

V990

Page No. 1

Report No. PG

SRDL Test No. C-5845Test Date 1-16-84TEST REPORTTYPE IMPACT: NHTSA CRUSHABLE MOVING BARRIER TO PARKED LOAD CELL BARRIER - 90° FRONTVEHICLE DESCRIPTION:STRUCK VEHICLE

SRDL'S LIGHT WEIGHT MOVING BARRIER WITH LOAD CELLS AND A FLAT FACE FIXTURE MOUNTED TO THE FRONT. THE FLAT FACE WAS DESIGNED TO CONTACT THE BUMPER AND UPPER FRONT SHEET METAL OF A 1980 GM X-BODY. FOUR LOAD CELLS WERE MOUNTED TO THE BACK OF THE FLAT FACE, TWO ON EACH END, POSITIONED TOP AND BOTTOM. THE FLAT FACE FIXTURE WAS DIVIDED INTO TWO SECTIONS, EACH BEING 356 mm IN HEIGHT AND 1780 mm IN LENGTH. THESE SECTIONS WERE MOUNTED LATERAL ACROSS THE FRONT OF THE BARRIER WITH A 6.4 mm VERTICAL SEPARATION BETWEEN THEM. THIS ALLOWED FOR SEPARATE READINGS OF THE UPPER AND LOWER FORCES APPLIED TO THE BARRIER. FROM THE GROUND TO THE BOTTOM OF THE FIRST LOAD CELL SECTION WAS 250 mm. SEE FIGURE 46-49.

STRIKING VEHICLE

NHTSA CRUSHABLE MOVING BARRIER WITH DEVELOPED ENERGY ABSORBING FACE. THE ABSORBING FACE IS MADE OF HEXCELL AND WAS DEVELOPED TO GIVE THE SAME CHARACTERISTICS AS THE CRUSH OF A 1980 GM X-BODY.

TEST CONDITIONS: STRIKING VELOCITY AT IMPACT 40.3 km/h

STRUCK VEHICLE MASS	FRONT <u>1030</u> kg	REAR <u>332</u> kg	TOTAL <u>1362</u> kg
STRIKING VEHICLE MASS	FRONT <u>824</u> kg	REAR <u>466</u> kg	TOTAL <u>1350</u> kg

RECORDED DATASTRUCK VEHICLE

FRONT LONGITUDINAL ACCELERATIONS
MID LONGITUDINAL ACCELERATIONS
VEHICLE KINEMATICS ACCELERATIONS
UPPER BARRIER TRIAX LOADS
LOWER BARRIER TRIAX LOADS

STRIKING VEHICLE

FRONT LONGITUDINAL ACCELERATIONS
MID LONGITUDINAL ACCELERATIONS

PHOTOGRAPHIC COVERAGE

OVERHEAD
UNDERBODY
DRIVER SIDE CLOSEUP
PASSENGER SIDE CLOSEUP

INSTRUMENTATION AND FILM ANALYSIS DATA INDEXFIGURE
NUMBERSTRUCK VEHICLE:

- 1-3 BARRIER FRONT LONGITUDINAL ACCELERATION
4 COMPUTED AVERAGE BARRIER FRONT LONGITUDINAL VELOCITY
5 COMPUTED AVERAGE BARRIER FRONT LONGITUDINAL DISPLACEMENT
6-8 BARRIER MID LONGITUDINAL ACCELERATION
9 COMPUTED AVERAGE BARRIER MID LONGITUDINAL VELOCITY
10 COMPUTED AVERAGE BARRIER MID LONGITUDINAL DISPLACEMENT
11-16 LOWER BARRIER LONGITUDINAL LOADS
17-22 UPPER BARRIER LONGITUDINAL LOADS
23-31 YAW FIXTURE ACCELERATIONS

STRIKING VEHICLE:

- 32-34 BARRIER FRONT LONGITUDINAL ACCELERATION
35 COMPUTED AVERAGE BARRIER FRONT LONGITUDINAL VELOCITY
36 COMPUTED AVERAGE BARRIER FRONT LONGITUDINAL DISPLACEMENT
37-39 BARRIER MID LONGITUDINAL ACCELERATION
40 COMPUTED AVERAGE BARRIER MID LONGITUDINAL VELOCITY
41 COMPUTED AVERAGE BARRIER MID LONGITUDINAL DISPLACEMENT

FILM ANALYSIS:

- 42 NHTSA BARRIER RELATIVE TO LOAD CELL BARRIER - DRIVER SIDE
43 NHTSA BARRIER RELATIVE TO LOAD CELL BARRIER - PASSENGER SIDE

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SRDL TEST NO. C-5845

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C58458 BARRIER TO BARRIER

3865-448

FISHER BODY STRUCK BARRIER

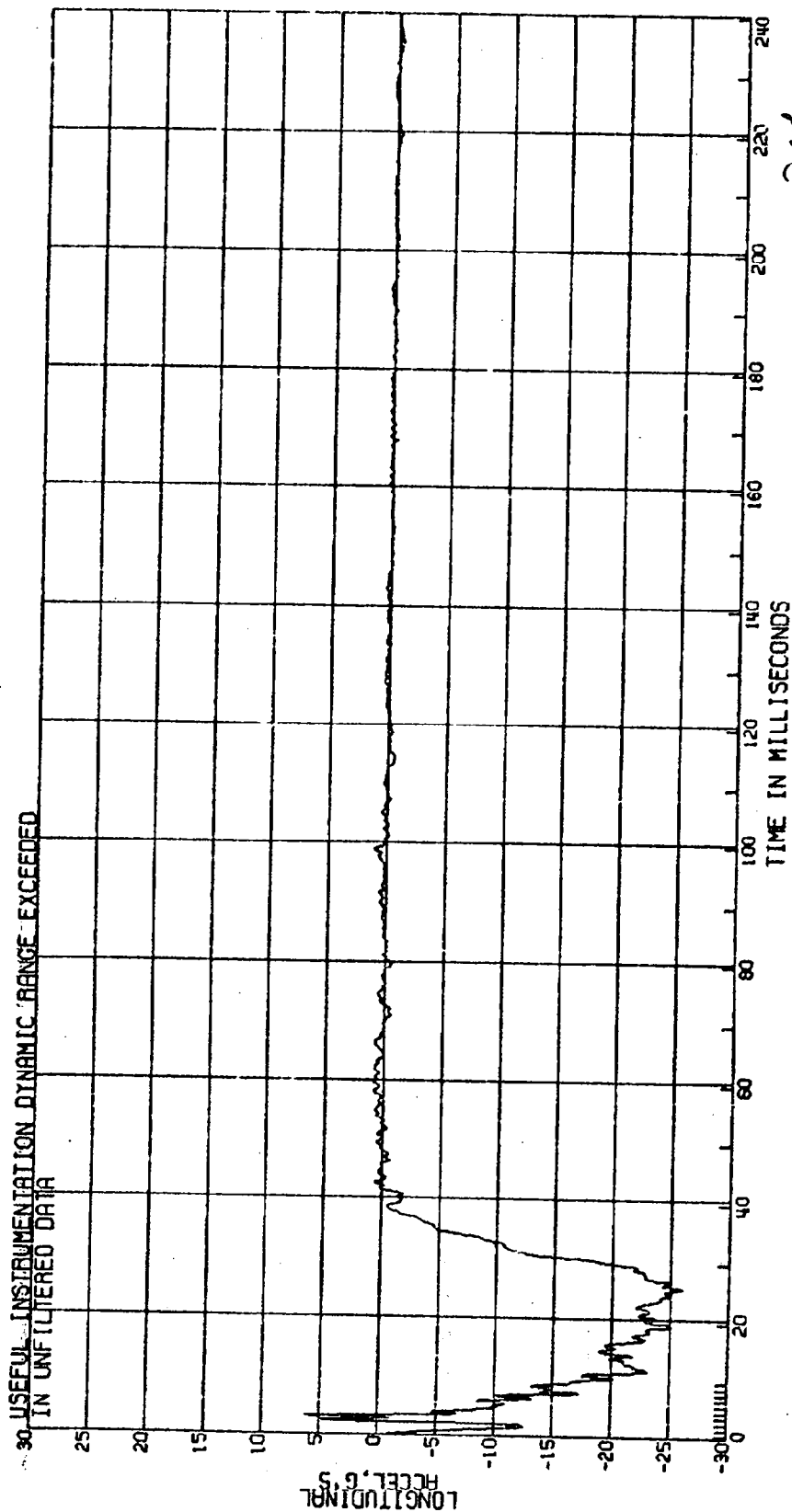
A-D DATA SAE CLASS 60

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE

DR-SIDE STRUCK BARRIER FRONT ACCEL.

TEST DATE: 01-16-84

Channel 17



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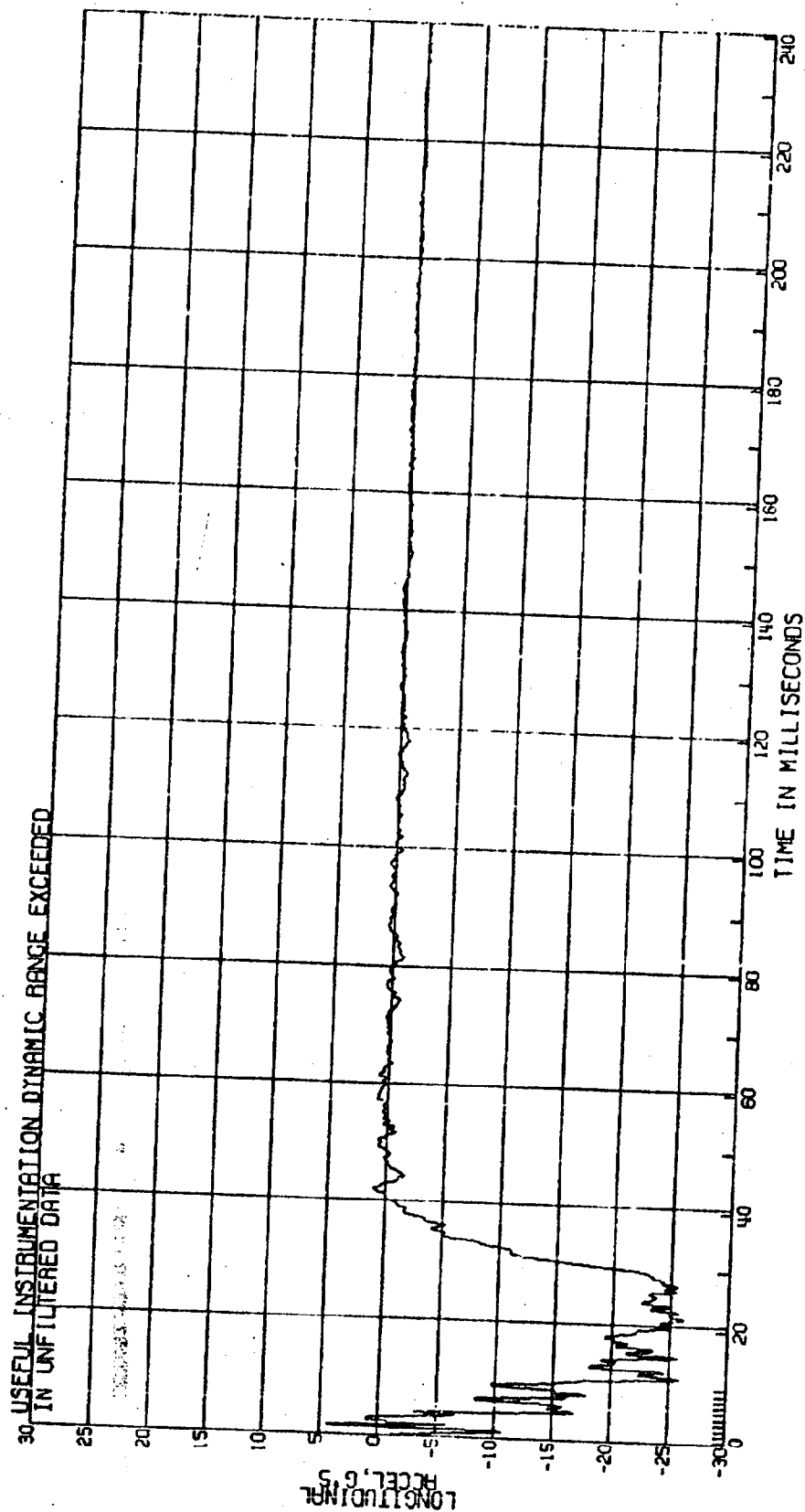
C58458 BARRIER TO BARRIER
3865-448
FISHER BODY STRUCK BARRIER
A-D DATA SAE CLASS 60

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 2

PASS-SIDE STRUCK BARRIER FRONT ACCEL.

TEST DATE: 01-16-84

-18-



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C58458 BARRIER TO BARRIER

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 3

3865-448

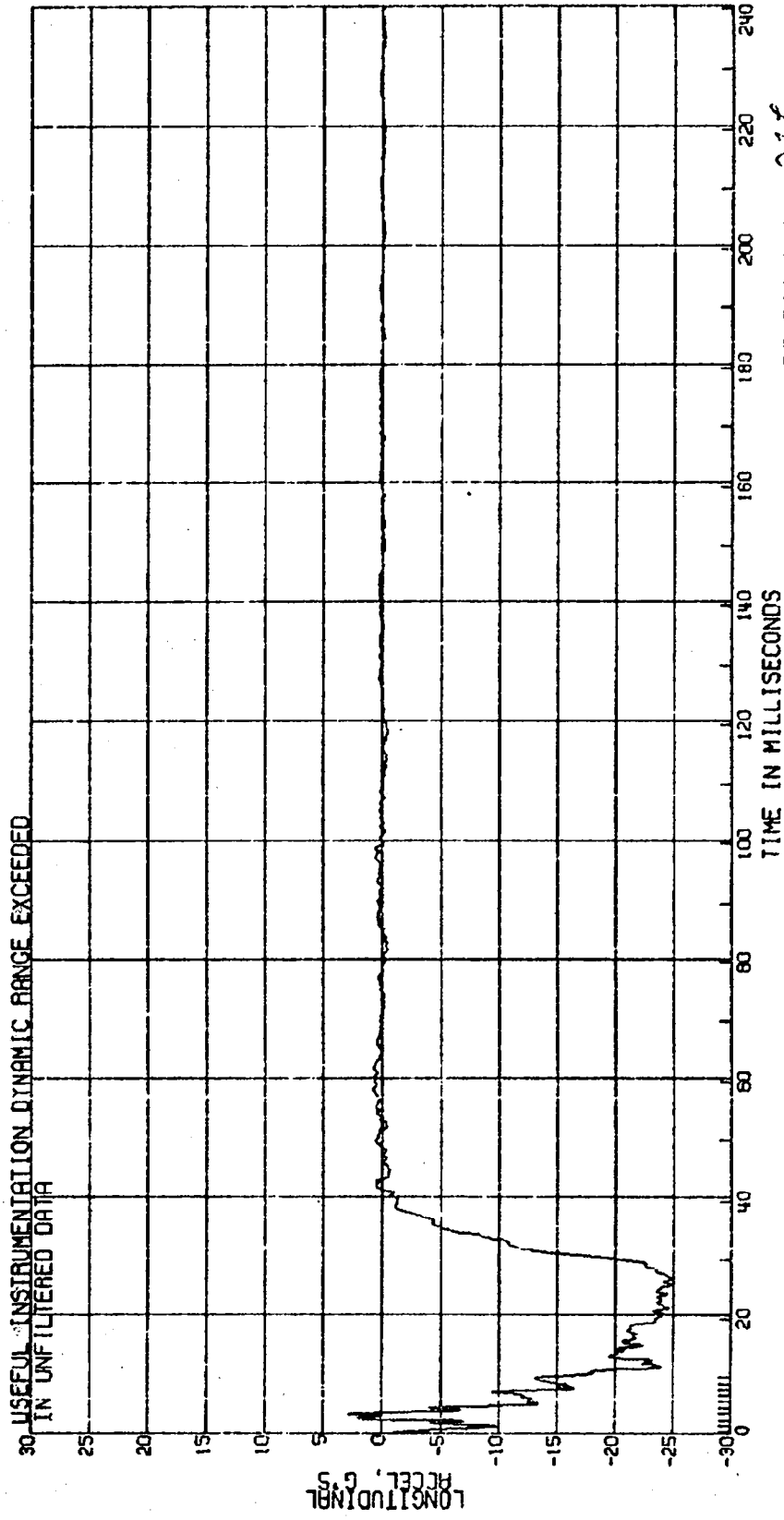
FISHER BODY STRUCK BARRIER

AVERAGED DRIVER & PASSENGER SIDE

TEST DATE:01-16-84

A-D DATA SAE CLASS 60

STRUCK BARRIER FRONT ACCELERATION



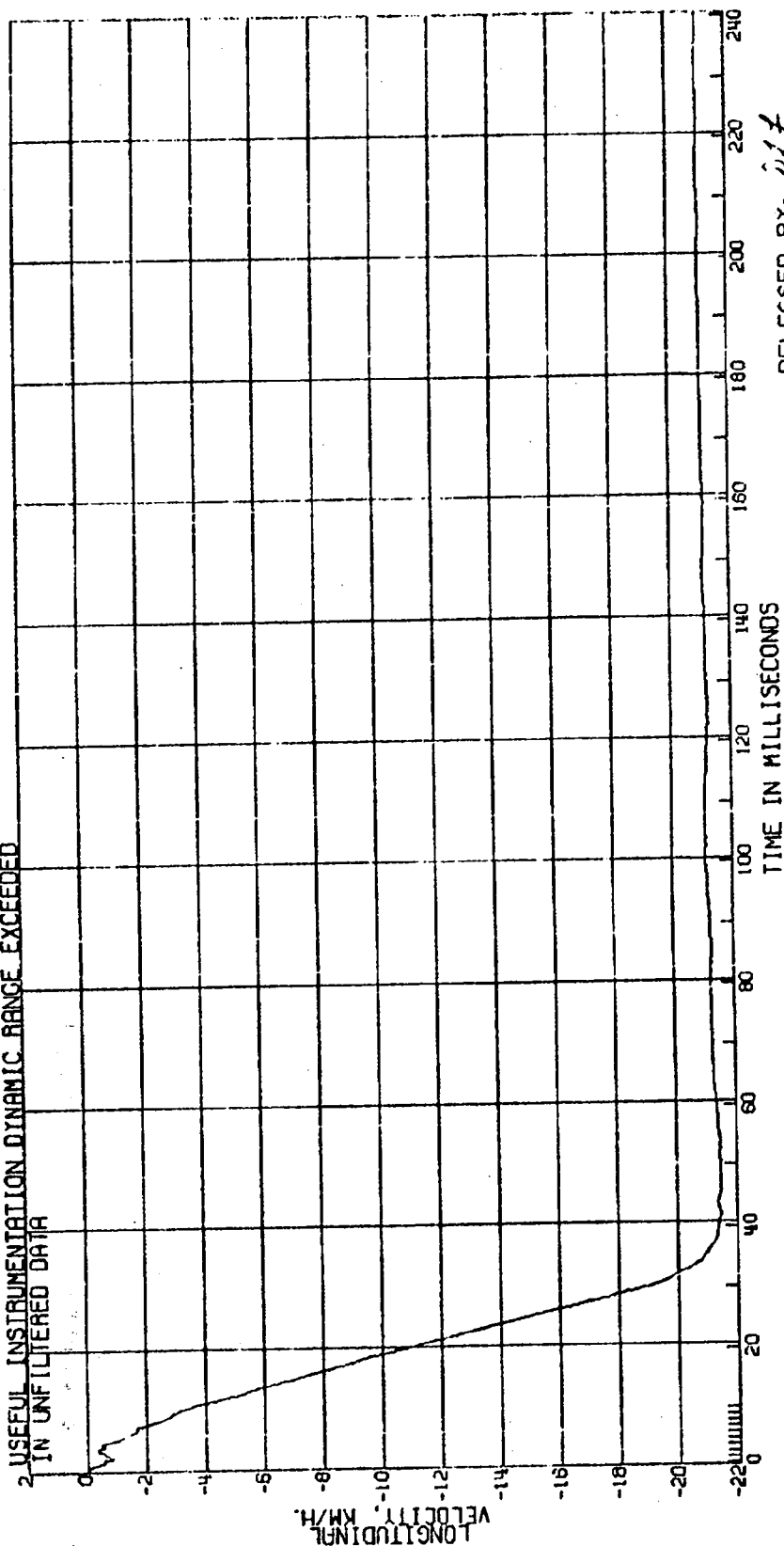
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C58458 BARRIER TO BARRIER
3865-448
FISHER BODY STRUCK BARRIER
A-D DATA SAE CLASS 180

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 4
COMPUTED STRUCK BARRIER FRONT VELOCITY
(1ST INTEGRAL AVE DR & PASS ACCEL)

TEST DATE: 01-16-84

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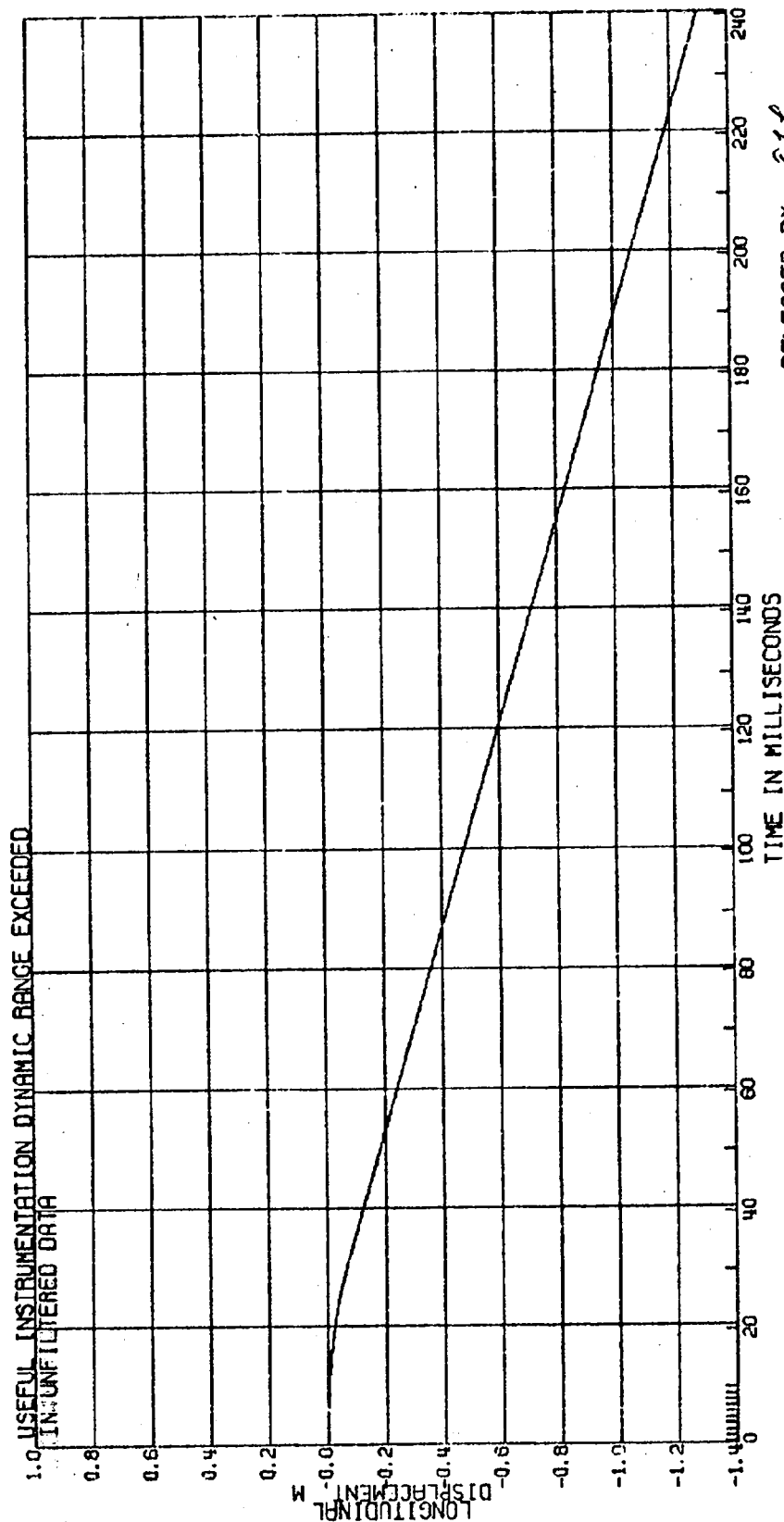


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C5845B BARRIER TO BARRIER
3865-448
FISHER BODY STRUCK BARRIER
A-D DATA SAE CLASS 180

