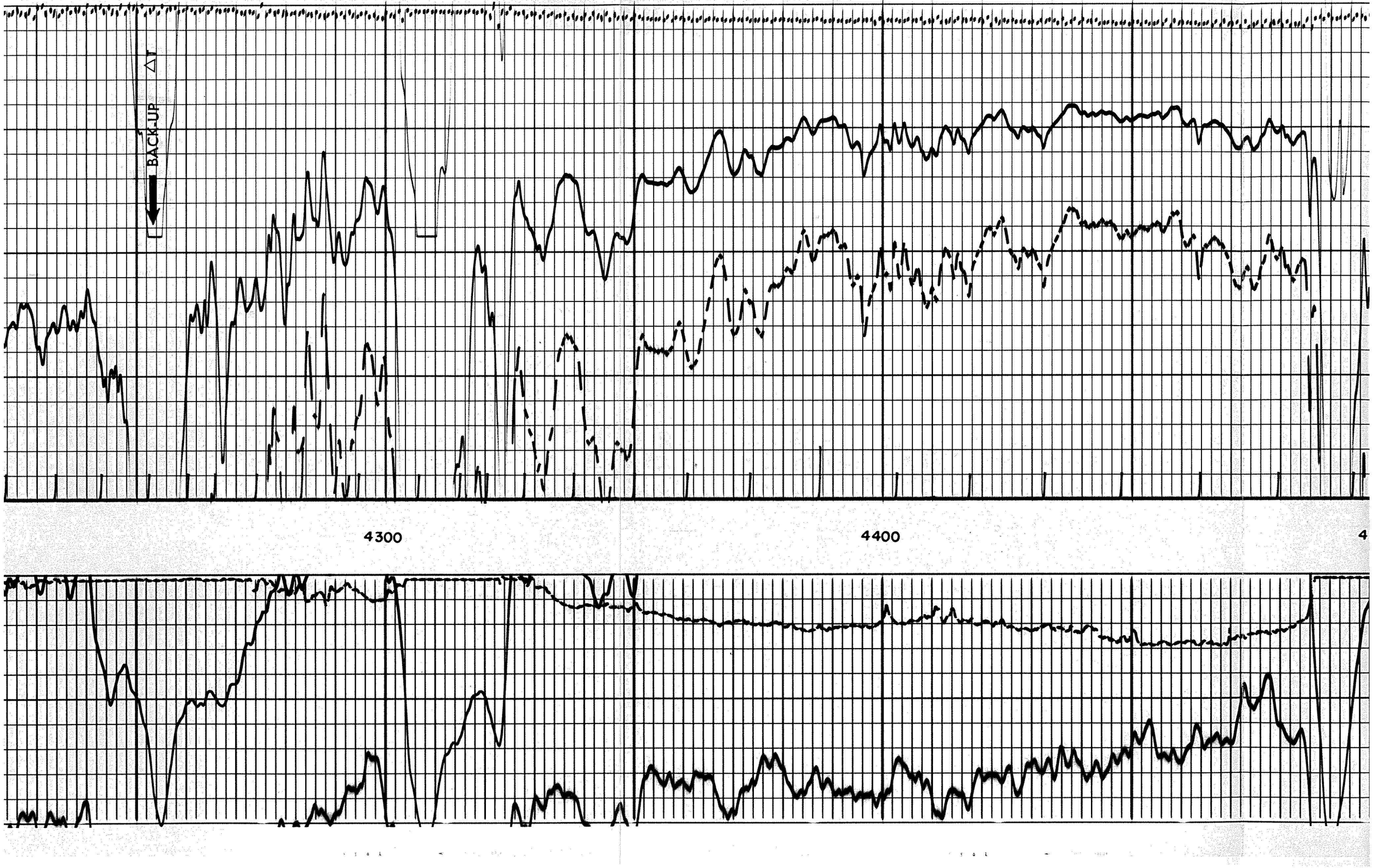


4000

4100

4200



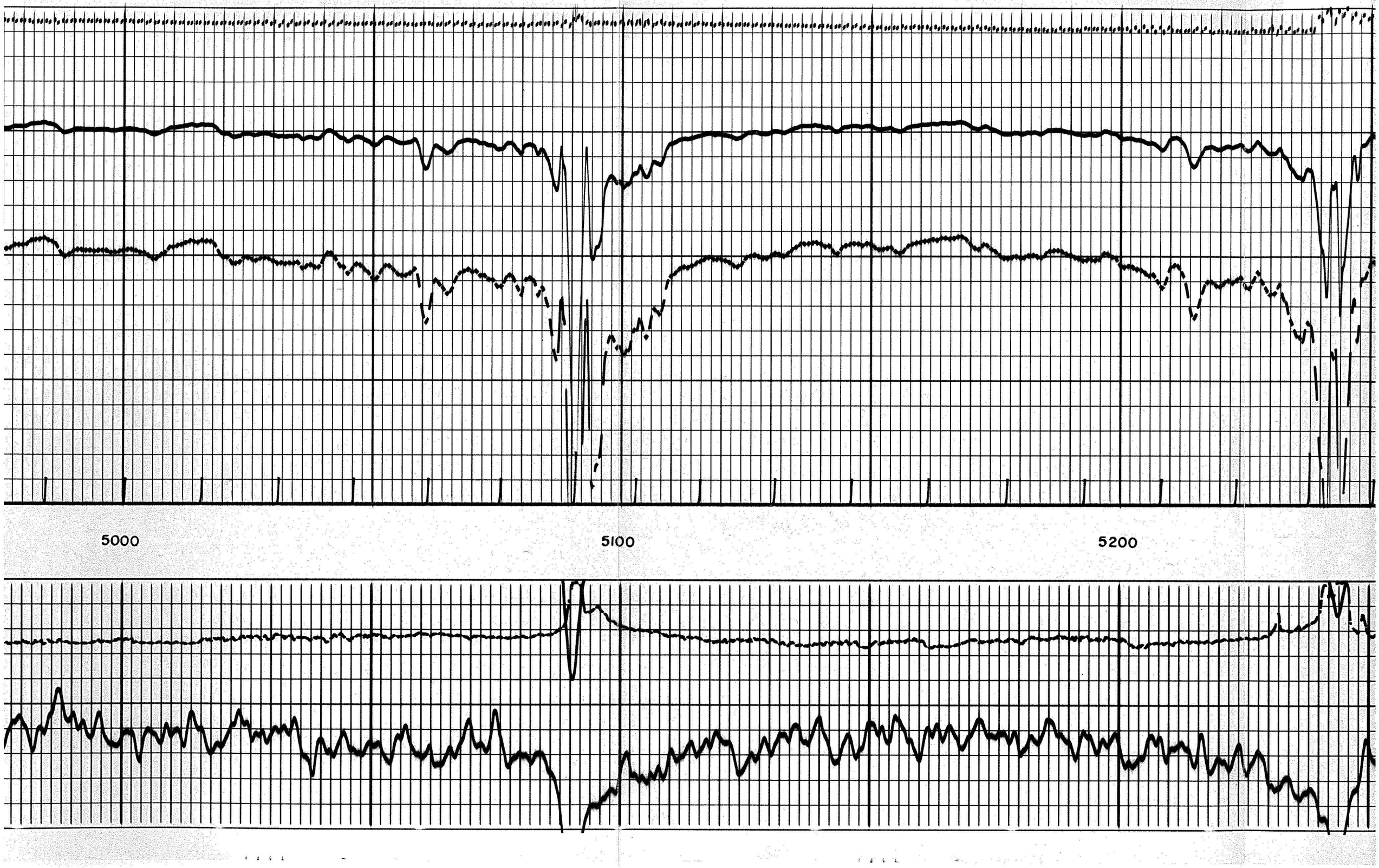

BACK-UP
ΔT
4300
4400

4500

4600

4700


4800
4900
50


5000
5100
5200

5300

5400

550

5500

5600

5700

5800

5900

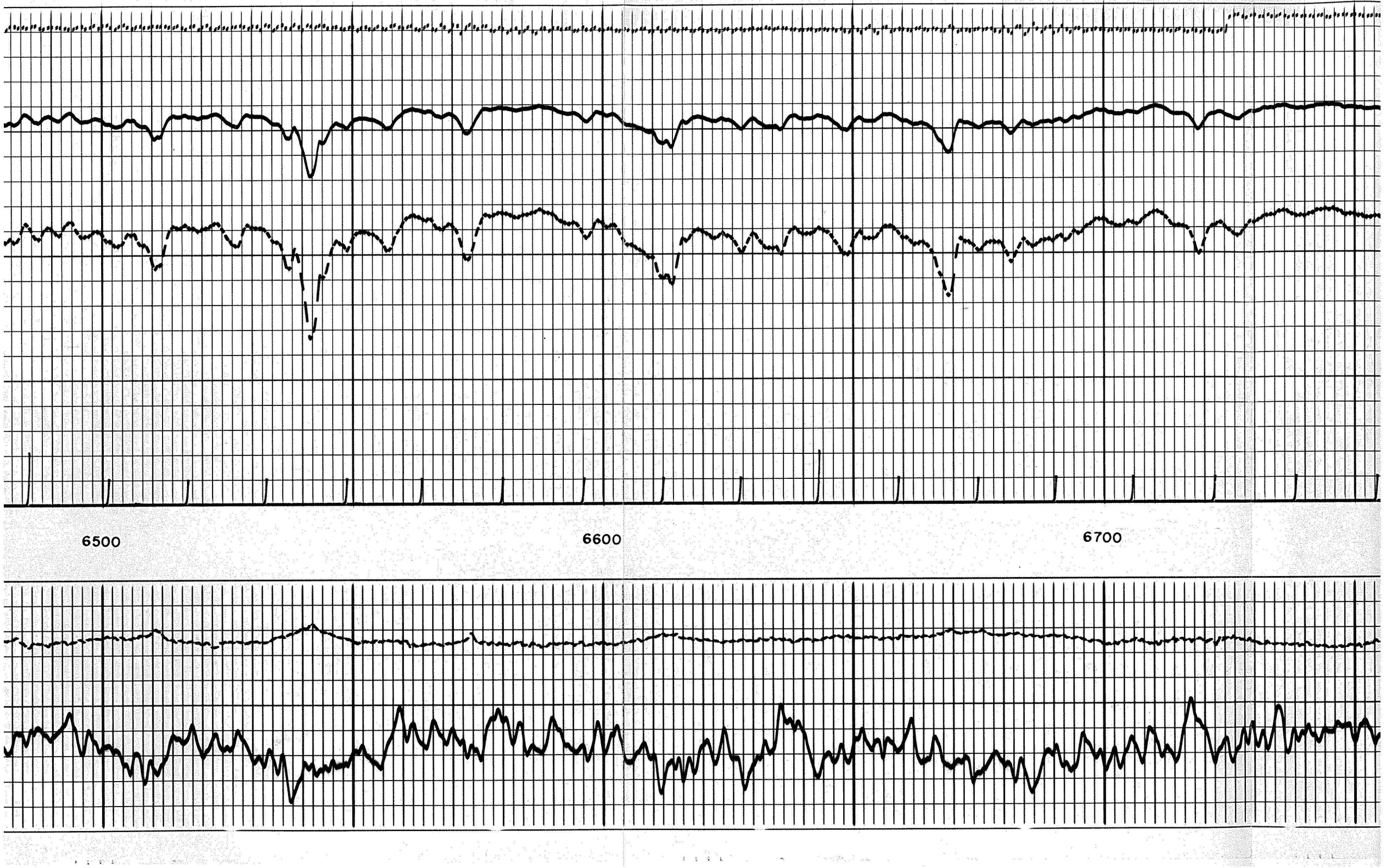
6000

