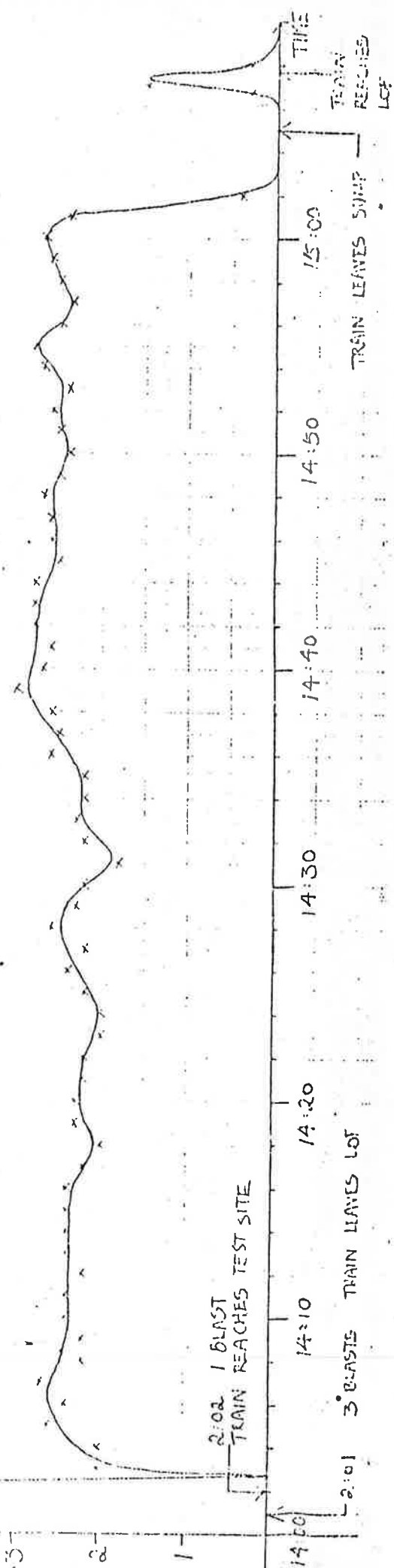


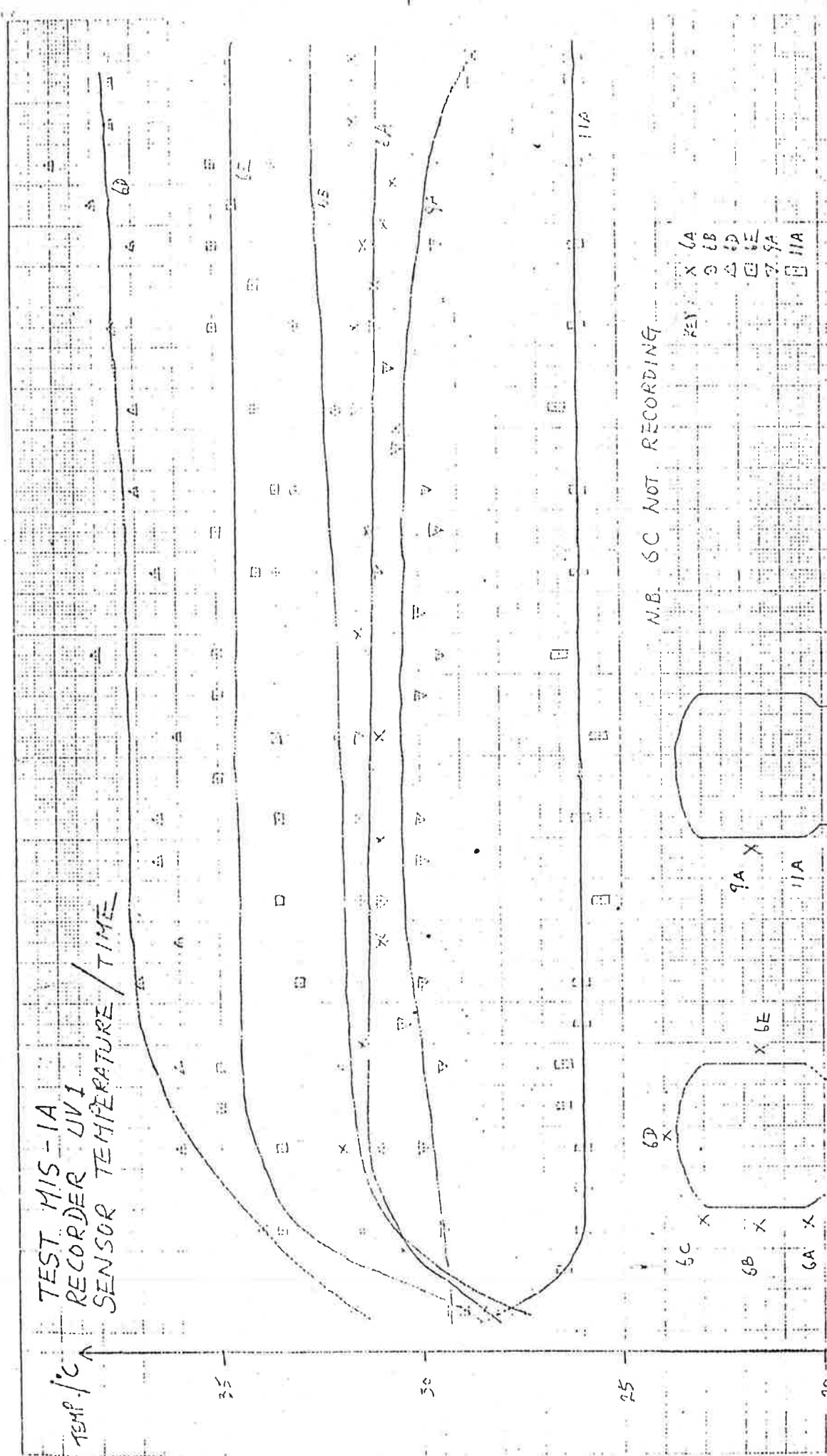
TEST MIS - 1A

PEN RECORDER

AIR VELOCITY / TIME

AIR VELOCITY
(m/s)10-
9-
8-
7-
6-
5-
4-
3-
2-
1-

Temp. / °C



W.B. SC NOT. RECORDING.

LA 18 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1041 1042 1043 1044 1045 1046 1047 1048 1049 1050 105