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 5
COMPUTED STRUCK BARRIER FRONT DISPL
(2ND INTEGRAL AVE DR & PASS ACCEL)

TEST DATE: 01-16-84



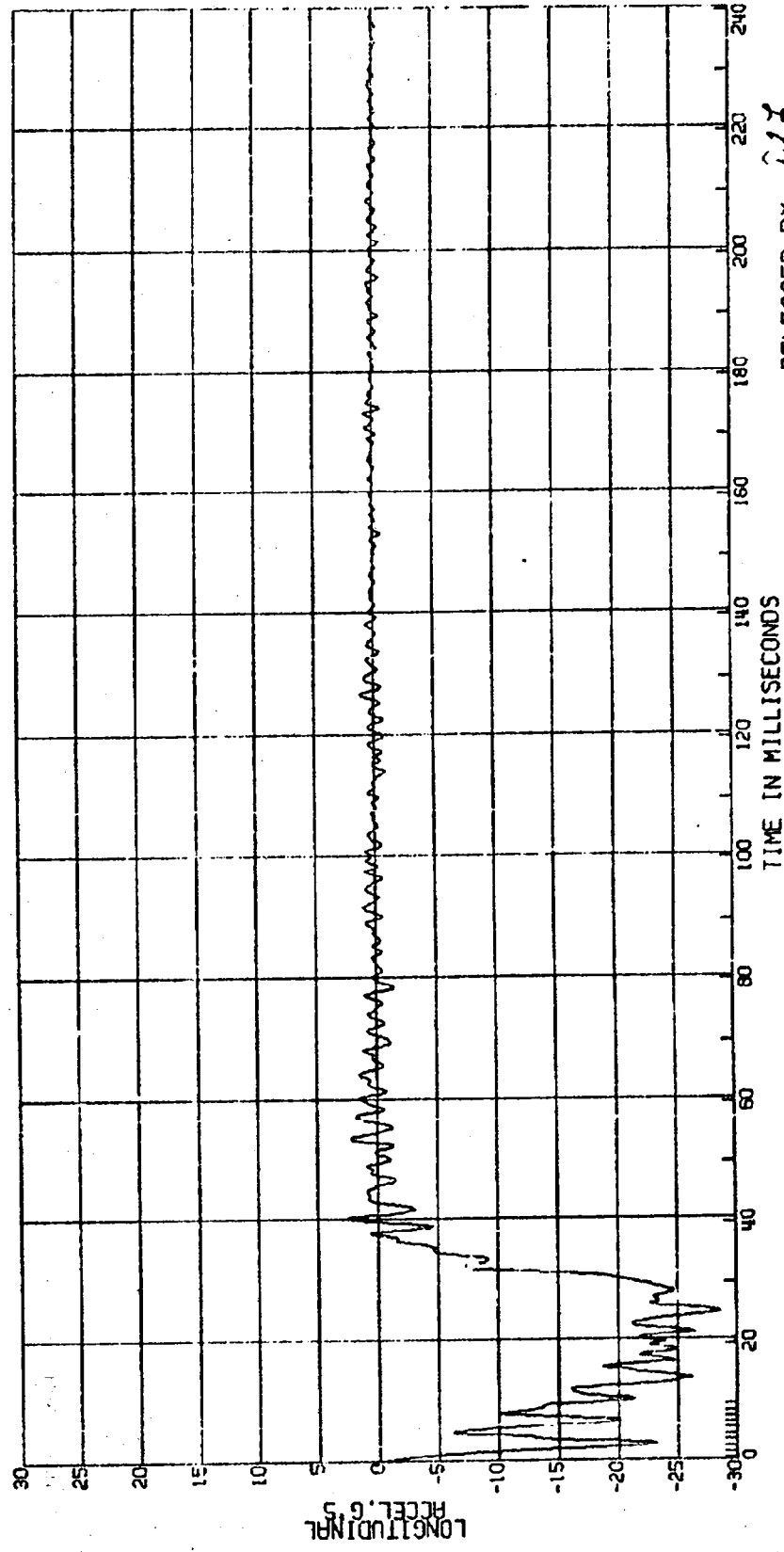
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C58453 BARRIER TO BARRIER
3865-442 FISHER BODY STRUCK BARRIER
A-D DATA SAE CLASS 60

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 6
DR-SIDE STRUCK BARRIER MID ACCEL.

TEST DATE: 01-16-84

-19-



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C5845B BARRIER TO BARRIER

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 7

3865-448

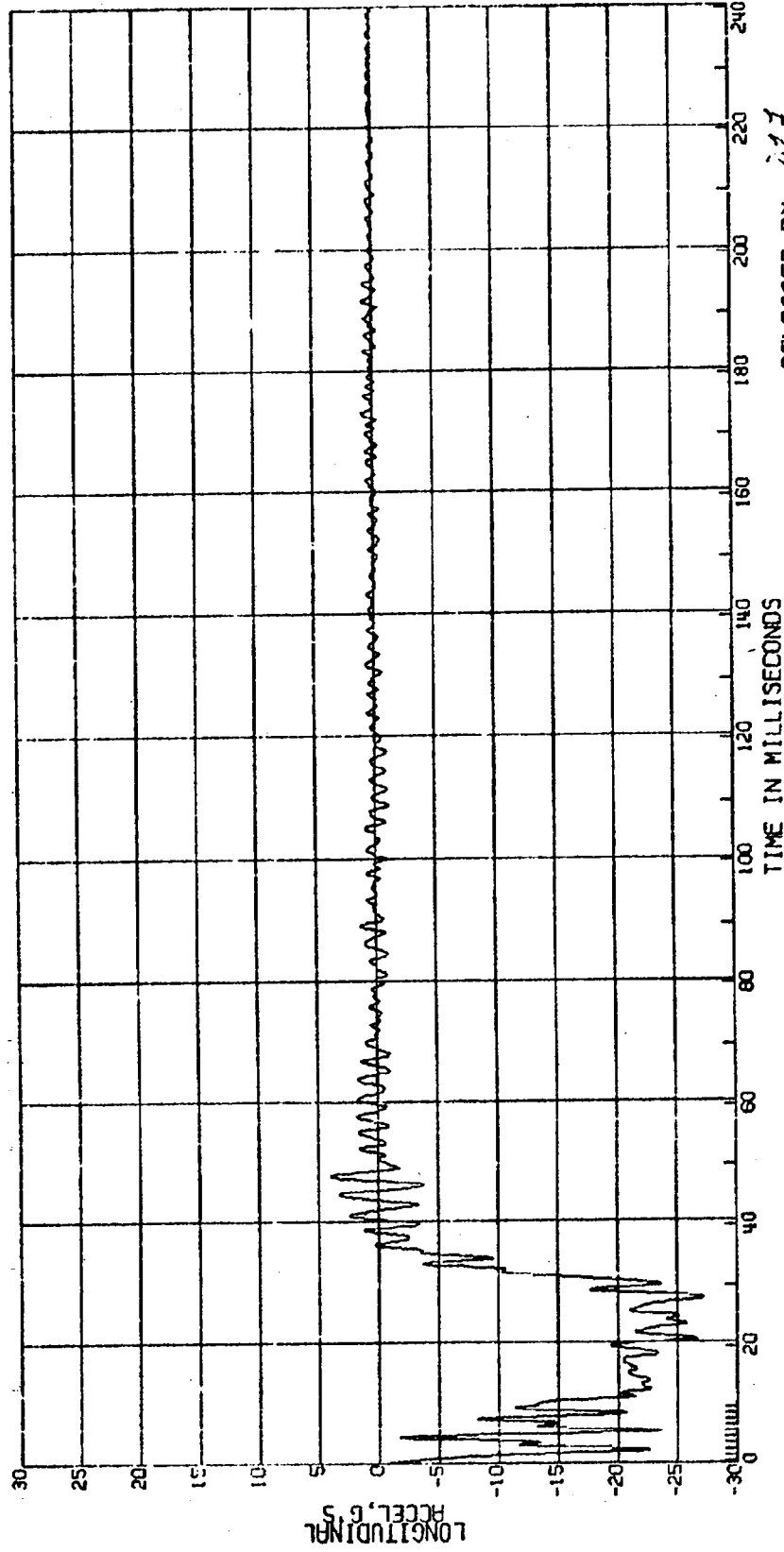
FISHER BODY STRUCK BARRIER

PASS-SIDE STRUCK BARRIER MID ACCEL.

TEST DATE: 01-16-84

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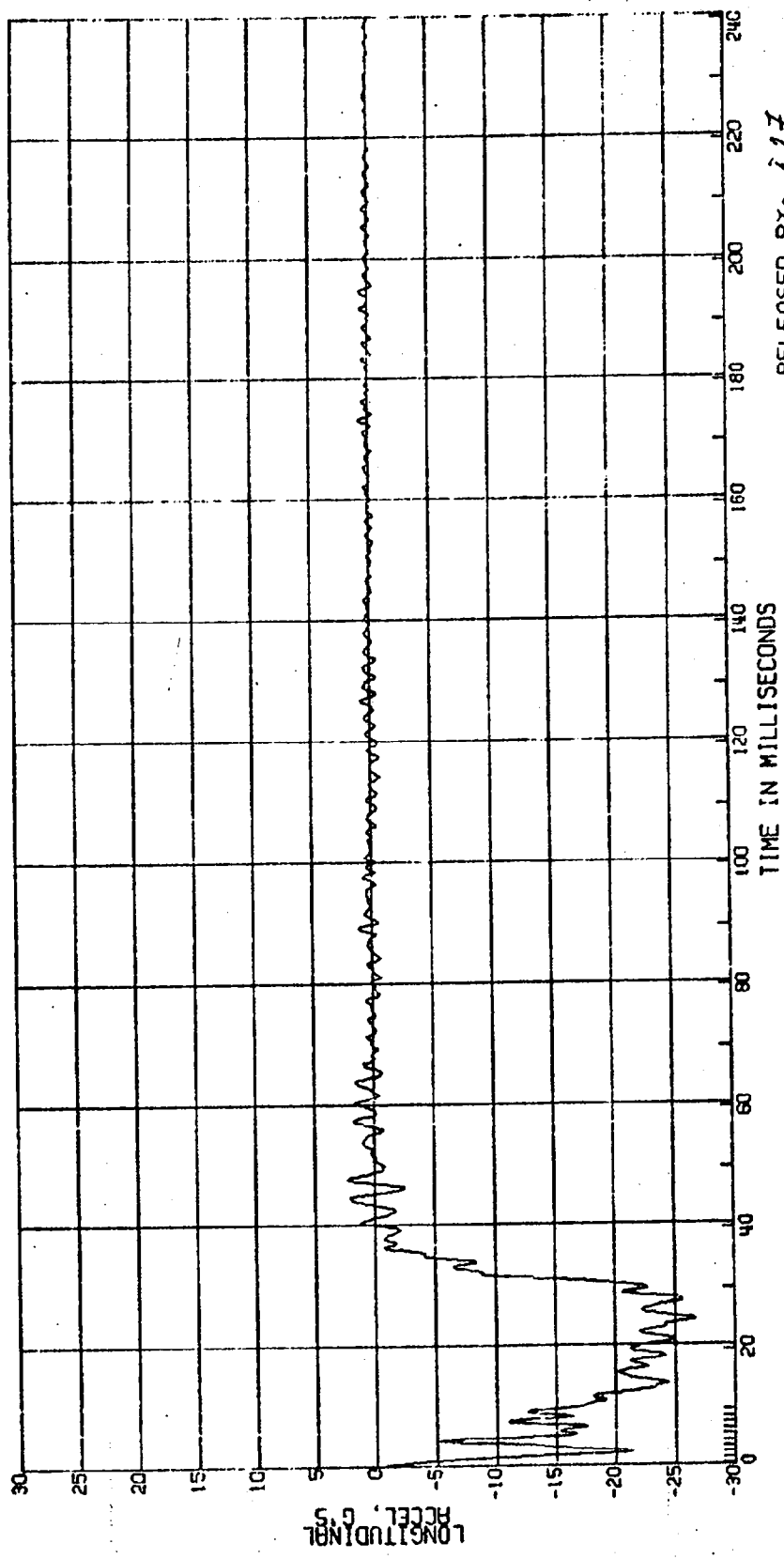
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CS8458 BARRIER TO BARRIER
3865-448
FISHER BODY STRUCK BARRIER
A-D DATA SAE CLASS 60

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 8
AVERAGED DRIVER & PASSENGER SIDE
STRUCK BARRIER MID ACCELERATION
TEST DATE: 01-16-84



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C58458 BARRIER TO BARRIER

3865-446

FISHER BODY STRUCK BARRIER

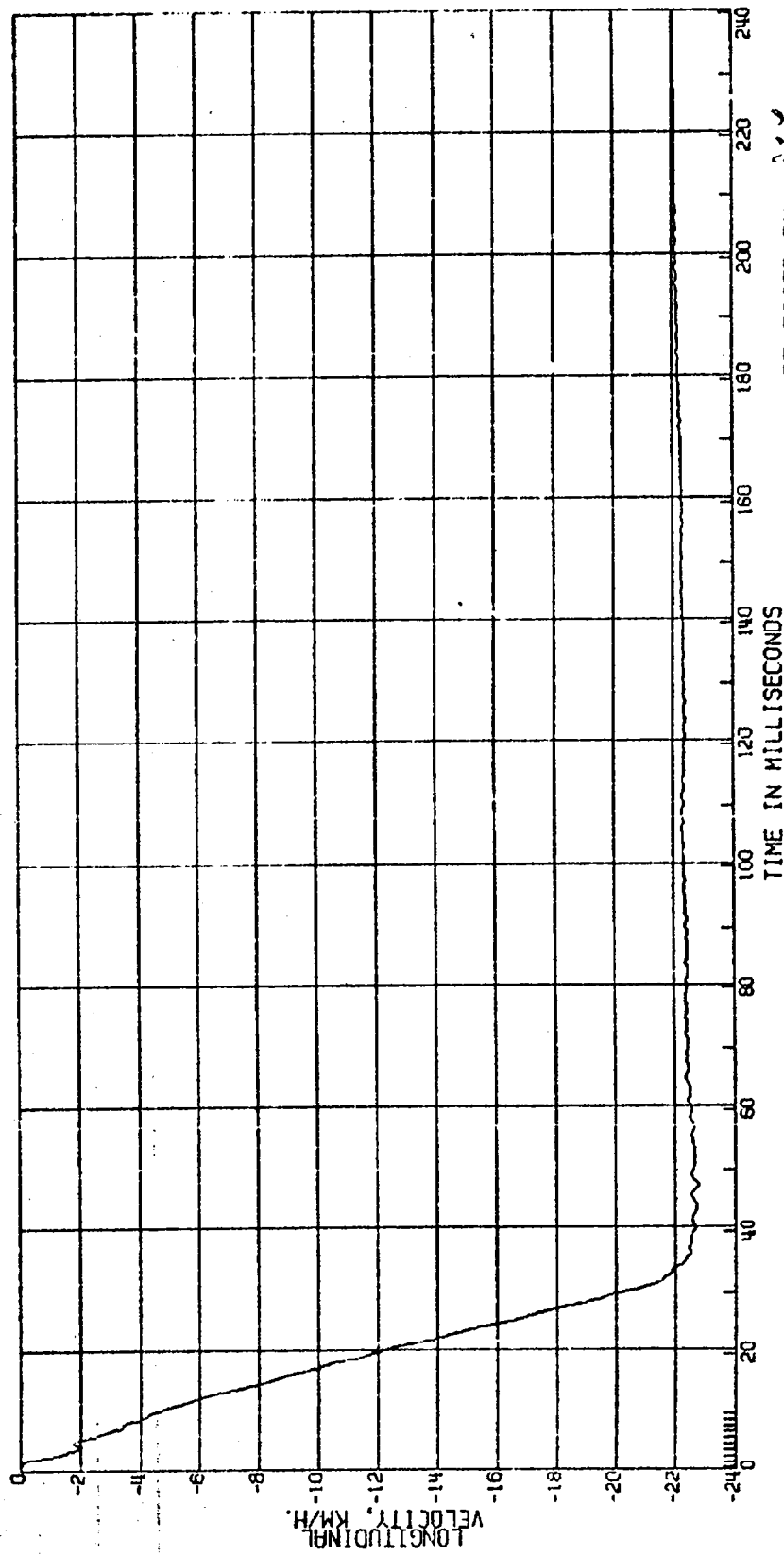
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DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 9

COMPUTED STRUCK BARRIER MID VELOCITY

TEST DATE:01-16-84

(1ST INTEGRAL AVE DR & PASS ACCEL)



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C58458 BARRIER TO BARRIER

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 10

3865-448

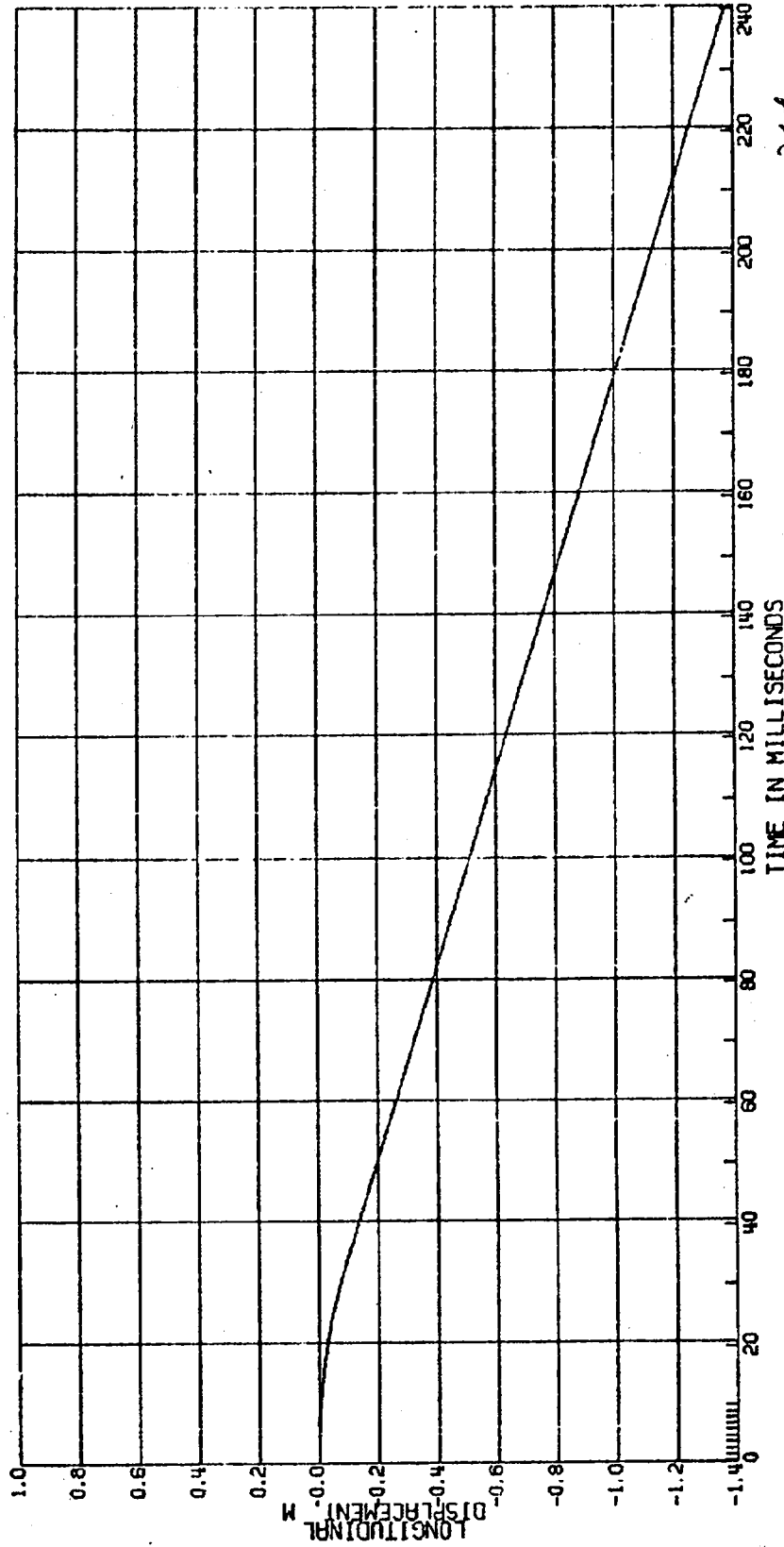
FISHER BODY STRUCK BARRIER

COMPUTED STRUCK BARRIER MID DISPL

TEST DATE:01-16-84

A-D DATA SAE CLASS 180

(2ND INTEGRAL AVE DR & PASS ACCEL)



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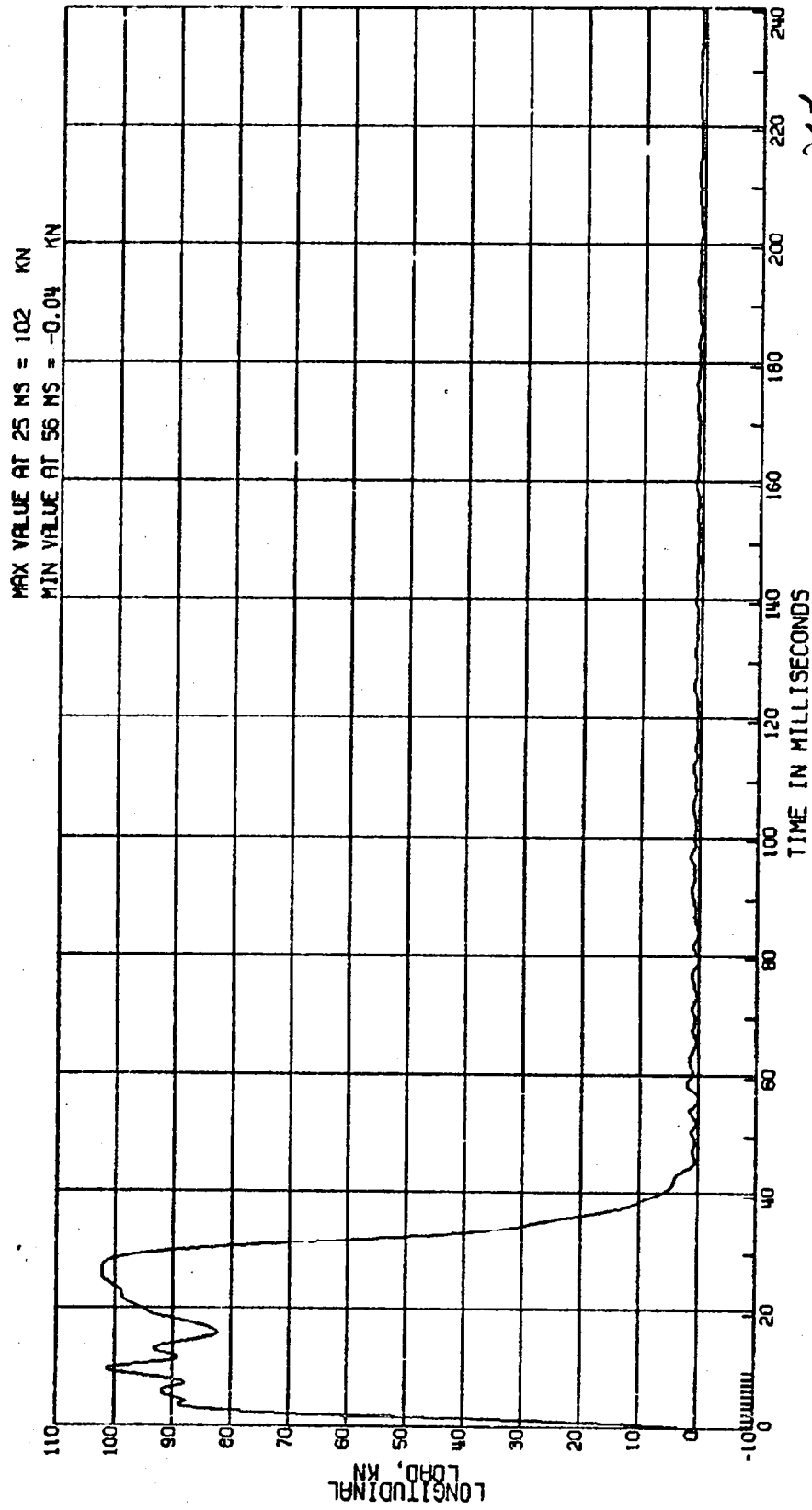
FISHER BODY STRUCK BARRIER