6000

6100

6200


6300
6400
6500


6500
6600
6700

6800

6900

7000

7000

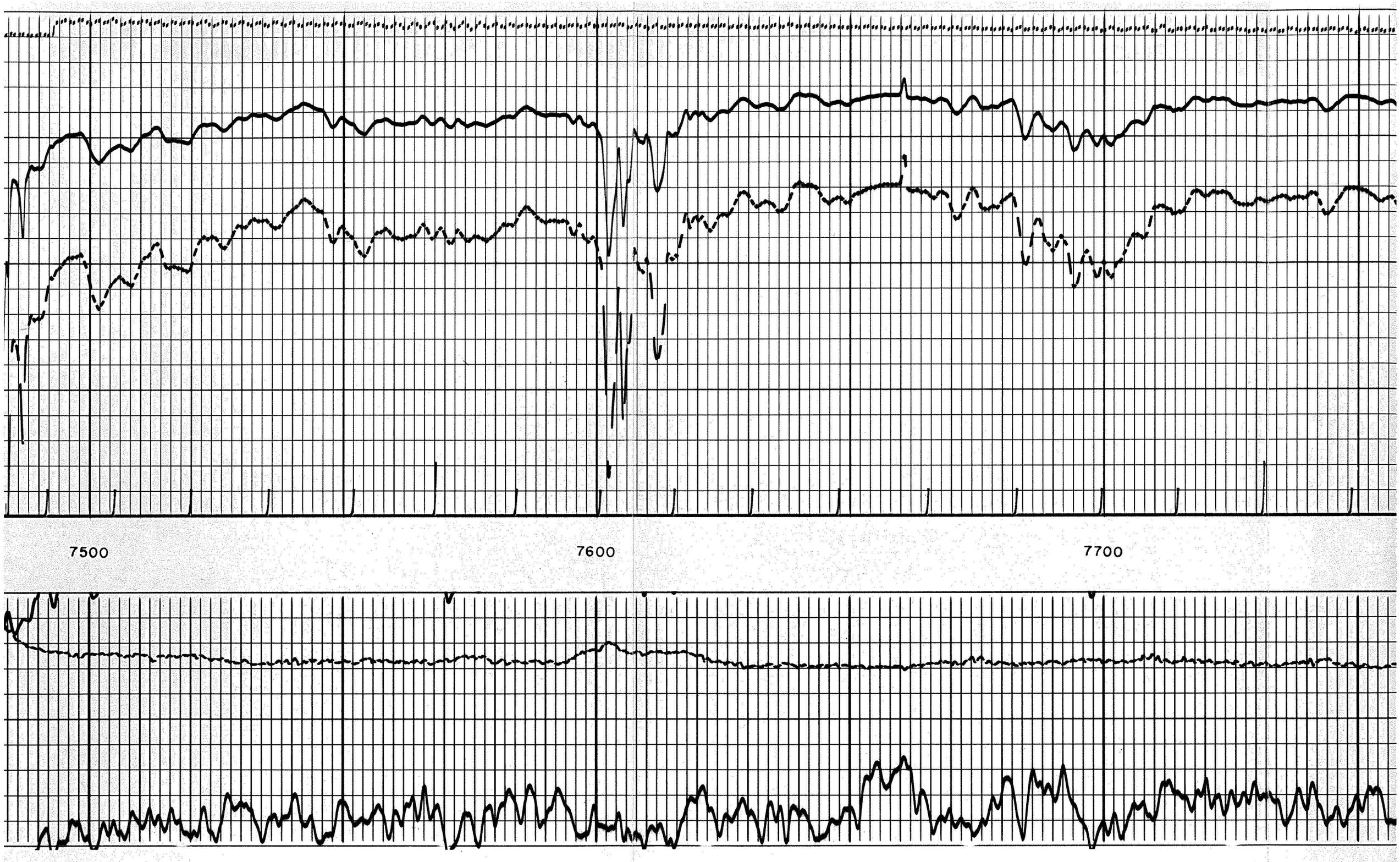
7100

7200

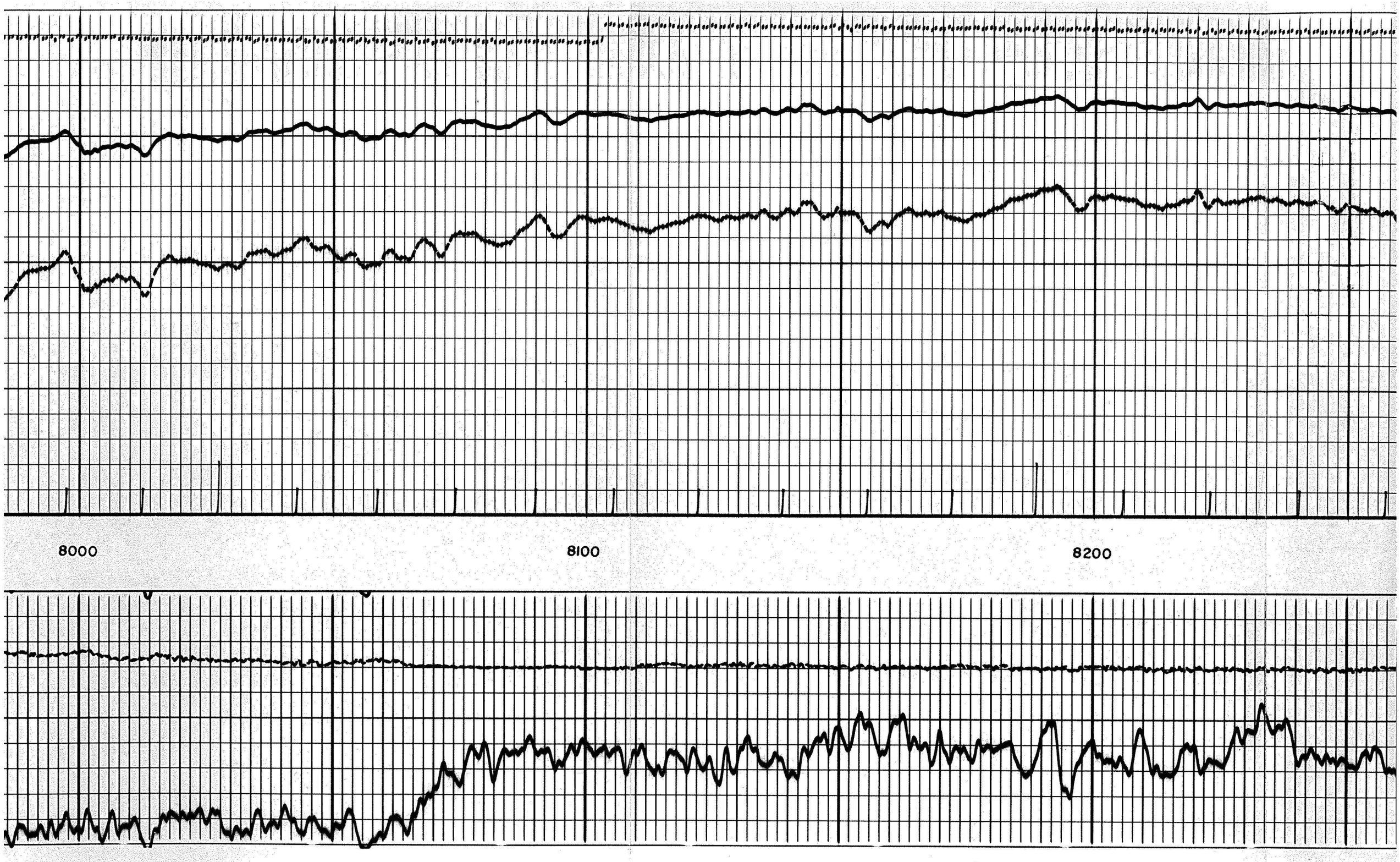
7300

7400

7500


7500
7600
7700


7800
7900
8000


8000
8100
8200

8300

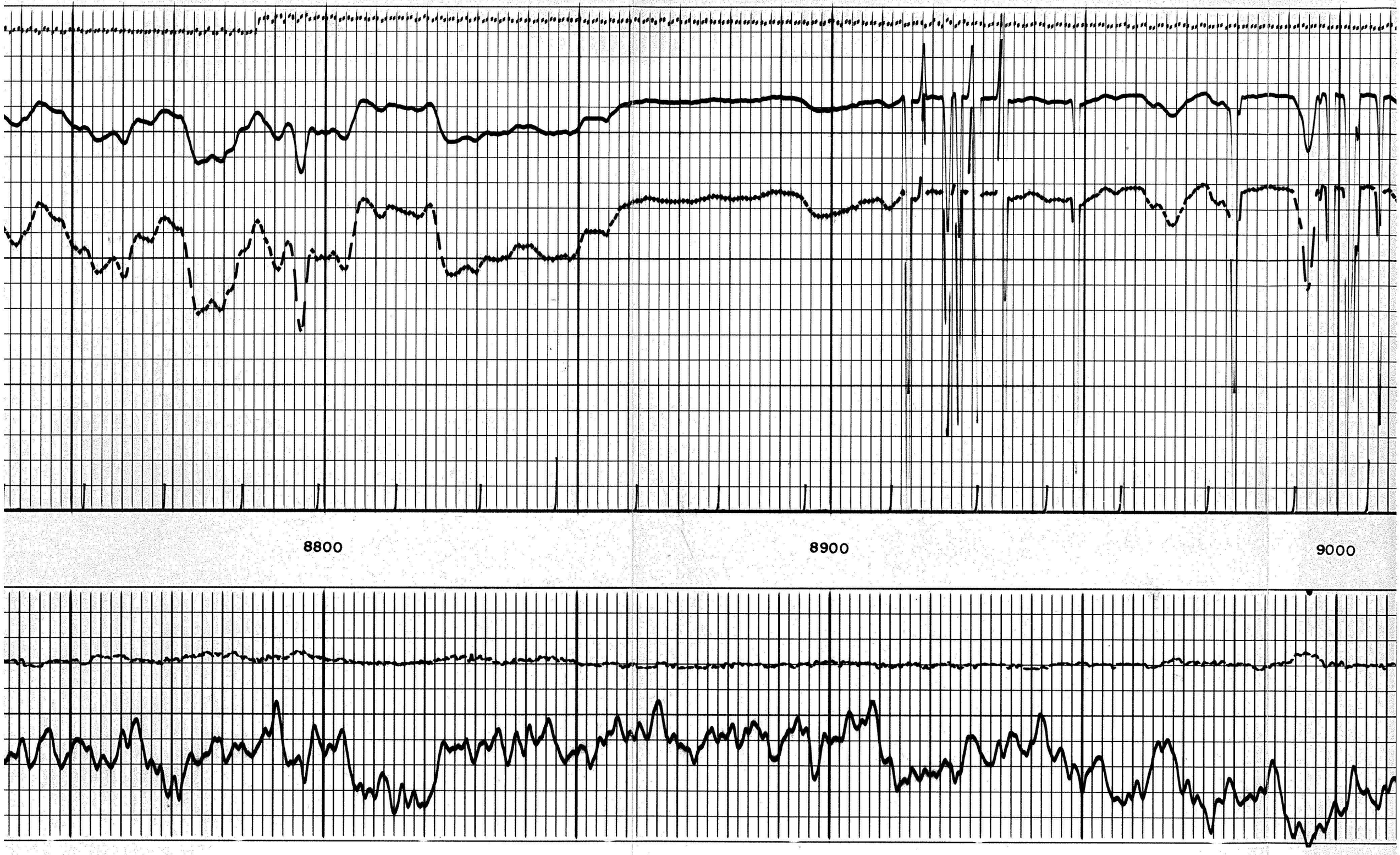