VIEW FROM REAR

SECTIONS: 9 + 11

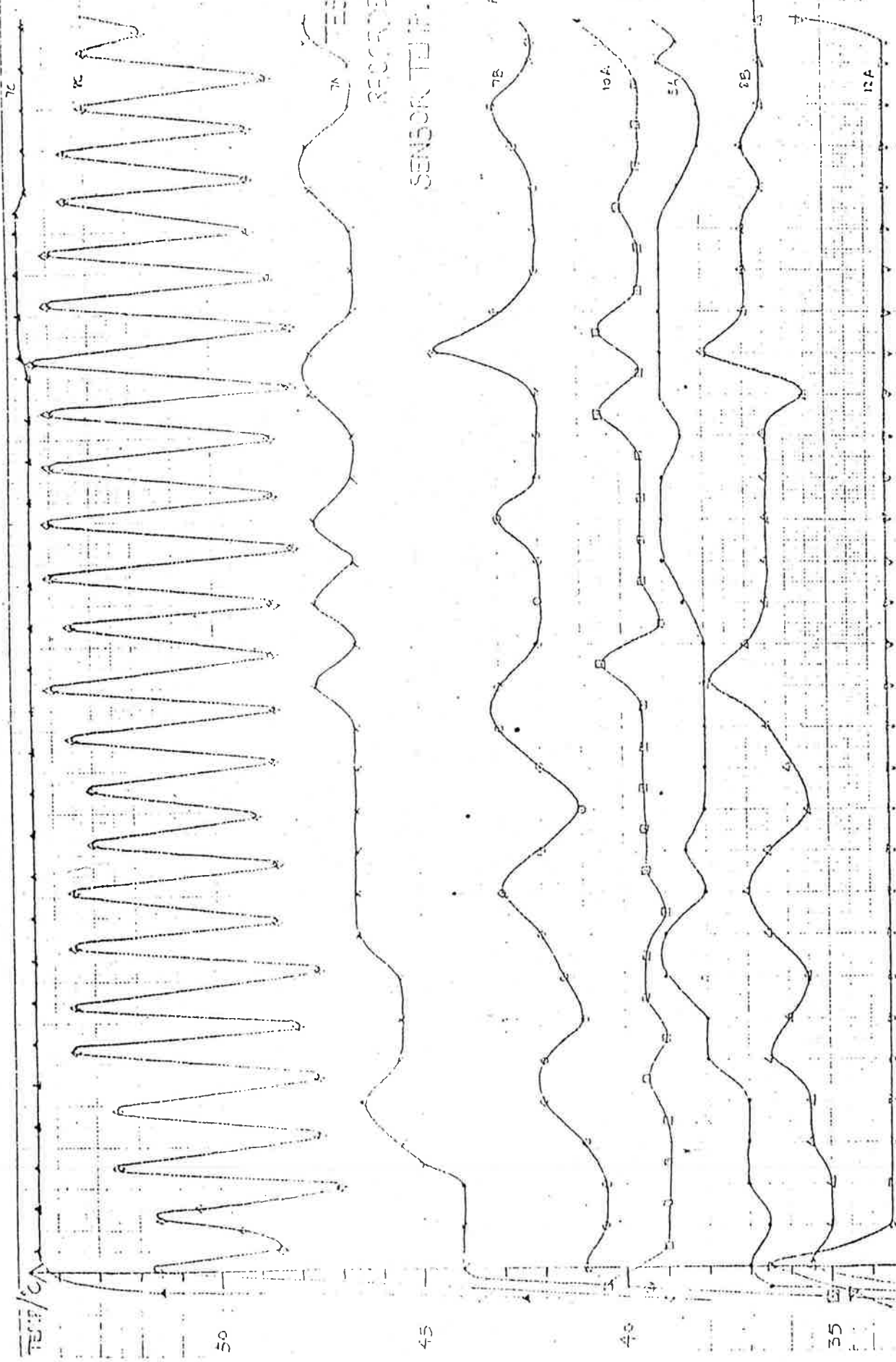
SECTION 6 - 13

Will

15:00 15:05

STOP AT SITE

KEY:
 x 7A
 o 7B
 Δ 8B
 • 5C
 □ 10A
 △ 12A
 ○ 7C
 ◇ 7D



RECORDED
 SENSOR TEMP. TIME



TEST MIS-1A

RECORDER UV-3

SENSOR TEMPERATURE/TIME

CHANNELS SENSORS

X CH 1 1A

o CH 3 3A

o CH 4 2A

o CH 5 2B

o CH 6 4A

CH 1 1A
CH 4 2A

CH 3 3A

CH 5 2B

CH 6 4A

TEMPERATURE (°C)

40

35

30

25

20

STOP

TEST 5

14:00

14:05

14:10

14:15

14:20

14:25

14:30

14:35

14:40

14:45

14:50

14:55

15:00

15:05

15:10

STOP

TEST 5

14:00

14:05

14:10

14:15

14:20

14:25

14:30

14:35

14:40

14:45

14:50

14:55

15:00

15:05

15:10

STOP

TEST 5

14:00

14:05

14:10

14:15

14:20

14:25

14:30

14:35

14:40

14:45

14:50

14:55

15:00

15:05

15:10

STOP

TEST 5

14:00

14:05

14:10

14:15

14:20

14:25

14:30

14:35

14:40

14:45

14:50

14:55

15:00

15:05

15:10

STOP

TEST 5

14:00

14:05

14:10

14:15

14:20

14:25

14:30

14:35

14:40

14:45

14:50

14:55

15:00

15:05

15:10

STOP

TEST 5

14:00

14:05

14:10

14:15

14:20

14:25

14:30

14:35

14:40

14:45

14:50

14:55

15:00

15:05

15:10

STOP

TEST 5

14:00

14:05

14:10

14:15

14:20

14:25

14:30

14:35

14:40

14:45

14:50

14:55

15:00

15:05

15:10

STOP

TEST 5

14:00

14:05

14:10

14:15

14:20

14:25

14:30

14:35

14:40

14:45

14:50

14:55

15:00

15:05

15:10

STOP

TEST 5

14:00

14:05

14:10

14:15

14:20

14:25

14:30

14:35

14:40

14:45

14:50

14:55

15:00

15:05

15:10

STOP

TEST 5

14:00

14:05

14:10

14:15

14:20

14:25

14:30

14:35

14:40

14:45

14:50

14:55

15:00

15:05

15:10

STOP

TEST 5

14:00

14:05

14:10

14:15

14:20

14:25

14:30

14:35

14:40

14:45

14:50

14:55

15:00

15:05

15:10

STOP

TEST 5

14:00

14:05

14:10

14:15

14:20

14:25

14:30

14:35

14:40

14:45

14:50

14:55

15:00

15:05

15:10

STOP

TEST 5

14:00

14:05

14:10

14:15

14:20

14:25

14:30

14:35

14:40

14:45

14:50

14:55

15:00

15:05

15:10

STOP

TEST 5

14:00

14:05

14:10

14:15

14:20

14:25

14:30

14:35

14:40

14:45

14:50

14:55

15:00

15:05

15:10

STOP

TEST 5

14:00

14:05

14:10

14:15

14:20

14:25

14:30

14:35

14:40

14:45

14:50

14:55

15:00

15:05

15:10

STOP

TEST 5

14:00

14:05

14:10

14:15

14:20

14:25

14:30

14:35

14:40

14:45

14:50

14:55

15:00

15:05

15:10

STOP

TEST 5

14:00

14:05

14:10

14:15

14:20

14:25

14:30

14:35

14:40

14:45

14:50

14:55

15:00

15:05

15:10

STOP

TEST 5

14:00

14:05

14:10

14:15

14:20

14:25

14:30

14:35

14:40

14:45

14:50

14:55

15:00

15:05

15:10

STOP

TEST 5

14:00

14:05

14:10

14:15

AIR VELOCITY (m/s)

