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AFML-TR-64-399
Volume II

# FATIGUE BEHAVIOR OF SHEET MATERIALS FOR THE SUPERSONIC TRANSPORT

## Volume II - Static Test Data, S-N Test Data and S-N Diagrams

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Lockheed-California Company

Technical Report AFML-TR-64-399, Volume II

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## FOREWORD

The final Technical Report covering all the work performed under Exhibit B of Contract No. AF33(657)-11460 is divided into two volumes as follows.

Volume I - Summary and Analysis of Fatigue and Static Test Data

Volume II - Static Test Data, S-N Test Data and S-N Diagrams

This work was conducted at the Lockheed-California Company, a division of the Lockheed Aircraft Corporation. The time period covered by this report is May 1, 1963 to December 31, 1964. The manuscript was released by the authors in December 1964 for publication as an RTD technical report.

The work was administered under the direction of the Research and Technology Division of the United States Air Force by Lt. D. C. LaGrone and Mr. C.L. Harmsworth, Project Engineers.

At the Lockheed-California Company, this program was one of a group of three supersonic transport research and development programs under the administrative direction of R. E. Reedy, Assistant to SST General Manager; R. E. Heppe, Chief Engineer - SST; and J. Hong, Assistant Chief Engineer - SST.

Project Manager for this project was M. A. Melcon, Advanced Materials and Methods Department Manager, assisted by Principal Investigator A. J. McCulloch. Mr. L. Young and Mr. L. Bakow assisted in the technical analysis and preparation of the final report.

Design and operation of test equipment was the responsibility of R. H. Wells, Head, Structures Test Group, assisted by R. J. Cox, and R. L. Lowe. W. R. Brewer was responsible for design and installation of the load control and load cycling equipment. J. A. Knotts, Jr., and P. S. Starrett were responsible for design and fabrication of the temperature cycling equipment.

This technical report has been reviewed and is approved.



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## ABSTRACT

As required by the contract, static and constant load amplitude fatigue test data were generated for .050 inch 8-1-1 titanium (duplex-annealed), .025 inch PH14-8Mo (SRH 1050), and .025 inch INCO 718 (20% cold rolled and aged at 1275°F). Plain, center notched, and fusion welded specimens were tested at room temperature, 400°F, and 650°F. Specimens with no prior exposure, and specimens with prior exposure to a constant stress at 400°F or 650°F for 100, 1000, or 5000 hours were tested. The constant stress during exposure of the titanium specimens was 25,000 psi and the corresponding stress for the steel and nickel base alloys was 40,000 psi.

For convenience in the use of this basic information, the static and fatigue test data, plots of static strengths and elongation versus test temperature, S-N curves for test stress range ratios of R = 0.1 and R = - 0.5, and S-N diagrams derived from the curves are presented in this volume.

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## SECTION 1

## INTRODUCTION

The test program described in detail in Volume I of the report was designed to investigate the fatigue properties of .050 inch 8-1-1 titanium (duplex-annealed), 0.25 inch PH14-8Mo (SRH 1050), and .025 inch INCO 718 (20% cold rolled and aged at 1275°F), for possible structural applications in the supersonic transport. In addition to the fatigue data, static strength data were also generated.

A substantial part of the test program involved the generation of data in constant load amplitude fatigue tests. These tests were carried out at stress ratios of R = 0.1 and R = - 0.5 and S-N curves were defined. To define these curves, the test data were first plotted in terms of log stress versus log cycles and straight lines were fitted to the mean values in the high stress-low cycle range of data and also in the low stress-high cycle range. Semilog representations of these lines were then faired to produce the conventional S-N curves. A statistical analysis of the test data was not made. The relatively small number of data points for each of the large number of combinations of test variables did not permit the definition of statistically significant results with a reasonable degree of confidence. A discussion of this aspect of the definition of S-N curves is presented in Appendix V of Volume I. The S-N curves were then used in the derivation of S-N diagrams. For convenience in the use of the voluminous basic data, they are presented in this second volume of the report.

## SECTION 2

## SUMMARY

Static and constant load amplitude (S-N) tests of .050 inch 8-1-1 titanium (duplex-annealed), .025 inch PH14-8Mo (SRH 1050), and .025 inch INCO 718 (20% cold rolled and aged at 1275°F) provided a substantial part of the test data generated under the contract. For convenience in the use of this information, it is presented in tabular and graphical form in this volume of the report. For rapid location of particular information, Table 1 locates the tables and plots of static tensile data, and Tables 2, 3 and 4 locate the tables, plots of S-N data, and the S-N diagrams derived from test data. In addition, Table 5 presents the static tensile data obtained to check material quality before initiation of the main test program.

TABLE 1 LOCATIONS OF STATIC STRENGTH DATA FOR TESTS PERFORMED AT ROOM TEMPERATURE, 400 AND 650° F

| MATERIAL | PRIOR SOAK | | | $F_{tu}$, $F_{ty}$, and ELONGATION | | $F_{tu}$ | |
|---|---|---|---|---|---|---|---|
| | | | | PLAIN SPECIMENS | | FUSION-WELDED AND PLANISHED SPECIMENS | |
| | STRESS (ksi) | TEMP. (°F) | TIME (hr) | TABLE | FIGURE | TABLE | FIGURE |
| 8-1-1 Titanium, Duplex Annealed | — | — | — | 5 & 6 | 1 | 9 | 22 |
| | 25 | 400 | 100 | 6 | 2 | 9 | 23 |
| | 25 | 400 | 1000 | 6 | 3 | 9 | 24 |
| | 25 | 400 | 5000 | 6 | 4 | 9 | 25 |
| | 25 | 650 | 100 | 6 | 5 | 9 | 26 |
| | 25 | 650 | 1000 | 6 | 6 | 9 | 27 |
| | 25 | 650 | 5000 | 6 | 7 | 9 | 28 |
| PH14-8Mo (SRH 1050) Stainless Steel | — | — | — | 5 & 7 | 8 | 9 | 29 |
| | 40 | 400 | 100 | 7 | 9 | 9 | 30 |
| | 40 | 400 | 1000 | 7 | 10 | 9 | 31 |
| | 40 | 400 | 5000 | 7 | 11 | 9 | 32 |
| | 40 | 650 | 100 | 7 | 12 | 9 | 33 |
| | 40 | 650 | 1000 | 7 | 13 | 9 | 34 |
| | 40 | 650 | 5000 | 7 | 14 | 9 | 35 |
| INCO 718 20% Cold Rolled, Aged at 1275°F | — | — | — | 5 & 8 | 15 | 9 | 36 |
| | 40 | 400 | 100 | 8 | 16 | 9 | 37 |
| | 40 | 400 | 1000 | 8 | 17 | 9 | 38 |
| | 40 | 400 | 5000 | 8 | 18 | 9 | 39 |
| | 40 | 650 | 100 | 8 | 19 | 9 | 40 |
| | 40 | 650 | 1000 | 8 | 20 | 9 | 41 |
| | 40 | 650 | 5000 | 8 | 21 | 9 | 42 |

TABLE 2 LOCATIONS OF CONSTANT AMPLITUDE FATIGUE TEST DATA FOR CENTER-NOTCHED SPECIMENS

| MATERIAL | PRIOR SOAK | | | TESTED AT ROOM TEMP. | | | TESTED AT 400°F | | | TESTED AT 650°F | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | STRESS (ksi) | TEMP (°F) | TIME (hr) | S-N DATA IN TABLE | S-N CURVES IN FIGURE | S-N DIAGRAM IN FIGURE | S-N DATA IN TABLE | S-N CURVES IN FIGURE | S-N DIAGRAM IN FIGURE | S-N DATA IN TABLE | S-N CURVES IN FIGURE | S-N DIAGRAM IN FIGURE |
| | — | — | — | 10 | 43 | 232 | 11 | 44 | 239 | 12 | 45 | 246 |
| | 25 | 400 | 100 | 13 | 46 | 233 | 14 | 47 | 240 | 15 | 48 | 247 |
| 8-1-1 | 25 | 400 | 1000 | 16 | 49 | 234 | 17 | 50 | 241 | 18 | 51 | 248 |
| Titanium | 25 | 400 | 5000 | 19 | 52 | 235 | 20 | 53 | 242 | 21 | 54 | 249 |
| Duplex | 25 | 650 | 100 | 22 | 55 | 236 | 23 | 56 | 243 | 24 | 57 | 250 |
| Annealed | 25 | 650 | 1000 | 25 | 58 | 237 | 26 | 59 | 244 | 27 | 60 | 251 |
| | 25 | 650 | 5000 | 28 | 61 | 238 | 29 | 62 | 245 | 30 | 63 | 252 |
| | — | — | — | 73 | 106 | 295 | 74 | 107 | 302 | 75 | 108 | 309 |
| | 40 | 400 | 100 | 76 | 109 | 296 | 77 | 110 | 303 | 78 | 111 | 310 |
| PH14-8Mo | 40 | 400 | 1000 | 79 | 112 | 297 | 80 | 113 | 304 | 81 | 114 | 311 |
| (SRH 1050) | 40 | 400 | 5000 | 82 | 115 | 298 | 83 | 116 | 305 | 84 | 117 | 312 |
| Stainless | 40 | 650 | 100 | 85 | 118 | 299 | 86 | 119 | 306 | 87 | 120 | 313 |
| Steel | 40 | 650 | 1000 | 88 | 121 | 300 | 89 | 122 | 307 | 90 | 123 | 314 |
| | 40 | 650 | 5000 | 91 | 124 | 301 | 92 | 125 | 308 | 93 | 126 | 315 |
| | — | — | — | 136 | 169 | 358 | 137 | 170 | 365 | 138 | 171 | 372 |
| | 40 | 400 | 100 | 139 | 172 | 359 | 140 | 173 | 366 | 141 | 174 | 373 |
| INCO 718 | 40 | 400 | 1000 | 142 | 175 | 360 | 143 | 176 | 367 | 144 | 177 | 374 |
| 20% Cold | 40 | 400 | 5000 | 145 | 178 | 361 | 146 | 179 | 368 | 147 | 180 | 375 |
| Rolled, | 40 | 650 | 100 | 148 | 181 | 362 | 149 | 182 | 369 | 150 | 182 | 376 |
| Aged at | 40 | 650 | 1000 | 151 | 184 | 363 | 152 | 185 | 370 | 153 | 186 | 377 |
| 1275°F | 40 | 650 | 5000 | 154 | 187 | 364 | 155 | 188 | 371 | 156 | 189 | 378 |

TABLE 3 LOCATIONS OF CONSTANT AMPLITUDE FATIGUE TEST DATA FOR UNNOTCHED SPECIMENS

| MATERIAL | PRIOR SOAK | | | TESTED AT ROOM TEMP. | | | TESTED AT 400°F | | | TESTED AT 650°F | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | STRESS (ksi) | TEMP (°F) | TIME (hr) | S-N DATA IN TABLE | S-N CURVES IN FIGURE | S-N DIAGRAM IN FIGURE | S-N DATA IN TABLE | S-N CURVES IN FIGURE | S-N DIAGRAM IN FIGURE | S-N DATA IN TABLE | S-N CURVES IN FIGURE | S-N DIAGRAM IN FIGURE |
| 8-1-1 Titanium Duplex Annealed | — | — | — | 31 | 64 | 253 | 32 | 65 | 260 | 33 | 66 | 267 |
| | 25 | 400 | 100 | 34 | 67 | 254 | 35 | 68 | 261 | 36 | 69 | 268 |
| | 25 | 400 | 1000 | 37 | 70 | 255 | 38 | 71 | 262 | 39 | 72 | 269 |
| | 25 | 400 | 5000 | 40 | 73 | 256 | 41 | 74 | 263 | 42 | 75 | 270 |
| | 25 | 650 | 100 | 43 | 76 | 257 | 44 | 77 | 264 | 45 | 78 | 271 |
| | 25 | 650 | 1000 | 46 | 79 | 258 | 47 | 80 | 265 | 48 | 81 | 272 |
| | 25 | 650 | 5000 | 49 | 82 | 259 | 50 | 83 | 266 | 51 | 84 | 273 |
| PH14-8Mo (SRH1050) Stainless Steel | — | — | — | 94 | 127 | 316 | 95 | 128 | 323 | 96 | 129 | 330 |
| | 40 | 400 | 100 | 97 | 130 | 317 | 98 | 131 | 324 | 99 | 132 | 331 |
| | 40 | 400 | 1000 | 100 | 133 | 318 | 101 | 134 | 325 | 102 | 135 | 332 |
| | 40 | 400 | 5000 | 103 | 136 | 319 | 104 | 137 | 326 | 105 | 138 | 333 |
| | 40 | 650 | 100 | 106 | 139 | 320 | 107 | 140 | 327 | 108 | 141 | 334 |
| | 40 | 650 | 1000 | 109 | 142 | 321 | 110 | 143 | 328 | 111 | 144 | 335 |
| | 40 | 650 | 5000 | 112 | 145 | 322 | 113 | 146 | 329 | 114 | 147 | 336 |
| INCO 718 20% Cold Rolled, Aged at 1275°F | — | — | — | 157 | 190 | 379 | 158 | 191 | 386 | 159 | 192 | 393 |
| | 40 | 400 | 100 | 160 | 193 | 380 | 161 | 194 | 387 | 162 | 195 | 394 |
| | 40 | 400 | 1000 | 163 | 196 | 381 | 164 | 197 | 388 | 165 | 198 | 395 |
| | 40 | 400 | 5000 | 166 | 199 | 382 | 167 | 200 | 389 | 168 | 201 | 396 |
| | 40 | 650 | 100 | 169 | 202 | 383 | 170 | 203 | 390 | 171 | 204 | 397 |
| | 40 | 650 | 1000 | 172 | 205 | 384 | 173 | 206 | 391 | 174 | 207 | 398 |
| | 40 | 650 | 5000 | 175 | 208 | 385 | 176 | 209 | 392 | 177 | 210 | 399 |

TABLE 4 LOCATIONS OF CONSTANT AMPLITUDE FATIGUE TEST DATA FOR FUSION-WELDED & PLANISHED SPECIMENS

| MATERIAL | PRIOR SOAK | | | TESTED AT ROOM TEMP. | | | TESTED AT 400°F | | | TESTED AT 650°F | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | STRESS (ksi) | TEMP (°F) | TIME (hr) | S-N DATA IN TABLE | S-N CURVES IN FIGURE | S-N DIAGRAM IN FIGURE | S-N DATA IN TABLE | S-N CURVES IN FIGURE | S-N DIAGRAM IN FIGURE | S-N DATA IN TABLE | S-N CURVES IN FIGURE | S-N DIAGRAM IN FIGURE |
| 8-1-1 Titanium Duplex Annealed | — | — | — | 52 | 85 | 274 | 53 | 86 | 281 | 54 | 87 | 288 |
| | 25 | 400 | 100 | 55 | 88 | 275 | 56 | 89 | 282 | 57 | 90 | 289 |
| | 25 | 400 | 1000 | 58 | 91 | 276 | 59 | 92 | 283 | 60 | 93 | 290 |
| | 25 | 400 | 5000 | 61 | 94 | 277 | 62 | 95 | 284 | 63 | 96 | 291 |
| | 25 | 650 | 100 | 64 | 97 | 278 | 65 | 98 | 285 | 66 | 99 | 292 |
| | 25 | 650 | 1000 | 67 | 100 | 279 | 68 | 101 | 286 | 69 | 102 | 293 |
| | 25 | 650 | 5000 | 70 | 103 | 280 | 71 | 104 | 287 | 72 | 105 | 294 |
| PH14-8Mo (SRH1050) Stainless Steel | — | — | — | 115 | 148 | 337 | 116 | 149 | 344 | 117 | 150 | 351 |
| | 40 | 400 | 100 | 118 | 151 | 338 | 119 | 152 | 345 | 120 | 153 | 352 |
| | 40 | 400 | 1000 | 121 | 154 | 339 | 122 | 155 | 346 | 123 | 156 | 353 |
| | 40 | 400 | 5000 | 124 | 157 | 340 | 125 | 158 | 347 | 126 | 159 | 354 |
| | 40 | 650 | 100 | 127 | 160 | 341 | 128 | 161 | 348 | 129 | 162 | 355 |
| | 40 | 650 | 1000 | 130 | 163 | 342 | 131 | 164 | 349 | 132 | 165 | 356 |
| | 40 | 650 | 5000 | 133 | 166 | 343 | 134 | 167 | 350 | 135 | 168 | 357 |
| INCO 718 20% Cold Rolled, Aged at 1275°F | — | — | — | 178 | 211 | 400 | 179 | 212 | 407 | 180 | 213 | 414 |
| | 40 | 400 | 100 | 181 | 214 | 401 | 182 | 215 | 408 | 183 | 216 | 415 |
| | 40 | 400 | 1000 | 184 | 217 | 402 | 185 | 218 | 409 | 186 | 219 | 416 |
| | 40 | 400 | 5000 | 187 | 220 | 403 | 188 | 221 | 410 | 189 | 222 | 417 |
| | 40 | 650 | 100 | 190 | 223 | 404 | 191 | 224 | 411 | 192 | 225 | 418 |
| | 40 | 650 | 1000 | 193 | 226 | 405 | 194 | 227 | 412 | 195 | 228 | 419 |
| | 40 | 650 | 5000 | 196 | 229 | 406 | 197 | 230 | 413 | 198 | 231 | 420 |

# SECTION 3

## STATIC TEST DATA

The locations of the tabulated and plotted static test data presented in this section are listed in Table 1.

TABLE 5 STATIC TEST DATA AT ROOM TEMPERATURE

INITIAL MATERIAL INSPECTION TESTS

PLAIN SPECIMENS

| MATERIAL | GAGE (NOMINAL) (inches) | SHEET NO. | LONGITUDINAL GRAIN | | | TRANSVERSE GRAIN | | |
|---|---|---|---|---|---|---|---|---|
| | | | $F_{tu}$ (ksi) | $F_{ty}$ (ksi) | e* (%) | $F_{tu}$ (ksi) | $F_{ty}$ (ksi) | e* (%) |
| 8-1-1 Ti Duplex Annealed | .050 | 1 | 146.7 | 135.0 | 15 | 148.0 | 136.1 | 15 |
| | | 2 | 150.8 | 140.2 | 15 | 148.0 | 136.2 | 15 |
| | | 3 | 144.0 | 131.7 | 14 | 146.5 | 135.6 | 15 |
| | | 4 | 144.7 | 133.2 | 15 | 148.0 | 136.7 | 15 |
| | | 5 | 144.8 | 135.3 | 14 | 148.2 | 136.6 | 15 |
| | | 6 | 149.8 | 135.5 | 13.5 | 153.2 | 140.2 | 15 |
| | | 7 | 148.2 | 135.6 | 14 | 154.1 | 140.5 | 15 |
| | | 8 | 147.5 | 136.2 | 15 | 148.0 | 137.0 | 15 |
| | | 9 | 149.0 | 137.9 | 14 | 150.0 | 138.3 | 14 |
| | | 10 | 146.4 | 135.2 | 14 | 150.0 | 137.9 | 15 |
| PH14-8Mo (SRH 1050) | .025 | 1 | 204.8 | 184.8 | 7 | 200.0 | 182.4 | 5 |
| | | 2 | 198.0 | 180.5 | 10 | 211.3 | 193.5 | 5 |
| | | 3 | 200.0 | 178.0 | 4 | 204.8 | 190.3 | 5 |
| | | 4 | 209.3 | 192.7 | 7 | 202.8 | 188.6 | 6 |
| | | 5 | 211.3 | 190.0 | 6 | 214.1 | 194.4 | 5 |
| | | 6 | 198.8 | 176.0 | 5 | 206.5 | 187.7 | 4 |
| | | 7 | 206.0 | 184.8 | 6 | 215.2 | 197.6 | 6 |
| | | 8 | 200.8 | 188.0 | 5 | 214.5 | 195.2 | 4 |
| INCO 718 20% Cold Rolled, Aged at 1275°F. | .025 | 1 | 225.9 | 207.8 | 12 | 224.0 | 207.3 | 13 |
| | | 2 | 221.6 | 210.0 | 9 | 219.4 | 204.8 | 10 |
| | | 3 | 227.4 | 217.0 | 9 | 217.6 | 202.6 | 7 |
| | | 4 | 215.6 | 202.6 | 12 | 217.0 | 201.8 | 9 |
| | | 5 | 226.4 | 210.0 | 10 | 218.3 | 202.4 | 10 |
| | | 6 | 227.2 | 222.4 | 11 | 215.6 | 200.4 | 10 |
| | | 7 | 220.8 | 208.8 | 10 | 221.4 | 204.8 | 8 |
| | | 8 | 225.6 | 214.4 | 8 | 224.2 | 209.1 | 8 |
| | | 9 | 224.4 | 212.0 | 8 | 216.8 | 200.3 | 7 |
| | | 10 | 224.6 | 213.8 | 8 | 219.5 | 204.2 | 7 |
| | | 11 | 219.6 | 206.5 | 8 | 216.8 | 200.0 | 7 |
| | | 12 | 220.0 | 206.9 | 8 | 216.8 | 204.9 | 7 |
| | | 13 | 221.3 | 209.6 | 8 | 224.8 | 207.3 | 7 |
| | | 14 | 219.8 | 208.8 | 8 | 221.4 | 206.8 | 8 |
| | | 15 | 215.6 | 203.4 | 10 | 224.2 | 208.7 | 8 |
| | | 16 | 219.1 | 210.3 | 9 | 225.0 | 208.7 | 8 |
| | | 17 | 219.5 | 204.0 | 10 | 218.4 | 200.4 | 8 |
| | | 18 | 222.1 | 210.3 | 8 | 219.4 | 203.6 | 8 |
| | | 19 | 217.2 | 204.2 | 8 | 213.4 | 197.6 | 8 |
| | | 20 | 225.9 | 212.9 | 9 | 225.2 | 210.3 | 8 |

* 2-in. Gage Length

TABLE 6 STATIC TEST DATA FOR UNEXPOSED AND EXPOSED PLAIN SPECIMENS
8-1-1 TITANIUM DUPLEX ANNEALED (.050 IN. NOMINAL THICKNESS) TRANSVERSE GRAIN

| Prior Soak | Tested at Room Temp. | | | | Tested at 400°F | | | | Tested at 650°F | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Specimen No. | $F_{tu}$ (ksi) | $F_{ty}$ (ksi) | e* (%) | Specimen No. | $F_{tu}$ (ksi) | $F_{ty}$ (ksi) | e* (%) | Specimen No. | $F_{tu}$ (ksi) | $F_{ty}$ (ksi) | e* (%) |
| None | See Table 5 | | | | A-I-1-42 | 120.1 | 100.5 | 15.0 | A-I-1-58 | 110.8 | 87.1 | 13.5 |
| | | | | | A-I-1-43 | 120.8 | 102.9 | 15.0 | A-I-1-69 | 109.2 | 85.7 | 14.0 |
| | | | | | A-I-1-44 | 117.5 | 99.1 | 16.0 | A-I-1-70 | 110.5 | 87.6 | 14.0 |
| 25 ksi & 400°F for 100 hr | B-I-1-a-9 | 147.0 | 135.9 | ** | B-I-1-a-14 | 120.2 | 101.0 | 13.0 | B-I-1-a-17 | 107.1 | 85.0 | 12.5 |
| | B-I-1-a-12 | 144.4 | 133.8 | ** | B-I-1-a-15 | 121.4 | 102.5 | 14.0 | B-I-1-a-20 | 110.9 | 88.8 | 12.0 |
| | B-I-1-a-13 | 145.7 | 134.4 | ** | B-I-1-a-16 | 120.9 | 101.7 | 14.0 | B-I-1-a-21 | 112.5 | 89.8 | 12.5 |
| 25 ksi & 400°F for 1000 hr | B-I-1-b-22 | 149.8 | 137.9 | 13.0 | B-I-1-b-30 | 119.7 | 101.8 | 14.0 | B-I-1-b-35 | 109.0 | 87.7 | 11.0 |
| | B-I-1-b-26 | 147.4 | 134.7 | 12.0 | B-I-1-b-32 | 120.3 | 102.0 | 14.0 | B-I-1-b-36 | 112.3 | 91.0 | 11.0 |
| | B-I-1-b-28 | 147.8 | 135.5 | 14.0 | B-I-1-b-33 | 122.2 | 103.1 | 14.0 | B-I-1-b-37 | 112.3 | 92.2 | 12.0 |
| 25 ksi & 400°F for 5000 hr | B-I-1-c-38 | 151.5 | 140.1 | 14.5 | B-I-1-c-41 | 123.8 | 103.4 | 13.0 | B-I-1-c-47 | 112.3 | 89.2 | 10.5 |
| | B I-1-c-39 | 148.2 | 137.3 | 15.0 | B-I-1-c-45 | 123.3 | 103.0 | 13.0 | B-I-1-c-48 | 111.2 | 88.4 | 11.0 |
| | B I-1-c-40 | 148.5 | —— | 15.5 | B-I-1-c-46 | 123.4 | 104.7 | 14.0 | B-I-1-c-49 | 110.5 | 88.8 | 12.0 |
| 25 ksi & 650°F for 100 hr | B-I-1-d-2 | 152.9 | 137.9 | 14.0 | B-I-1-d-5 | 125.4 | 101.0 | 14.0 | B-I-1-d-8 | 113.1 | 86.9 | 12.5 |
| | B-I-1-d-3 | 152.8 | 138.7 | 15.0 | B-I-1-d-6 | 126.0 | 101.3 | 15.0 | B-I-1-d-10 | 112.9 | 86.5 | 10.5 |
| | B-I-1-d-4 | 151.5 | 137.7 | 14.0 | B-I-1-d-7 | 126.9 | 102.8 | 14.0 | B-I-1-d-11 | 115.9 | 90.3 | 11.0 |
| 25 ksi & 650°F for 1000 hr | B-I-1-e-50 | 159.4 | 147.1 | 16.0 | B-I-1-e-53 | 130.7 | 105.5 | 15.0 | B-I-1-e-56 | 115.3 | 89.3 | 11.0 |
| | B-I-1-e-51 | 156.3 | 144.5 | 16.0 | B-I-1-e-54 | 130.3 | 105.2 | 15.0 | B-I-1-e-57 | 114.2 | 90.6 | 10.0 |
| | B-I-1-e-52 | 157.1 | 145.7 | 16.0 | B-I-1-e-55 | 126.8 | 100.4 | 14.0 | B-I-1-e-68 | 112.5 | 86.9 | 10.5 |
| 25 ksi & 650°F for 5000 hr | B-I-1-f-59 | 152.6 | 137.9 | 15.0 | B-I-1-f-62 | 125.6 | 104.0 | 16.0 | B-I-1-f-65 | 119.8 | 94.6 | 15.0 |
| | B-I-1-f-60 | 153.4 | 138.0 | 16.0 | B-I-1-f-63 | 130.7 | 109.7 | 18.0 | B-I-1-f-66 | 118.8 | 93.5 | 15.0 |
| | B-I-1-f-61 | 155.7 | 142.2 | 17.5 | B-I-1-f-64 | 132.7 | 110.3 | 17.0 | B-I-1-f-67 | 116.2 | 88.1 | 15.5 |

* 2-in. gage length

** Failed outside gage length

TABLE 7 STATIC TEST DATA FOR UNEXPOSED AND EXPOSED PLAIN SPECIMENS
PH14-8Mo (SRH 1050) STAINLESS STEEL (.025-IN. NOMINAL THICKNESS) TRANSVERSE GRAIN

| Prior Soak | Tested at Room Temp. | | | | Tested at 400°F | | | | Tested at 650°F | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Specimen No. | $F_{tu}$ (ksi) | $F_{ty}$ (ksi) | e* (%) | Specimen No. | $F_{tu}$ (ksi) | $F_{ty}$ (ksi) | e* (%) | Specimen No. | $F_{tu}$ (ksi) | $F_{ty}$ (ksi) | e* (%) |
| None | See Table 5 | | | | A-II-1-67 | 199.2 | 180.2 | 2.0 | A-II-1-70 | 186.0 | 169.6 | 3.0 |
| | | | | | A-II-1-68 | 197.1 | 182.4 | 2.0 | A-II-1-71 | 185.1 | 168.1 | 4.0 |
| | | | | | A-II-1-69 | 195.9 | 177.0 | 2.0 | A-II-1-72 | 187.9 | 165.7 | 3.5 |
| 40 ksi & 400°F for 100 hr | B-II-1-a-37 | 220.2 | 205.8 | 5.0 | B-II-1-a-40 | 197.2 | 183.9 | 3.0 | B-II-1-a-43 | 186.4 | 173.6 | 3.0 |
| | B-II-1-a-38 | 222.7 | 206.2 | 4.5 | B-II-1-a-41 | 198.4 | 187.0 | 2.0 | B-II-1-a-44 | 185.6 | 167.6 | 3.0 |
| | B-II-1-a-39 | 220.3 | 204.5 | 4 | B-II-1-a-42 | 198.8 | 186.6 | 2.5 | B-II-1-a-45 | 188.6 | 167.2 | 2.5 |
| 40 ksi & 400°F for 1000 hr | B-II-1-b-47 | 221.2 | 208.0 | 3.5 | B-II-1-b-50 | 197.1 | 183.6 | 2.0 | B-II-1-b-53 | 189.7 | 173.1 | 3.0 |
| | B-II-1-b-48 | 220.1 | 204.1 | 3.0 | B-II-1-b-51 | 198.4 | 187.3 | 1.5 | B-II-1-b-54 | 188.4 | 171.9 | 1.5 |
| | B-II-1-b-49 | 220.9 | 204.5 | 4.0 | B-II-1-b-52 | 199.6 | 188.4 | 2.0 | B-II-1-b-55 | 189.7 | 171.5 | 3.5 |
| 40 ksi & 400°F for 5000 hr | B-II-1-c-57 | 217.8 | 207.8 | 3.0 | B-II-1-c-60 | 196.3 | 183.9 | 2.5 | B-II-1-c-63 | 184.4 | 166.0 | 3.0 |
| | B-II-1-c-58 | 219.8 | 210.3 | 4.0 | B-II-1-c-61 | 197.6 | 187.5 | 2.0 | B-II-1-c-64 | 184.6 | 169.1 | 2.5 |
| | B-II-1-c-59 | 220.2 | 209.5 | 4.0 | B-II-1-c-62 | 198.4 | 188.5 | 2.0 | B-II-1-c-65 | 182.9 | 165.4 | 2.5 |
| 40 ksi & 650°F for 100 hr | B-II-1-d-1 | 221.2 | 203.2 | 4.0 | B-II-1-d-4 | 198.8 | 186.9 | 2.0 | B-II-1-d-7 | 190.9 | 173.6 | 2.5 |
| | B-II-1-d-2 | 226.8 | 210.6 | 3.0 | B-II-1-d-5 | 198.8 | 189.8 | 2.5 | B-II-1-d-8 | 185.5 | 173.6 | 1.5 |
| | B-II-1-d-3 | 219.9 | 200.4 | 4.0 | B-II-1-d-6 | 200.8 | 190.6 | 2.0 | B-II-1-d-9 | 192.2 | 178.7 | 3.0 |
| 40 ksi & 650°F for 1000 hr | B-II-1-e-11 | 228.9 | 212.2 | 2.0 | B-II-1-e-14 | 210.2 | 201.2 | 2.0 | B-II-1-e-17 | 198.3 | 179.3 | 3.0 |
| | B-II-1-e-12 | 236.4 | 216.5 | 3.5 | B-II-1-e-15 | 213.6 | 203.3 | 2.0 | B-II-1-e-24 | 197.5 | 180.3 | 2.5 |
| | B-II-1-e-13 | 235.5 | 218.2 | 3.0 | B-II-1-e-16 | 210.7 | 200.4 | 2.0 | B-II-1-e-25 | 199.2 | 182.0 | 2.0 |
| 40 ksi & 650°F for 5000 hr | B-II-1-f-27 | 247.9 | 233.0 | 3.5 | B-II-1-f-30 | 216.8 | 207.8 | 2.5 | B-II-1-f-33 | 201.1 | 185.5 | 6.0 |
| | B-II-1-f-28 | 246.3 | 229.1 | 4.0 | B-II-1-f-31 | 218.0 | 209.0 | 2.5 | B-II-1-f-34 | 198.8 | 175.8 | 6.0 |
| | B-II-1-f-29 | 247.1 | 232.4 | 4.0 | B-II-1-f-32 | 220.4 | 210.5 | 2.0 | B-II-1-f-35 | 200.8 | 184.4 | 4.0 |

* 2-in. gage length

TABLE 8 STATIC TEST DATA FOR UNEXPOSED AND EXPOSED PLAIN SPECIMENS
INCO 718 (.025 IN. THICKNESS) TRANSVERSE GRAIN

| Prior Soak | Tested at Room Temp. | | | | Tested at 400°F | | | | Tested at 650°F | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Specimen No. | $F_{tu}$ (ksi) | $F_{ty}$ (ksi) | e* (%) | Specimen No. | $F_{tu}$ (ksi) | $F_{ty}$ (ksi) | e* (%) | Specimen No. | $F_{tu}$ (ksi) | $F_{ty}$ (ksi) | e* (%) |
| None | See Table 5 | | | | A-III-1-63 | 204.7 | 187.6 | 7.0 | A-III-1-61 | 200.0 | 189.0 | 7.0 |
| | | | | | A-III-1-64 | 208.2 | 191.8 | 6.5 | A-III-1-62 | 200.0 | 179.5 | 8.0 |
| | | | | | A-III-1-72 | 205.4 | 186.9 | 7.0 | A-III-1-71 | 199.6 | 182.3 | 6.5 |
| 40 ksi & | B-III-1-a-31 | 220.8 | 202.3 | 7.0 | B-III-1-a-34 | 205.4 | 188.0 | 6.0 | B-III-1-a-37 | 200.0 | 183.1 | 5.0 |
| 400°F for | B-III-1-a-32 | 222.6 | 205.1 | 7.5 | B-III-1-a-35 | 207.7 | 192.7 | 6.5 | B-III-1-a-38 | 199.6 | 185.6 | 9.0 |
| 100 hr | B-III-1-a-33 | 224.8 | 207.1 | 7.5 | B-III-1-a-36 | 204.2 | 186.5 | 5.5 | B-III-1-a-39 | 199.2 | 182.3 | 7.0 |
| 40 ksi & | B-III-1-b-41 | 224.0 | 206.9 | 8.0 | B-III-1-b-44 | 205.9 | 190.2 | 7.0 | B-III-1-b-47 | 200.0 | 184.5 | 8.0 |
| 400°F for | B-III-1-b-42 | 222.5 | 204.6 | 8.0 | B-III-1-b-45 | 207.4 | 193.4 | 6.5 | B-III-1-b-48 | 200.0 | 186.2 | 7.5 |
| 1000 hr | B-III-1-b-43 | 224.2 | 206.0 | 7.5 | B-III-1-b-46 | 203.8 | 185.4 | 6.0 | B-III-1-b-49 | 196.5 | 181.9 | 6.5 |
| 40 ksi & | B-III-1-c-51 | 219.6 | 201.2 | 6.0 | B-III-1-c-54 | 207.5 | 186.3 | 7.5 | B-III-1-c-57 | 196.0 | 178.6 | 8.0 |
| 400°F for | B-III-1-c-52 | 221.2 | 202.7 | 6.5 | B-III-1-c-55 | 205.0 | 182.8 | 8.0 | B-III-1-c-58 | 198.8 | 177.8 | 8.0 |
| 5000 hr | B-III-1-c-53 | 221.7 | 201.2 | 8.5 | B-III-1-c-56 | 200.0 | 186.2 | 5.0 | B-III-1-c-59 | 189.9 | 176.0 | 7.0 |
| 40 ksi & | B-III-1-d-1 | 221.6 | 204.2 | 8.5 | B-III-1-d-4 | 205.8 | 190.7 | 6.5 | B-III-1-d-7 | 200.4 | 187.3 | 7.0 |
| 650°F for | B-III-1-d-2 | 219.9 | 202.7 | 7.0 | B-III-1-d-5 | 203.5 | 187.3 | 7.0 | B-III-1-d-8 | 200.0 | 185.5 | 7.0 |
| 100 hr | B-III-1-d-3 | 219.5 | 202.7 | 7.0 | B-III-1-d-6 | 207.0 | 191.4 | 6.0 | B-III-1-d-9 | 200.8 | 186.5 | 8.0 |
| 40 ksi & | B-III-1-e-11 | 222.9 | 205.4 | ** | B-III-1-e-14 | 208.2 | 192.2 | 6.5 | B-III-1-e-17 | 200.4 | 185.8 | 7.5 |
| 650°F for | B-III-1-e-12 | 221.3 | 205.0 | 6.5 | B-III-1-e-15 | 206.3 | 192.1 | 6.0 | B-III-1-e-18 | 200.0 | 184.9 | 6.0 |
| 1000 hr | B-III-1-e-13 | 225.8 | 209.6 | 9.0 | B-III-1-e-16 | 205.5 | 190.6 | 5.0 | B-III-1-e-19 | 201.2 | 186.9 | 7.5 |
| 40 ksi & | B-III-1-f-21 | 223.6 | 205.9 | 7.5 | B-III-1-f-24 | 204.7 | 189.8 | 10.0 | B-III-1-f-27 | 198.0 | 183.8 | 6.5 |
| 650°F for | B-III-1-f-22 | 221.7 | 204.6 | 7.5 | B-III-1-f-25 | 201.7 | 183.7 | 7.0 | B-III-1-f-28 | 194.1 | 178.5 | 7.0 |
| 5000 hr | B-III-1-f-23 | 205.5 | 205.5 | 8.0 | B-III-1-f-26 | 204.5 | 192.5 | 7.0 | B-III-1-f-29 | 195.3 | 179.1 | 6.0 |

* 2-in. gage length

** Failed outside gage length

TABLE 9 STATIC TENSILE STRENGTH FOR UNEXPOSED AND EXPOSED FUSION-WELDED AND PLANISHED SPECIMENS

TRANSVERSE GRAIN

(1 of 3)

| Material | Gage (Nominal) (inches) | Prior Soak | Tested at Room Temp. | | Tested at 400°F | | Tested at 650°F | |
|---|---|---|---|---|---|---|---|---|
| | | | Specimen No. | $F_{tu}$ (ksi) | Specimen No. | $F_{tu}$ (ksi) | Specimen No. | $F_{tu}$ (ksi) |
| 8-1-1 Titanium Duplex-Annealed * | .050 | None | A-I-2-42 | 151.0 | A-I-2-46 | 125.4 | A-I-2-56 | 113.0 |
| | | | A-I-2-43 | 150.8 | A-I-2-47 | 124.5 | A-I-2-58 | 113.7 |
| | | | A-I-2-44 | 150.0 | A-I-2-52 | 120.7 | A-I-2-59 | 110.4 |
| | | 25 ksi & 400°F for 100 hr | B-I-2-a-12 | 150.8 | B-I-2-a-23 | 122.6 | B-I-2-a-31 | 114.1 |
| | | | B-I-2-a-16 | 153.0 | B-I-2-a-25 | 123.0 | B-I-2-a-34 | 114.3 |
| | | | B-I-2-a-18 | 151.6 | B-I-2-a-28 | 122.0 | B-I-2-a-41 | 112.5 |
| | | 25 ksi & 400°F for 1000 hr | B-I-2-b-1 | 152.2 | B-I-2-b-7 | 124.2 | B-I-2-b-48 | 112.2 |
| | | | B-I-2-b-4 | 152.8 | B-I-2-b-9 | 123.1 | B-I-2-b-54 | 112.4 |
| | | | B-I-2-b-6 | 151.4 | B-I-2-b-45 | 123.3 | B-I-2-b-55 | 111.7 |
| | | 25 ksi & 400°F for 5000 hr | B-I-2-c-13 | 147.4 | B-I-2-c-20 | 118.1 | B-I-2-c-37 | 107.4 |
| | | | B-I-2-c-15 | 146.9 | B-I-2-c-29 | 126.6 | B-I-2-c-40 | 106.4 |
| | | | B-I-2-c-17 | 145.4 | B-I-2-c-33 | 118.9 | B-I-2-c-51 | 108.6 |
| | | 25 ksi & 650°F for 100 hr | B-I-2-d-14 | 157.4 | B-I-2-d-38 | 128.9 | B-I-2-d-53 | 116.5 |
| | | | B-I-2-d-24 | 157.4 | B-I-2-d-49 | 128.1 | B-I-2-d-60 | 117.3 |
| | | | B-I-2-d-30 | 156.6 | B-I-2-d-50 | 130.8 | B-I-2-d-64 | 118.3 |
| | | 25 ksi & 650°F for 1000 hr | B-I-2-e-21 | 158.6 | B-I-2-e-35 | 135.4 | B-I-2-e-57 | 125.5 |
| | | | B-I-2-e-26 | 162.3 | B-I-2-e-36 | 133.4 | B-I-2-e-62 | 123.5 |
| | | | B-I-2-e-27 | 160.7 | B-I-2-e-39 | 133.9 | B-I-2-e-65 | 121.4 |
| | | 25 ksi & 650°F for 5000 hr | B-I-2-f-2 | 155.0 | B-I-2-f-8 | 129.4 | B-I-2-f-19 | 115.4 |
| | | | B-I-2-f-3 | 154.2 | B-I-2-f-10 | 129.8 | B-I-2-f-22 | 115.6 |
| | | | B-I-2-f-5 | 153.8 | B-I-2-f-11 | 129.6 | B-I-2-f-32 | 116.2 |

* All failures away from weld

TABLE 9 (Continued)

(2 of 3)

| Material | Gage (Nominal) (inches) | Prior Soak | Tested at Room Temp. | | Tested at 400°F | | Tested at 650°F | |
|---|---|---|---|---|---|---|---|---|
| | | | Specimen No. | $F_{tu}$ (ksi) | Specimen No. | $F_{tu}$ (ksi) | Specimen No. | $F_{tu}$ (ksi) |
| PH14-8Mo (SRH 1050) Stainless Steel * | .025 | None | A-II-2-61 | 208.5 | A-II-2-64 | 194.4 | A-II-2-67 | 177.4 |
| | | | A-II-2-62 | 206.0 | A-II-2-65 | 194.4 | A-II-2-68 | 175.4 |
| | | | A-II-2-63 | 208.9 | A-II-2-66 | 179.8 | A-II-2-69 | 166.5 |
| | | 40 ksi & 400°F for 100 hr | B-II-2-a-31 | 210.0 | B-II-2-a-34 | 180.9 | B-II-2-a-37 | 176.2 |
| | | | B-II-2-a-32 | 211.6 | B-II-2-a-35 | 170.7 | B-II-2-a-38 | 175.2 |
| | | | B-II-2-a-33 | 213.7 | B-II-2-a-36 | 180.4 | B-II-2-a-39 | 176.2 |
| | | 40 ksi & 400°F for 1000 hr | B-II-2-b-41 | 213.7 | B-II-2-b-44 | 171.4 | B-II-2-b-47 | 181.5 |
| | | | B-II-2-b-42 | 216.8 | B-II-2-b-45 | 194.7 | B-II-2-b-48 | 169.6 |
| | | | B-II-2-b-43 | 196.6 | B-II-2-b-46 | 189.3 | B-II-2-b-49 | 182.7 |
| | | 40 ksi & 400°F for 5000 hr | B-II-2-c-51 | 203.6 | B-II-2-c-54 | 187.7 | B-II-2-c-57 | 174.0 |
| | | | B-II-2-c-52 | 207.3 | B-II-2-c-55 | 172.7 | B-II-2-c-58 | 170.0 |
| | | | B-II-2-c-53 | 204.9 | B-II-2-c-56 | 170.4 | B-II-2-c-59 | 161.7 |
| | | 40 ksi & 650°F for 100 hr | B-II-2-d-1 | 203.8 | B-II-2-d-4 | 179.8 | B-II-2-d-7 | 172.4 |
| | | | B-II-2-d-2 | 202.6 | B-II-2-d-5 | 180.9 | B-II-2-d-8 | 166.5 |
| | | | B-II-2-d-3 | 200.0 | B-II-2-d-6 | 179.8 | B-II-2-d-9 | 175.2 |
| | | 40 ksi & 650°F for 1000 hr | B-II-2-e-11 | 223.6 | B-II-2-e-14 | 200.8 | B-II-2-e-17 | 197.2 |
| | | | B-II-2-e-12 | 233.1 | B-II-2-e-15 | 199.2 | B-II-2-e-18 | 186.5 |
| | | | B-II-2-e-13 | 217.6 | B-II-2-e-16 | 202.0 | B-II-2-e-19 | 190.6 |
| | | 40 ksi & 650°F for 5000 hr | B-II-2-f-21 | 226.2 | B-II-2-f-24 | 200.8 | B-II-2-f-27 | 188.1 |
| | | | B-II-2-f-22 | 219.1 | B-II-2-f-25 | 205.7 | B-II-2-f-28 | 187.2 |
| | | | B-II-2-f-23 | 215.6 | B-II-2-f-26 | 208.1 | B-II-2-f-29 | 181.6 |

* With one exception, all failures in or immediately adjacent to weld

Table 9 (Continued)

(3 of 3)

| Material | Gage (Nominal) (inches) | Prior Soak | Tested at Room Temp. | | Tested at 400°F | | Tested at 650°F | |
|---|---|---|---|---|---|---|---|---|
| | | | Specimen No. | $F_{tu}$ (ksi) | Specimen No. | $F_{tu}$ (ksi) | Specimen No. | $F_{tu}$ (ksi) |
| INCO 718 Cold rolled, aged at 1275°F * | .025 | None | A-III-2-61 | 139.1 | A-III-2-64 | 129.8 | A-III-2-67 | 124.6 |
| | | | A-III-2-62 | 138.9 | A-III-2-65 | 132.3 | A-III-2-68 | 121.5 |
| | | | A-III-2-63 | 145.4 | A-III-2-66 | 129.4 | A-III-2-69 | 126.3 |
| | | 40 ksi & 400°F for 100 hr | B-III-2-a-31 | 140.8 | B-III-2-a-34 | 125.6 | B-III-2-a-37 | 124.8 |
| | | | B-III-2-a-32 | 140.8 | B-III-2-a-35 | 128.5 | B-III-2-a-38 | 125.5 |
| | | | B-III-2-a-33 | 139.6 | B-III-2-a-36 | 124.0 | B-III-2-a-39 | 128.0 |
| | | 40 ksi & 400°F for 1000 hr | B-III-2-b-41 | 144.2 | B-III-2-b-44 | 125.6 | B-III-2-b-47 | 122.6 |
| | | | B-III-2-b-42 | 143.1 | B-III-2-b-45 | 131.7 | B-III-2-b-48 | 124.8 |
| | | | B-III-2-b-43 | 141.5 | B-III-2-b-46 | 127.5 | B-III-2-b-49 | 122.0 |
| | | 40 ksi & 400°F for 5000 hr | B-III-2-c-51 | 140.0 | B-III-2-c-54 | 124.6 | B-III-2-C-57 | 124.8 |
| | | | B-III-2-c-52 | 142.0 | B-III-2-c-55 | 126.2 | B-III-2-c-58 | 118.1 |
| | | | B-III-2-c-53 | 140.8 | B-III-2-c-56 | 129.4 | B-III-2-c-59 | 121.9 |
| | | 40 ksi & 650°F for 100 hr | B-III-2-d-1 | 134.8 | B-III-2-d-4 | 124.1 | B-III-2-d-7 | 122.1 |
| | | | B-III-2-d-2 | 135.4 | B-III-2-d-5 | 128.5 | B-III-2-d-8 | 119.9 |
| | | | B-III-2-d-3 | 140.1 | B-III-2-d-6 | 122.4 | B-III-2-d-9 | 118.6 |
| | | 40 ksi & 650°F for 1000 hr | B-III-2-e-11 | 135.8 | B-III-2-e-14 | 122.5 | B-III-2-e-17 | 113.9 |
| | | | B-III-2-e-12 | 137.2 | B-III-2-e-15 | 121.9 | B-III-2-e-18 | 118.2 |
| | | | B-III-2-e-13 | 134.7 | B-III-2-e-16 | 124.4 | B-III-2-e-19 | 123.9 |
| | | 40 ksi & 650°F for 5000 hr | B-III-2-f-21 | 136.1 | B-III-2-f-24 | 125.4 | B-III-2-f-27 | 122.3 |
| | | | B-III-2-f-22 | 134.3 | B-III-2-f-25 | 127.9 | B-III-2-f-28 | 117.7 |
| | | | B-III-2-f-23 | 137.6 | B-III-2-f-26 | 122.5 | B-III-2-f-29 | 122.9 |

* All failures in or immediately adjacent to weld

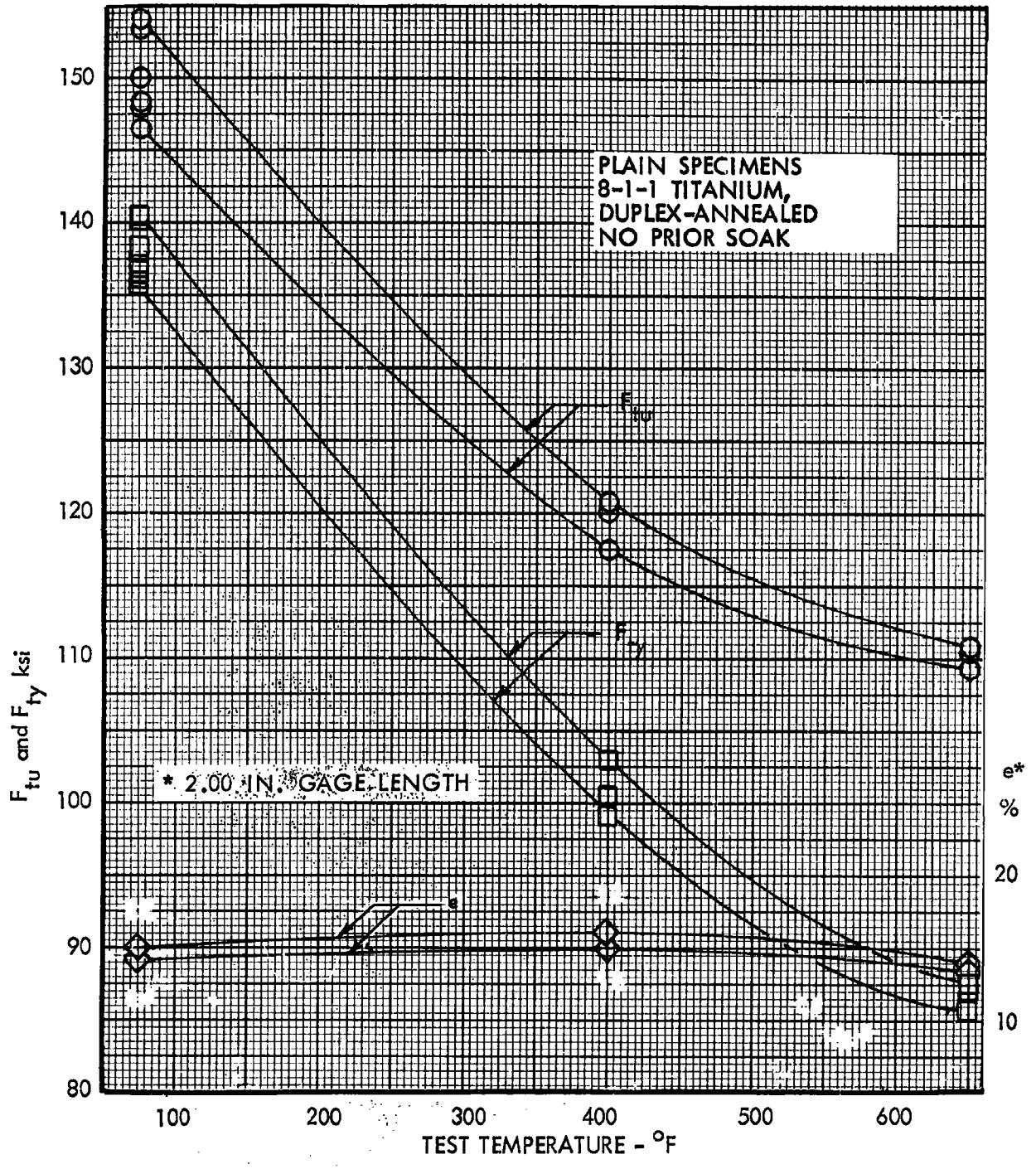



Figure 1. $F_{tu}$, $F_{ty}$ and e vs. Test Temperature, Plain Specimens, 8-1-1 Titanium

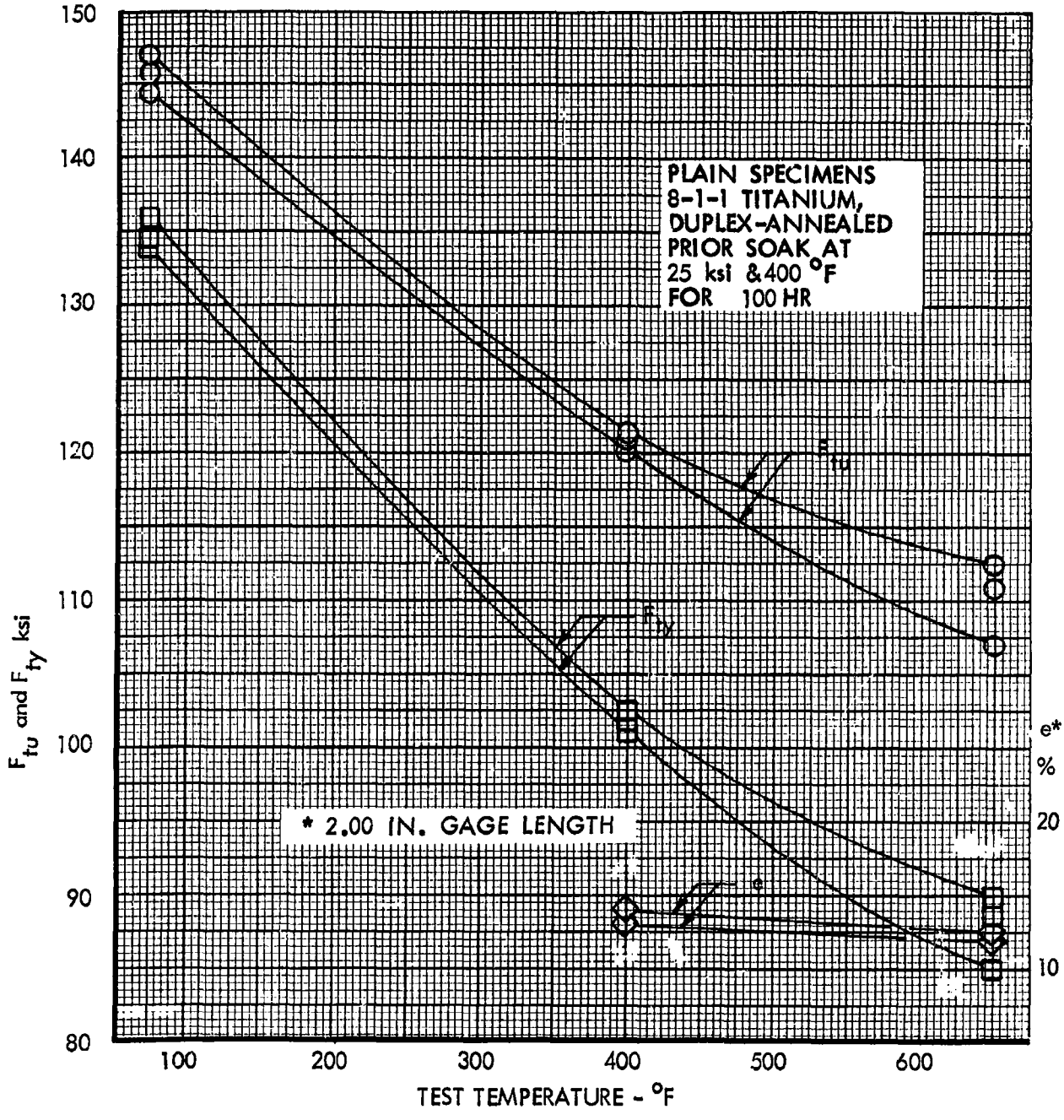



Figure 2. $F_{tu}$, $F_{ty}$ and e vs. Test Temperature, Plain Specimens, 8-1-1 Titanium

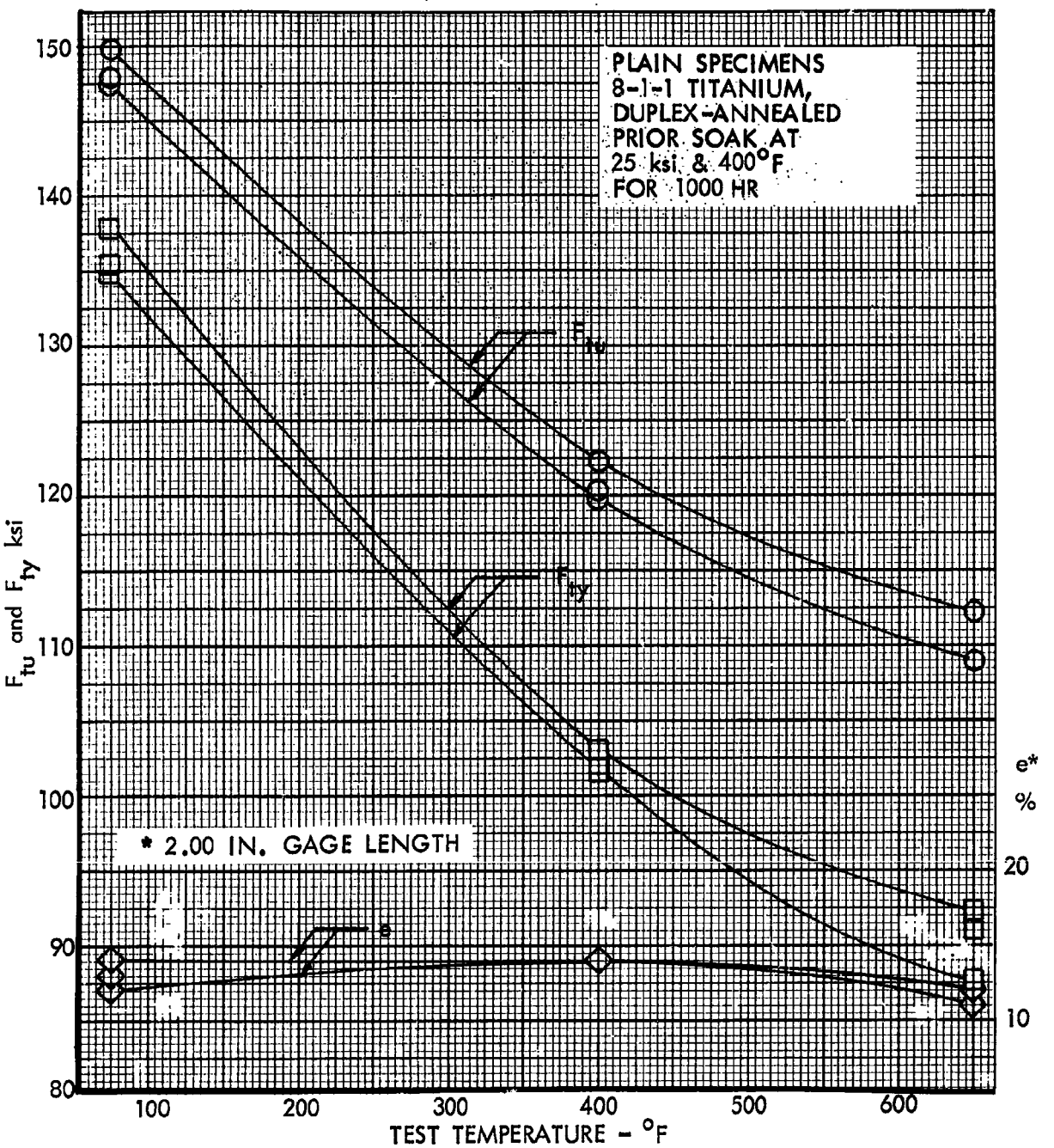



Figure 3. $F_{tu}$, $F_{ty}$ and e vs. Test Temperature, Plain Specimens, 8-1-1 Titanium