8400

8500

8500

8600

8700


8800
8900
9000

9000

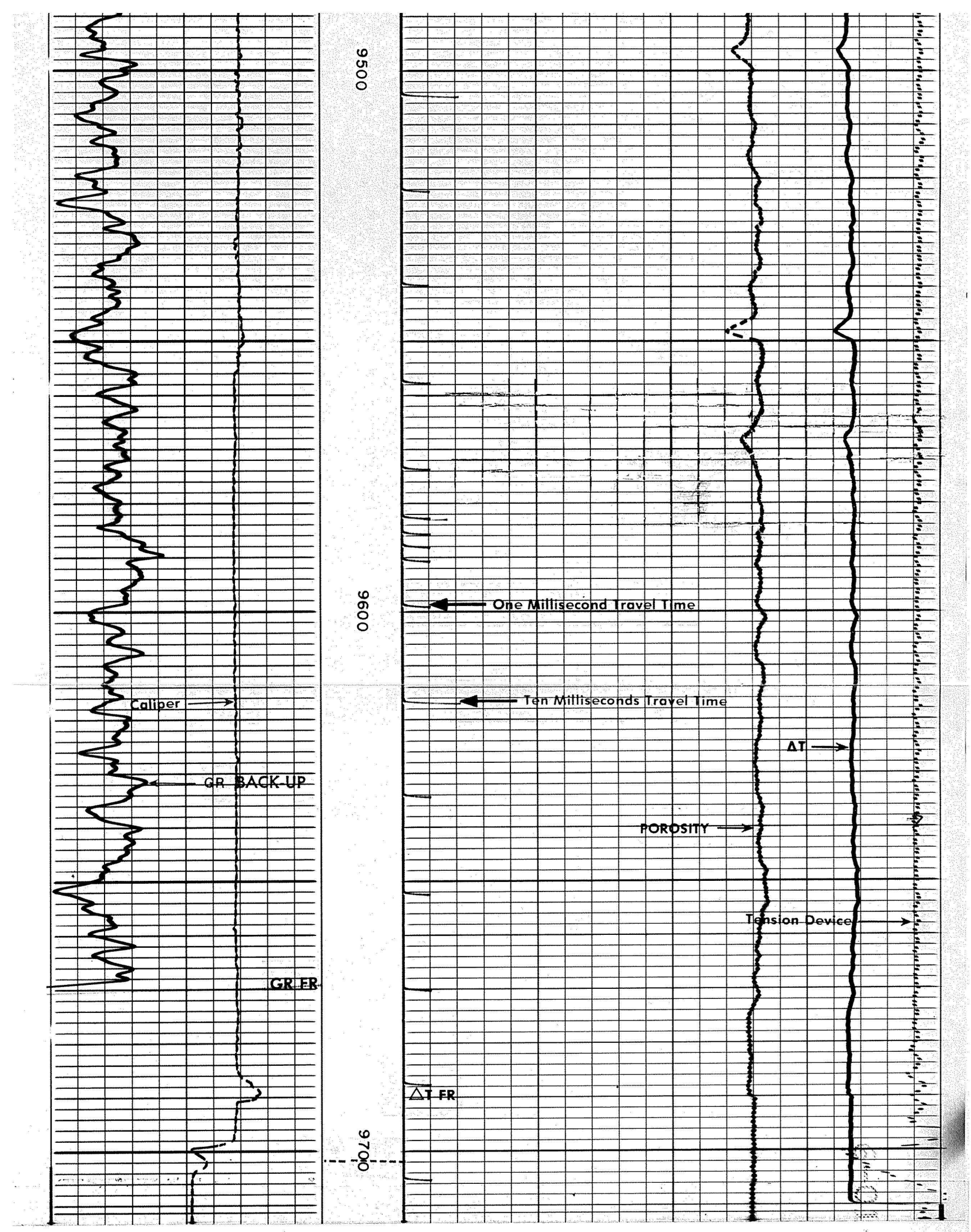
9100

9200

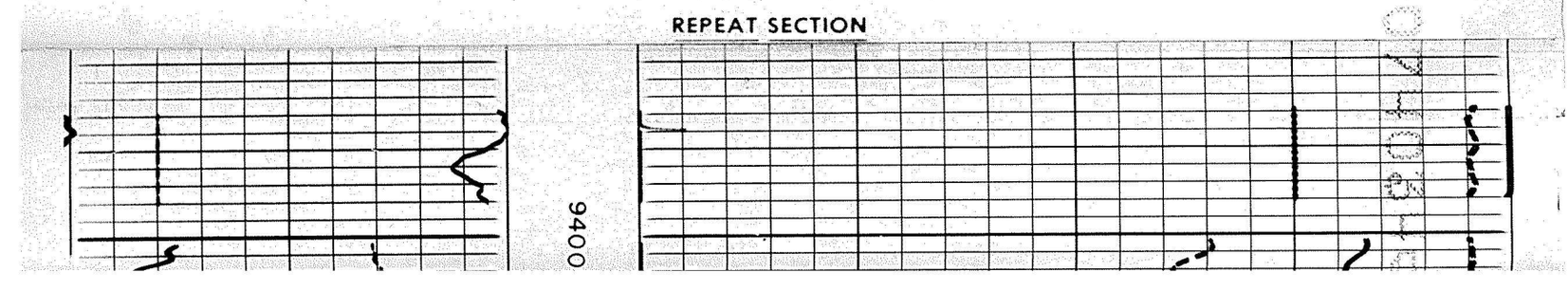
9300

9400

9500



REPEAT SECTION



Ten Milliseconds Travel Time

One Millisecond Travel Time

POROSITY

ΔT