A-D DATA SAE CLASS 60

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE //

DR-SIDE STRUCK LOWER BARRIER LOAD

TEST DATE: 01-16-84



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C58458 BARRIER TO BARRIER

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 12

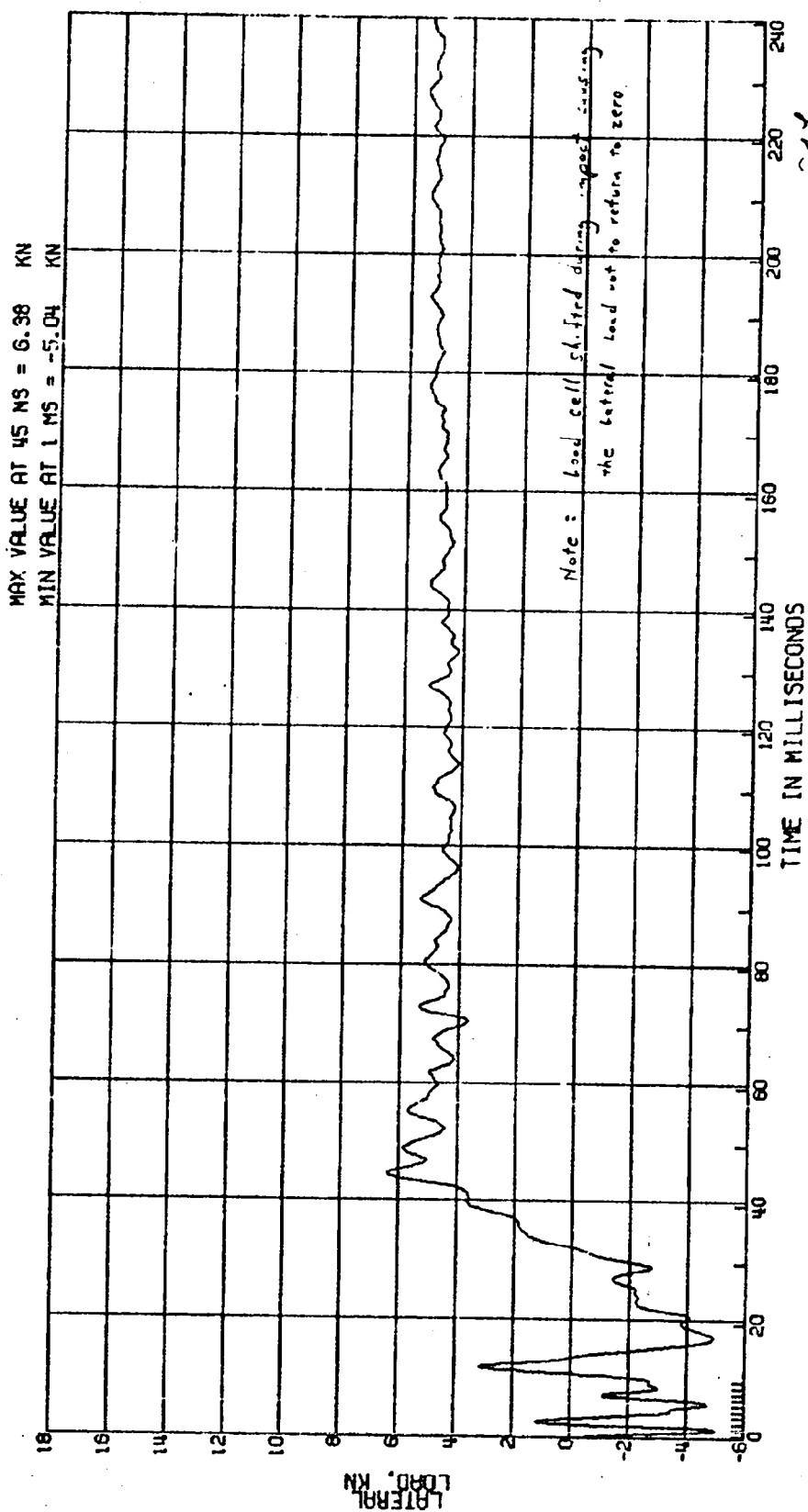
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FISHER BODY STRUCK BARRIER

DR-SIDE STRUCK LOWER BARRIER LOAD

A-D DATA SAE CLASS 60

TEST DATE: 01-16-84



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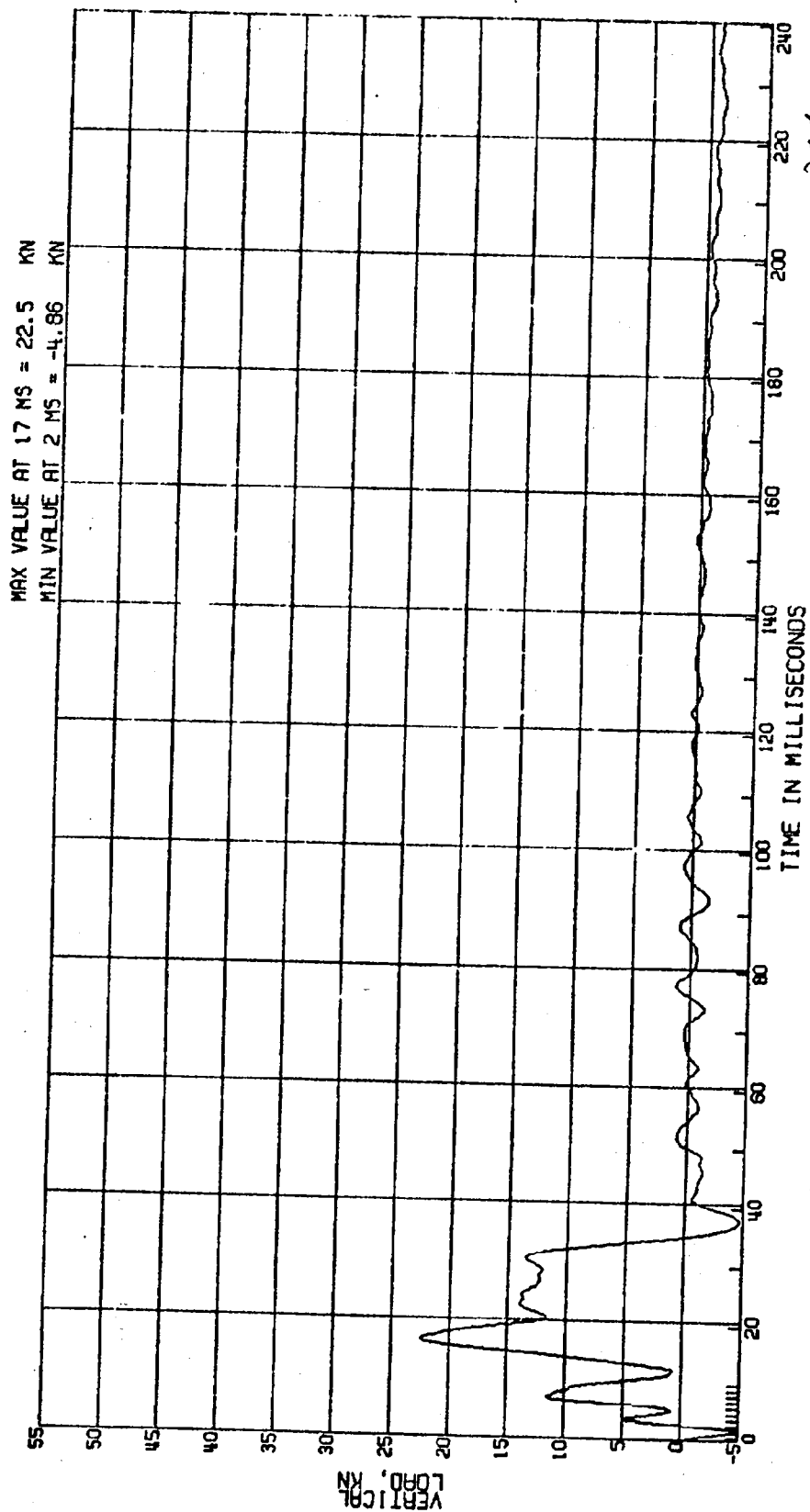
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C5845B BARRIER TO BARRIER
3865-446 FISHER BODY STRUCK BARRIER
A-D DATA SAE CLASS 60

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 13

DR-SIDE STRUCK LOWER BARRIER LOAD

TEST DATE: 01-16-84



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C58458 BARRIER TO BARRIER

3865-448

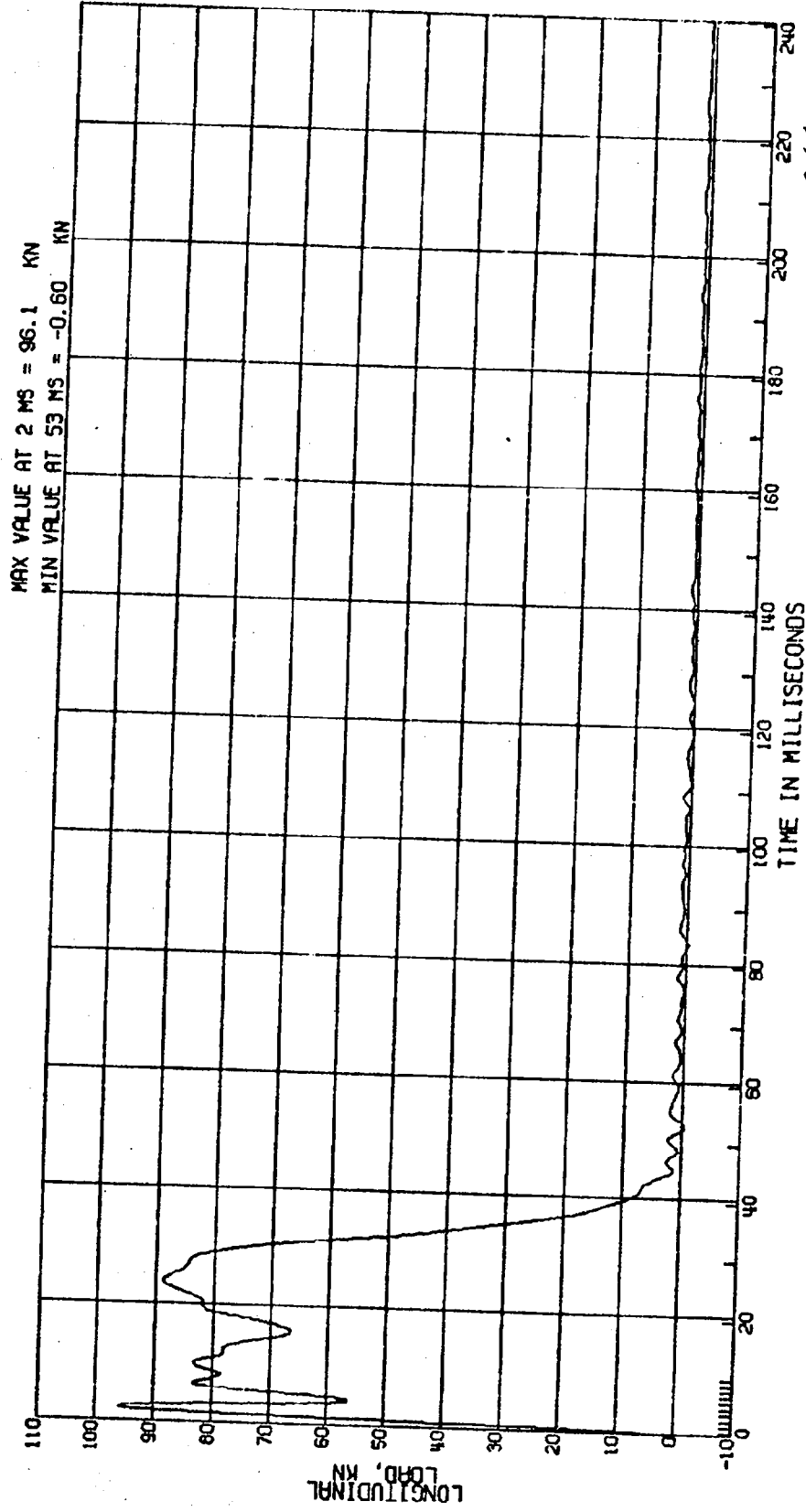
FISHER BODY STRUCK BARRIER

A-D DATA SAE CLASS 60

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 14

PASS-SIDE STRUCK LOWER BARRIER LOAD

TEST DATE: 01-16-84



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CS8458 BARRIER TO BARRIER

3865-443

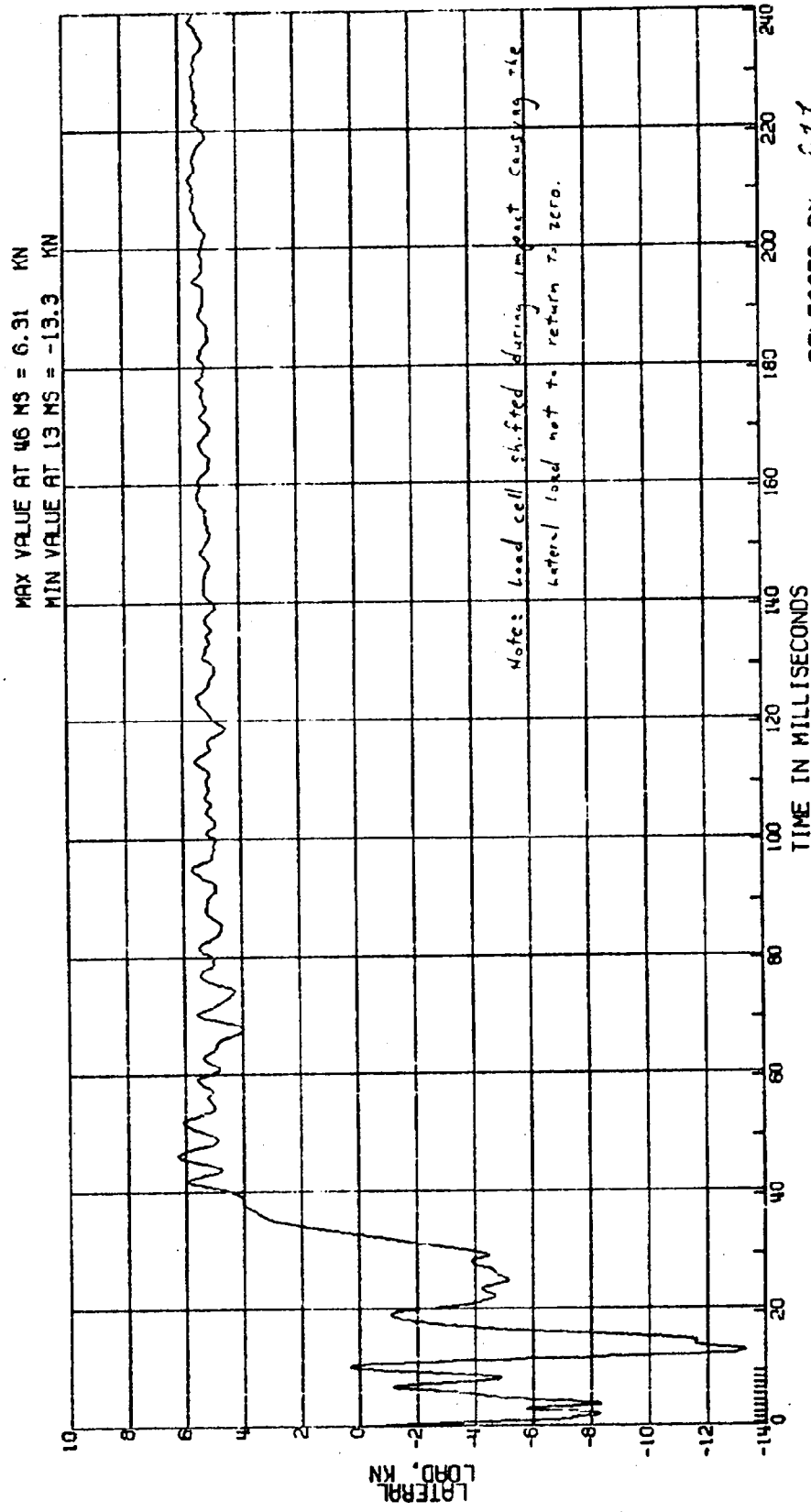
FISHER BODY STRUCK BARRIER

A-D DATA SAE CLASS 60

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 15

PASS-SIDE STRUCK LOWER BARRIER LOAD

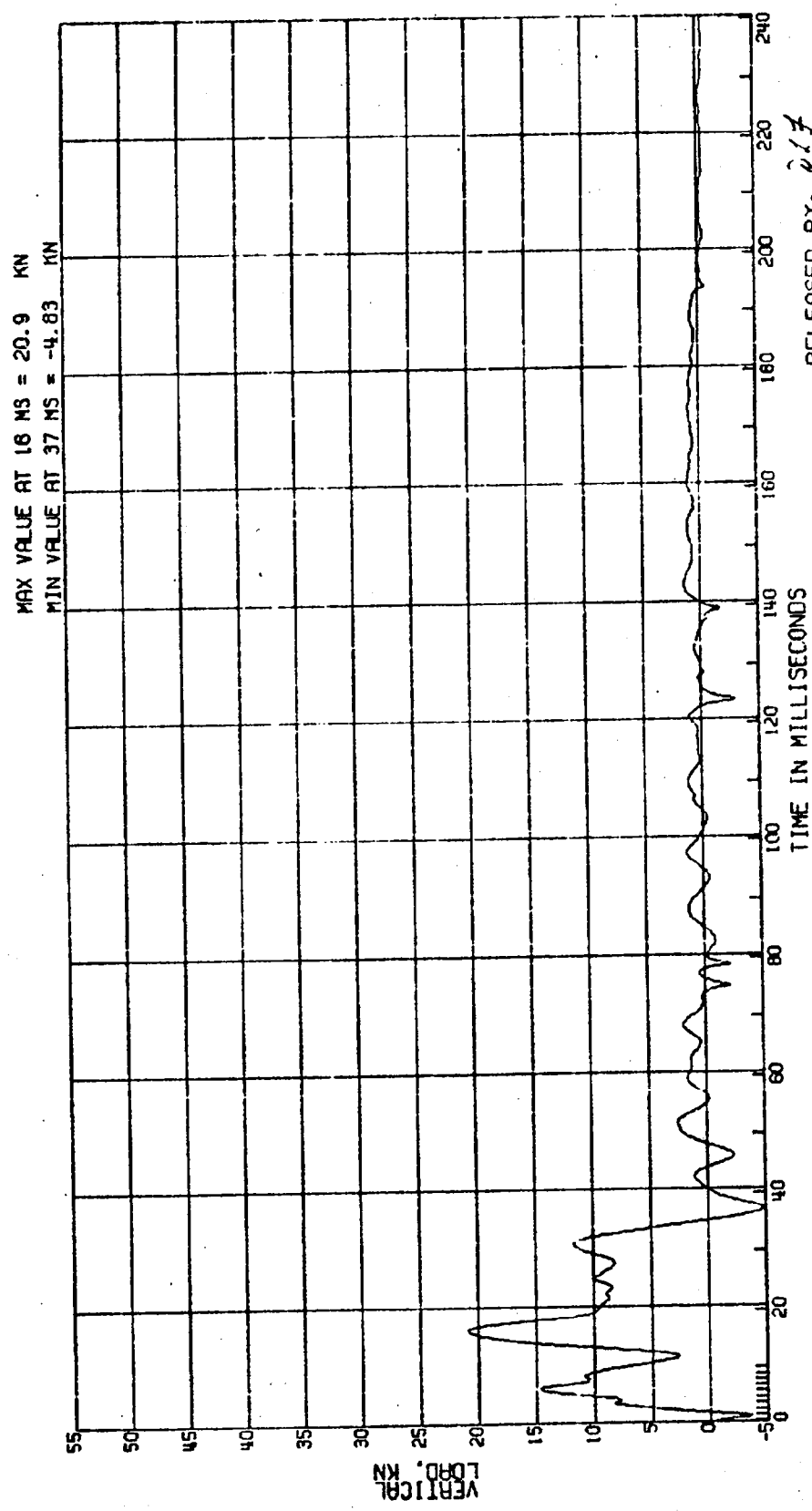
TEST DATE: 01-16-84



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3865-448
FISHER BODY STRUCK BARRIER
A-D DATA SAE CLASS 60

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 14
PASS-SIDE STRUCK LOWER BARRIER LOAD
TEST DATE: 01-16-84



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C58458 BARRIER TO BARRIER

3865-448

FISHER BODY STRUCK BARRIER

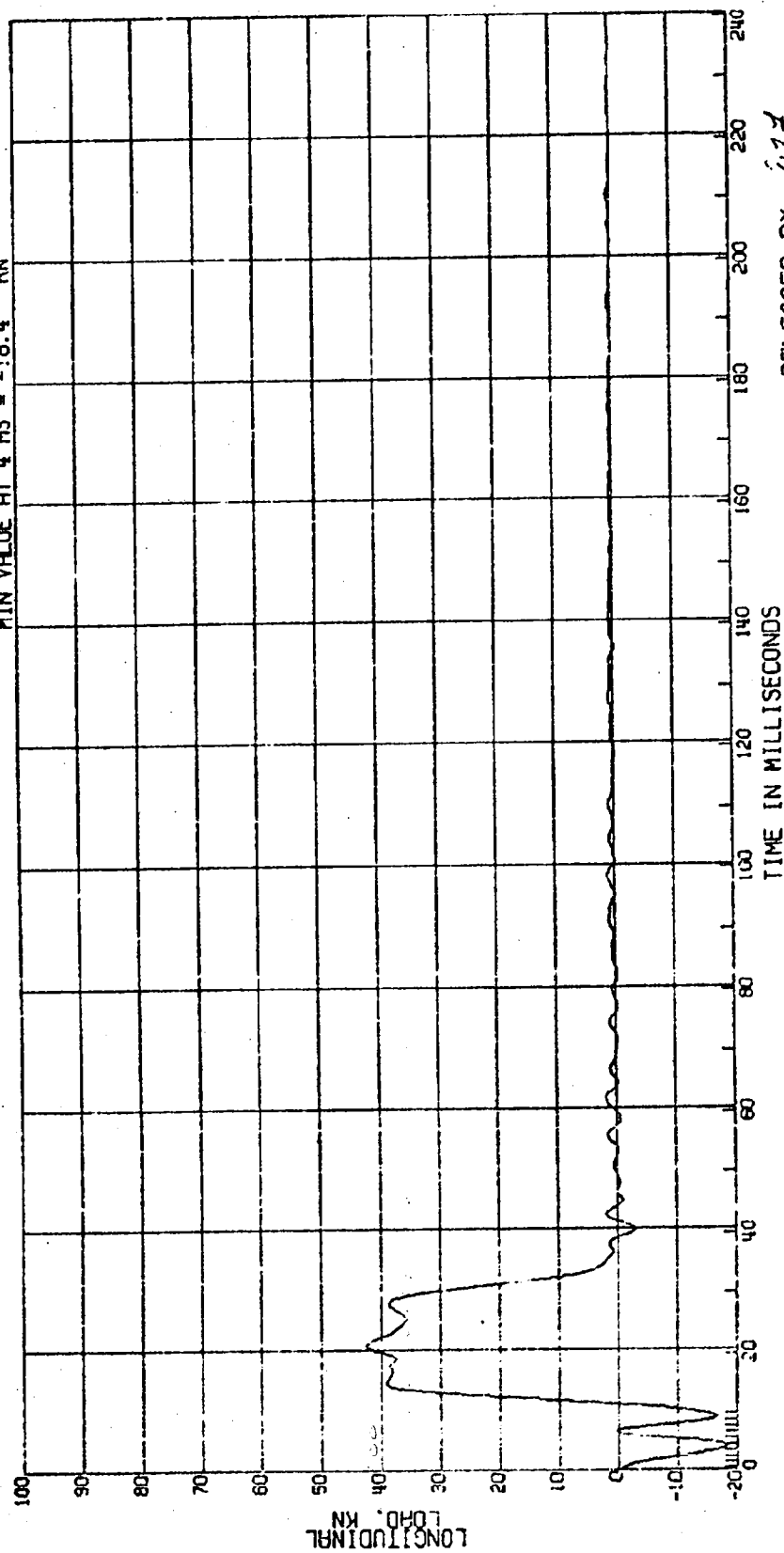
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DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 17