10.5 m/s

TEST MIS - 1 AR
PEN RECORDER
AIR VELOCITY / TIME

TRAIN
REACHES
SUMP (2.06) AND 1 IMPULSE FAN ON

2.05
TRAIN
LEAVES
LOF

2.15

2.20

2.25
P/C & RESET

2.30

2.35

2.40

2.45

2.50

2.55

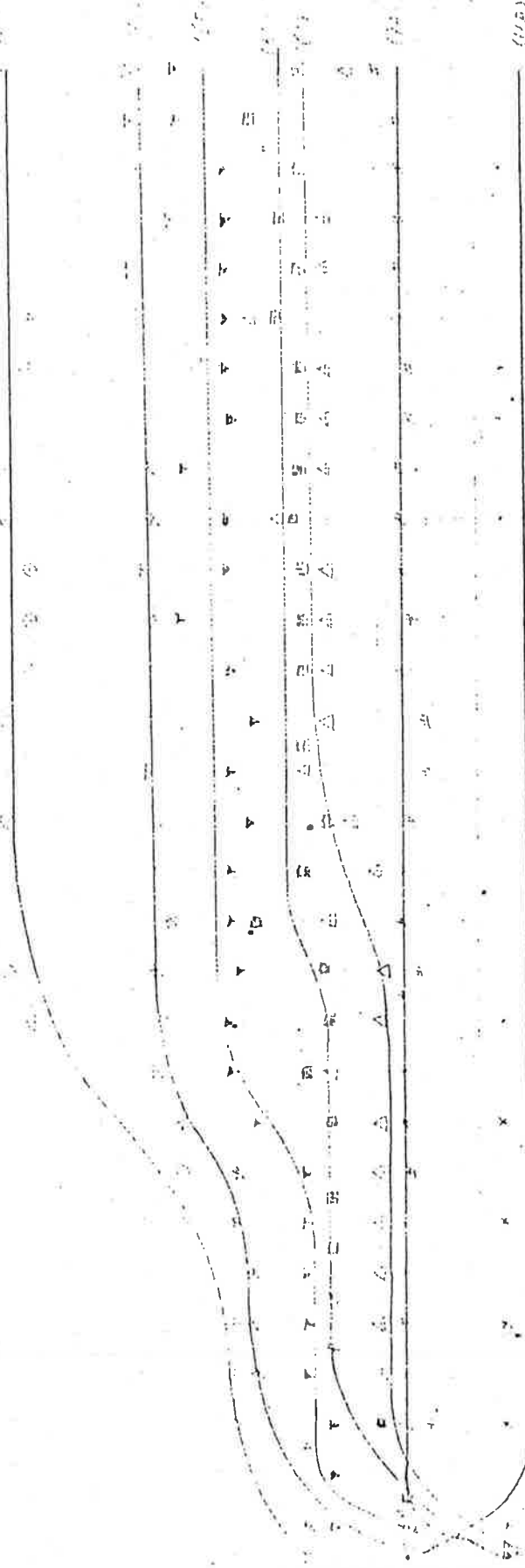
3.00

3.05

END OF TEST

TIME

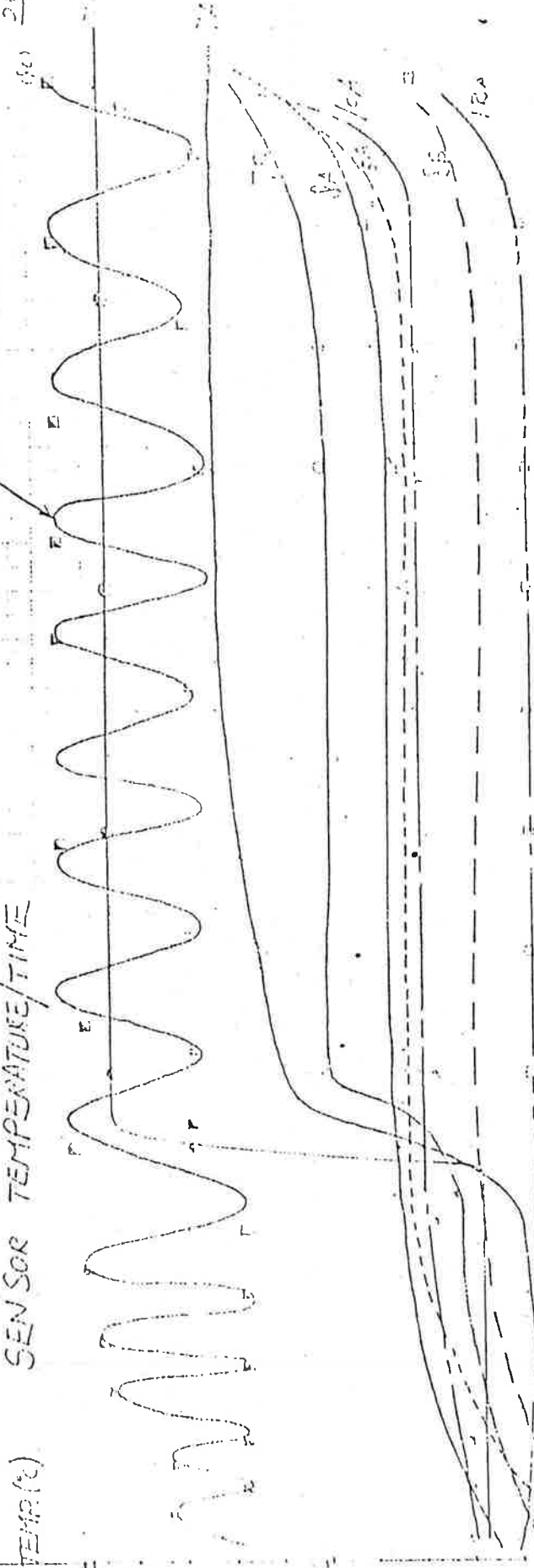
TEST MIS-LAR RECORDER UV-1 SENSOR TEMPERATURE/TIME



TEST MIS-IAR
RECORDER UV-2
SENSOR TEMPERATURE/TIME

THE TEMP. OSCILLATES WITH A PERIOD OF 2.5 MIN.
APPROXIMATELY THE TEMP. DOES NOT EXCEED
5°C

TEMP (°C)



VIEW FROM REAR



TIME (min)

10 1415
20 1425
30 1435
40 1445
50 1455
60 1505
70 1515

END OF TEST

1 IMPULSE ON CN
2 STOP AT TEST SITE
A/CZ RESET

TEMPERATURE (°C)