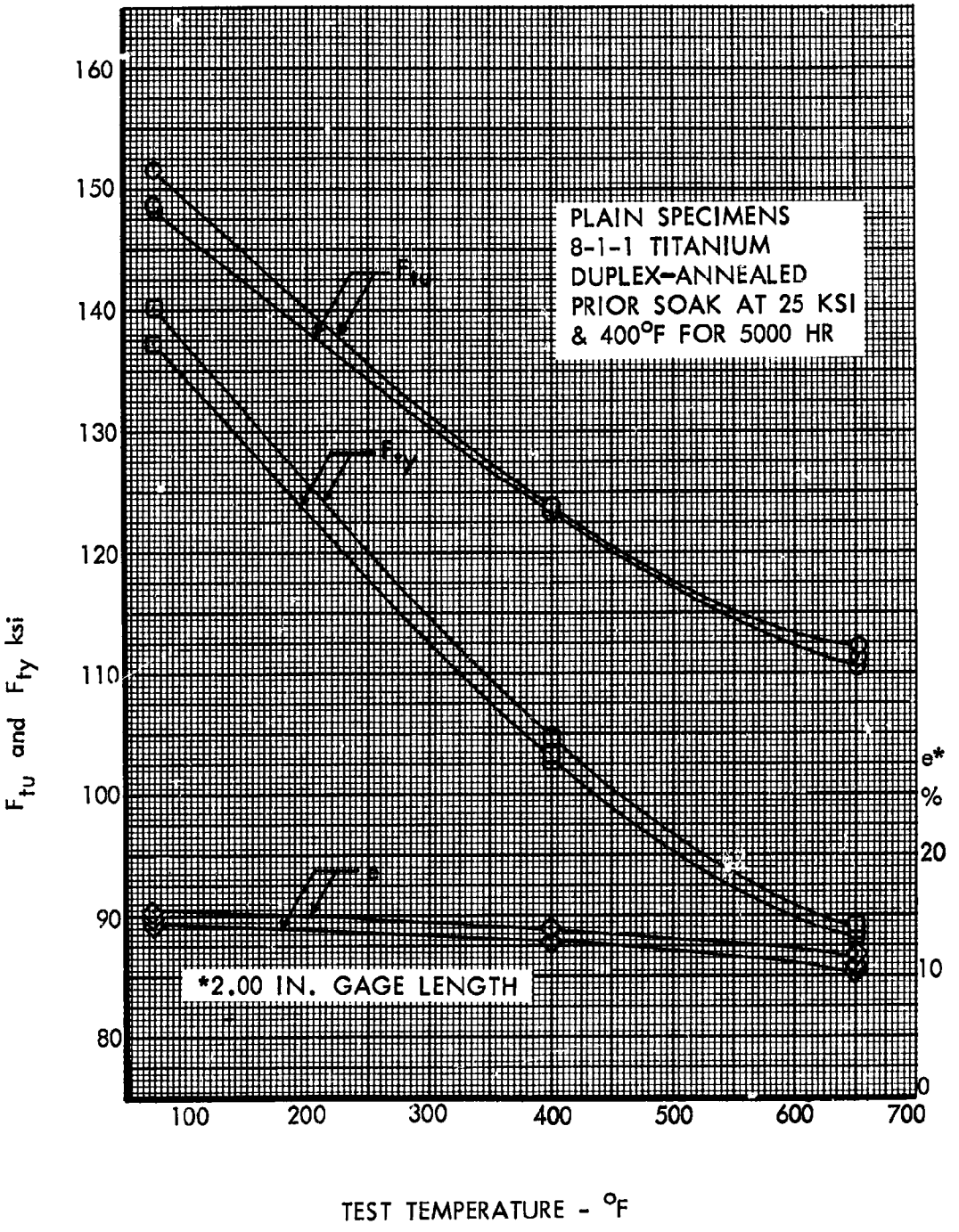



Figure 4. $F_{tu}$, $F_{ty}$ and e vs. Test Temperature, Plain Specimens, 8-1-1 Titanium

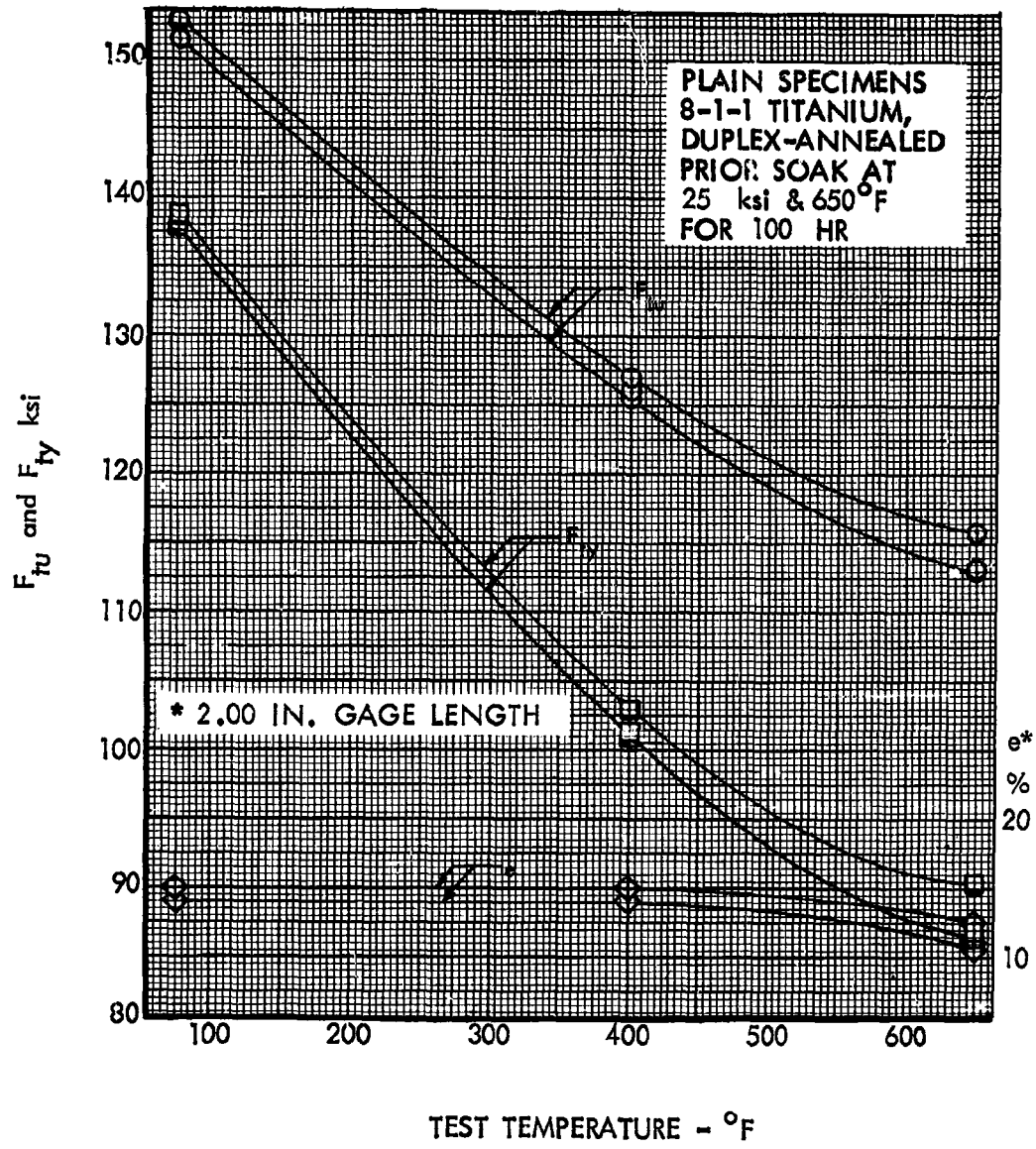



Figure 5. $F_{tu}$, $F_{ty}$ and e vs. Test Temperature, Plain Specimens, 8-1-1 Titanium

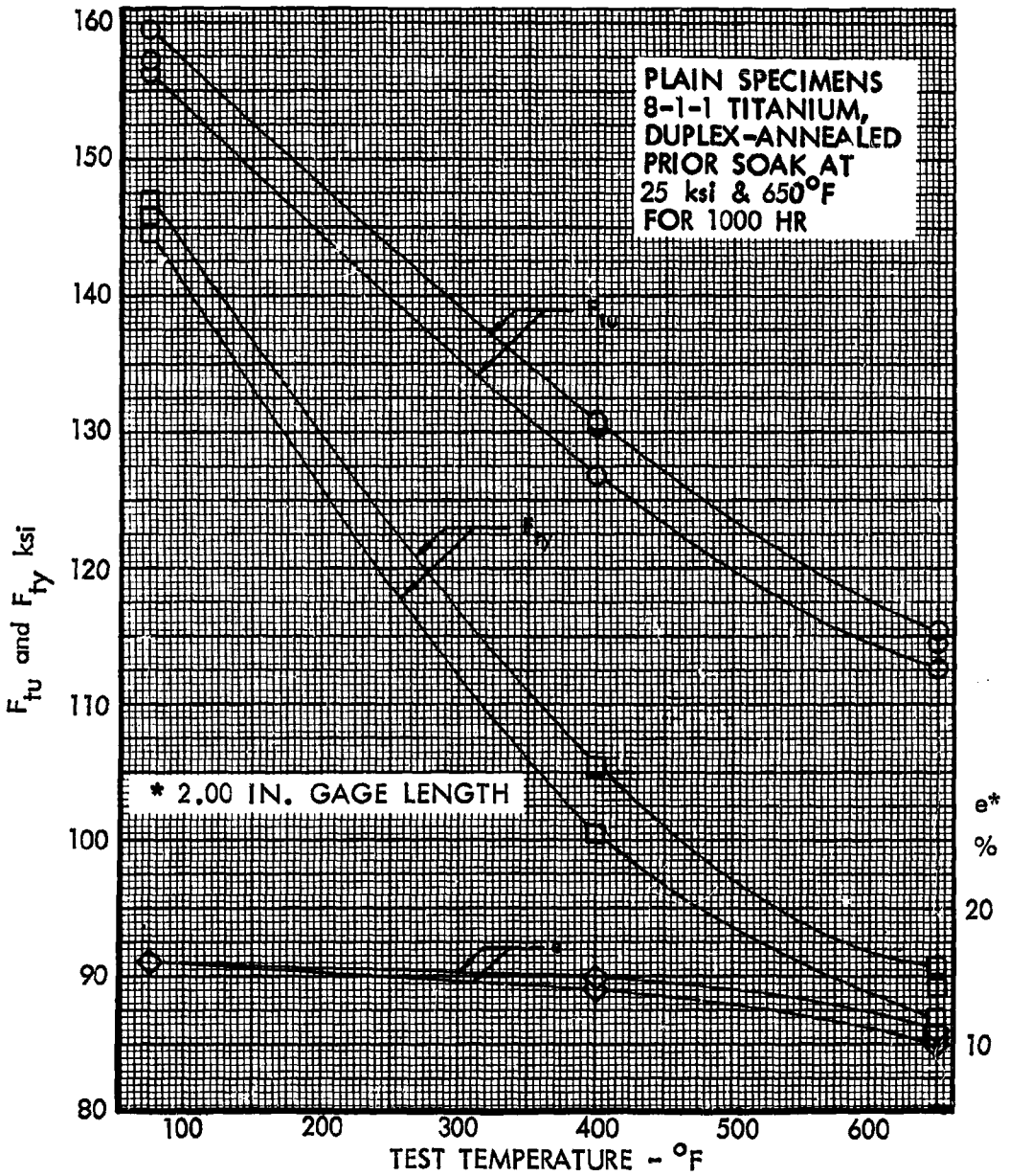



Figure 6. $F_{tu}$, $F_{ty}$ and e vs. Test Temperature, Plain Specimens, 8-1-1 Titanium

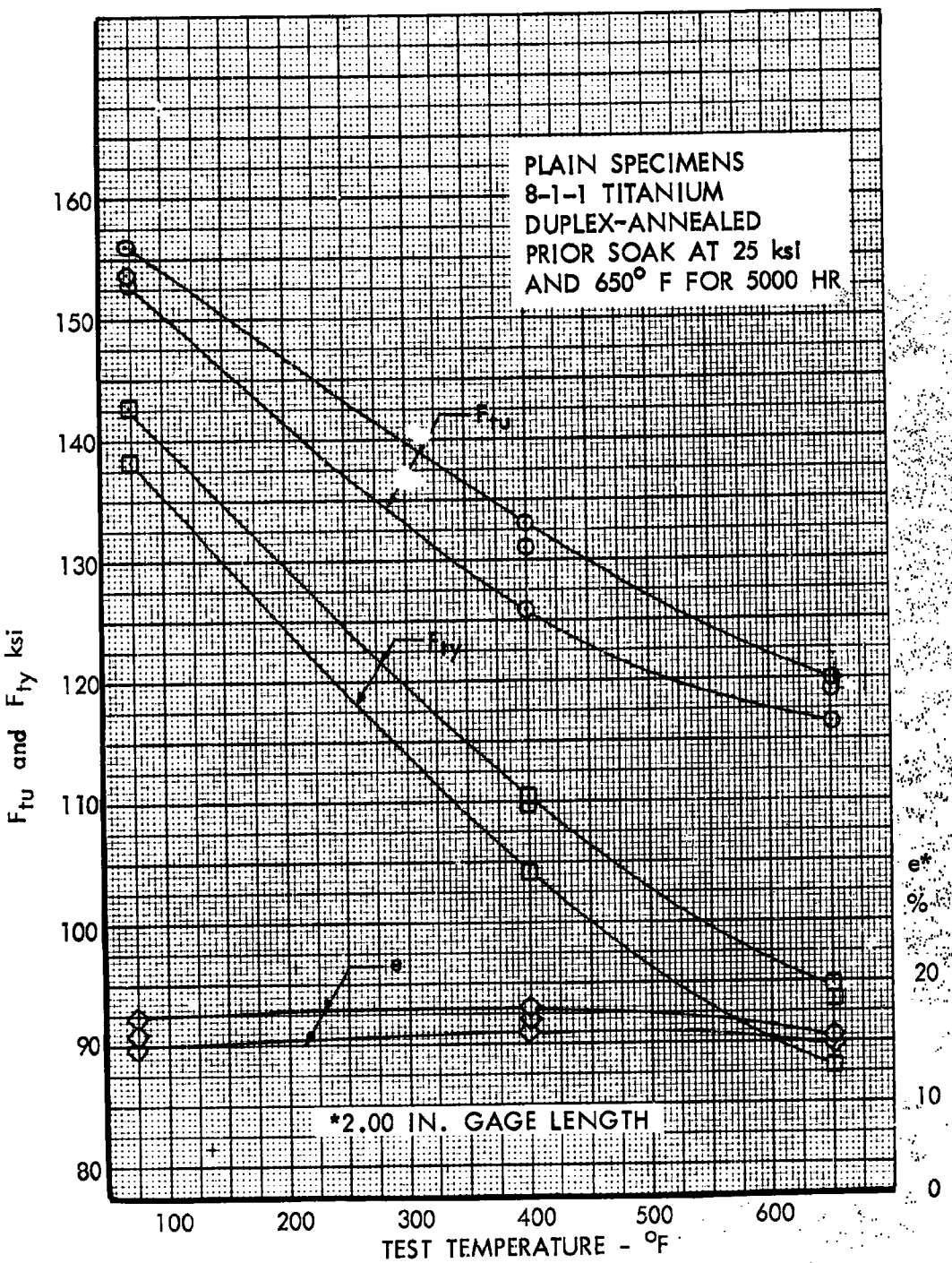



Figure 7. $F_{tu}$, $F_{ty}$ and e vs. Test Temperature, Plain Specimens, 8-1-1 Titanium

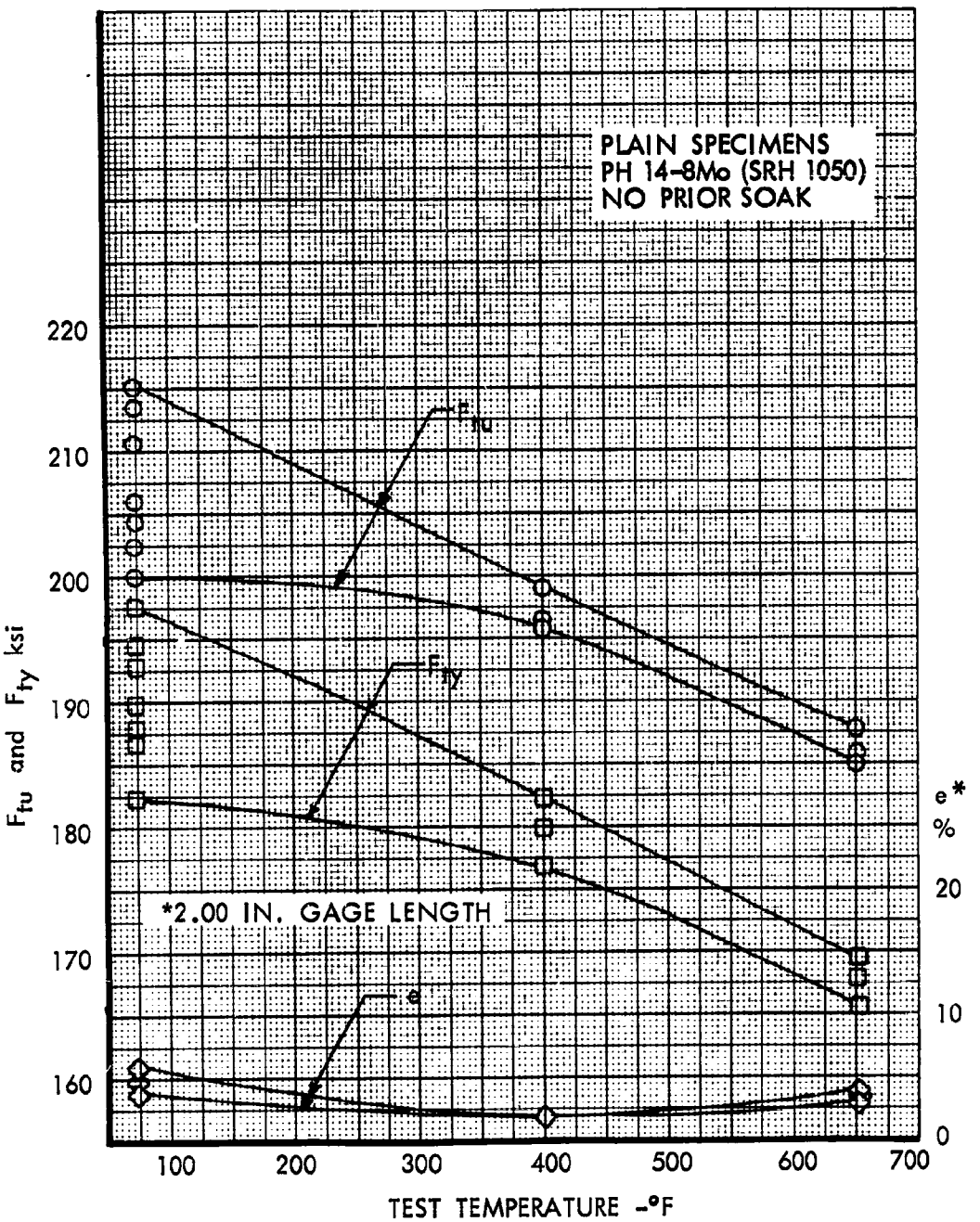



Figure 8. $F_{tu}$, $F_{ty}$ and e vs. Test Temperature, Plain Specimens, PH 14-8Mo

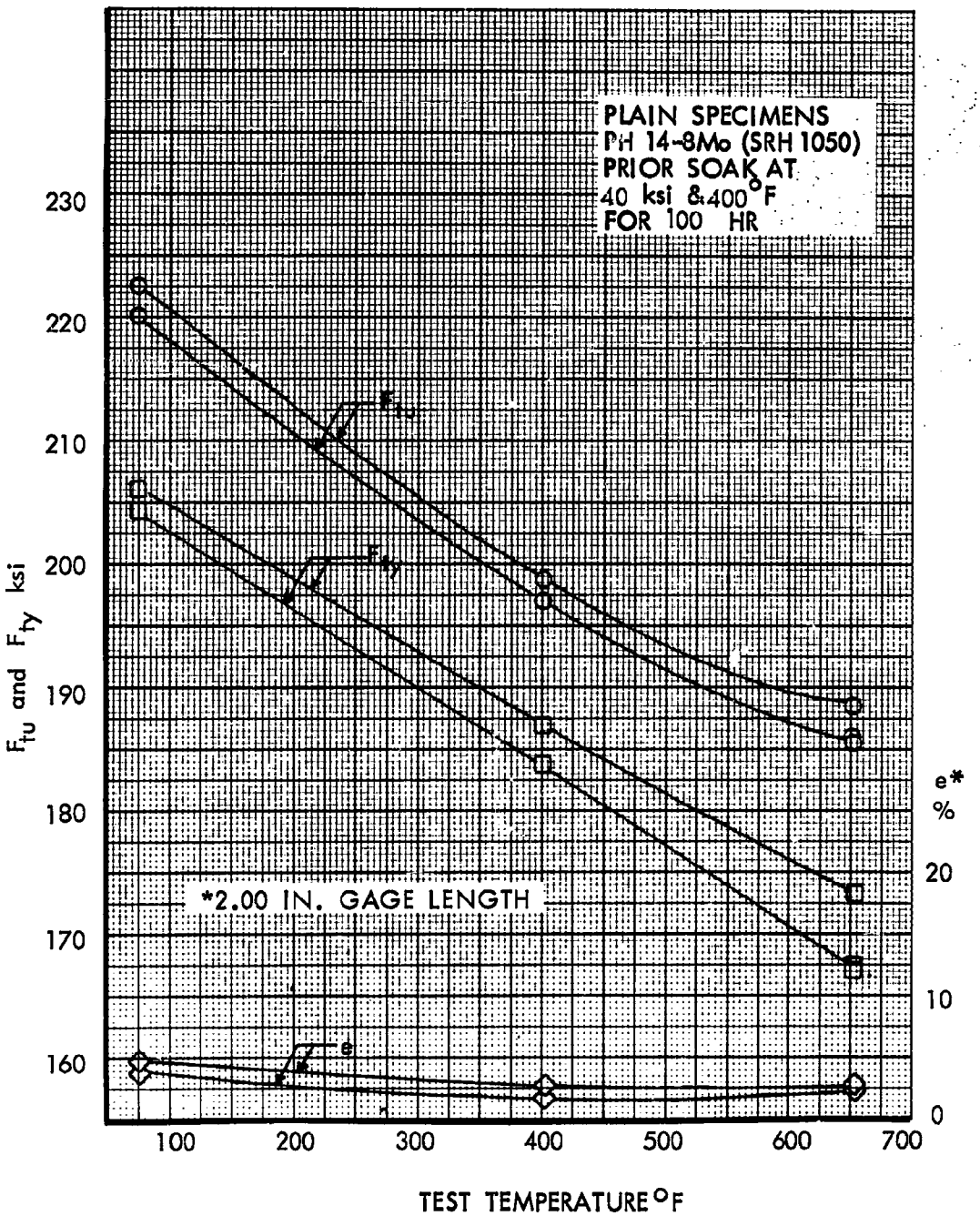



Figure 9. $F_{tu}$, $F_{ty}$ and e vs. Test Temperature, Plain Specimens, PH 14-8Mo

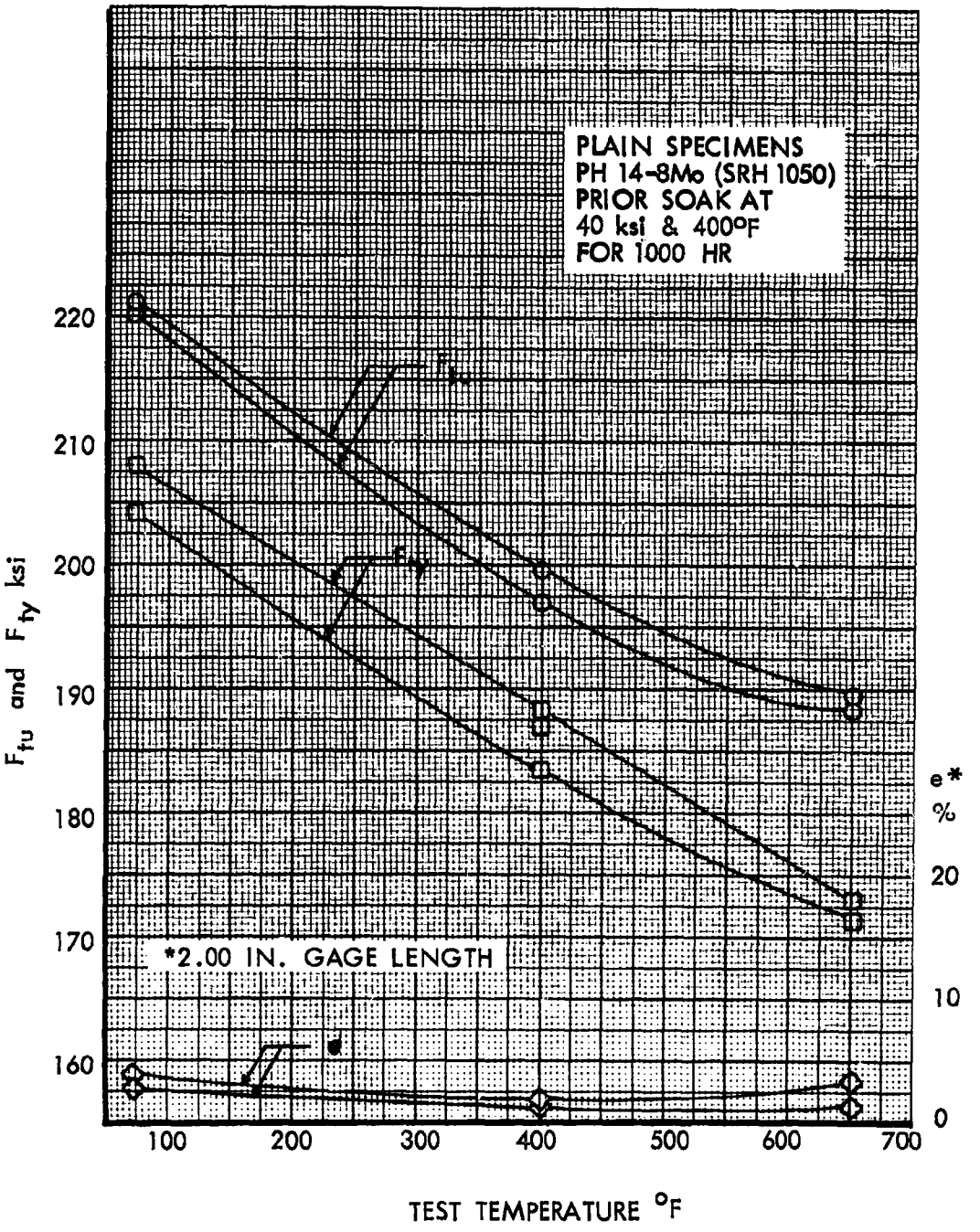



Figure 10. $F_{tu}$, $F_{ty}$ and e vs. Test Temperature, Plain Specimens, PH 14-8Mo

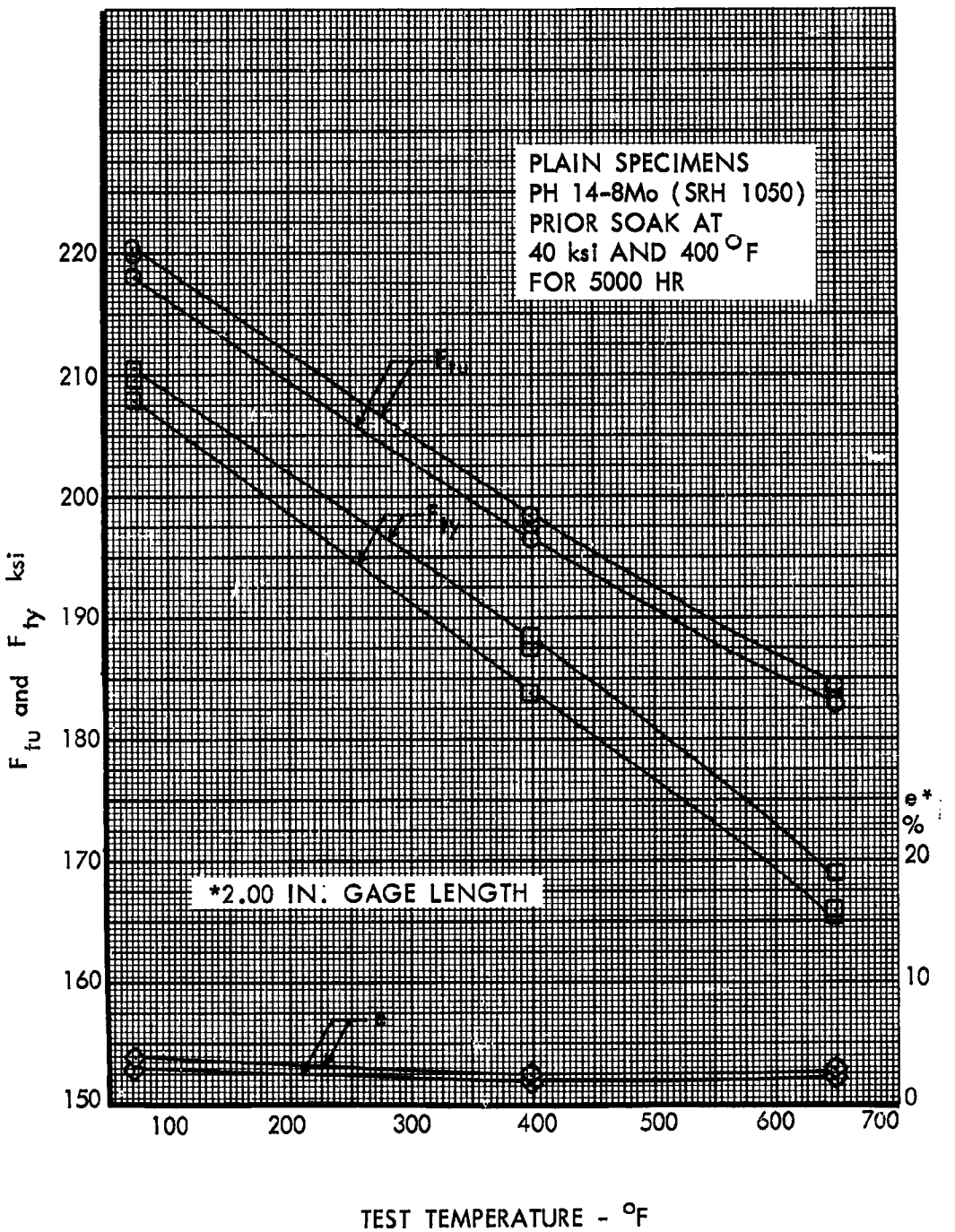



Figure II. $F_{tu}$, $F_{ty}$ and e vs. Test Temperature, Plain Specimens, PH 14-8Mo

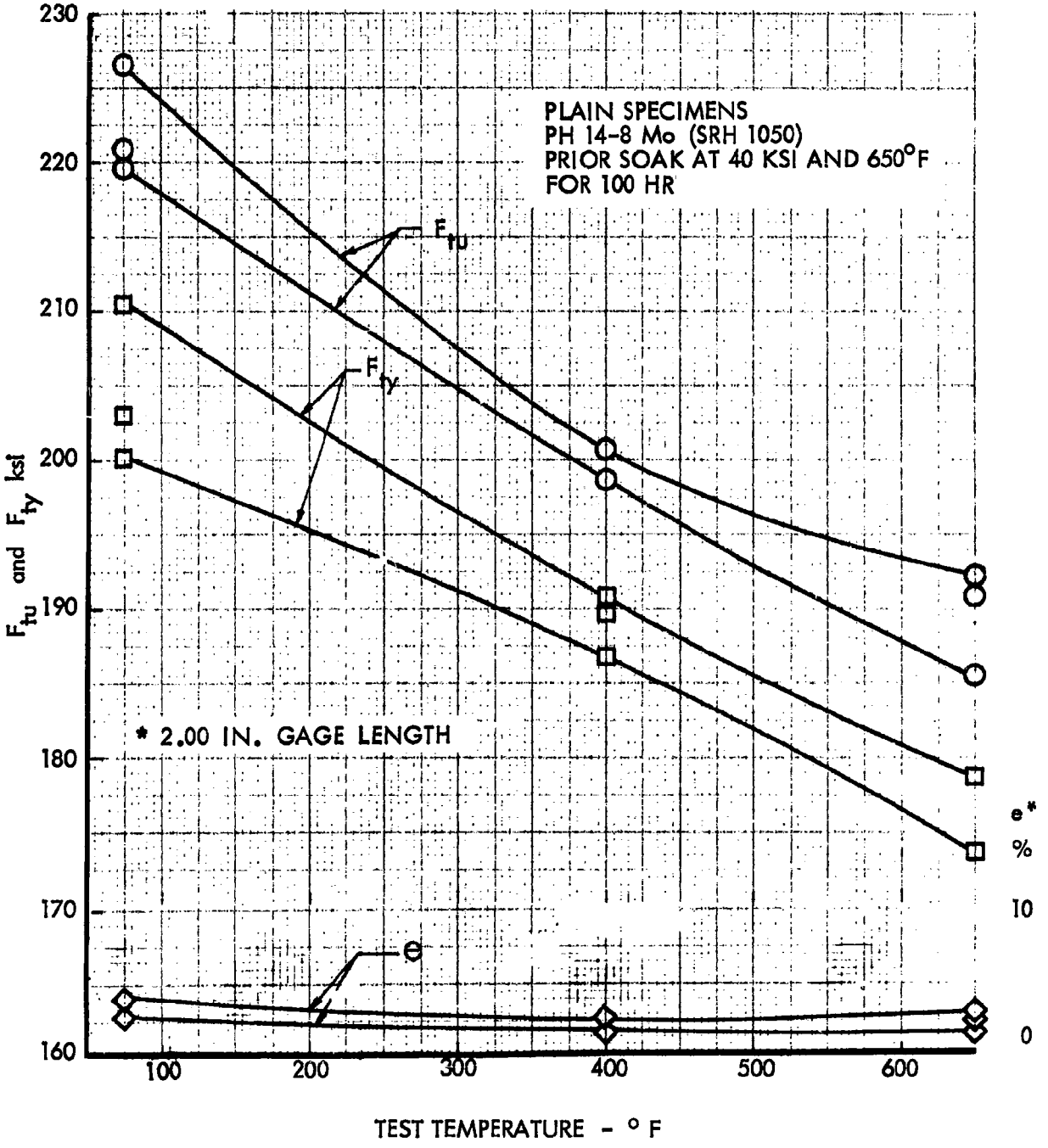



Figure 12. $F_{tu}$, $F_{ty}$ and e vs. Test Temperature, Plain Specimens, PH 14-8Mo

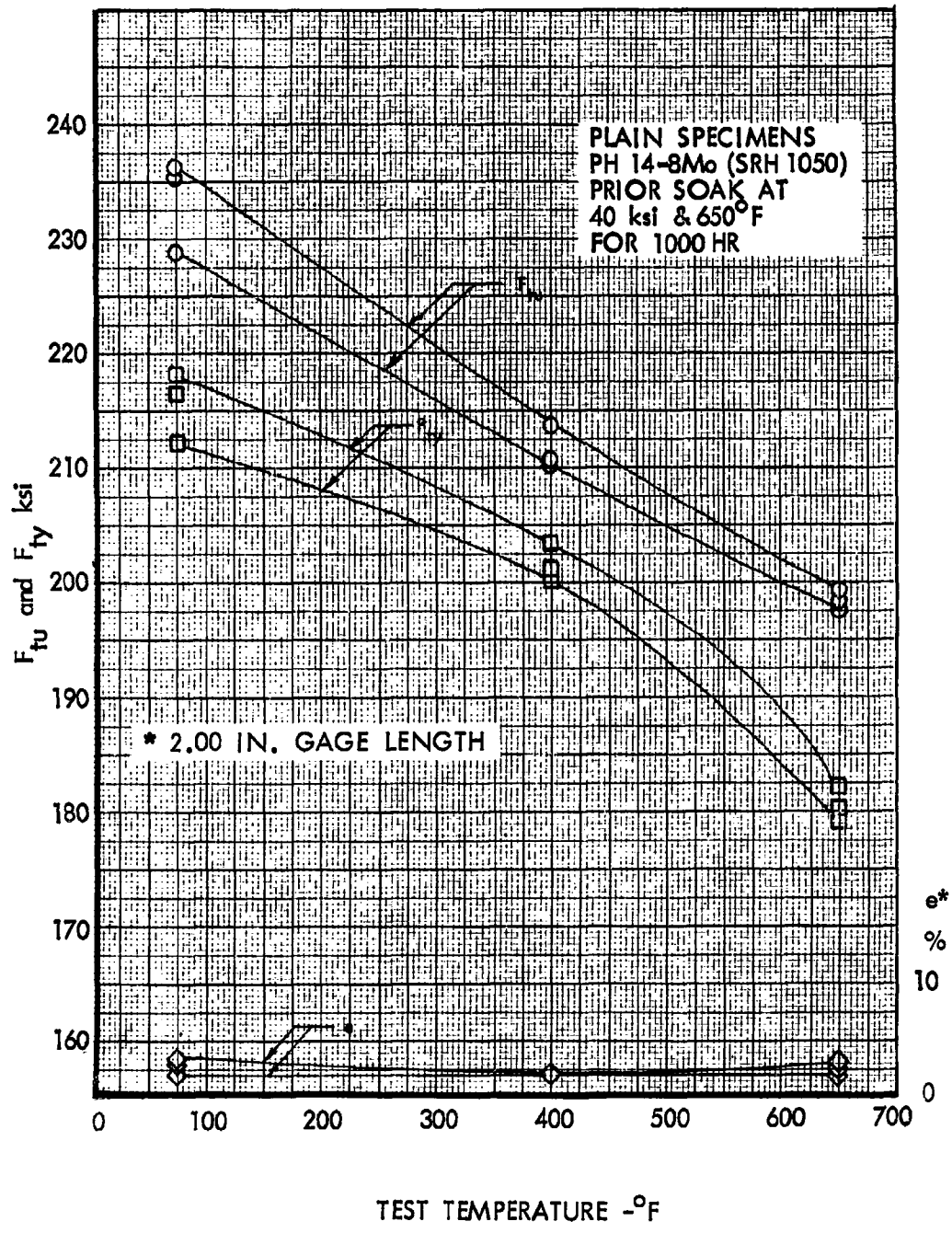



Figure 13. $F_{tu}$, $F_{ty}$ and e vs. Test Temperature, Plain Specimens, PH 14-8Mo

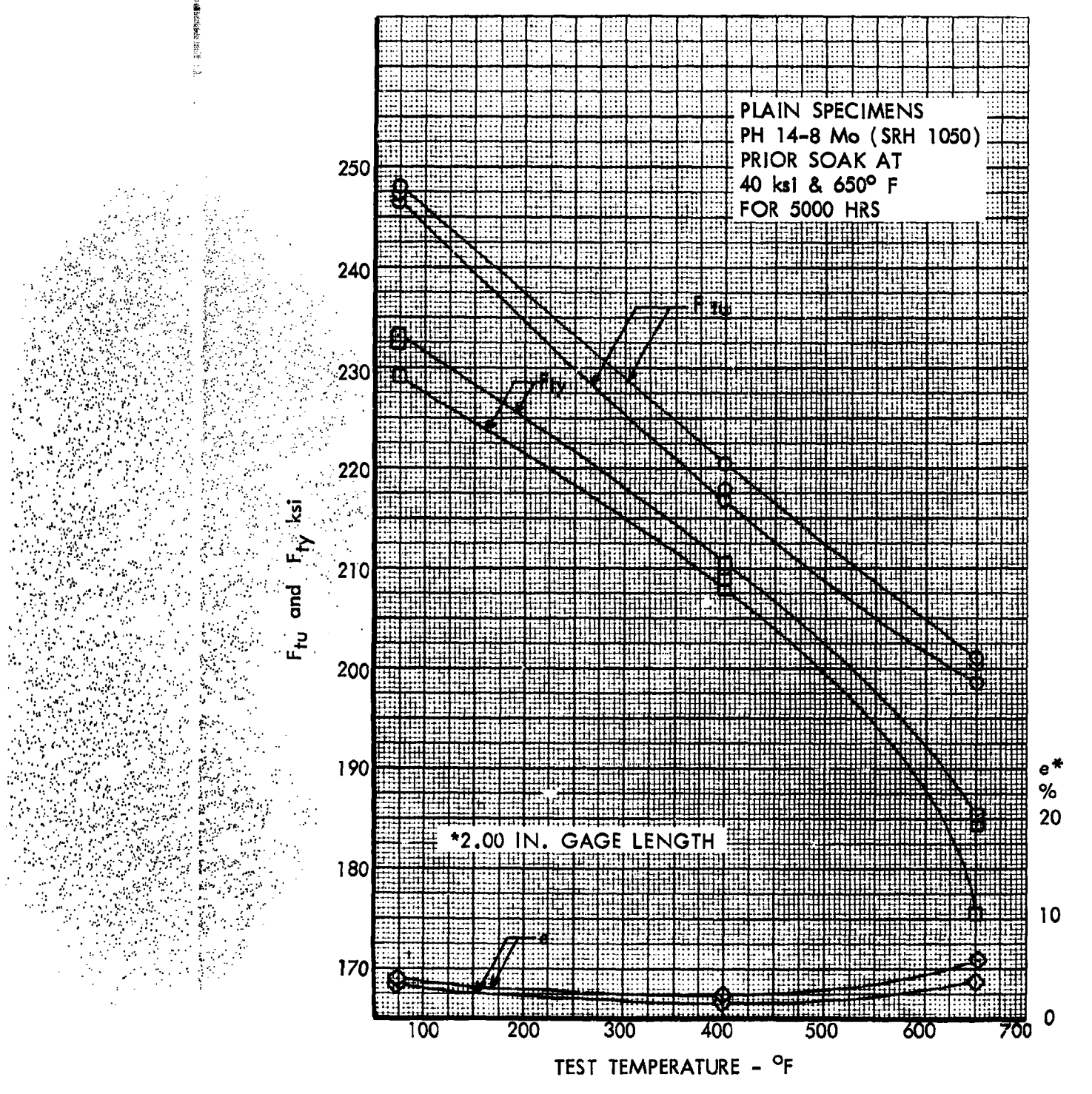



Figure 14. $F_{tu}$, $F_{ty}$ and e vs. Test Temperature, Plain Specimens, PH 14-8Mo

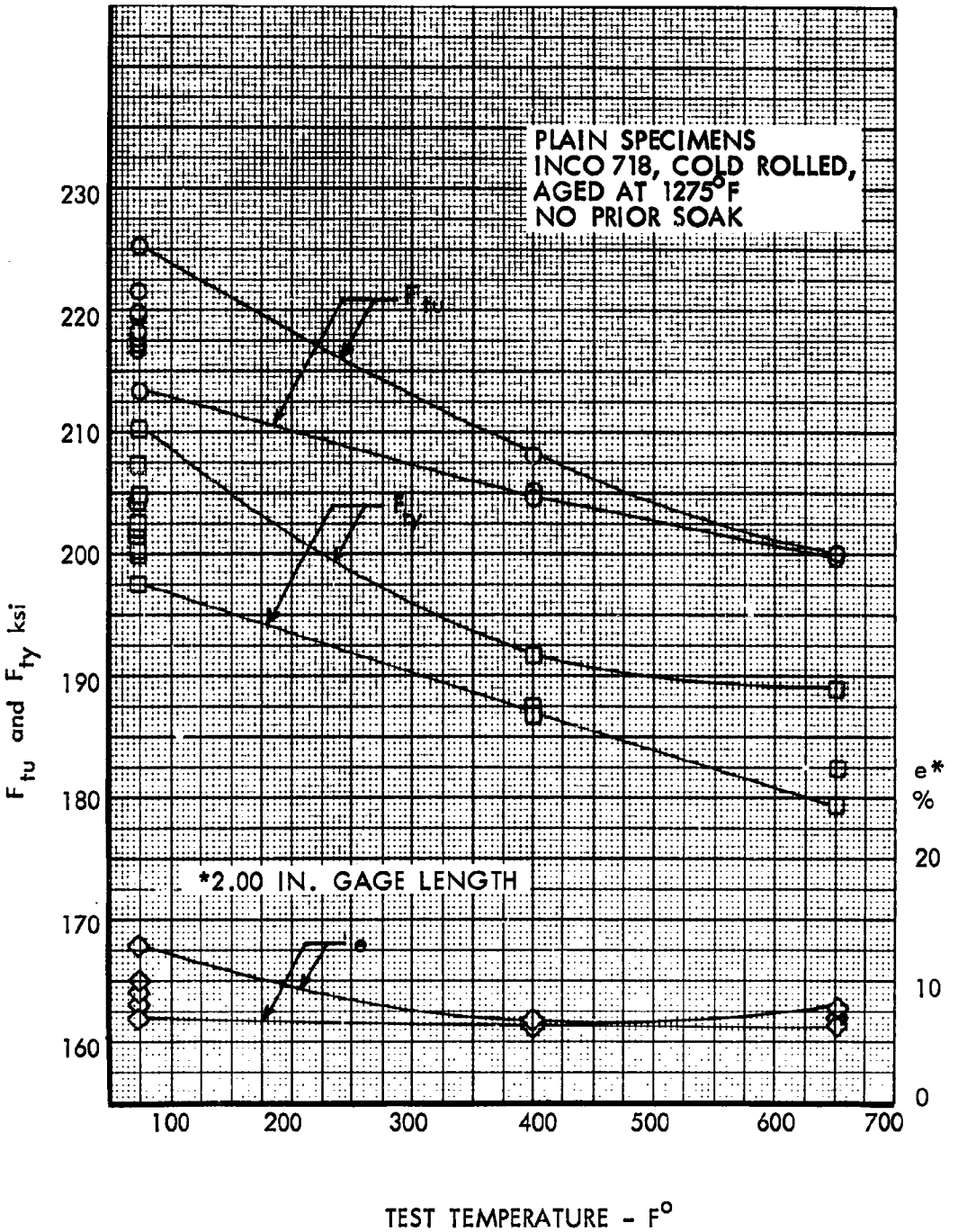



Figure 15. $F_{tu}$, $F_{ty}$ and e vs. Test Temperature, Plain Specimens, INCO 718

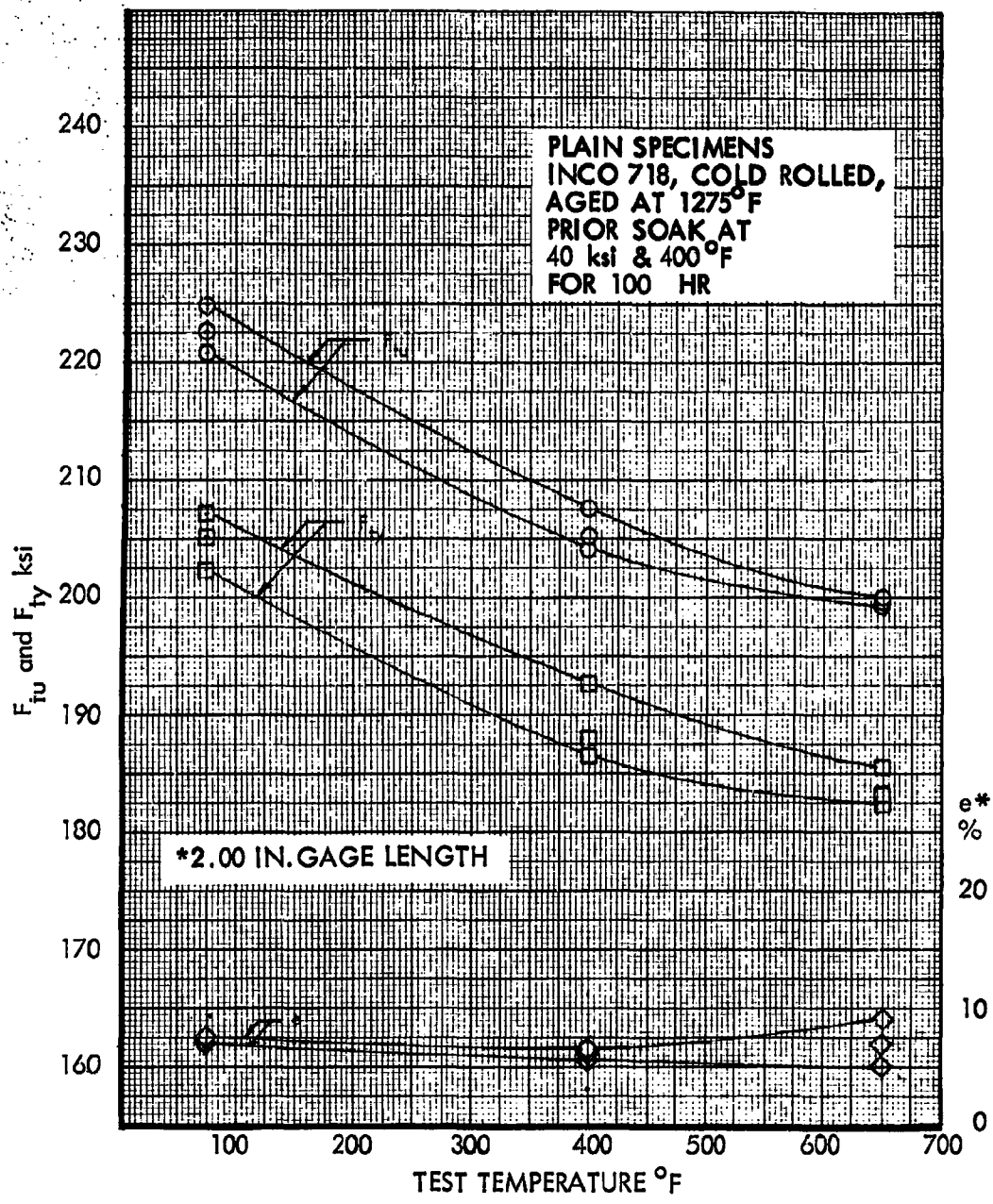



Figure 16. $F_{tu}$, $F_{ty}$ and e vs. Test Temperature, Plain Specimens, INCO 718

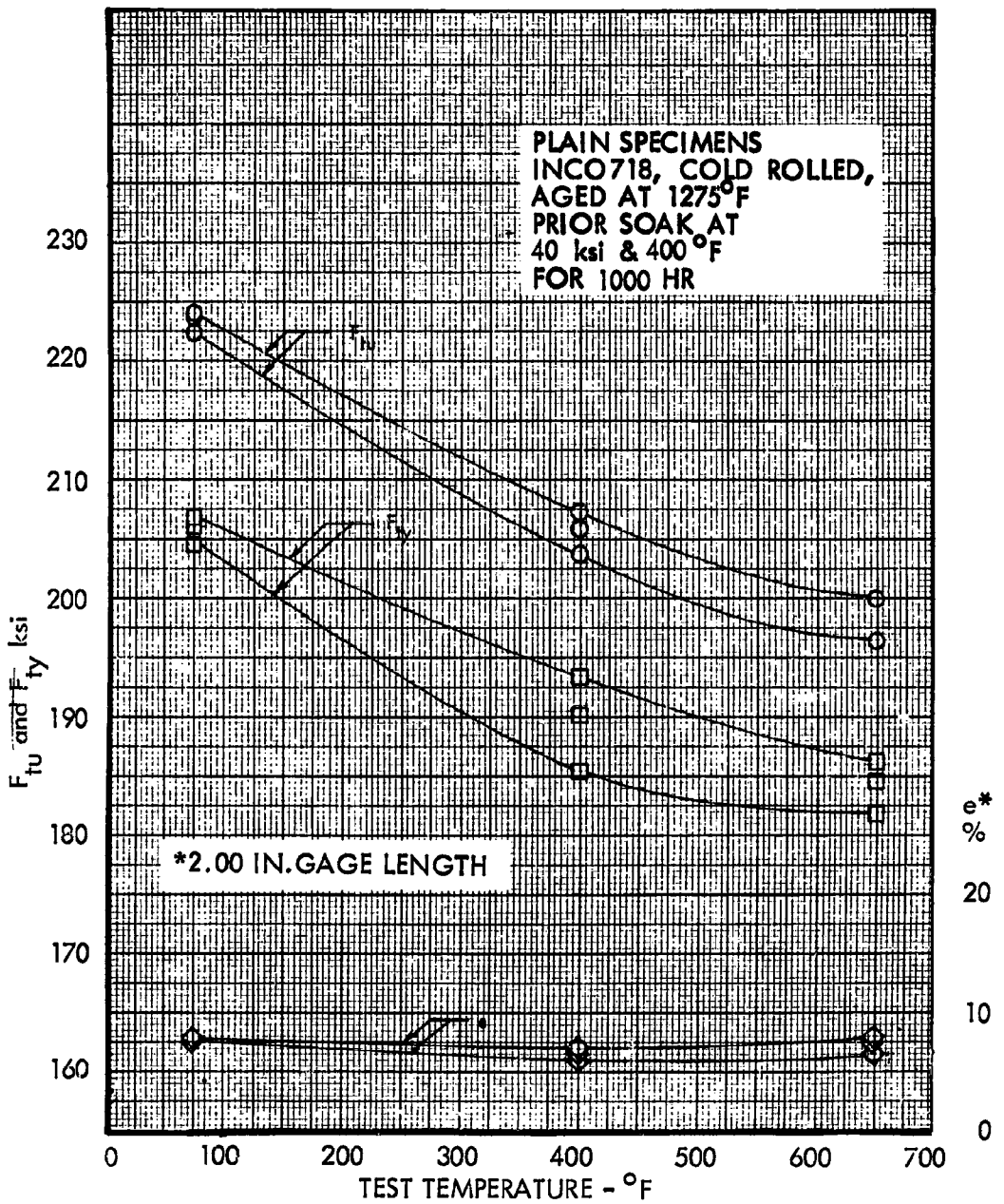



Figure 17. $F_{tu}$, $F_{ty}$ and e vs. Test Temperature, Plain Specimens, INCO 718

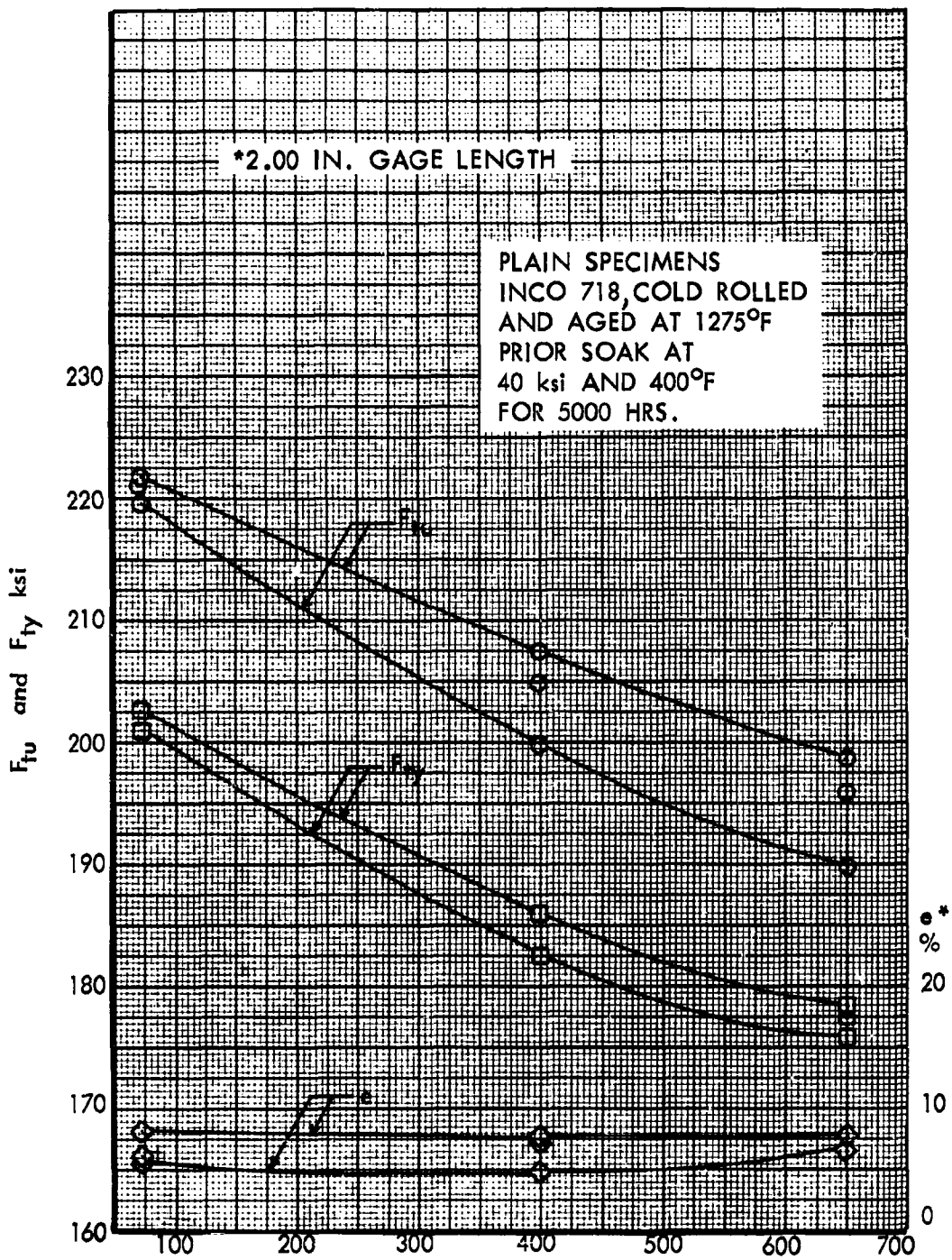



Figure 18. $F_{tu}$, $F_{ty}$ and e vs. Test Temperature, Plain Specimens, INCO 718