DR-SIDE STRUCK UPPER BARRIER LOAD

TEST DATE: 01-16-84

MAX VALUE AT 21 MS = 42.5 KN
MIN VALUE AT 4 MS = -18.4 KN



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C58458 BARRIER TO BARRIER

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 1

3865-448

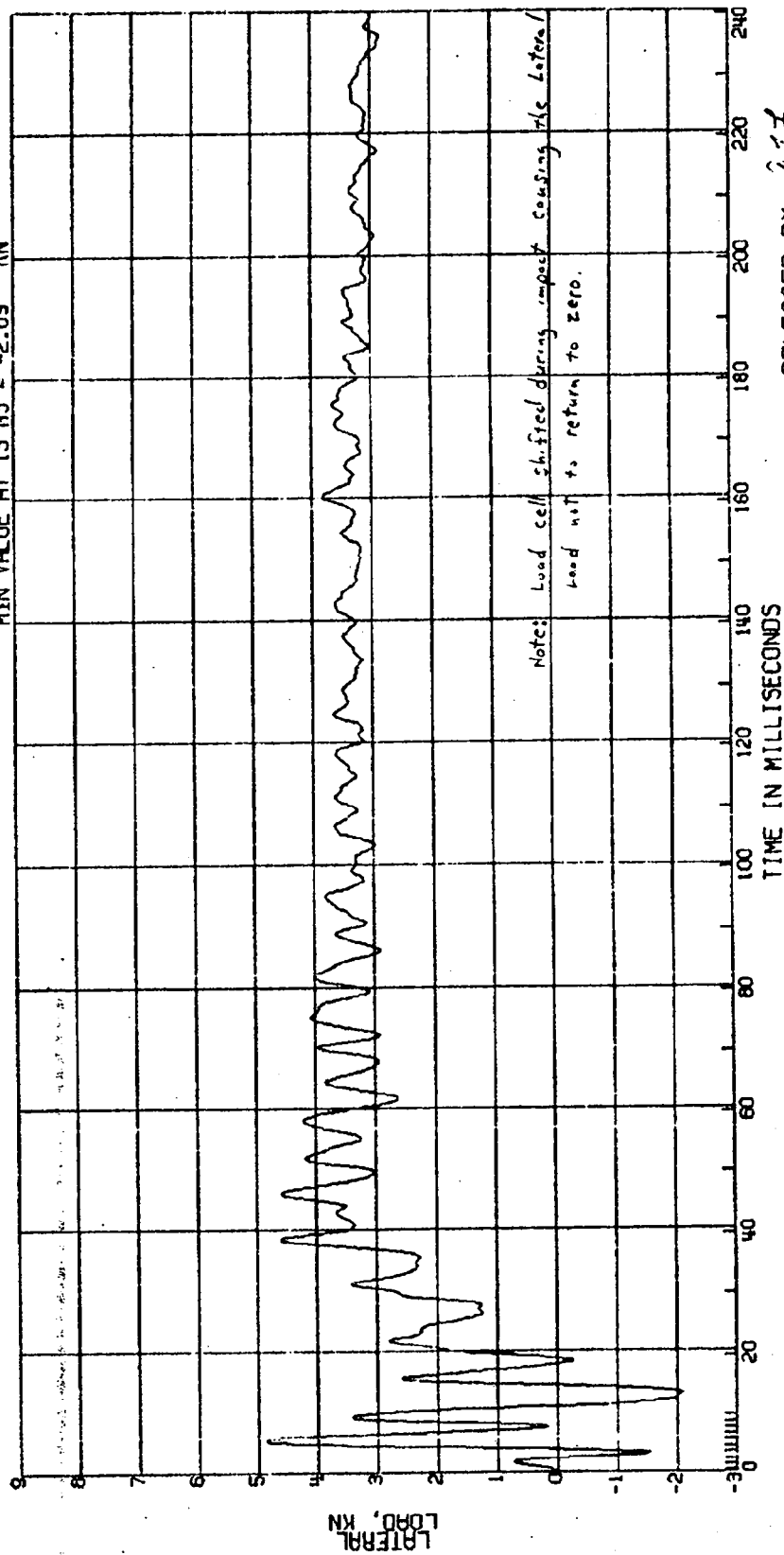
FISHER BODY STRUCK BARRIER

A-D DATA SAE CLASS 60

OR-SIDE STRUCK UPPER BARRIER LOAD

TEST DATE:01-16-84

MAX VALUE AT 6 MS = 4.89 KN
MIN VALUE AT 13 MS = -2.09 KN



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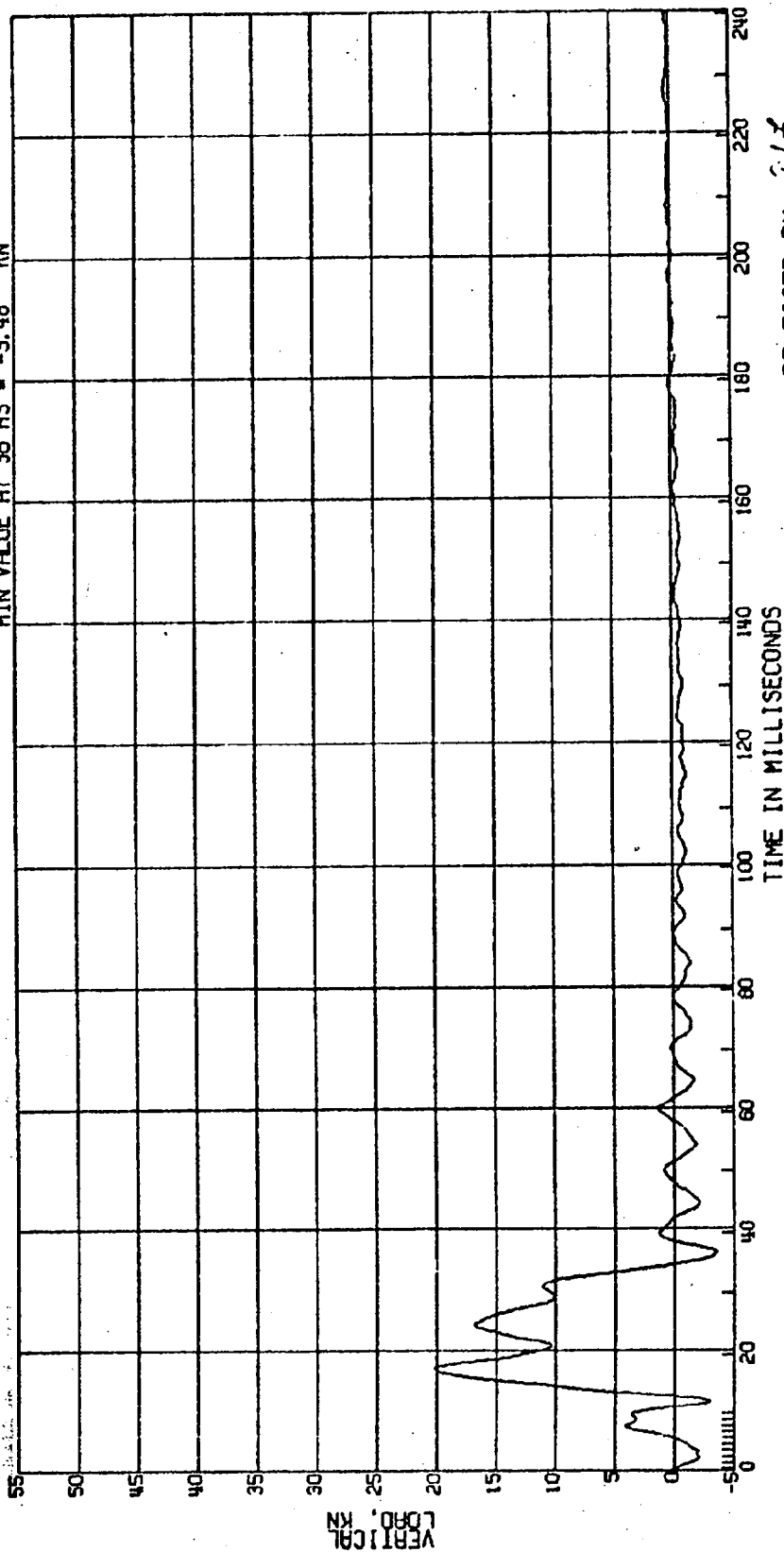
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3865-448
FISHER BODY STRUCK BARRIER
A-D DATA SAE CLASS 60

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 19
DR-SIDE STRUCK UPPER BARRIER LOAD

TEST DATE: 01-16-84

MAX VALUE AT 17 MS = 20.2 KN
MIN VALUE AT 36 MS = -3.48 KN

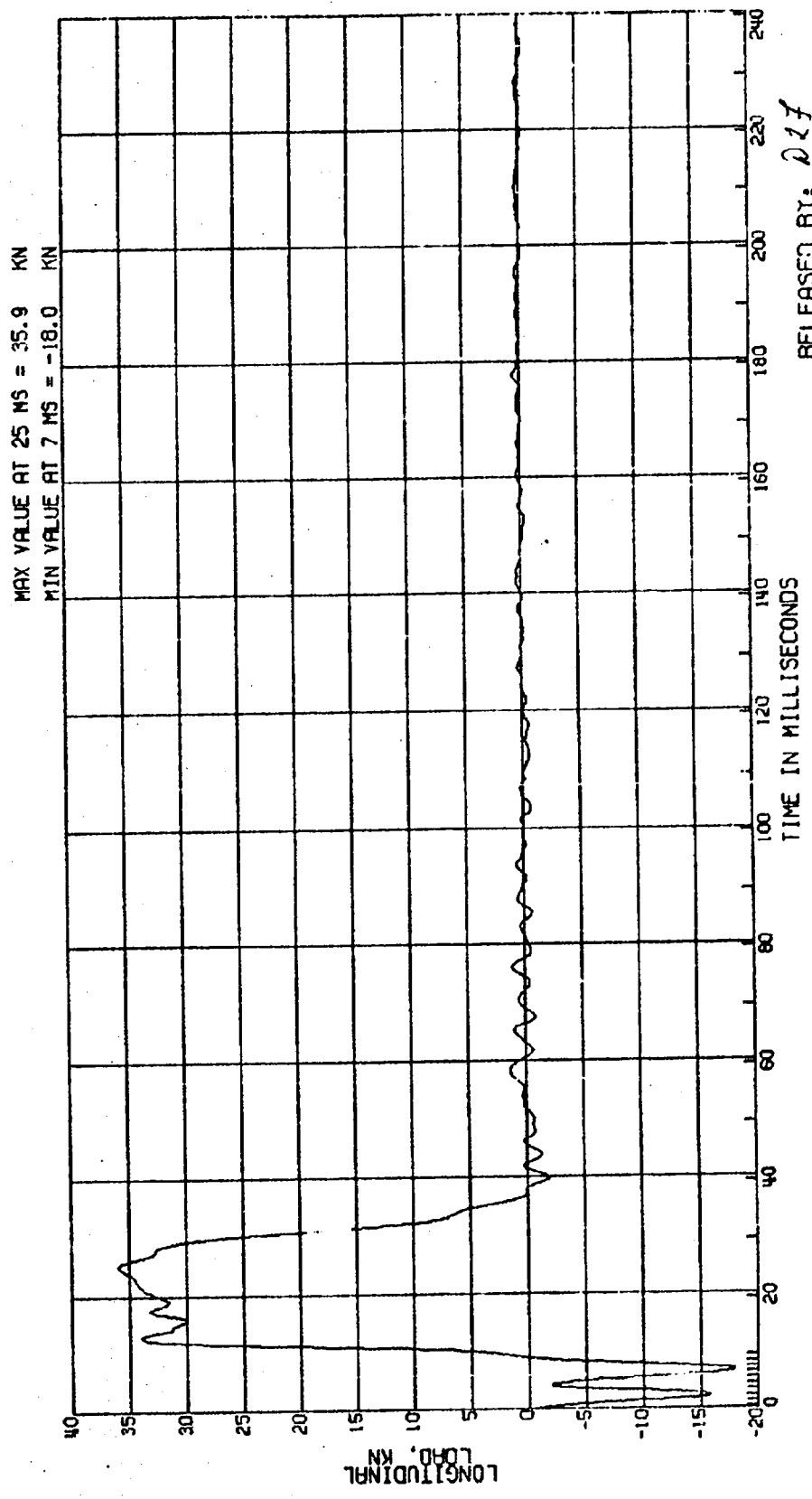


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C58458 BARRIER TO BARRIER
3865-448 FISHER BODY STRUCK BARRIER
A-D DATA SAE CLASS 60

DEFORMABLE BARR TO LOAD CELL BARR 40.3 KM/H FIGURE 20
PASS-SIDE STRUCK UPPER BARRIER LOAD

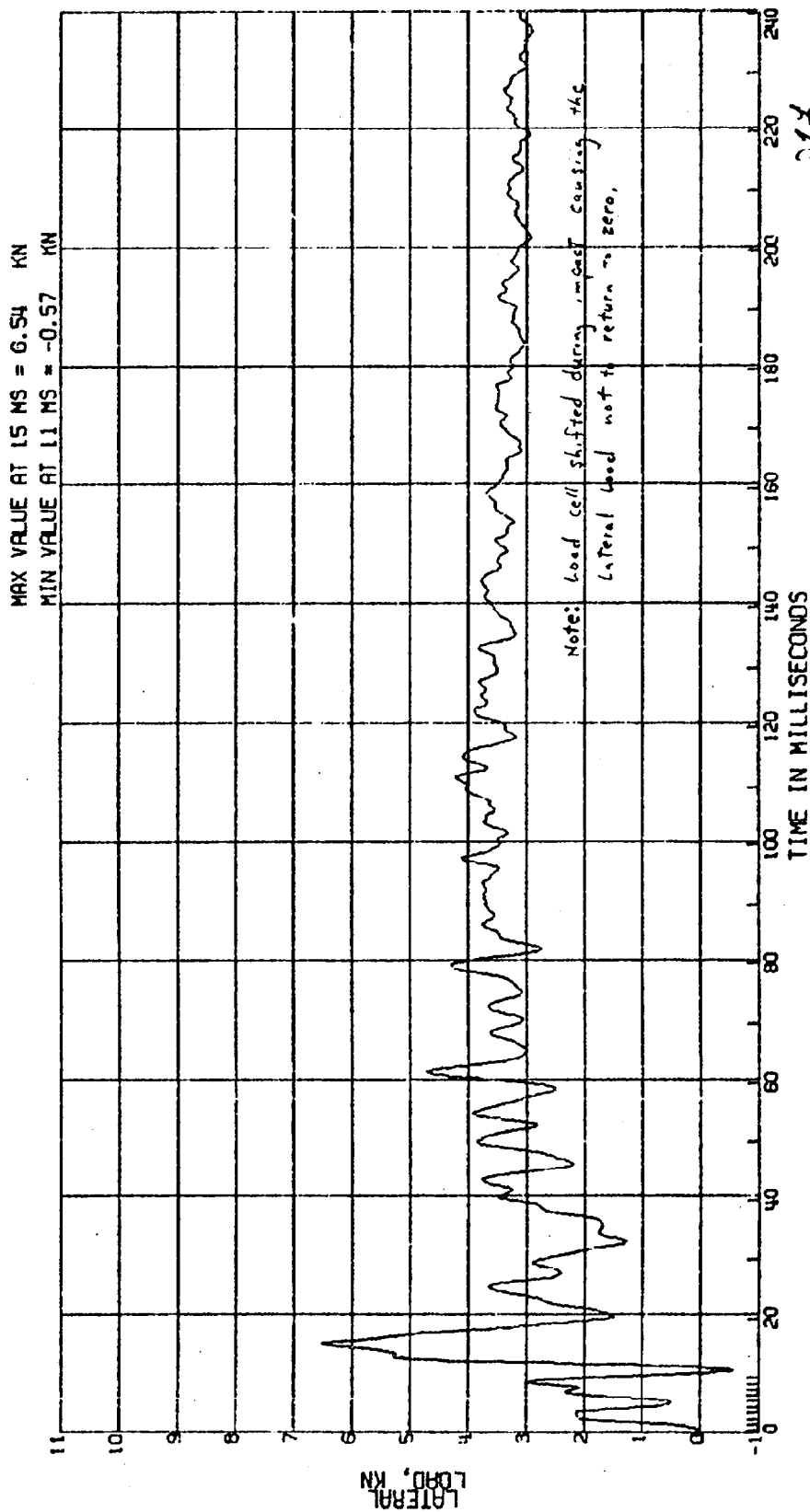
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3865-442
FISHER BODY STRUCK BARRIER
A-D DATA SAE CLASS 60

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 21
PASS-SIDE STRUCK UPPER BARRIER LOAD
TEST DATE: 01-16-84



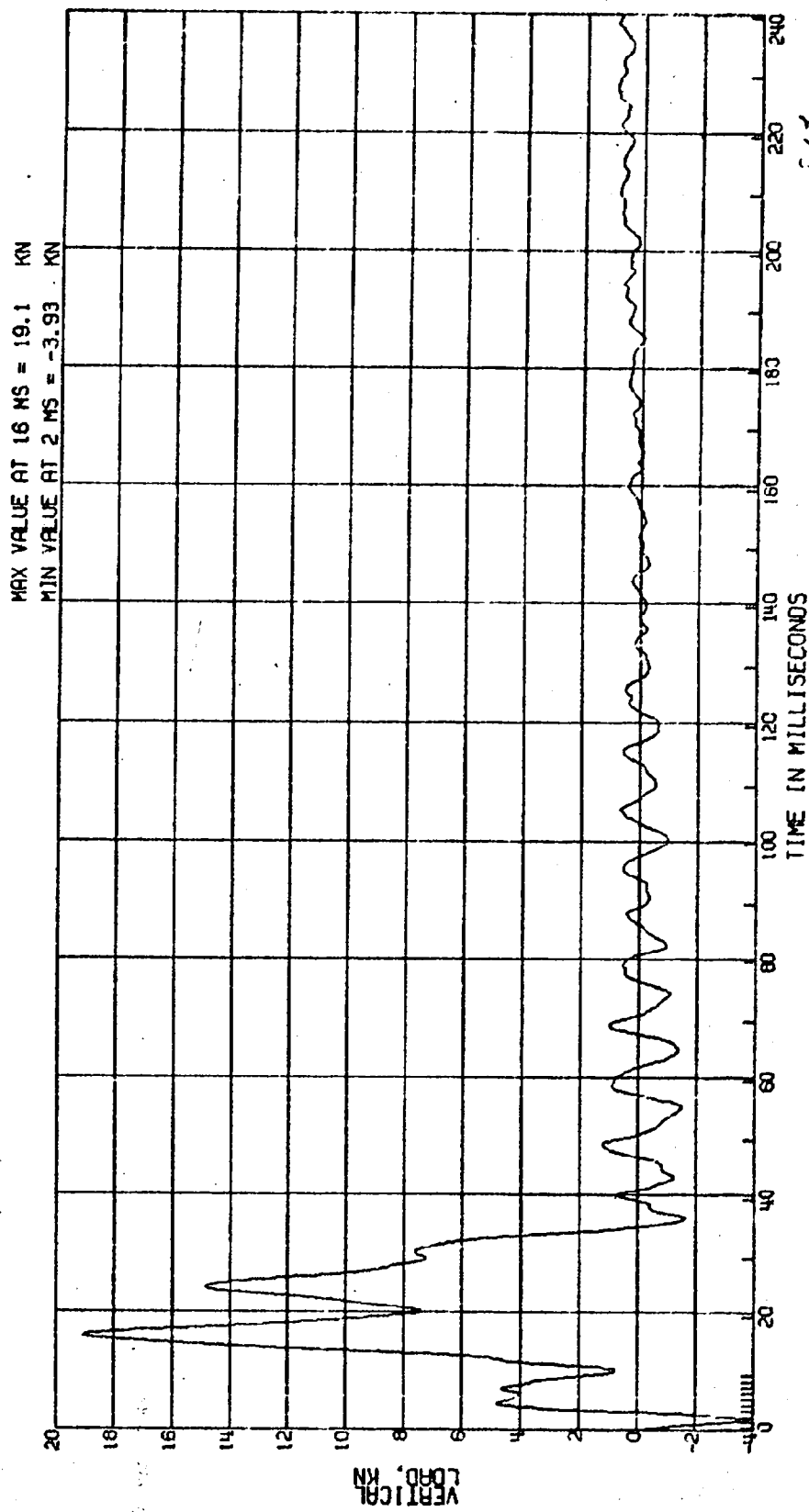
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C58458 BARRIER TO BARRIER
3865-448
FISHER BODY STRUCK BARRIER
A-D DATA SAE CLASS 60

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 22

PASS-SIDE STRUCK UPPER BARRIER LOAD

TEST DATE: 01-16-84



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C58458 BARRIER TO BARRIER

DEFORMABLE BARR TO LOAD CELL BARR

40.3KM/H FIGURE 23

3865-448

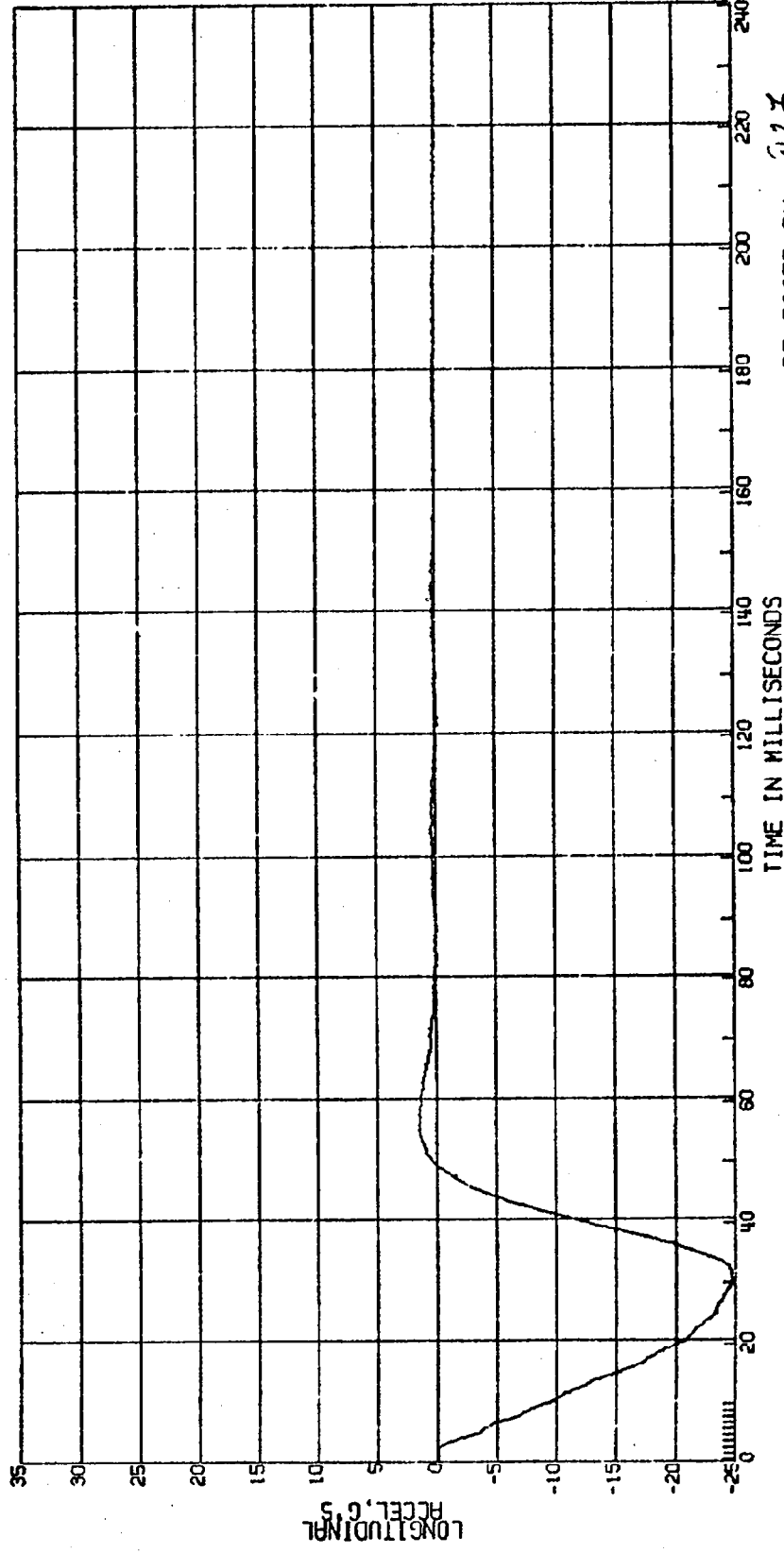
FISHER BODY STRUCK BARRIER

YAW FIXTURE AXO ACCEL.