TEST MJS-1AR

RECORDER UV-5

SENSOR TEMPERATURE/TIME

CHANNELS SENSORS

X CH1 1A

○ CH3 3A

△ CH4 4A

□ CH5 5A

◇ CH6 6A

25

30

35

40

45

50

55

60

65

70

75

80

85

90

95

100

105

110

115

120

125

130

135

140

145

150

155

160

165

170

175

180

185

190

195

200

205

210

215

220

225

230

235

240

245

250

255

260

265

270

275

280

285

290

295

300

305

310

315

320

325

330

335

340

345

350

355

360

365

370

375

380

385

390

395

400

405

410

415

420

425

430

435

440

445

450

455

460

465

470

475

480

485

490

495

500

505

510

515

520

525

530

535

540

545

550

555

560

565

570

575

580

585

590

595

600

605

610

615

620

625

630

635

640

645

650

655

660

665

670

675

680

685

690

695

700

705

710

715

720

725

730

735

740

745

750

755

760

765

770

775

780

785

790

795

800

805

810

815

820

825

830

835

840

845

850

855

860

865

870

875

880

885

890

895

900

905

910

915

920

925

930

935

940

945

950

955

960

965

970

975

980

985

990

995

1000

1005

1010

1015

1020

1025

1030

1035

1040

1045

1050

1055

1060

1065

1070

1075

1080

1085

1090

1095

1100

1105

1110

1115

1120

1125

1130

1135

1140

1145

1150

1155

1160

1165

1170

1175

1180

1185

1190

1195

1200

1205

1210

1215

1220

1225

1230

1235

1240

1245

1250

1255

1260

1265

1270

1275

1280

1285

1290

1295

1300

1305

1310

1315

1320

1325

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1500

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1560

1565

1570

1575

1580

1585

1590

1595

1600

1605

1610

1615

1620

1625

1630

1635

1640

1645

1650

1655

1660

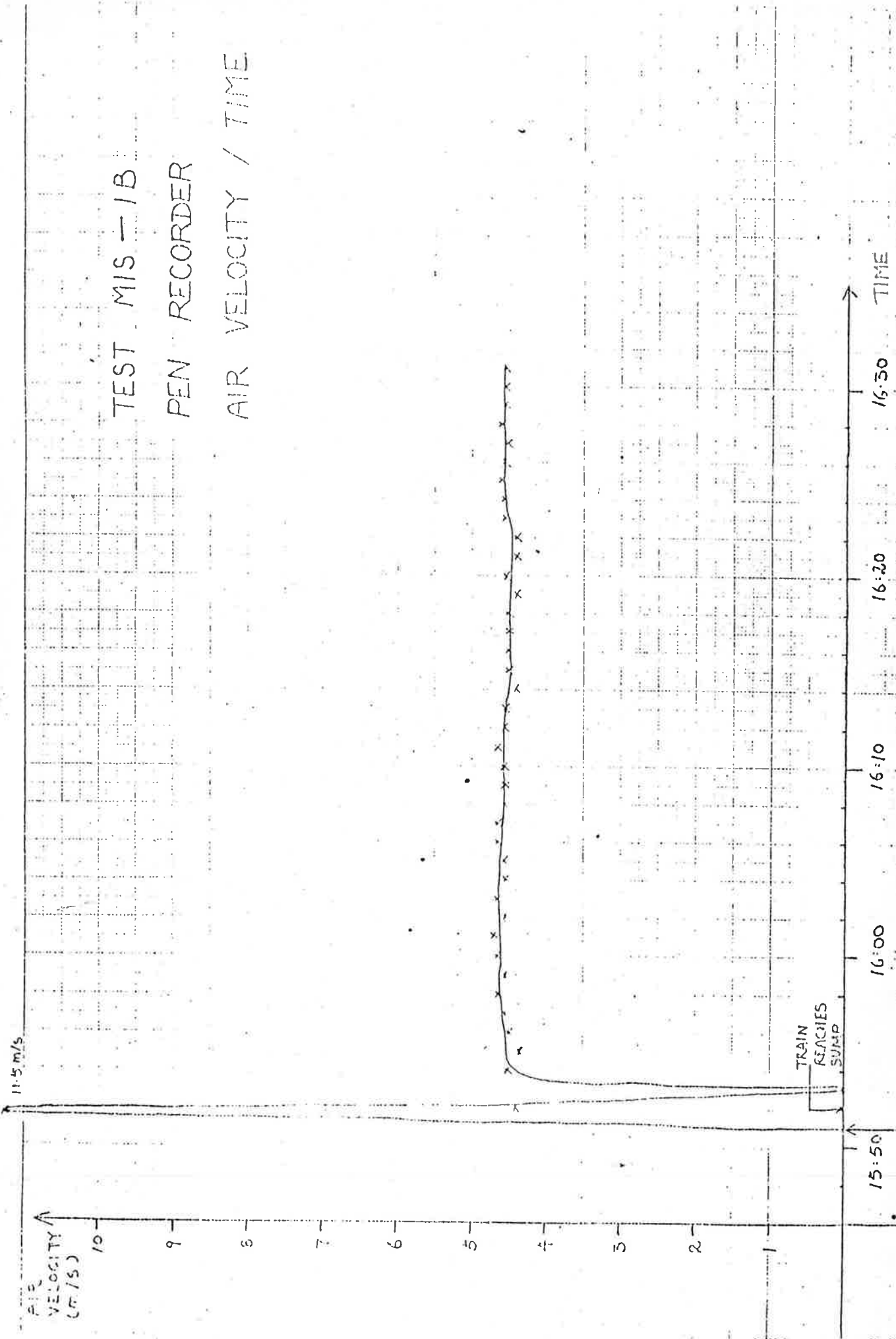
1665

1670

TEST MIS-1B

PEN RECORDER

AIR VELOCITY / TIME



KEY

TEST MIS-1B
RECORDER LIV-1
SENSOR TEMPERATURE/TIME

66D
66E
X 6A
65A
611A

TEMP.
(°C)

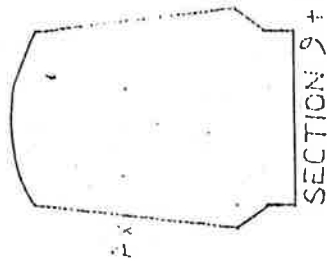
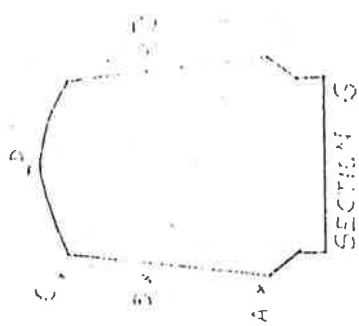
66D

66E

6A, 6B

9A

11A



VIEW FROM REAR

TEST ENDS

STOP AT
TEST TIME (1552)

TIME
(min)

60

50

40

30

20

10

0

1641

1631

1621

1611

1601

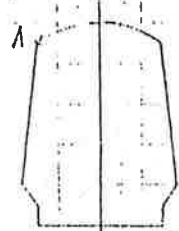
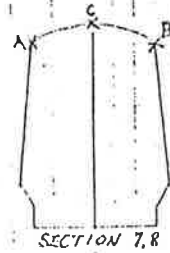
1551

AT 1551

TEST MIS-1B
RECORDER UV-2
SENSOR TEMPERATURE/TIME

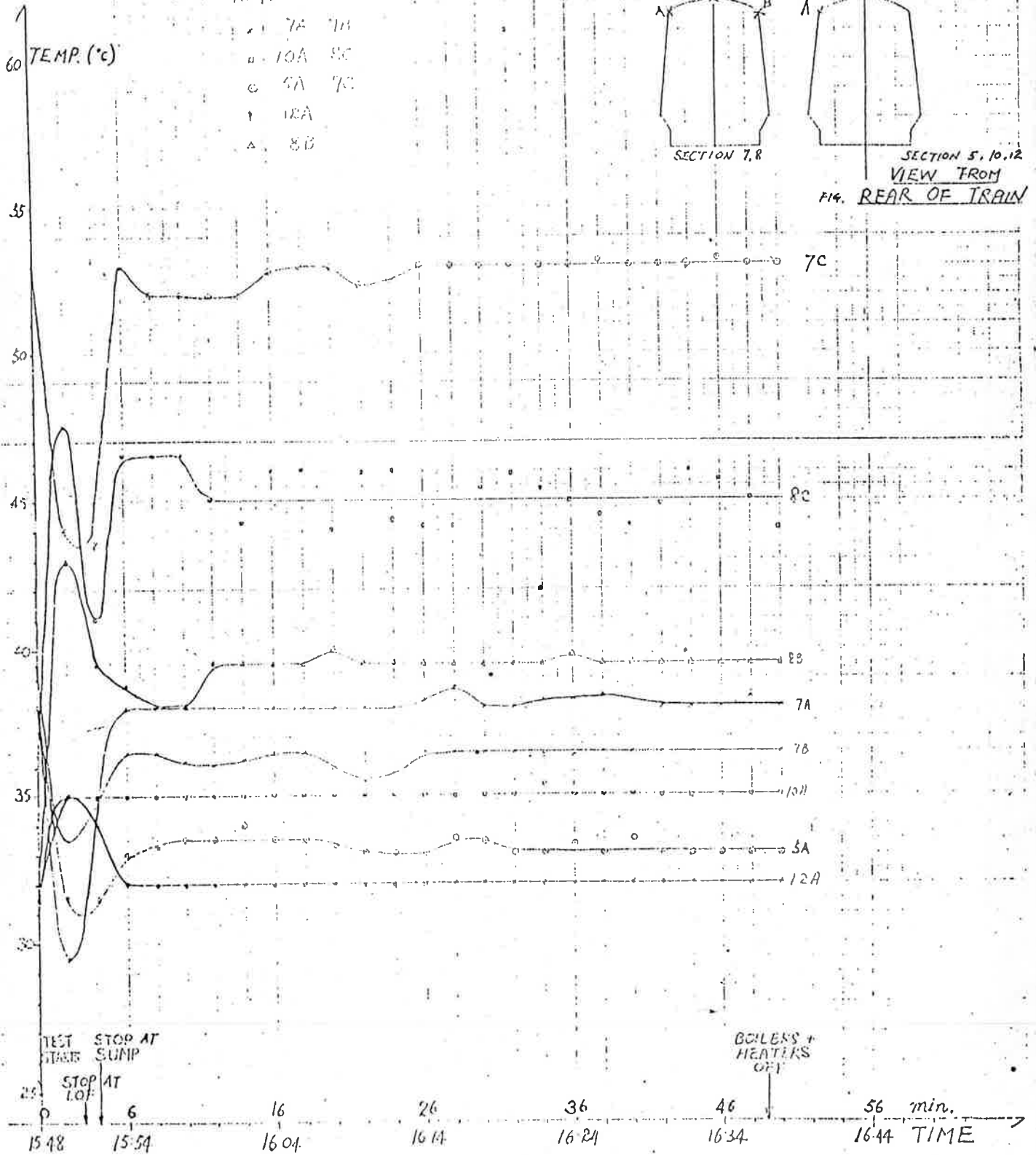
KEY.