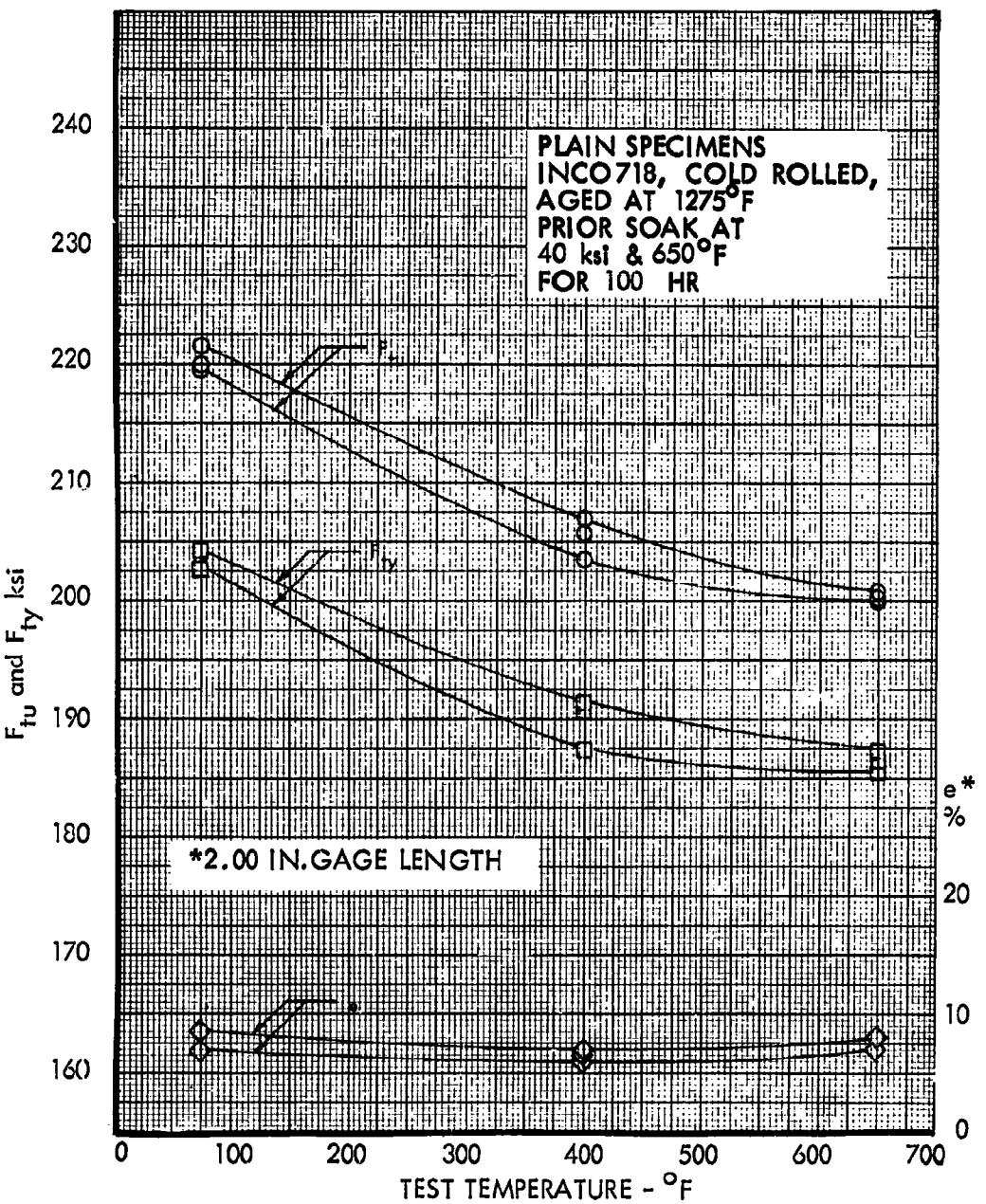



Figure 19. $F_{tu}$, $F_{ty}$ and e vs. Test Temperature, Plain Specimens, INCO 718

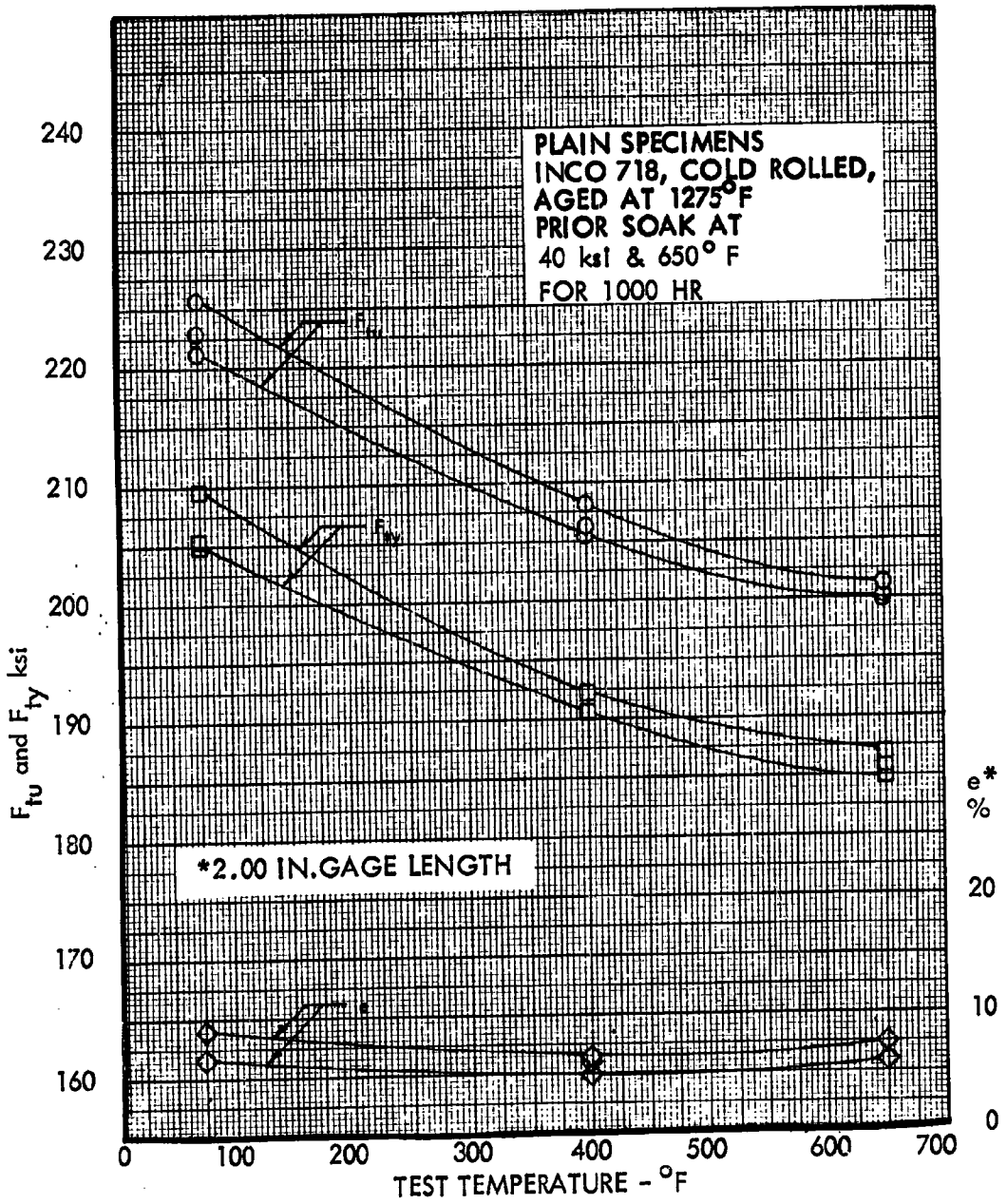



Figure 20. $F_{tu}$, $F_{ty}$ and e vs. Test Temperature, Plain Specimens, INCO 718

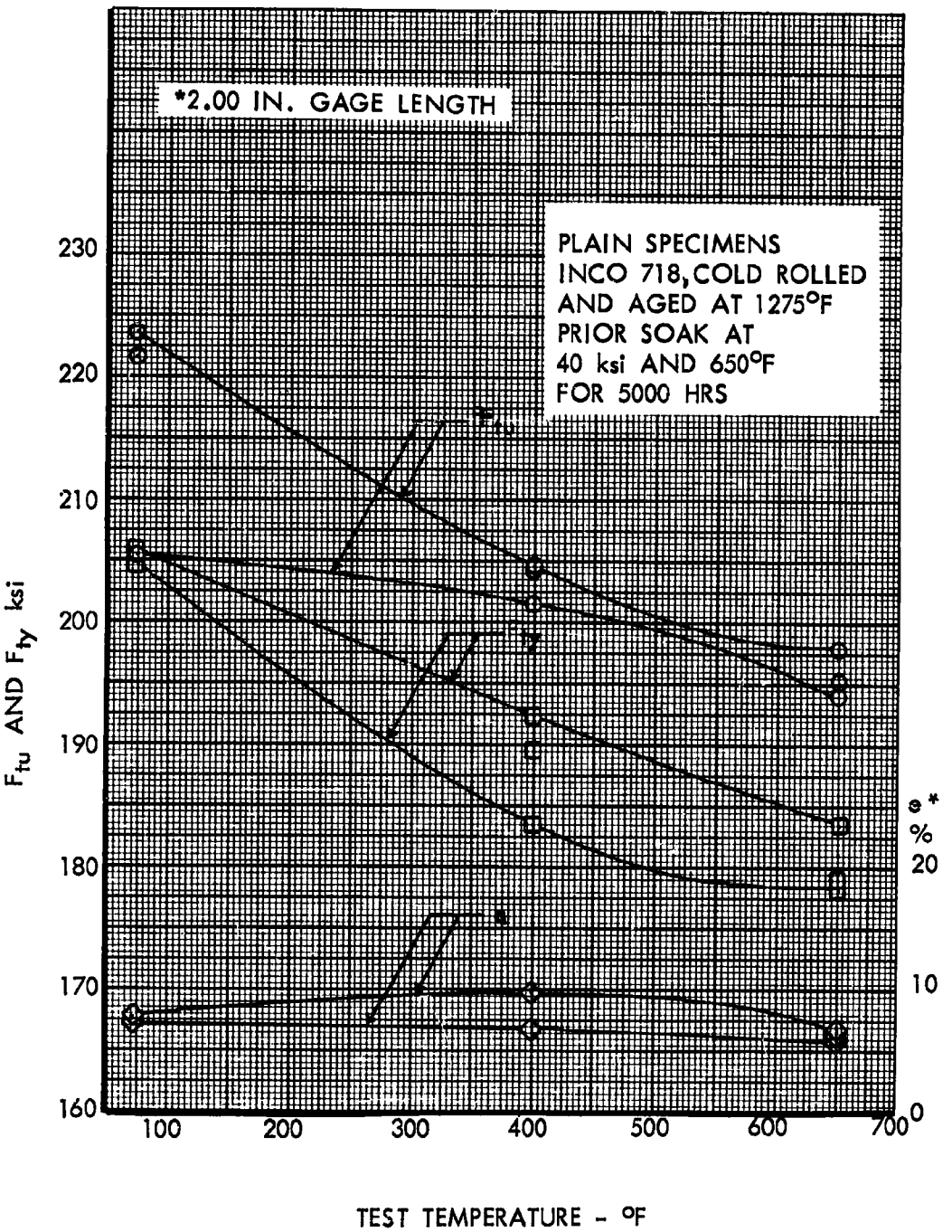



Figure 21. $F_{tu}$, $F_{ty}$ and e vs. Test Temperature, Plain Specimens, INCO 718