TEST DATE: 01-15-84

A-D DATA

- 20 -



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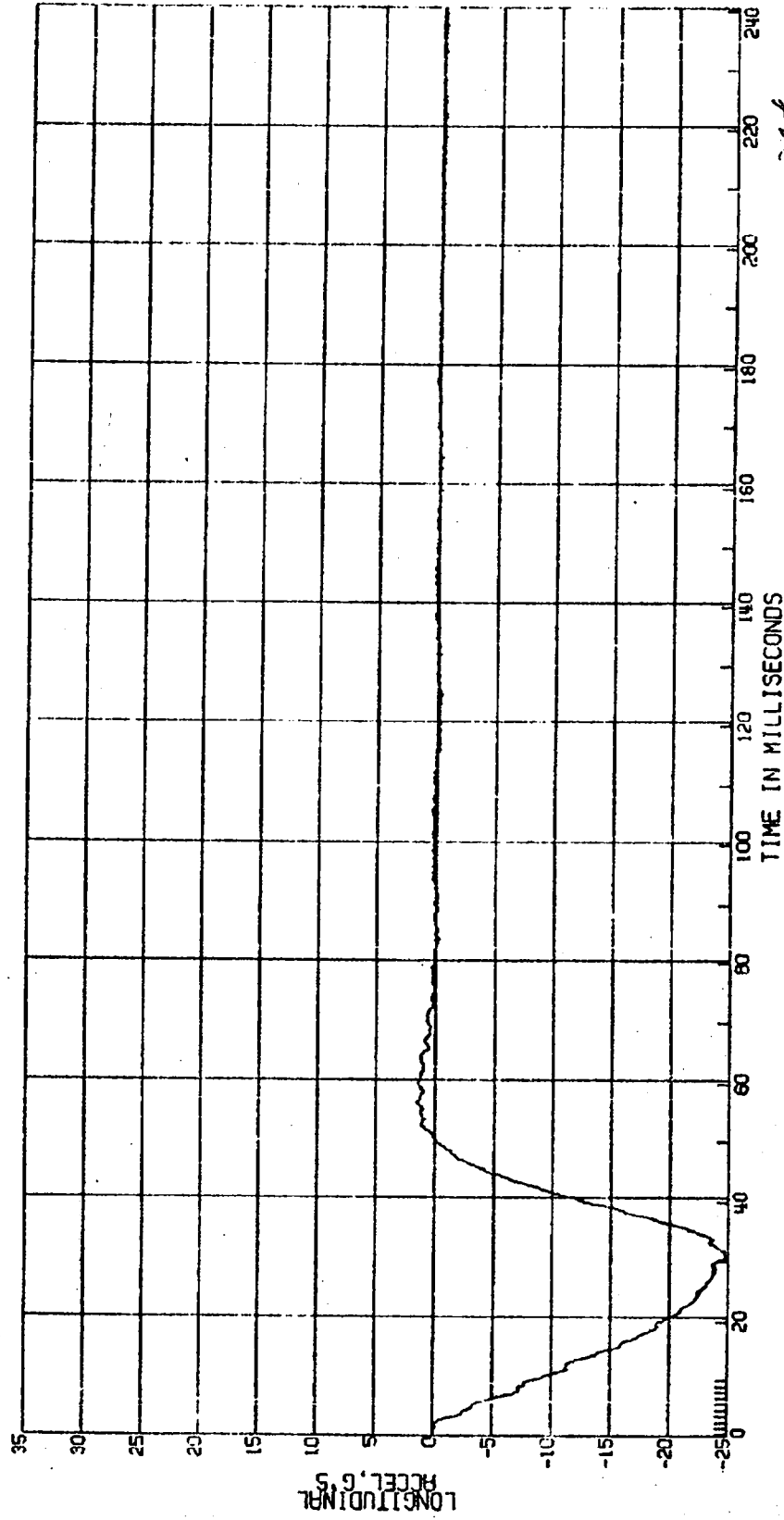
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3865-448
FISHER BODY STRUCK BARRIER
A-D DATA

DEFORMABLE BARR TO LOAD CELL BARR
YAW FIXTURE AX1 ACCEL.

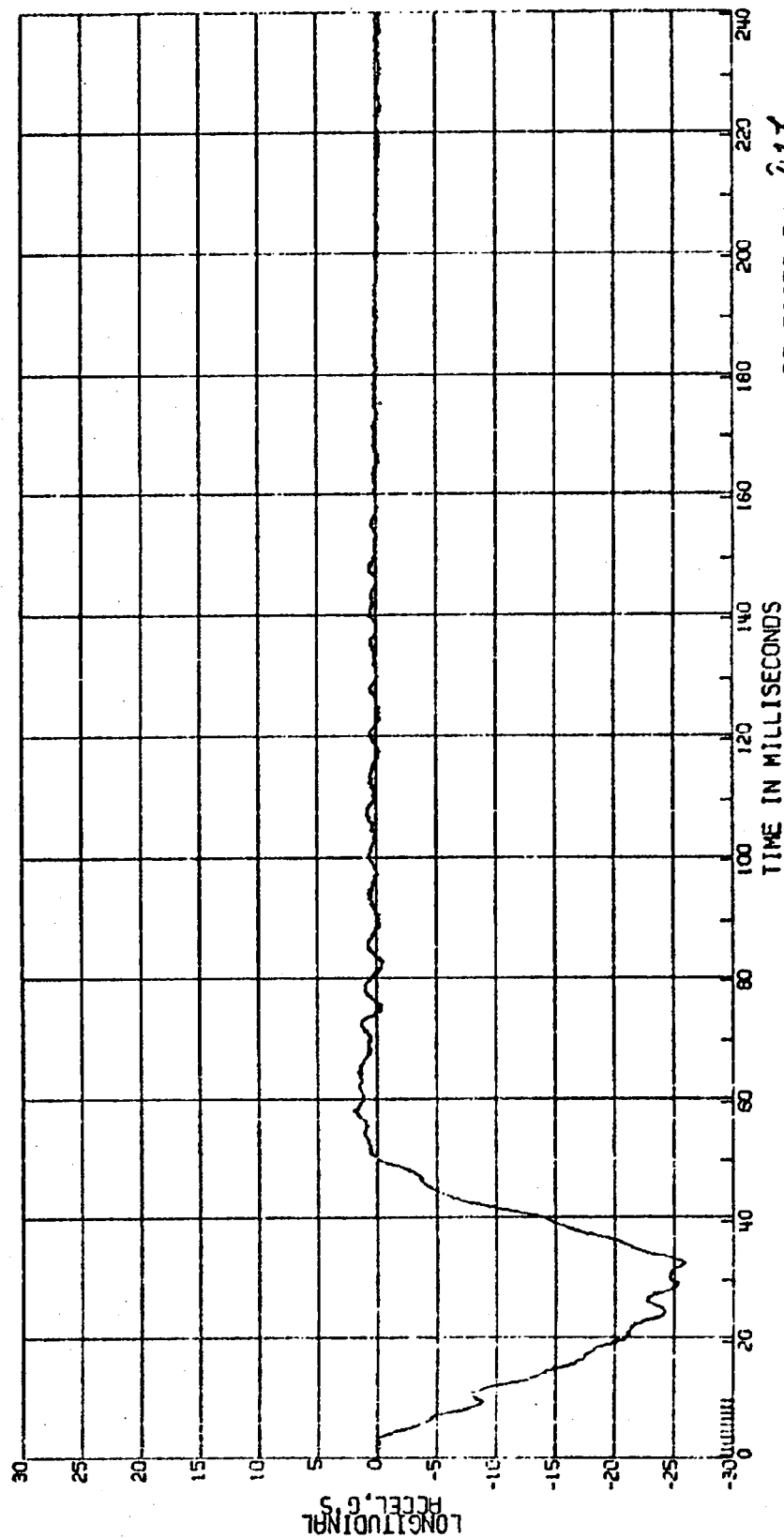
40.3 KM/H FIGURE 24

TEST DATE: 01-16-84



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C58458 BARRIER TO BARRIER DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 25
3865-448
FISHER BODY STRUCK BARRIER YAW FIXTURE AX3 ACCEL. TEST DATE: 01-16-84
A-D DATA



RELEASED BY: *017*
ALL INFORMATION IS UNCLASSIFIED

C58453 BARRIER TO BARRIER

3865-448

F.SHER BODY STRUCK BARRIER

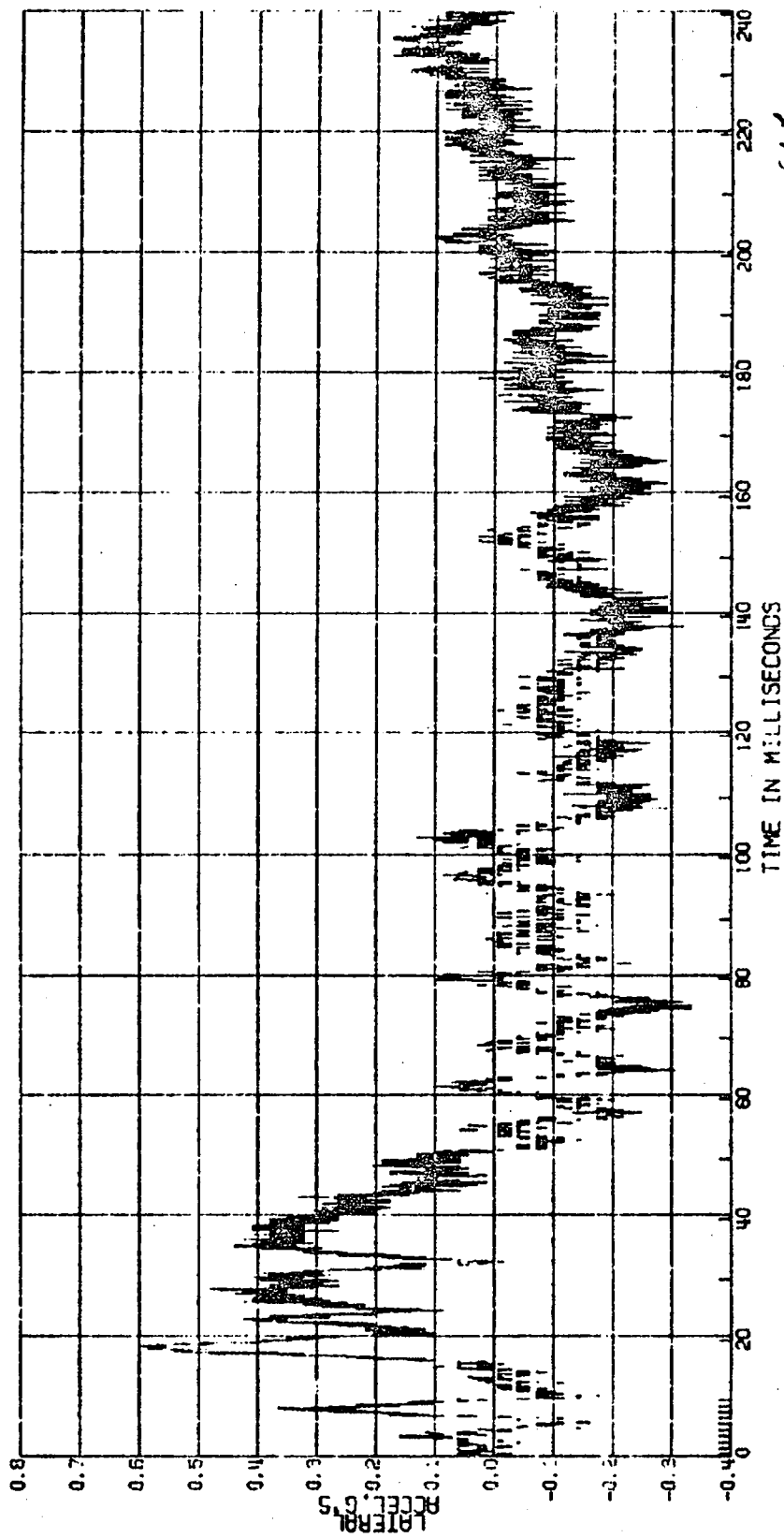
A-D DATA

DEFORMABLE BARR TO LOAD CELL BARR

40.3 KM/H FIGURE 2

YAW FIXTURE AYO ACCEL.

TEST DATE: 01-16-84

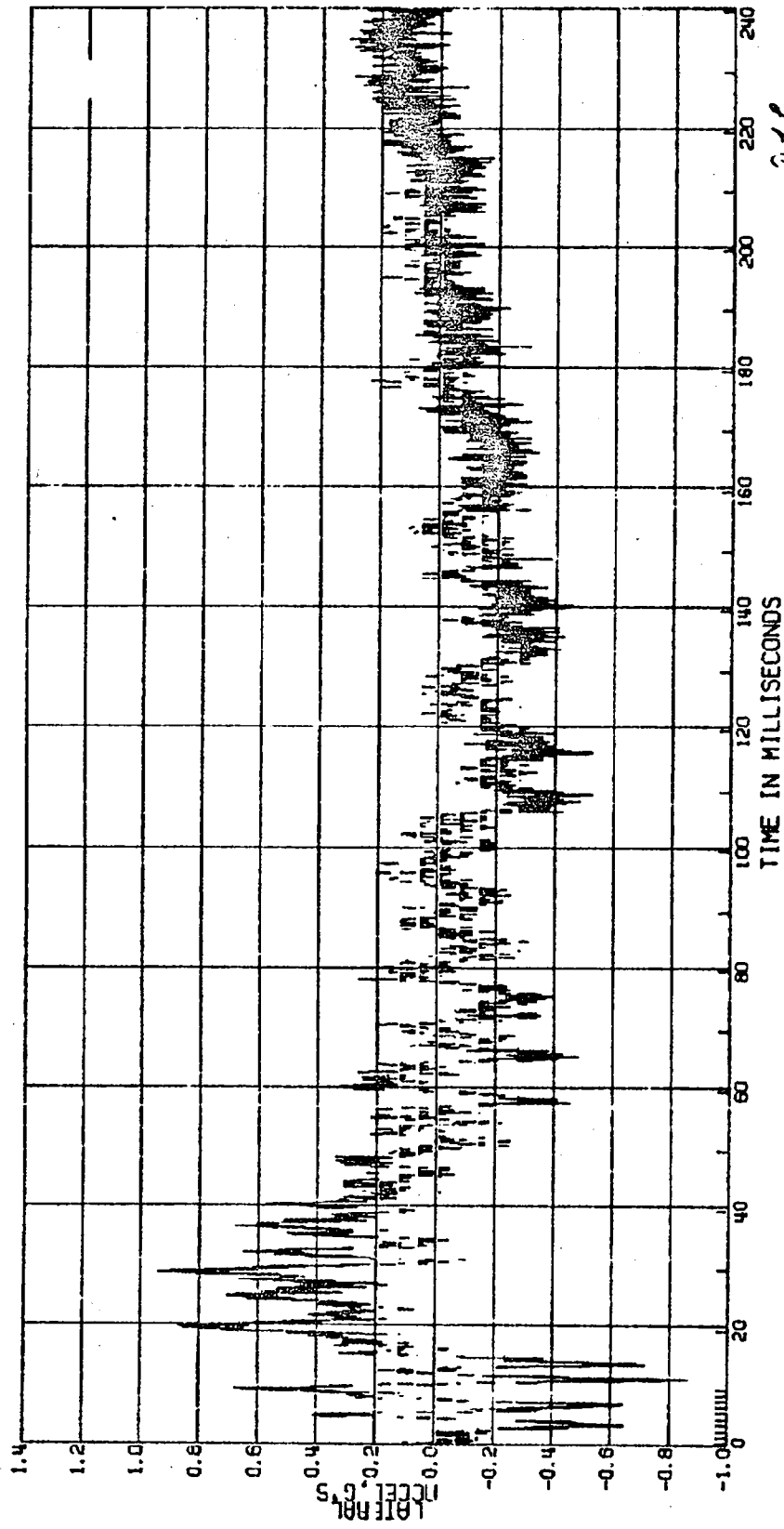


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3865-448
FISHER BODY STRUCK BARRIER
A-D DATA

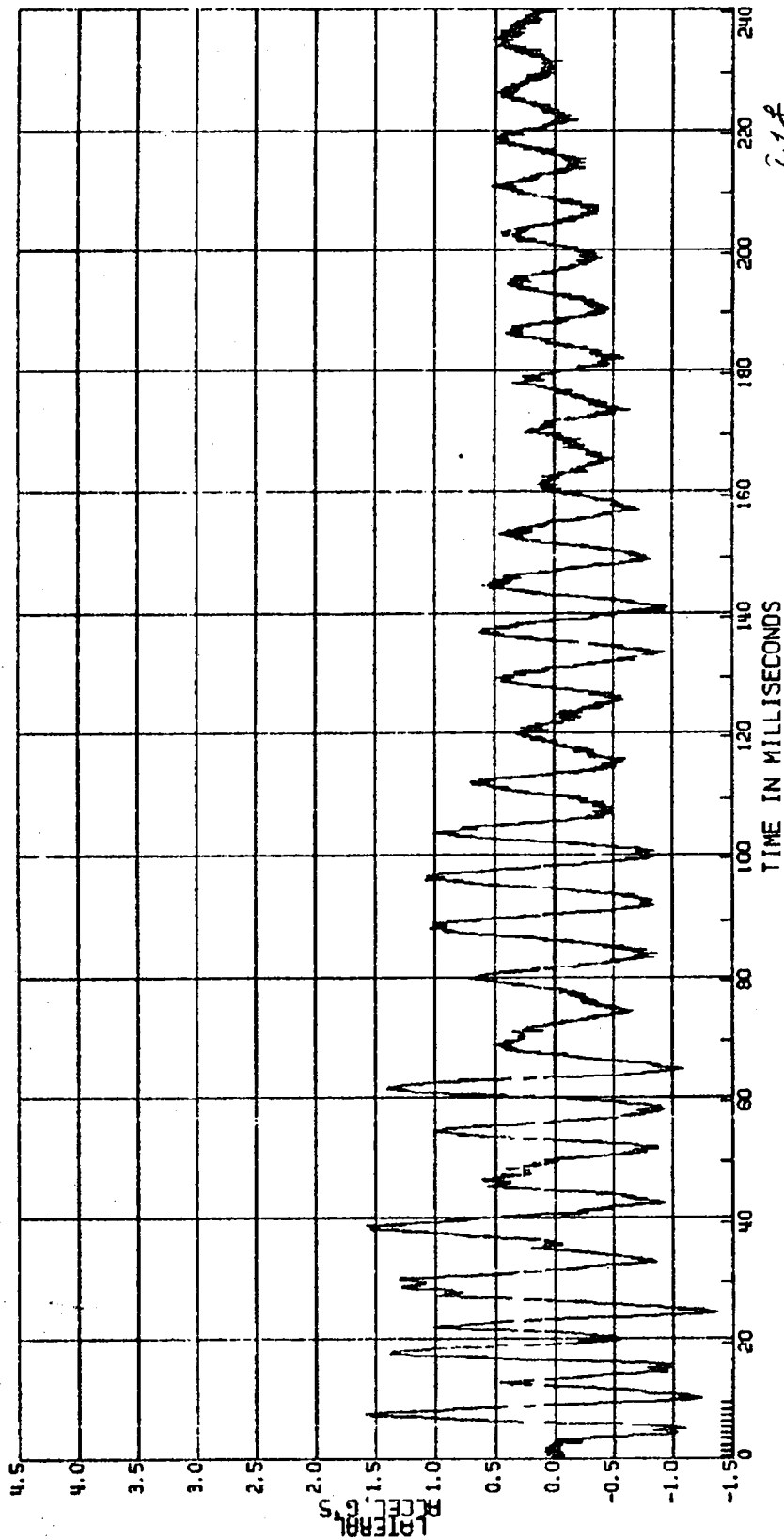
DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 27
YAW FIXTURE AY2 ACCEL.

TEST DATE: 01-16-84



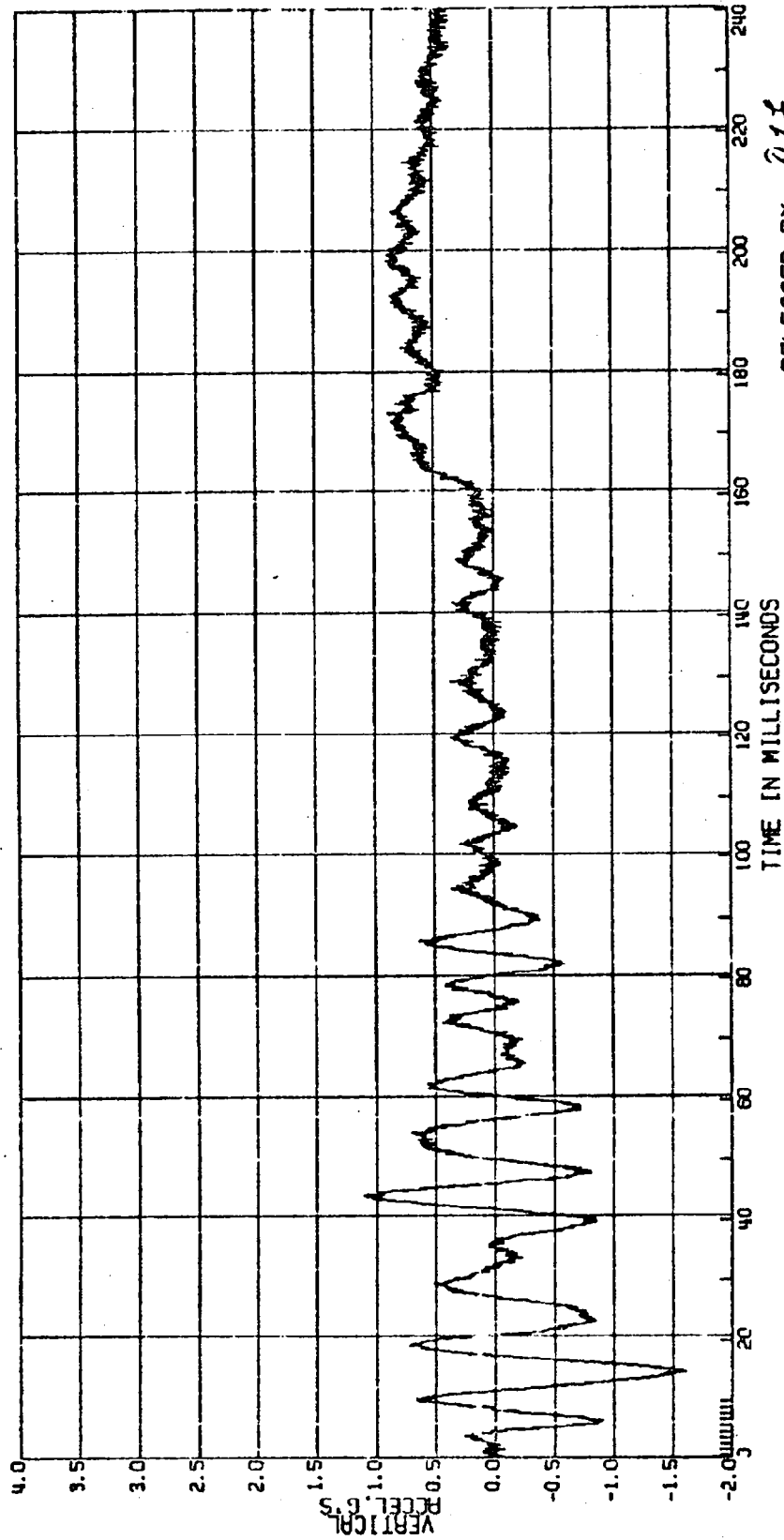
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C58458 BARRIER TO BARRIER DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 18
3865-448
FISHER BODY STRUCK BARRIER
A-D DATA
YAW FIXTURE AY3 ACCEL.
TEST DATE: 01-16-84



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C58458 BARRIER TO BARRIER DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 29
 3865-448 YAW FIXTURE AZO ACCEL. TEST DATE: 01-16-84
 FISHER BODY STRUCK BARRIER
 A-D DATA