- 7A 7B
- 10A 8C
- 5A 7C
- † 12A
- △ 8B



VIEW FROM

FIG. REAR OF TRAIN



TEST MIS-18

RECORDER UV-3

SENSOR TEMPERATURE / TIME

CHANNELS SENSORS

X CH1 1A

CH3 2A

CH4 2A

CH5 2B

CH6 4A

CH1 1A

CH3 2A
CH4 2A

CH5 2B

CH6 4A

TEMPERATURE (°C)

2 FANS
ON

STOP
TEST
TIME

END OF
TEST

15:47

15:45

16:05

16:15

16:25

16:35

16:45

TIME

TEST MIS - 2

PEN RECORDER

AIR VELOCITY / TIME

AIR VELOCITY

(m/s)

7.5 m/s

4.2 m/s

TEST
STARTED

A/C 3 OFF A/C 4 OFF

IMPULSE FAN ON

TEST ENDS

14:05

14:20

14:35

14:50

15:05

15:20

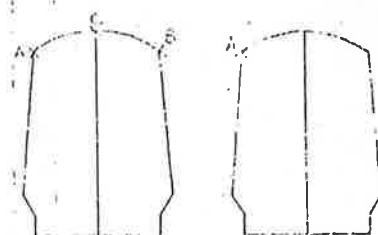
15:35

TIME

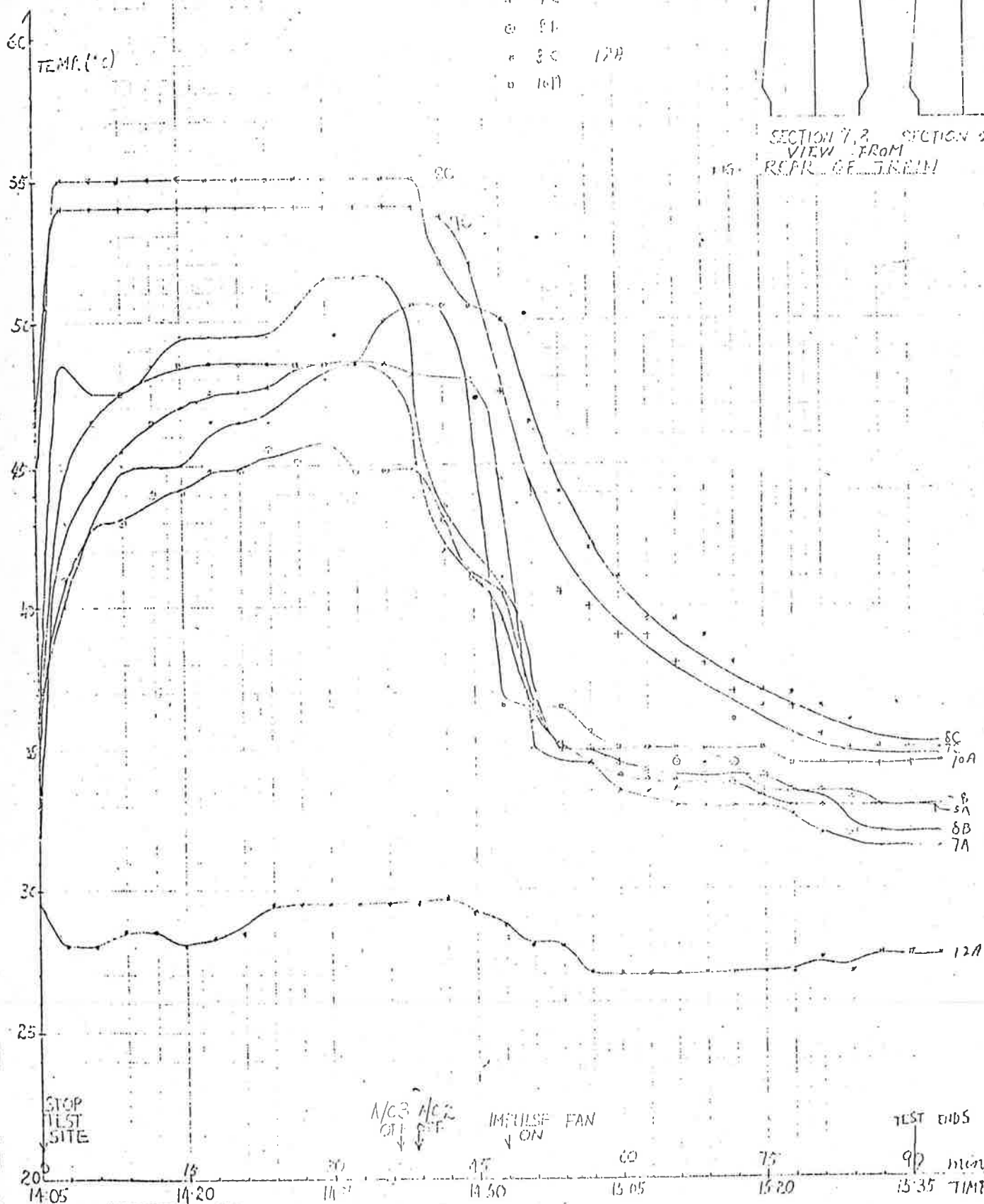
TEST MIS-2
 ENCLOSURE UN-2
 SENSOR TEMPERATURE/TIME

KEY

- A 5A
- V 7A 7B
- U 7C
- Q 8A
- R 8C 12A
- D 10A



SECTION 7,2 SECTION 5,15,17
 VIEW FROM
 REPR. OF GREEN



SENSOR TEMPERATURE

NOV 18 1964
LIBRARY
UNIVERSITY OF MICHIGAN



SECTION: 6

22.11.19

ONTE IMPULSE
FAN ON...

TEST 157

2157

92

15:35. Time

15:20

50:51

65-171

14:35

11.20

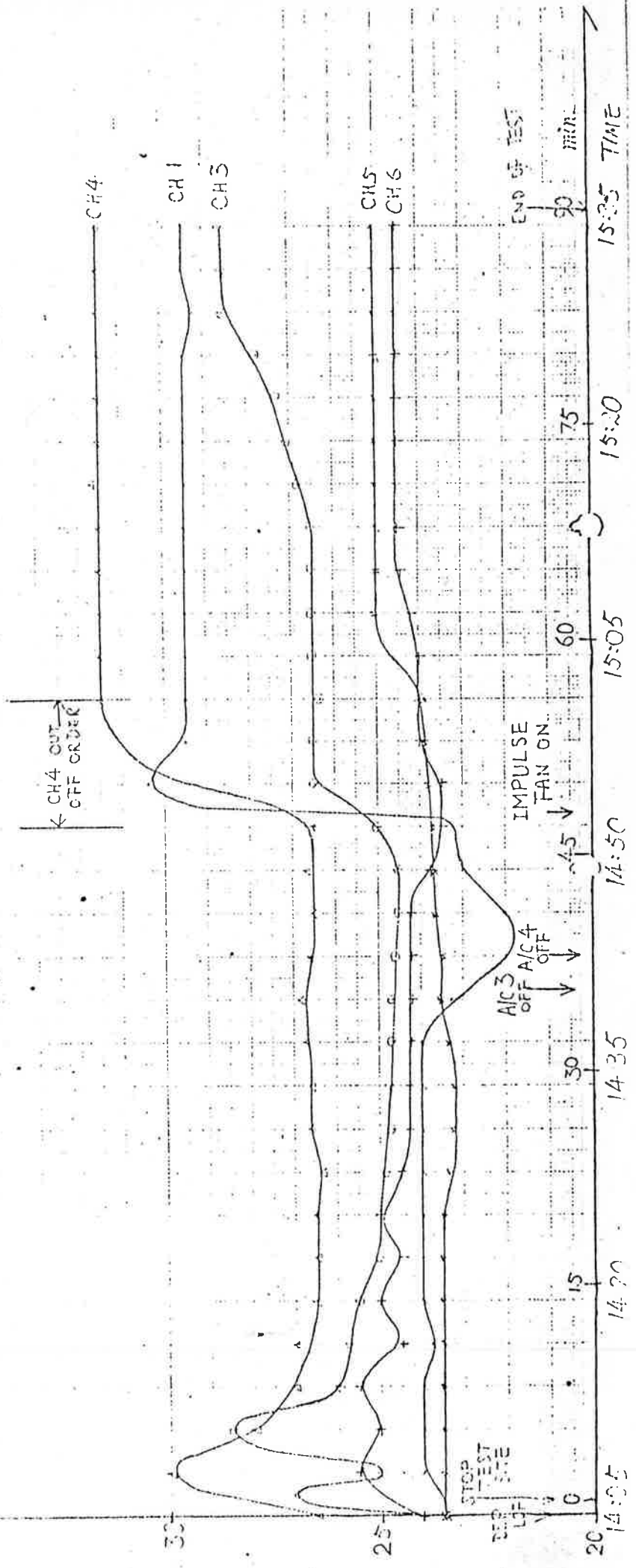
16-55

TEMPERATURE (°C)