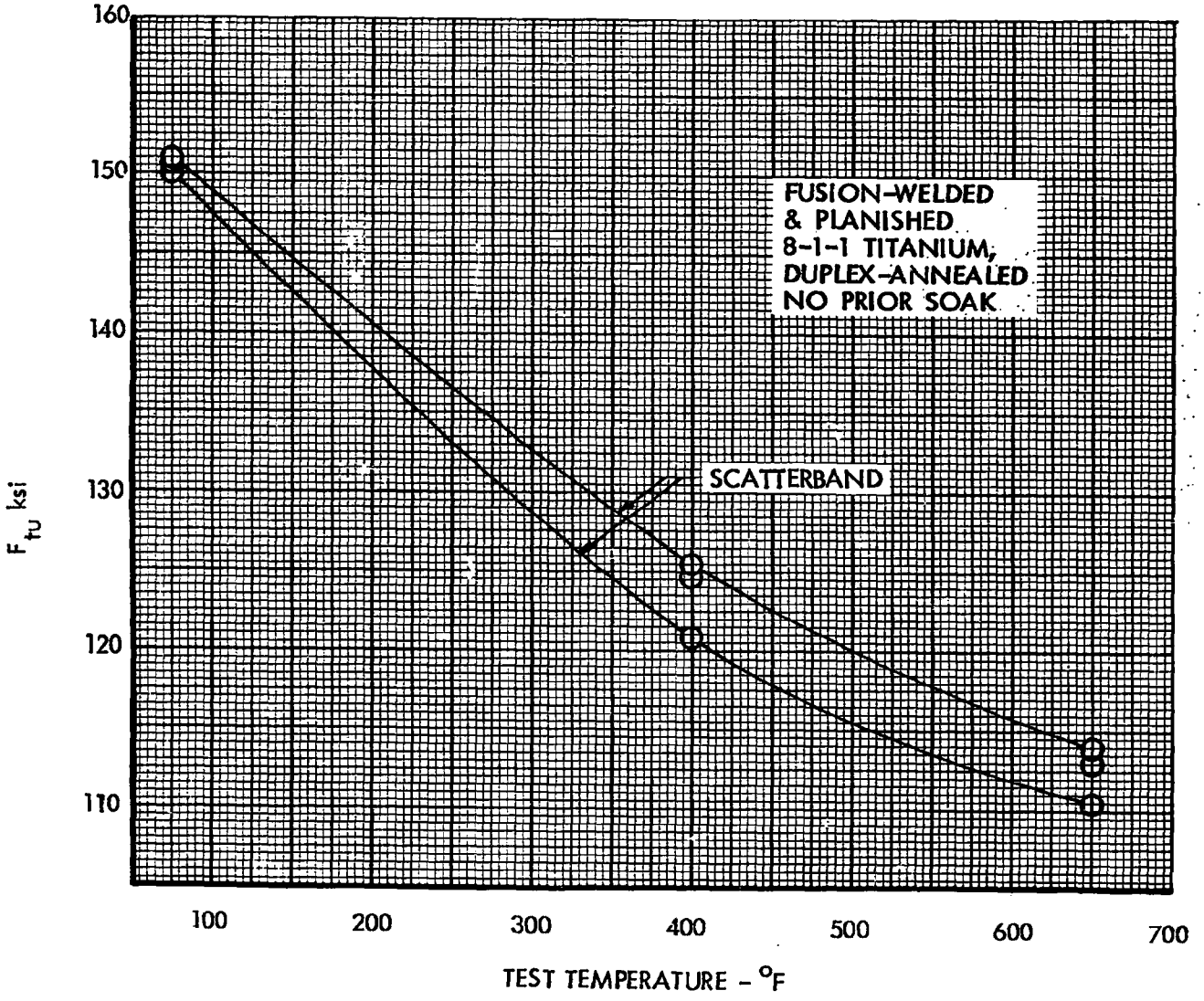



Figure 22. $F_{tu}$ vs. Test Temperature, Fusion-Welded 8-1-1 Titanium

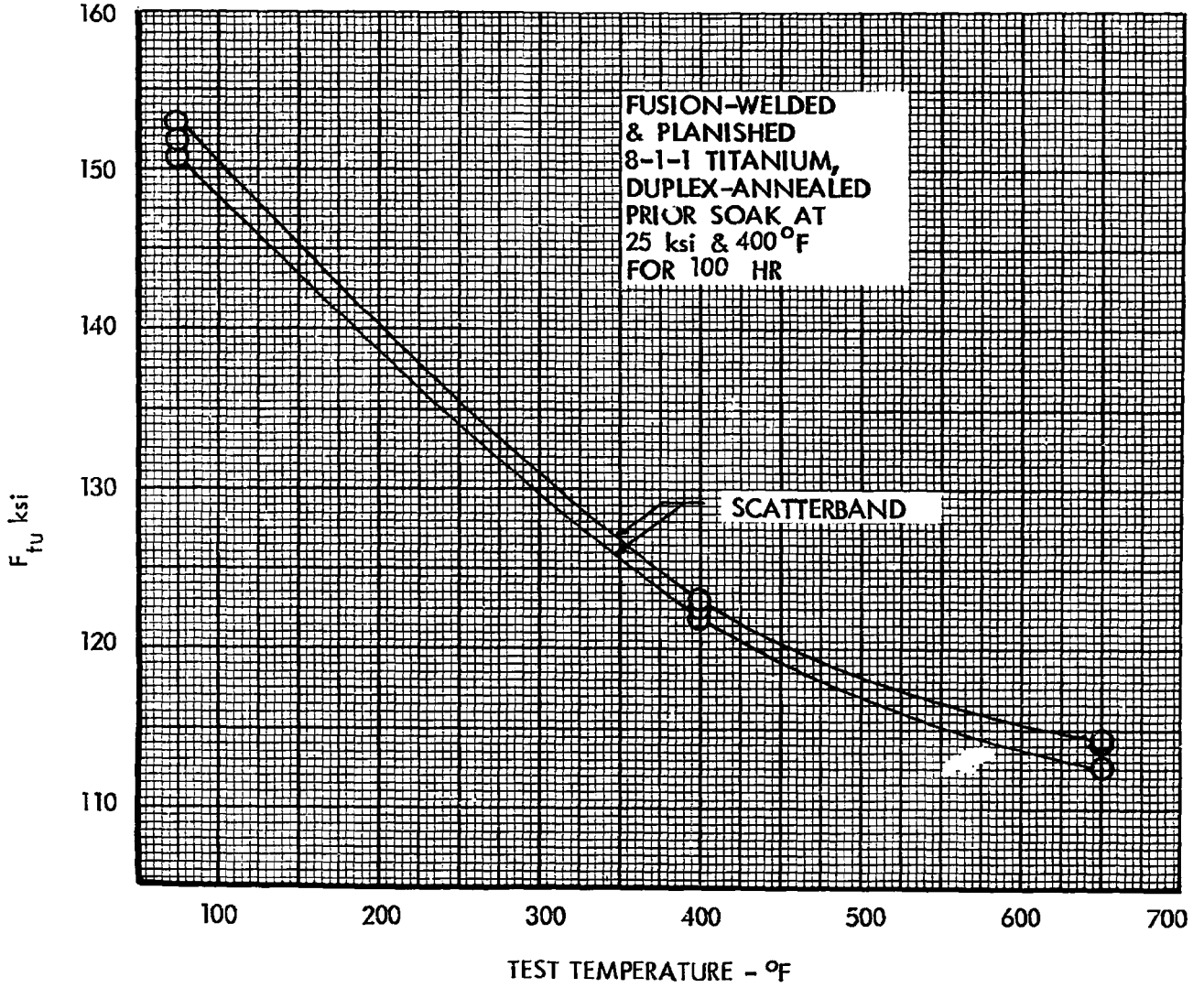



Figure 23. $F_{tu}$ vs. Test Temperature, Fusion-Welded 8-1-1 Titanium

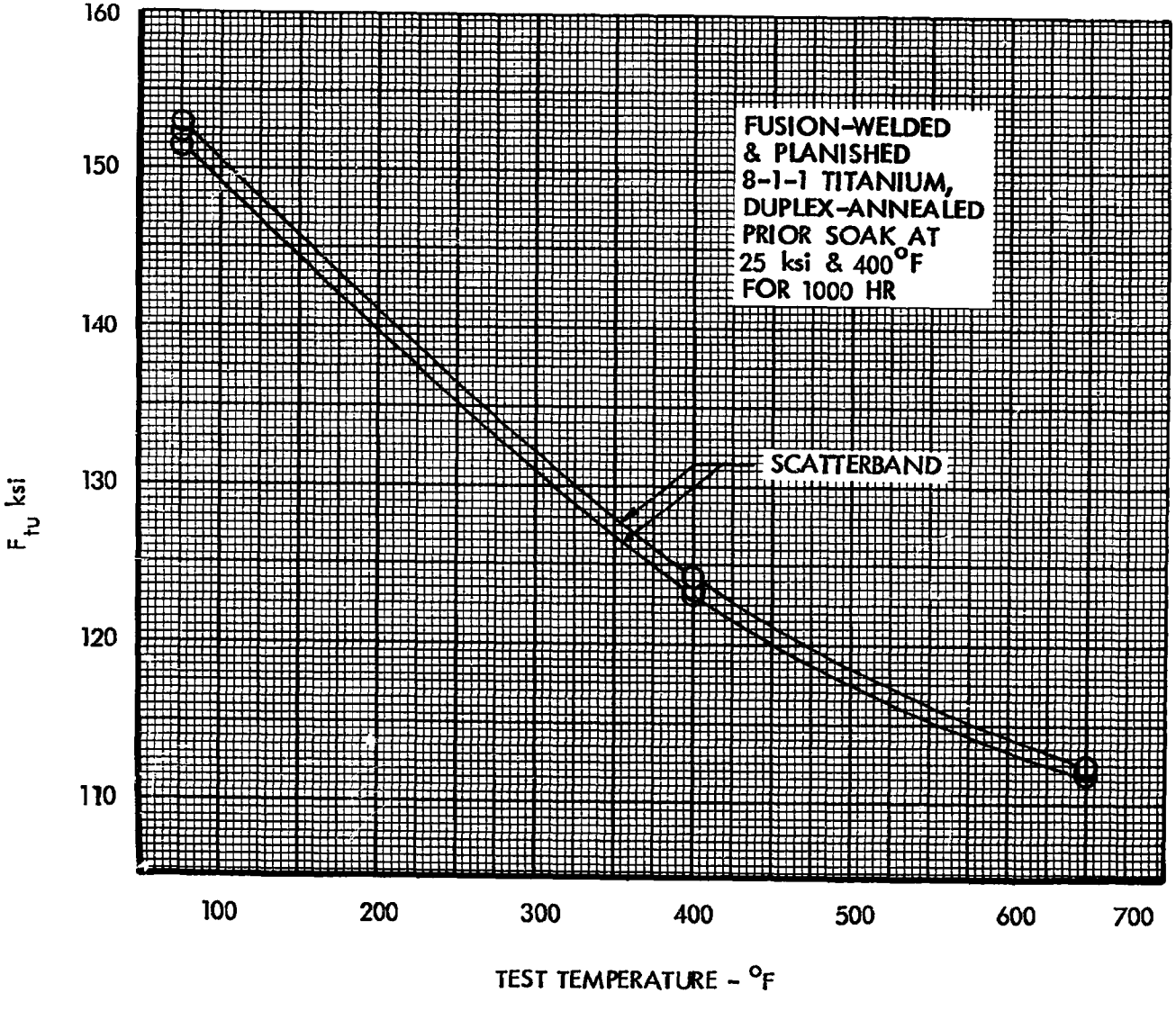



Figure 24. $F_{tu}$ vs. Test Temperature, Fusion-Welded 8-1-1 Titanium

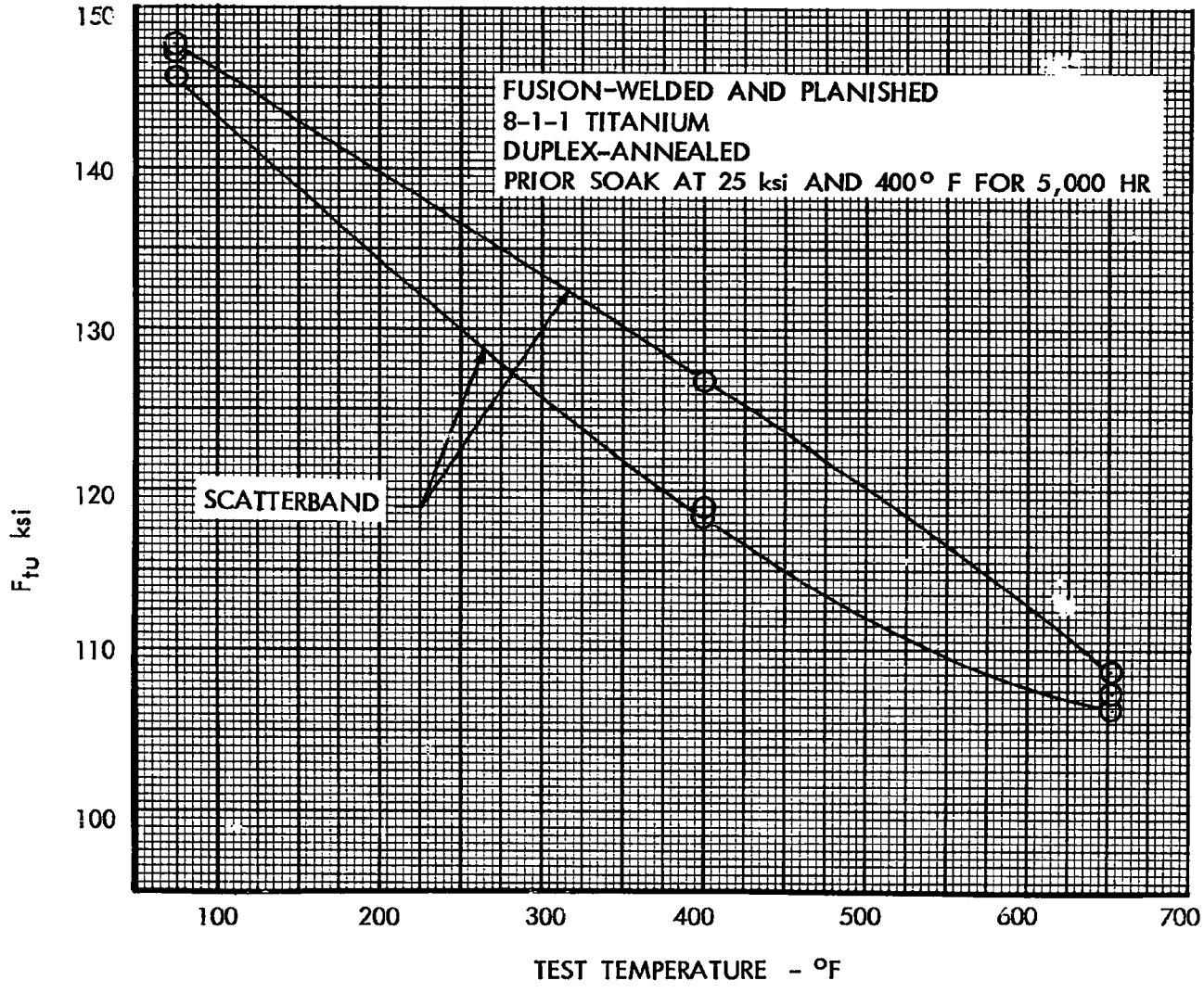



Figure 25. $F_{tu}$ vs. Test Temperature, Fusion-Welded 8-1-1 Titanium

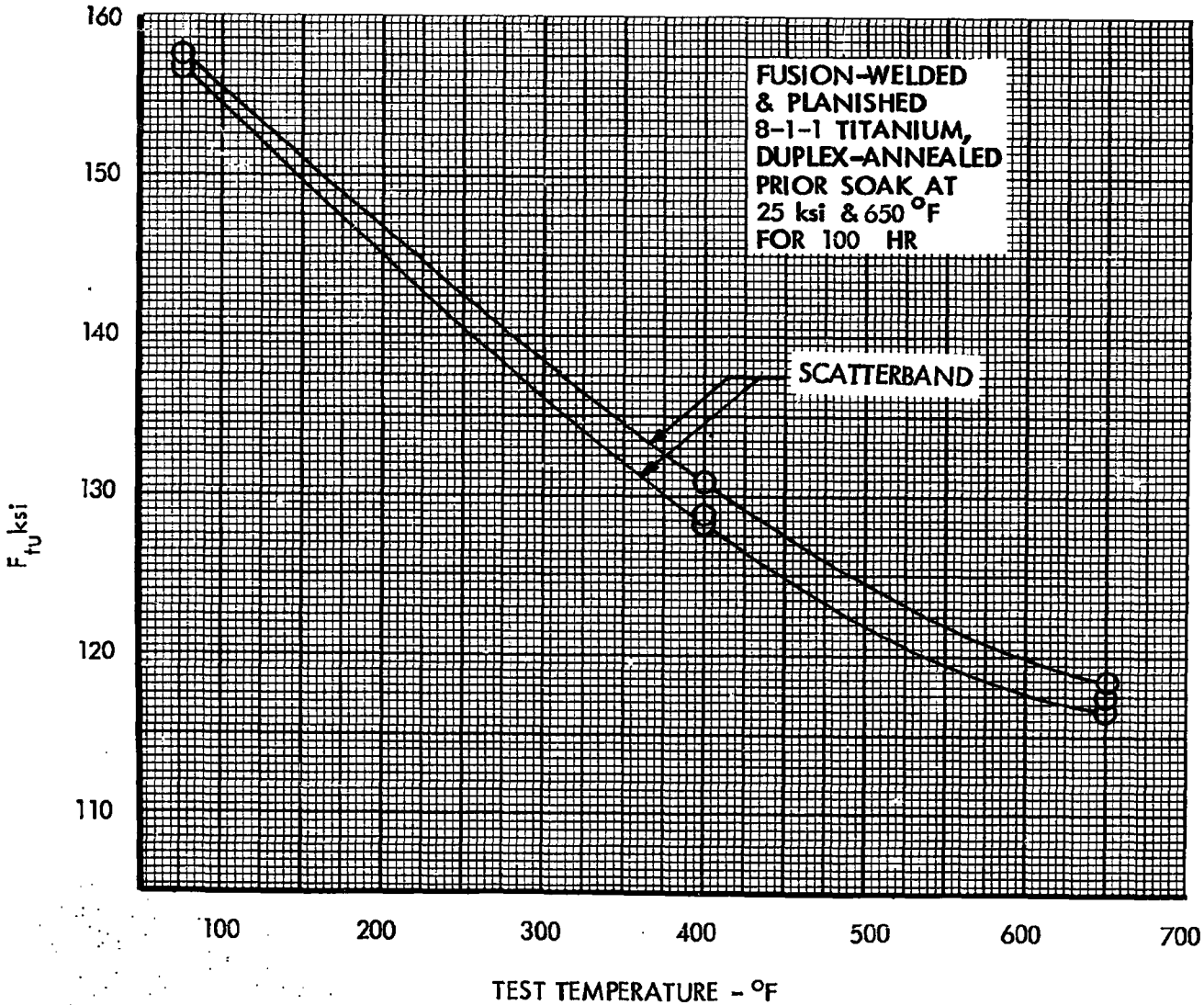



Figure 26. $F_{tu}$ vs. Test Temperature, Fusion-Welded 8-1-1 Titanium

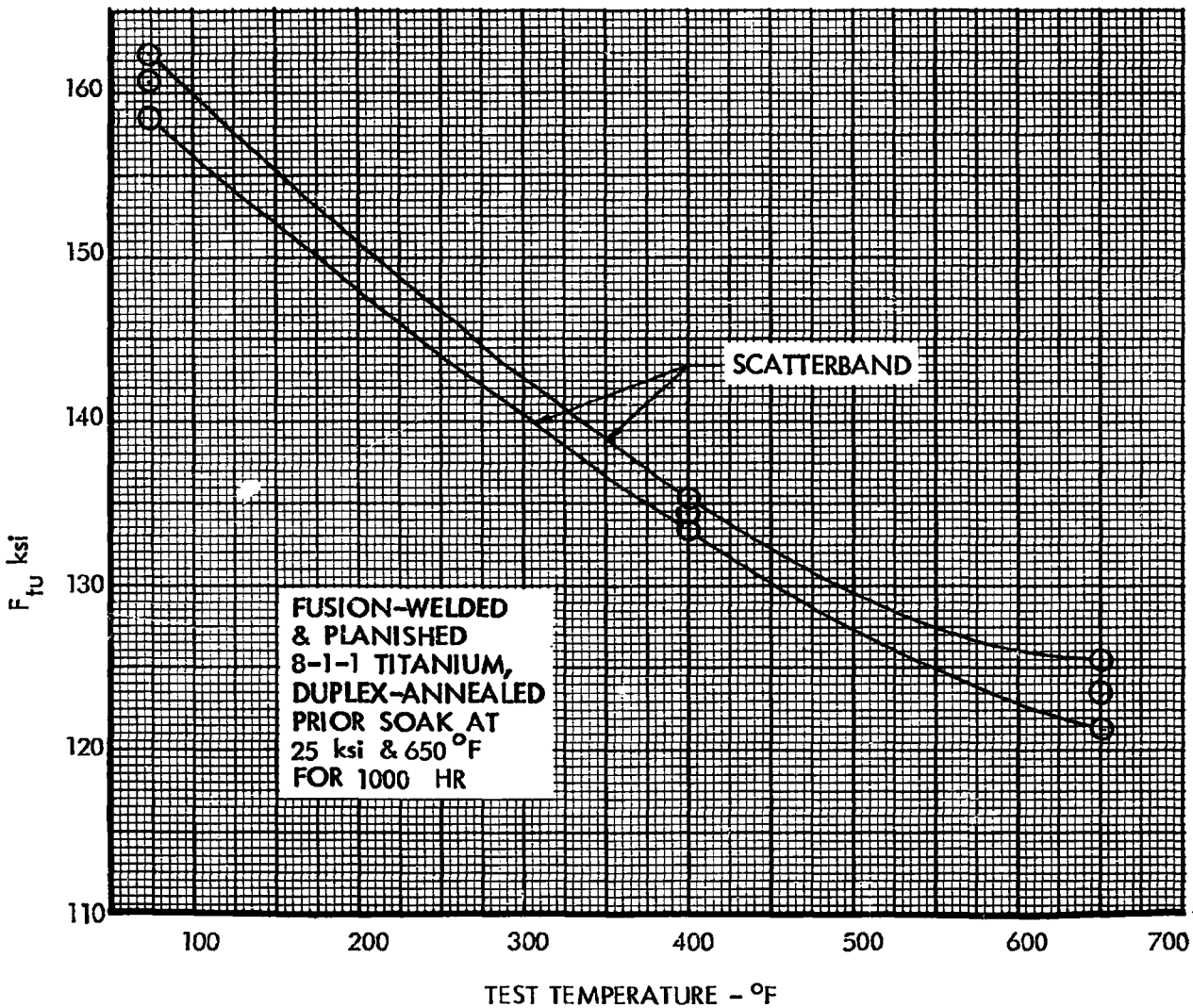



Figure 27. $F_{tu}$ vs. Test Temperature, Fusion-Welded 8-1-1 Titanium

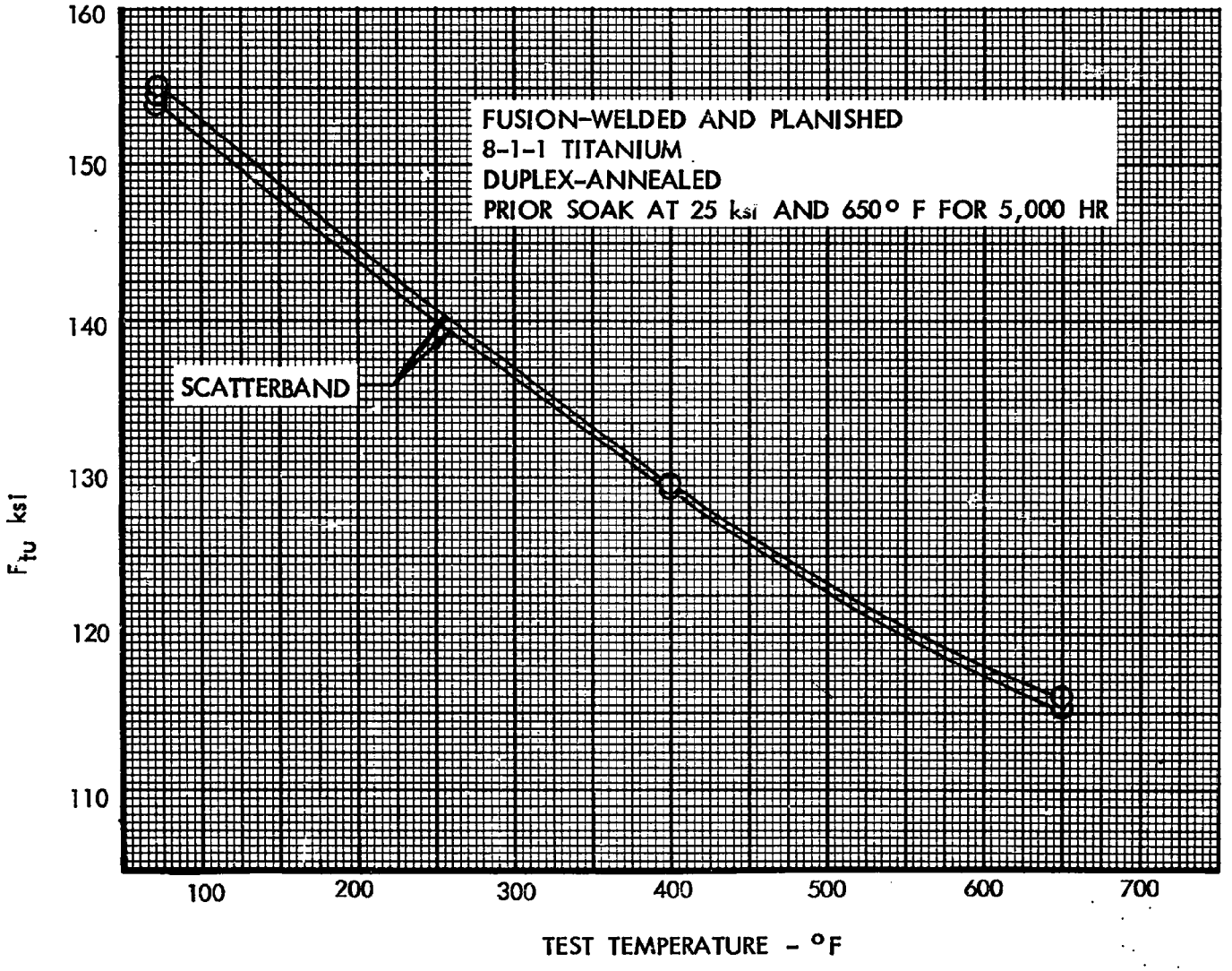



Figure 28. $F_{tu}$ vs. Test Temperature, Fusion-Welded 8-1-1 Titanium

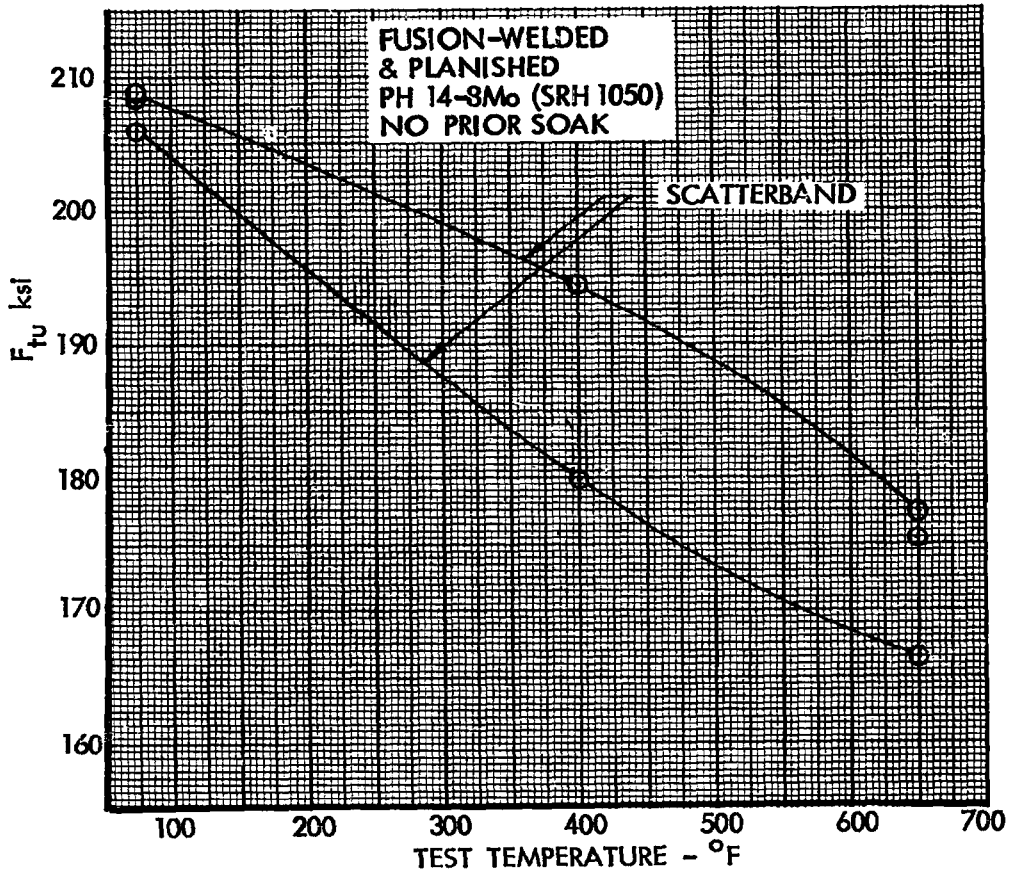



Figure 29. $F_{tu}$ vs. Test Temperature, Fusion-Welded PH 14-8Mo

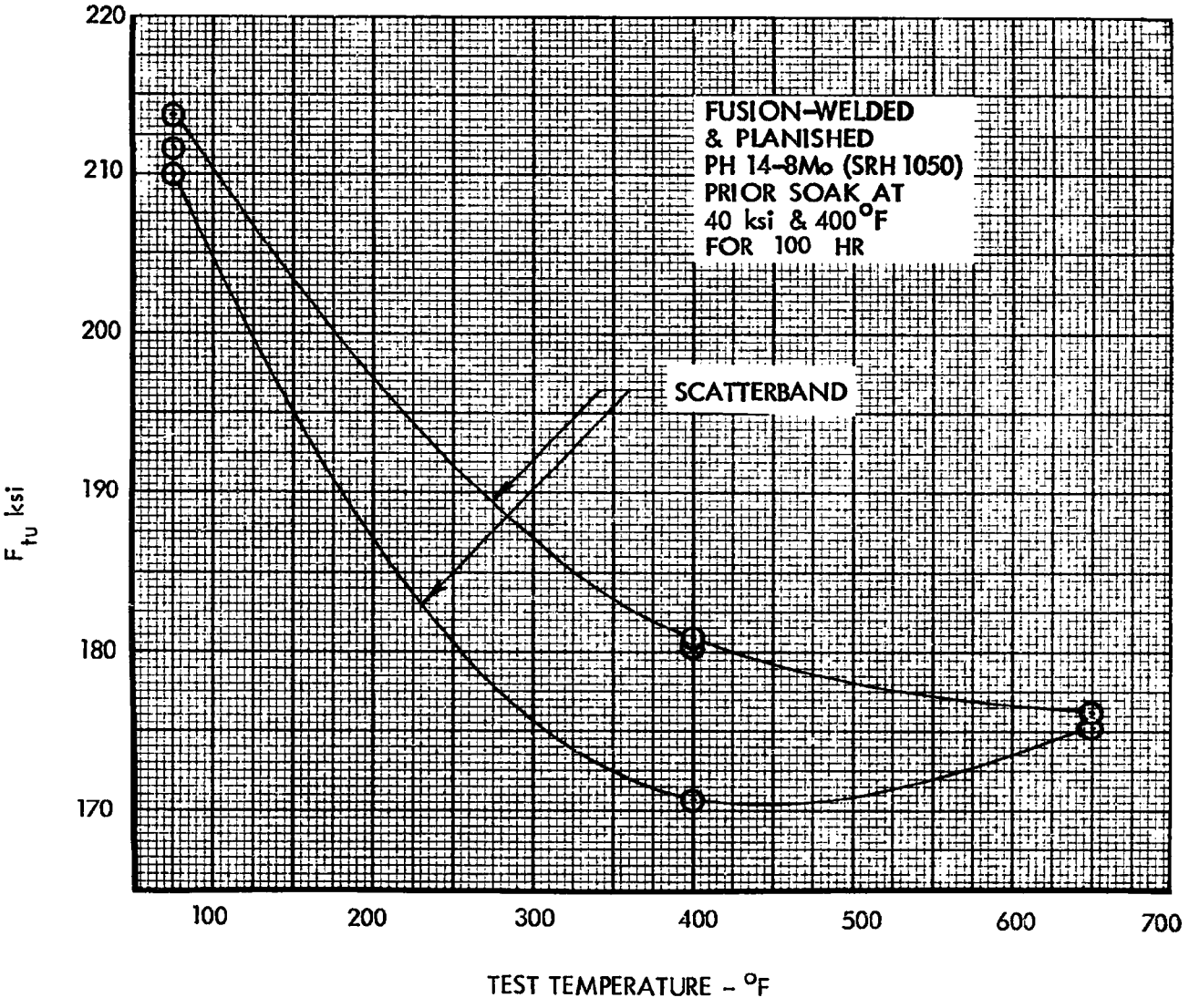



Figure 30. $F_{tu}$ vs. Test Temperature, Fusion-Welded PH 14-8Mo

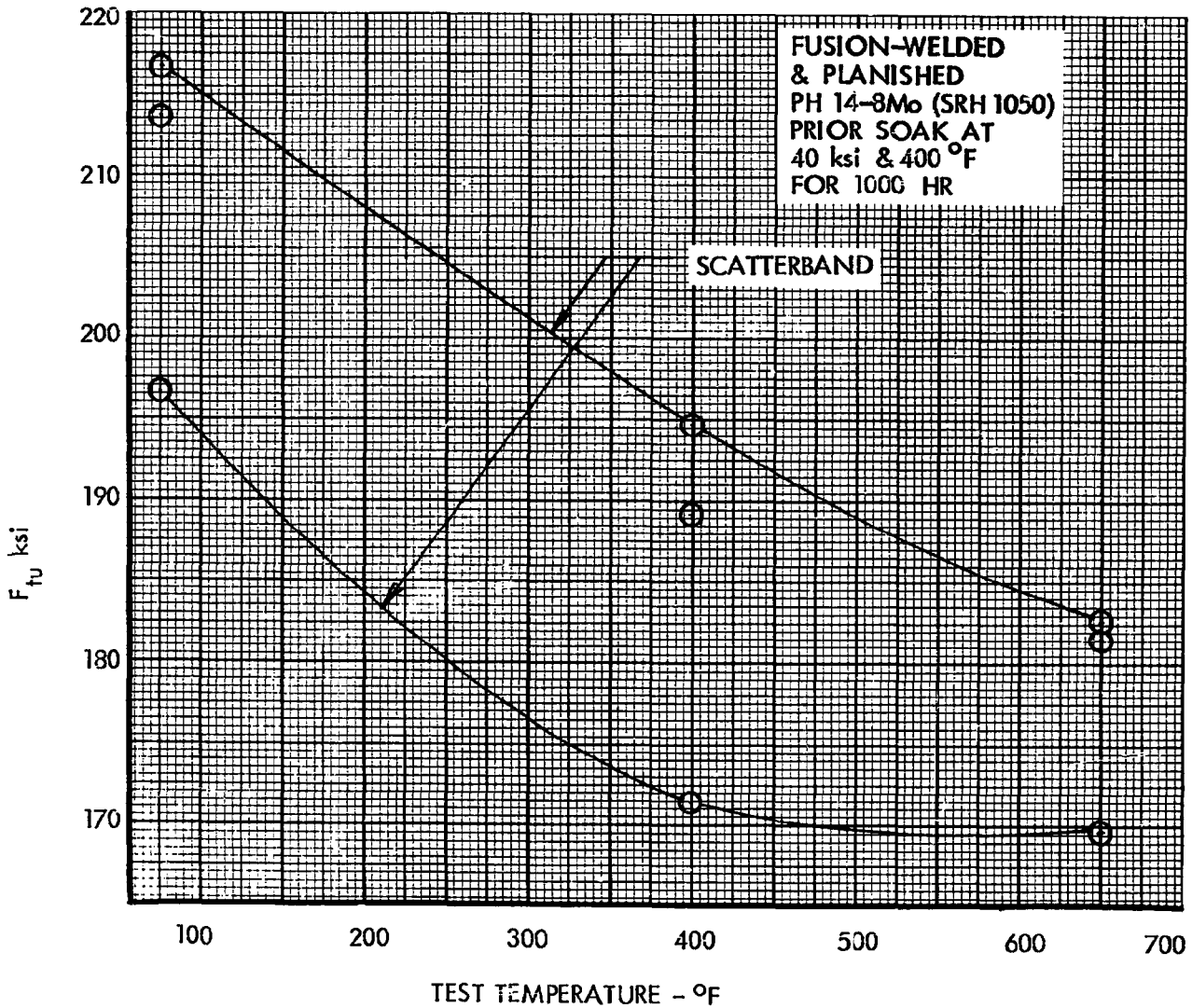



Figure 31. $F_{tu}$ vs. Test Temperature, Fusion-Welded PH 14-8Mo

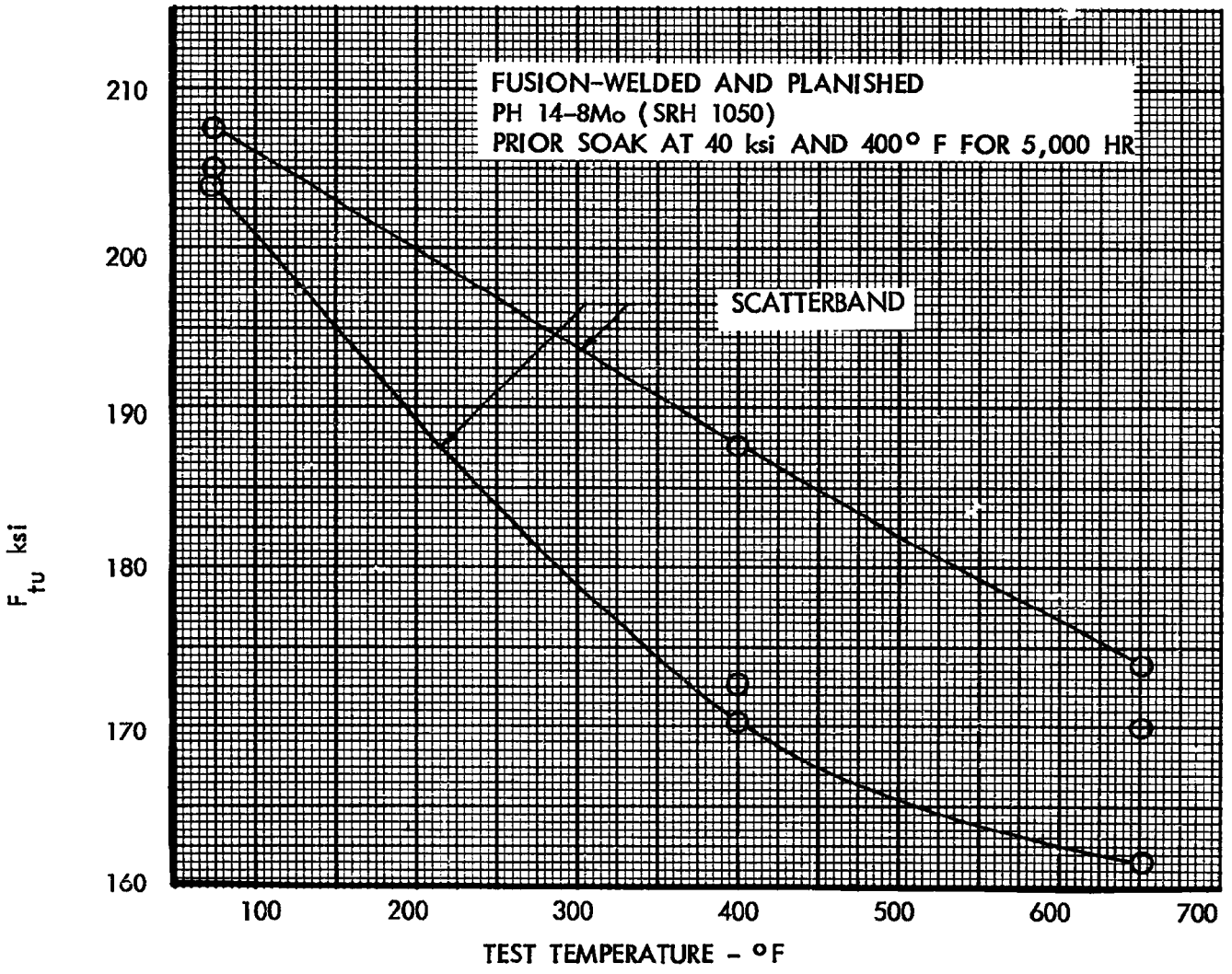



Figure 32. $F_{tu}$ vs. Test Temperature, Fusion-Welded PH 14-8Mo

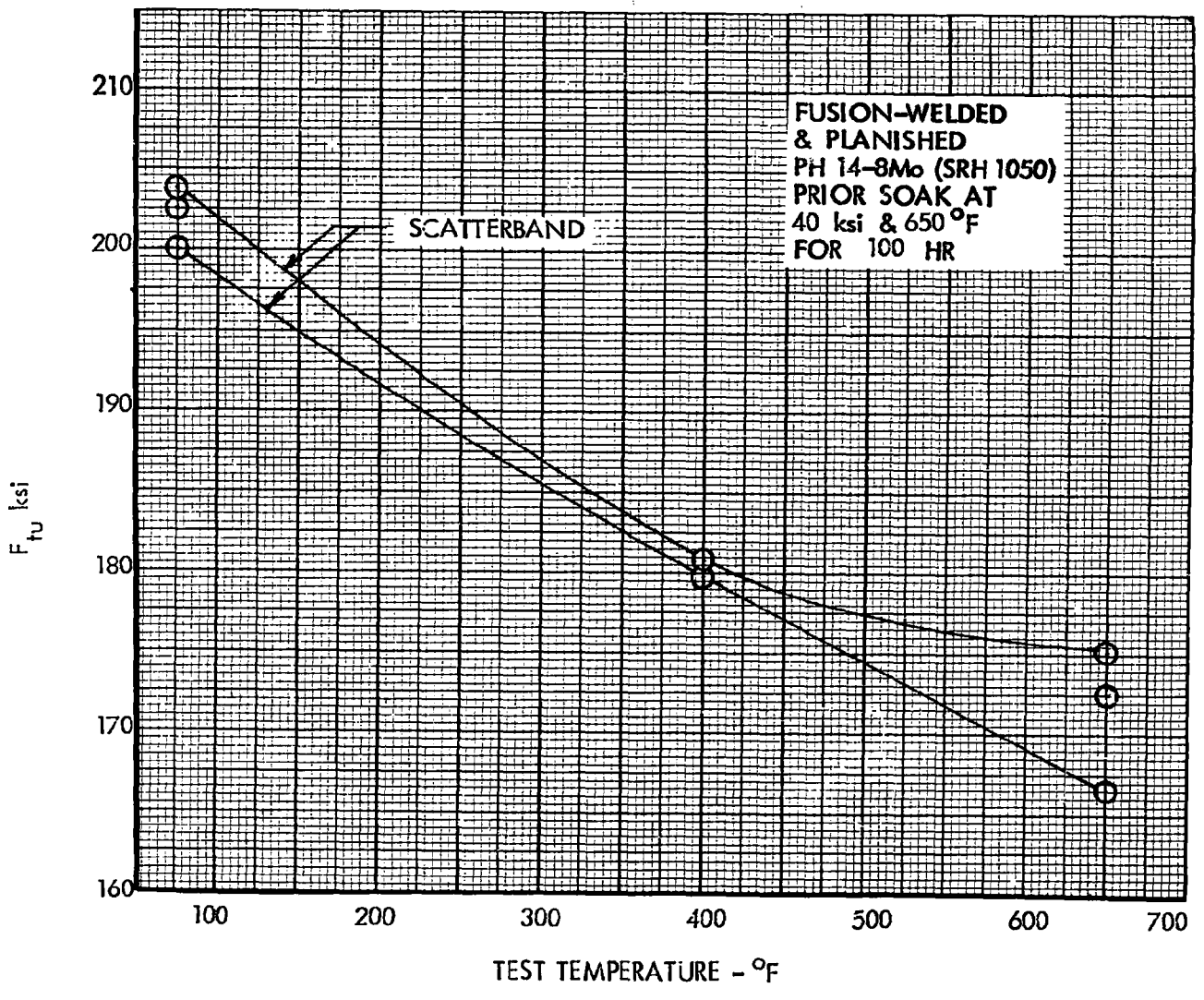



Figure 33. $F_{tu}$ vs. Test Temperature, Fusion-Welded PH 14-8Mo

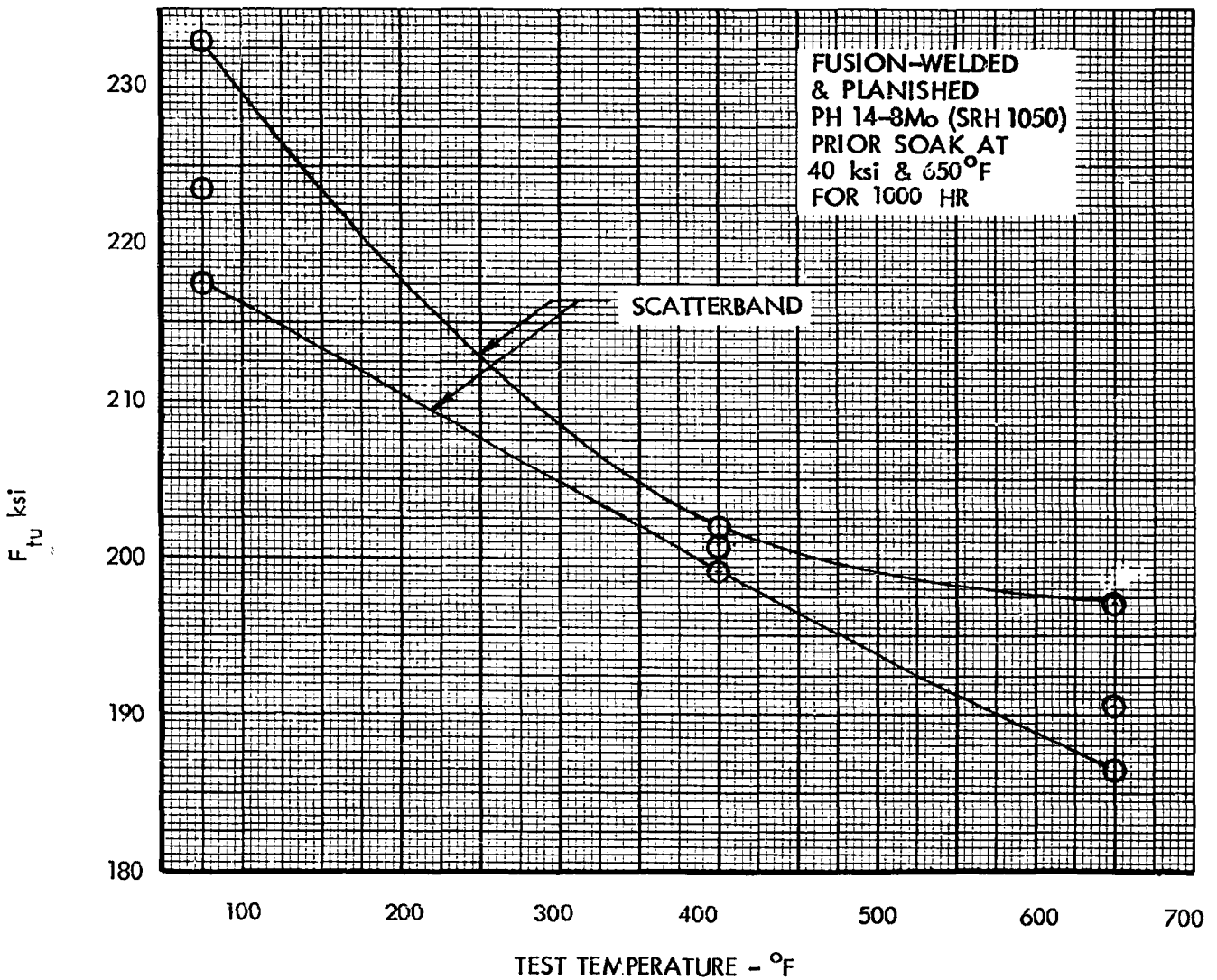



Figure 34. $F_{tu}$ vs. Test Temperature, Fusion-Welded PH 14-8Mo

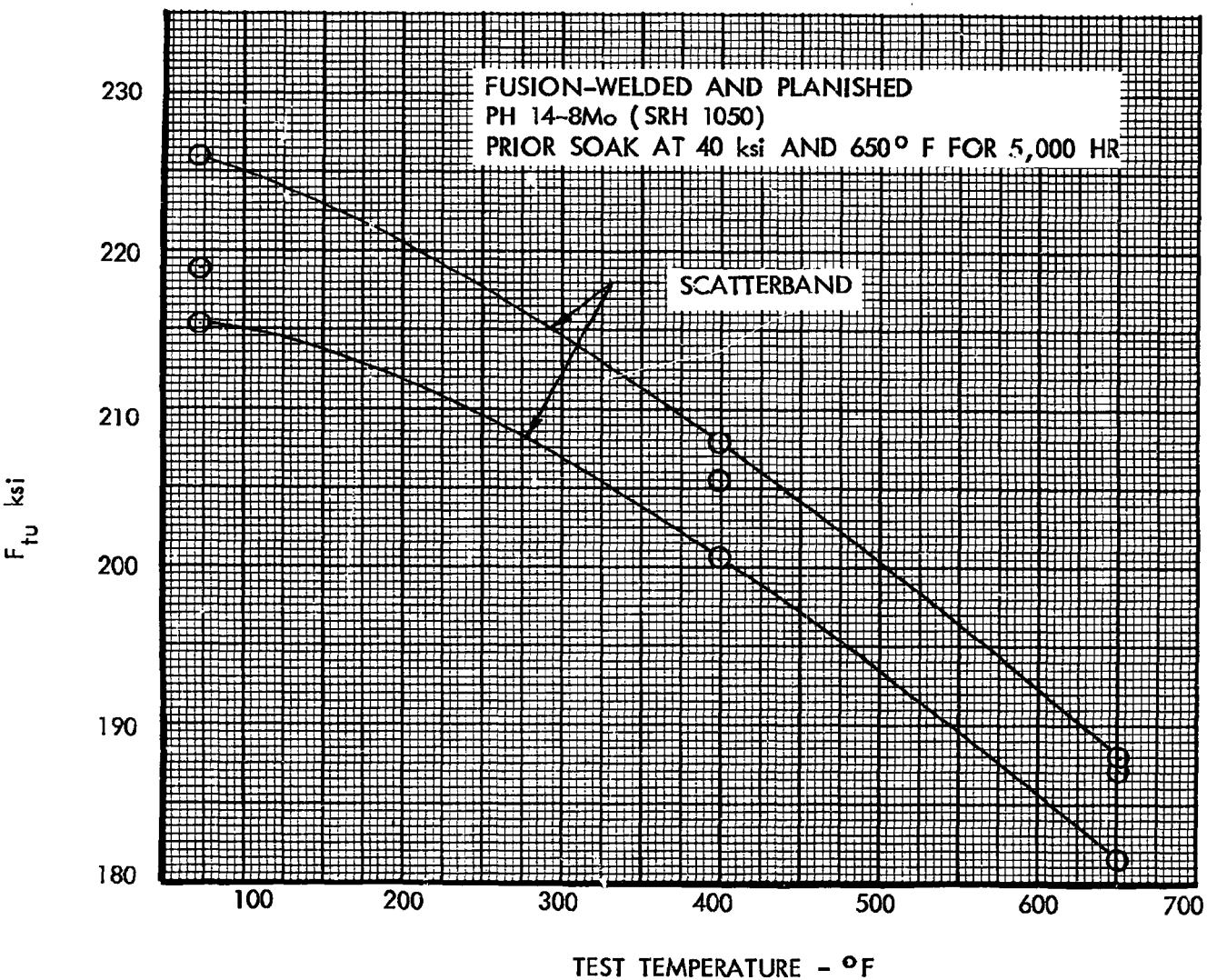



Figure 35. $F_{tu}$ vs. Test Temperature, Fusion-Welded PH 14-8Mo

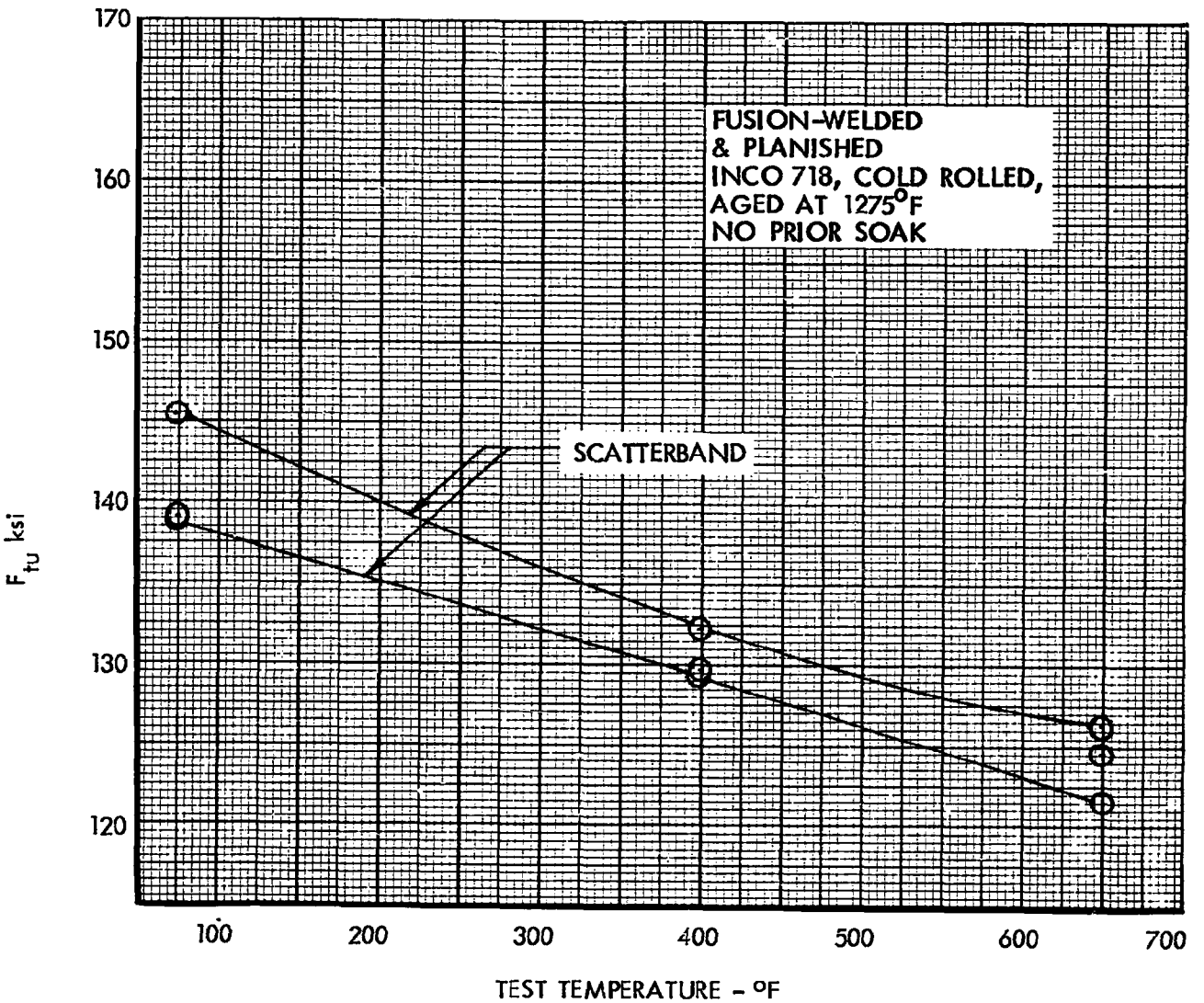



Figure 36. $F_{tu}$ vs. Test Temperature, Fusion-Welded INCO 718

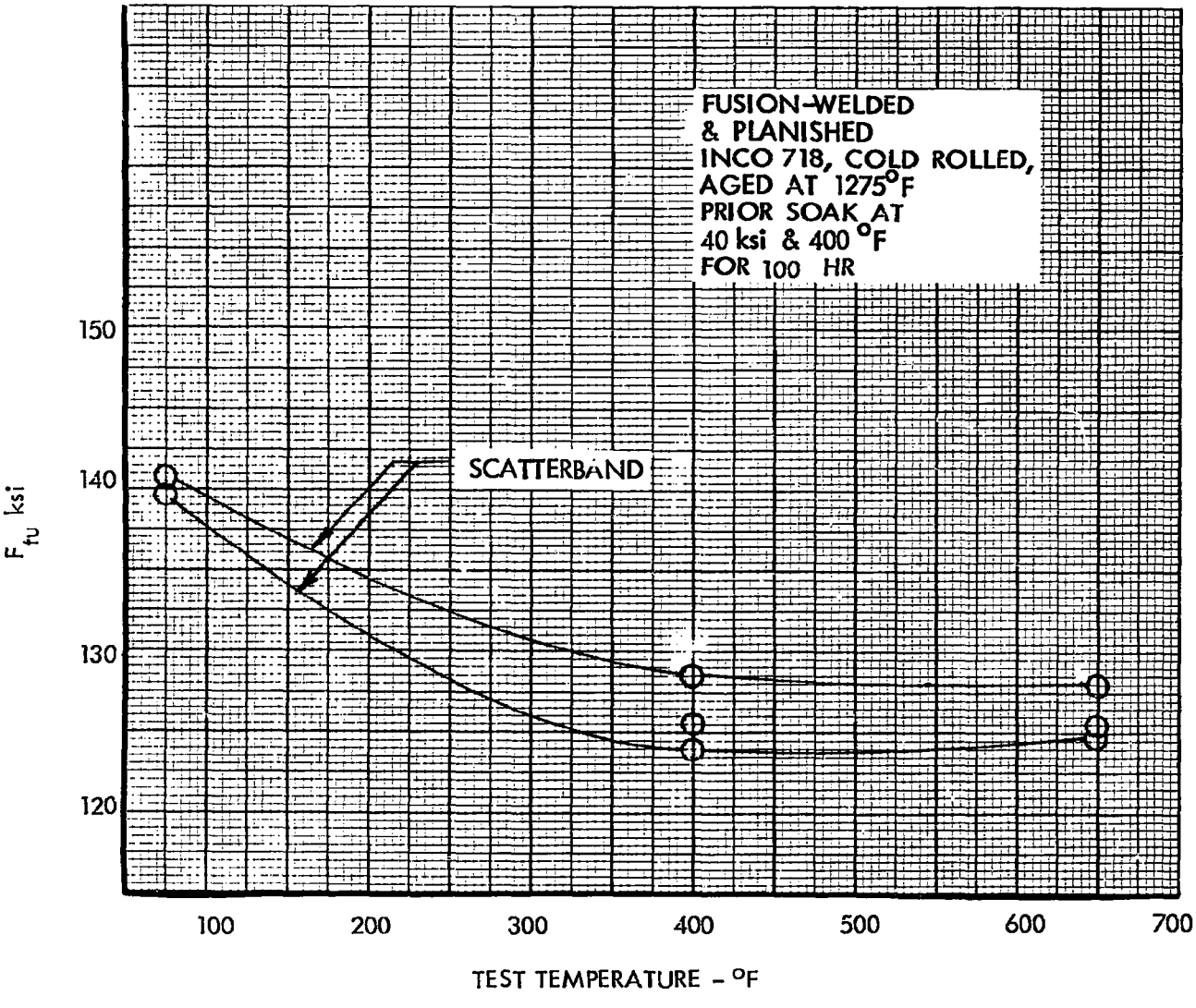



Figure 37. $F_{tu}$ vs. Test Temperature, Fusion-Welded INCO 718

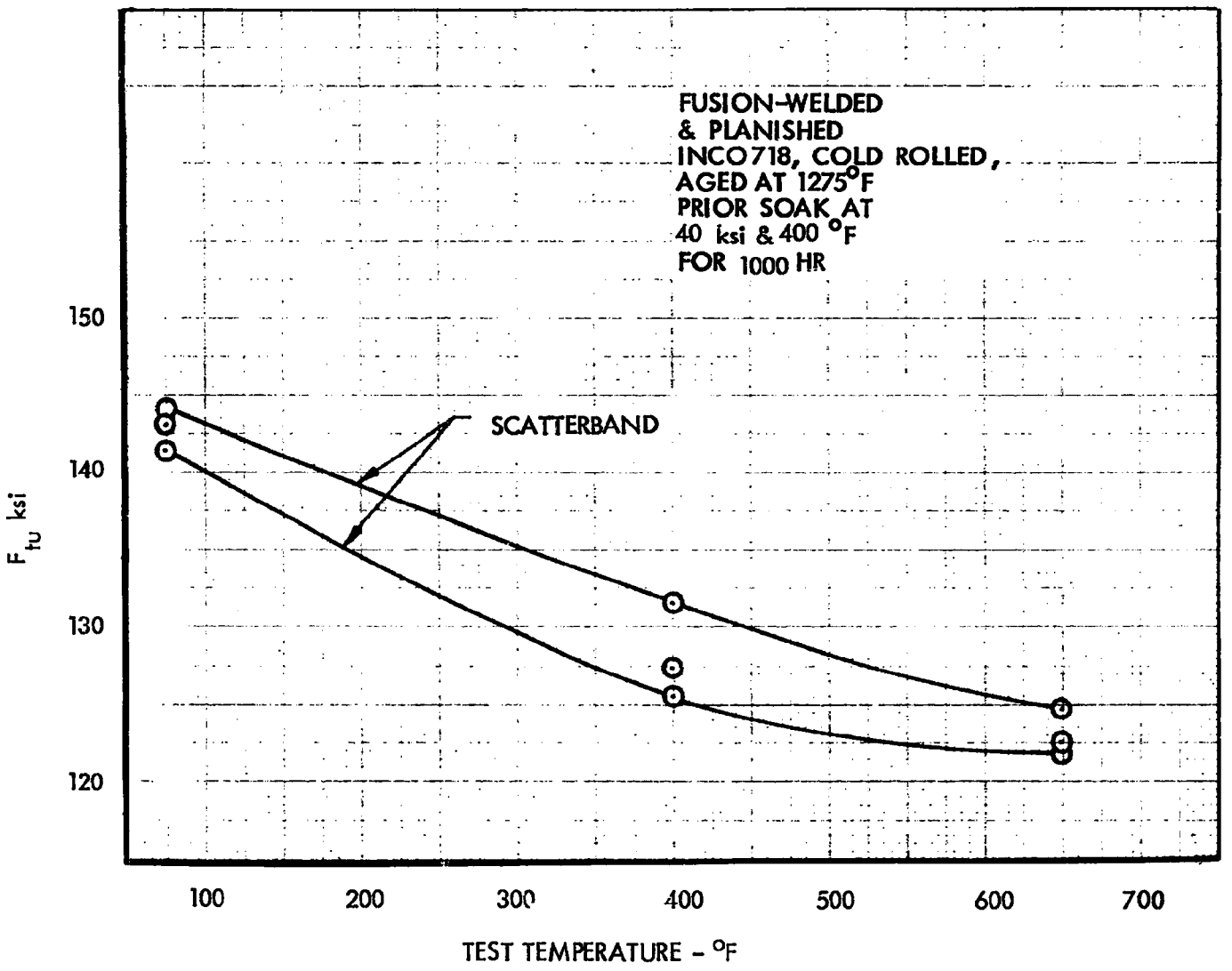



Figure 38. $F_{tu}$ vs. Test Temperature, Fusion-Welded INCO 718

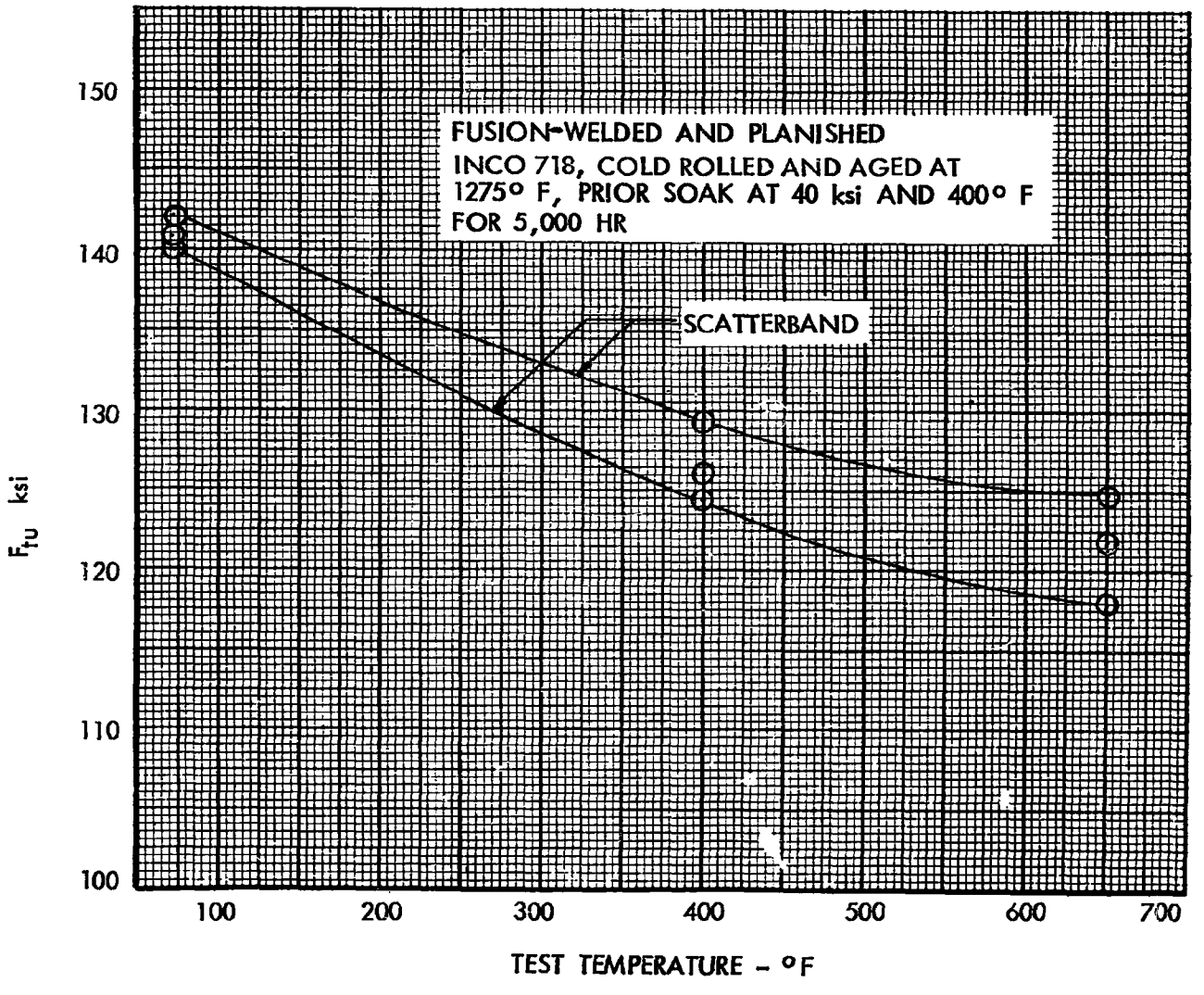



Figure 39. $F_{tu}$ vs. Test Temperature, Fusion-Welded INCO 718

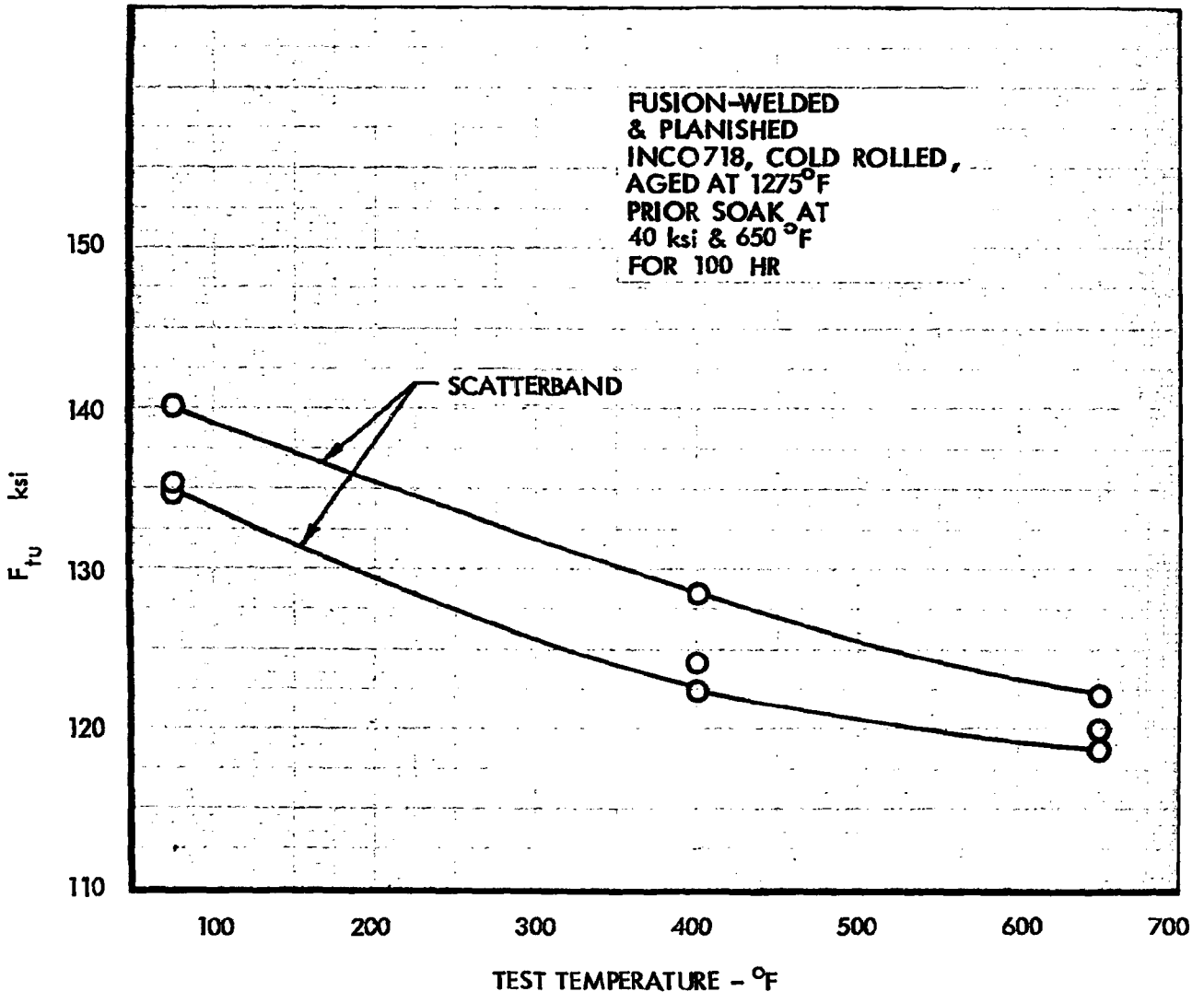



Figure 40. $F_{tu}$ vs. Test Temperature, Fusion-Welded INCO 718

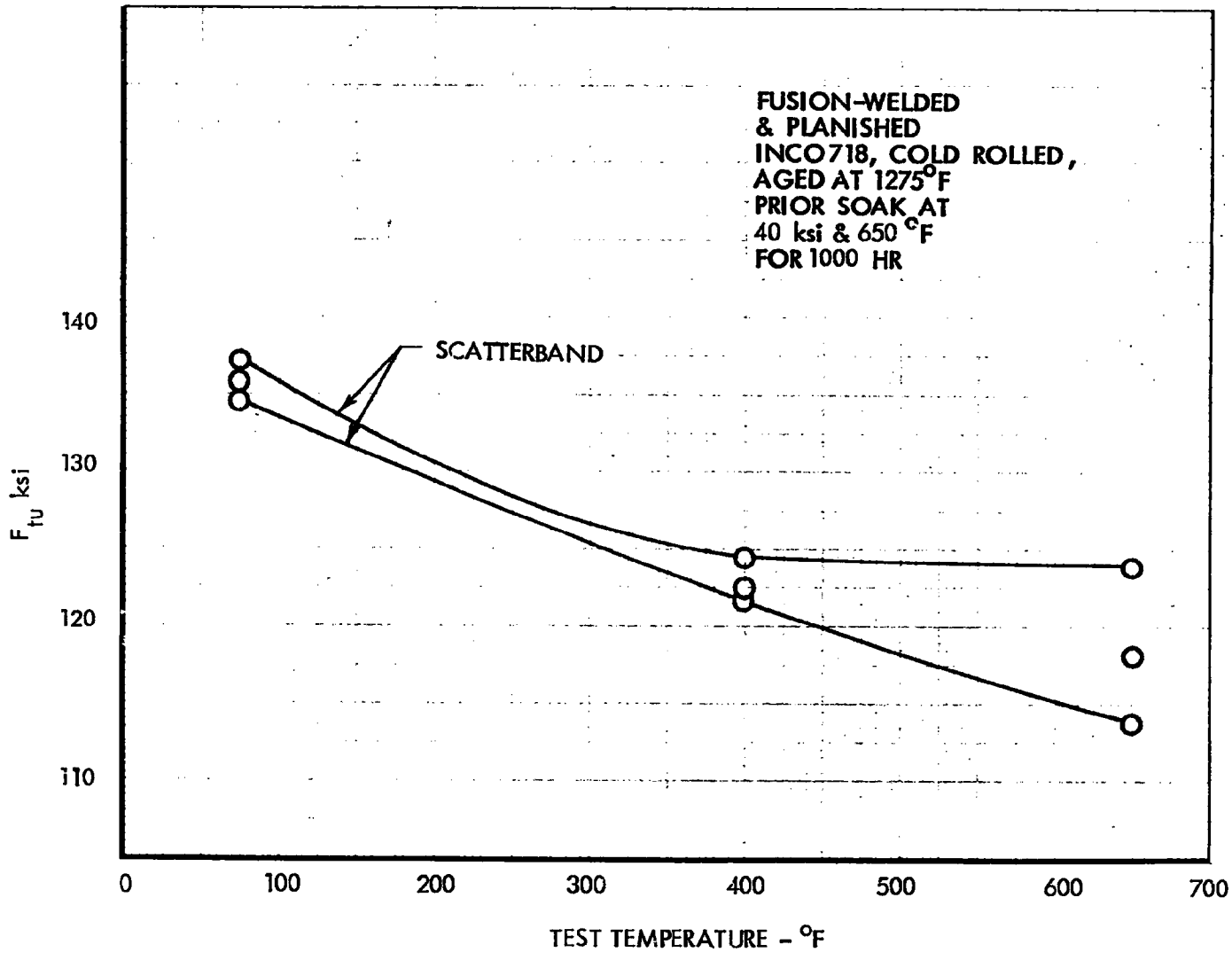



Figure 41. $F_{tu}$ vs. Test Temperature, Fusion-Welded INCO 718

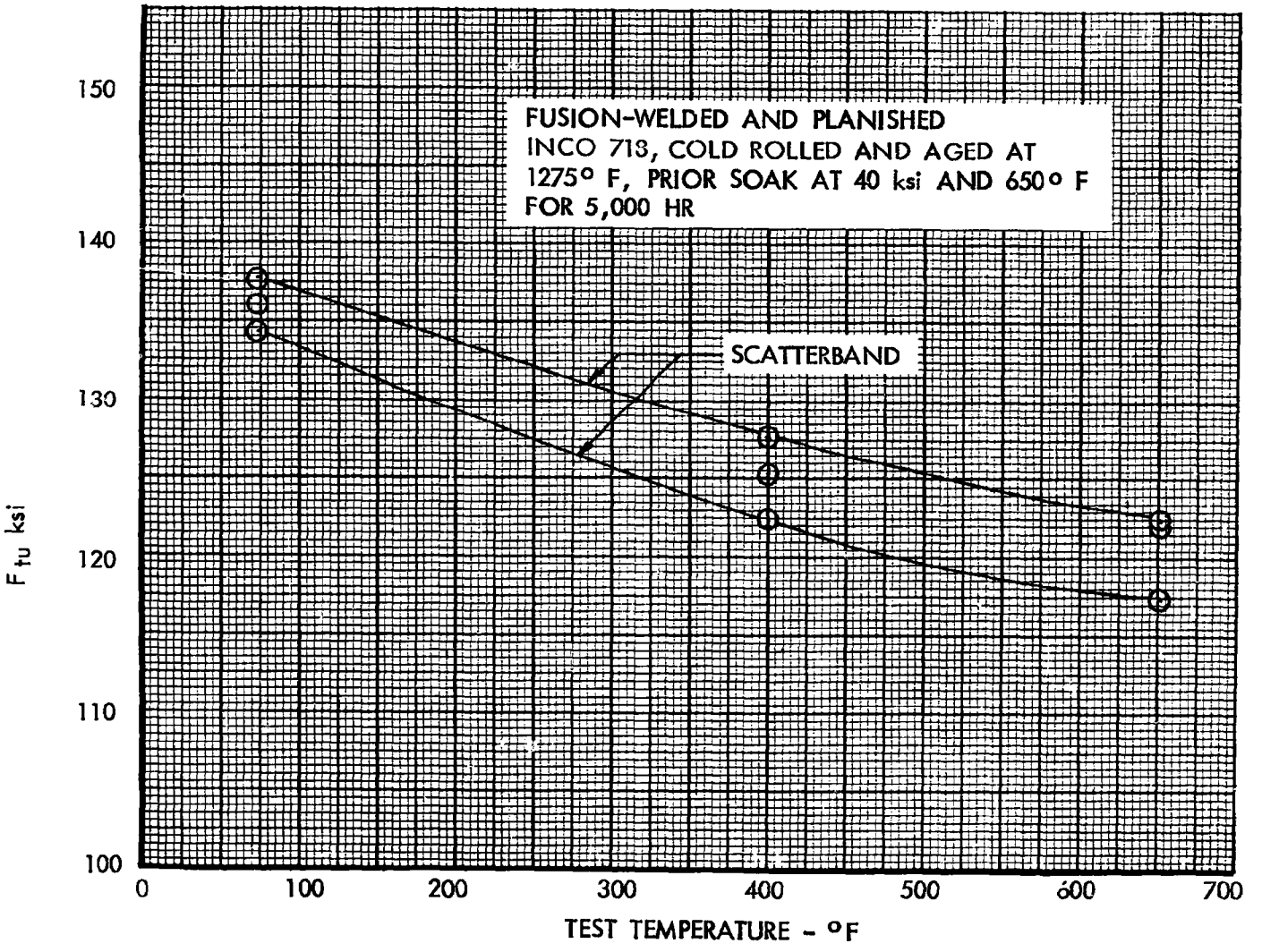



Figure 42. $F_{tu}$ vs. Test Temperature, Fusion-Welded INCO 718

## SECTION 4

## FATIGUE TEST DATA

The locations of the tabulated and plotted S-N data and S-N diagrams in this section are listed in Tables 2, 3 and 4.

In Tables 10 through 198, the temperature, time, and stress levels following soak indicate preconditioning of the specimens prior to testing. For example, an entry of 650°F/1,000 hr/40 ksi means that the specimens were exposed at 40 ksi and 650°F for 1000 hours prior to testing.

In the development of the S-N diagrams, the N = 1 lines were based on average static tensile strengths of the plain and fusion-welded specimens for the appropriate exposure condition.

TABLE 10 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Center-Notched
Soak: None
Test Temp: Room

| Test 1 Stress Ratio = 0.1 | | | Test 2 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 90 | 5,400 | 1 | 70 | 3,600 |
| 2 | 80 | 7,380 | 2 | 65 | 4,320 |
| 3 | 70 | 18,200 | 3 | 60 | 11,700 |
| 4 | 65 | 21,600 | 4 | 55 | 12,800 |
| 5 | 60 | 29,700 | 5 | 50 | 20,900 |
| 6 | 55 | 67,700 | 6 | 45 | 33,120 |
| 7 | 50 | 53,600 | 7 | 40 | 97,740 |
| 8 | 47.5 | 1,342,300 | 8 | 35 | 795,400 |
| 9 | 47.5 | 1,496,160 | 9 | 33 | 810,900 |
| 10 | 45 | 1,489,200 | 10 | 30 | 2,332,400 |
| 11 | 42.5 | 3,776,000 | 11 | 28 | 3,763,400 |
| 12 | 40 | 1,579,200 | 12 | 25 | 10,629,000 |
| 13 | 38 | 1,475,300 | | | |
| 14 | 36 | 1,365,300 | | | |
| 15 | 34 | 10,000,000** | | | |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 11 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Center-Notched
Soak: None
Test Temp: 400°F

| Test 3 Stress Ratio = 0.1 | | | Test 4 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 75 | 7,920 | 1 | 70 | 2,520 |
| 2 | 70 | 14,920 | 2 | 60 | 3,600 |
| 3 | 65 | 19,800 | 3 | 50 | 5,760 |
| 4 | 60 | 15,300 | 4 | 47 | 14,760 |
| 5 | 55 | 26,460 | 5 | 45 | 16,740 |
| 6 | 50 | 52,560 | 6 | 43 | 27,720 |
| 7 | 45 | 1,506,600 | 7 | 40 | 42,120 |
| 8 | 40 | 3,046,140 | 8 | 35 | 598,680 |
| 9 | 36 | 2,775,600 | 9 | 33 | 3,538,800 |
| 10 | 33.5 | 6,750,000** | 10 | 30 | 5,488,200 |
| 11 | 33 | 4,199,400 | 11 | 26 | 8,750,000** |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 12 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Center-Notched
Soak: None
Test Temp: 650°F

| Test 5 Stress Ratio = 0.1 | | | Test 6 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 80 | 3,600 | 1 | 60 | 3,960 |
| 2 | 70 | 6,660 | 2 | 55 | 3,960 |
| 3 | 60 | 14,040 | 3 | 50 | 7,920 |
| 4 | 57.5 | 25,380 | 4 | 44 | 11,880 |
| 5 | 55 | 100,000 | 5 | 42 | 10,800 |
| 6 | 55 | 28,800 | 6 | 40 | 24,840 |
| 7 | 54 | 21,600 | 7 | 38 | 55,080 |
| 8 | 52 | 12,420 | 8 | 36 | 20,340 |
| 9 | 50 | 622,440 | 9 | 35 | 367,200 |
| 10 | 50 | 107,820 | 10 | 32.5 | 8,000,000** |
| 11 | 50 | 119,700 | | | |
| 12 | 45 | 203,400 | | | |
| 13 | 42.5 | 144,900 | | | |
| 14 | 40 | 10,000,000** | | | |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 13 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Center-Notched
Soak: 400°F/100 hr/25 ksi
Test Temp: Room

| Test 7 Stress Ratio = 0.1 | | | Test 8 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 80 | 10,260 | 1 | 70 | 3,240 |
| 2 | 70 | 14,220 | 2 | 60 | 8,600 |
| 3 | 65 | 16,920 | 3 | 55 | 12,240 |
| 4 | 60 | 25,740 | 4 | 50 | 20,900 |
| 5 | 55 | 66,420 | 5 | 45 | 49,900 |
| 6 | 50 | 161,640 | 6 | 42.5 | 41,400 |
| 7 | 47.5 | 1,213,920 | 7 | 40 | 35,280 |
| 8 | 45 | 679,000 | 8 | 40 | 908,640 |
| 9 | 42.5 | 450,900 | 9 | 37.5 | 383,400 |
| 10 | 40 | 3,661,200 | 10 | 35 | 735,300 |
| 11 | 37.5 | 3,194,640 | 11 | 35 | 1,295,640 |
| 12 | 35 | 6,534,000 | 12 | 30 | 7,124,400 |

* Gross area stress: Net area stress = 1.2 gross area stress

TABLE 14 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Center-Notched
Soak: 400°F/100 hr/25 ksi
Test Temp: 400°F

| Test 9 Stress Ratio = 0.1 | | | Test 10 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 80 | 4,860 | 1 | 60 | 4,860 |
| 2 | 75 | 8,640 | 2 | 55 | 8,460 |
| 3 | 70 | 11,340 | 3 | 50 | 13,680 |
| 4 | 65 | 14,220 | 4 | 45 | 29,340 |
| 5 | 60 | 17,280 | 5 | 40 | 40,680 |
| 6 | 55 | 38,700 | 6 | 38 | 61,920 |
| 7 | 50 | 40,320 | 7 | 35 | 322,000 |
| 8 | 47 | 349,200 | 8 | 30 | 730,800 |
| 9 | 45 | 1,260,000 | 9 | 25 | 1,215,000** |
| 10 | 42 | 626,940 | 10 | 25 | 5,000,000*** |
| 11 | 40 | 2,380,860 | 11 | 20 | 9,000,000*** |
| 12 | 36 | 5,191,200 | | | |

* Gross area stress: Net area stress = 1.2 gross area stress
** Failed at the clamp
*** No failure

TABLE 15 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Center-Notched
Soak: 400°F/100 hr/25 ksi
Test Temp: 650°F

| Test 11 Stress Ratio = 0.1 | | | Test 12 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 65 | 7,560 | 1 | 50 | 5,040 |
| 2 | 60 | 9,360 | 2 | 45 | 12,420 |
| 3 | 58 | 17,640 | 3 | 40 | 17,100 |
| 4 | 55 | 20,520 | 4 | 38 | 25,560 |
| 5 | 54 | 20,880 | 5 | 36 | 32,580 |
| 6 | 52 | 240,120 | 6 | 35 | 441,720 |
| 7 | 50 | 210,420 | 7 | 33 | 829,080*** |
| 8 | 45 | 804,600 | 8 | 30 | 2,576,340 |
| 9 | 40 | 3,864,600 | 9 | 25 | 630,360 |
| 10 | 35 | 5,648,400 | 10 | 20 | 7,500,000** |
| 11 | 30 | 8,000,000** | | | |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure
*** Failed at the clamp

TABLE 16 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Center-Notched
Soak: 400°F/1,000 hr/25 ksi
Test Temp: Room

| Test 13 Stress Ratio = 0.1 | | | Test 14 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 80 | 6,660 | 1 | 60 | 7,740 |
| 2 | 70 | 16,920 | 2 | 55 | 12,780 |
| 3 | 60 | 31,140 | 3 | 50 | 14,580 |
| 4 | 55 | 507,040 | 4 | 45 | 22,860 |
| 5 | 55 | 82,200 | 5 | 40 | 37,620 |
| 6 | 50 | 98,820** | 6 | 37.5 | 59,400 |
| 7 | 50 | 927,000 | 7 | 36 | 1,089,000** |
| 8 | 47.5 | 1,420,560 | 8 | 35 | 5,108,000 |
| 9 | 45 | 1,096,200 | 9 | 34 | 1,625,000** |
| 10 | 42 | 4,078,080 | 10 | 34 | 48,000 |
| 11 | 40 | 883,800 | 11 | 30 | 20,000,000*** |
| 12 | 35 | 14,700,000*** | | | |

* Gross area stress: Net area stress = 1.2 gross area stress
** Failed at the clamp
*** No failure

TABLE 17 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Center-Notched
Soak: 400°F/1,000 hr/25 ksi
Test Temp: 400°F

| Test 15 Stress Ratio = 0.1 | | | Test 16 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 80 | 6,660 | 1 | 60 | 5,760 |
| 2 | 75 | 9,360 | 2 | 55 | 10,080 |
| 3 | 70 | 12,960 | 3 | 50 | 14,400 |
| 4 | 65 | 16,200 | 4 | 45 | 21, 60 |
| 5 | 60 | 28,800 | 5 | 40 | 40,500 |
| 6 | 55 | 45,900 | 6 | 37 | 57,780 |
| 7 | 50 | 297,360 | 7 | 35 | 700,560 |
| 8 | 45 | 602,640 | 8 | 30 | 3,123,000 |
| 9 | 40 | 1,498,500 | 9 | 25 | 2,217,600*** |
| 10 | 35 | 724,500 | 10 | 24 | 6,550,200 |
| 11 | 30 | 9,000,000** | | | |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure
*** Failed at the clamp

TABLE 18 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Center-Notched
Soak: 400°F/1,000 hr/25 ksi
Test Temp: 650°F

| Test 17 Stress Ratio = 0.1 | | | Test 18 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 70 | 7,560 | 1 | 50 | 5,400 |
| 2 | 65 | 6,120 | 2 | 47 | 12,420 |
| 3 | 60 | 12,600 | 3 | 45 | 9,180 |
| 4 | 55 | 25,380 | 4 | 43 | 25,560 |
| 5 | 53 | 25,200 | 5 | 40 | 28,260 |
| 6 | 51 | 95,940 | 6 | 38 | 100,620 |
| 7 | 50 | 345,780 | 7 | 35 | 1,851,112 |
| 8 | 45 | 546,660 | 8 | 32 | 2,772,900 |
| 9 | 40 | 5,950,800 | 9 | 30 | 714,420 |
| 10 | 35 | 8,500,000** | 10 | 26 | 3,247,200 |
| | | | 11 | 22 | 7,500,000** |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 19 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Center-Notched
Soak: 400°F/5,000 hr/25 ksi
Test Temp: Room

| Test 19 Stress Ratio = 0.1 | | | Test 20 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 80 | 8,280 | 1 | 65 | 3,420 |
| 2 | 70 | 15,120 | 2 | 60 | 9,180 |
| 3 | 60 | 23,940 | 3 | 55 | 11,700 |
| 4 | 55 | 700,200 | 4 | 50 | 12,240 |
| 5 | 50 | 58,880 | 5 | 45 | 23,040 |
| 6 | 47 | 2,600,000** | 6 | 41.5 | 33,660 |
| 7 | 45 | 2,188,440 | 7 | 40 | 44,820 |
| 8 | 40 | 744,300 | 8 | 38 | 1,877,940 |
| 9 | 37 | 5,579,100 | 9 | 35 | 4,577,040*** |
| 10 | 35 | 8,200,000** | 10 | 33 | 918,000*** |
| | | | 11 | 30 | 275,000*** |
| | | | 12 | 30 | 7,500,000** |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure
*** Failed at the clamp

TABLE 20 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Center-Notched
Soak: 400°F/5,000 hr/25 ksi
Test Temp: 400°F

| Test 21 Stress Ratio = 0.1 | | | Test 22 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 80 | 4,140 | 1 | 55 | 6,660 |
| 2 | 75 | 5,940 | 2 | 50 | 11,520 |
| 3 | 70 | 10,260 | 3 | 45 | 22,140 |
| 4 | 65 | 14,580 | 4 | 40 | 25,380 |
| 5 | 60 | 21,600 | 5 | 38 | 28,080 |
| 6 | 55 | 25,200 | 6 | 36 | 27,720 |
| 7 | 50 | 78,840 | 7 | 35 | 90,180 |
| 8 | 45 | 365,400 | 8 | 34 | 546,660 |
| 9 | 40 | 670,320 | 9 | 32 | 499,320*** |
| 10 | 35 | 3,142,800 | 10 | 30 | 2,173,680 |
| 11 | 30 | 7,500,000** | 11 | 26 | 6,510,960 |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure
*** Failed at the clamp

TABLE 21 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Center-Notched
Soak: 400°F/5,000 hr/25 ksi
Test Temp: 650°F

| Test 23 Stress Ratio = 0.1 | | | Test 24 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 66 | 9,180 | 1 | 50 | 5,040 |
| 2 | 62 | 9,360 | 2 | 48 | 9,180 |
| 3 | 60 | 17,640 | 3 | 45 | 9,720 |
| 4 | 58 | 11,520 | 4 | 42 | 20,880 |
| 5 | 55 | 15,300 | 5 | 40 | 16,380 |
| 6 | 52 | 21,960 | 6 | 38 | 45,180 |
| 7 | 50 | 207,900 | 7 | 35 | 370,440 |
| 8 | 48 | 197,640 | 8 | 32 | 1,723,320 |
| 9 | 45 | 231,660 | 9 | 30 | 2,729,700 |
| 10 | 40 | 3,074,760 | 10 | 25 | 11,400,000** |
| 11 | 35 | 7,500,000 ** | | | |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 22 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Center-Notched
Soak: 650°F/100 hr/25 ksi
Test Temp: Room

| Test 25 Stress Ratio = 0.1 | | | Test 26 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 90 | 6,300 | 1 | 90 | 1,800 |
| 2 | 80 | 8,600 | 2 | 80 | 2,520 |
| 3 | 75 | 11,900 | 3 | 70 | 4,140 |
| 4 | 70 | 31,140 | 4 | 60 | 7,740 |
| 5 | 65 | 28,100 | 5 | 55 | 9,720 |
| 6 | 60 | 34,740 | 6 | 50 | 21,600 |
| 7 | 57.5 | 37,800 | 7 | 45 | 31,320 |
| 8 | 55 | 228,780 | 8 | 40 | 44,100 |
| 9 | 55 | 40,500 | 9 | 40 | 1,116,180 |
| 10 | 52.5 | 1,866,960 | 10 | 37.5 | 119,200 |
| 11 | 50 | 1,998,700 | 11 | 35 | 6,345,000 |
| 12 | 45 | 4,084,200 | 12 | 30 | 14,500,000** |
| 13 | 42.5 | 2,253,601 | | | |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 23 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Center-Notched
Soak: 650°F/100 hr/25 ksi
Test Temp: 400°F

| Test 27 Stress Ratio = 0.1 | | | Test 28 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 80 | 3,420 | 1 | 60 | ,860 |
| 2 | 75 | 7,920 | 2 | 55 | 8,100 |
| 3 | 70 | 11,700 | 3 | 50 | 12,600 |
| 4 | 65 | 15,660 | 4 | 45 | 23,760 |
| 5 | 60 | 20,880 | 5 | 40 | 39,060 |
| 6 | 55 | 87,660 | 6 | 35 | 61,200 |
| 7 | 50 | 348,480 | 7 | 35 | 121,860 |
| 8 | 45 | 1,574,820 | 8 | 33 | 9,918,000 |
| 9 | 40 | 2,566,080 | 9 | 32 | 652,860** |
| 10 | 35 | 6,415,200 | 10 | 30 | 770,940** |

* Gross area stress: Net area stress = 1.2 gross area stress
** Failed at the clamp

TABLE 24 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Center-Notched
Soak: 650°F/100 hr/25 ksi
Test Temp: 650°F

| Test 29 Stress Ratio = 0.1 | | | Test 30 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 75 | 4,320 | 1 | 50 | 5,580 |
| 2 | 70 | 8,820 | 2 | 47 | 9,360 |
| 3 | 65 | 8,820 | 3 | 45 | 13,140 |
| 4 | 60 | 12,240 | 4 | 43 | 14,220 |
| 5 | 55 | 106,200 | 5 | 40 | 25,380 |
| 6 | 50 | 47,700 | 6 | 38 | 32,040 |
| 7 | 47 | 727,560 | 7 | 37 | 437,760 |
| 8 | 47 | 1,285,740 | 8 | 35 | 431,280 |
| 9 | 45 | 315,000 | 9 | 30 | 2,318,940 |
| 10 | 40 | 3,264,840 | 10 | 25 | 8,000,000** |
| 11 | 35 | 7,140,600 | | | |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 25 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Center-Notched
Soak: 650°F/1,000 hr/25 ksi
Test Temp: Room

| Test 31 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 85 | 8,640 |
| 2 | 80 | 10,260 |
| 3 | 75 | 16,020 |
| 4 | 72 | 12,960 |
| 5 | 70 | 10,980 |
| 6 | 68 | 9,720 |
| 7 | 66 | 17,820 |
| 8 | 65 | 18,900 |
| 9 | 64 | 25,200 |
| 10 | 62.5 | 2,374,000 |
| 11 | 62 | 46,980 |
| 12 | 60 | 7,036,200 |
| 13 | 58 | 2,125,800 |

| Test 32 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 70 | 2,880 |
| 2 | 65 | 6,120 |
| 3 | 60 | 15,300 |
| 4 | 55 | 15,480 |
| 5 | 52 | 12,060 |
| 6 | 50 | 27,540 |
| 7 | 48 | 17,640 |
| 8 | 46 | 43,920 |
| 9 | 45 | 332,820 |
| 10 | 44 | 37,980 |
| 11 | 41 | 2,300,000** |
| 12 | 40 | 8,300,000** |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 26 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Center-Notched
Soak: 650°F/1,000 hr/25 ksi
Test Temp: 400°F

| Test 33 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 80 | 5,760 |
| 2 | 75 | 8,460 |
| 3 | 70 | 13,320 |
| 4 | 65 | 13,500 |
| 5 | 60 | 48,420 |
| 6 | 55 | 332,640 |
| 7 | 50 | 770,580 |
| 8 | 47 | 2,219,400 |
| 9 | 45 | 1,814,400 |
| 10 | 40 | 3,202,200 |
| 11 | 38 | 10,000,000** |

| Test 34 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 60 | 5,760 |
| 2 | 55 | 12,600 |
| 3 | 50 | 39,420 |
| 4 | 45 | 34,560 |
| 5 | 40 | 57,060 |
| 6 | 38 | 65,340 |
| 7 | 38 | 60,840 |
| 8 | 36 | 1,324,980 |
| 9 | 35 | 2,295,000** |
| 10 | 35 | 7,500,000** |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 27 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Center-Notched
Soak: 650°F/1,000 hr/25 ksi
Test Temp: 650°F

| Test 35 Stress Ratio = 0.1 | | | Test 36 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 75 | 5,220 | 1 | 50 | 7,200 |
| 2 | 70 | 5,580 | 2 | 46 | 8,280 |
| 3 | 65 | 10,620 | 3 | 44 | 13,680 |
| 4 | 60 | 9,900 | 4 | 42 | 16,920 |
| 5 | 55 | 15,300 | 5 | 40 | 23,580 |
| 6 | 52 | 1,092,060 | 6 | 39 | 37,440 |
| 7 | 48 | 1,306,980 | 7 | 38 | 70,380 |
| 8 | 46 | 856,800 | 8 | 37 | 894,960 |
| 9 | 44 | 1,467,000 | 9 | 36 | 950,760** |
| 10 | 40 | 7,500,000*** | 10 | 34 | 9,000,000*** |

* Gross area stress: Net area stress = 1.2 gross area stress
** Failed at the clamp
*** No failure

TABLE 28 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Center-Notched
Soak: 650°F/5,000 hr/25 ksi
Test Temp: Room

| Test 37 Stress Ratio = 0.1 | | | Test 38 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 80 | 5,760 | 1 | 65 | 7,020 |
| 2 | 75 | 8,280 | 2 | 60 | 9,180 |
| 3 | 70 | 12,420 | 3 | 55 | 11,340 |
| 4 | 65 | 15,660 | 4 | 53 | 15,480 |
| 5 | 60 | 49,140 | 5 | 50 | 23,400 |
| 6 | 55 | 82,980 | 6 | 45 | 78,120 |
| 7 | 50 | 220,140 | 7 | 40 | 585,900** |
| 8 | 45 | 492,840** | 8 | 39 | 505,080** |
| 9 | 43 | 67,788 | 9 | 38 | 446,940** |
| 10 | 40 | 10,150,000 | 10 | 30 | 10,000,000*** |

* Gross area stress: Net area stress = 1.2 gross area stress
** Failed at the clamp
*** No failure

TABLE 29 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Center-Notched
Soak: 650°F/5,000 hr/25 ksi
Test Temp: 400°F

| Test 39 Stress Ratio = 0.1 | | | Test 40 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 70 | 7,380 | 1 | 60 | 5,040 |
| 2 | 65 | 11,880 | 2 | 58 | 7,020 |
| 3 | 60 | 16,560 | 3 | 55 | 14,220 |
| 4 | 55 | 22,860 | 4 | 52 | 12,060 |
| 5 | 52 | 52,740 | 5 | 50 | 15,300 |
| 6 | 51 | 56,340 | 6 | 45 | 18,540 |
| 7 | 50 | 900,000 | 7 | 42 | 37,620 |
| 8 | 45 | 2,133,540 | 8 | 40 | 41,940 |
| 9 | 40 | 4,176,000 | 9 | 38 | 70,560 |
| 10 | 36 | 4,039,200 | 10 | 35 | 7,500,000** |
| 11 | 33 | 7,500,000** | | | |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 30 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Center-Notched
Soak: 650°F/5,000 hr/25 ksi
Test Temp: 650°F

| Test 41 Stress Ratio = 0.1 | | | Test 42 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 65 | 8,280 | 1 | 55 | 3,600 |
| 2 | 60 | 9,720 | 2 | 50 | 8,640 |
| 3 | 55 | 16,200 | 3 | 48 | 5,220 |
| 4 | 50 | 48,420 | 4 | 45 | 9,720 |
| 5 | 50 | 34,920 | 5 | 42 | 21,420 |
| 6 | 47 | 988,920 | 6 | 40 | 31,140 |
| 7 | 45 | 1,259,460 | 7 | 37 | 118,260 |
| 8 | 45 | 540,000 | 8 | 35 | 63,720 |
| 9 | 40 | 2,644,560 | 9 | 33 | 73,620 |
| 10 | 35 | 7,500,000** | 10 | 30 | 11,100,000** |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 31 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Unnotched
Soak: None
Test Temp: Room

| Test 53 Stress Ratio = 0.1 | | | Test 54 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 150 | 8,600 | 1 | 140 | 2,880 |
| 2 | 140 | 16,600 | 2 | 125 | 3,960 |
| 3 | 130 | 50,900 | 3 | 110 | 21,100 |
| 4 | 120 | 61,700 | 4 | 100 | 37,300 |
| 5 | 110 | 93,600 | 5 | 90 | 90,900 |
| 6 | 105 | 41,400 | 6 | 85 | 119,900 |
| 7 | 102 | 84,780 | 7 | 82 | 151,200 |
| 8 | 100 | 3,260,500 | 8 | 80 | 73,400 |
| 9 | 98 | 1,219,700 | 9 | 80 | 1,144,100 |
| 10 | 95 | 5,635,800 | 10 | 80 | 90,360 |
| 11 | 92 | 330,300 | 11 | 78 | 100,260 |
| 12 | 90 | 10,000,000* | 12 | 76 | 139,500 |
| | | | 13 | 75 | 172,800 |
| | | | 14 | 74 | 6,000,000* |
| | | | 15 | 72 | 10,000,000* |

* No failure

TABLE 32 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Unnotched
Soak: None
Test Temp: 400°F

| Test 55 Stress Ratio = 0.1 | | | Test 56 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 130 | 6,660 | 1 | 100 | 7,200 |
| 2 | 125 | 12,240 | 2 | 100 | 4,870 |
| 3 | 120 | 17,640 | 3 | 95 | 19,440 |
| 4 | 115 | 21,780 | 4 | 90 | 23,940 |
| 5 | 110 | 32,940 | 5 | 85 | 11,160 |
| 6 | 105 | 30,420 | 6 | 80 | 13,320 |
| 7 | 102 | 85,860 | 7 | 75 | 44,820 |
| 8 | 100 | 523,620 | 8 | 70 | 102,780 |
| 9 | 98 | 2,068,740 | 9 | 65 | 218,520 |
| 10 | 96 | 96,840 | 10 | 62 | 11,500,000* |
| 11 | 92 | 350,820 | | | |
| 12 | 90 | 203,040 | | | |
| 13 | 88 | 1,769,400 | | | |
| 14 | 84 | 7,653,600 | | | |