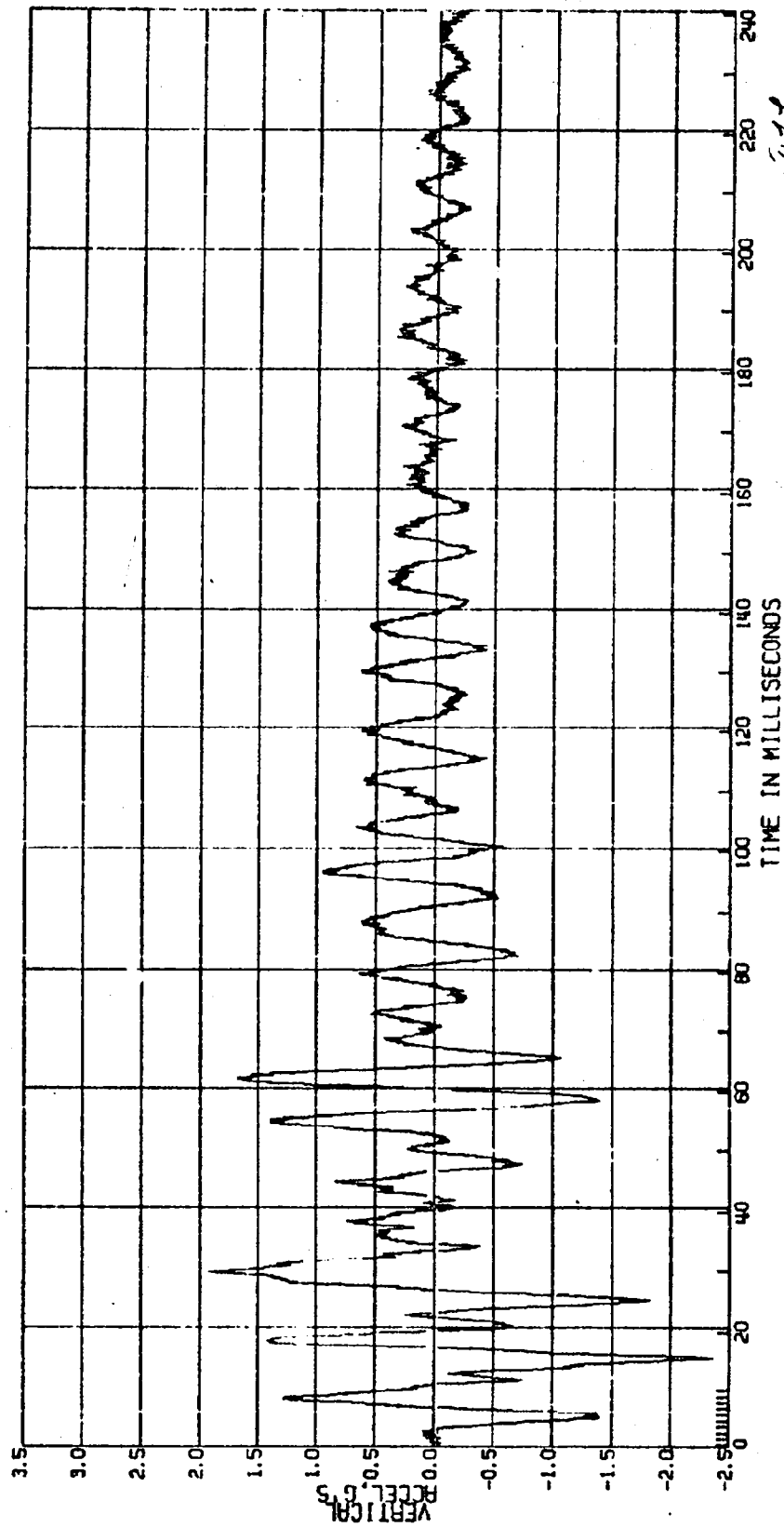


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3865-448
FISHER BODY STRUCK BARRIER
A-D DATA

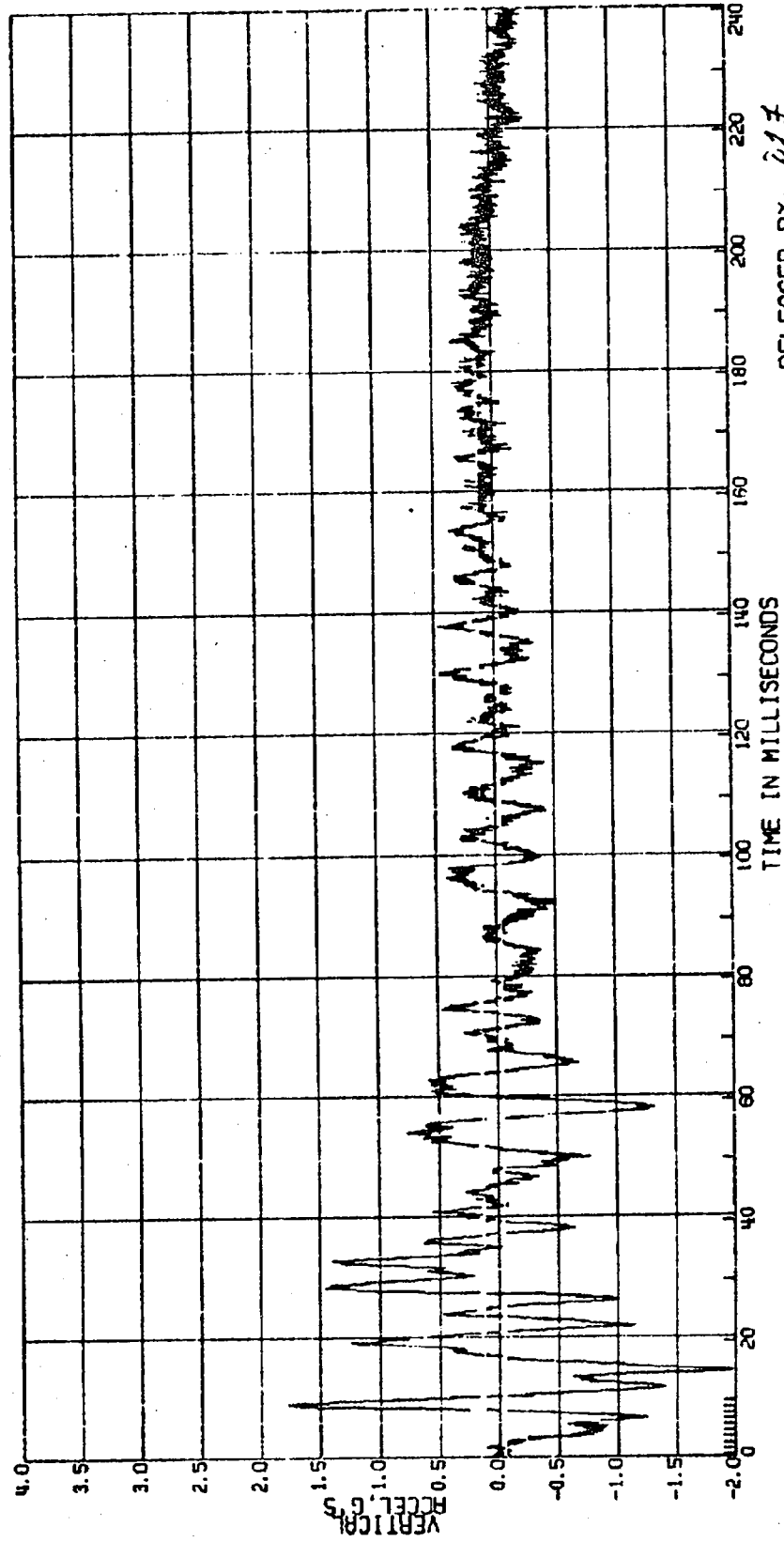
DEFORMABLE BARR TO LOAD CELL BARR 40.3 KM/H FIGURE 30
YAW FIXTURE AZ1 ACCEL.

TEST DATE: 01-16-84



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C58458 BARRIER TO BARRIER DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 37
 3865-448
 FISHER BODY STRUCK BARRIER YAW FIXTURE AZ2 ACCEL. TEST DATE: 01-16-84
 A-D DATA



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C5845A BARRIER TO BARRIER DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 32

3865-448

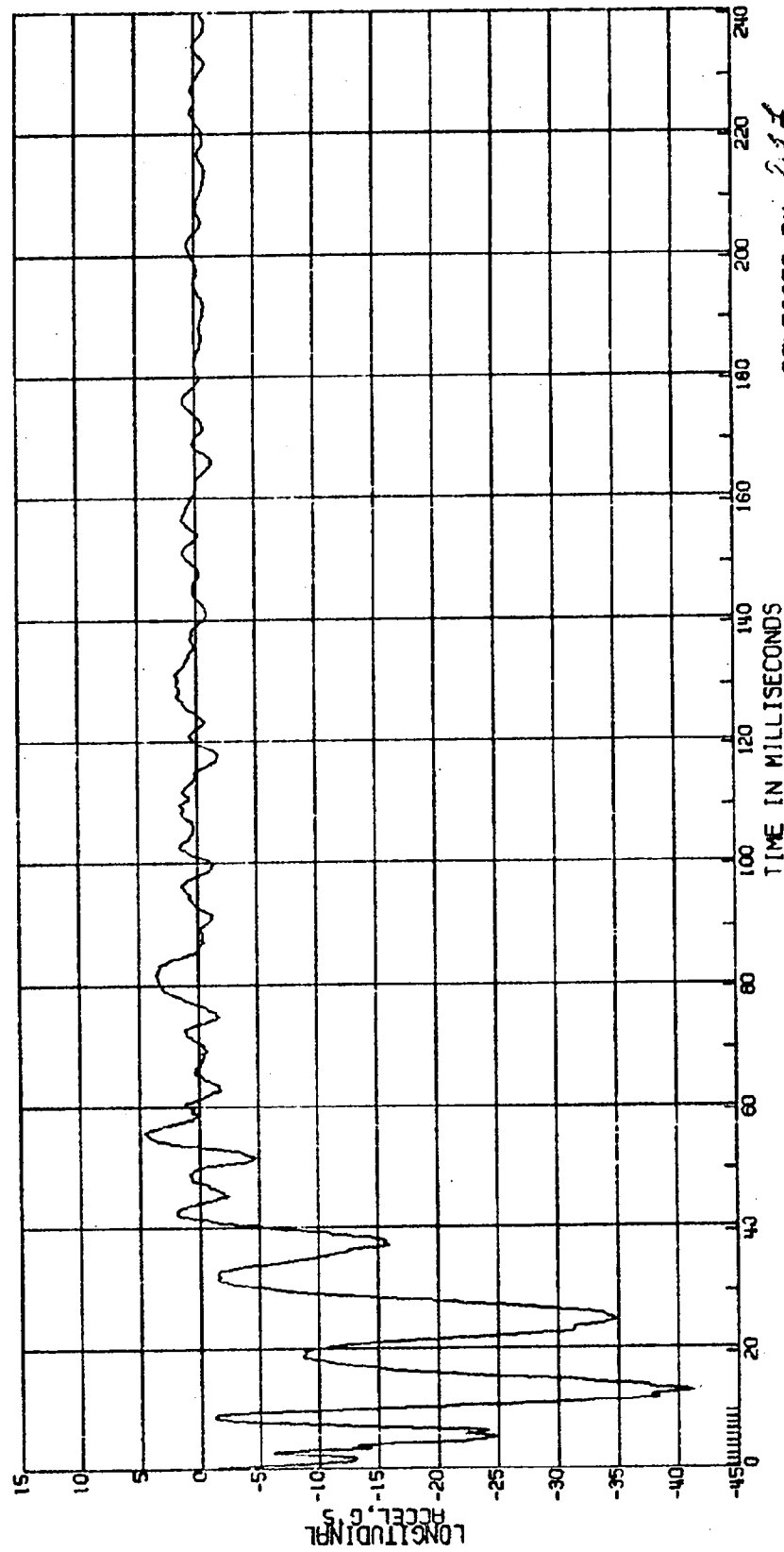
FISHER BODY STRIKING BARRIER

A-0 DATA SAE CLASS 60

DR-SIDE STRIKING BARRIER FRONT ACCEL.

TEST DATE: 01-16-84

CHANNEL 1



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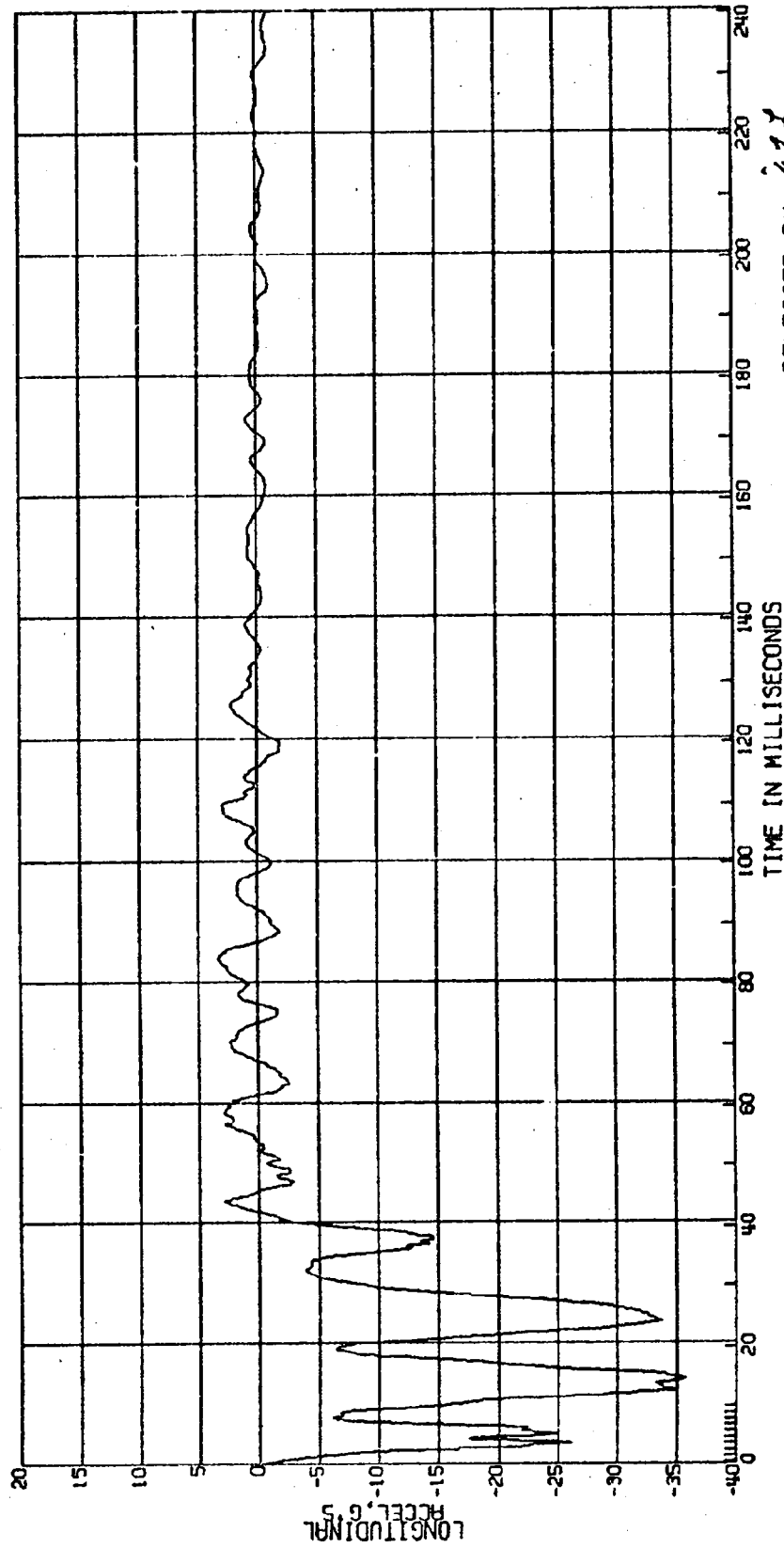
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CHANNEL #1

CS845A BARRIER TO BARRIER
3865-448
FISHER BODY STRIKING BARRIER
A-D DATA SAE CLASS 60

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 33
PASS-SIDE STRIKING BARRIER FRONT ACCEL. TEST DATE:01-16-84

Channel 2



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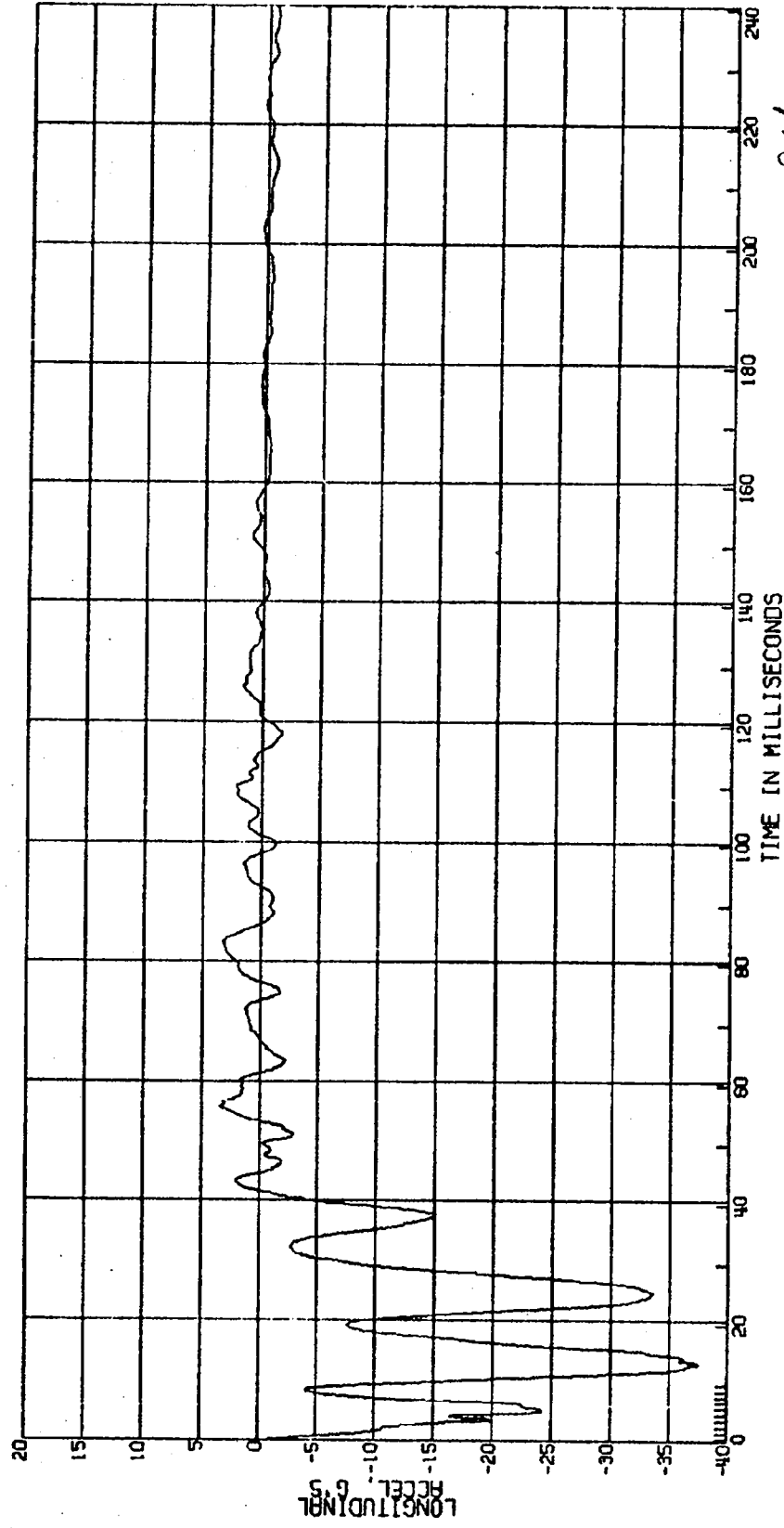
C5845A BARRIER TO BARRIER
3865-448
FISHER BODY STRIKING BARRIER
A-C DATA SAE CLASS 60

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 34

AVERAGED DRIVER & PASSENGER SIDE

TEST DATE: 01-16-84

STRIKING BARRIER FRONT ACCELERATION



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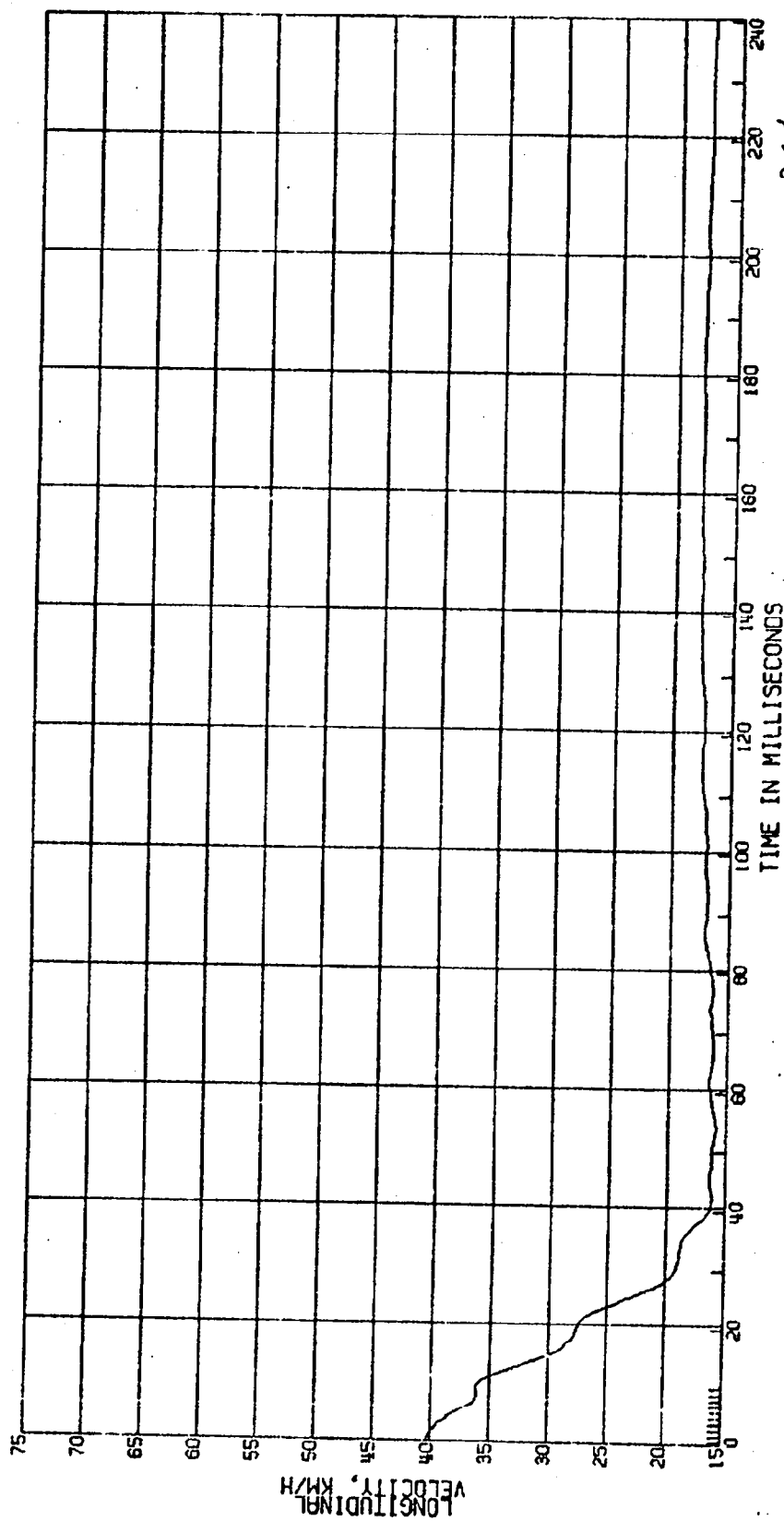
C5845A BARRIER TO BARRIER
3865-448
FISHER BODY STRIKING BARRIER
A-D DATA SAE CLASS 180

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 35

COMPUTED STRIKING BARRIER VELOCITY

TEST DATE:01-16-84

(1ST INTEGRAL AVE DR & PASS FRT ACCEL)