TEST MJS-2
RECORDER UV-3

SENSOR TEMPERATURE / TIME

CHANNELS		SENSORS	
X	CH 1	1A	
0	CH 3	3A	
Δ	CH 4	2A	
+	CH 5	1B	
+	CH 6		

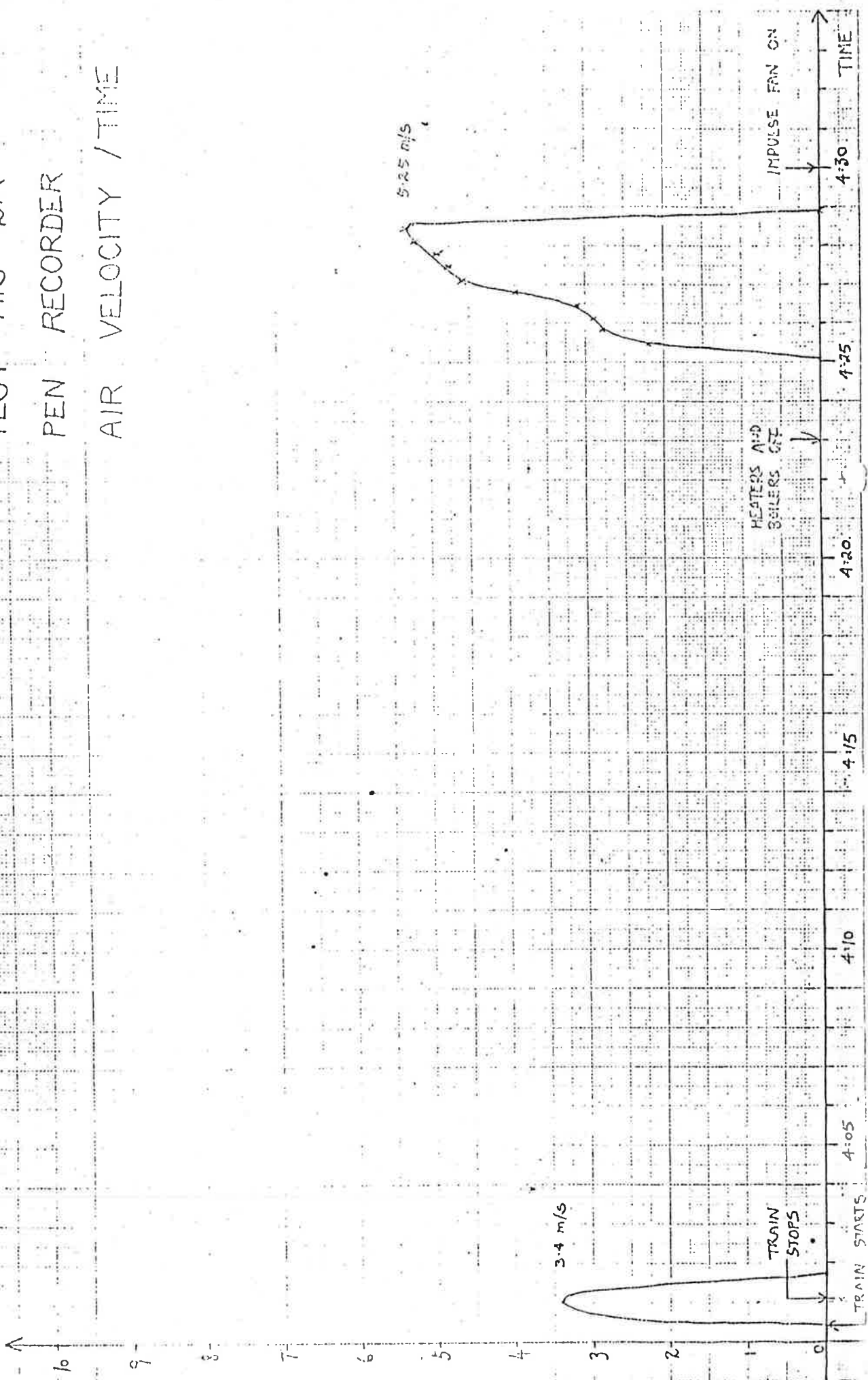


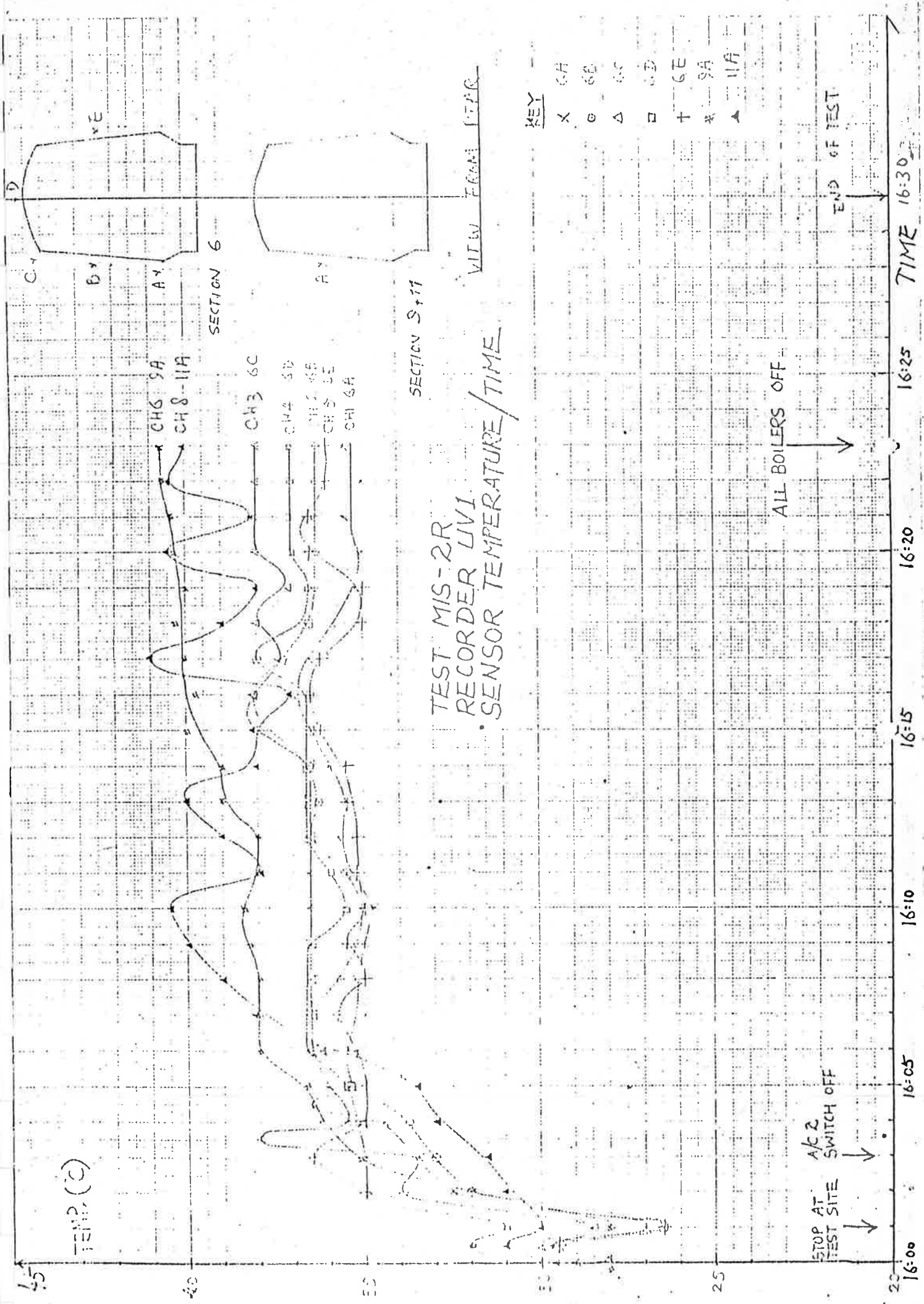
AIR VELOCITY (m/s)