* No failure

TABLE 33 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Unnotched
Soak: None
Test Temp: 650°F

| Test 57 Stress Ratio = 0.1 | | | Test 58 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 120 | 1,620 | 1 | 90 | 7,020 |
| 2 | 110 | 10,260 | 2 | 85 | 14,400 |
| 3 | 100 | 3,240 | 3 | 80 | 21,240 |
| 4 | 100 | 2,050,200 | 4 | 75 | 46,440 |
| 5 | 97.5 | 2,880,000 | 5 | 72.5 | 57,240 |
| 6 | 97.5 | 11,000,000 | 6 | 70 | 118,260 |
| 7 | 95 | 21,780 | 7 | 67.5 | 58,500 |
| 8 | 95 | 2,680,000 | 8 | 65 | 100,440 |
| 9 | 92.5 | 3,260,000** | 9 | 62.5 | 336,420 |
| 10 | 90 | 550,813 | 10 | 60 | 5,251,500 |
| 11 | 87.5 | 7,434,000 | 11 | 58 | 7,000,000* |
| 12 | 85 | 7,670,000* | | | |

* No failure
** Failed at the thermocouple attachment

TABLE 34 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Unnotched
Soak: 400°F/100 hr/25 ksi
Test Temp: Room

| Test 59 Stress Ratio = 0.1 | | | Test 60 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 150 | 10,060 | 1 | 140 | 1,800 |
| 2 | 140 | 20,520 | 2 | 125 | 7,560 |
| 3 | 130 | 35,640 | 3 | 117 | 11,160 |
| 4 | 120 | 40,140 | 4 | 110 | 21,600 |
| 5 | 115 | 94,300 | 5 | 100 | 25,920 |
| 6 | 110 | 60,120 | 6 | 90 | 54,360 |
| 7 | 105 | 273,420 | 7 | 85 | 59,040 |
| 8 | 102.5 | 306,400 | 8 | 80 | 127,080 |
| 9 | 100 | 897,300 | 9 | 75 | 242,640 |
| 10 | 95 | 1,332,000 | 10 | 74 | 2,156,400 |
| 11 | 90 | 4,272,480 | 11 | 70 | 556,400 |
| 12 | 88 | 10,000,000* | 12 | 69 | 165,600 |
| | | | 13 | 67.5 | 6,204,400** |

* No failure
** Failed at the clamp

TABLE 35 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Unnotched
Soak: 400°F/100 hr/25 ksi
Test Temp: 400°F

| Test 61 Stress Ratio = 0.1 | | | Test 62 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 140 | 4,500 | 1 | 120 | 3,960 |
| 2 | 130 | 13,860 | 2 | 110 | 6,300 |
| 3 | 120 | 21,600 | 3 | 100 | 6,840 |
| 4 | 110 | 42,300 | 4 | 90 | 23,220 |
| 5 | 100 | 186,120 | 5 | 80 | 53,640 |
| 6 | 95 | 131,040* | 6 | 75 | 87,660 |
| 7 | 90 | 207,360* | 7 | 70 | 176,760 |
| 8 | 92 | 154,800 | 8 | 65 | 89,640 |
| 9 | 85 | 146,340 | 9 | 60 | 372,240 |
| 10 | 80 | 168,300 | 10 | 55 | 994,500** |
| 11 | 75 | 7,500,000*** | 11 | 50 | 310,320* |
| | | | 12 | 50 | 12,200,000*** |

* Failed at the clamp
** Failed at the thermocouple attachment
*** No failure

TABLE 36 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Unnotched
Soak: 400°F/100 hr/25 ksi
Test Temp: 650°F

| Test 63 Stress Ratio = 0.1 | | | Test 64 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 125 | 1,980 | 1 | 90 | 6,300 |
| 2 | 120 | 15,480 | 2 | 85 | 10,980 |
| 3 | 115 | 11,700 | 3 | 80 | 15,480 |
| 4 | 110 | 25,380 | 4 | 77 | 44,280 |
| 5 | 105 | 24,480 | 5 | 75 | 34,920 |
| 6 | 100 | 24,120 | 6 | 73 | 46,260 |
| 7 | 97 | 2,545,200 | 7 | 70 | 1,861,200** |
| 8 | 95 | 2,814,840 | 8 | 68 | 125,820** |
| 9 | 90 | 2,307,600 | 9 | 65 | 117,900** |
| 10 | 86 | 7,500,000* | 10 | 63 | 131,760 |
| | | | 11 | 60 | 703,440 |
| | | | 12 | 55 | 622,260 |
| | | | 13 | 50 | 277,020** |
| | | | 14 | 45 | 7,500,000* |

* No failure
** Failed at the clamp

TABLE 37 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Unnotched
Soak: 400°F/1,000 hr/25 ksi
Test Temp: Room

| Test 65 Stress Ratio = 0.1 | | | Test 66 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 150 | 4,860 | 1 | 130 | 14,220 |
| 2 | 140 | 34,920 | 2 | 120 | 15,660 |
| 3 | 130 | 40,140 | 3 | 110 | 27,720 |
| 4 | 120 | 51,660 | 4 | 100 | 33,120 |
| 5 | 115 | 112,680 | 5 | 90 | 52,560 |
| 6 | 110 | 29,520 | 6 | 85 | 71,280 |
| 7 | 110 | 330,480 | 7 | 80 | 207,900 |
| 8 | 105 | 434,340 | 8 | 75 | 450,000** |
| 9 | 100 | 1,120,900 | 9 | 70 | 170,820 |
| 10 | 95 | 799,560 | 10 | 65 | 272,700 |
| 11 | 90 | 3,483,400 | 11 | 60 | 10,500,000* |
| 12 | 87.5 | 4,372,256 | 12 | 55 | 2,337,500 |
| 13 | 82.5 | 10,000,000* | 13 | 52.5 | 6,365,000* |
| | | | 14 | 50 | 14,709,000* |

* No failure
** Failed at the clamp

TABLE 38 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Unnotched
Soak: 400°F/1,000 hr/25 ksi
Test Temp: 400°F

| Test 67 Stress Ratio = 0.1 | | | Test 68 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 130 | 3,960 | 1 | 120 | 4,680 |
| 2 | 120 | 11,880 | 2 | 110 | 1,980 |
| 3 | 110 | 23,760 | 3 | 100 | 10,440 |
| 4 | 100 | 65,520 | 4 | 90 | 45,360 |
| 5 | 90 | 161,640 | 5 | 80 | 55,080 |
| 6 | 86 | 137,340 | 6 | 75 | 72,540 |
| 7 | 85 | 268,740 | 7 | 70 | 147,060 |
| 8 | 80 | 128,700 | 8 | 65 | 82,800 |
| 9 | 75 | 349,560 | 9 | 63 | 90,000 |
| 10 | 70 | 8,000,000*** | 10 | 60 | 4,572,180 |
| | | | 11 | 55 | 207,900* |
| | | | 12 | 54 | 179,460 |
| | | | 13 | 50 | 1,399,140** |
| | | | 14 | 46 | 8,000,000*** |

* Failed at the clamp
** Failed at the thermocouple attachment
*** No failure

TABLE 39 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Unnotched
Soak: 400°/1,000 hr/25 ksi
Test Temp: 650°F

| Test 69 Stress Ratio = 0.1 | | | Test 70 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 105 | 12,420 | 1 | 90 | 2,340 |
| 2 | 103 | 25,920 | 2 | 87 | 2,520 |
| 3 | 100 | 26,100 | 3 | 85 | 6,840 |
| 4 | 95 | 30,420 | 4 | 83 | 11,880 |
| 5 | 93 | 25,200 | 5 | 80 | 25,380 |
| 6 | 92 | 3,071,700 | 6 | 78 | 37,620 |
| 7 | 90 | 34,200 | 7 | 75 | 3,699,000 |
| 8 | 90 | 84,420 | 8 | 70 | 37,080 |
| 9 | 88 | 2,000,000* | 9 | 68 | 70,380 |
| 10 | 85 | 8,000,000* | 10 | 65 | 8,500,000* |

* No failure

TABLE 40 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Unnotched
Soak: 400°F/5,000 hr/25 ksi
Test Temp: Room

| Test 71 Stress Ratio = 0.1 | | | Test 72 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 145 | 13,860 | 1 | 130 | 10,260 |
| 2 | 140 | 11,340 | 2 | 120 | 11,160 |
| 3 | 130 | 19,800 | 3 | 110 | 19,080 |
| 4 | 120 | 29,340 | 4 | 100 | 25,560 |
| 5 | 115 | 75,780 | 5 | 90 | 41,760 |
| 6 | 110 | 657,180 | 6 | 80 | 63,720 |
| 7 | 100 | 124,920 | 7 | 75 | 57,780 |
| 8 | 95 | 3,823,800 | 8 | 70 | 137,700 |
| 9 | 90 | 106,020 | 9 | 65 | 3,706,200 |
| 10 | 85 | 10,151,820 | 10 | 60 | 10,300,000* |

* No failure

TABLE 41 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Unnotched
Soak: 400°F/5,000 hr/25 ksi
Test Temp: 400°F

| Test 73 Stress Ratio = 0.1 | | | Test 74 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 125 | 7,200 | 1 | 105 | 7,020 |
| 2 | 120 | 11,340 | 2 | 100 | 8,640 |
| 3 | 115 | 26,100 | 3 | 95 | 19,440 |
| 4 | 110 | 27,720 | 4 | 90 | 17,100 |
| 5 | 105 | 35,640 | 5 | 85 | 37,080 |
| 6 | 100 | 20,520 | 6 | 80 | 56,520 |
| 7 | 98 | 45,900 | 7 | 75 | 56,520 |
| 8 | 95 | 383,760 | 8 | 70 | 51,300 |
| 9 | 90 | 95,220 | 9 | 65 | 156,960 |
| 10 | 85 | 79,020* | 10 | 60 | 67,140 |
| 11 | 80 | 330,480 | 11 | 55 | 8,000,000** |
| 12 | 70 | 971,280* | | | |
| 13 | 65 | 8,500,000** | | | |

* Failed at the thermocouple attachment
** No failure

TABLE 42 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Unnotched
Soak: 400°F/5,000 hr/25 ksi
Test Temp: 650°F

| Test 75 Stress Ratio = 0.1 | | | Test 76 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 120 | 13,140 | 1 | 90 | 3,060 |
| 2 | 115 | 17,640 | 2 | 90 | 4,140 |
| 3 | 115 | 11,880 | 3 | 88 | 32,940 |
| 4 | 110 | 10,080 | 4 | 85 | 11,880 |
| 5 | 105 | 16,740 | 5 | 80 | 12,420 |
| 6 | 100 | 17,100 | 6 | 78 | 74,880 |
| 7 | 95 | 33,660 | 7 | 75 | 131,580 |
| 8 | 90 | 160,740 | 8 | 70 | 67,680 |
| 9 | 85 | 74,520 | 9 | 65 | 153,720 |
| 10 | 80 | 9,500,000* | 10 | 60 | 480,060 |
| | | | 11 | 55 | 128,880 |
| | | | 12 | 50 | 1,282,320 |
| | | | 13 | 40 | 8,000,000* |

* No failure

TABLE 43 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Unnotched
Soak: 650°F/100 hr/25 ksi
Test Temp: Room

| Test 77 Stress Ratio = 0.1 | | | Test 78 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 160 | 1,800 | 1 | 140 | 1,100 |
| 2 | 150 | 3,060 | 2 | 130 | 8,460 |
| 3 | 140 | 11,520 | 3 | 120 | 8,460 |
| 4 | 130 | 27,000 | 4 | 110 | 18,720 |
| 5 | 120 | 33,480 | 5 | 100 | 27,000 |
| 6 | 115 | 125,800 | 6 | 90 | 64,080 |
| 7 | 110 | 73,080 | 7 | 80 | 90,000 |
| 8 | 107.5 | 843,840 | 8 | 75 | 337,300 |
| 9 | 105 | 1,679,900 | 9 | 70 | 400,000 |
| 10 | 100 | 1,605,600 | 10 | 67.5 | 4,660,200** |
| 11 | 95 | 3,227,400 | 11 | 65 | 2,179,800 |
| 12 | 90 | 8,814,600 | 12 | 62.5 | 10,000,000* |

* No failure
** Failed at the clamp

TABLE 44 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Unnotched
Soak: 650°F/100 hr/25 ksi
Test Temp: 400°F

| Test 79 Stress Ratio = 0.1 | | | Test 80 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 130 | 5,580 | 1 | 110 | 1,620 |
| 2 | 120 | 11,880 | 2 | 105 | 2,700 |
| 3 | 115 | 26,820 | 3 | 100 | 7,020 |
| 4 | 110 | 31,860 | 4 | 95 | 13,140 |
| 5 | 105 | 111,240 | 5 | 90 | 23,040 |
| 6 | 100 | 70,380 | 6 | 85 | 33,300 |
| 7 | 95 | 38,520 | 7 | 80 | 37,260 |
| 8 | 90 | 82,800 | 8 | 70 | 43,380 |
| 9 | 85 | 126,360 | 9 | 65 | 84,600 |
| 10 | 80 | 153,900 | 10 | 60 | 174,780 |
| 11 | 75 | 141,840 | 11 | 55 | 7,500,000* |
| 12 | 70 | 7,500,000* | | | |

* No failure

TABLE 45 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Unnotched
Soak: 650°/100 hr/25 ksi
Test Temp: 650°F

| Test 81 Stress Ratio = 0.1 | | | Test 82 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 115 | 13,500 | 1 | 100 | 1,260 |
| 2 | 110 | 21,420 | 2 | 90 | 7,020 |
| 3 | 105 | 23,400 | 3 | 85 | 84,600 |
| 4 | 100 | 20,160 | 4 | 80 | 21,420 |
| 5 | 95 | 181,080** | 5 | 75 | 37,080 |
| 6 | 90 | 27,900 | 6 | 72 | 134,100 |
| 7 | 90 | 6,501,600 | 7 | 70 | 93,060 |
| 8 | 88 | 7,500,000* | 8 | 65 | 85,680*** |
| 9 | 85 | 2,810,880*** | 9 | 64 | 191,700** |
| 10 | 80 | 1,315,980*** | 10 | 60 | 91,800 |
| | | | 11 | 55 | 108,900 |
| | | | 12 | 50 | 752,220** |
| | | | 13 | 45 | 9,000,000* |

* No failure
** Failed at the clamp
*** Failed at the thermocouple attachment

TABLE 46 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Unnotched
Soak: 650°F/1,000 hr/25 ksi
Test Temp: Room

| Test 83 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 150 | 6,300 |
| 2 | 140 | 10,980 |
| 3 | 130 | 23,040 |
| 4 | 120 | 47,880 |
| 5 | 117 | 105,840 |
| 6 | 116 | 58,700 |
| 7 | 115 | 232,920 |
| 8 | 112 | 42,480 |
| 9 | 112 | 42,300 |
| 10 | 110 | 459,540 |
| 11 | 110 | 1,500,000** |
| 12 | 108 | 3,526,200 |
| 13 | 105 | 10,000,000* |

| Test 84 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 130 | 7,200 |
| 2 | 120 | 9,540 |
| 3 | 110 | 16,200 |
| 4 | 100 | 21,240 |
| 5 | 95 | 61,920 |
| 6 | 90 | 65,520 |
| 7 | 85 | 50,220 |
| 8 | 80 | 59,580 |
| 9 | 80 | 94,860 |
| 10 | 78 | 94,140 |
| 11 | 77 | 10,000,000* |
| 12 | 76 | 60,300 |
| 13 | 75 | 685,800 |
| 14 | 74 | 66,780 |

* No failure
** Failed at the clamp

TABLE 47 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Unnotched
Soak: 650°F/1,000 hr/25 ksi
Test Temp: 400°F

| Test 85 Stress Ratio = 0.1 | | | Test 86 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 130 | 1,620 | 1 | 100 | 6,300 |
| 2 | 120 | 9,900 | 2 | 95 | 12,980 |
| 3 | 115 | 19,080 | 3 | 90 | 15,840 |
| 4 | 110 | 16,740 | 4 | 85 | 24,480 |
| 5 | 105 | 39,780 | 5 | 80 | 58,680 |
| 6 | 100 | 42,480 | 6 | 75 | 65,700 |
| 7 | 97 | 79,740 | 7 | 70 | 90,540 |
| 8 | 95 | 1,101,960 | 8 | 65 | 109,800 |
| 9 | 90 | 2,122,200 | 9 | 60 | 157,680 |
| 10 | 85 | 212,400** | 10 | 55 | 397,620 |
| 11 | 85 | 8,000,000* | 11 | 50 | 423,900 |
| | | | 12 | 45 | 8,800,000* |

* No failure
** Failed at the thermocouple attachment

TABLE 48 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Unnotched
Soak: 650°F/1,000 hr/25 ksi
Test Temp: 650°F

| Test 87 Stress Ratio = 0.1 | | | Test 88 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 140 | 900 | 1 | 90 | 4,320 |
| 2 | 120 | 4,680 | 2 | 80 | 17,280 |
| 3 | 115 | 3,240 | 3 | 75 | 29,700 |
| 4 | 115 | 7,200 | 4 | 72 | 74,880 |
| 5 | 110 | 14,400 | 5 | 68 | 113,580 |
| 6 | 105 | 21,240 | 6 | 65 | 834,480** |
| 7 | 100 | 31,500 | 7 | 63 | 145,440** |
| 8 | 98 | 2,188,800 | 8 | 60 | 124,020 |
| 9 | 96 | 31,860 | 9 | 58 | 156,240 |
| 10 | 94 | 21,420 | 10 | 54 | 840,960 |
| 11 | 92 | 22,800 | 11 | 52 | 70,920 |
| 12 | 90 | 9,781,000 | 12 | 48 | 10,000,000* |
| 13 | 88 | 49,680 | | | |
| 14 | 85 | 10,000,000* | | | |

* No failure
** Failed at the clamp

TABLE 49 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Unnotched
Soak: 650°F/5,000 hr/25 ksi
Test Temp: Room

| Test 89 Stress Ratio = 0.1 | | | Test 90 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 150 | 5,580 | 1 | 95 | 18,180 |
| 2 | 145 | 13,680 | 2 | 90 | 12,600* |
| 3 | 140 | 19,260 | 3 | 85 | 8,460* |
| 4 | 135 | 16,560 | 4 | 82 | 90,000 |
| 5 | 130 | 32,220 | 5 | 80 | 193,500 |
| 6 | 125 | 72,000 | 6 | 78 | 113,760 |
| 7 | 120 | 25,020 | 7 | 75 | 45,540 |
| 8 | 118 | 62,640 | 8 | 70 | 2,708,280 |
| 9 | 115 | 10,000,000** | 9 | 65 | 114,120 |
| 10 | 110 | 8,186,400 | 10 | 65 | 495,540* |
| | | | 11 | 60 | 137,160 |
| | | | 12 | 55 | 10,000,000** |

* Failed at the clamp
** No failure

TABLE 50 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Unnotched
Soak: 650°F/5,000 hr/25 ksi
Test Temp: 400°F

| Test 91 Stress Ratio = 0.1 | | | Test 92 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 125 | 8,820 | 1 | 100 | 5,580 |
| 2 | 120 | 11,700 | 2 | 95 | 7,560 |
| 3 | 115 | 28,260 | 3 | 90 | 7,740 |
| 4 | 110 | 53,820 | 4 | 85 | 11,880 |
| 5 | 105 | 37,800 | 5 | 80 | 3,780 |
| 6 | 100 | 24,660 | 6 | 75 | 20,160 |
| 7 | 98 | 1,425,780* | 7 | 70 | 159,480 |
| 8 | 95 | 540,180 | 8 | 65 | 157,860 |
| 9 | 90 | 606,240 | 9 | 60 | 320,040 |
| 10 | 85 | 281,160 | 10 | 55 | 308,700 |
| 11 | 80 | 84,060 | 11 | 50 | 2,038,860 |
| 12 | 75 | 7,500,000** | 12 | 45 | 777,060 |
| | | | 13 | 40 | 8,000,000** |

* Failed at the clamp
** No failure

TABLE 51 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Unnotched
Soak: 650°F/5,000 hr/25 ksi
Test Temp: 650°F

| Test 93 Stress Ratio = 0.1 | | | Test 94 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 130 | 6,300 | 1 | 100 | 2,160 |
| 2 | 125 | 6,300 | 2 | 95 | 8,460 |
| 3 | 120 | 14,400 | 3 | 90 | 11,340 |
| 4 | 115 | 11,160 | 4 | 85 | 28,440 |
| 5 | 110 | 43,560 | 5 | 80 | 33,120 |
| 6 | 105 | 22,680 | 6 | 75 | 49,860 |
| 7 | 100 | 157,320 | 7 | 70 | 95,940 |
| 8 | 98 | 69,660** | 8 | 65 | 143,460* |
| 9 | 95 | 6,580,000 | 9 | 60 | 347,400 |
| 10 | 90 | 8,000,000*** | 10 | 55 | 11,500,000*** |

* Failed at the clamp
** Failed at the thermocouple attachment
*** No failure

TABLE 52 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Fusion-Welded & Planished
Soak: None
Test Temp: Room

| Test 99 Stress Ratio = 0.1 | | | Test 100 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 140 | 8,640 | 1 | 120 | 5,400 |
| 2 | 130 | 11,500 | 2 | 110 | 8,100 |
| 3 | 120 | 11,340 | 3 | 100 | 10,440 |
| 4 | 110 | 22,680 | 4 | 90 | 25,560 |
| 5 | 100 | 25,020 | 5 | 80 | 21,060 |
| 6 | 90 | 21,600 | 6 | 75 | 27,900 |
| 7 | 80 | 54,540 | 7 | 70 | 30,240 |
| 8 | 75 | 4,548,600 | 8 | 65 | 75,200 |
| 9 | 70 | 68,580 | 9 | 60 | 56,700 |
| 10 | 67.5 | 5,000,000* | 10 | 60 | 89,640 |
| 11 | 65 | 10,000,000* | 11 | 55 | 9,346,700* |
| 12 | 60 | 225,720 | 12 | 50 | 10,000,000* |

* No failure

TABLE 53 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Fusion-Welded & Planished
Soak: None
Test Temp: 400°F

| Test 101 Stress Ratio = 0.1 | | | Test 102 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 120 | 7,020 | 1 | 100 | 1,620 |
| 2 | 115 | 12,060 | 2 | 90 | 11,520 |
| 3 | 110 | 17,820 | 3 | 80 | 18,180 |
| 4 | 105 | 12,060 | 4 | 70 | 20,700 |
| 5 | 100 | 17,460 | 5 | 65 | 57,780 |
| 6 | 95 | 35,100 | 6 | 60 | 40,140 |
| 7 | 90 | 15,300 | 7 | 58 | 66,060 |
| 8 | 85 | 165,240 | 8 | 55 | 298,800 |
| 9 | 80 | 246,650 | 9 | 50 | 413,460 |
| 10 | 75 | 55,980 | 10 | 45 | 7,600,000* |
| 11 | 73 | 8,500,000* | | | |

* No failure

TABLE 54 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Fusion-Welded & Planished
Soak: None
Test Temp: 650°F

| Test 103 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 110 | 7,200 |
| 2 | 105 | 16,740 |
| 3 | 100 | 13,140 |
| 4 | 95 | 23,220 |
| 5 | 90 | 188,100 |
| 6 | 85 | 1,513,800 |
| 7 | 85 | 31,860 |
| 8 | 82.5 | 3,656,700 |
| 9 | 80 | 161,640 |
| 10 | 80 | 228,420 |
| 11 | 77.5 | 44,870 |
| 12 | 75 | 1,722,600 |
| 13 | 70 | 10,000,000* |

| Test 104 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 100 | 2,880 |
| 2 | 90 | 3,600 |
| 3 | 85 | 15,660 |
| 4 | 80 | 27,000 |
| 5 | 75 | 10,800 |
| 6 | 70 | 6,660 |
| 7 | 70 | 18,720 |
| 8 | 65 | 26,280 |
| 9 | 60 | 35,820 |
| 10 | 55 | 142,380 |
| 11 | 52.5 | 24,300 |
| 12 | 50 | 10,000,000* |

* No failure

TABLE 55 CONSTANT AMPLITUDE FATTIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Fusion-Welded & Planished
Soak: 400°F/100 hr/25 ksi
Test Temp: Room

| Test 105 Stress Ratio = 0.1 | | | Test 106 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 140 | 8,640 | 1 | 120 | 6,660 |
| 2 | 120 | 8,100 | 2 | 110 | 7,200 |
| 3 | 110 | 13,700 | 3 | 100 | 18,720 |
| 4 | 100 | 47,300 | 4 | 90 | 9,000 |
| 5 | 95 | 66,600 | 5 | 80 | 20,340 |
| 6 | 90 | 279,400 | 6 | 70 | 42,480 |
| 7 | 90 | 38,160 | 7 | 65 | 47,340 |
| 8 | 85 | 44,280 | 8 | 60 | 216,900 |
| 9 | 80 | 133,200 | 9 | 57.5 | 241,200 |
| 10 | 75 | 254,700 | 10 | 55 | 3,954,600 |
| 11 | 70 | 744,840 | 11 | 52.5 | 179,280 |
| 12 | 67.5 | 13,900,000* | 12 | 50 | 339,500 |
| | | | 13 | 45 | 12,000,000* |

* No failure

TABLE 56 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Fusion Welded & Planished
Soak: 400°F/100 hr/25 ksi
Test Temp: 400°F

| Test 107 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 130 | 7,020 |
| 2 | 120 | 14,760 |
| 3 | 110 | 11,880 |
| 4 | 100 | 34,740 |
| 5 | 90 | 25,920 |
| 6 | 80 | 238,140 |
| 7 | 75 | 54,000 |
| 8 | 70 | 48,780 |
| 9 | 65 | 43,560 |
| 10 | 60 | 8,700,000* |

| Test 108 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 100 | 4,500 |
| 2 | 95 | 5,040 |
| 3 | 90 | 19,998 |
| 4 | 80 | 18,900 |
| 5 | 70 | 13,140 |
| 6 | 65 | 45,540 |
| 7 | 60 | 125,280 |
| 8 | 55 | 187,380 |
| 9 | 50 | 44,460 |
| 10 | 50 | 335,700 |
| 11 | 45 | 10,000,000* |

* No failure

TABLE 57 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Fusion-Welded & Planished
Soak: 400°F/100 hr/25 ksi
Test Temp: 650°F

| Test 109 Stress Ratio = 0.1 | | | Test 110 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 115 | 5,940 | 1 | 90 | 4,860 |
| 2 | 110 | 15,120 | 2 | 85 | 10,800 |
| 3 | 105 | 14,400 | 3 | 80 | 22,860 |
| 4 | 100 | 25,560 | 4 | 75 | 21,420 |
| 5 | 95 | 9,540 | 5 | 70 | 28,620 |
| 6 | 90 | 10,800 | 6 | 65 | 1,432,440 |
| 7 | 85 | 241,560 | 7 | 60 | 126,000 |
| 8 | 80 | 43,380 | 8 | 55 | 46,260 |
| 9 | 75 | 144,180** | 9 | 50 | 5,513,400 |
| 10 | 70 | 3,787,200 | 10 | 45 | 118,260 |
| 11 | 65 | 5,716,800 | 11 | 40 | 11,500,000* |
| 12 | 60 | 3,067,200 | | | |
| 13 | 56 | 7,500,000* | | | |

* No failure
** Failed at the clamp

TABLE 58 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Fusion-Welded & Planished
Soak: 400°F/1,000 hr/25 ksi
Test Temp: Room

| Test 111 Stress Ratio = 0.1 | | | Test 112 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 150 | 5,220 | 1 | 110 | 1,440 |
| 2 | 140 | 13,320 | 2 | 103 | 14,220 |
| 3 | 130 | 14,040 | 3 | 100 | 4,500 |
| 4 | 120 | 18,000 | 4 | 95 | 25,020 |
| 5 | 110 | 30,060 | 5 | 90 | 17,460 |
| 6 | 100 | 18,720 | 6 | 80 | 28,440 |
| 7 | 95 | 24,300 | 7 | 75 | 35,820 |
| 8 | 90 | 36,180 | 8 | 70 | 38,520 |
| 9 | 85 | 68,220 | 9 | 65 | 124,020 |
| 10 | 80 | 7,570,000 | 10 | 60 | 57,060 |
| 11 | 75 | 97,020 | 11 | 58 | 10,780,000 |
| 12 | 75 | 4,500,000* | 12 | 50 | 3,500,000* |

* No failure

TABLE 59 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Fusion-Welded & Planished
Soak: 400°F/1,000 hr/25 ksi
Test Temp: 400°F

| Test 113 Stress Ratio = 0.1 | | | Test 114 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 130 | 6,480 | 1 | 100 | 7,200 |
| 2 | 120 | 13,500 | 2 | 95 | 6,600 |
| 3 | 110 | 19,260 | 3 | 90 | 14,040 |
| 4 | 105 | 6,840 | 4 | 85 | 12,600 |
| 5 | 100 | 40,140 | 5 | 80 | 21,060 |
| 6 | 95 | 46,440 | 6 | 75 | 21,960 |
| 7 | 90 | 15,660 | 7 | 70 | 41,760 |
| 8 | 85 | 163,260 | 8 | 65 | 66,060 |
| 9 | 80 | 5,079,600 | 9 | 60 | 71,640 |
| 10 | 70 | 5,646,600 | 10 | 57 | 107,820 |
| | | | 11 | 55 | 49,140 |
| | | | 12 | 50 | 7,500,000* |

* No failure.

TABLE 60 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Fusion-Welded & Planished
Soak: 400°F/1,000 hr/25 ksi
Test Temp: 650°F

| Test 115 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 120 | 10,080 |
| 2 | 115 | 16,020 |
| 3 | 110 | 8,460 |
| 4 | 105 | 10,980 |
| 5 | 100 | 15,480 |
| 6 | 95 | 14,580 |
| 7 | 90 | 21,600 |
| 8 | 85 | 1,135,080* |
| 9 | 80 | 26,460 |
| 10 | 75 | 37,800 |
| 11 | 70 | 7,500,000* |

| Test 116 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 85 | 6,840 |
| 2 | 80 | 11,700 |
| 3 | 75 | 3,600 |
| 4 | 70 | 44,640 |
| 5 | 65 | 21,240 |
| 6 | 60 | 119,160 |
| 7 | 55 | 325,440 |
| 8 | 53 | 116,100 |
| 9 | 50 | 50,580 |
| 10 | 45 | 406,440 |
| 11 | 40 | 7,500,000* |

* No failure

TABLE 61 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Fusion-Welded & Planished
Soak: 400°F/5,000 hr/25 ksi
Test Temp: Room

| Test 117 Stress Ratio = 0.1 | | | Test 118 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 130 | 9,180 | 1 | 120 | 7,560 |
| 2 | 120 | 19,260 | 2 | 110 | 11,340 |
| 3 | 110 | 18,360 | 3 | 100 | 12,780 |
| 4 | 105 | 40,320 | 4 | 95 | 9,360 |
| 5 | 100 | 35,280 | 5 | 90 | 12,600 |
| 6 | 95 | 136,080 | 6 | 85 | 30,060 |
| 7 | 90 | 24,480 | 7 | 80 | 19,800 |
| 8 | 88 | 3,606,300 | 8 | 75 | 71,100 |
| 9 | 85 | 1,423,440 | 9 | 70 | 2,855,160 |
| 10 | 80 | 79,920 | 10 | 65 | 89,280 |
| 11 | 75 | 9,063,000 | 11 | 60 | 102,960 |
| | | | 12 | 55 | 402,120 |
| | | | 13 | 50 | 237,960 |
| | | | 14 | 45 | 8,000,000* |

* No failure

TABLE 62 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Fusion-Welded & Planished
Soak: 400°F/5,000 hr/25 ksi
Test Temp: 400°F

| Test 119 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 110 | 4,680 |
| 2 | 105 | 15,840 |
| 3 | 100 | 13,140 |
| 4 | 95 | 29,520 |
| 5 | 90 | 60,840 |
| 6 | 88 | 14,760 |
| 7 | 85 | 23,940 |
| 8 | 80 | 19,980 |
| 9 | 78 | 17,640 |
| 10 | 75 | 10,000,000* |

| Test 120 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 90 | 7,740 |
| 2 | 85 | 18,900 |
| 3 | 80 | 19,800 |
| 4 | 75 | 16,380 |
| 5 | 70 | 19,980 |
| 6 | 65 | 21,420 |
| 7 | 60 | 11,340 |
| 8 | 55 | 121,140 |
| 9 | 50 | 41,760 |
| 10 | 45 | 1,388,160 |
| 11 | 40 | 1,220,400 |
| 12 | 38 | 11,200,000* |

* No failure

TABLE 63 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Fusion-Welded & Planished
Soak: 400°F/5,000 hr/25 ksi
Test Temp: 650°F

| Test 121 Stress Ratio = 0.1 | | | Test 122 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 110 | 6,660 | 1 | 80 | 5,220 |
| 2 | 105 | 21,960 | 2 | 75 | 11,700 |
| 3 | 100 | 14,400 | 3 | 70 | 21,420 |
| 4 | 95 | 21,960 | 4 | 65 | 117,360 |
| 5 | 90 | 34,920 | 5 | 60 | 14,220 |
| 6 | 85 | 97,020 | 6 | 55 | 27,540 |
| 7 | 80 | 165,240 | 7 | 58 | 129,900 |
| 8 | 75 | 106,560 | 8 | 50 | 264,780 |
| 9 | 70 | 61,740 | 9 | 45 | 440,280 |
| 10 | 65 | 7,500,000* | 10 | 40 | 8,000,000* |

* No failure

TABLE 64 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Fusion-Welded & Planished
Soak: 650°F/100 hr/25 ksi
Test Temp: Room

| Test 123 Stress Ratio = 0.1 | | | Test 124 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 150 | 3,060 | 1 | 120 | 6,840 |
| 2 | 140 | 13,680 | 2 | 110 | 10,260 |
| 3 | 130 | 10,080 | 3 | 100 | 15,120 |
| 4 | 120 | 9,720 | 4 | 90 | 27,540 |
| 5 | 115 | 15,840 | 5 | 85 | 14,760 |
| 6 | 110 | 31,320 | 6 | 80 | 48,060 |
| 7 | 105 | 69,840 | 7 | 75 | 50,400 |
| 8 | 100 | 35,460 | 8 | 70 | 57,600 |
| 9 | 97.5 | 47,520 | 9 | 67.5 | 84,960 |
| 10 | 95 | 8,500,000* | 10 | 65 | 128,200 |
| 11 | 90 | 1,911,650 | 11 | 62.5 | 77,940 |
| 12 | 90 | 88,200 | 12 | 60 | 10,000,000* |
| 13 | 85 | 35,100 | 13 | 57.5 | 63,900 |
| 14 | 80 | 10,000,000* | 14 | 52.5 | 2,251,800** |

* No failure
** Failed at the clamp

TABLE 65 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Fusion-Welded & Planished
Soak: 650°F/100 hr/25 ksi
Test Temp: 400°F

| Test 125 Stress Ratio = 0.1 | | | Test 126 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 130 | 5,940 | 1 | 110 | 3,780 |
| 2 | 120 | 15,480 | 2 | 105 | 4,140 |
| 3 | 110 | 23,040 | 3 | 100 | 10,440 |
| 4 | 100 | 47,700 | 4 | 95 | 14,760 |
| 5 | 90 | 42,660 | 5 | 90 | 18,540 |
| 6 | 85 | 38,700 | 6 | 85 | 10,620 |
| 7 | 82 | 49,320 | 7 | 80 | 26,280 |
| 8 | 80 | 5,203,800 | 8 | 70 | 37,440 |
| 9 | 75 | 40,860 | 9 | 65 | 63,180 |
| 10 | 70 | 75,420 | 10 | 60 | 157,140** |
| 11 | 65 | 9,000,000* | 11 | 55 | 145,620 |
| | | | 12 | 50 | 1,422,360 |
| | | | 13 | 45 | 1,407,780*** |
| | | | 14 | 45 | 875,880*** |
| | | | 15 | 40 | 7,500,000 * |

* No failure
** Failed at the clamp
*** Failed at the thermocouple attachment

TABLE 66 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Fusion-Welded & Planished
Soak: 650°F/100 hr/25 ksi
Test Temp: 650°F

| Test 127 Stress Ratio = 0.1 | | | Test 128 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 120 | 5,220 | 1 | 90 | 3,060 |
| 2 | 115 | 8,100 | 2 | 85 | 3,780 |
| 3 | 110 | 8,280 | 3 | 82 | 5,400 |
| 4 | 105 | 9,900 | 4 | 80 | 24,300 |
| 5 | 100 | 34,200 | 5 | 75 | 36,180 |
| 6 | 95 | 19,440 | 6 | 70 | 33,840 |
| 7 | 90 | 26,100 | 7 | 65 | 113,580 |
| 8 | 85 | 2,293,200 | 8 | 60 | 110,340 |
| 9 | 80 | 1,095,480** | 9 | 55 | 254,880 |
| 10 | 80 | 3,376,260 | 10 | 52 | 2,844,000 |
| 11 | 78 | 28,620 | 11 | 48 | 175,320 |
| 12 | 75 | 1,960,200 | 12 | 45 | 4,516,000 |
| 13 | 70 | 10,500,000* | | | |

* No failure
** Failed at the thermocouple attachment

TABLE 67 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Fusion-Welded & Planished
Soak: 650°F/1,000 hr/25 ksi
Test Temp: Room

| Test 129 Stress Ratio = 0.1 | | | Test 130 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 140 | 8,460 | 1 | 100 | 8,100 |
| 2 | 130 | 10,800 | 2 | 95 | 10,440 |
| 3 | 130 | 16,200 | 3 | 93 | 30,240 |
| 4 | 120 | 28,440 | 4 | 90 | 21,240 |
| 5 | 120 | 16,740 | 5 | 85 | 24,840 |
| 6 | 115 | 17,820 | 6 | 80 | 46,800 |
| 7 | 110 | 27,360 | 7 | 78 | 482,220 |
| 8 | 105 | 79,020 | 8 | 75 | 28,800 |
| 9 | 100 | 32,040 | 9 | 75 | 111,600 |
| 10 | 100 | 47,880 | 10 | 73 | 52,380 |
| 11 | 95 | 35,100 | 11 | 70 | 10,000,000* |
| 12 | 90 | 35,640 | 12 | 70 | 4,500,000* |
| 13 | 90 | 11,840,000 | | | |
| 14 | 90 | 7,000,000* | | | |
| 15 | 85 | 5,000,000* | | | |
| 16 | 80 | 83,083 | | | |

* No failure

TABLE 68 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Fusion-Welded & Planished
Soak: 650°F/1,000 hr/25 ksi
Test Temp: 400°F

| Test 131 Stress Ratio = 0.1 | | | Test 132 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 130 | 6,120 | 1 | 110 | 1,980 |
| 2 | 120 | 11,160 | 2 | 100 | 13,140 |
| 3 | 115 | 11,160 | 3 | 90 | 23,580 |
| 4 | 110 | 19,260 | 4 | 85 | 41,760 |
| 5 | 105 | 28,980 | 5 | 80 | 43,020 |
| 6 | 100 | 13,500 | 6 | 75 | 48,780 |
| 7 | 100 | 33,480 | 7 | 70 | 75,600 |
| 8 | 95 | 2,731,500 | 8 | 65 | 96,300 |
| 9 | 90 | 2,862,900 | 9 | 60 | 86,760 |
| 10 | 85 | 5,729,400** | 10 | 55 | 1,058,220** |
| | | | 11 | 50 | 698,580 |
| | | | 12 | 45 | 451,260** |
| | | | 13 | 40 | 8,000,000* |

* No failure
** Failed at the thermocouple attachment

TABLE 69 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Fusion-Welded & Planished
Soak: 650°F/1,000 hr/25 ksi
Test Temp: 650°F

| Test 133 Stress Ratio = 0.1 | | | Test 134 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 120 | 1,620 | 1 | 90 | 4,500 |
| 2 | 115 | 8,460 | 2 | 85 | 18,540 |
| 3 | 110 | 15,300 | 3 | 80 | 12,960 |
| 4 | 105 | 17,460 | 4 | 75 | 116,280 |
| 5 | 100 | 21,240 | 5 | 70 | 73,440 |
| 6 | 98 | 21,060 | 6 | 67 | 188,460 |
| 7 | 97 | 24,480 | 7 | 65 | 34,200 |
| 8 | 96 | 556,200 | 8 | 63 | 5,792,000 |
| 9 | 95 | 921,600 | 9 | 62 | 43,380 |
| 10 | 92 | 755,000** | 10 | 60 | 9,000,000* |
| 11 | 88 | 126,900 | | | |
| 12 | 86 | 19,980 | | | |
| 13 | 82 | 29,520 | | | |
| 14 | 80 | 10,000,000* | | | |

* No failure
** Failed at the thermocouple attachment

TABLE 70 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Fusion-Welded & Planished
Soak: 650°F/5,000 hr/25 ksi
Test Temp: Room

| Test 135 Stress Ratio = 0.1 | | | Test 136 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 130 | 18,180 | 1 | 110 | 5,220 |
| 2 | 125 | 10,440 | 2 | 100 | 32,040 |
| 3 | 120 | 20,520 | 3 | 90 | 18,800 |
| 4 | 115 | 6,660 | 4 | 85 | 14,220 |
| 5 | 110 | 36,540 | 5 | 80 | 15,840 |
| 6 | 105 | 56,340 | 6 | 75 | 26,640 |
| 7 | 100 | 1,121,760 | 7 | 70 | 55,980 |
| 8 | 95 | 24,300 | 8 | 65 | 91,800 |
| 9 | 90 | 2,018,520* | 9 | 60 | 76,320 |
| 10 | 88 | 1,042,920* | 10 | 55 | 39,600 |
| 11 | 85 | 314,280 | 11 | 55 | 919,080 |
| 12 | 80 | 86,400 | 12 | 50 | 7,383,600 |
| 13 | 80 | 21,780 | | | |
| 14 | 75 | 34,560 | | | |
| 15 | 70 | 10,000,000** | | | |

* Failed at the clamp
** No failure

TABLE 71 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Fusion-Welded & Planished
Soak: 650°F/5,000 hr/25 ksi
Test Temp: 400°F

| Test 137 Stress Ratio = 0.1 | | | Test 138 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 108 | 12,240 | 1 | 100 | 2,530 |
| 2 | 105 | 6,480 | 2 | 95 | 6,120 |
| 3 | 104 | 14,220 | 3 | 90 | 19,440 |
| 4 | 100 | 17,100 | 4 | 80 | 20,700 |
| 5 | 98 | 14,400 | 5 | 75 | 15,300 |
| 6 | 95 | 146,520* | 6 | 70 | 133,920 |
| 7 | 92 | 56,520 | 7 | 65 | 36,720 |
| 8 | 88 | 28,800 | 8 | 60 | 54,900 |
| 9 | 85 | 30,960 | 9 | 55 | 101,160 |
| 10 | 80 | 46,260 | 10 | 50 | 1,461,960 |
| 11 | 75 | 7,500,000** | 11 | 45 | 7,500,000** |

* Failed at the thermocouple attachment
** No failure

TABLE 72 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: 8-1-1 Titanium Duplex-Annealed
Geometry: Fusion-Welded & Planished
Soak: 650°F/5,000 hr/25 ksi
Test Temp: 650°F

| Test 139 Stress Ratio = 0.1 | | | Test 140 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 110 | 6,660 | 1 | 95 | 1,620 |
| 2 | 108 | 7,020 | 2 | 90 | 9,180 |
| 3 | 105 | 10,440 | 3 | 85 | 2,700 |
| 4 | 102 | 16,380 | 4 | 80 | 12,060 |
| 5 | 100 | 20,340 | 5 | 76 | 8,820 |
| 6 | 95 | 36,540 | 6 | 73 | 25,380 |
| 7 | 90 | 54,000 | 7 | 70 | 37,800 |
| 8 | 87 | 46,980* | 8 | 67 | 61,920 |
| 9 | 85 | 26,100 | 9 | 62 | 13,500 |
| 10 | 80 | 7,500,000** | 10 | 60 | 7,500,000** |

* Failed at the thermocouple attachment
** No failure

TABLE 73 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Center-Notched
Soak: None
Test Temp: Room

| Test 145 Stress Ratio = 0.1 | | | Test 146 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 100 | 6,660 | 1 | 100 | 1,620 |
| 2 | 90 | 11,880 | 2 | 90 | 1,980 |
| 3 | 80 | 16,740 | 3 | 80 | 5,040 |
| 4 | 75 | 13,320 | 4 | 70 | 10,080 |
| 5 | 70 | 38,520 | 5 | 60 | 20,160 |
| 6 | 65 | 43,920 | 6 | 55 | 26,820 |
| 7 | 60 | 66,600 | 7 | 50 | 46,260 |
| 8 | 55 | 79,200 | 8 | 47.5 | 74,700 |
| 9 | 54 | 69,480 | 9 | 45 | 239,760 |
| 10 | 50 | 9,750,600** | 10 | 42.5 | 79,920 |
| 11 | 50 | 106,200 | 11 | 41 | 272,700 |
| 12 | 45 | 10,000,000** | 12 | 40 | 10,000,000** |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 74 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Center-Notched
Soak: None
Test Temp: 400°F

| Test 147 Stress Ratio = 0.1 | | | Test 148 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 80 | 7,740 | 1 | 70 | 3,060 |
| 2 | 75 | 9,540 | 2 | 65 | 5,760 |
| 3 | 70 | 14,400 | 3 | 60 | 9,720 |
| 4 | 65 | 16,020 | 4 | 55 | 15,120 |
| 5 | 63 | 15,480 | 5 | 50 | 23,400 |
| 6 | 62 | 23,400 | 6 | 48 | 31,680 |
| 7 | 60 | 40,320 | 7 | 46 | 30,960 |
| 8 | 58 | 33,480 | 8 | 44 | 113,040 |
| 9 | 56 | 45,180 | 9 | 40 | 120,780 |
| 10 | 55 | 6,996,600 | 10 | 38 | 8,750,000** |
| | | | 11 | 35 | 4,900,000** |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 75 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Center-Notched
Soak: None
Test Temp: 650°F

| Test 149 Stress Ratio = 0.1 | | | Test 150 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 100 | 2,340 | 1 | 70 | 1,440 |
| 2 | 90 | 2,700 | 2 | 60 | 2,520 |
| 3 | 80 | 5,580 | 3 | 55 | 4,680 |
| 4 | 70 | 7,920 | 4 | 50 | 5,940 |
| 5 | 65 | 16,560 | 5 | 45 | 14,400 |
| 6 | 60 | 27,540 | 6 | 40 | 19,260 |
| 7 | 55 | 7,360,200 | 7 | 38 | 51,300 |
| 8 | 53 | 144,000 | 8 | 36 | 29,520 |
| 9 | 50 | 370,800 | 9 | 34 | 4,700,000** |
| 10 | 48 | 9,000,000** | 10 | 30 | 9,200,000** |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 76 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Center-Notched
Soak: 400°F/100 hr/40 ksi
Test Temp: Room

| Test 151 Stress Ratio = 0.1 | | | Test 152 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 100 | 7,020 | 1 | 70 | 8,100 |
| 2 | 90 | 13,860 | 2 | 65 | 23,220 |
| 3 | 80 | 16,380 | 3 | 60 | 15,660 |
| 4 | 70 | 19,620 | 4 | 55 | 23,040 |
| 5 | 65 | 30,060 | 5 | 50 | 30,420 |
| 6 | 60 | 47,340 | 6 | 47.5 | 57,060 |
| 7 | 55 | 73,440** | 7 | 45 | 124,200 |
| 8 | 52.5 | 45,720 | 8 | 42.5 | 70,740 |
| 9 | 52.5 | 59,760 | 9 | 40 | 113,760 |
| 10 | 50 | 112,860 | 10 | 37.5 | 177,480 |
| 11 | 50 | 196,200 | 11 | 35 | 168,660 |
| 12 | 50 | 10,000,000*** | 12 | 32.5 | 9,346,000*** |
| 13 | 47.5 | 166,000 | 13 | 30 | 14,000,000*** |
| 14 | 45 | 3,418,200 | | | |
| 15 | 42.5 | 10,000,000*** | | | |

* Gross area stress: Net area stress = 1.2 gross area stress
** Failed at the clamp
*** No failure

TABLE 77 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Center-Notched
Soak: 400°F/100 hr./40 ksi
Test Temp: 400°F

| Test 153 Stress Ratio = 0.1 | | | Test 154 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 80 | 4,860 | 1 | 65 | 3,780 |
| 2 | 78 | 7,380 | 2 | 60 | 7,740 |
| 3 | 75 | 10,440 | 3 | 55 | 13,140 |
| 4 | 70 | 13,320 | 4 | 50 | 13,500 |
| 5 | 65 | 16,200 | 5 | 48 | 19,980 |
| 6 | 60 | 20,340 | 6 | 47 | 18,360 |
| 7 | 55 | 29,160 | 7 | 46 | 34,560 |
| 8 | 50 | 37,440 | 8 | 45 | 42,660 |
| 9 | 48 | 3,500,000** | 9 | 43 | 51,300 |
| 10 | 45 | 7,500,000** | 10 | 40 | 7,500,000** |

* Gross area stress : Net area stress = 1.2 gross area stress
** No failure

TABLE 78 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Center-Notched
Soak: 400°F/100 hr/40 ksi
Test Temp: 650°F

| Test 155 Stress Ratio = 0.1 | | | Test 156 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 70 | 7,380 | 1 | 65 | 3,780 |
| 2 | 66 | 9,360 | 2 | 60 | 5,400 |
| 3 | 63 | 9,720 | 3 | 55 | 9,180 |
| 4 | 60 | 14,580 | 4 | 50 | 6,480 |
| 5 | 57 | 57,600 | 5 | 47 | 12,410 |
| 6 | 55 | 40,860 | 6 | 45 | 22,860 |
| 7 | 52 | 2,200,000** | 7 | 43 | 9,360 |
| 8 | 50 | 69,840 | 8 | 40 | 29,520 |
| 9 | 48 | 2,300,000** | 9 | 38 | 30,960 |
| 10 | 45 | 7,500,000** | 10 | 35 | 11,500,000** |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 79 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Center-Notched
Soak: 400°F/1,000 hr/40 ksi
Test Temp: Room

| Test 157 Stress Ratio = 0.1 | | | Test 158 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 85 | 6,840 | 1 | 70 | 11,880 |
| 2 | 80 | 13,500 | 2 | 65 | 12,060 |
| 3 | 75 | 8,640 | 3 | 60 | 22,320 |
| 4 | 70 | 21,420 | 4 | 55 | 34,920 |
| 5 | 65 | 23,400 | 5 | 52 | 41,940 |
| 6 | 60 | 45,720 | 6 | 50 | 106,740 |
| 7 | 55 | 58,860 | 7 | 48 | 54,540 |
| 8 | 52 | 94,140 | 8 | 45 | 85,500 |
| 9 | 50 | 10,000,000** | 9 | 42 | 93,960 |
| 10 | 48 | 6,500,000** | 10 | 40 | 17,000,000** |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 80 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Center-Notched
Soak: 400°F/1,000 hr/40 ksi
Test Temp: 400°F

| Test 159 Stress Ratio = 0.1 | | | Test 160 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 80 | 7,740 | 1 | 70 | 5,220 |
| 2 | 75 | 8,280 | 2 | 66 | 5,220 |
| 3 | 73 | 10,800 | 3 | 64 | 7,380 |
| 4 | 70 | 16,380 | 4 | 60 | 10,260 |
| 5 | 65 | 19,620 | 5 | 56 | 10,440 |
| 6 | 60 | 33,300 | 6 | 54 | 13,500 |
| 7 | 55 | 33,480 | 7 | 50 | 22,860 |
| 8 | 53 | 554,400** | 8 | 46 | 23,220 |
| 9 | 50 | 65,160 | 9 | 44 | 36,540 |
| 10 | 48 | 7,500,000** | 10 | 40 | 10,000,000** |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 81 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Center-Notched
Soak: 400°F/1,000 hr/40 ksi
Test Temp: 650°F

| Test 161 Stress Ratio = 0.1 | | | Test 162 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 70 | 6,840 | 1 | 60 | 7,020 |
| 2 | 68 | 9,180 | 2 | 55 | 6,840 |
| 3 | 66 | 5,940** | 3 | 54 | 11,700 |
| 4 | 65 | 33,660 | 4 | 52 | 13,140 |
| 5 | 64 | 14,040 | 5 | 50 | 11,880 |
| 6 | 62 | 13,500 | 6 | 48 | 20,160 |
| 7 | 60 | 26,640 | 7 | 45 | 24,300 |
| 8 | 60 | 11,520 | 8 | 44 | 250,000*** |
| 9 | 58 | 5,100,000*** | 9 | 43 | 79,560 |
| 10 | 55 | 7,500,000*** | 10 | 40 | 12,100,000*** |

* Gross area stress: Net area stress = 1.2 gross area stress
** Failed at the clamp
*** No failure

TABLE 82 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Center-Notched
Soak: 400°F/5000 hr/40 ksi
Test Temp: Room

| Test 163 Stress Ratio = 0.1 | | | Test 164 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 85 | 10,620 | 1 | 80 | 3,780 |
| 2 | 80 | 13,500 | 2 | 75 | 4,500 |
| 3 | 75 | 18,360 | 3 | 70 | 12,240 |
| 4 | 70 | 24,660 | 4 | 65 | 12,960 |
| 5 | 65 | 30,240 | 5 | 60 | 16,560 |
| 6 | 60 | 58,140 | 6 | 55 | 16,920 |
| 7 | 55 | 48,420 | 7 | 50 | 36,900 |
| 8 | 50 | 73,080 | 8 | 47 | 124,200 |
| 9 | 46 | 129,670 | 9 | 45 | 107,460 |
| 10 | 42 | 10,000,000** | 10 | 40 | 9,000,000** |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 83 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Center-Notched
Soak: 400°F/5,000 hr/40 ksi
Test Temp: 400°F

| Test 165 Stress Ratio = 0.1 | | | Test 166 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 80 | 5,040 | 1 | 60 | 3,600 |
| 2 | 75 | 6,840 | 2 | 58 | 4,500 |
| 3 | 70 | 8,280 | 3 | 56 | 12,240 |
| 4 | 65 | 7,740 | 4 | 55 | 8,640 |
| 5 | 62 | 10,080 | 5 | 50 | 9,360 |
| 6 | 60 | 14,940 | 6 | 48 | 11,520 |
| 7 | 56 | 23,400 | 7 | 46 | 27,360 |
| 8 | 52 | 32,580 | 8 | 42 | 42,120 |
| 9 | 50 | 2,500,000** | 9 | 40 | 26,820 |
| 10 | 48 | 7,500,000** | 10 | 37 | 7,500,000** |

* Gross area stress: net area stress = 1.2 gross area stress
** No failure

TABLE 84 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Center-Notched
Soak: 400°F/5,000 hr/40 ksi
Test Temp: 650°F

| Test 167 Stress Ratio = 0.1 | | | Test 168 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 68 | 7,560 | 1 | 55 | 4,320 |
| 2 | 66 | 9,720 | 2 | 53 | 3,420 |
| 3 | 65 | 7,200 | 3 | 52 | 5,940 |
| 4 | 64 | 9,360 | 4 | 50 | 9,720 |
| 5 | 62 | 10,800 | 5 | 48 | 8,820 |
| 6 | 60 | 15,120 | 6 | 46 | 14,220 |
| 7 | 58 | 10,260 | 7 | 45 | 22,140 |
| 8 | 56 | 16,920 | 8 | 42 | 24,120 |
| 9 | 54 | 13,860 | 9 | 40 | 57,420 |
| 10 | 52 | 7,500,000** | 10 | 38 | 38,340 |
| 11 | 50 | 45,720 | 11 | 34 | 18,180 |
| 12 | 46 | 5,500,000** | 12 | 32 | 8,500,000** |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 85 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Center-Notched
Soak: 650°F/100 hr/40 ksi
Test Temp: Room

| Test 169 Stress Ratio = 0.1 | | | Test 170 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 90 | 9,180 | 1 | 70 | 7,200 |
| 2 | 80 | 17,640 | 2 | 65 | 18,360 |
| 3 | 75 | 11,160 | 3 | 60 | 21,600 |
| 4 | 70 | 42,120 | 4 | 55 | 31,140 |
| 5 | 65 | 20,340 | 5 | 50 | 37,260 |
| 6 | 60 | 59,220 | 6 | 47.5 | 59,280 |
| 7 | 57.5 | 117,360 | 7 | 45 | 79,740 |
| 8 | 56 | 52,380 | 8 | 43 | 95,040 |
| 9 | 55 | 10,000,000** | 9 | 42 | 140,400 |
| 10 | 54 | 90,720 | 10 | 40 | 812,880 |
| 11 | 52 | 60,840 | 11 | 38 | 14,000,000** |
| 12 | 50 | 5,500,000** | | | |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 86 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Center-Notched
Soak: 650°F/100 hr/40 ksi
Test Temp: 400°F

| Test 171 Stress Ratio = 0.1 | | | Test 172 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 82 | 6,840 | 1 | 65 | 5,220 |
| 2 | 80 | 7,740 | 2 | 62 | 7,020 |
| 3 | 80 | 9,720 | 3 | 60 | 10,440 |
| 4 | 75 | 12,240 | 4 | 55 | 12,960 |
| 5 | 70 | 11,340 | 5 | 52 | 12,060 |
| 6 | 65 | 11,700 | 6 | 50 | 30,960 |
| 7 | 60 | 28,340 | 7 | 50 | 27,360 |
| 8 | 57 | 32,220 | 8 | 46 | 35,820 |
| 9 | 55 | 4,433,400 | 9 | 44 | 75,600 |
| 10 | 52 | 52,740 | 10 | 42 | 7,500,000** |
| 11 | 48 | 7,500,000** | | | |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 87 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Center-Notched
Soak: 650°F/100 hr/40 ksi
Test Temp: 650°F

| Test 173 Stress Ratio = 0.1 | | | Test 174 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 75 | 5,580 | 1 | 60 | 5,580 |
| 2 | 70 | 7,380 | 2 | 55 | 6,840 |
| 3 | 67 | 11,340 | 3 | 53 | 8,820 |
| 4 | 65 | 14,580 | 4 | 50 | 15,300 |
| 5 | 62 | 10,980 | 5 | 50 | 6,600 |
| 6 | 60 | 11,340 | 6 | 47 | 16,020 |
| 7 | 57 | 14,040 | 7 | 45 | 17,460 |
| 8 | 55 | 45,360 | 8 | 43 | 26,460 |
| 9 | 52 | 35,460 | 9 | 42 | 29,340 |
| 10 | 50 | 32,760 | 10 | 40 | 7,500,000** |
| 11 | 48 | 7,500,000** | | | |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 88 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Center-Notched
Soak: 650°F/1,000 hr/40 ksi
Test Temp: Room

| Test 175 Stress Ratio = 0.1 | | | Test 176 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 85 | 9,900 | 1 | 70 | 10,620 |
| 2 | 80 | 11,520 | 2 | 65 | 14,220 |
| 3 | 78 | 17,640 | 3 | 60 | 23,400 |
| 4 | 75 | 21,420 | 4 | 58 | 31,860 |
| 5 | 70 | 30,060 | 5 | 55 | 106,920 |
| 6 | 68 | 25,380 | 6 | 52 | 33,120 |
| 7 | 65 | 24,660 | 7 | 50 | 38,700 |
| 8 | 60 | 82,440 | 8 | 48 | 50,220 |
| 9 | 55 | 135,720 | 9 | 45 | 99,000 |
| 10 | 50 | 14,000,000** | 10 | 42 | 12,411,000 |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 89 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Center-Notched
Soak: 650°F/1,000 hr/40 ksi
Test Temp: 400°F

| Test 177 Stress Ratio = 0.1 | | | Test 178 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 90 | 6,300 | 1 | 70 | 3,780 |
| 2 | 80 | 10,800 | 2 | 65 | 5,220 |
| 3 | 75 | 14,040 | 3 | 60 | 10,080 |
| 4 | 70 | 15,660 | 4 | 55 | 13,680 |
| 5 | 65 | 18,900 | 5 | 50 | 19,260 |
| 6 | 62 | 17,460 | 6 | 47 | 23,220 |
| 7 | 60 | 3,900,600 | 7 | 45 | 45,720 |
| 8 | 56 | 25,200 | 8 | 43 | 74,160 |
| 9 | 54 | 1,000,000** | 9 | 40 | 81,900 |
| 10 | 50 | 8,000,000** | 10 | 37 | 8,800,000** |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 90 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Center-Notched
Soak: 650°F/1,000 hr/40 ksi
Test Temp: 650°F

| Test 179 Stress Ratio = 0.1 | | | Test 180 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 80 | 4,680 | 1 | 60 | 3,060 |
| 2 | 75 | 7,560 | 2 | 55 | 4,500 |
| 3 | 70 | 8,460 | 3 | 54 | 8,640 |
| 4 | 65 | 7,200 | 4 | 52 | 10,620 |
| 5 | 62 | 9,720 | 5 | 50 | 13,860 |
| 6 | 60 | 11,520 | 6 | 48 | 18,180 |
| 7 | 58 | 2,400,000** | 7 | 46 | 23,760 |
| 8 | 58 | 13,140 | 8 | 44 | 26,820 |
| 9 | 55 | 377,820 | 9 | 42 | 2,000,000** |
| 10 | 50 | 4,685,400*** | 10 | 40 | 7,500,000** |
| 11 | 50 | 9,100,000** | | | |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure
*** Failed at the clamp