RELEASED BY: *217*
8 PROCESSED 17 JAN 84 19:47

C5845A BARRIER TO BARRIER

3865-448

FISHER BODY STRIKING BARRIER

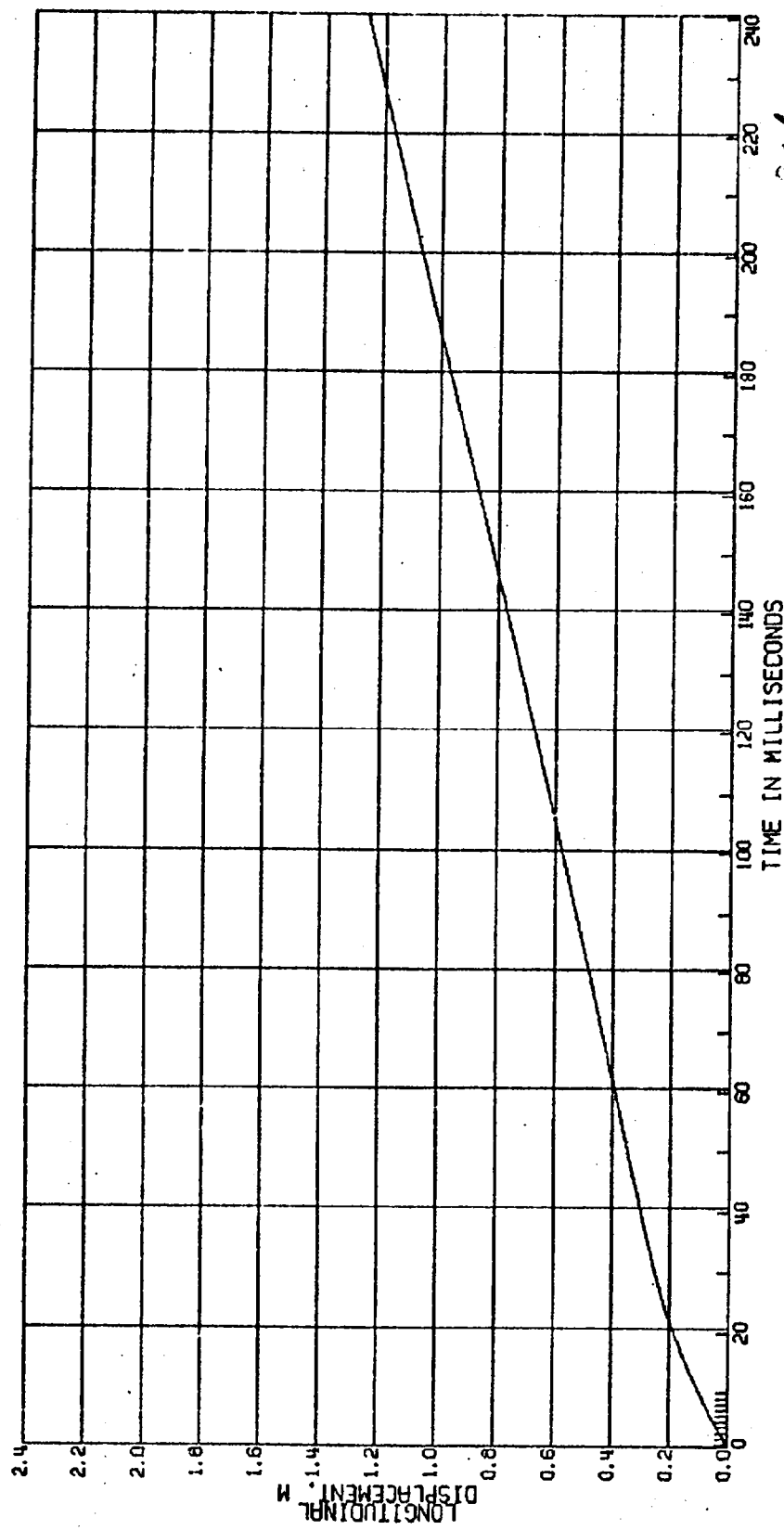
A-D DATA SAE CLASS 180

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 36

COMPUTED MOVING BARRIER DISPLACEMENT

TEST DATE: 01-16-84

(2ND INTEGRAL AVE DR & PASS FRT ACCEL)



RELEASED BY: *DAF*

9 PROCESSED 17 JAN 84 19:47

C5845A BARRIER TO BARRIER

3865-448

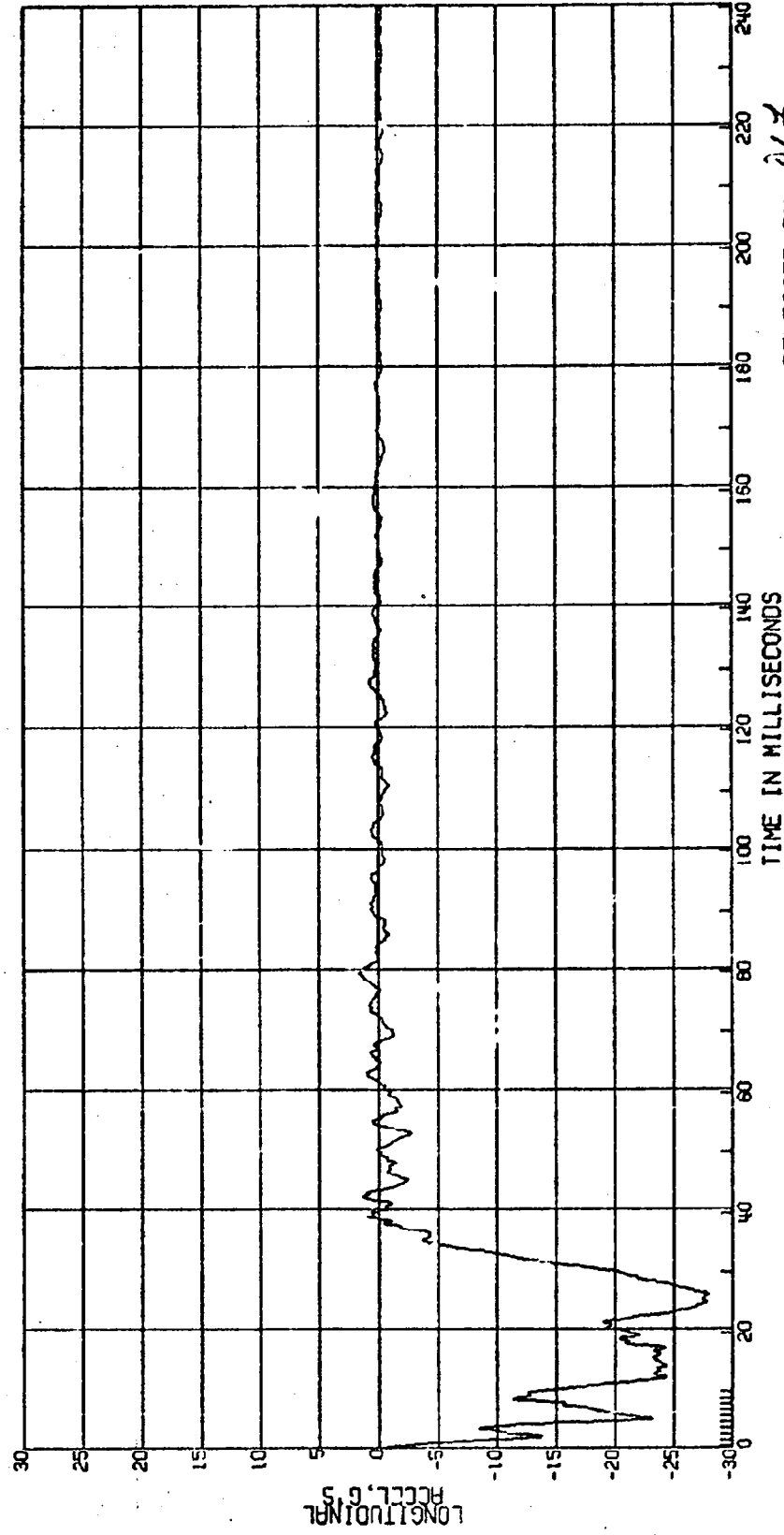
FISHER BODY STRIKING BARRIER

A-D DATA SAE CLASS 60

DEFUMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 37

DR-SIDE STRIKING BARRIER MID ACCEL.

TEST DATE: 01-16-84



RELEASED BY: OKZ

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CS815A BARRIER TO BARRIER

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 37

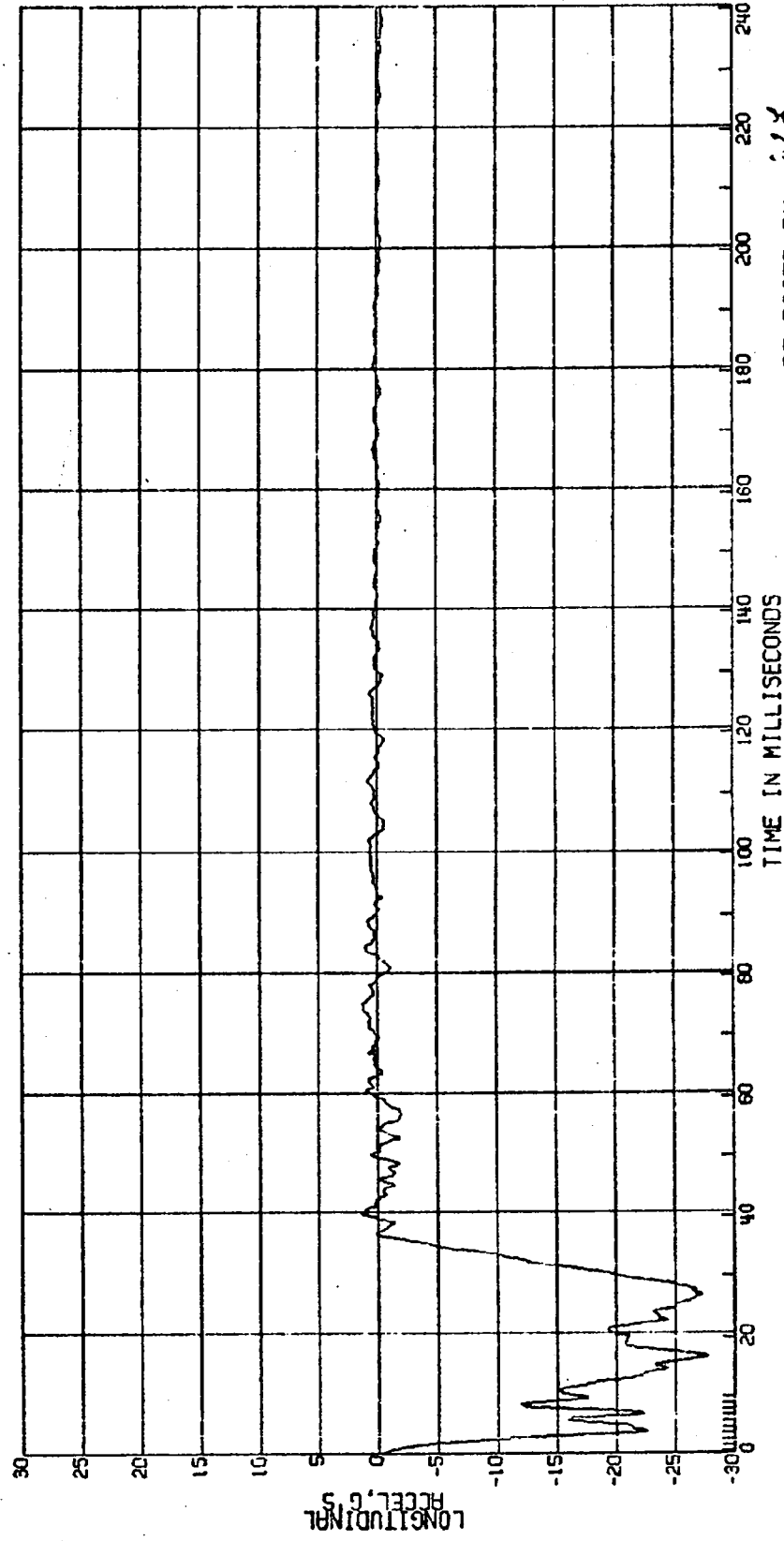
3865-448

FISHER BODY STRIKING BARRIER

PASS-SIDE STRIKING BARRIER MID ACCEL.

TEST DATE: 01-16-84

A-D DATA SAE CLASS GO



RELEASED BY: *WJF*

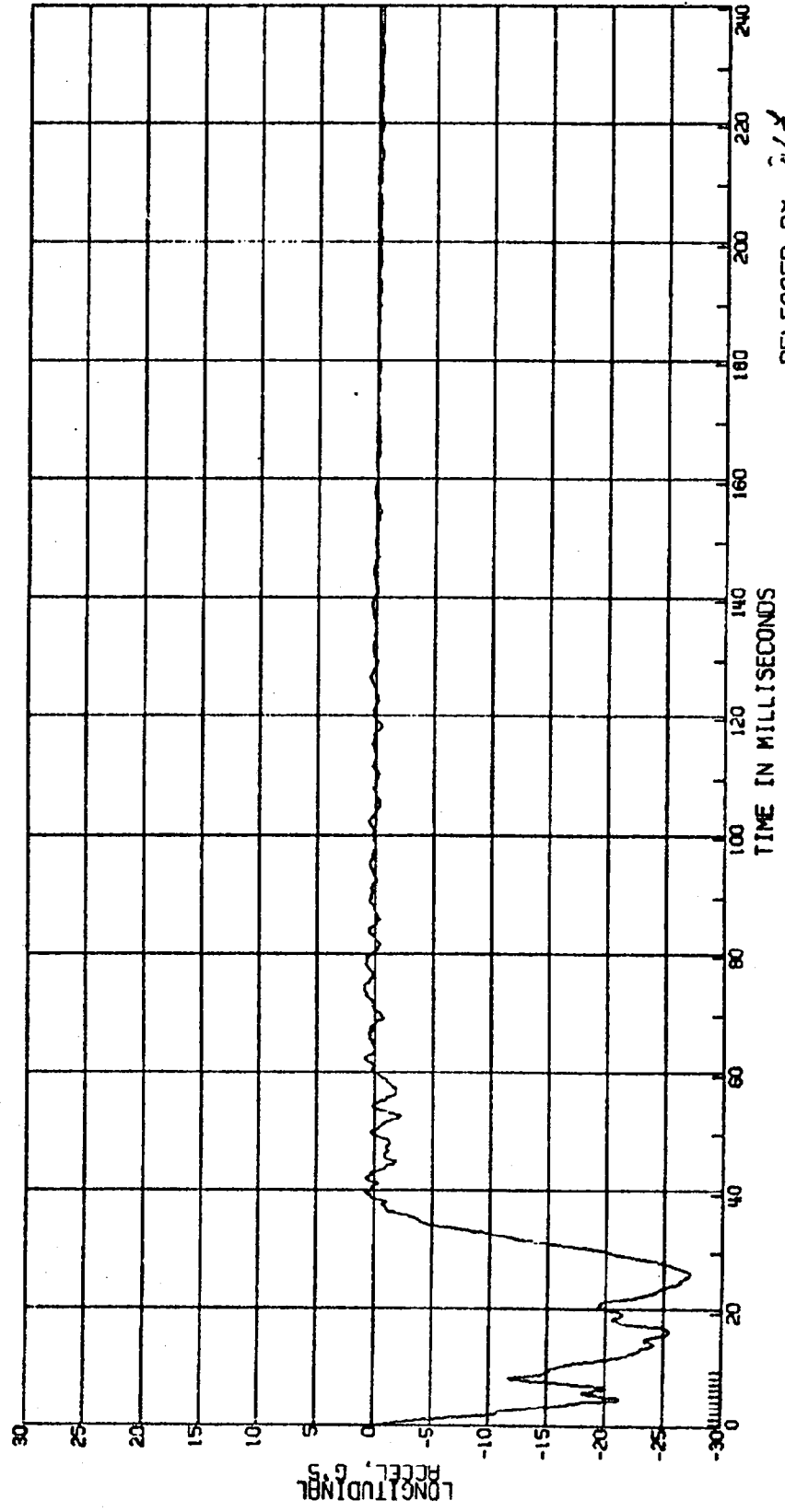
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CS845A BARRIER TO BARRIER
3865-448
FISHER BODY STRIKING BARRIER
A-D DATA SAE CLASS 60

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 39

AVERAGED DRIVER & PASSENGER SIDE
STRIKING BARRIER MID ACCELERATION

TEST DATE: 01-16-84



RELEASED BY: *DLF*

CS845A BARRIER TO BARRIER

DEFORMABLE BARR TO LOAD CELL BARR

40.3KM/H FIGURE 4°

3865-448

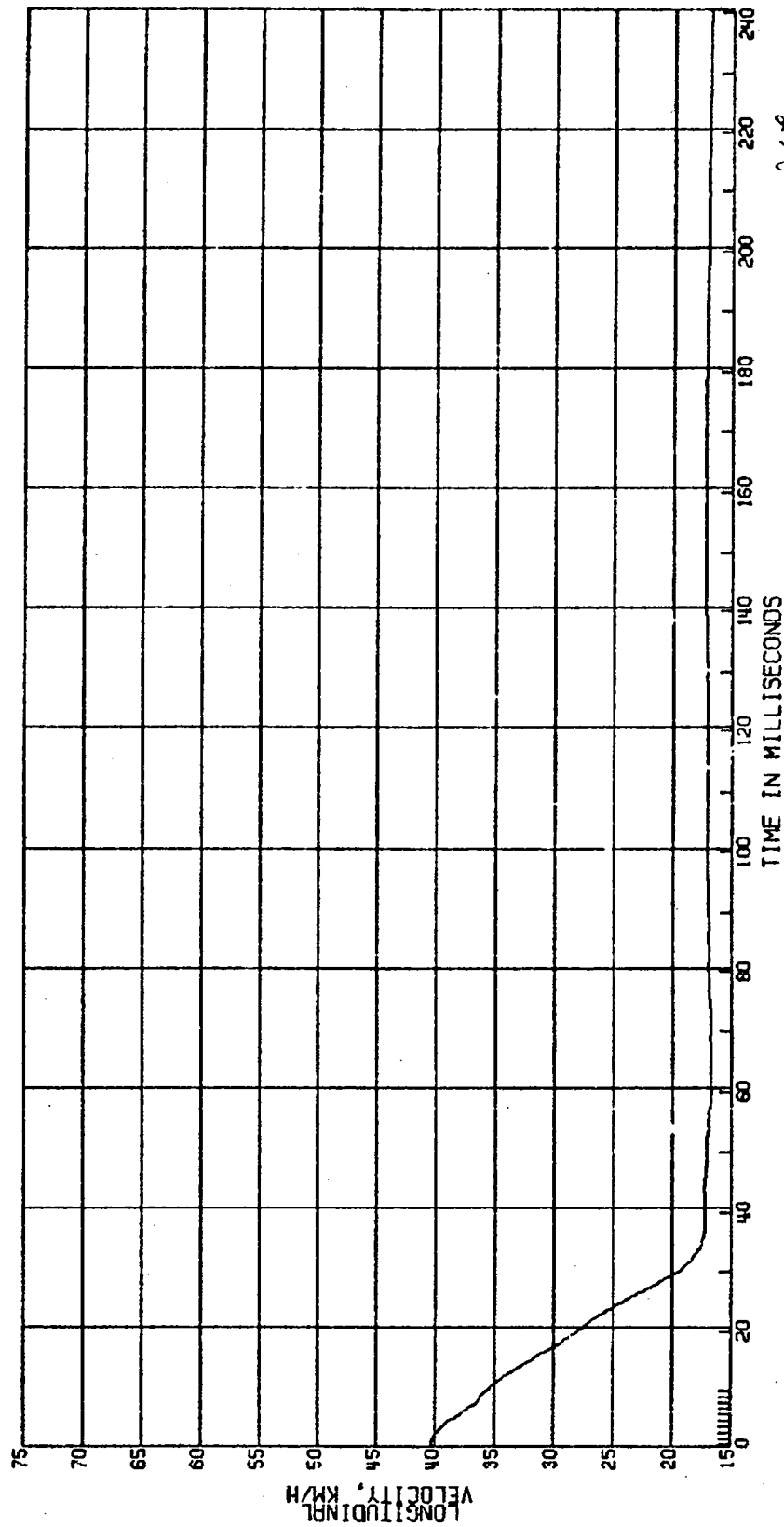
FISHER BODY STRIKING BARRIER

COMPUTED STRIKING BARRIER VELOCITY

TEST DATE: 01-16-84

A-D DATA SAE CLASS 180

(1ST INTEGRAL AVE DR & PASS MID ACCEL)

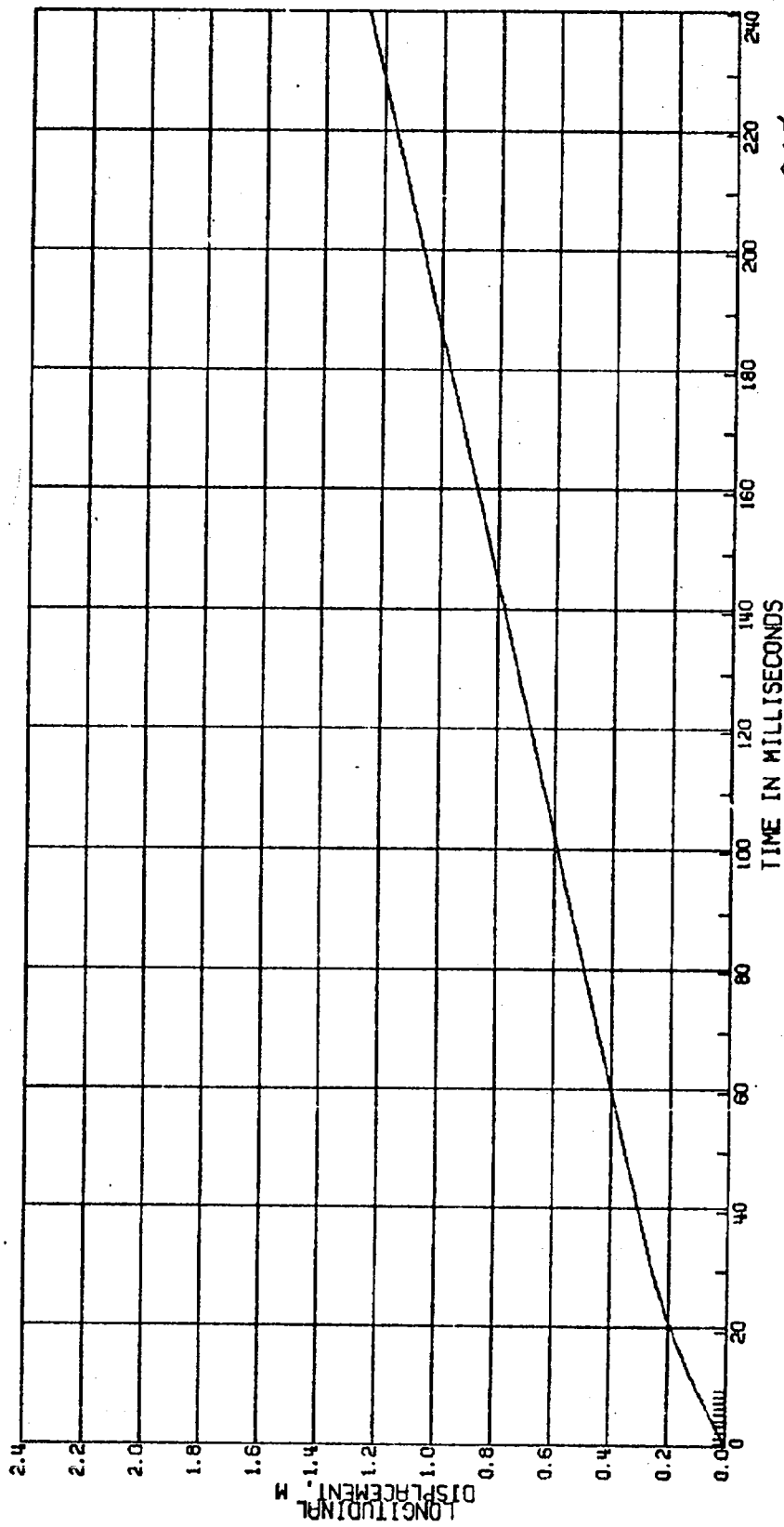


RELEASED BY: *WLF*
17 PROCESSED 17 JAN 1984

C5845A BARRIER TO BARRIER
3865-448
FISHER BODY STRIKING BARRIER
A-D DATA SAE CLASS 180

DEFORMABLE BARR TO LOAD CELL BARR 40.3KM/H FIGURE 41
COMPUTED MOVING BARRIER DISPLACEMENT
(2ND INTEGRAL AVE DR & PASS MID ACCEL)