TEST MIS-2R

PEN RECORDER

AIR VELOCITY / TIME



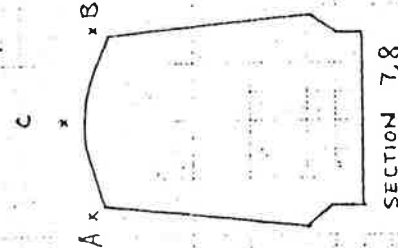


TEMP. (°C)

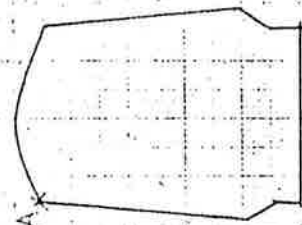
KEY:

- x 10A
- o 7A
- Δ 12A
- 7B
- ◊ 8A
- ⋈ 5A
- * 8B
- ▽ 8C
- + 7C

TEST MIS-2R
RECORDER UV-2
SENSOR TEMPERATURE/TIME



SECTION 7,8

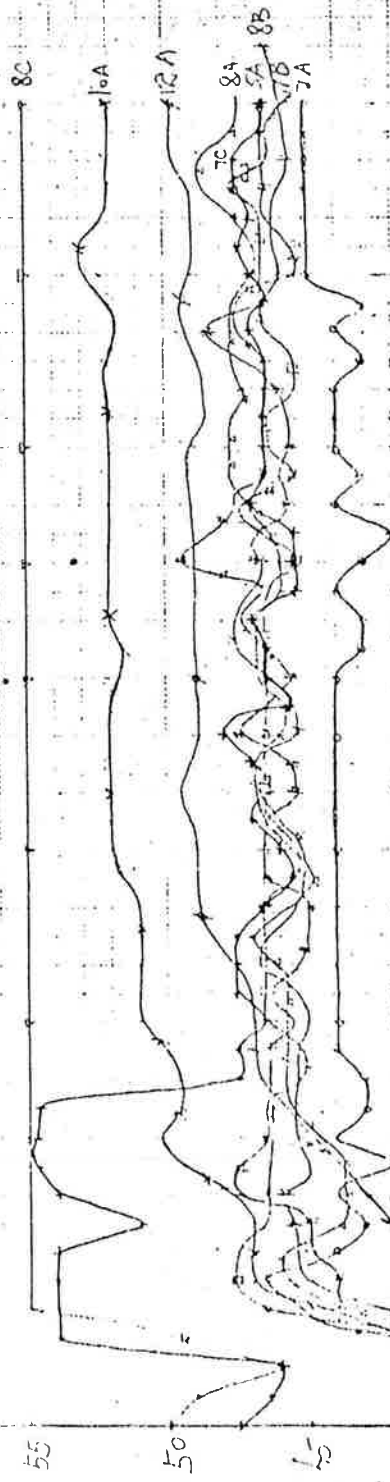


SECTION 5,10,12

VIEW FROM REAR OF TRAIN

HEATERS AND BOILERS OFF

IMPULSE FAN ON



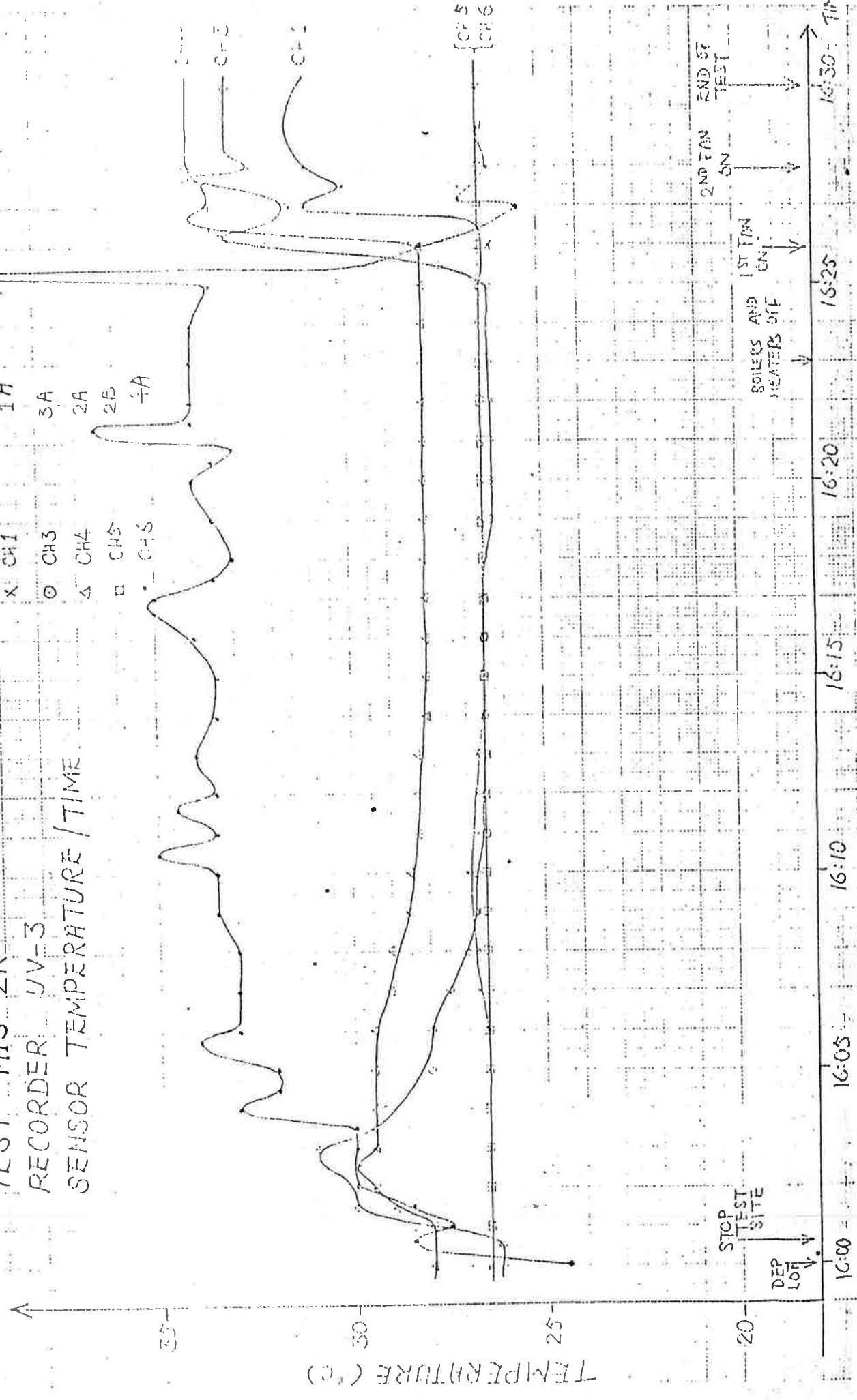
3 BLASTS

STOP AT SUMP

16:00 16:05 16:10 16:15 16:20 16:25 16:30 TIME (min)