TABLE 91 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Center-Notched
Soak: 650°F/5,000 hr/40 ksi
Test Temp: Room

| Test 181 Stress Ratio = 0.1 | | | Test 182 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 95 | 7,200 | 1 | 80 | 5,400 |
| 2 | 90 | 9,900 | 2 | 70 | 11,160 |
| 3 | 85 | 15,840 | 3 | 65 | 13,860 |
| 4 | 80 | 12,780 | 4 | 60 | 13,860 |
| 5 | 70 | 12,600 | 5 | 55 | 30,780 |
| 6 | 70 | 27,000 | 6 | 50 | 41,760 |
| 7 | 65 | 45,540 | 7 | 45 | 122,220 |
| 8 | 60 | 32,940 | 8 | 40 | 180,000 |
| 9 | 55 | 30,600 | 9 | 37 | 389,880 |
| 10 | 50 | 160,380 | 10 | 34 | 8,000,000** |
| 11 | 49 | 7,000,000** | | | |
| 12 | 48 | 118,080 | | | |
| 13 | 46 | 10,000,000** | | | |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 92 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Center-Notched
Soak: 650°F/5,000 hr/40 ksi
Test Temp: 400°F

| Test 183 Stress Ratio = 0.1 | | | Test 184 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 80 | 5,040 | 1 | 70 | 5,040 |
| 2 | 78 | 11,700 | 2 | 68 | 5,400 |
| 3 | 75 | 6,120 | 3 | 65 | 10,980 |
| 4 | 72 | 12,780 | 4 | 60 | 10,980 |
| 5 | 70 | 10,800 | 5 | 58 | 16,200 |
| 6 | 68 | 28,260 | 6 | 56 | 21,600 |
| 7 | 65 | 14,220 | 7 | 54 | 22,680 |
| 8 | 62 | 38,340 | 8 | 50 | 23,940 |
| 9 | 60 | 14,220 | 9 | 48 | 7,500,000** |
| 10 | 58 | 67,500 | 10 | 46 | 2,080,800 |
| 11 | 55 | 8,500,000** | | | |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 93 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Center-Notched
Soak: 650°F/5,000 hr/40 ksi
Test Temp: 650°F

| Test 185 Stress Ratio = 0.1 | | | Test 186 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 90 | 5,040 | 1 | 58 | 8,640 |
| 2 | 85 | 6,120 | 2 | 55 | 5,940 |
| 3 | 80 | 6,660 | 3 | 52 | 12,780 |
| 4 | 75 | 6,120 | 4 | 50 | 9,720 |
| 5 | 70 | 8,460 | 5 | 49 | 24,120 |
| 6 | 65 | 5,940 | 6 | 48 | 15,840 |
| 7 | 62 | 2,000,000** | 7 | 47 | 20,160 |
| 8 | 60 | 12,060 | 8 | 46 | 42,660 |
| 9 | 58 | 94,680 | 9 | 45 | 2,200,000** |
| 10 | 55 | 8,000,000** | 10 | 44 | 7,500,000** |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 94 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Unnotched
Soak: None
Test Temp: Room

| Test 197 Stress Ratio = 0.1 | | | Test 198 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 180 | 16,920 | 1 | 150 | 7,680 |
| 2 | 170 | 11,520 | 2 | 140 | 11,700 |
| 3 | 160 | 26,460 | 3 | 130 | 13,860 |
| 4 | 150 | 25,200 | 4 | 120 | 29,880 |
| 5 | 140 | 26,100 | 5 | 110 | 32,760 |
| 6 | 130 | 62,100 | 6 | 105 | 50,580 |
| 7 | 125 | 54,000 | 7 | 100 | 84,780 |
| 8 | 120 | 43,560 | 8 | 95 | 239,040 |
| 9 | 117.5 | 131,220 | 9 | 90 | 263,700 |
| 10 | 115 | 124,200 | 10 | 87.5 | 400,140 |
| 11 | 110 | 118,800 | 11 | 85 | 122,200 |
| 12 | 105 | 10,000,000* | 12 | 80 | 12,500,000* |

* No failure

TABLE 95 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Unnotched
Soak: None
Test Temp: 400°F

| Test 199 Stress Ratio = 0.1 | | | Test 200 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 160 | 6,120 | 1 | 130 | 6,300 |
| 2 | 150 | 9,720 | 2 | 125 | 9,360 |
| 3 | 140 | 15,840 | 3 | 120 | 11,700 |
| 4 | 130 | 17,820 | 4 | 115 | 13,680 |
| 5 | 125 | 42,120 | 5 | 110 | 13,140 |
| 6 | 120 | 42,840 | 6 | 105 | 18,900 |
| 7 | 115 | 30,780 | 7 | 100 | 23,940 |
| 8 | 110 | 31,680 | 8 | 95 | 35,820 |
| 9 | 107 | 26,280 | 9 | 90 | 35,820 |
| 10 | 105 | 8,600,000* | 10 | 85 | 41,220 |
| 11 | 102 | 7,500,000* | 11 | 83 | 1,250,000* |
| | | | 12 | 80 | 7,600,000* |
| | | | 13 | 75 | 4,300,000* |

* No failure

TABLE 96 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Unnotched
Soak: None
Test Temp: 650°F

| Test 201 Stress Ratio = 0.1 | | | Test 202 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 145 | 10,080 | 1 | 120 | 9,540 |
| 2 | 140 | 14,580 | 2 | 110 | 12,420 |
| 3 | 135 | 14,940 | 3 | 100 | 18,000 |
| 4 | 130 | 29,340 | 4 | 95 | 14,040 |
| 5 | 127 | 14,760 | 5 | 93 | 15,480 |
| 6 | 125 | 37,260 | 6 | 90 | 24,660 |
| 7 | 125 | 7,650,000* | 7 | 88 | 2,000,000* |
| 8 | 123 | 7,185,000 | 8 | 88 | 12,000,000* |
| 9 | 120 | 241,200 | 9 | 80 | 8,000,000* |
| 10 | 115 | 10,000,000* | 10 | 75 | 2,000,000* |

* No failure

TABLE 97 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Unnotched
Soak: 400°F/100 hr/40 ksi
Test Temp: Room

| Test 203 Stress Ratio = 0.1 | | | Test 204 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 170 | 22,100 | 1 | 160 | 6,120 |
| 2 | 150 | 23,940 | 2 | 150 | 2,700 |
| 3 | 130 | 48,600 | 3 | 140 | 17,820 |
| 4 | 120 | 87,480 | 4 | 130 | 19,800 |
| 5 | 115 | 237,600 | 5 | 120 | 27,900 |
| 6 | 110 | 2,680,900 | 6 | 110 | 25,200 |
| 7 | 110 | 337,060 | 7 | 100 | 61,560 |
| 8 | 105 | 102,720 | 8 | 95 | 53,640 |
| 9 | 105 | 233,500 | 9 | 90 | 84,240 |
| 10 | 100 | 240,660 | 10 | 87 | 11,000,000* |
| 11 | 95 | 282,200 | 11 | 82 | 10,000,000* |
| 12 | 90 | 10,000,000* | | | |

* No failure

TABLE 98 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Unnotched
Soak: 400°F/100 hr/40 ksi
Test Temp: 400°F

| Test 205 Stress Ratio = 0.1 | | | Test 206 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 150 | 9,540 | 1 | 115 | 13,680 |
| 2 | 140 | 12,780 | 2 | 110 | 14,940 |
| 3 | 130 | 16,920 | 3 | 105 | 10,800 |
| 4 | 120 | 23,760 | 4 | 100 | 17,100 |
| 5 | 115 | 30,420 | 5 | 95 | 31,320 |
| 6 | 113 | 33,300 | 6 | 90 | 241,020 |
| 7 | 110 | 53,100 | 7 | 88 | 100,080 |
| 8 | 108 | 44,460 | 8 | 86 | 56,700 |
| 9 | 106 | 45,720 | 9 | 84 | 7,000,000* |
| 10 | 105 | 10,000,000* | 10 | 80 | 7,500,000* |

* No failure

TABLE 99 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Unnotched
Soak: 400°F/100 hr/40 ksi
Test Temp: 650°F

| Test 207 Stress Ratio = 0.1 | | | Test 208 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 140 | 6,300 | 1 | 115 | 3,960 |
| 2 | 135 | 10,620 | 2 | 110 | 8,820 |
| 3 | 130 | 6,480 | 3 | 105 | 10,260 |
| 4 | 128 | 17,460 | 4 | 100 | 16,920 |
| 5 | 125 | 13,140 | 5 | 96 | 10,260 |
| 6 | 120 | 12,240 | 6 | 95 | 14,940 |
| 7 | 115 | 16,740 | 7 | 92 | 20,340 |
| 8 | 112 | 2,300,000* | 8 | 90 | 45,540 |
| 9 | 110 | 26,280 | 9 | 85 | 41,940 |
| 10 | 105 | 11,300,000* | 10 | 80 | 9,000,000* |

* No failure

TABLE 100 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Unnotched
Soak: 400°F/1,000 hr/40 ksi
Test Temp: Room

| Test 209 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 180 | 13,140 |
| 2 | 160 | 11,340 |
| 3 | 150 | 19,080 |
| 4 | 130 | 42,300 |
| 5 | 120 | 51,800 |
| 6 | 115 | 65,880 |
| 7 | 110 | 142,380 |
| 8 | 107 | 126,000 |
| 9 | 104 | 85,140 |
| 10 | 95 | 238,860 |
| 11 | 90 | 2,085,300** |
| 12 | 85 | 13,000,000* |

| Test 210 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 140 | 9,720 |
| 2 | 120 | 18,900 |
| 3 | 110 | 22,140 |
| 4 | 100 | 28,440 |
| 5 | 95 | 139,140 |
| 6 | 90 | 91,260 |
| 7 | 85 | 180,000 |
| 8 | 80 | 86,580 |
| 9 | 75 | 91,080 |
| 10 | 70 | 9,000,000* |

* No failure
** Failed at the clamp

TABLE 101 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Unnotched
Soak: 400°F/1,000 hr/40 ksi
Test Temp: 400°F

| Test 211 Stress Ratio = 0.1 | | | Test 212 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 160 | 7,200 | 1 | 120 | 5,580 |
| 2 | 150 | 16,920 | 2 | 110 | 11,160 |
| 3 | 140 | 17,280 | 3 | 105 | 20,340 |
| 4 | 130 | 15,480 | 4 | 100 | 21,780 |
| 5 | 125 | 34,560 | 5 | 95 | 47,520 |
| 6 | 120 | 27,900 | 6 | 90 | 157,860 |
| 7 | 116 | 32,040 | 7 | 85 | 52,200 |
| 8 | 115 | 49,700 | 8 | 82 | 57,960 |
| 9 | 114 | 24,120 | 9 | 78 | 40,140 |
| 10 | 110 | 11,300,000* | 10 | 75 | 15,000,000* |
| 11 | 110 | 47,700 | | | |
| 12 | 105 | 75,060 | | | |
| 13 | 100 | 3,000,000* | | | |

* No failure

TABLE 102 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Unnotched
Soak: 400°F/1,000 hr./40 ksi
Test Temp: 650°F

| Test 213 Stress Ratio = 0.1 | | | Test 214 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 150 | 7,200 | 1 | 120 | 900 |
| 2 | 145 | 10,080 | 2 | 115 | 3,960 |
| 3 | 140 | 20,880 | 3 | 110 | 12,600 |
| 4 | 135 | 10,800 | 4 | 105 | 12,240 |
| 5 | 130 | 10,080 | 5 | 100 | 16,920 |
| 6 | 128 | 16,560 | 6 | 95 | 36,180 |
| 7 | 125 | 14,400 | 7 | 90 | 35,640 |
| 8 | 122 | 2,000,000* | 8 | 87 | 33,120 |
| 9 | 120 | 24,120 | 9 | 85 | 21,780 |
| 10 | 115 | 7,500,000* | 10 | 80 | 7,500,000* |

* No failure

TABLE 103 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Unnotched
Soak: 400°F/5,000 hr/40 ksi
Test Temp: Room

| Test 215 Stress Ratio = 0.1 | | | Test 216 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 170 | 10,440 | 1 | 130 | 10,800 |
| 2 | 165 | 11,880 | 2 | 125 | 13,680 |
| 3 | 160 | 12,420 | 3 | 120 | 35,100 |
| 4 | 150 | 23,940 | 4 | 110 | 48,290 |
| 5 | 140 | 30,060 | 5 | 100 | 67,680 |
| 6 | 130 | 46,980 | 6 | 95 | 417,060 |
| 7 | 120 | 42,120** | 7 | 95 | 25,200 |
| 8 | 115 | 81,000 | 8 | 90 | 158,220 |
| 9 | 110 | 407,160 | 9 | 85 | 271,440 |
| 10 | 105 | 169,380 | 10 | 80 | 7,500,000* |
| 11 | 100 | 10,000,000* | | | |

* No failure
** Failed at the clamp

TABLE 104 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Unnotched
Soak: 400°F/5,000 hr/40 ksi
Test Temp: 400°F

| Test 217 Stress Ratio = 0.1 | | | Test 218 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 160 | 6,120 | 1 | 135 | 11,700 |
| 2 | 150 | 10,440 | 2 | 130 | 8,820 |
| 3 | 140 | 14,580 | 3 | 125 | 8,280 |
| 4 | 135 | 32,940 | 4 | 120 | 11,340 |
| 5 | 130 | 13,680 | 5 | 115 | 14,400 |
| 6 | 125 | 40,500 | 6 | 110 | 10,980 |
| 7 | 120 | 20,340 | 7 | 105 | 15,660 |
| 8 | 115 | 74,160 | 8 | 100 | 15,120 |
| 9 | 110 | 29,160 | 9 | 95 | 45,000 |
| 10 | 105 | 8,000,000* | 10 | 90 | 26,460 |
| | | | 11 | 85 | 117,360 |
| | | | 12 | 80 | 81,180 |
| | | | 13 | 75 | 7,500,000* |

* No failure

TABLE 105 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Unnotched
Soak: 400°F/5,000 hr/40 ksi
Test Temp: 650°F

| Test 219 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 155 | 5,760 |
| 2 | 150 | 7,920 |
| 3 | 145 | 9,900 |
| 4 | 142 | 10,800 |
| 5 | 140 | 5,760 |
| 6 | 138 | 15,840 |
| 7 | 135 | 13,140 |
| 8 | 132 | 55,800 |
| 9 | 130 | 2,000,000* |
| 10 | 125 | 7,500,000* |

| Test 220 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 120 | 6,300 |
| 2 | 115 | 4,860 |
| 3 | 110 | 17,460 |
| 4 | 105 | 18,180 |
| 5 | 100 | 19,260 |
| 6 | 98 | 17,820 |
| 7 | 96 | 16,020 |
| 8 | 95 | 1,087,920 |
| 9 | 92 | 13,860 |
| 10 | 90 | 99,360 |
| 11 | 88 | 17,460 |
| 12 | 85 | 7,500,000* |
| 13 | 78 | 56,000 |

* No failure

TABLE 106 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Unnotched
Soak: 650°F/100 hr/40 ksi
Test Temp: Room

| Test 221 Stress Ratio = 0.1 | | | Test 222 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 180 | 7,200 | 1 | 130 | 15,120 |
| 2 | 180 | 11,700 | 2 | 120 | 10,440 |
| 3 | 170 | 14,400 | 3 | 115 | 42,120 |
| 4 | 160 | 25,020 | 4 | 110 | 54,000 |
| 5 | 150 | 24,660 | 5 | 105 | 40,320 |
| 6 | 140 | 35,280 | 6 | 100 | 23,580 |
| 7 | 130 | 51,300 | 7 | 98 | 43,340 |
| 8 | 120 | 47,880 | 8 | 95 | 158,760 |
| 9 | 110 | 50,940 | 9 | 90 | 170,820 |
| 10 | 100 | 107,640 | 10 | 90 | 115,200 |
| 11 | 97 | 86,040 | 11 | 85 | 168,120 |
| 12 | 95 | 79,920 | 12 | 83 | 7,000,000* |
| 13 | 92 | 2,000,000* | 13 | 80 | 11,900,000* |
| 14 | 90 | 10,000,000* | | | |

* No failure

TABLE 107 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Unnotched
Soak: 650°F/100 hr/40 ksi
Test Temp: 400°F

| Test 223 Stress Ratio = 0.1 | | | Test 224 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 160 | 9,360 | 1 | 130 | 5,940 |
| 2 | 140 | 13,680 | 2 | 120 | 14,040 |
| 3 | 130 | 6,840 | 3 | 110 | 20,340 |
| 4 | 120 | 26,640 | 4 | 105 | 14,580 |
| 5 | 115 | 47,520 | 5 | 100 | 27,360 |
| 6 | 110 | 55,260 | 6 | 95 | 28,260 |
| 7 | 105 | 59,040 | 7 | 90 | 48,780 |
| 8 | 103 | 40,140 | 8 | 85 | 36,000 |
| 9 | 102 | 38,340 | 9 | 80 | 42,300 |
| 10 | 101 | 114,000 | 10 | 75 | 9,000,000* |
| 11 | 101 | 3,200,000* | | | |
| 12 | 100 | 12,500,000* | | | |

* No failure

TABLE 108 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Unnotched
Soak: 650°F/100 hr/40 ksi
Test Temp: 650°F

| Test 225 Stress Ratio = 0.1 | | | Test 226 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 150 | 10,980 | 1 | 110 | 6,300 |
| 2 | 140 | 17,280 | 2 | 108 | 9,000 |
| 3 | 130 | 13,140 | 3 | 105 | 9,180 |
| 4 | 125 | 25,380 | 4 | 100 | 11,160 |
| 5 | 120 | 14,580 | 5 | 98 | 21,420 |
| 6 | 115 | 17,460 | 6 | 95 | 13,680 |
| 7 | 110 | 20,160 | 7 | 92 | 86,220 |
| 8 | 108 | 12,200,000* | 8 | 90 | 30,780 |
| 9 | 106 | 19,440 | 9 | 88 | 50,580 |
| 10 | 100 | 3,000,000* | 10 | 86 | 6,211,800 |
| | | | 11 | 82 | 7,500,000* |

* No failure

TABLE 109 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Unnotched
Soak: 650°F/1,000 hr/40 ksi
Test Temp: Room

| Test 227 Stress Ratio = 0.1 | | | Test 228 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 180 | 15,300 | 1 | 150 | 7,740 |
| 2 | 170 | 14,220 | 2 | 140 | 12,420 |
| 3 | 160 | 25,740 | 3 | 130 | 30,600 |
| 4 | 150 | 41,580 | 4 | 130 | 37,800 |
| 5 | 140 | 37,080 | 5 | 120 | 39,060 |
| 6 | 130 | 46,980 | 6 | 110 | 57,060 |
| 7 | 120 | 176,040 | 7 | 100 | 41,400 |
| 8 | 110 | 147,060 | 8 | 95 | 171,000 |
| 9 | 100 | 255,060 | 9 | 90 | 415,400 |
| 10 | 95 | 11,500,000* | 10 | 85 | 11,500,000* |

* No failure

TABLE 110 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Unnotched
Soak: 650°F/1,000 hr/40 ksi
Test Temp: 400°F

| Test 229 Stress Ratio = 0.1 | | | Test 230 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 170 | 7,920 | 1 | 140 | 8,100 |
| 2 | 160 | 8,280 | 2 | 130 | 10,980 |
| 3 | 150 | 13,860 | 3 | 120 | 15,120 |
| 4 | 140 | 8,460 | 4 | 110 | 19,620 |
| 5 | 130 | 27,180 | 5 | 105 | 181,800 |
| 6 | 125 | 9,300,000* | 6 | 100 | 15,480 |
| 7 | 120 | 54,000 | 7 | 95 | 32,940 |
| 8 | 115 | 51,660 | 8 | 90 | 33,660 |
| 9 | 110 | 7,600,000* | 9 | 88 | 137,700 |
| 10 | 105 | 56,520 | 10 | 85 | 689,400 |
| 11 | 100 | 88,560 | 11 | 83 | 39,960 |
| 12 | 95 | 7,142,400* | 12 | 80 | 12,000,000* |

* No failure

TABLE 111 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Unnotched
Soak: 650°F/1,000 hr/40 ksi
Test Temp: 650°F

| Test 231 Stress Ratio = 0.1 | | | Test 232 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 150 | 4,140 | 1 | 120 | 4,320 |
| 2 | 145 | 9,360 | 2 | 118 | 2,700 |
| 3 | 140 | 8,100 | 3 | 116 | 3,780 |
| 4 | 140 | 12,060 | 4 | 115 | 7,380 |
| 5 | 138 | 11,160 | 5 | 112 | 5,760 |
| 6 | 136 | 6,840 | 6 | 110 | 9,000 |
| 7 | 134 | 10,800 | 7 | 108 | 8,100 |
| 8 | 132 | 12,060 | 8 | 105 | 16,020 |
| 9 | 130 | 2,001,600 | 9 | 102 | 10,620 |
| 10 | 125 | 17,820 | 10 | 100 | 6,634,800 |
| 11 | 120 | 5,286,420 | 11 | 95 | 28,440 |
| 12 | 116 | 7,500,000* | 12 | 90 | 2,500,000* |
| | | | 13 | 86 | 37,260 |
| | | | 14 | 80 | 7,500,000* |

* No failure

TABLE 112 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Unnotched
Soak: 650°F/5,000 hr/40 ksi
Test Temp: Room

| Test 233 Stress Ratio = 0.1 | | | Test 234 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 180 | 11,700 | 1 | 150 | 10,080 |
| 2 | 170 | 16,200 | 2 | 140 | 18,000 |
| 3 | 160 | 12,780 | 3 | 135 | 19,620 |
| 4 | 150 | 14,400 | 4 | 130 | 18,540 |
| 5 | 140 | 19,620 | 5 | 120 | 17,640 |
| 6 | 130 | 62,820 | 6 | 110 | 44,100 |
| 7 | 120 | 77,040 | 7 | 100 | 93,420 |
| 8 | 115 | 233,820 | 8 | 90 | 144,180 |
| 9 | 110 | 407,700 | 9 | 85 | 301,500 |
| 10 | 106 | 62,820 | 10 | 80 | 8,338,500 |
| 11 | 100 | 10,000,000* | | | |

* No failure

TABLE 113 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Unnotched
Soak: 650°F/5,000 hr/40 ksi
Test Temp: 400°F

| Test 235 Stress Ratio = 0.1 | | | Test 236 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 150 | 6,840 | 1 | 135 | 5,400 |
| 2 | 145 | 16,020 | 2 | 130 | 12,060 |
| 3 | 140 | 10,260 | 3 | 125 | 19,980 |
| 4 | 138 | 35,460 | 4 | 120 | 26,820 |
| 5 | 135 | 58,860 | 5 | 115 | 16,740 |
| 6 | 132 | 35,100 | 6 | 110 | 23,940 |
| 7 | 130 | 15,480 | 7 | 105 | 31,860 |
| 8 | 128 | 44,640 | 8 | 100 | 19,080 |
| 9 | 125 | 2,500,000* | 9 | 95 | 56,700 |
| 10 | 120 | 20,520 | 10 | 90 | 5,925,000 |
| 11 | 110 | 10,000,000* | 11 | 85 | 7,500,000* |
| | | | 12 | 80 | 92,700 |

* No failure

TABLE 114 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Unnotched
Soak: 650°F/5,000 hr/40 ksi
Test Temp: 650°F

| Test 237 Stress Ratio = 0.1 | | | Test 238 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 155 | 5,400 | 1 | 130 | 3,600 |
| 2 | 150 | 9,720 | 2 | 120 | 10,980 |
| 3 | 145 | 9,000 | 3 | 115 | 8,820 |
| 4 | 140 | 9,900 | 4 | 110 | 14,040 |
| 5 | 135 | 9,360 | 5 | 108 | 55,980 |
| 6 | 130 | 13,680 | 6 | 105 | 28,980 |
| 7 | 128 | 33,840 | 7 | 102 | 14,220 |
| 8 | 125 | 19,980 | 8 | 100 | 7,500,000* |
| 9 | 120 | 22,068 | 9 | 98 | 17,280 |
| 10 | 115 | 7,500,000* | 10 | 94 | 2,500,000* |

* No failure

TABLE 115 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Fusion-Welded & Planished
Soak: None
Test Temp: Room

| Test 243 Stress Ratio = 0.1 | | | Test 244 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 160 | 12,780 | 1 | 130 | 3,780 |
| 2 | 150 | 10,800 | 2 | 120 | 18,000 |
| 3 | 140 | 43,380 | 3 | 110 | 33,840 |
| 4 | 130 | 51,840 | 4 | 100 | 62,820 |
| 5 | 125 | 28,080 | 5 | 90 | 77,760 |
| 6 | 122.5 | 55,620 | 6 | 87 | 6,500,000* |
| 7 | 120 | 1,779,660 | 7 | 85 | 47,340 |
| 8 | 117.5 | 69,300 | 8 | 80 | 66,600 |
| 9 | 115 | 66,600 | 9 | 77.5 | 167,040 |
| 10 | 112.5 | 7,700,000* | 10 | 75 | 10,000,000* |
| 11 | 110 | 270,360 | 11 | 75 | 3,100,000* |
| 12 | 105 | 10,000,000* | 12 | 70 | 190,180 |
| | | | 13 | 60 | 12,500,000* |

* No failure

TABLE 116 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Fusion-Welded & Planished
Soak: None
Test Temp: 400°F

| Test 245 Stress Ratio = 0.1 | | | Test 246 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 150 | 6,660 | 1 | 120 | 6,660 |
| 2 | 140 | 15,840 | 2 | 110 | 9,540 |
| 3 | 140 | 8,820 | 3 | 105 | 16,740 |
| 4 | 130 | 9,000 | 4 | 100 | 13,320 |
| 5 | 125 | 9,720 | 5 | 95 | 26,280 |
| 6 | 122 | 28,620 | 6 | 92 | 111,600 |
| 7 | 120 | 10,200,000* | 7 | 90 | 52,200 |
| 8 | 118 | 21,240 | 8 | 88 | 48,600 |
| 9 | 115 | 10,500,000* | 9 | 86 | 7,500,000* |
| 10 | 110 | 11,520 | 10 | 85 | 4,507,200 |
| 11 | 110 | 6,480,000 | | | |
| 12 | 105 | 4,500,000* | | | |

* No failure

TABLE 117 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Fusion-Welded & Planished
Soak: None
Test Temp: 650°F

| Test 247 Stress Ratio = 0.1 | | | Test 248 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 130 | 16,560 | 1 | 100 | 5,220 |
| 2 | 128 | 11,520 | 2 | 94 | 8,820 |
| 3 | 125 | 15,480 | 3 | 90 | 12,420 |
| 4 | 120 | 24,480 | 4 | 88 | 32,040 |
| 5 | 118 | 9,000 | 5 | 87 | 24,480 |
| 6 | 116 | 10,980 | 6 | 85 | 25,340 |
| 7 | 115 | 5,800,000* | 7 | 84 | 18,540 |
| 8 | 112 | 9,750,000* | 8 | 82 | 27,360 |
| 9 | 110 | 14,040 | 9 | 80 | 3,270,000* |
| 10 | 108 | 1,100,000 | 10 | 80 | 7,500,000* |
| 11 | 100 | 9,700,000* | | | |

* No failure

TABLE 118 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Fusion-Welded & Planished
Soak: 400°F/100 hr/40 ksi
Test Temp: Room

| Test 249 Stress Ratio = 0.1 | | | Test 250 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 140 | 8,640 | 1 | 130 | 11,340 |
| 2 | 130 | 11,880 | 2 | 120 | 10,080 |
| 3 | 120 | 58,500 | 3 | 110 | 8,460 |
| 4 | 115 | 109,260 | 4 | 105 | 6,660 |
| 5 | 110 | 22,320 | 5 | 100 | 34,560 |
| 6 | 100 | 88,200 | 6 | 95 | 45,000 |
| 7 | 95 | 154,620 | 7 | 90 | 54,900 |
| 8 | 90 | 68,400 | 8 | 87 | 69,120 |
| 9 | 90 | 63,000 | 9 | 85 | 167,760 |
| 10 | 85 | 7,000,000* | 10 | 83 | 4,600,000* |
| 11 | 80 | 123,840 | 11 | 82 | 10,000,000* |
| 12 | 75 | 3,000,000* | | | |
| 13 | 70 | 10,000,000* | | | |

* No failure

TABLE 119 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Fusion-Welded & Planished
Soak: 400°F/100 hr/40 ksi
Test Temp: 400°F

| Test 251 Stress Ratio = 0.1 | | | Test 252 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 140 | 9,720 | 1 | 110 | 6,660 |
| 2 | 130 | 4,860 | 2 | 105 | 13,500 |
| 3 | 120 | 17,460 | 3 | 100 | 14,940 |
| 4 | 115 | 21,060 | 4 | 95 | 17,100 |
| 5 | 112 | 4,680 | 5 | 92 | 8,460 |
| 6 | 110 | 33,660 | 6 | 90 | 52,200 |
| 7 | 105 | 8,100 | 7 | 88 | 12,600 |
| 8 | 102 | 23,940 | 8 | 86 | 13,680 |
| 9 | 100 | 4,680 | 9 | 84 | 47,160 |
| 10 | 95 | 35,640 | 10 | 80 | 7,500,000* |
| 11 | 90 | 15,840 | | | |
| 12 | 88 | 11,500,000* | | | |
| 13 | 85 | 2,600,000* | | | |

* No failure

TABLE 120 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Fusion-Welded & Planished
Soak: 400°F/100 hr/40 ksi
Test Temp: 650°F

| Test 253 Stress Ratio = 0.1 | | | Test 254 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 140 | 7,380 | 1 | 110 | 4,320 |
| 2 | 135 | 3,240 | 2 | 105 | 1,440 |
| 3 | 130 | 5,220 | 3 | 100 | 7,560 |
| 4 | 125 | 5,760 | 4 | 95 | 2,700 |
| 5 | 120 | 7,380 | 5 | 90 | 22,320 |
| 6 | 115 | 14,400 | 6 | 85 | 5,400 |
| 7 | 112 | 31,500 | 7 | 80 | 36,180 |
| 8 | 110 | 27,000 | 8 | 75 | 11,340 |
| 9 | 108 | 62,640 | 9 | 70 | 15,840 |
| 10 | 105 | 7,500,000* | 10 | 65 | 7,500,000* |

* No failure

TABLE 121 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Fusion-Welded & Planished
Soak: 400°F/1,000 hr/40 ksi
Test Temp: Room

| Test 255 Stress Ratio = 0.1 | | | Test 256 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 160 | 8,460 | 1 | 132 | 4,500 |
| 2 | 150 | 11,880 | 2 | 120 | 29,340 |
| 3 | 140 | 16,740 | 3 | 115 | 9,180 |
| 4 | 135 | 19,620 | 4 | 112 | 20,160 |
| 5 | 130 | 89,460 | 5 | 105 | 89,820 |
| 6 | 125 | 40,860 | 6 | 103 | 5,580 |
| 7 | 120 | 43,200 | 7 | 99 | 24,660 |
| 8 | 115 | 45,720 | 8 | 96 | 9,180 |
| 9 | 110 | 50,040 | 9 | 92 | 137,340 |
| 10 | 107.5 | 5,300,000* | 10 | 80 | 98,820 |
| 11 | 105 | 10,000,000* | 11 | 79 | 10,000,000* |
| | | | 12 | 72 | 10,000,000* |
| | | | 13 | 65 | 360,900 |
| | | | 14 | 60 | 14,500,000* |

* No failure

TABLE 122 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Fusion-Welded & Planished
Soak: 400°F/1,000 hr/40 ksi
Test Temp: 400°F

| Test 257 Stress Ratio = 0.1 | | | Test 258 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 140 | 1,620 | 1 | 115 | 3,960 |
| 2 | 135 | 11,340 | 2 | 105 | 1,800 |
| 3 | 130 | 10,800 | 3 | 100 | 6,300 |
| 4 | 125 | 9,540 | 4 | 95 | 39,960 |
| 5 | 120 | 7,740 | 5 | 90 | 21,960 |
| 6 | 115 | 26,460 | 6 | 80 | 29,880 |
| 7 | 110 | 17,460 | 7 | 85 | 23,580 |
| 8 | 105 | 37,620 | 8 | 80 | 48,240 |
| 9 | 100 | 37,080 | 9 | 78 | 206,280 |
| 10 | 98 | 2,000,000* | 10 | 76 | 5,648,840 |
| 11 | 95 | 10,000,000* | 11 | 72 | 2,000,000* |

* No failure

TABLE 123 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Fusion-Welded & Planished
Soak: 400°F/1,000 hr/40 ksi
Test Temp: 650°F

| Test 259 Stress Ratio = 0.1 | | | Test 260 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 140 | 5,040 | 1 | 120 | 1,080 |
| 2 | 135 | 8,640 | 2 | 100 | 4,500 |
| 3 | 130 | 13,680 | 3 | 90 | 3,600 |
| 4 | 125 | 12,600 | 4 | 85 | 9,900 |
| 5 | 120 | 13,500 | 5 | 80 | 25,920 |
| 6 | 115 | 5,000,000* | 6 | 75 | 83,700 |
| 7 | 115 | 1,000,000* | 7 | 72 | 40,320 |
| 8 | 110 | 39,600 | 8 | 70 | 25,560 |
| 9 | 105 | 29,700 | 9 | 68 | 3,000,000* |
| 10 | 100 | 10,000,000* | 10 | 65 | 7,500,000* |

* No failure

TABLE 124 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Fusion-Welded & Planished
Soak: 400°F/5,000 hr/40 ksi
Test Temp: Room

| Test 261 Stress Ratio = 0.1 | | | Test 262 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 160 | 7,200 | 1 | 120 | 5,760 |
| 2 | 150 | 9,900 | 2 | 115 | 29,700 |
| 3 | 145 | 13,680 | 3 | 110 | 38,700 |
| 4 | 140 | 28,000 | 4 | 105 | 27,360 |
| 5 | 135 | 23,400 | 5 | 100 | 16,560 |
| 6 | 130 | 18,360 | 6 | 95 | 71,460 |
| 7 | 127 | 17,100 | 7 | 90 | 104,580 |
| 8 | 125 | 14,040 | 8 | 85 | 51,120 |
| 9 | 120 | 62,460 | 9 | 80 | 96,120 |
| 10 | 115 | 74,160 | 10 | 75 | 10,000,000* |
| 11 | 110 | 10,000,000* | | | |

* No failure

TABLE 125 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Fusion-Welded & Planished
Soak: 400°F/5,000 hr/40 ksi
Test Temp: 400°F

| Test 263 Stress Ratio = 0.1 | | | Test 264 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 135 | 4,320 | 1 | 110 | 3,600 |
| 2 | 130 | 7,560 | 2 | 108 | 8,280 |
| 3 | 125 | 11,160 | 3 | 105 | 14,400 |
| 4 | 120 | 14,580 | 4 | 100 | 21,420 |
| 5 | 115 | 15,480 | 5 | 95 | 17,100 |
| 6 | 110 | 32,940 | 6 | 90 | 31,860 |
| 7 | 105 | 24,840 | 7 | 85 | 2,000,000* |
| 8 | 100 | 36,000 | 8 | 80 | 39,600 |
| 9 | 97 | 366,660 | 9 | 75 | 50,220 |
| 10 | 94 | 7,500,000* | 10 | 70 | 146,880 |
| | | | 11 | 65 | 7,500,000* |

* No failure

TABLE 126 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Fusion-Welded & Planished
Soak: 400°F/5,000 hr/40 ksi
Test Temp: 650°F

| Test 265 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 135 | 6,840 |
| 2 | 130 | 8,640 |
| 3 | 128 | 14,220 |
| 4 | 126 | 17,640 |
| 5 | 124 | 19,620 |
| 6 | 122 | 22,500 |
| 7 | 120 | 10,980 |
| 8 | 118 | 25,020 |
| 9 | 116 | 41,940 |
| 10 | 114 | 26,820 |
| 11 | 112 | 17,820 |
| 12 | 110 | 7,500,000* |

| Test 266 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 100 | 4,320 |
| 2 | 98 | 10,980 |
| 3 | 95 | 6,480 |
| 4 | 94 | 9,900 |
| 5 | 92 | 9,000 |
| 6 | 90 | 26,460 |
| 7 | 88 | 19,800 |
| 8 | 87 | 22,860 |
| 9 | 85 | 5,750,100 |
| 10 | 84 | 7,500,000* |

* No failure

TABLE 127 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Fusion-Welded & Planished
Soak: 650°F/100 hr/40 ksi
Test Temp: Room

| Test 267 Stress Ratio = 0.1 | | | Test 268 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 140 | 15,300 | 1 | 140 | 8,640 |
| 2 | 130 | 39,960 | 2 | 130 | 12,780 |
| 3 | 120 | 59,040 | 3 | 120 | 14,220 |
| 4 | 115 | 178,200 | 4 | 110 | 18,900 |
| 5 | 110 | 55,080 | 5 | 105 | 86,220 |
| 6 | 100 | 126,180 | 6 | 100 | 64,440 |
| 7 | 95 | 3,000,000* | 7 | 90 | 98,280 |
| 8 | 95 | 100,000 | 8 | 87.5 | 132,300 |
| 9 | 90 | 10,000,000* | 9 | 85 | 86,220 |
| 10 | 90 | 83,520 | 10 | 80 | 160,920 |
| | | | 11 | 80 | 220,860 |
| | | | 12 | 77.5 | 1,560,000 |
| | | | 13 | 75 | 11,500,000* |

* No failure

TABLE 128 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Fusion-Welded & Planished
Soak: 650°F/100 hr/40 ksi
Test Temp: 400°F

| Test 269 Stress Ratio = 0.1 | | | Test 270 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 140 | 7,560 | 1 | 120 | 1,260 |
| 2 | 130 | 11,880 | 2 | 110 | 5,220 |
| 3 | 125 | 16,200 | 3 | 108 | 9,900 |
| 4 | 120 | 20,880 | 4 | 105 | 7,380 |
| 5 | 115 | 16,560 | 5 | 102 | 7,740 |
| 6 | 110 | 15,660 | 6 | 98 | 4,680 |
| 7 | 105 | 35,100 | 7 | 95 | 23,940 |
| 8 | 100 | 19,980 | 8 | 92 | 59,580 |
| 9 | 95 | 17,820 | 9 | 90 | 5,940 |
| 10 | 90 | 10,000,000* | 10 | 88 | 3,000,000* |
| | | | 11 | 85 | 2,000,000* |
| | | | 12 | 80 | 7,500,000* |

* No failure

TABLE 129 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Fusion-Welded & Planished
Soak: 650°F/100 hr/40 ksi
Test Temp: 650°F

| Test 271 Stress Ratio = 0.1 | | | Test 272 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 135 | 6,840 | 1 | 120 | 1,620 |
| 2 | 130 | 7,920 | 2 | 110 | 4,860 |
| 3 | 128 | 19,620 | 3 | 110 | 3,240 |
| 4 | 125 | 11,160 | 4 | 105 | 5,580 |
| 5 | 122 | 14,400 | 5 | 100 | 14,580 |
| 6 | 120 | 11,880 | 6 | 95 | 20,160 |
| 7 | 118 | 12,420 | 7 | 92 | 5,400 |
| 8 | 115 | 16,920 | 8 | 90 | 8,640 |
| 9 | 112 | 5,940 | 9 | 88 | 20,880 |
| 10 | 110 | 15,000,000* | 10 | 85 | 8,000,000* |

* No failure

TABLE 130 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Fusion-Welded & Planished
Soak: 650°F/1,000 hr/40 ksi
Test Temp: Room

| Test 273 Stress Ratio = 0.1 | | | Test 274 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 160 | 8,460 | 1 | 140 | 5,400 |
| 2 | 150 | 7,760 | 2 | 130 | 16,560 |
| 3 | 140 | 21,420 | 3 | 120 | 12,780 |
| 4 | 135 | 29,160 | 4 | 110 | 36,000 |
| 5 | 130 | 38,880 | 5 | 100 | 19,800 |
| 6 | 125 | 33,300 | 6 | 90 | 51,480 |
| 7 | 120 | 76,320 | 7 | 85 | 129,780 |
| 8 | 115 | 29,160 | 8 | 80 | 56,340 |
| 9 | 110 | 152,820 | 9 | 80 | 240,840 |
| 10 | 108 | 27,720 | 10 | 76 | 8,300,000* |
| 11 | 106 | 31,680 | 11 | 70 | 7,300,000* |
| 12 | 102 | 58,500 | | | |
| 13 | 100 | 10,000,000** | | | |

* No failure

TABLE 131 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Fusion-Welded & Planished
Soak: 650°F/1,000 hr/40 ksi
Test Temp: 400°F

| Test 275 Stress Ratio = 0.1 | | | Test 276 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 150 | 7,560 | 1 | 100 | 9,180 |
| 2 | 140 | 6,480 | 2 | 97 | 3,600 |
| 3 | 135 | 7,740 | 3 | 95 | 22,320 |
| 4 | 130 | 13,320 | 4 | 94 | 41,580 |
| 5 | 125 | 10,260 | 5 | 90 | 16,920 |
| 6 | 120 | 6,120 | 6 | 88 | 14,400 |
| 7 | 120 | 12,420 | 7 | 85 | 17,640 |
| 8 | 118 | 18,180 | 8 | 82 | 2,500,000* |
| 9 | 116 | 25,380 | 9 | 80 | 100,800 |
| 10 | 115 | 7,600,000* | 10 | 77 | 12,000,000* |

* No failure

TABLE 132 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Fusion-Welded & Planished
Soak: 650°F/1,000 hr/40 ksi
Test Temp: 650°F

| Test 277 Stress Ratio = 0.1 | | | Test 278 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 140 | 5,400 | 1 | 120 | 1,800 |
| 2 | 138 | 2,340 | 2 | 110 | 2,700 |
| 3 | 135 | 7,560 | 3 | 105 | 2,160 |
| 4 | 132 | 5,940 | 4 | 102 | 3,240 |
| 5 | 130 | 21,240 | 5 | 100 | 8,820 |
| 6 | 128 | 8,100 | 6 | 98 | 4,320 |
| 7 | 125 | 19,291 | 7 | 96 | 7,740 |
| 8 | 122 | 8,100 | 8 | 94 | 7,380 |
| 9 | 120 | 6,557,740 | 9 | 92 | 20,340 |
| 10 | 118 | 7,500,000* | 10 | 90 | 8,000,000* |

* No failure

TABLE 133 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Fusion-Welded & Planished
Soak: 650°F/5,000 hr/40 ksi
Test Temp: Room

| Test 279 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 170 | 3,680 |
| 2 | 160 | 14,940 |
| 3 | 150 | 12,060 |
| 4 | 140 | 20,520 |
| 5 | 130 | 20,700 |
| 6 | 125 | 14,760 |
| 7 | 120 | 77,040 |
| 8 | 115 | 27,360 |
| 9 | 110 | 130,680 |
| 10 | 105 | 64,440 |
| 11 | 100 | 8,769,420 |

| Test 280 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 140 | 7,380 |
| 2 | 130 | 15,660 |
| 3 | 120 | 28,800 |
| 4 | 110 | 11,700 |
| 5 | 105 | 28,440 |
| 6 | 100 | 102,960 |
| 7 | 95 | 63,720 |
| 8 | 90 | 95,760 |
| 9 | 85 | 55,620 |
| 10 | 80 | 369,000 |
| 11 | 75 | 9,500,000* |

* No failure

TABLE 134 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Fusion-Welded & Planished
Soak: 650°F/5,000 hr/40 ksi
Test Temp: 400°F

| Test 281 Stress Ratio = 0.1 | | | Test 282 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 140 | 2,700 | 1 | 120 | 6,660 |
| 2 | 136 | 13,320 | 2 | 115 | 6,300 |
| 3 | 132 | 10,080 | 3 | 112 | 15,840 |
| 4 | 128 | 8,460 | 4 | 110 | 24,300 |
| 5 | 124 | 18,000 | 5 | 105 | 35,460 |
| 6 | 120 | 47,520 | 6 | 105 | 2,000,000* |
| 7 | 118 | 4,860 | 7 | 100 | 19,260 |
| 8 | 115 | 19,080 | 8 | 98 | 19,620 |
| 9 | 112 | 21,960 | 9 | 95 | 64,260 |
| 10 | 110 | 19,260 | 10 | 90 | 20,520 |
| 11 | 108 | 7,500,000* | 11 | 88 | 3,000,000* |
| | | | 12 | 85 | 4,000,000* |

* No failure

TABLE 135 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: PH 14-8 Mo (SRH 1050)
Geometry: Fusion-Welded & Planished
Soak: 650°F/5,000 hr/40 ksi
Test Temp: 650°F

| Test 283 Stress Ratio = 0.1 | | | Test 284 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 138 | 4,140 | 1 | 120 | 2,700 |
| 2 | 136 | 5,220 | 2 | 115 | 9,360 |
| 3 | 134 | 10,440 | 3 | 110 | 7,740 |
| 4 | 132 | 18,000 | 4 | 105 | 4,860 |
| 5 | 130 | 4,860 | 5 | 100 | 4,680 |
| 6 | 128 | 16,740 | 6 | 98 | 3,420 |
| 7 | 126 | 30,780 | 7 | 96 | 5,220 |
| 8 | 124 | 12,420 | 8 | 94 | 15,480 |
| 9 | 122 | 5,040 | 9 | 92 | 62,460 |
| 10 | 120 | 7,500,000* | 10 | 90 | 6,300 |
| | | | 11 | 88 | 11,520 |
| | | | 12 | 84 | 6,120 |
| | | | 13 | 80 | 7,500,000* |

* No failure

TABLE 136 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Center-Notched
Soak: None
Test Temp: Room

| Test 289 Stress Ratio = 0.1 | | | Test 290 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 150 | 3,060 | 1 | 100 | 6,480 |
| 2 | 130 | 3,780 | 2 | 90 | 2,880 |
| 3 | 110 | 7,380 | 3 | 80 | 6,840 |
| 4 | 90 | 15,660 | 4 | 70 | 10,260 |
| 5 | 80 | 12,420 | 5 | 60 | 27,720 |
| 6 | 75 | 31,320 | 6 | 55 | 36,180 |
| 7 | 70 | 41,400 | 7 | 50 | 185,580 |
| 8 | 65 | 42,300 | 8 | 40 | 318,960 |
| 9 | 60 | 91,620 | 9 | 38 | 335,700 |
| 10 | 55 | 85,320 | 10 | 35 | 1,708,000 |
| 11 | 50 | 107,460 | 11 | 30 | 10,000,000** |
| 12 | 47.5 | 90,181 | | | |
| 13 | 45 | 10,000,000** | | | |
| 14 | 40 | 9,100,000** | | | |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 137 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Center-Notched
Soak: None
Test Temp: 400°F

| Test 291 Stress Ratio = 0.1 | | | Test 292 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 100 | 7,740 | 1 | 80 | 5,400 |
| 2 | 90 | 12,420 | 2 | 70 | 7,740 |
| 3 | 80 | 18,000 | 3 | 65 | 15,480 |
| 4 | 70 | 35,640 | 4 | 60 | 26,100 |
| 5 | 65 | 161,640 | 5 | 55 | 49,860 |
| 6 | 63 | 98,100 | 6 | 50 | 84,240 |
| 7 | 60 | 77,200 | 7 | 45 | 118,440 |
| 8 | 58 | 184,500 | 8 | 40 | 294,840 |
| 9 | 54 | 390,240 | 9 | 36 | 860,580 |
| 10 | 52 | 237,420 | 10 | 34 | 2,281,180 |
| 11 | 50 | 134,280 | 11 | 32 | 1,027,620 |
| 12 | 47 | 997,560 | 12 | 28 | 5,850,000 |
| 13 | 44 | 1,294,920 | | | |
| 14 | 40 | 1,281,600 | | | |
| 15 | 35 | 10,000,000** | | | |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 138 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Center-Notched
Soak: None
Test Temp: 650°F

| Test 293 Stress Ratio = 0.1 | | | Test 294 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 90 | 10,330 | 1 | 70 | 6,300 |
| 2 | [illegible] | 16,020 | 2 | 65 | 10,800 |
| 3 | 70 | 21,780 | 3 | 60 | 18,180 |
| 4 | 65 | 70,020 | 4 | 55 | 22,320 |
| 5 | 60 | 174,780 | 5 | 52 | 37,440 |
| 6 | 55 | 208,260 | 6 | 50 | 45,540 |
| 7 | 50 | 296,820 | 7 | 45 | 68,580 |
| 8 | 46 | 63,000 | 8 | 42 | 117,720 |
| 9 | 40 | 1,287,180 | 9 | 40 | 284,580 |
| 10 | 35 | 8,700,000** | 10 | 38 | 240,300 |
| | | | 11 | 37 | 45,360 |
| | | | 12 | 35 | 8,000,000** |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 139 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Center-Notched
Soak: 400°F/100 hr/40 ksi
Test Temp: Room

| Test 295 Stress Ratio = 0.1 | | | Test 296 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 120 | 6,660 | 1 | 90 | 3,600 |
| 2 | 110 | 7,560 | 2 | 80 | 8,820 |
| 3 | 100 | 12,420 | 3 | 70 | 13,680 |
| 4 | 90 | 14,220 | 4 | 60 | 40,500 |
| 5 | 80 | 27,720 | 5 | 50 | 100,980 |
| 6 | 70 | 58,860 | 6 | 45 | 35,154 |
| 7 | 60 | 190,980 | 7 | 40 | 1,107,720 |
| 8 | 55 | 1,675,260 | 8 | 35 | 2,721,600 |
| 9 | 50 | 2,456,640 | 9 | 30 | 3,681,600 |
| 10 | 45 | 328,320 | 10 | 27 | 10,000,000** |
| 11 | 40 | 10,000,000** | | | |

* Gross area stress : Net area stress = 1.2 gross area stress
** No failure

TABLE 140 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Center-Notched
Soak: 400°F/100 hr/40 ksi
Test Temp: 400°F

| Test 297 Stress Ratio = 0.1 | | | Test 298 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 110 | 6,300 | 1 | 80 | 4,860 |
| 2 | 100 | 8,100 | 2 | 70 | 8,640 |
| 3 | 90 | 12,600 | 3 | 65 | 19,080 |
| 4 | 80 | 21,960 | 4 | 60 | 27,180 |
| 5 | 70 | 39,960 | 5 | 55 | 58,500 |
| 6 | 60 | 130,860 | 6 | 50 | 49,320 |
| 7 | 55 | 298,620 | 7 | 45 | 119,880 |
| 8 | 50 | 626,760 | 8 | 40 | 240,120 |
| 9 | 45 | 475,520 | 9 | 35 | 545,220 |
| 10 | 40 | 2,497,860 | 10 | 30 | 1,738,800 |
| 11 | 35 | 6,148,800 | 11 | 25 | 12,000,000** |

* Gross area stress : Net area stress = 1.2 gross area stress
** No failure

TABLE 141 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Center-Notched
Soak: 400°F/100 hr/40 ksi
Test Temp: 650°F

| Test 299 Stress Ratio = 0.1 | | | Test 300 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 100 | 5,220 | 1 | 70 | 6,840 |
| 2 | 95 | 4,680 | 2 | 65 | 6,120 |
| 3 | 90 | 5,580 | 3 | 60 | 11,700 |
| 4 | 85 | 10,440 | 4 | 55 | 16,560 |
| 5 | 80 | 14,040 | 5 | 50 | 35,820 |
| 6 | 75 | 30,420 | 6 | 45 | 168,660 |
| 7 | 70 | 35,280 | 7 | 40 | 150,300 |
| 8 | 65 | 34,200 | 8 | 35 | 1,450,260 |
| 9 | 60 | 81,000 | 9 | 30 | 84,240 |
| 10 | 55 | 299,520 | 10 | 28 | 9,000,000** |
| 11 | 50 | 195,840 | | | |
| 12 | 45 | 589,680 | | | |
| 13 | 40 | 1,463,760 | | | |
| 14 | 37 | 7,500,000** | | | |

* Gross area stress : Net area stress = 1.2 gross area stress
** No failure

TABLE 142 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Center-Notched
Soak: 400°F/1,000 hr/40 ksi
Test Temp: Room

| Test 301 Stress Ratio = 0.1 | | | Test 302 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 110 | 6,120 | 1 | 80 | 7,380 |
| 2 | 100 | 14,400 | 2 | 70 | 10,260 |
| 3 | 90 | 12,600 | 3 | 60 | 27,000 |
| 4 | 80 | 25,920 | 4 | 50 | 44,100*** |
| 5 | 70 | 39,420 | 5 | 48 | 274,320 |
| 6 | 60 | 113,760 | 6 | 45 | 479,880 |
| 7 | 55 | 725,760 | 7 | 40 | 327,960 |
| 8 | 52 | 771,840 | 8 | 35 | 2,532,420 |
| 9 | 48 | 2,788,200 | 9 | 30 | 916,740 |
| 10 | 45 | 1,533,600 | 10 | 25 | 14,000,000** |
| 11 | 40 | 7,000,000** | | | |

* Gross area stress : Net area stress = 1.2 gross area stress
** No failure
*** Failed at the clamp

TABLE 143 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Center-Notched
Soak: 400°F/1,000 hr/40 ksi
Test Temp: 400°F

| Test 303 Stress Ratio = 0.1 | | | Test 304 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 100 | 6,480 | 1 | 80 | 2,880 |
| 2 | 90 | 10,260 | 2 | 70 | 7,380 |
| 3 | 80 | 19,980 | 3 | 60 | 21,420 |
| 4 | 75 | 20,880 | 4 | 55 | 23,940 |
| 5 | 70 | 25,920 | 5 | 50 | 64,620 |
| 6 | 65 | 127,080 | 6 | 45 | 172,620 |
| 7 | 60 | 202,860 | 7 | 40 | 549,180 |
| 8 | 55 | 256,320 | 8 | 35 | 5,338,800 |
| 9 | 50 | 326,340 | 9 | 30 | 2,284,420 |
| 10 | 45 | 6,915,600 | 10 | 25 | 3,907,440 |
| | | | 11 | 22 | 7,500,000** |

* Gross area stress : Net area stress = 1.2 gross area stress
** No failure

TABLE 144 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Center-Notched
Soak: 400°F/1,000 hr/40 ksi
Test Temp: 650°F

| Test 305 Stress Ratio = 0.1 | | | Test 306 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 100 | 2,880 | 1 | 65 | 9,180 |
| 2 | 95 | 2,880 | 2 | 60 | 10,080 |
| 3 | 90 | 6,120 | 3 | 55 | 20,160 |
| 4 | 85 | 7,740 | 4 | 50 | 26,460 |
| 5 | 80 | 13,320 | 5 | 45 | 55,980 |
| 6 | 75 | 14,580 | 6 | 40 | 89,820 |
| 7 | 70 | 24,480 | 7 | 38 | 378,180 |
| 8 | 65 | 81,720 | 8 | 35 | 297,540 |
| 9 | 60 | 90,720 | 9 | 33 | 502,560 |
| 10 | 55 | 86,400 | 10 | 30 | 7,500,000** |
| 11 | 50 | 357,300 | | | |
| 12 | 47 | 319,680 | | | |
| 13 | 40 | 7,500,000** | | | |