TEST DATE: 01-16-84



RELEASED BY: 217

10 000000 10 000000

C5845 BARRIER TO BARRIER

3865-448

FISHER BODY

FILM DATA

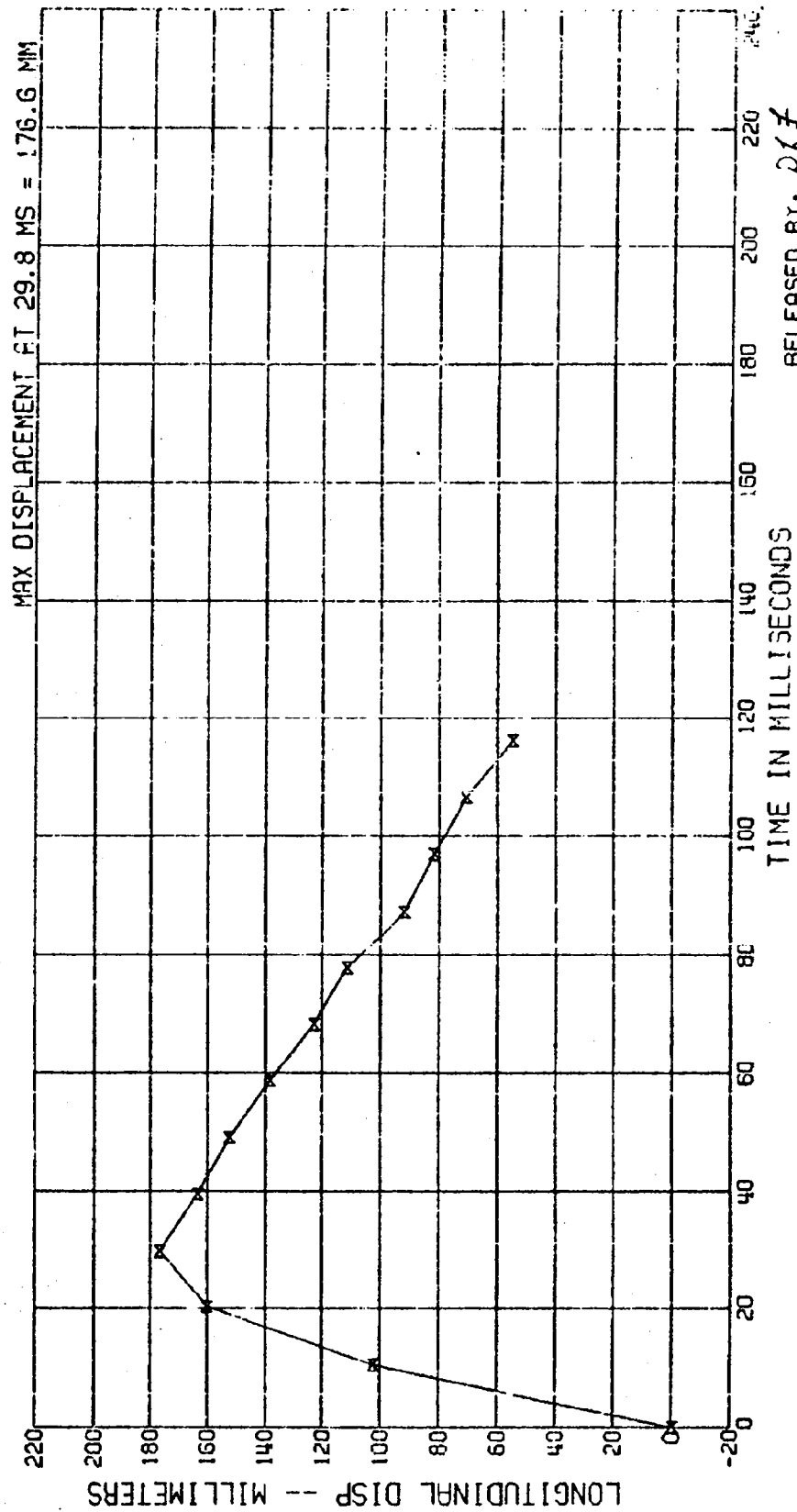
NHTSA BARRIER TO LOAD CELL BARR (DS)

FIGURE 42

REFERENCED TO MOVING BARRIER

TEST DATE: 01-16-84

NHTSA BARRIER RELATIVE TO LOAD CELL BARRIER



RELEASED BY: DJF
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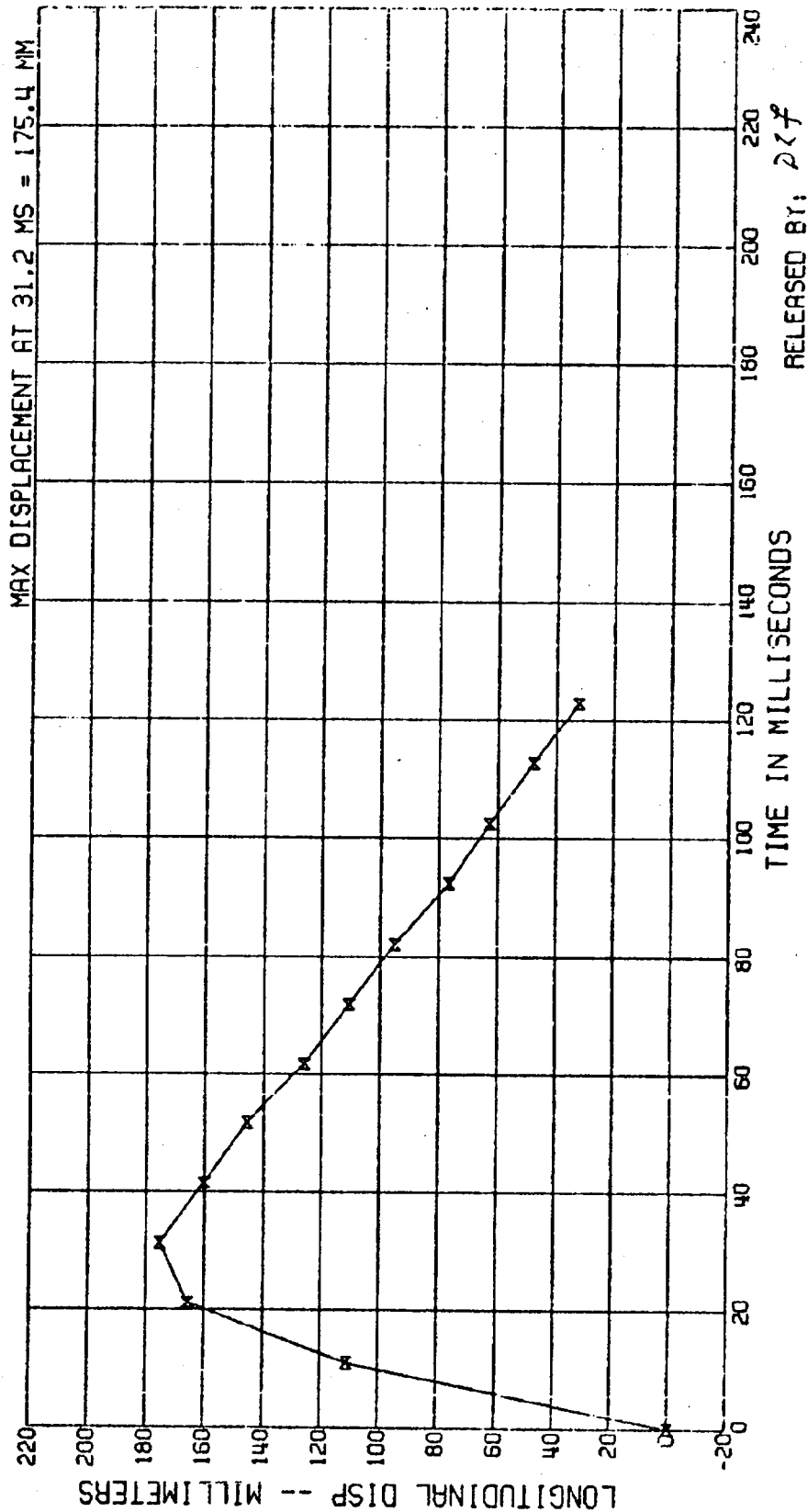
CS845 BARRIER TO BARRIER
3835-448
FISHER BODY
FILM DATA

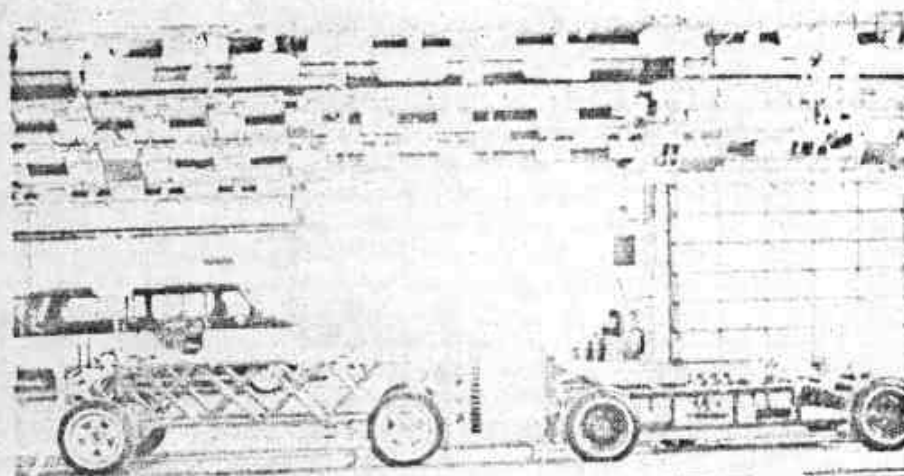
NHTSA BARRIER TO LOAD CELL BARR (PSI)
REFERENCED TO MOVING BARRIER

FIGURE 43

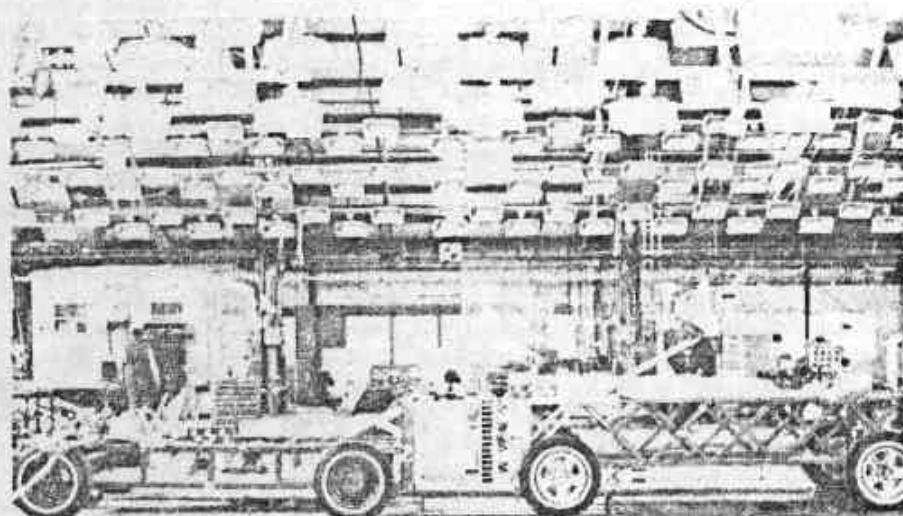
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NHTSA BARRIER RELATIVE TO LOAD CELL BARRIER

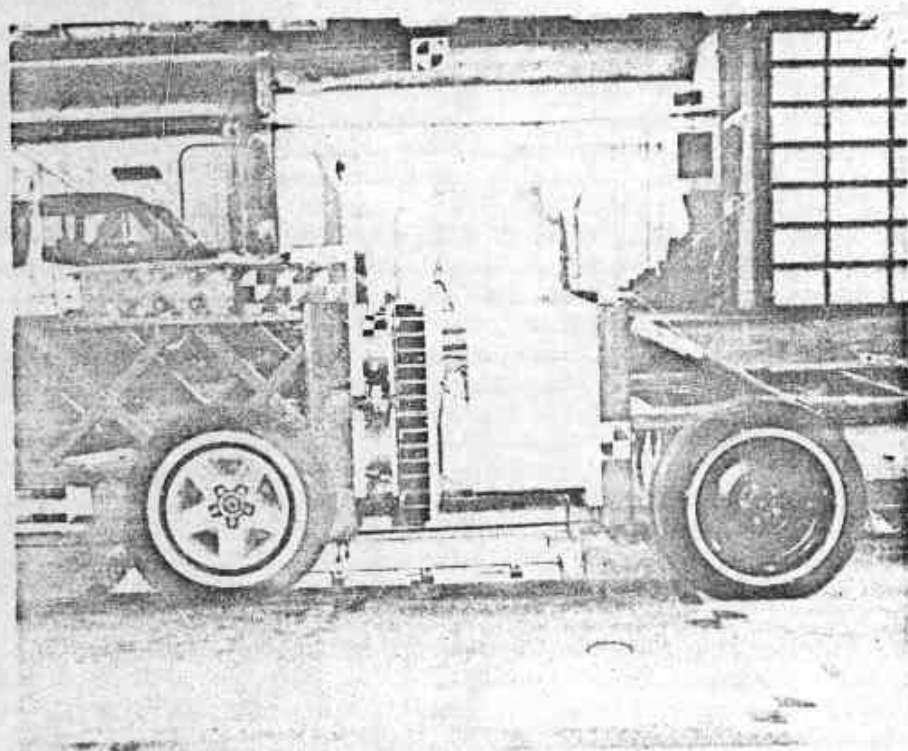




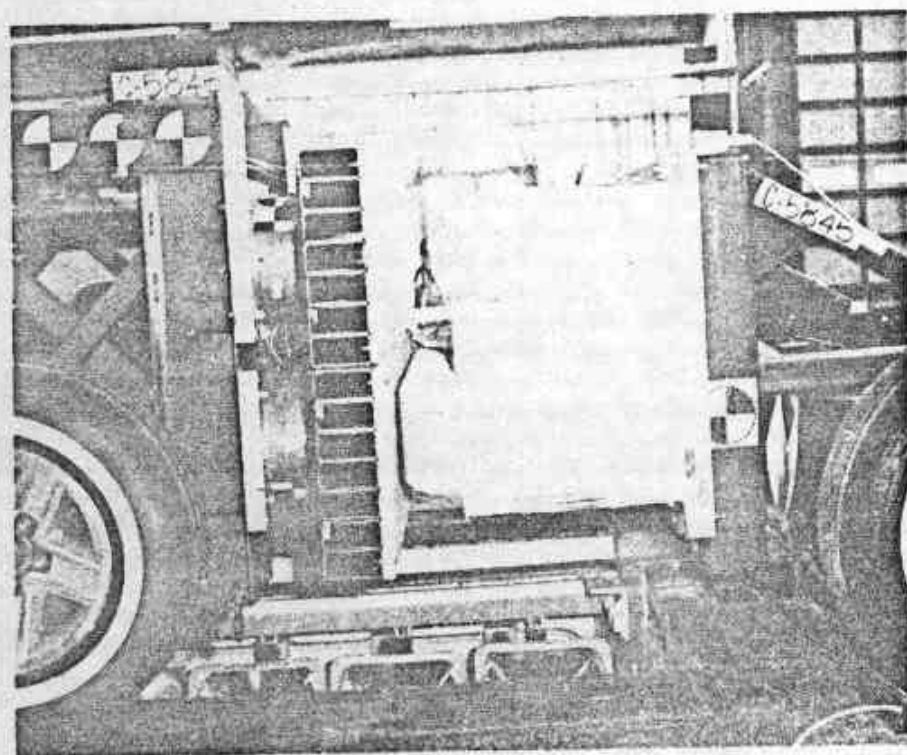
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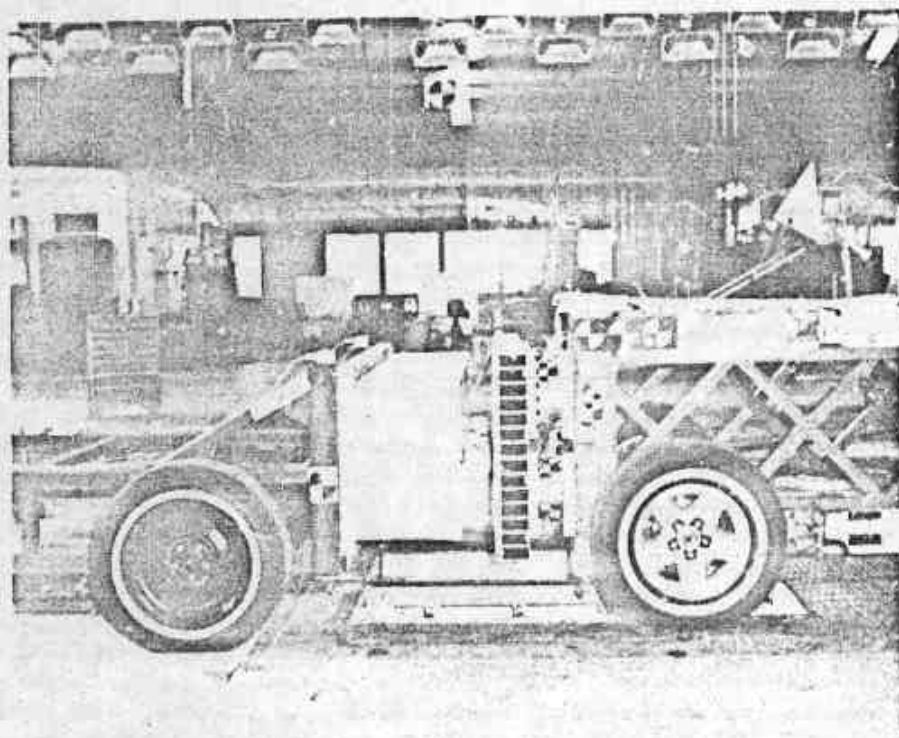
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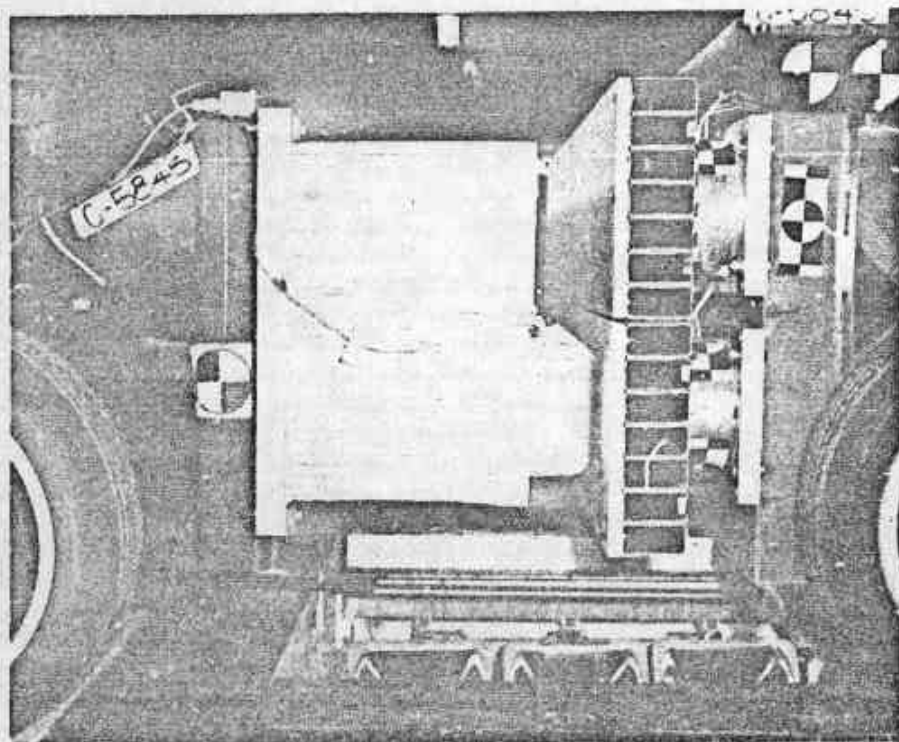
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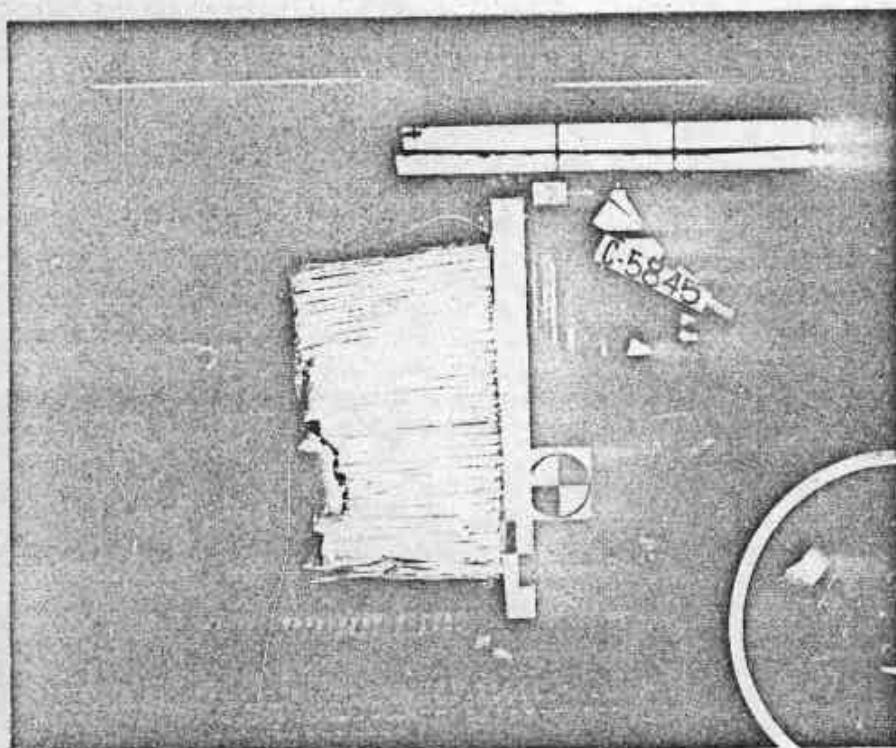


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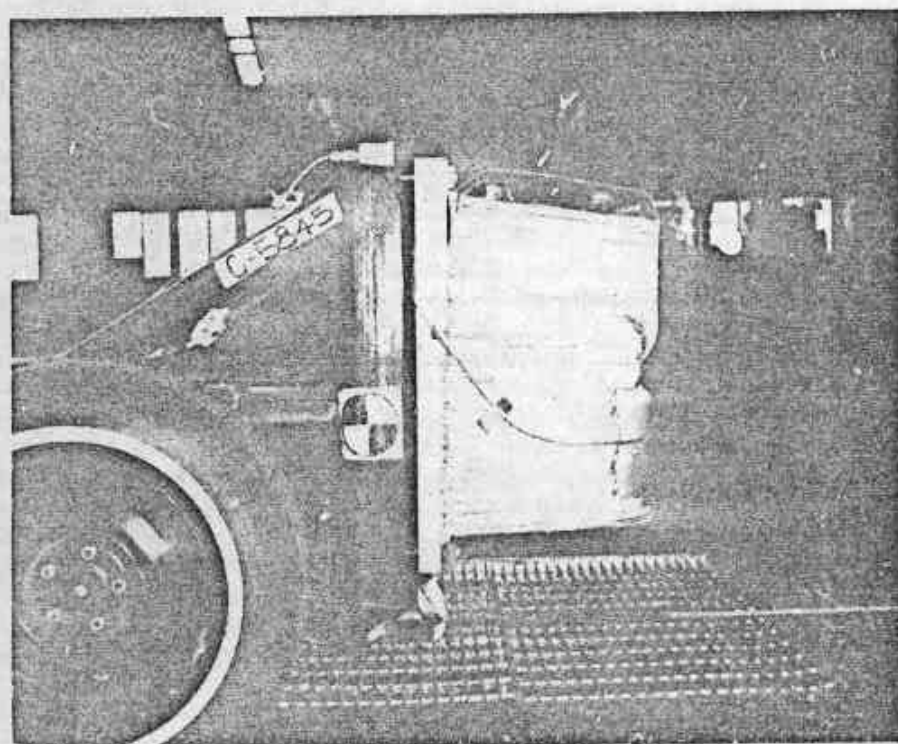


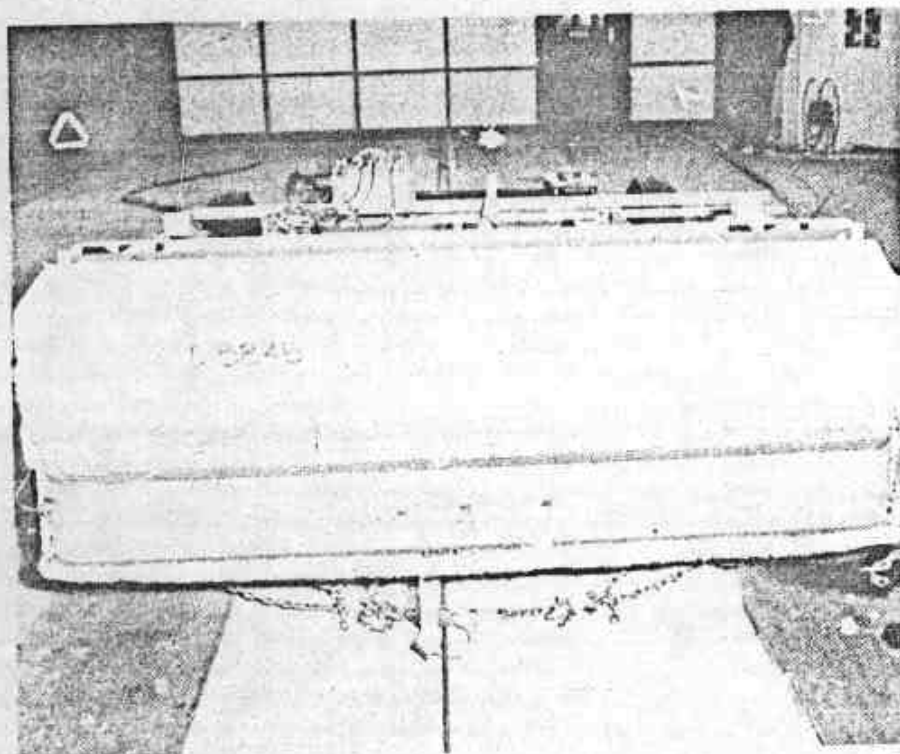
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Document No.	Fig No.
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Document No.	Fig No.
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Document No.	Fig No.