Tension Device

9400

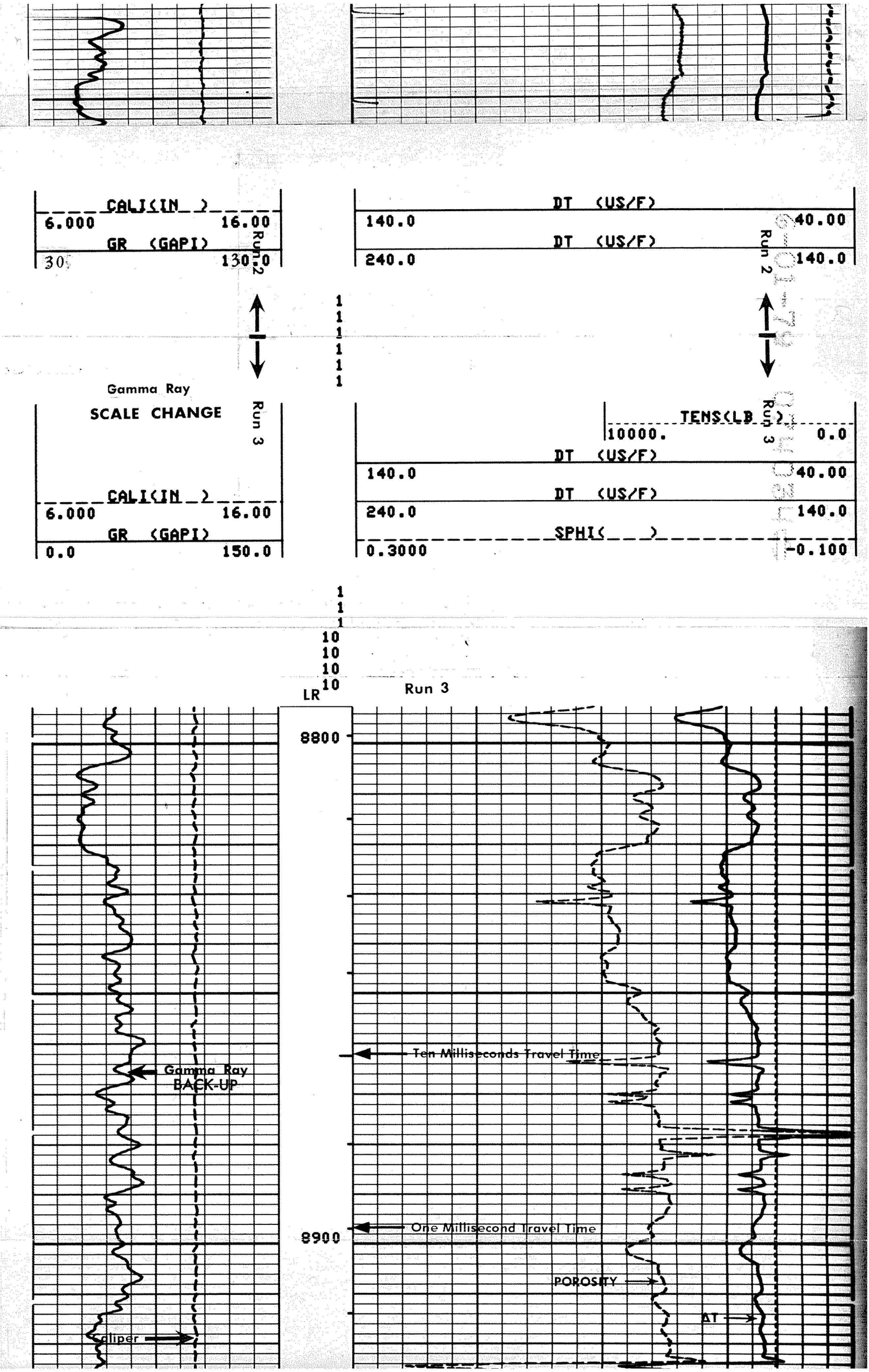
9500

9600

FR

GR BACK-UP

Caliper

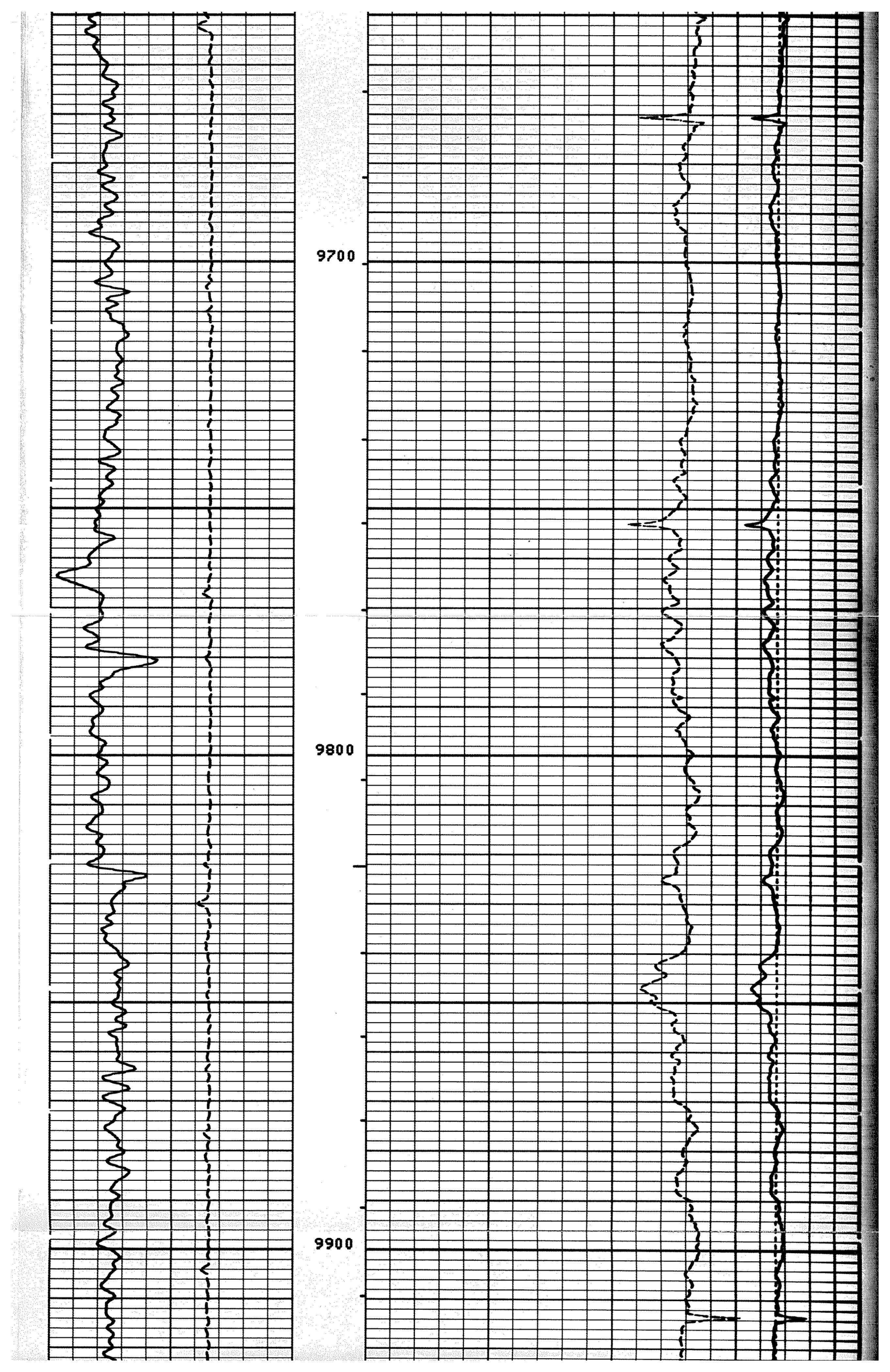

CALI(IN)
6.000
16.00
GR (GAPI)
30
130.0
Run 2
DT (US/F)
140.0
40.00
DT (US/F)
240.0
140.0
Run 2
1
1
1
1
1
1
Gamma Ray
SCALE CHANGE
Run 3
CALI(IN)
6.000
16.00
GR (GAPI)
0.0
150.0
TENS(LB)
10000.
0.0
Run 3
DT (US/F)
140.0
40.00
DT (US/F)
240.0
140.0
SPHI( )
0.3000
-0.100
1
1
1
10
10
10
10
LR
Run 3
8800
8900
Ten Milliseconds Travel Time
One Millisecond Travel Time
Gamma Ray
BACK-UP
Caliper
POROSITY
ΔT