* Gross area stress : Net area stress = 1.2 gross area stress
** No failure

TABLE 145 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Center-Notched
Soak: 400°F/5,000 hr/40 ksi
Test Temp: Room

| Test 307 Stress Ratio = 0.1 | | | Test 308 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) * | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 120 | 4,860 | 1 | 80 | 7,380 |
| 2 | 100 | 11,340 | 2 | 70 | 13,860 |
| 3 | 90 | 18,900 | 3 | 65 | 25,740 |
| 4 | 85 | 42,300 | 4 | 60 | 58,320 |
| 5 | 80 | 29,520 | 5 | 55 | 102,960 |
| 6 | 75 | 30,420 | 6 | 50 | 248,040 |
| 7 | 70 | 252,180 | 7 | 45 | 217,620 |
| 8 | 60 | 78,480 | 8 | 40 | 705,600 |
| 9 | 55 | 212,940 | 9 | 36 | 2,061,000 |
| 10 | 50 | 1,163,700 | 10 | 32 | 9,000,000** |
| 11 | 47 | 3,063,000 | | | |
| 12 | 44 | 768,960 | | | |
| 13 | 40 | 7,389,000 | | | |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 146 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Center-Notched
Soak: 400°F/5,000 hr/40 ksi
Test Temp: 400°F

| Test 309 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 105 | 6,480 |
| 2 | 100 | 9,000 |
| 3 | 90 | 9,720 |
| 4 | 80 | 14,220 |
| 5 | 75 | 28,260 |
| 6 | 70 | 38,880 |
| 7 | 65 | 108,000 |
| 8 | 60 | 62,820 |
| 9 | 55 | 342,900 |
| 10 | 50 | 486,000 |
| 11 | 45 | 511,200 |
| 12 | 40 | 645,120** |
| 13 | 35 | 5,311,080 |

| Test 310 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 75 | 5,760 |
| 2 | 70 | 11,520 |
| 3 | 60 | 19,440 |
| 4 | 55 | 43,200 |
| 5 | 50 | 66,060 |
| 6 | 45 | 117,540 |
| 7 | 40 | 290,880 |
| 8 | 35 | 463,860 |
| 9 | 30 | 3,036,600 |
| 10 | 25 | 8,000,000*** |

* Gross area stress: Net area stress = 1.2 gross area stress
** Failed at the clamp
*** No failure

TABLE 147 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Center-Notched
Soak: 400°F/5,000 hr./40 ksi
Test Temp: 650°F

| Test 311 Stress Ratio = 0.1 | | | Test 312 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 95 | 5,220 | 1 | 70 | 8,640 |
| 2 | 90 | 9,540 | 2 | 65 | 11,520 |
| 3 | 80 | 19,980 | 3 | 60 | 17,280 |
| 4 | 70 | 26,280 | 4 | 55 | 35,100 |
| 5 | 60 | 77,400 | 5 | 52 | 57,600 |
| 6 | 50 | 384,660 | 6 | 50 | 61,200 |
| 7 | 45 | 412,740 | 7 | 45 | 57,240 |
| 8 | 40 | 1,026,900 | 8 | 40 | 198,180 |
| 9 | 35 | 930,780** | 9 | 35 | 394,020 |
| 10 | 35 | 8,000,000*** | 10 | 30 | 8,000,000*** |

* Gross area stress : Net area stress = 1.2 gross area stress
** Failed at the clamp
*** No failure

TABLE 148 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Center-Notched
Soak: 650°F/100 hr/40 ksi
Test Temp: Room

| Test 313 Stress Ratio = 0.1 | | | Test 314 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 110 | 6,120 | 1 | 80 | 5,580 |
| 2 | 100 | 10,800 | 2 | 75 | 12,780 |
| 3 | 90 | 15,480 | 3 | 70 | 16,380 |
| 4 | 80 | 24,660 | 4 | 65 | 30,060 |
| 5 | 70 | 51,480 | 5 | 60 | 34,740 |
| 6 | 65 | 111,060 | 6 | 55 | 44,640 |
| 7 | 60 | 183,780 | 7 | 50 | 100,440 |
| 8 | 55 | 660,420 | 8 | 45 | 139,860 |
| 9 | 50 | 473,220 | 9 | 40 | 629,280 |
| 10 | 45 | 2,365,200 | 10 | 35 | 4,113,540 |
| 11 | 40 | 4,955,000 | 11 | 30 | 10,200,000** |
| 12 | 35 | 8,883,000 | | | |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 149 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Center-Notched
Soak: 650°F/100 hr/40 ksi
Test Temp: 400°F

| Test 315 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 100 | 7,740 |
| 2 | 90 | 11,160 |
| 3 | 80 | 22,500 |
| 4 | 70 | 44,640 |
| 5 | 60 | 132,120 |
| 6 | 55 | 189,000 |
| 7 | 50 | 674,640 |
| 8 | 45 | 741,060 |
| 9 | 42 | 565,740 |
| 10 | 38 | 2,466,000 |
| 11 | 35 | 7,012,800 |

| Test 316 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 80 | 5,040 |
| 2 | 75 | 6,300 |
| 3 | 70 | 8,820 |
| 4 | 65 | 21,600 |
| 5 | 60 | 22,500 |
| 6 | 55 | 57,060 |
| 7 | 50 | 146,150 |
| 8 | 45 | 420,300 |
| 9 | 40 | 430,000 |
| 10 | 35 | 1,124,600 |
| 11 | 30 | 1,158,480 |
| 12 | 25 | 9,000,000** |

* Gross area stress : Net area stress = 1.2 gross area stress
** No failure

TABLE 150 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Center-Notched
Soak: 650°F/100 hr/40 ksi
Test Temp: 650°F

| Test 317 Stress Ratio = 0.1 | | | Test 318 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 90 | 5,760 | 1 | 75 | 6,480 |
| 2 | 80 | 18,900 | 2 | 70 | 10,080 |
| 3 | 70 | 80,460 | 3 | 60 | 17,100 |
| 4 | 65 | 74,520 | 4 | 50 | 41,940 |
| 5 | 60 | 106,380 | 5 | 45 | 130,320 |
| 6 | 55 | 123,300 | 6 | 40 | 228,600 |
| 7 | 50 | 283,860 | 7 | 35 | 309,240 |
| 8 | 45 | 787,500 | 8 | 34 | 592,200 |
| 9 | 42 | 769,320 | 9 | 32 | 828,900 |
| 10 | 40 | 2,233,800 | 10 | 30 | 1,893,600 |
| 11 | 38 | 7,500,000** | 11 | 26 | 12,000,000** |

* Gross area stress : Net area stress = 1.2 gross area stress
** No failure

TABLE 151 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Center-Notched
Soak: 650°F/1,000 hr/40 ksi
Test Temp: Room

| Test 319 Stress Ratio = 0.1 | | | Test 320 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 110 | 4,320 | 1 | 90 | 3,420 |
| 2 | 100 | 10,800 | 2 | 80 | 8,460 |
| 3 | 90 | 16,560 | 3 | 70 | 15,840 |
| 4 | 80 | 34,920 | 4 | 65 | 30,600 |
| 5 | 70 | 101,700 | 5 | 60 | 65,340 |
| 6 | 65 | 73,980 | 6 | 55 | 83,160 |
| 7 | 60 | 366,840 | 7 | 50 | 348,480 |
| 8 | 57 | 569,160 | 8 | 47 | 409,500 |
| 9 | 55 | 3,176,820 | 9 | 45 | 160,200 |
| 10 | 52 | 1,751,400 | 10 | 42 | 3,070,800 |
| 11 | 50 | 3,644,820 | 11 | 40 | 1,019,160 |
| 12 | 47 | 3,452,400 | 12 | 36 | 5,533,200 |
| 13 | 43 | 10,000,000** | | | |

* Gross area stress : Net area stress = 1.2 gross area stress
** No failure

TABLE 152 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Center-Notched
Soak: 650°F/1,000 hr/40 ksi
Test Temp: 400°F

| Test 321 Stress Ratio = 0.1 | | | Test 322 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 100 | 7,020 | 1 | 80 | 4,500 |
| 2 | 90 | 10,080 | 2 | 70 | 11,160 |
| 3 | 80 | 23,040 | 3 | 60 | 26,460 |
| 4 | 70 | 41,760 | 4 | 55 | 37,620 |
| 5 | 60 | 156,240 | 5 | 50 | 66,240 |
| 6 | 55 | 294,480 | 6 | 45 | 158,580 |
| 7 | 50 | 345,960 | 7 | 40 | 334,620 |
| 8 | 45 | 1,528,200 | 8 | 35 | 558,360 |
| 9 | 40 | 544,500 | 9 | 30 | 3,119,400 |
| 10 | 35 | 12,200,200** | 10 | 25 | 11,403,000 |

* Gross area stress : Net area stress = 1.2 Gross area stress
** No failure

TABLE 153 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Center-Notched
Soak: 650°F/1,000 hr/40 ksi
Test Temp: 650°F

| Test 323 Stress Ratio = 0.1 | | | Test 324 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 100 | 3,960 | 1 | 65 | 6,480 |
| 2 | 95 | 5,760 | 2 | 60 | 9,360 |
| 3 | 90 | 5,760 | 3 | 55 | 19,260 |
| 4 | 85 | 7,200 | 4 | 50 | 39,060 |
| 5 | 80 | 10,800 | 5 | 45 | 63,360 |
| 6 | 75 | 11,340 | 6 | 42 | 75,420 |
| 7 | 70 | 17,820 | 7 | 40 | 375,840 |
| 8 | 65 | 57,600 | 8 | 35 | 595,800 |
| 9 | 60 | 104,400 | 9 | 30 | 4,849,200 |
| 10 | 55 | 89,640 | 10 | 26 | 9,000,000** |
| 11 | 50 | 239,760 | | | |
| 12 | 46 | 2,068,920 | | | |
| 13 | 42 | 728,820 | | | |
| 14 | 36 | 7,500,000** | | | |

* Gross area stress : Net area stress = 1.2 gross area stress
** No failure

TABLE 154 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Center-Notched
Soak: 650°F/5,000 hr/40 ksi
Test Temp: Room

| Test 325 Stress Ratio = 0.1 | | | Test 326 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 120 | 4,500 | 1 | 80 | 3,600 |
| 2 | 100 | 8,640 | 2 | 70 | 11,880 |
| 3 | 90 | 8,640 | 3 | 60 | 40,680 |
| 4 | 80 | 24,840 | 4 | 55 | 29,340 |
| 5 | 70 | 53,640 | 5 | 50 | 143,460 |
| 6 | 65 | 25,200 | 6 | 47 | 115,740 |
| 7 | 60 | 437,220 | 7 | 45 | 731,520 |
| 8 | 55 | 66,960 | 8 | 40 | 231,840 |
| 9 | 50 | 89,460 | 9 | 35 | 2,041,200 |
| 10 | 45 | 4,497,660 | 10 | 30 | 7,500,000** |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 155 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Center-notched
Soak: 650°F/5,000 hr/40 ksi
Test Temp: 400°F

| Test 327 Stress Ratio = 0.1 | | | Test 328 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 90 | 7,200 | 1 | 75 | 6,660 |
| 2 | 85 | 9,180 | 2 | 70 | 10,800 |
| 3 | 80 | 14,040 | 3 | 60 | 23,400 |
| 4 | 75 | 24,840 | 4 | 55 | 53,280 |
| 5 | 70 | 27,540 | 5 | 50 | 73,620 |
| 6 | 65 | 39,420 | 6 | 45 | 304,200 |
| 7 | 60 | 172,800 | 7 | 40 | 235,080 |
| 8 | 55 | 302,040 | 8 | 35 | 1,665,720 |
| 9 | 50 | 339,660 | 9 | 30 | 2,680,020 |
| 10 | 45 | 559,440 | 10 | 25 | 8,000,000** |
| 11 | 40 | 7,500,000** | | | |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 156 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Center-Notched
Soak: 650°F/5,000 hr/40 ksi
Test Temp: 650°F

| Test 329 Stress Ratio = 0.1 | | | Test 330 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi)* | Applied Cycles | Specimen Number | $f_{max}$ (ksi)* | Applied Cycles |
| 1 | 100 | 6,480 | 1 | 70 | 7,020 |
| 2 | 90 | 13,140 | 2 | 65 | 10,980 |
| 3 | 80 | 19,800 | 3 | 60 | 25,380 |
| 4 | 75 | 205,380 | 4 | 55 | 61,560 |
| 5 | 70 | 58,600 | 5 | 50 | 69,480 |
| 6 | 65 | 119,160 | 6 | 45 | 160,020 |
| 7 | 60 | 167,040 | 7 | 40 | 334,620 |
| 8 | 55 | 157,680 | 8 | 35 | 1,666,440 |
| 9 | 50 | 763,380 | 9 | 30 | 2,079,540 |
| 10 | 45 | 4,283,640 | 10 | 25 | 8,000,000** |

* Gross area stress: Net area stress = 1.2 gross area stress
** No failure

TABLE 157 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Unnotched
Soak: None
Test Temp: Room

| Test 341 Stress Ratio = 0.1 | | | Test 342 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 220 | 13,140 | 1 | 150 | 19,440 |
| 2 | 210 | 23,040 | 2 | 140 | 24,120 |
| 3 | 190 | 36,000 | 3 | 130 | 52,560 |
| 4 | 170 | 46,440 | 4 | 120 | 87,480 |
| 5 | 155 | 62,820 | 5 | 110 | 82,440 |
| 6 | 140 | 121,700 | 6 | 100 | 98,820 |
| 7 | 130 | 145,800 | 7 | 95 | 208,980 |
| 8 | 120 | 227,100 | 8 | 90 | 366,300 |
| 9 | 115 | 556,920 | 9 | 85 | 582,840 |
| 10 | 110 | 3,116,700 | 10 | 82.5 | 745,920 |
| 11 | 105 | 3,788,100 | 11 | 80 | 10,000,000* |
| 12 | 100 | 286,560 | | | |
| 13 | 100 | 2,732,400 | | | |
| 14 | 95 | 2,941,700 | | | |
| 15 | 90 | 5,310,000 | | | |
| 16 | 85 | 10,000,000* | | | |

* No failure

TABLE 158 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Unnotched
Soak: None
Test Temp: 400°F

| Test 343 Stress Ratio = 0.1 | | | Test 344 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 200 | 7,380 | 1 | 140 | 14,040 |
| 2 | 190 | 18,540 | 2 | 130 | 24,300 |
| 3 | 180 | 18,000 | 3 | 120 | 47,340 |
| 4 | 170 | 45,540 | 4 | 110 | 64,240 |
| 5 | 160 | 117,360 | 5 | 100 | 144,720 |
| 6 | 155 | 15,660 | 6 | 95 | 178,200 |
| 7 | 150 | 75,600 | 7 | 90 | 335,880 |
| 8 | 140 | 92,520 | 8 | 85 | 198,000 |
| 9 | 130 | 78,300 | 9 | 80 | 431,820 |
| 10 | 120 | 161,460 | 10 | 75 | 513,000 |
| 11 | 110 | 374,040 | 11 | 70 | 1,666,800 |
| 12 | 100 | 535,680 | 12 | 65 | 2,037,600 |
| 13 | 90 | 1,810,800 | 13 | 60 | 13,000,000* |
| 14 | 85 | 2,842,200 | | | |
| 15 | 80 | 5,576,580 | | | |

* No failure

TABLE 159 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Unnotched
Soak: None
Test Temp: 650°F

| Test 345 Stress Ratio = 0.1 | | | Test 346 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 170 | 21,060 | 1 | 140 | 11,520 |
| 2 | 160 | 32,220 | 2 | 130 | 17,460 |
| 3 | 150 | 80,640 | 3 | 120 | 6,840 |
| 4 | 140 | 88,020 | 4 | 115 | 62,840 |
| 5 | 130 | 129,420 | 5 | 110 | 70,740 |
| 6 | 120 | 302,580 | 6 | 105 | 126,540 |
| 7 | 115 | 158,220 | 7 | 100 | 90,180 |
| 8 | 110 | 253,300 | 8 | 95 | 193,860 |
| 9 | 105 | 99,000 | 9 | 90 | 1,260,000 |
| 10 | 100 | 534,960 | 10 | 88 | 324,000 |
| 11 | 95 | 352,340 | 11 | 85 | 207,180 |
| 12 | 90 | 889,020 | 12 | 83 | 281,880 |
| 13 | 85 | 1,600,200 | 13 | 80 | 192,600 |
| 14 | 80 | 249,120 | 14 | 75 | 826,920 |
| 15 | 80 | 12,600,000* | 15 | 70 | 549,720 |
| | | | 16 | 65 | 6,321,600 |

* No failure

TABLE 160 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Unnotched
Soak: 400°F/100 hr/40 ksi
Test Temp: Room

| Test 347 Stress Ratio = 0.1 | | | Test 348 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 200 | 7,920 | 1 | 180 | 9,540 |
| 2 | 190 | 30,240 | 2 | 160 | 10,080 |
| 3 | 180 | 15,840 | 3 | 150 | 32,220 |
| 4 | 170 | 56,700 | 4 | 140 | 23,220 |
| 5 | 160 | 78,480 | 5 | 130 | 98,280 |
| 6 | 150 | 70,380 | 6 | 120 | 88,380 |
| 7 | 140 | 223,200 | 7 | 110 | 162,900 |
| 8 | 135 | 228,240 | 8 | 100 | 486,360 |
| 9 | 130 | 267,120 | 9 | 90 | 342,360 |
| 10 | 125 | 1,125,000 | 10 | 80 | 516,420 |
| 11 | 120 | 189,000 | 11 | 75 | 2,879,820 |
| 12 | 115 | 465,480 | 12 | 70 | 10,000,000* |
| 13 | 112 | 408,060 | | | |
| 14 | 110 | 642,600 | | | |
| 15 | 105 | 887,400 | | | |
| 16 | 100 | 4,334,760 | | | |

* No failure

TABLE 161 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Unnotched
Soak: 400°F/100 hr/40 ksi
Test Temp: 400°F

| Test 349 Stress Ratio = 0.1 | | | Test 350 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 220 | 4,140 | 1 | 160 | 4,860 |
| 2 | 200 | 10,800 | 2 | 140 | 17,100 |
| 3 | 180 | 29,160 | 3 | 120 | 47,340 |
| 4 | 160 | 37,440 | 4 | 100 | 69,840 |
| 5 | 140 | 38,880 | 5 | 90 | 75,060 |
| 6 | 130 | 147,060 | 6 | 80 | 300,060 |
| 7 | 120 | 291,960 | 7 | 75 | 716,400 |
| 8 | 110 | 382,140 | 8 | 70 | 942,840 |
| 9 | 100 | 933,840 | 9 | 65 | 1,319,400 |
| 10 | 95 | 597,600 | 10 | 60 | 491,040 |
| 11 | 90 | 240,840 | 11 | 57 | 7,000,000* |
| 12 | 80 | 2,963,700 | 12 | 50 | 7,500,000* |
| 13 | 75 | 3,207,600 | | | |
| 14 | 70 | 7,500,000* | | | |

* No failure

TABLE 162 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Unnotched
Soak: 400°F/100 hr/40 ksi
Test Temp: 650°F

| Test 351 Stress Ratio = 0.1 | | | Test 352 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 160 | 16,740 | 1 | 140 | 7,020 |
| 2 | 150 | 17,280 | 2 | 130 | 6,120 |
| 3 | 140 | 20,160 | 3 | 120 | 5,400 |
| 4 | 130 | 30,760 | 4 | 110 | 9,360 |
| 5 | 120 | 56,700 | 5 | 100 | 10,980 |
| 6 | 110 | 83,520 | 6 | 90 | 50,760 |
| 7 | 100 | 84,240 | 7 | 85 | 62,460 |
| 8 | 95 | 271,980 | 8 | 80 | 303,660 |
| 9 | 90 | 280,800 | 9 | 77 | 151,200 |
| 10 | 85 | 3,366,360 | 10 | 70 | 1,128,780 |
| 11 | 80 | 1,122,840 | 11 | 65 | 2,166,660 |
| 12 | 75 | 3,508,200 | 12 | 60 | 6,220,260 |

TABLE 163 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Unnotched
Soak: 400°F/1,000 hr/40 ksi
Test Temp: Room

| Test 353 Stress Ratio = 0.1 | | | Test 354 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 220 | 9,360 | 1 | 180 | 4,140 |
| 2 | 200 | 18,360 | 2 | 160 | 18,180 |
| 3 | 180 | 59,580 | 3 | 140 | 37,080 |
| 4 | 170 | 67,320 | 4 | 130 | 103,680 |
| 5 | 160 | 98,100 | 5 | 120 | 144,180 |
| 6 | 150 | 105,660 | 6 | 100 | 137,520 |
| 7 | 140 | 235,080 | 7 | 90 | 294,120 |
| 8 | 130 | 220,320 | 8 | 85 | 272,520 |
| 9 | 120 | 166,500 | 9 | 80 | 315,540 |
| 10 | 110 | 261,000 | 10 | 75 | 293,760 |
| 11 | 100 | 909,720 | 11 | 70 | 1,030,320 |
| 12 | 95 | 4,338,000 | 12 | 65 | 10,000,000* |
| 13 | 90 | 1,319,400 | | | |
| 14 | 85 | 3,222,360 | | | |
| 15 | 80 | 11,400,000* | | | |

* No failure

TABLE 164 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, aged at 1275°F
Geometry: Unnotched
Soak: 400°F/1,000 hr/40 ksi
Test Temp: 400°F

| Test 355 Stress Ratio = 0.1 | | | Test 356 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 220 | 5,220 | 1 | 150 | 5,760 |
| 2 | 200 | 16,740 | 2 | 140 | 14,940 |
| 3 | 180 | 28,260 | 3 | 130 | 23,400 |
| 4 | 160 | 68,040 | 4 | 120 | 51,300 |
| 5 | 140 | 184,320 | 5 | 110 | 95,040 |
| 6 | 120 | 229,680 | 6 | 105 | 82,980 |
| 7 | 100 | 347,760 | 7 | 100 | 58,500 |
| 8 | 95 | 115,380 | 8 | 100 | 95,400 |
| 9 | 90 | 618,300 | 9 | 95 | 41,400 |
| 10 | 80 | 3,535,200 | 10 | 90 | 67,680 |
| 11 | 75 | 2,464,200 | 11 | 90 | 217,800 |
| 12 | 68 | 7,800,000* | 12 | 82 | 357,840 |
| | | | 13 | 78 | 406,080 |
| | | | 14 | 70 | 1,778,400 |
| | | | 15 | 65 | 1,029,000 |
| | | | 16 | 65 | 1,425,420 |
| | | | 17 | 60 | 1,270,260 |
| | | | 18 | 55 | 7,558,200 |

* No failure

TABLE 165 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Unnotched
Soak: 400°F/1,000 hr/40 ksi
Test Temp: 650°F

| Test 357 Stress Ratio = 0.1 | | | Test 358 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 170 | 9,000 | 1 | 120 | 6,120 |
| 2 | 160 | 23,400 | 2 | 110 | 8,280 |
| 3 | 150 | 12,060 | 3 | 105 | 21,600 |
| 4 | 140 | 25,740 | 4 | 100 | 39,060 |
| 5 | 130 | 79,740 | 5 | 95 | 55,980 |
| 6 | 120 | 59,580 | 6 | 90 | 56,520 |
| 7 | 110 | 179,100 | 7 | 85 | 185,400 |
| 8 | 105 | 139,320 | 8 | 80 | 218,880 |
| 9 | 100 | 213,840 | 9 | 75 | 120,060 |
| 10 | 90 | 536,220 | 10 | 70 | 802,080 |
| 11 | 85 | 1,205,100 | 11 | 65 | 951,660 |
| 12 | 80 | 399,240 | 12 | 60 | 2,709,540 |
| 13 | 75 | 7,500,000* | | | |

* No failure

TABLE 166 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Unnotched
Soak: 400°F/5,000 hr/40 ksi
Test Temp: Room

| Test 359 Stress Ratio = 0.1 | | | Test 360 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 220 | 2,160 | 1 | 160 | 1,800 |
| 2 | 200 | 9,540 | 2 | 150 | 9,900 |
| 3 | 180 | 15,480 | 3 | 130 | 11,160 |
| 4 | 160 | 44,280 | 4 | 120 | 19,440 |
| 5 | 150 | 29,520 | 5 | 110 | 47,520 |
| 6 | 140 | 57,060* | 6 | 100 | 35,100 |
| 7 | 130 | 67,140 | 7 | 90 | 195,560 |
| 8 | 120 | 128,880 | 8 | 80 | 577,800 |
| 9 | 110 | 478,800 | 9 | 70 | 1,102,320 |
| 10 | 100 | 262,980 | 10 | 65 | 1,107,000 |
| 11 | 90 | 579,600 | 11 | 60 | 4,818,600 |
| 12 | 80 | 1,431,360 | | | |
| 13 | 75 | 177,660* | | | |
| 14 | 75 | 7,500,000** | | | |

* Failed at the clamp
** No failure

TABLE 167 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Unnotched
Soak: 400°F/5,000 hr/40 ksi
Test Temp: 400°F

| Test 361 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 200 | 15,120 |
| 2 | 180 | 23,220 |
| 3 | 160 | 29,880 |
| 4 | 140 | 81,600 |
| 5 | 120 | 305,280 |
| 6 | 105 | 439,380 |
| 7 | 90 | 2,054,160 |
| 8 | 85 | 1,403,640 |
| 9 | 75 | 1,761,120 |
| 10 | 70 | 3,881,340 |
| 11 | 65 | 7,500,000* |

| Test 362 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 140 | 6,840 |
| 2 | 130 | 36,000 |
| 3 | 120 | 62,100 |
| 4 | 110 | 147,600 |
| 5 | 100 | 270,000 |
| 6 | 90 | 110,160 |
| 7 | 80 | 470,340 |
| 8 | 70 | 2,483,820 |
| 9 | 65 | 1,270,800 |
| 10 | 60 | 1,297,980 |
| 11 | 55 | 1,094,400 |
| 12 | 50 | 8,000,000* |

* No failure

TABLE 168 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Unnotched
Soak: 400°F/5,000 hr/40 ksi
Test Temp: 650°F

| Test 363 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 180 | 1,800 |
| 2 | 175 | 21,960 |
| 3 | 170 | 26,280 |
| 4 | 160 | 31,680 |
| 5 | 150 | 42,660 |
| 6 | 140 | 64,440 |
| 7 | 130 | 64,080 |
| 8 | 120 | 90,540 |
| 9 | 110 | 191,880 |
| 10 | 100 | 483,840 |
| 11 | 90 | 1,443,060 |
| 12 | 80 | 7,500,000* |

| Test 364 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 125 | 4,500 |
| 2 | 120 | 11,520 |
| 3 | 110 | 27,720 |
| 4 | 100 | 107,760 |
| 5 | 90 | 57,780 |
| 6 | 85 | 136,800 |
| 7 | 80 | 723,420 |
| 8 | 75 | 635,400 |
| 9 | 65 | 1,808,640 |
| 10 | 60 | 7,500,000* |

* No failure

TABLE 169 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Unnotched
Soak: 650°F/100 hr/40 ksi
Test Temp: Room

| Test 365 Stress Ratio = 0.1 | | | Test 366 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 200 | 9,360 | 1 | 160 | 7,920 |
| 2 | 180 | 16,380 | 2 | 150 | 21,420 |
| 3 | 160 | 12,060 | 3 | 140 | 17,460 |
| 4 | 150 | 42,120 | 4 | 130 | 26,640 |
| 5 | 140 | 128,340 | 5 | 120 | 96,120 |
| 6 | 130 | 70,020 | 6 | 110 | 59,400 |
| 7 | 120 | 214,200 | 7 | 100 | 391,860 |
| 8 | 110 | 1,254,600 | 8 | 90 | 1,136,880 |
| 9 | 100 | 1,789,740 | 9 | 80 | 97,920 |
| 10 | 90 | 11,500,000* | 10 | 75 | 870,300 |
| | | | 11 | 70 | 2,943,000 |
| | | | 12 | 65 | 197,100 |
| | | | 13 | 60 | 12,400,000* |

* No failure

TABLE 170 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Unnotched
Soak: 650°F/100 hr/40 ksi
Test Temp: 400°F

| Test 367 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 220 | 5,760 |
| 2 | 200 | 14,400 |
| 3 | 180 | 23,220 |
| 4 | 160 | 68,400 |
| 5 | 140 | 179,280 |
| 6 | 120 | 580,860 |
| 7 | 100 | 1,839,600 |
| 8 | 90 | 3,675,600 |
| 9 | 85 | 2,363,400 |
| 10 | 80 | 2,367,180 |
| 11 | 75 | 8,000,000* |

| Test 368 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 180 | 8,460 |
| 2 | 160 | 9,900 |
| 3 | 140 | 31,320 |
| 4 | 120 | 60,300 |
| 5 | 100 | 129,060 |
| 6 | 90 | 106,020 |
| 7 | 85 | 462,240 |
| 8 | 80 | 1,171,260 |
| 9 | 75 | 2,192,400 |
| 10 | 70 | 741,060 |
| 11 | 67 | 1,819,800 |
| 12 | 60 | 2,275,200 |
| 13 | 55 | 8,735,400 |

* No failure

TABLE 171 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Unnotched
Soak: 650°F/100 hr/40 ksi
Test Temp: 650°F

| Test 369 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 175 | 17,280 |
| 2 | 165 | 24,120 |
| 3 | 160 | 59,220 |
| 4 | 150 | 23,220 |
| 5 | 140 | 39,600 |
| 6 | 130 | 42,840 |
| 7 | 120 | 28,440 |
| 8 | 115 | 112,860 |
| 9 | 110 | 26,280 |
| 10 | 105 | 273,960 |
| 11 | 100 | 503,100 |
| 12 | 95 | 329,760 |
| 13 | 90 | 224,460 |
| 14 | 85 | 7,500,000* |

| Test 370 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 140 | 8,280 |
| 2 | 120 | 16,740 |
| 3 | 110 | 55,260 |
| 4 | 100 | 92,520 |
| 5 | 90 | 463,860 |
| 6 | 85 | 262,980 |
| 7 | 80 | 94,680 |
| 8 | 75 | 1,237,140 |
| 9 | 70 | 3,430,620 |
| 10 | 60 | 1,459,980 |
| 11 | 55 | 7,500,000* |

* No failure

TABLE 172 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Unnotched
Soak: 650°F/1,000 hr/40 ksi
Test Temp: Room

| Test 371 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 210 | 22,680 |
| 2 | 200 | 18,900 |
| 3 | 190 | 36,720 |
| 4 | 180 | 48,420 |
| 5 | 170 | 76,860 |
| 6 | 160 | 59,940 |
| 7 | 150 | 115,200 |
| 8 | 140 | 134,460 |
| 9 | 130 | 137,700 |
| 10 | 120 | 1,340,100 |
| 11 | 110 | 1,121,760 |
| 12 | 105 | 1,632,060 |
| 13 | 102 | 1,143,180* |
| 14 | 100 | 1,260,000 |
| 15 | 95 | 5,251,680 |

| Test 372 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 180 | 4,320 |
| 2 | 160 | 28,620 |
| 3 | 140 | 47,160 |
| 4 | 120 | 115,380 |
| 5 | 100 | 227,700 |
| 6 | 90 | 278,820 |
| 7 | 80 | 425,880 |
| 8 | 75 | 6,901,740 |
| 9 | 72 | 1,915,920 |
| 10 | 65 | 7,390,800 |

* Failed at the clamp

TABLE 173 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Unnotched
Soak: 650°F/1,000 hr/40 ksi
Test Temp: 400°F

| Test 373 Stress Ratio = 0.1 | | | Test 374 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 200 | 7,560 | 1 | 170 | 6,120 |
| 2 | 180 | 14,040 | 2 | 160 | 13,500 |
| 3 | 160 | 16,560 | 3 | 140 | 19,800 |
| 4 | 140 | 104,940 | 4 | 120 | 40,140 |
| 5 | 120 | 229,200 | 5 | 110 | 91,080 |
| 6 | 110 | 196,200 | 6 | 100 | 346,680 |
| 7 | 100 | 1,002,960 | 7 | 90 | 177,840 |
| 8 | 90 | 871,020 | 8 | 80 | 594,540 |
| 9 | 80 | 2,676,600 | 9 | 75 | 756,180 |
| 10 | 70 | 8,344,800 | 10 | 70 | 956,340 |
| | | | 11 | 65 | 5,449,180 |
| | | | 12 | 60 | 2,707,920 |
| | | | 13 | 55 | 5,095,800 |

TABLE 174 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Unnotched
Soak: 650°F/1,000 hr/40 ksi
Test Temp: 650°F

| Test 375 Stress Ratio = 0.1 | | | Test 376 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 160 | 12,780 | 1 | 120 | 13,500 |
| 2 | 150 | 95,560 | 2 | 115 | 60,480 |
| 3 | 140 | 133,020 | 3 | 110 | 11,340 |
| 4 | 130 | 134,280 | 4 | 105 | 27,360 |
| 5 | 120 | 109,800 | 5 | 100 | 75,600 |
| 6 | 110 | 77,580 | 6 | 95 | 34,200 |
| 7 | 100 | 719,280 | 7 | 90 | 42,660 |
| 8 | 95 | 1,090,620 | 8 | 90 | 67,500 |
| 9 | 90 | 843,120 | 9 | 85 | 206,100 |
| 10 | 85 | 1,350,180 | 10 | 80 | 266,760 |
| 11 | 80 | 2,925,720 | 11 | 75 | 99,720 |
| 12 | 75 | 5,541,480 | 12 | 70 | 329,220 |
| | | | 13 | 65 | 1,121,040 |
| | | | 14 | 60 | 1,336,140 |
| | | | 15 | 55 | 7,500,000* |

* No failure

TABLE 175 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Unnotched
Soak: 650°F/5,000 hr/40 ksi
Test Temp: Room

| Test 377 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 200 | 11,520 |
| 2 | 190 | 12,060 |
| 3 | 180 | 18,360 |
| 4 | 160 | 41,580 |
| 5 | 140 | 287,820 |
| 6 | 120 | 88,920 |
| 7 | 110 | 1,442,340 |
| 8 | 100 | 690,120 |
| 9 | 90 | 1,967,400 |
| 10 | 80 | 2,635,200 |
| 11 | 75 | 3,061,080 |

| Test 378 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 140 | 9,000 |
| 2 | 130 | 20,160 |
| 3 | 120 | 44,640 |
| 4 | 110 | 26,460 |
| 5 | 105 | 44,100 |
| 6 | 100 | 27,000 |
| 7 | 95 | 147,240 |
| 8 | 90 | 106,920 |
| 9 | 85 | 362,160 |
| 10 | 85 | 73,440* |
| 11 | 80 | 353,880 |
| 12 | 77 | 387,720 |
| 13 | 70 | 1,128,780 |
| 14 | 65 | 1,355,220 |
| 15 | 60 | 9,000,000** |

* Failed at the clamp
** No failure

TABLE 176 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Unnotched
Soak: 650°F/5,000 hr./40 ksi
Test Temp: 400°F

| Test 379 Stress Ratio = 0.1 | | | Test 380 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 200 | 9,180 | 1 | 150 | 1,980 |
| 2 | 180 | 26,640 | 2 | 140 | 11,880 |
| 3 | 170 | 38,800 | 3 | 130 | 12,060 |
| 4 | 160 | 59,220 | 4 | 120 | 8,460 |
| 5 | 140 | 28,620 | 5 | 110 | 74,700 |
| 6 | 120 | 97,920 | 6 | 100 | 161,640 |
| 7 | 100 | 111,600 | 7 | 90 | 134,280 |
| 8 | 90 | 297,720 | 8 | 80 | 629,280 |
| 9 | 80 | 1,655,100 | 9 | 70 | 454,500 |
| 10 | 70 | 1,754,820 | 10 | 60 | 1,748,520 |
| 11 | 60 | 7,500,000* | 11 | 55 | 4,075,380 |
| | | | 12 | 50 | 8,000,000* |

* No failure

TABLE 177 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Unnotched
Soak: 650°F/5,000 hr./40 ksi
Test Temp: 650°F

| Test 381 Stress Ratio = 0.1 | | | Test 382 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 190 | 8,100 | 1 | 130 | 10,080 |
| 2 | 180 | 13,320 | 2 | 120 | 12,060 |
| 3 | 170 | 14,400 | 3 | 110 | 34,740 |
| 4 | 160 | 49,860 | 4 | 100 | 39,780 |
| 5 | 150 | 31,860 | 5 | 90 | 144,000 |
| 6 | 140 | 59,760 | 6 | 80 | 195,300 |
| 7 | 130 | 67,860 | 7 | 75 | 583,740 |
| 8 | 120 | 159,300 | 8 | 70 | 935,640 |
| 9 | 110 | 237,240 | 9 | 65 | 1,846,800 |
| 10 | 100 | 578,880 | 10 | 60 | 3,917,700 |
| 11 | 90 | 1,373,040 | 11 | 55 | 7,500,000* |
| 12 | 80 | 8,000,000* | | | |

* No failure

TABLE 178 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Fusion-Welded & Planished
Soak: None
Test Temp: Room

| Test 387 Stress Ratio = 0.1 | | | Test 388 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 140 | 6,480 | 1 | 120 | 1,800 |
| 2 | 120 | 15,120 | 2 | 115 | 2,160 |
| 3 | 115 | 69,300 | 3 | 110 | 15,480 |
| 4 | 110 | 75,600 | 4 | 100 | 32,580 |
| 5 | 105 | 89,820 | 5 | 90 | 37,260 |
| 6 | 100 | 165,960 | 6 | 80 | 78,120 |
| 7 | 95 | 166,140 | 7 | 75 | 184,320 |
| 8 | 90 | 314,280 | 8 | 70 | 70,920 |
| 9 | 85 | 583,920 | 9 | 65 | 366,660 |
| 10 | 80 | 451,440 | 10 | 60 | 480,780 |
| 11 | 75 | 298,820 | 11 | 60 | 376,920 |
| 12 | 70 | 1,646,280 | 12 | 55 | 9,400,000* |
| 13 | 65 | 838,800 | | | |
| 14 | 60 | 190,620 | | | |
| 15 | 58 | 10,000,000* | | | |

* No failure

TABLE 179 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Fusion-Welded & Planished
Soak: None
Test Temp: 400°F

| Test 389 Stress Ratio = 0.1 | | | Test 390 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 140 | 4,860 | 1 | 105 | 1,080 |
| 2 | 130 | 14,880 | 2 | 100 | 8,820 |
| 3 | 120 | 25,740 | 3 | 90 | 10,620 |
| 4 | 110 | 34,020 | 4 | 85 | 25,740 |
| 5 | 100 | 42,120 | 5 | 80 | 171,000 |
| 6 | 95 | 131,400 | 6 | 75 | 96,660 |
| 7 | 90 | 653,220 | 7 | 70 | 339,120 |
| 8 | 87 | 619,200 | 8 | 65 | 686,800 |
| 9 | 84 | 671,760 | 9 | 60 | 658,800 |
| 10 | 80 | 478,260 | 10 | 55 | 2,451,600 |
| 11 | 78 | 84,780 | 11 | 50 | 5,180,400 |
| 12 | 75 | 3,081,160 | 12 | 45 | 3,196,800 |
| 13 | 70 | 3,893,400 | 13 | 40 | 7,500,000* |
| 14 | 65 | 10,200,000* | | | |

* No failure

TABLE 180 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Fusion-Welded & Planished
Soak: None
Test Temp: 650°F

| Test 391 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 105 | 1,260 |
| 2 | 100 | 30,241 |
| 3 | 95 | 12,600 |
| 4 | 93 | 19,620 |
| 5 | 93 | 75,240 |
| 6 | 90 | 739,080 |
| 7 | 85 | 759,780 |
| 8 | 80 | 2,128,860 |
| 9 | 75 | 1,486,800 |
| 10 | 70 | 7,900,000* |

| Test 392 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 100 | 5,760 |
| 2 | 95 | 3,600 |
| 3 | 90 | 20,340 |
| 4 | 85 | 13,860 |
| 5 | 80 | 17,280 |
| 6 | 78 | 145,800 |
| 7 | 76 | 90,360 |
| 8 | 74 | 425,340 |
| 9 | 70 | 423,360 |
| 10 | 68 | 654,480 |
| 11 | 65 | 8,100,000 |

* No failure

TABLE 181 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Fusion-Welded & Planished
Soak: 400°F/100 hr/40 ksi
Test Temp: Room

| Test 393 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 150 | 7,920 |
| 2 | 140 | 10,440 |
| 3 | 130 | 22,140 |
| 4 | 120 | 27,900 |
| 5 | 110 | 58,500 |
| 6 | 105 | 50,020 |
| 7 | 100 | 188,820 |
| 8 | 95 | 128,160 |
| 9 | 92 | 1,968,300 |
| 10 | 90 | 3,479,400 |
| 11 | 86 | 2,922,480 |
| 12 | 82 | 9,000,000** |

| Test 394 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 120 | 7,380 |
| 2 | 110 | 19,440 |
| 3 | 100 | 14,220 |
| 4 | 90 | 27,000 |
| 5 | 85 | 185,940 |
| 6 | 80 | 261,540 |
| 7 | 75 | 384,840 |
| 8 | 70 | 1,353,420 |
| 9 | 65 | 5,648,400 |
| 10 | 62 | 4,138,200 |
| 11 | 58 | 1,370,160* |
| 12 | 57 | 1,435,680 |
| 13 | 53 | 3,209,580 |

* Failed at the clamp
** No Failure

TABLE 182 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Fusion-Welded & Planished
Soak: 400°F/100 hr/40 ksi
Test Temp: 400°F

| Test 395 Stress Ratio = 0.1 | | | Test 396 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 130 | 3,060 | 1 | 110 | 1,720 |
| 2 | 125 | 12,600 | 2 | 105 | 10,080 |
| 3 | 120 | 16,740 | 3 | 100 | 5,940 |
| 4 | 110 | 17,820 | 4 | 95 | 24,840 |
| 5 | 100 | 30,060 | 5 | 90 | 55,800 |
| 6 | 90 | 41,040 | 6 | 85 | 122,760 |
| 7 | 88 | 74,700 | 7 | 80 | 50,400 |
| 8 | 85 | 970,380 | 8 | 75 | 448,920 |
| 9 | 80 | 1,752,480 | 9 | 70 | 642,600 |
| 10 | 75 | 4,765,140 | 10 | 65 | 310,140 |
| 11 | 70 | 6,269,400 | 11 | 60 | 1,168,920 |
| | | | 12 | 55 | 2,022,300 |
| | | | 13 | 50 | 1,277,280 |
| | | | 14 | 45 | 7,500,000* |

* No failure

TABLE 183 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Fusion-Welded & Planished
Soak: 400°F/100 hr/40 ksi
Test Temp: 650°F

| Test 397 Stress Ratio = 0.1 | | | Test 398 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 110 | 35,460 | 1 | 100 | 2,520 |
| 2 | 107 | 58,680 | 2 | 95 | 22,320 |
| 3 | 105 | 13,860 | 3 | 90 | 8,460 |
| 4 | 102 | 9,540 | 4 | 85 | 51,840 |
| 5 | 100 | 4,320 | 5 | 80 | 14,580 |
| 6 | 97 | 925,200 | 6 | 75 | 153,540 |
| 7 | 95 | 27,180 | 7 | 70 | 366,840 |
| 8 | 92 | 517,500 | 8 | 65 | 652,680 |
| 9 | 90 | 562,680 | 9 | 60 | 2,044,620 |
| 10 | 87 | 2,019,600 | 10 | 55 | 2,266,380 |
| 11 | 85 | 5,355,900 | 11 | 50 | 3,744,706 |
| 12 | 80 | 729,000 | 12 | 45 | 7,500,000* |

* No failure

TABLE 184 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Fusion-Welded & Planished
Soak: 400°F/1,000 hr/40 ksi
Test Temp: Room

| Test 399 Stress Ratio = 0.1 | | | Test 400 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 160 | 900 | 1 | 120 | 4,320 |
| 2 | 150 | 4,140 | 2 | 110 | 5,220 |
| 3 | 140 | 12,780 | 3 | 100 | 13,140 |
| 4 | 130 | 35,280 | 4 | 96 | 22,860 |
| 5 | 120 | 36,360 | 5 | 95 | 125,280 |
| 6 | 110 | 51,840 | 6 | 90 | 57,600 |
| 7 | 105 | 73,080 | 7 | 85 | 119,880 |
| 8 | 100 | 36,720 | 8 | 80 | 561,960 |
| 9 | 95 | 152,100 | 9 | 78 | 599,940 |
| 10 | 90 | 2,691,000 | 10 | 75 | 11,200,000* |
| 11 | 86 | 135,180 | | | |
| 12 | 82 | 5,568,840 | | | |
| 13 | 80 | 4,649,940 | | | |

* No failure

TABLE 185 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Fusion-Welded & Planished
Soak: 400°F/1,000 hr/40 ksi
Test Temp: 400°F

| Test 401 Stress Ratio = 0.1 | | | Test 402 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 140 | 8,820 | 1 | 110 | 7,560 |
| 2 | 120 | 46,080 | 2 | 100 | 20,340 |
| 3 | 120 | 22,140 | 3 | 95 | 22,680 |
| 4 | 110 | 40,500 | 4 | 90 | 14,220 |
| 5 | 100 | 97,380 | 5 | 85 | 75,060 |
| 6 | 95 | 644,220 | 6 | 80 | 47,700 |
| 7 | 90 | 1,144,260 | 7 | 75 | 375,840 |
| 8 | 88 | 531,180 | 8 | 70 | 781,560 |
| 9 | 85 | 928,080 | 9 | 65 | 838,980 |
| 10 | 80 | 1,006,020 | 10 | 60 | 1,262,880 |
| 11 | 75 | 2,646,000 | 11 | 55 | 3,205,800 |
| 12 | 70 | 10,000,000* | 12 | 50 | 6,930,540 |

* No failure

TABLE 186 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Fusion-Welded & Planished
Soak: 400°F/1,000 hr/40 ksi
Test Temp: 650°F

| Test 403 Stress Ratio = 0.1 | | | Test 404 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 120 | 5,580 | 1 | 100 | 12,960 |
| 2 | 115 | 14,220 | 2 | 95 | 1,980 |
| 3 | 110 | 9,540 | 3 | 90 | 9,360 |
| 4 | 105 | 361,080 | 4 | 85 | 35,280 |
| 5 | 100 | 38,880 | 5 | 80 | 51,660 |
| 6 | 95 | 536,040 | 6 | 80 | 191,520 |
| 7 | 90 | 766,440 | 7 | 75 | 4,860 |
| 8 | 85 | 822,600 | 8 | 70 | 36,720 |
| 9 | 80 | 3,551,760 | 9 | 65 | 1,384,740 |
| 10 | 75 | 7,500,000* | 10 | 60 | 10,200,000* |

* No failure

TABLE 187 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Fusion-Welded & Planished
Soak: 400°F/5,000 hr./40 ksi
Test Temp: Room

| Test 405 Stress Ratio = 0.1 | | | Test 406 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 130 | 5,400 | 1 | 100 | 5,220 |
| 2 | 120 | 16,020 | 2 | 95 | 7,740 |
| 3 | 110 | 23,760 | 3 | 90 | 8,820 |
| 4 | 100 | 38,340 | 4 | 85 | 79,200 |
| 5 | 90 | 57,060 | 5 | 80 | 26,640 |
| 6 | 88 | 421,200 | 6 | 75 | 22,500 |
| 7 | 85 | 451,440 | 7 | 70 | 103,860 |
| 8 | 80 | 934,020* | 8 | 65 | 102,240 |
| 9 | 77 | 4,095,000 | 9 | 60 | 2,403,000 |
| 10 | 74 | 3,531,600 | 10 | 55 | 8,000,000** |
| 11 | 70 | 963,180 | | | |
| 12 | 65 | 7,500,000** | | | |

* Failed at the clamp
** No failure

TABLE 188 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Fusion-Welded & Planished
Soak: 400°F/5,000 hr./40 ksi
Test Temp: 400°F

| Test 407 Stress Ratio = 0.1 | | | Test 408 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 120 | 7,560 | 1 | 90 | 3,240 |
| 2 | 115 | 14,040 | 2 | 90 | 8,280 |
| 3 | 110 | 59,020 | 3 | 80 | 27,360 |
| 4 | 100 | 48,060 | 4 | 70 | 41,940 |
| 5 | 95 | 53,640 | 5 | 65 | 46,440 |
| 6 | 90 | 96,660 | 6 | 60 | 581,400 |
| 7 | 85 | 75,240 | 7 | 55 | 143,460 |
| 8 | 80 | 2,365,200 | 8 | 50 | 2,538,000 |
| 9 | 75 | 102,060 | 9 | 45 | 1,842,120 |
| 10 | 70 | 2,039,400 | 10 | 40 | 7,500,000* |
| 11 | 65 | 1,255,100 | | | |
| 12 | 60 | 7,500,000* | | | |

* No failure

TABLE 189 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Fusion-Welded & Planished
Soak: 400°F/5,000 hr./40 ksi
Test Temp: 650°F

| Test 409 Stress Ratio = 0.1 | | | Test 410 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 120 | 1,800 | 1 | 95 | 1,080 |
| 2 | 110 | 15,300 | 2 | 90 | 11,700 |
| 3 | 105 | 2,700 | 3 | 85 | 13,860 |
| 4 | 100 | 184,500 | 4 | 80 | 20,160 |
| 5 | 95 | 669,420 | 5 | 75 | 5,040 |
| 6 | 90 | 20,840 | 6 | 70 | 37,800 |
| 7 | 85 | 154,260 | 7 | 65 | 260,280 |
| 8 | 80 | 1,187,100 | 8 | 60 | 822,600 |
| 9 | 75 | 365,500 | 9 | 55 | 290,880 |
| 10 | 70 | 1,809,000 | 10 | 50 | 1,632,060 |
| 11 | 65 | 61,380 | 11 | 45 | 8,000,000* |
| 12 | 65 | 1,224,720 | | | |
| 13 | 60 | 7,500,000* | | | |

* No failure

TABLE 190 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Fusion-Welded & Planished
Soak: 650°F/100 hr/40 ksi
Test Temp: Room

| Test 411 Stress Ratio = 0.1 | | | Test 412 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 140 | 1,620 | 1 | 120 | 6,660 |
| 2 | 130 | 9,180 | 2 | 110 | 15,300 |
| 3 | 125 | 11,700 | 3 | 100 | 18,720 |
| 4 | 120 | 17,640 | 4 | 90 | 43,920 |
| 5 | 110 | 18,360 | 5 | 85 | 186,480 |
| 6 | 105 | 96,480 | 6 | 80 | 537,712 |
| 7 | 100 | 80,460 | 7 | 75 | 112,680 |
| 8 | 90 | 4,427,460 | 8 | 73 | 706,320 |
| 9 | 85 | 4,325,400 | 9 | 70 | 645,480 |
| 10 | 80 | 3,312,000 | 10 | 67 | 1,806,300 |
| 11 | 78 | 5,987,700 | 11 | 65 | 3,569,940 |
| 12 | 76 | 795,060 | 12 | 62 | 11,500,000* |
| 13 | 74 | 10,000,000* | | | |

* No failure

TABLE 191 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, aged at 1275°F
Geometry: Fusion-Welded & Planished
Soak: 650°F/100 hr/40 ksi
Test Temp: 400°F

| Test 413 Stress Ratio = 0.1 | | | Test 414 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 125 | 4,680 | 1 | 100 | 8,640 |
| 2 | 120 | 16,200 | 2 | 95 | 20,700 |
| 3 | 110 | 26,800 | 3 | 90 | 5,040 |
| 4 | 100 | 16,200 | 4 | 85 | 31,680 |
| 5 | 95 | 54,720 | 5 | 80 | 29,520 |
| 6 | 90 | 994,680 | 6 | 75 | 36,720 |
| 7 | 85 | 1,073,700 | 7 | 70 | 42,840 |
| 8 | 80 | 206,640 | 8 | 65 | 360,540 |
| 9 | 75 | 2,344,500 | 9 | 60 | 2,280,960 |
| 10 | 70 | 10,000,000* | 10 | 50 | 1,971,000 |
| | | | 11 | 45 | 3,013,200 |
| | | | 12 | 40 | 7,700,000* |

* No failure

TABLE 192 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Fusion-Welded & Planished
Soak: 650°F/100 hr/40 ksi
Test Temp: 650°F

| Test 415 Stress Ratio = 0.1 | | | Test 416 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 115 | 18,900 | 1 | 100 | 1,260 |
| 2 | 110 | 31,680 | 2 | 95 | 12,420 |
| 3 | 105 | 18,000 | 3 | 90 | 8,460 |
| 4 | 102 | 47,700 | 4 | 85 | 175,500 |
| 5 | 100 | 23,040 | 5 | 80 | 204,480 |
| 6 | 97 | 23,760 | 6 | 75 | 700,560 |
| 7 | 95 | 42,300 | 7 | 70 | 315,540 |
| 8 | 92 | 105,840 | 8 | 65 | 158,940 |
| 9 | 90 | 894,420 | 9 | 60 | 261,360 |
| 10 | 85 | 1,717,740 | 10 | 55 | 5,028,480 |
| 11 | 80 | 1,749,600 | 11 | 50 | 7,700,000* |
| 12 | 75 | 3,713,580 | | | |

* No failure

TABLE 193 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Fusion-Welded & Planished
Soak: 650°F/1,000 hr/40 ksi
Test Temp: Room

| Test 417 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 150 | 1,440 |
| 2 | 140 | 9,540 |
| 3 | 130 | 19,620 |
| 4 | 120 | 20,160 |
| 5 | 110 | 84,420 |
| 6 | 110 | 44,640 |
| 7 | 100 | 120,060 |
| 8 | 95 | 246,780 |
| 9 | 90 | 2,269,800 |
| 10 | 85 | 321,660 |
| 11 | 80 | 3,002,040 |
| 12 | 75 | 2,944,800 |
| 13 | 70 | 10,000,000* |

| Test 418 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 110 | 8,640 |
| 2 | 105 | 37,080 |
| 3 | 100 | 39,060 |
| 4 | 90 | 65,340 |
| 5 | 85 | 48,600 |
| 6 | 80 | 188,640 |
| 7 | 75 | 1,494,360 |
| 8 | 70 | 1,052,820 |
| 9 | 65 | 2,158,200 |
| 10 | 63 | 15,300,000* |

* No failure

TABLE 194 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Fusion-Welded & Planished
Soak: 650°F/1,000 hr/40 ksi
Test Temp: 400°F

| Test 419 Stress Ratio = 0.1 | | | Test 420 Stress Ratio = -0.5 | | |
|---|---|---|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles | Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 150 | 3,960 | 1 | 100 | 6,480 |
| 2 | 140 | 12,780 | 2 | 95 | 35,820 |
| 3 | 130 | 16,560 | 3 | 90 | 10,620 |
| 4 | 120 | 18,900 | 4 | 85 | 54,720 |
| 5 | 110 | 35,280 | 5 | 80 | 383,940 |
| 6 | 100 | 45,900 | 6 | 80 | 307,800 |
| 7 | 90 | 159,840 | 7 | 75 | 451,440 |
| 8 | 80 | 1,399,140 | 8 | 70 | 584,460 |
| 9 | 75 | 462,780 | 9 | 65 | 814,860 |
| 10 | 70 | 1,918,440 | 10 | 60 | 831,600 |
| 11 | 65 | 2,890,080 | 11 | 55 | 2,814,120 |
| 12 | 60 | 7,510,140 | 12 | 50 | 2,426,400 |
| | | | 13 | 45 | 3,092,040 |
| | | | 14 | 40 | 7,500,000* |

* No failure

TABLE 195 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Fusion-Welded & Planished
Soak: 650°F/1,000 hr/40 ksi
Test Temp: 650°F

| Test 421 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 115 | 2,340 |
| 2 | 110 | 12,060 |
| 3 | 105 | 16,920 |
| 4 | 100 | 30,420 |
| 5 | 98 | 66,420 |
| 6 | 95 | 450,720 |
| 7 | 90 | 648,360 |
| 8 | 85 | 592,560 |
| 9 | 80 | 360,180 |
| 10 | 75 | 7,036,920 |

| Test 422 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 100 | 5,400 |
| 2 | 95 | 4,500 |
| 3 | 90 | 7,740 |
| 4 | 85 | 55,980 |
| 5 | 80 | 19,440 |
| 6 | 75 | 18,000 |
| 7 | 70 | 18,900 |
| 8 | 68 | 761,400 |
| 9 | 65 | 408,240 |
| 10 | 60 | 1,992,960 |
| 11 | 55 | 1,279,620 |
| 12 | 50 | 7,529,400 |

TABLE 196 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Fusion-Welded & Planished
Soak: 650°F/5,000 hr./40 ksi
Test Temp: Room

| Test 423 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 140 | 7,920 |
| 2 | 130 | 4,320 |
| 3 | 125 | 9,540 |
| 4 | 120 | 14,940 |
| 5 | 115 | 21,600 |
| 6 | 110 | 97,380 |
| 7 | 105 | 57,240 |
| 8 | 100 | 161,640 |
| 9 | 95 | 75,060 |
| 10 | 90 | 336,600 |
| 11 | 85 | 115,380 |
| 12 | 80 | 6,798,600 |

| Test 424 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 115 | 7,740 |
| 2 | 110 | 15,300 |
| 3 | 105 | 27,540 |
| 4 | 100 | 7,380 |
| 5 | 95 | 68,760 |
| 6 | 90 | 171,720 |
| 7 | 85 | 317,160 |
| 8 | 80 | 286,200 |
| 9 | 75 | 182,340 |
| 10 | 70 | 720,000 |
| 11 | 65 | 3,361,680 |
| 12 | 60 | 3,804,120 |

TABLE 197 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Fusion-Welded & Planished
Soak: 650°F/5,000 hr/40 ksi
Test Temp: 400°F

| Test 425 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 120 | 3,960 |
| 2 | 110 | 15,840 |
| 3 | 100 | 13,500 |
| 4 | 95 | 69,300 |
| 5 | 90 | 914,400 |
| 6 | 85 | 599,940 |
| 7 | 80 | 55,260 |
| 8 | 75 | 2,970,000 |
| 9 | 70 | 655,920 |
| 10 | 65 | 5,447,340 |

| Test 426 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 100 | 14,220 |
| 2 | 95 | 43,560 |
| 3 | 90 | 155,520 |
| 4 | 80 | 45,720 |
| 5 | 75 | 33,300 |
| 6 | 75 | 519,660 |
| 7 | 70 | 26,280 |
| 8 | 65 | 661,140 |
| 9 | 60 | 759,060 |
| 10 | 55 | 2,034,360 |
| 11 | 50 | 4,672,080 |