TEST MIS-2R
RECORDER UV-3
SENSOR TEMPERATURE / TIME

CHANNEL	SENSOR
X CH1	1A
○ CH3	3A
△ CH4	2A
□ CH5	2B
· CH5	4A

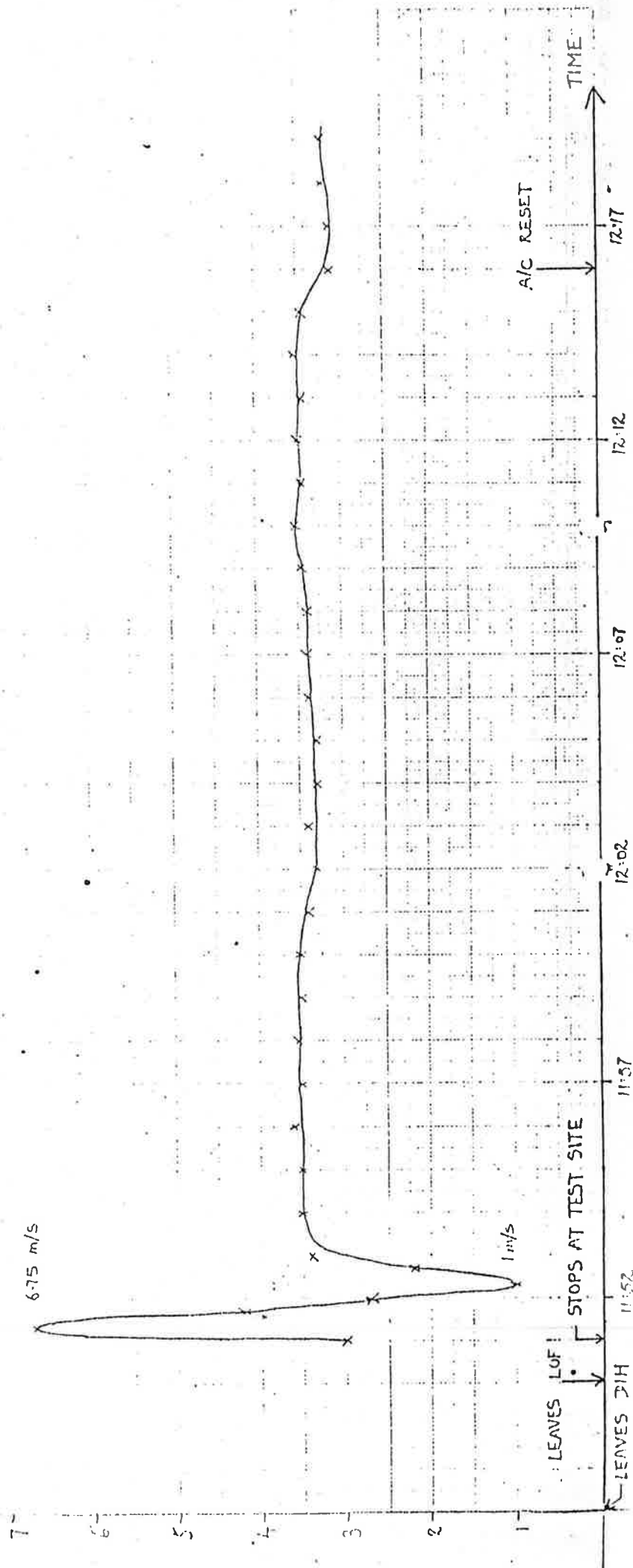


TEST MIS - 3A

PEN RECORDER

AIR VELOCITY / TIME

AIR VELOCITY (m/s)



TEST MIS-3A
 RECORDER UV-1
 SENSOR TEMPERATURE / TIME

TEMP (°C)

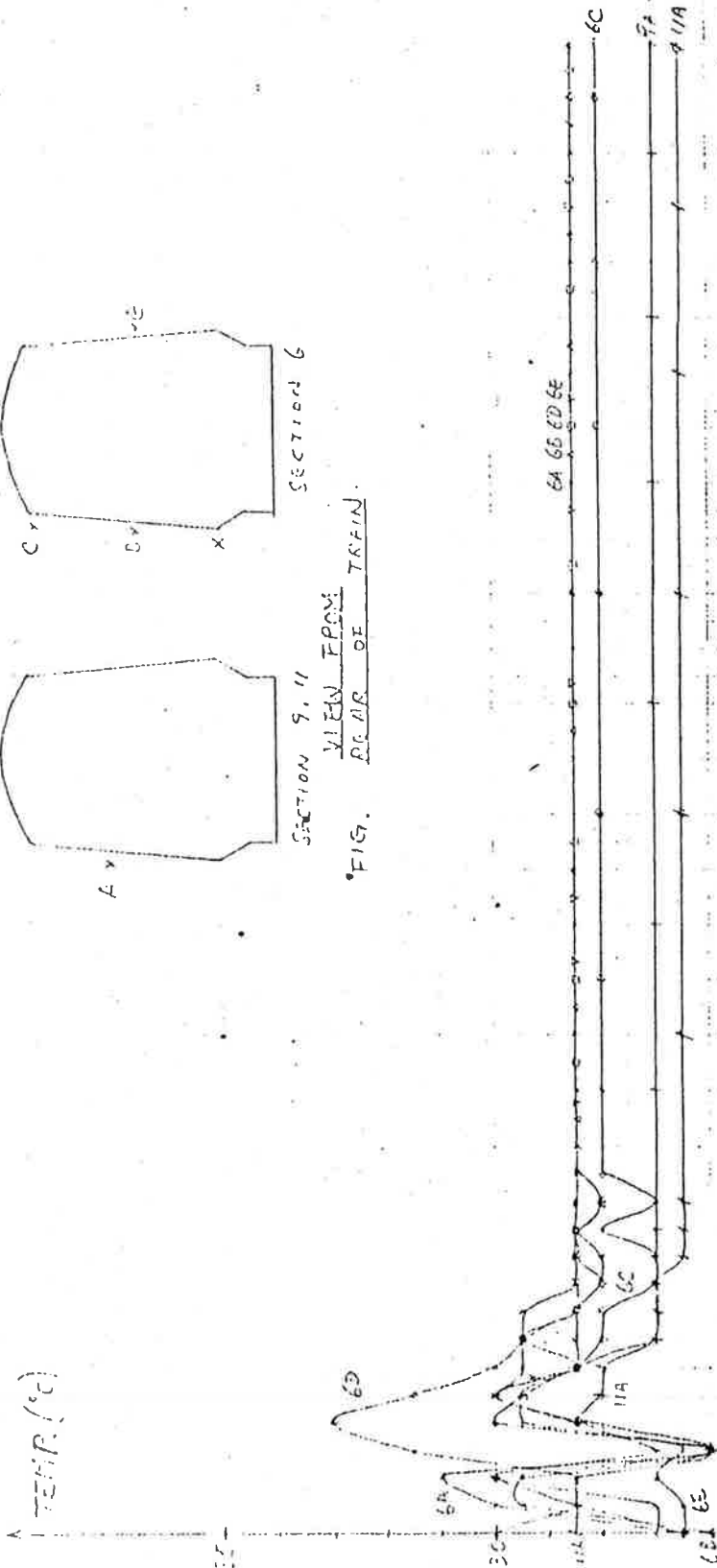
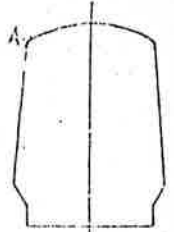


FIG. 9.11
 VIEW FROM
 REAR OF TRAIN.

TEST FILE -3A
 REPORTER - LUV-2
 SENSOR TEMPERATURE/TIME

KEY:

x	7A	7B
o	7C	8A
Δ	8B	8C
Δ	10A	
□	5A	
◇	12A	



SECTION 7.8 VIEW FROM SECTION 5.10, 12
 FIG. REAR OF THERM