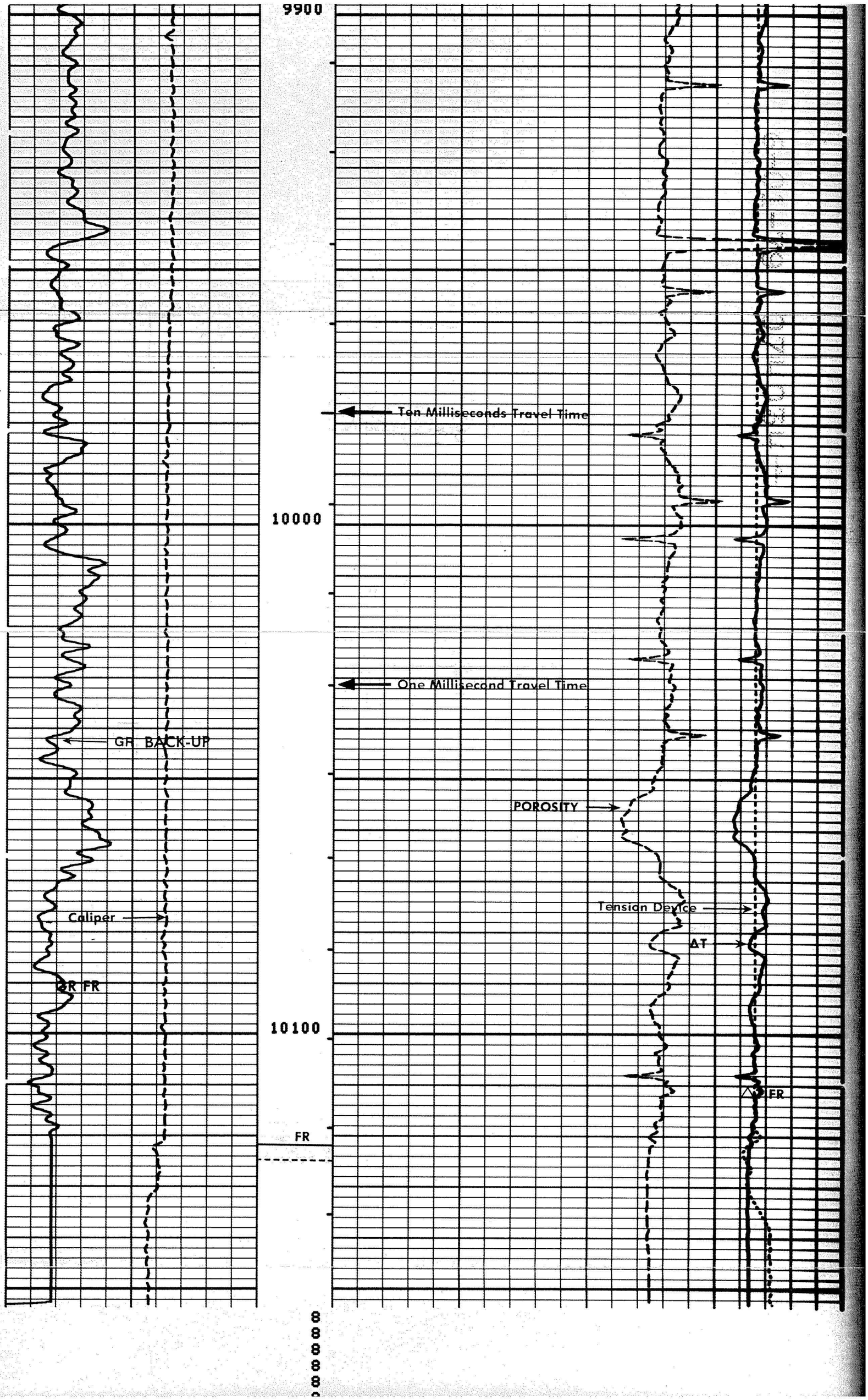

POROSITY
ΔT
Tension Device
9000
9100
Caliper

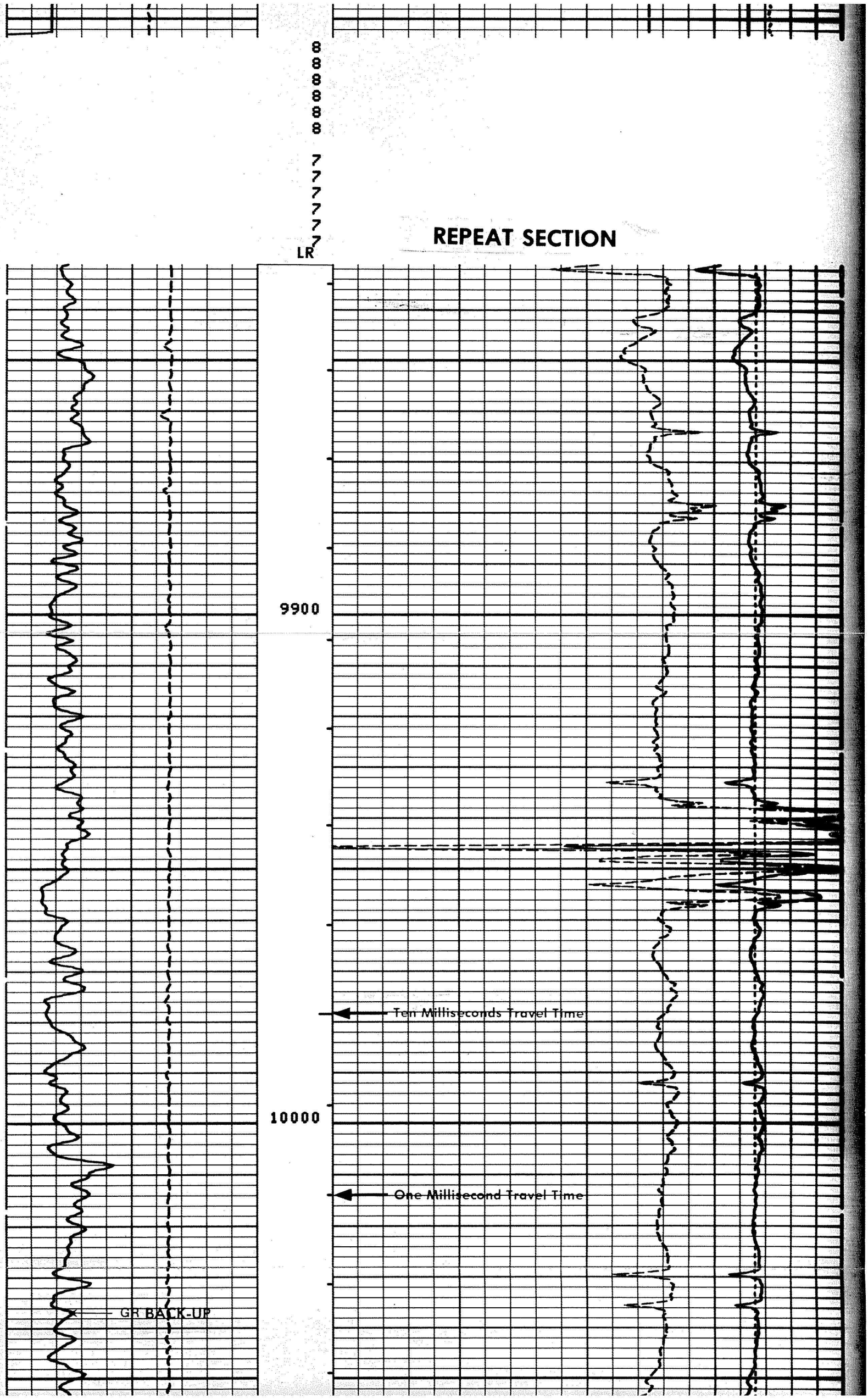

9200
9300
9400

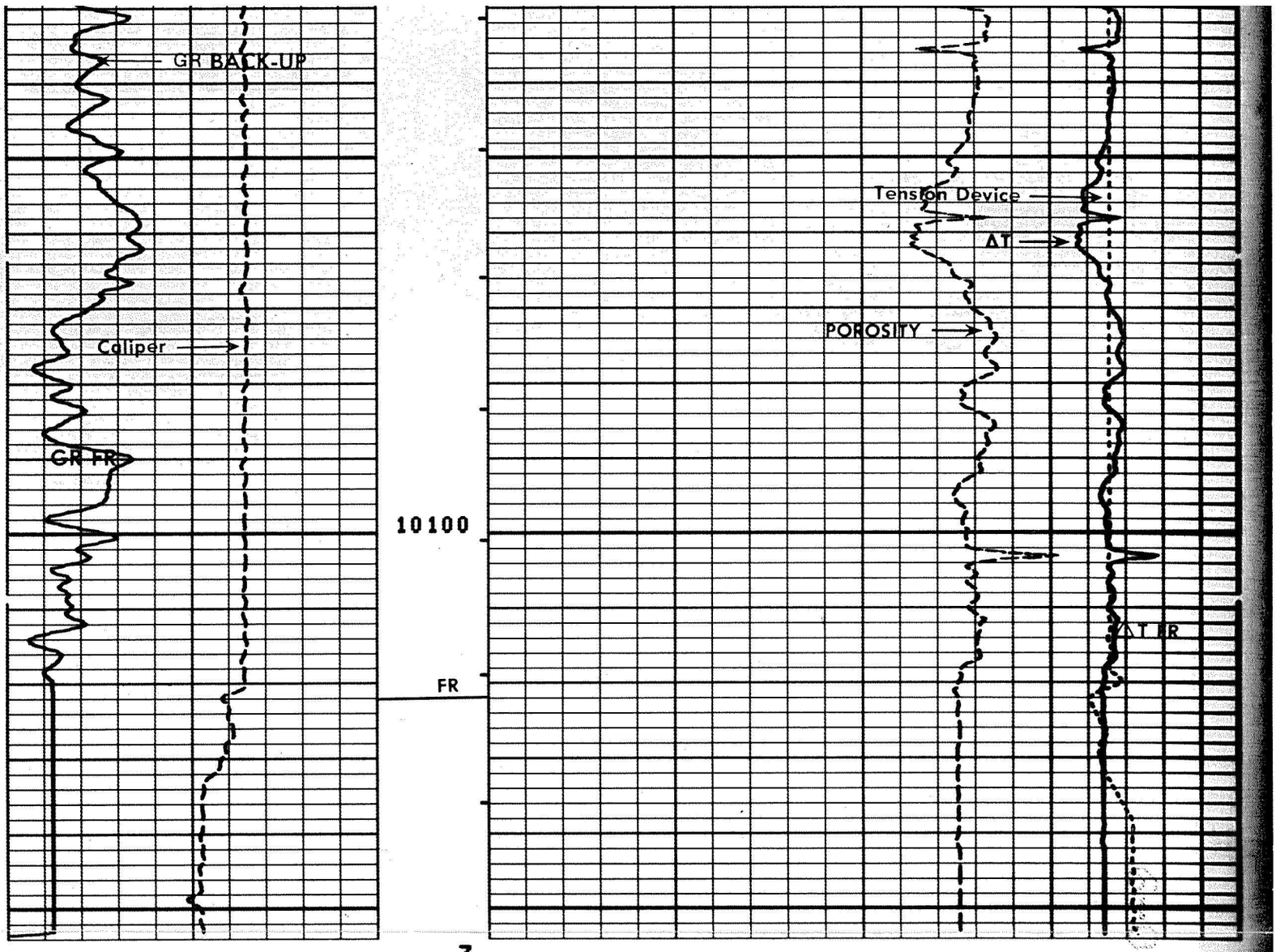
9500

9600

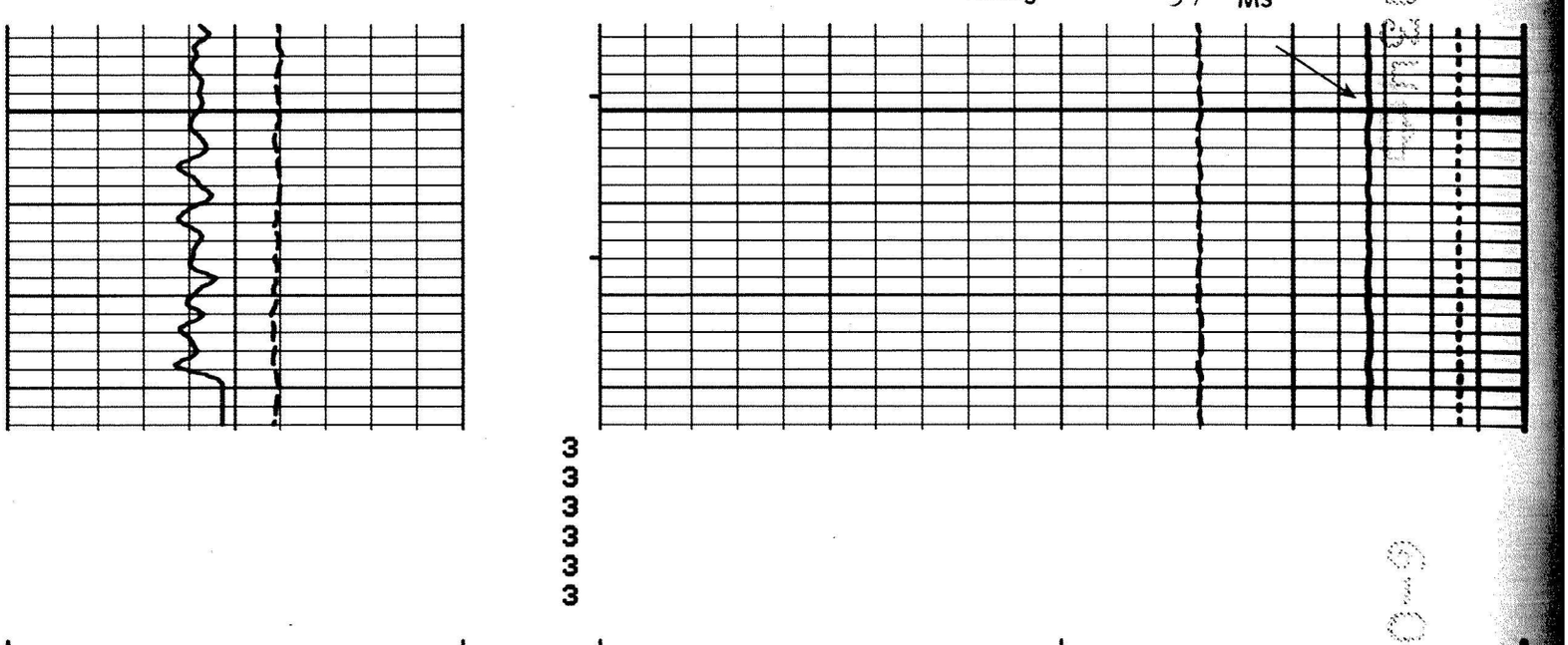

9700
9800
9900


9900
10000
10100
Ten Milliseconds Travel Time
One Millisecond Travel Time
GR BACK-UP
POROSITY
Tension Device
ΔT
Caliper
GR FR
FR
FR


REPEAT SECTION
LR
9900
10000
Ten Milliseconds Travel Time
One Millisecond Travel Time
GR BACK-UP



REPEAT SECTION



CALI(IN)
6.000 16.00
GR (GAPI)
0.0 150.0

TENS(LB)
10000. 0.0
DT (US/F)
140.0 40.00
DT (US/F)
240.0 140.0
SPHI( )
0.3000 -0.100

CALI(IN)	
6.000	16.00
GR (GAPI)	
0.0	150.0

140.0	
DT (US/F)	
240.0	140.0
SPHI( )	
0.3000	-0.100

2224444

Run 1 BEFORE SURVEY CALIBRATION SUMMARY

PERFORMED: 79/03/27
PROGRAM FILE: IS (VERSION 12.4A 78/12/ 8)

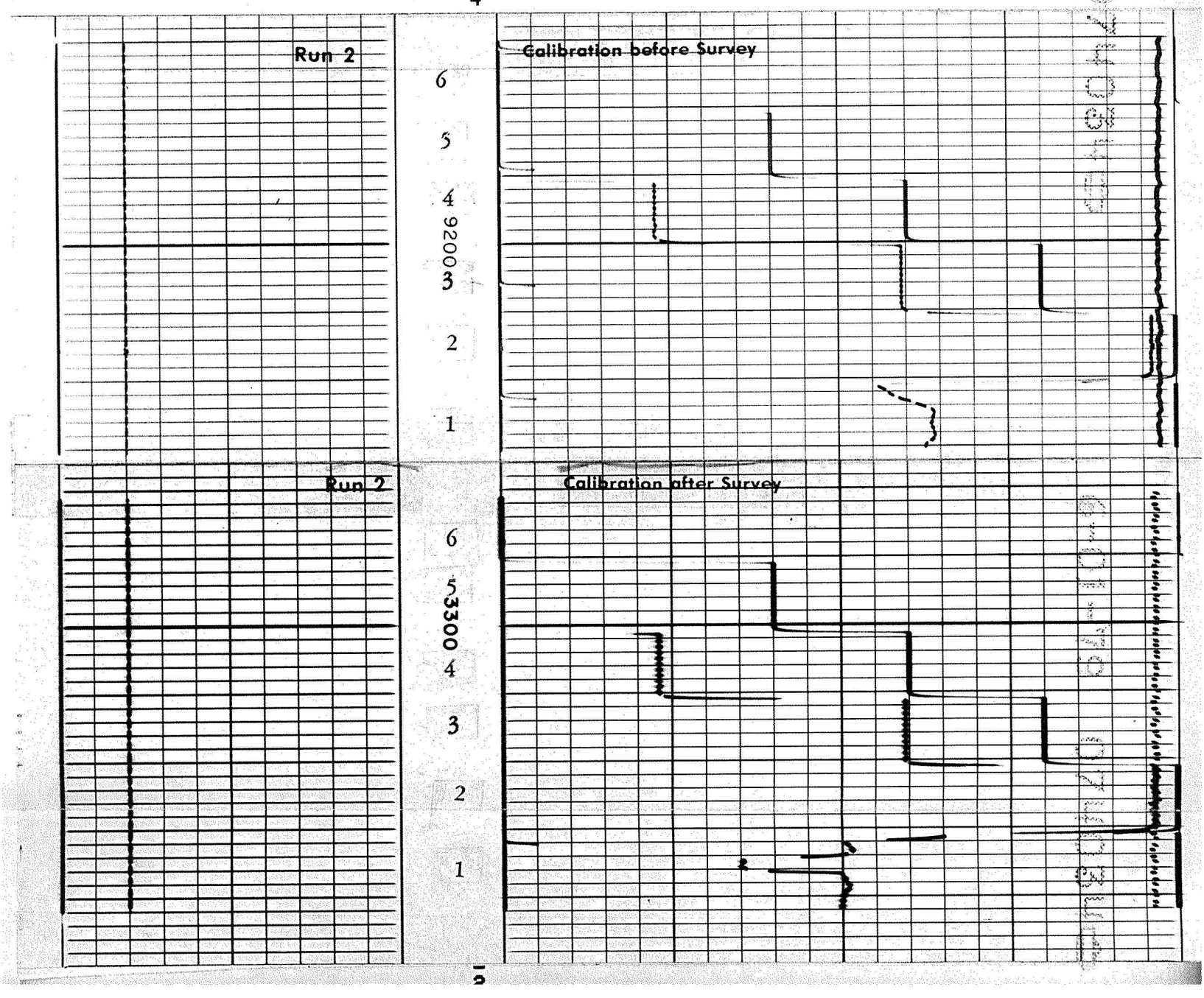
SGTE DETECTOR CALIBRATION SUMMARY

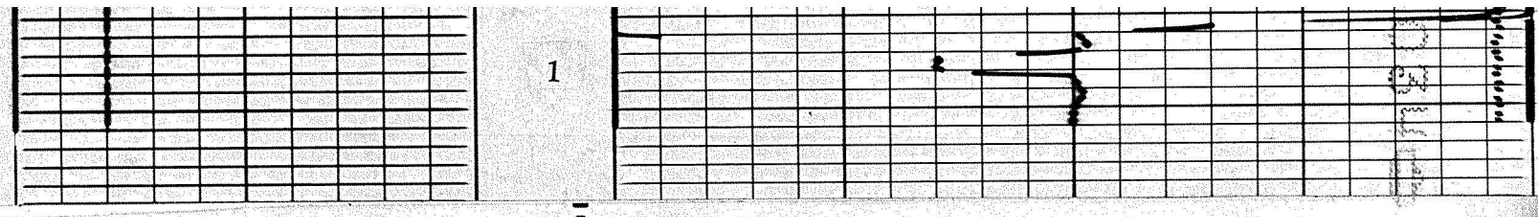
	MEASURED BKGD	JIG	CALIBRATED	UNITS
GR	41	182	164	GAPI

VCDD CALIPER CALIBRATION SUMMARY

	MEASURED SMALL	LARGE	CALIBRATED SMALL	LARGE	UNITS
CALI	6.6	12.0	7.9	11.9	IN

44444





Run 3 **BEFORE SURVEY CALIBRATION SUMMARY**

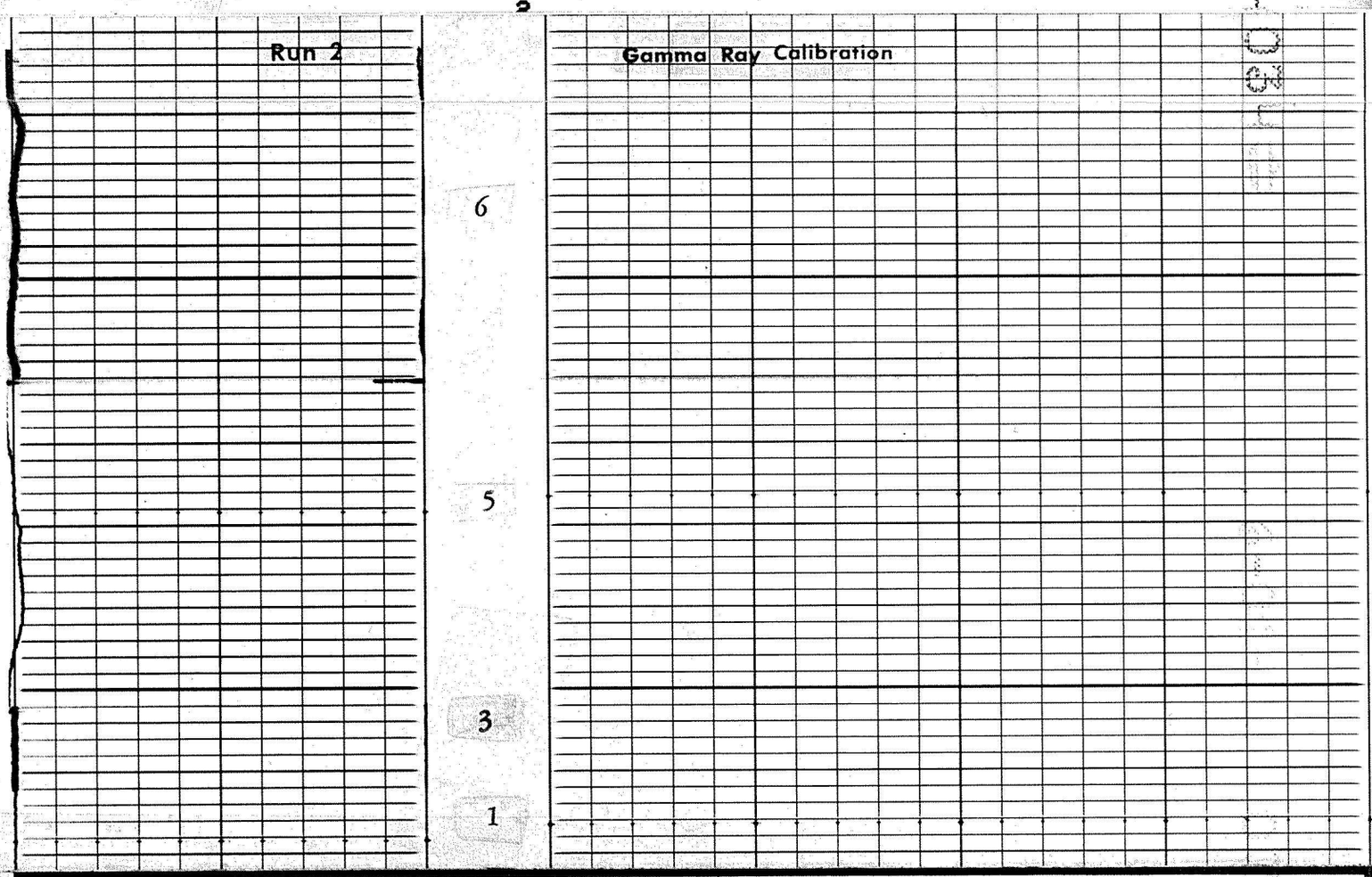
PERFORMED: 79/05/18
PROGRAM FILE: IS (VERSION 12.4A 78/12/ 8)

SGTE **DETECTOR CALIBRATION SUMMARY**

	MEASURED BKGD	MEASURED JIG	CALIBRATED	UNITS
GR	44	189	164	GAPI

MCDB **CALIPER CALIBRATION SUMMARY**

	MEASURED SMALL	MEASURED LARGE	CALIBRATED SMALL	CALIBRATED LARGE	UNITS
CALI	4.2	8.1	8.0	12.0	IN



BOREHOLE COMPENSATED SONIC CALIBRATION CODING

1. MECHANICAL ZERO
2. 40 μ SEC/FT
3. 60 μ SEC/FT
4. 80 μ SEC/FT
5. 100 μ SEC/FT
6. 140 μ SEC FT

GAMMA RAY CALIBRATION CODING

1. MECHANICAL ZERO
2. ELECTRICAL ZERO
3. RECORDER SENSITIVITY
4. MEMORIZER ADJUSTMENT
5. BACKGROUND
6. CALIBRATION

1. MECHANICAL ZERO
2. 40 μ SEC/FT
3. 60 μ SEC/FT
4. 80 μ SEC/FT
5. 100 μ SEC/FT
6. 140 μ SEC FT

GAMMA RAY CALIBRATION CODING

1. MECHANICAL ZERO
2. ELECTRICAL ZERO
3. RECORDER SENSITIVITY
4. MEMORIZER ADJUSTMENT
5. BACKGROUND
6. CALIBRATION