TABLE 198 CONSTANT AMPLITUDE FATIGUE TEST DATA

Material: INCO 718, 20% CR, Aged at 1275°F
Geometry: Fusion-Welded & Planished
Soak: 650°F/5,000 hr/40 ksi
Test Temp: 650°F

| Test 427 Stress Ratio = 0.1 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 120 | 3,780 |
| 2 | 115 | 32,580 |
| 3 | 110 | 21,420 |
| 4 | 100 | 23,940 |
| 5 | 95 | 48,960 |
| 6 | 90 | 1,222,920 |
| 7 | 85 | 567,360 |
| 8 | 80 | 429,480 |
| 9 | 75 | 1,973,880 |
| 10 | 70 | 4,995,540 |

| Test 428 Stress Ratio = -0.5 | | |
|---|---|---|
| Specimen Number | $f_{max}$ (ksi) | Applied Cycles |
| 1 | 100 | 2,340 |
| 2 | 90 | 11,880 |
| 3 | 90 | 9,540 |
| 4 | 85 | 53,820 |
| 5 | 80 | 9,900 |
| 6 | 75 | 18,720 |
| 7 | 75 | 11,160 |
| 8 | 70 | 355,640 |
| 9 | 65 | 552,960 |
| 10 | 60 | 1,304,100 |
| 11 | 55 | 8,000,000* |

* No failure

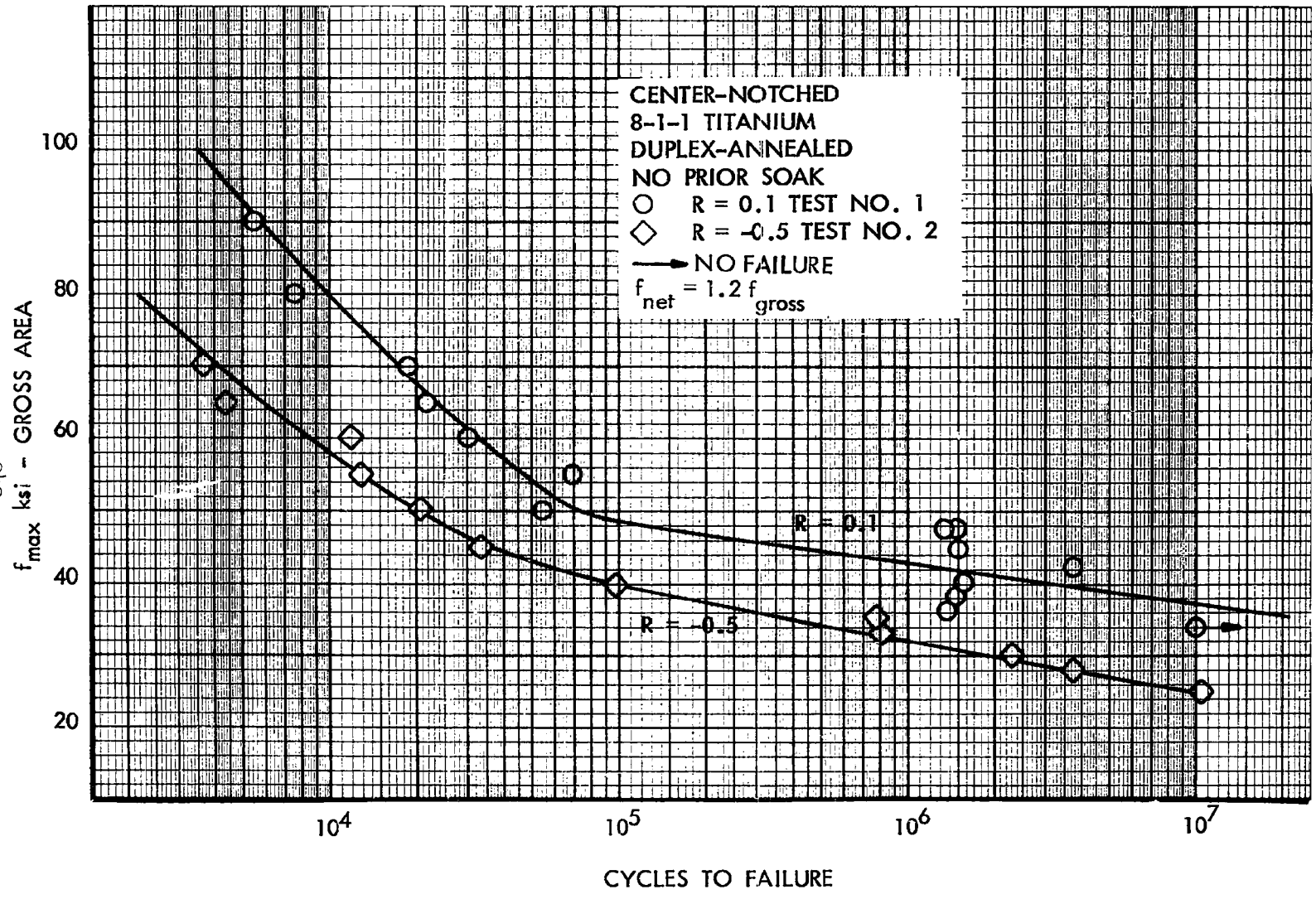



Figure 43. S-N Curves at Room Temperature, Center-Notched 8-1-1 Titanium, R = Constant

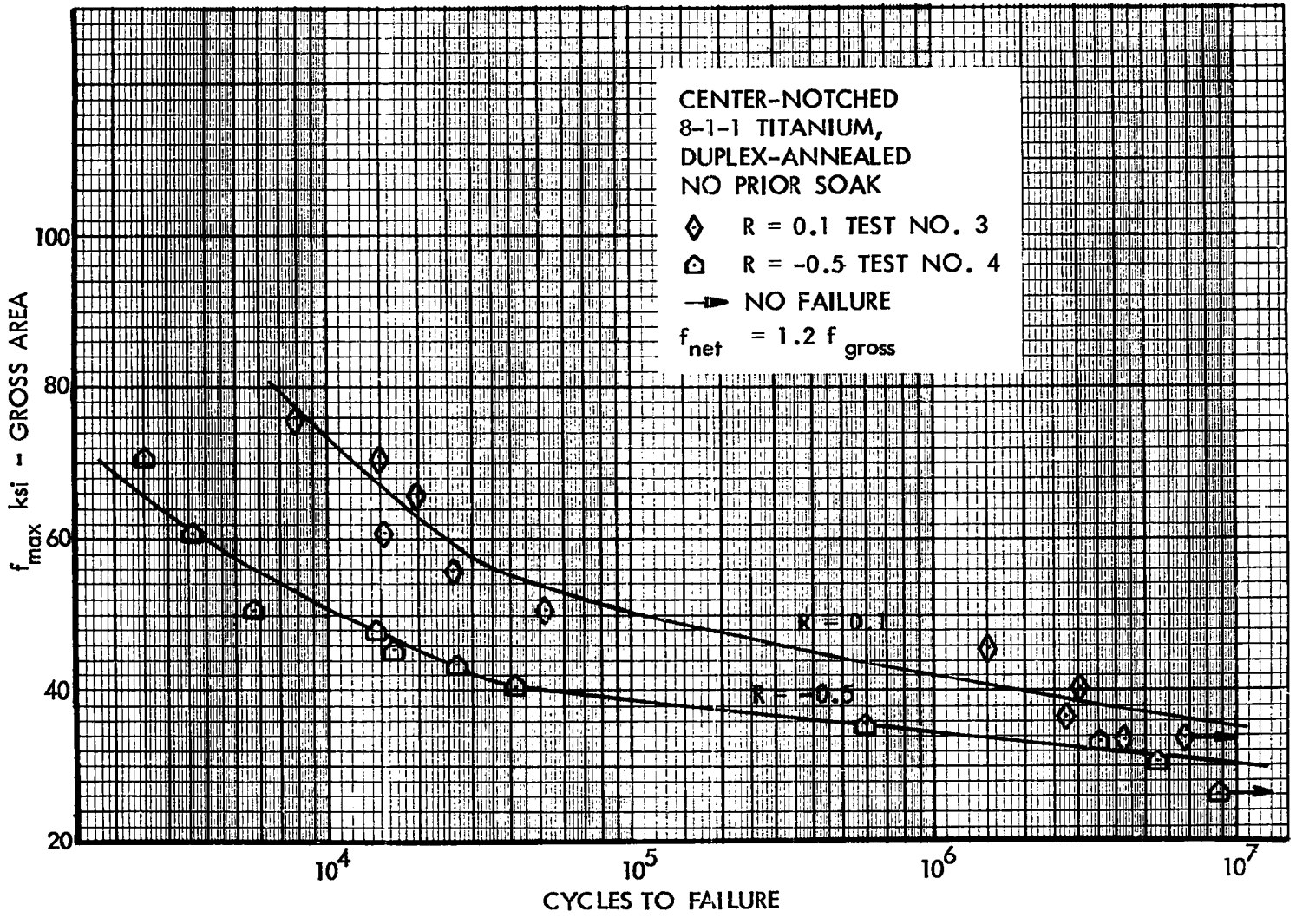



Figure 44. S-N Curves at 400°F, Center-Notched 8-1-1 Titanium, R = Constant

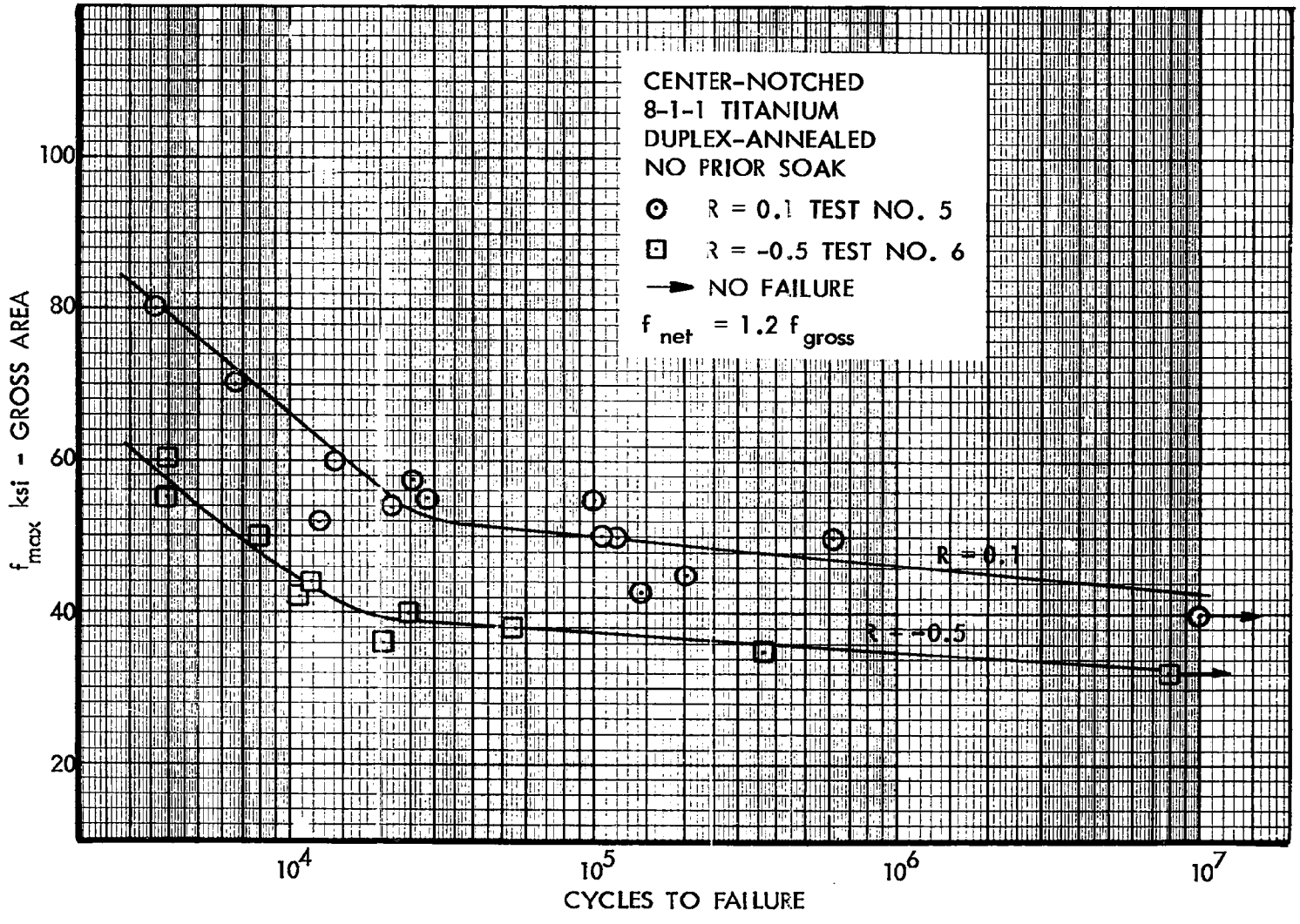



Figure 45. S-N Curves at 650°F, Center-Notched 8-1-1 Titanium, R = Constant

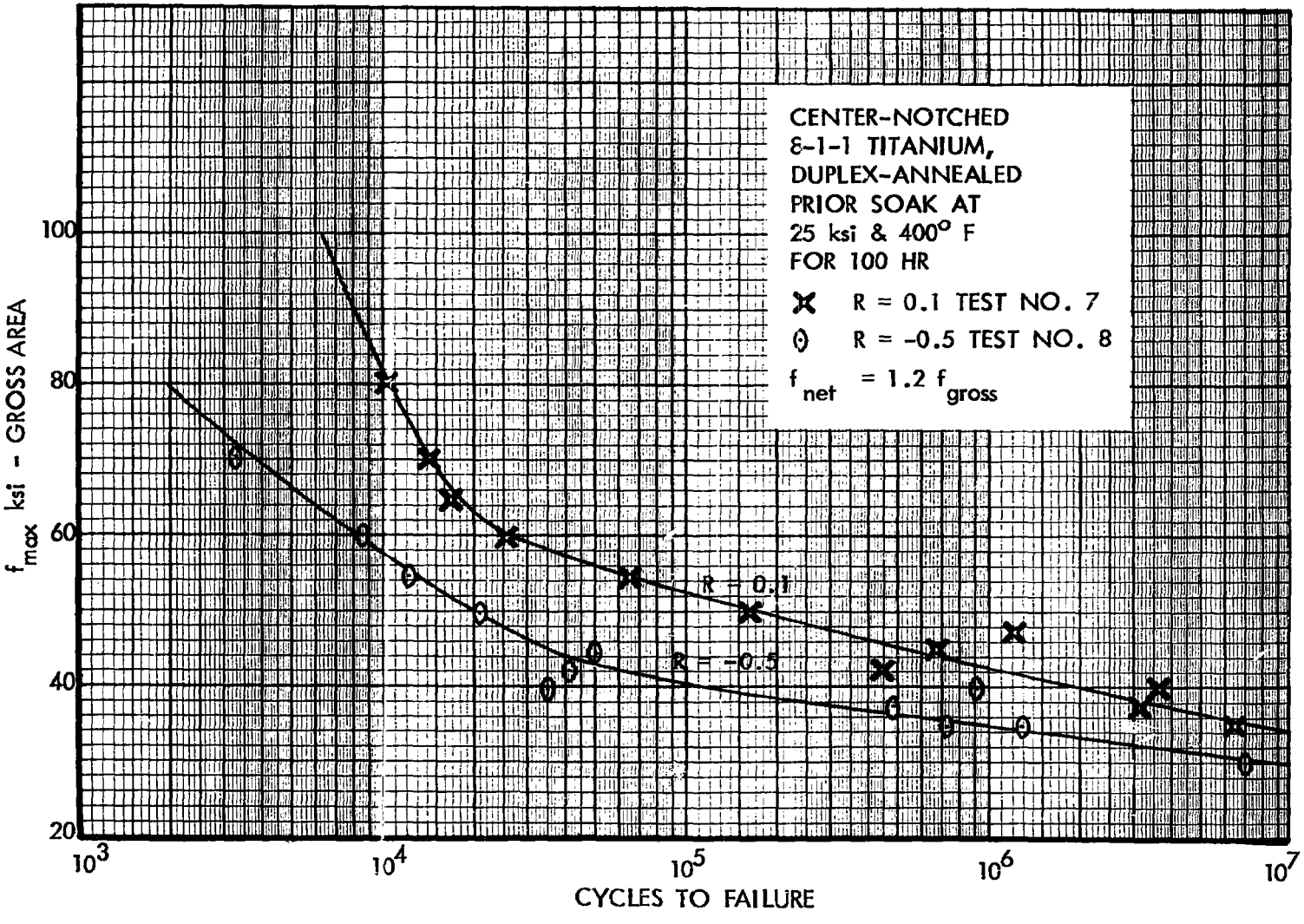



Figure 46. S-N Curves at Room Temperature, Center-Notched 8-1-1 Titanium, R = Constant

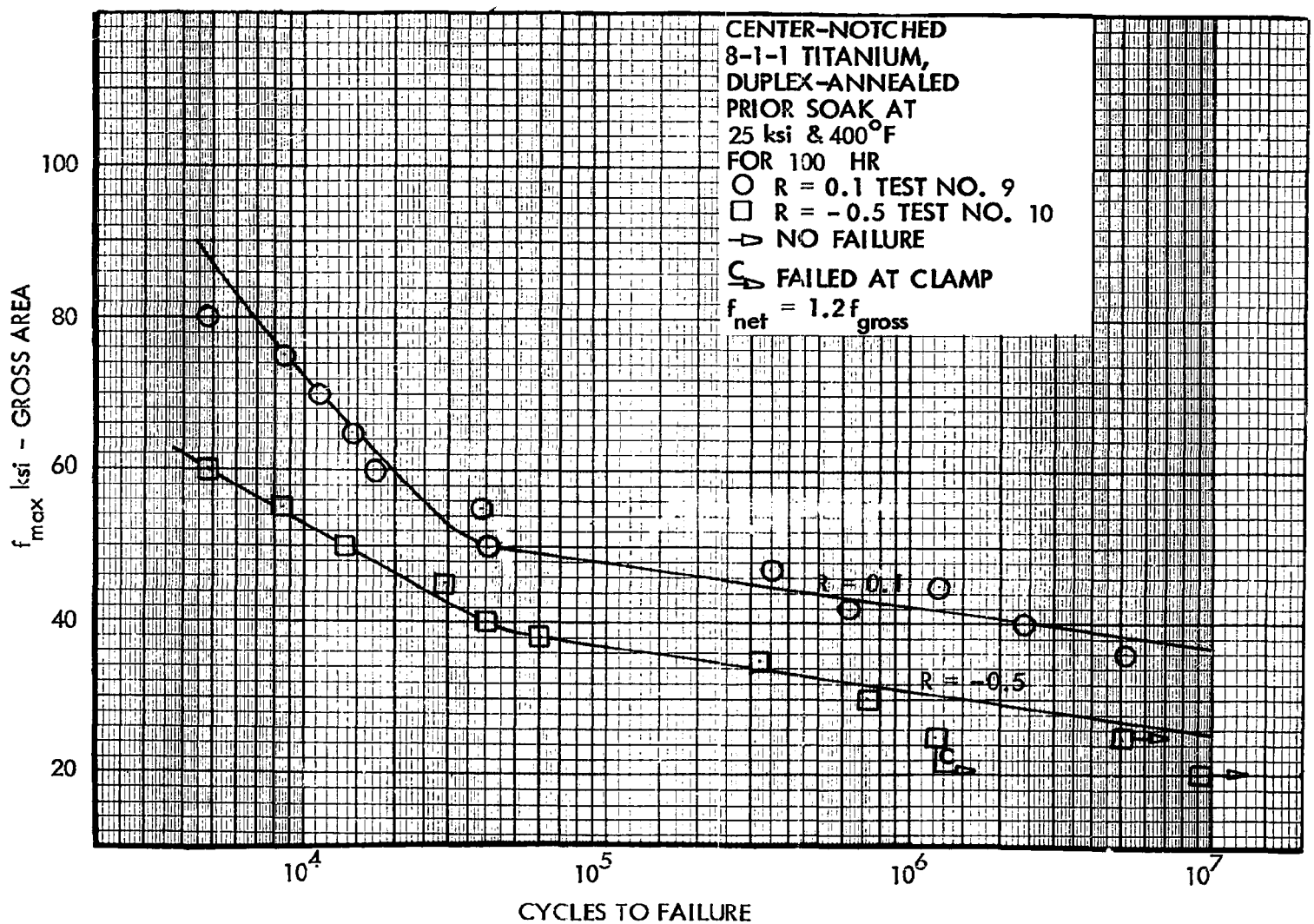



Figure 47. S-N Curves at 400°F, Center-Notched 8-1-1 Titanium, R = Constant

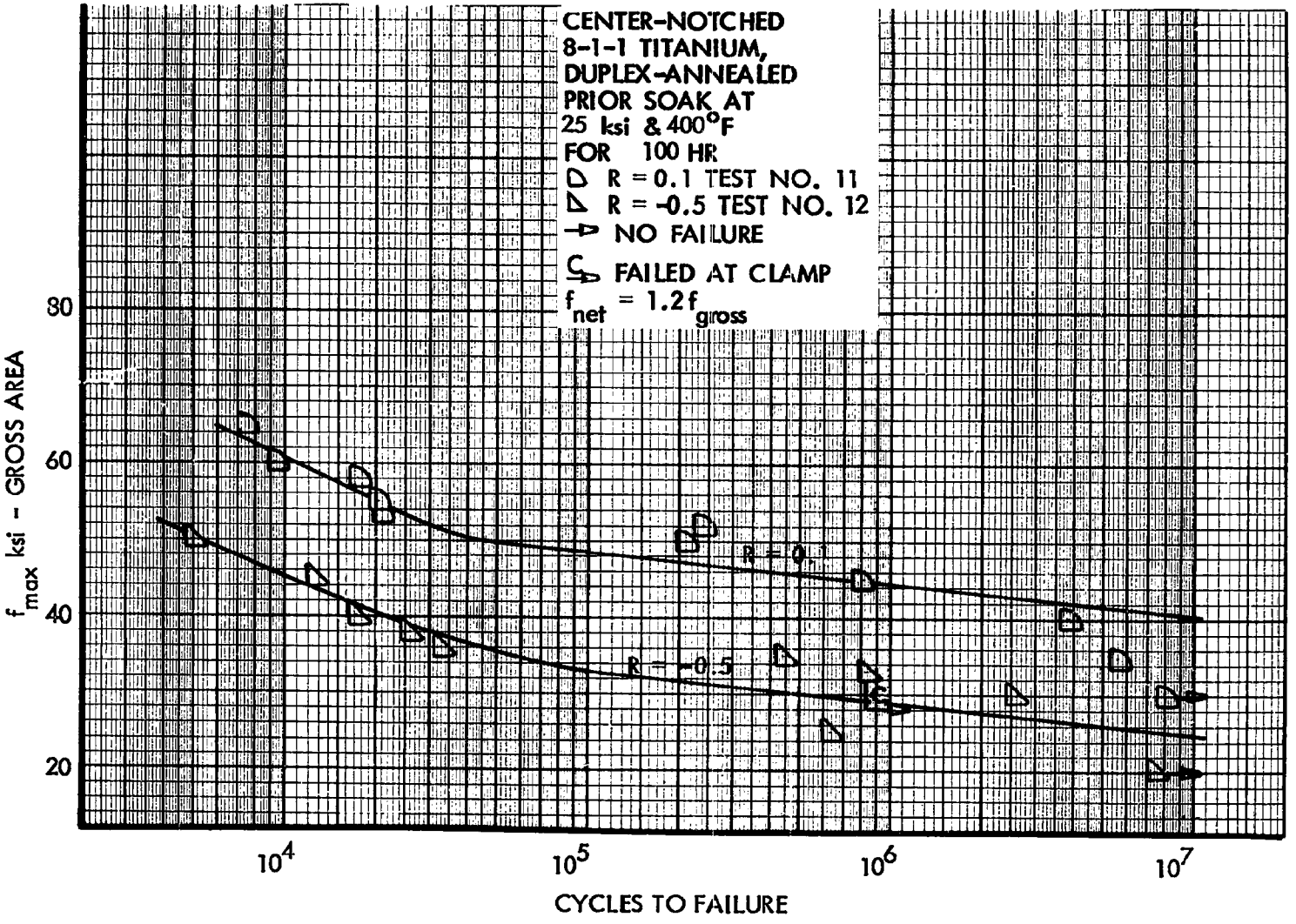



Figure 48 S-N Curves at 650°F, Center-Notched 8-1-1 Titanium, R = Constant

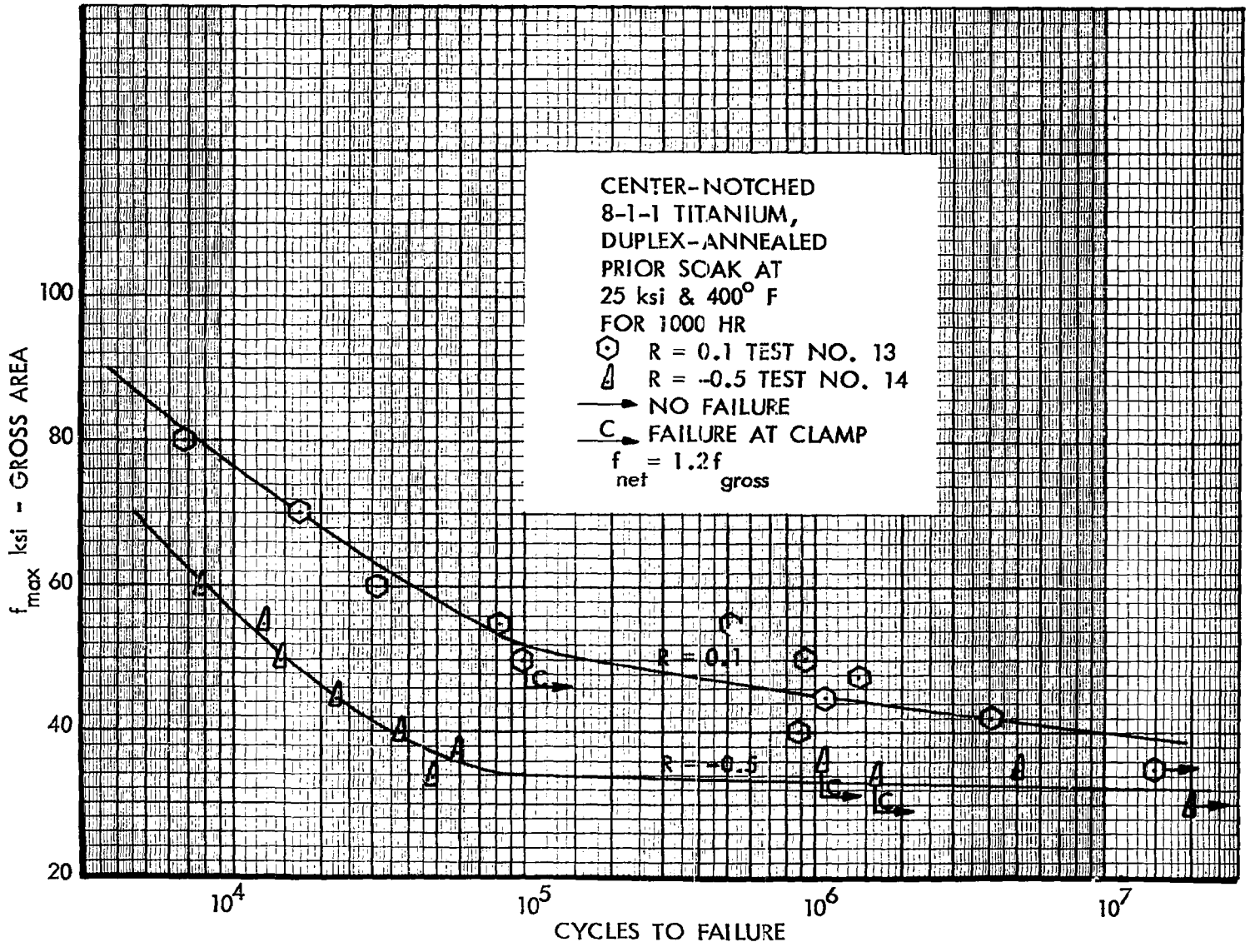



Figure 49. S-N Curves at Room Temperature, Center-Notched 8-1-1 Titanium, R = Constant

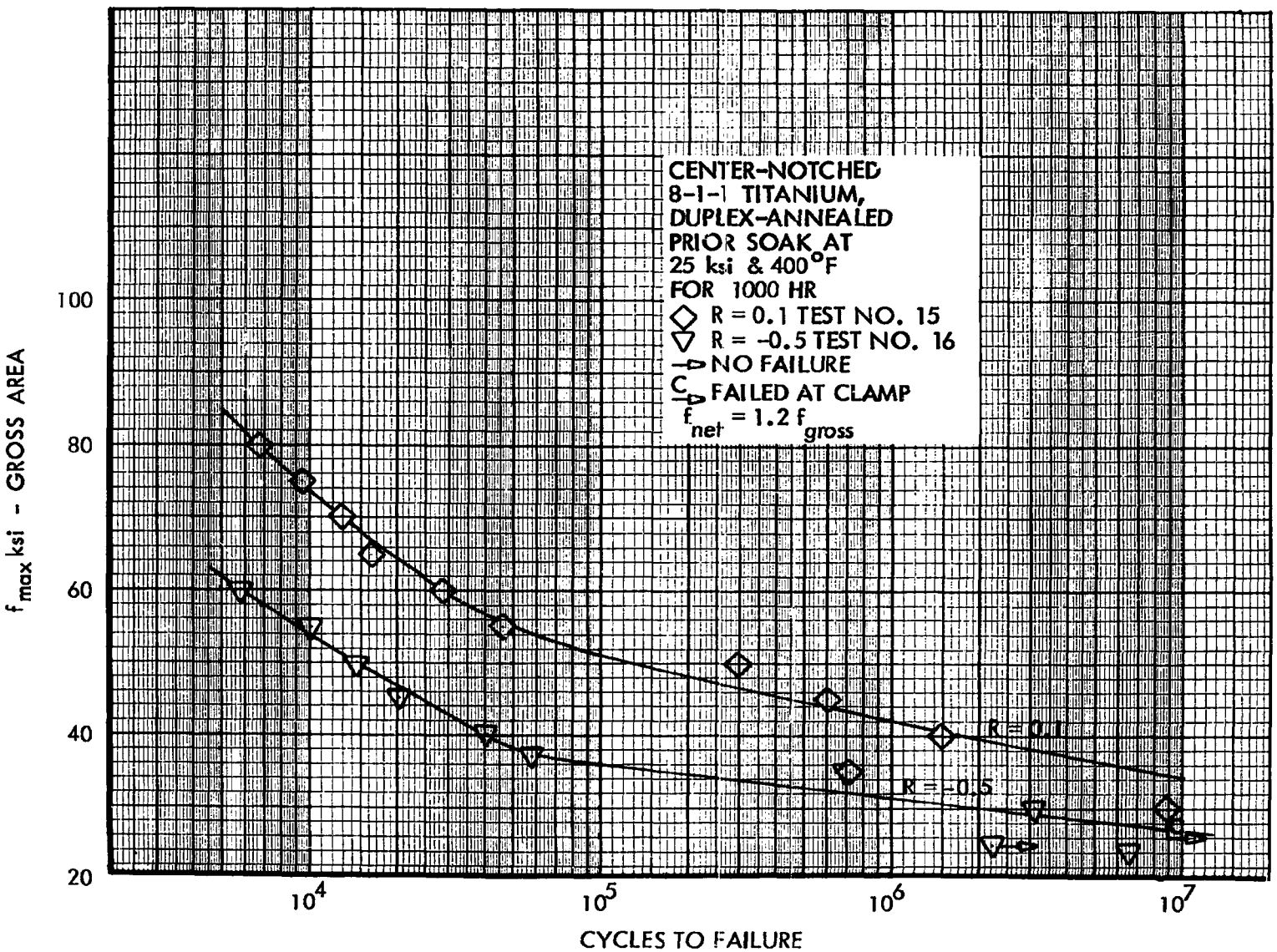



Figure 50. S-N Curves at 400°F, Center-Notched 8-1-1 Titanium, R = Constant

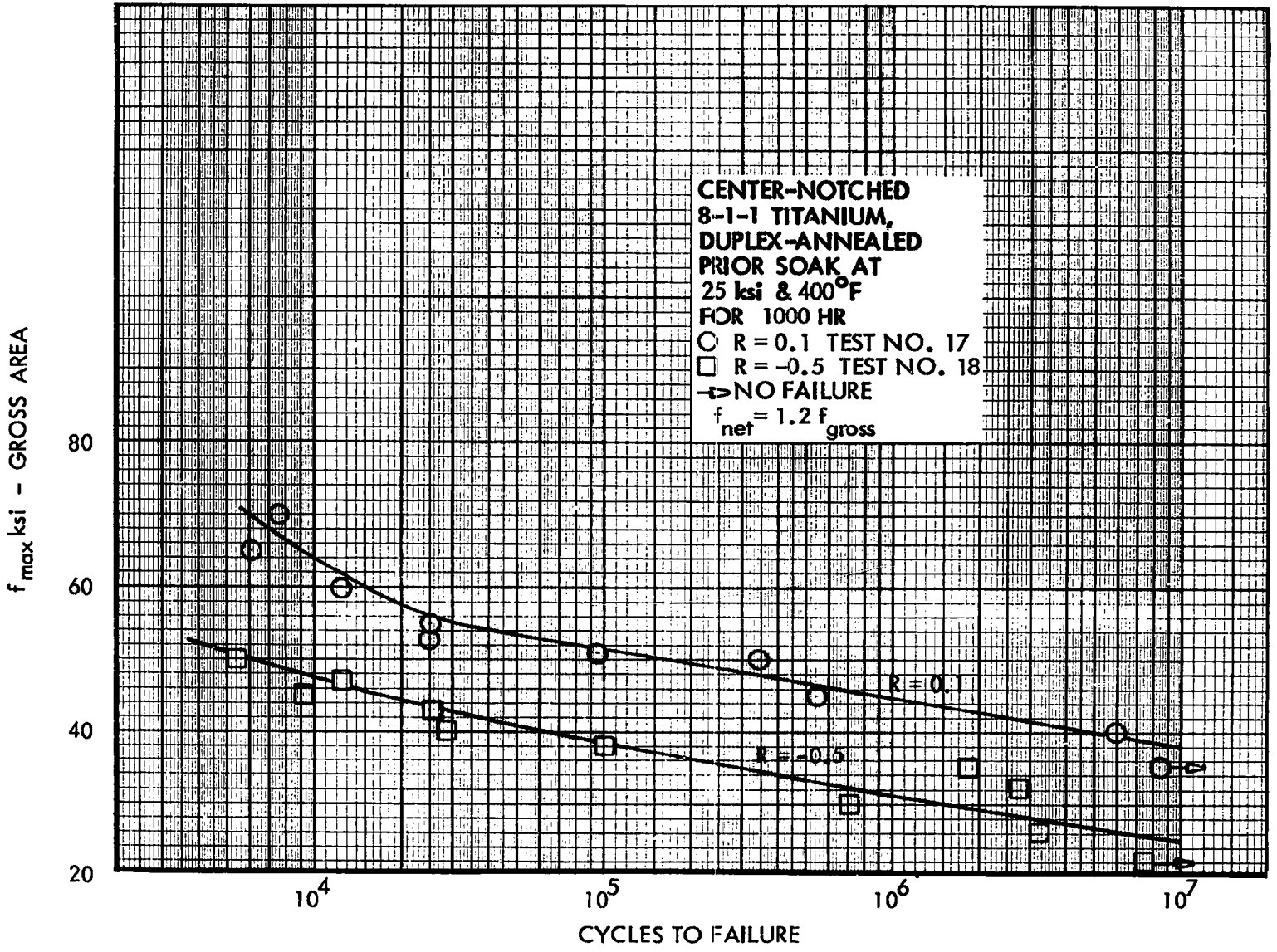



Figure 51. S-N Curves at 650°F, Center-Notched 8-1-1 Titanium, R = Constant

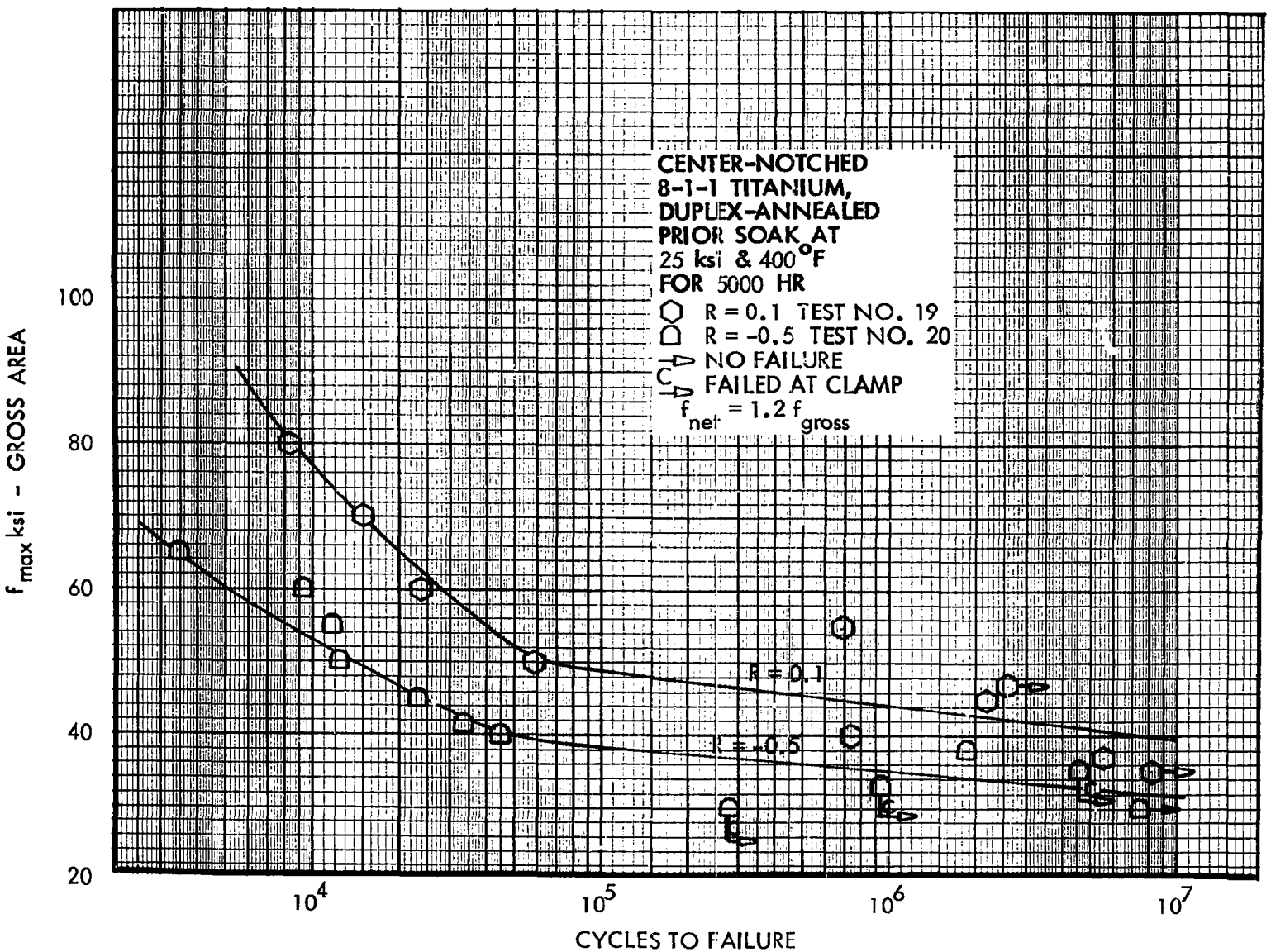



Figure 52. S-N Curves at Room Temperature, Center-Notched 8-1-1 Titanium, R = Constant

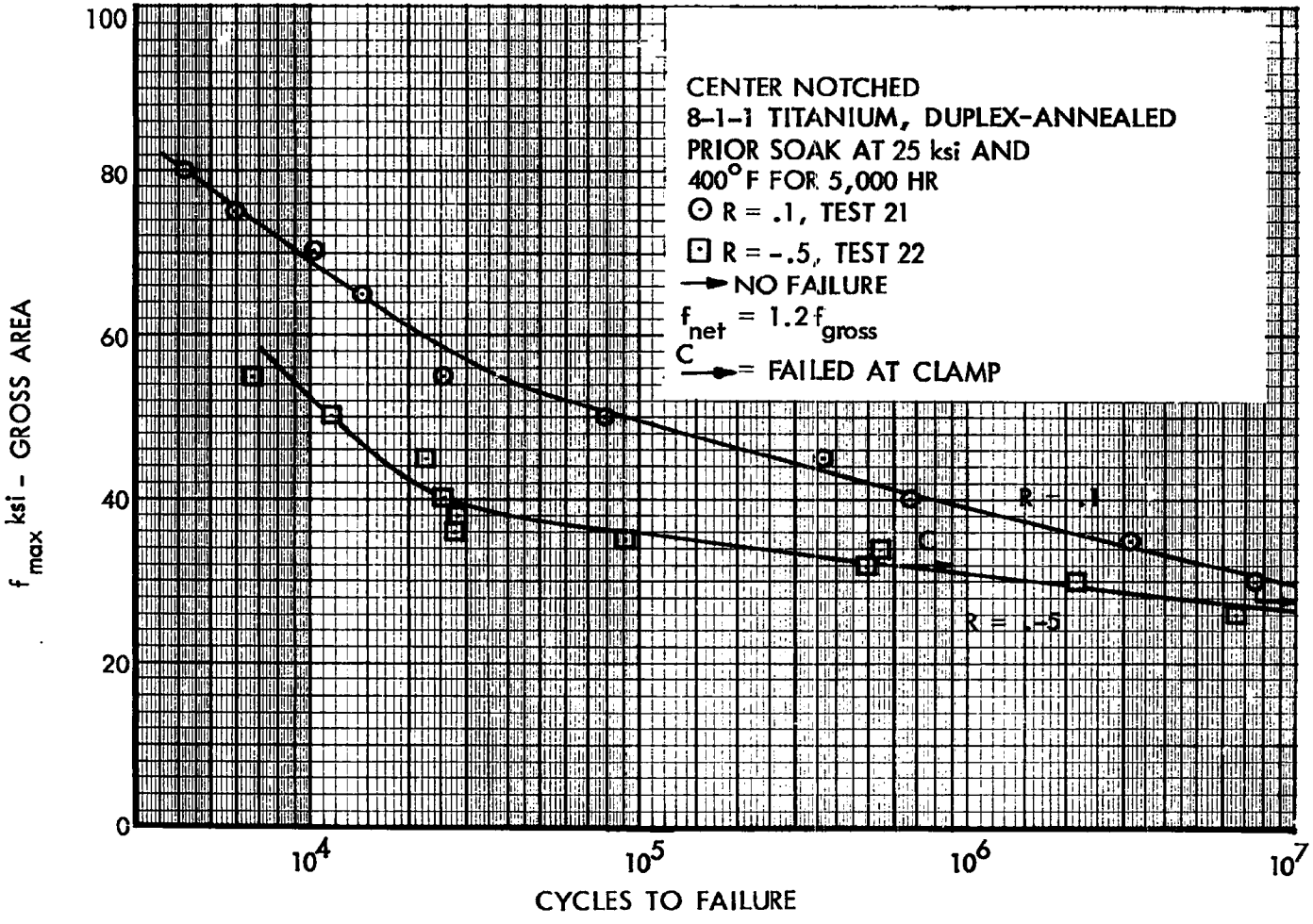



Figure 53 . S-N Curves at 400°F, Center-Notched 8-1-1 Titanium, R = Constant

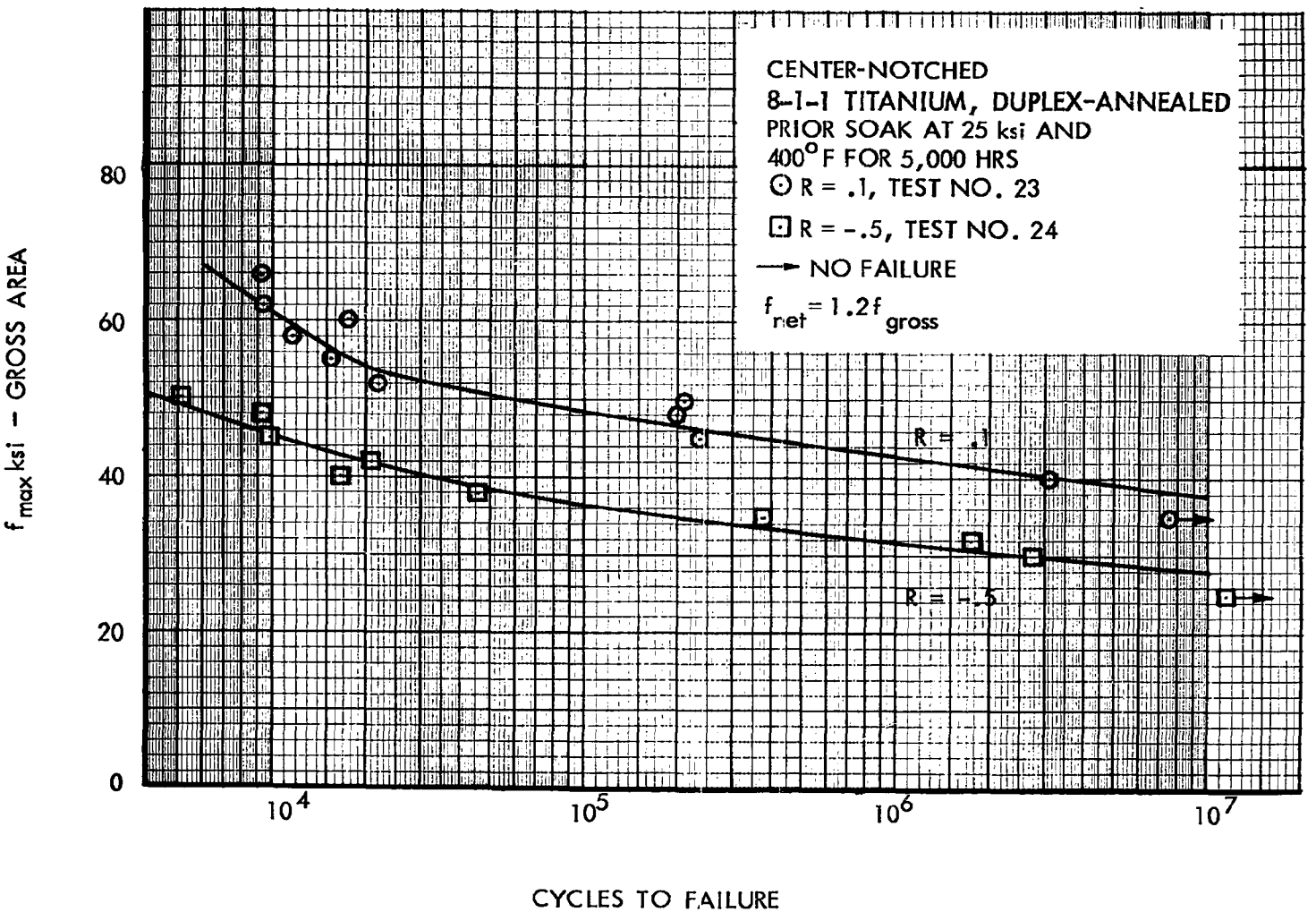



Figure 54. S-N Curves at 650°F, Center-Notched 8-1-1 Titanium, R = Constant

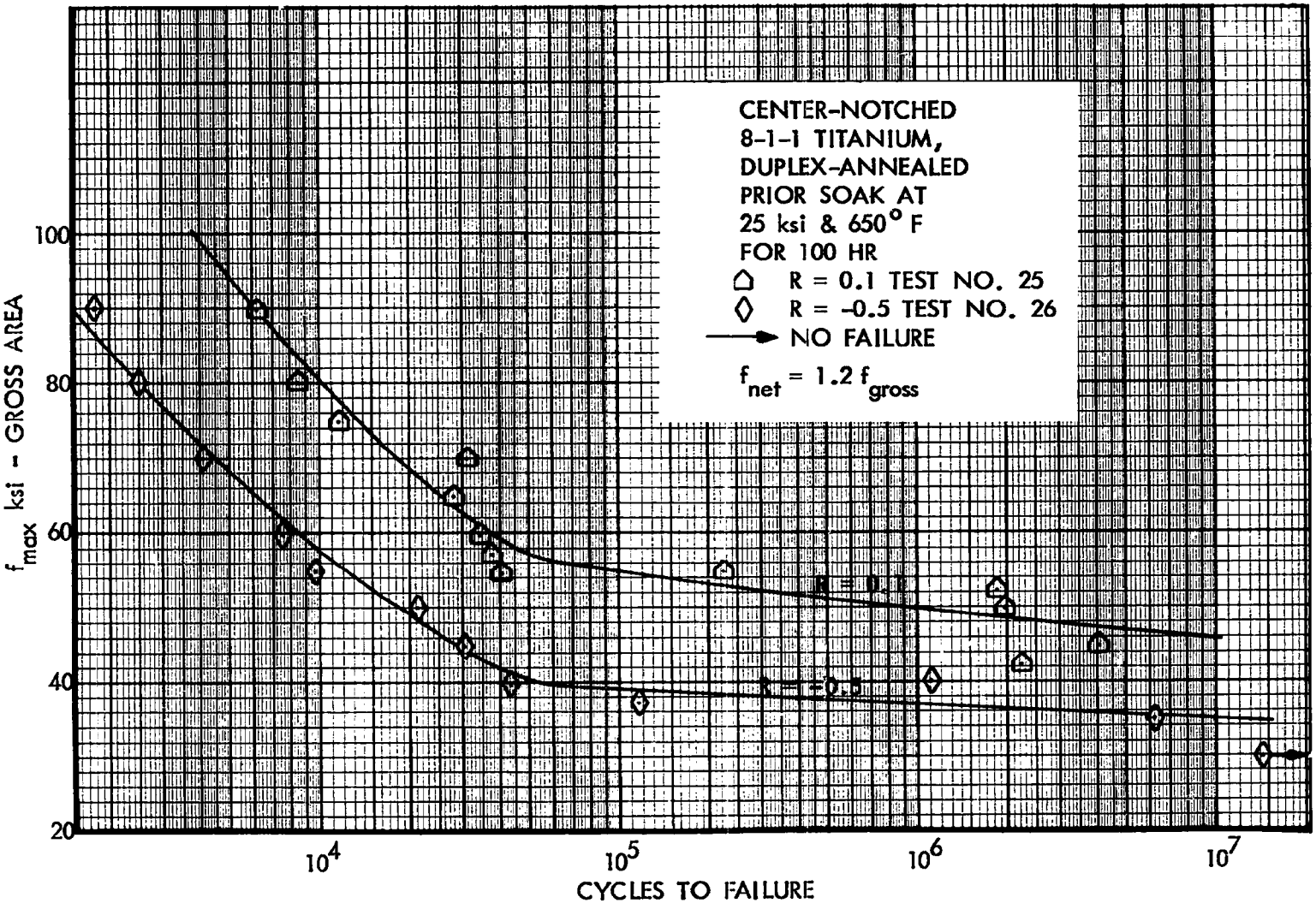



Figure 55. S-N Curves at Room Temperature, Center-Notched 8-1-1 Titanium, R = Constant

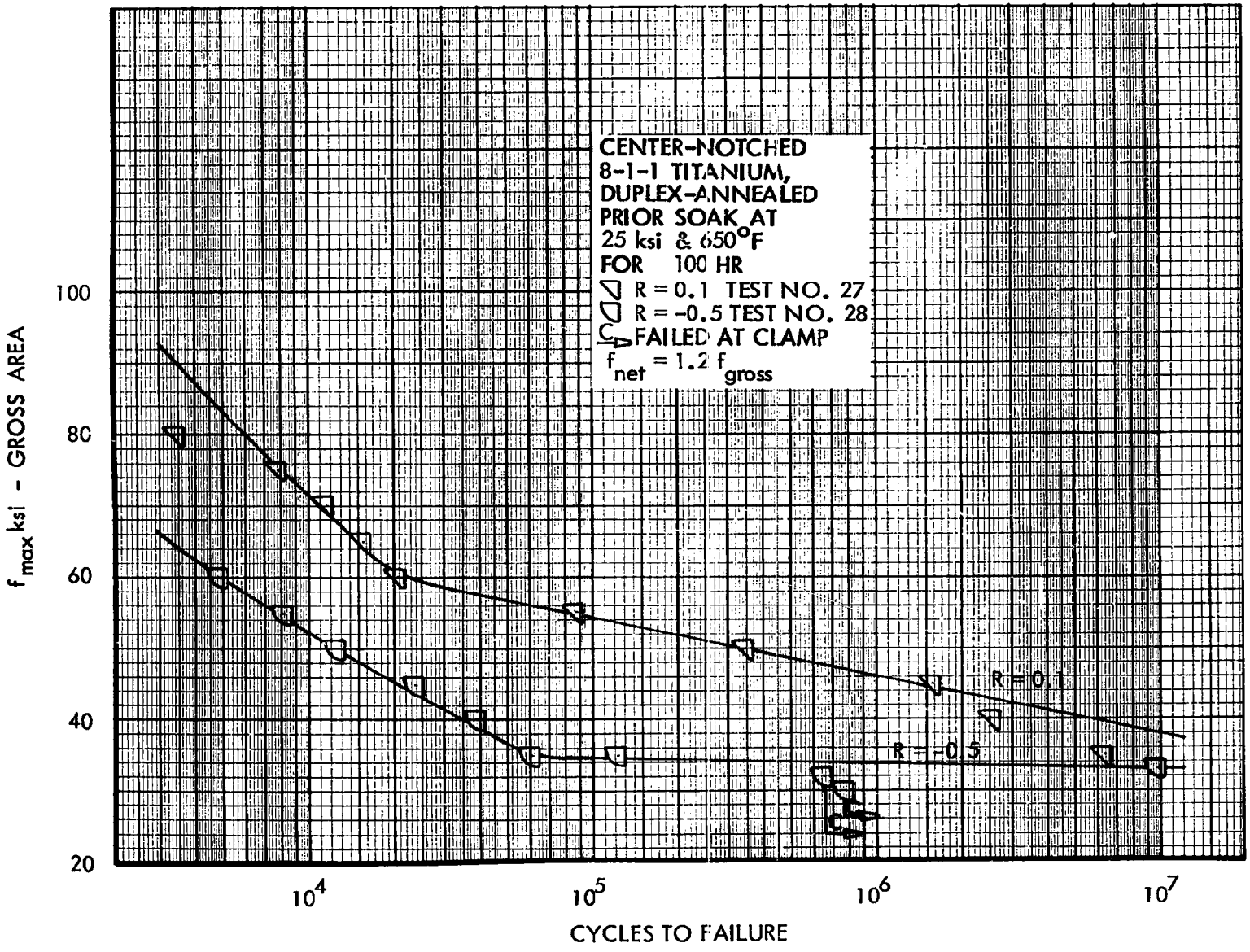



Figure 56. S-N Curves at 400°F, Center-Notched 8-1-1 Titanium, R = Constant

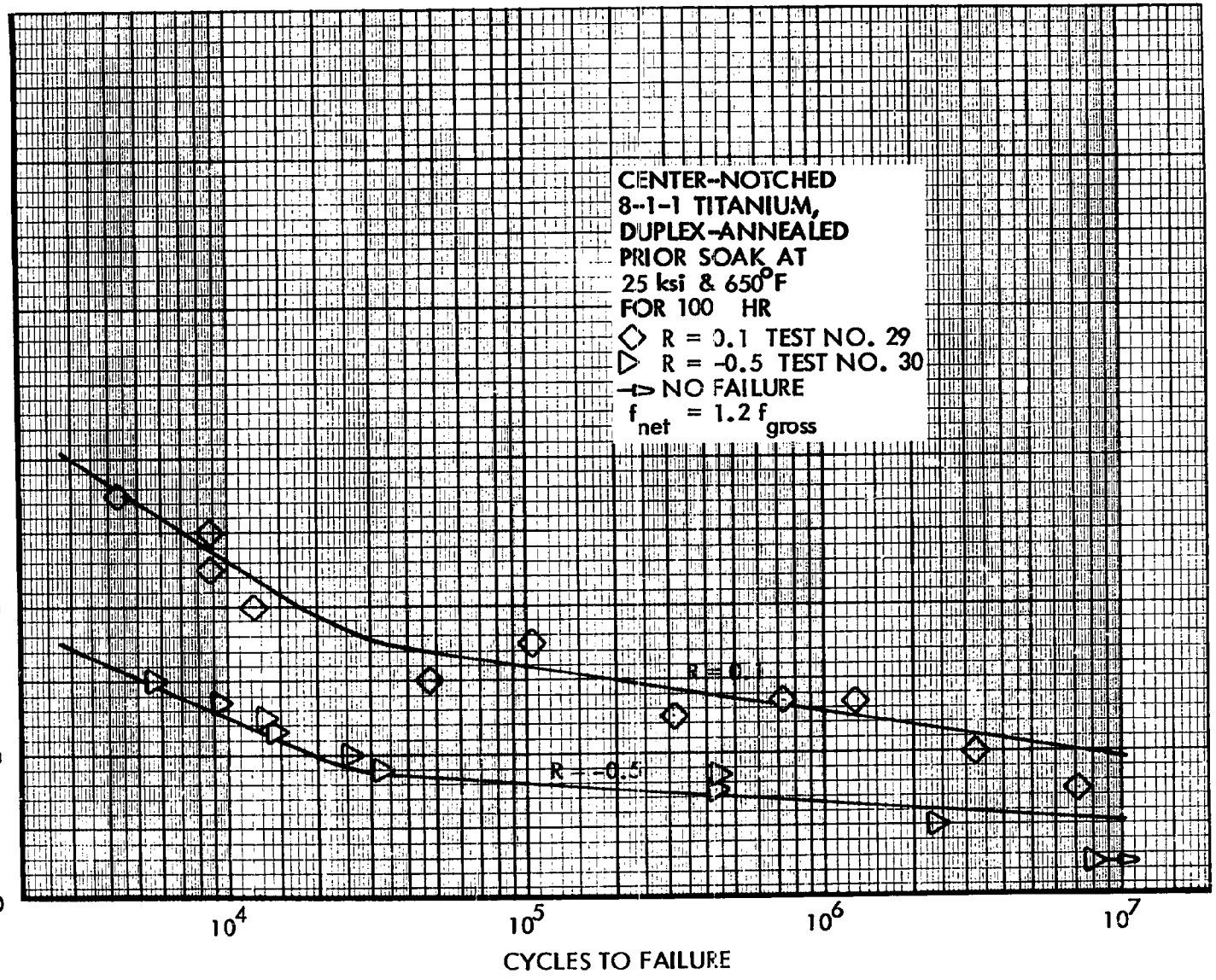



Figure 57. S-N Curves at 650°F, Center-Notched 8-1-1 Titanium, R = Constant

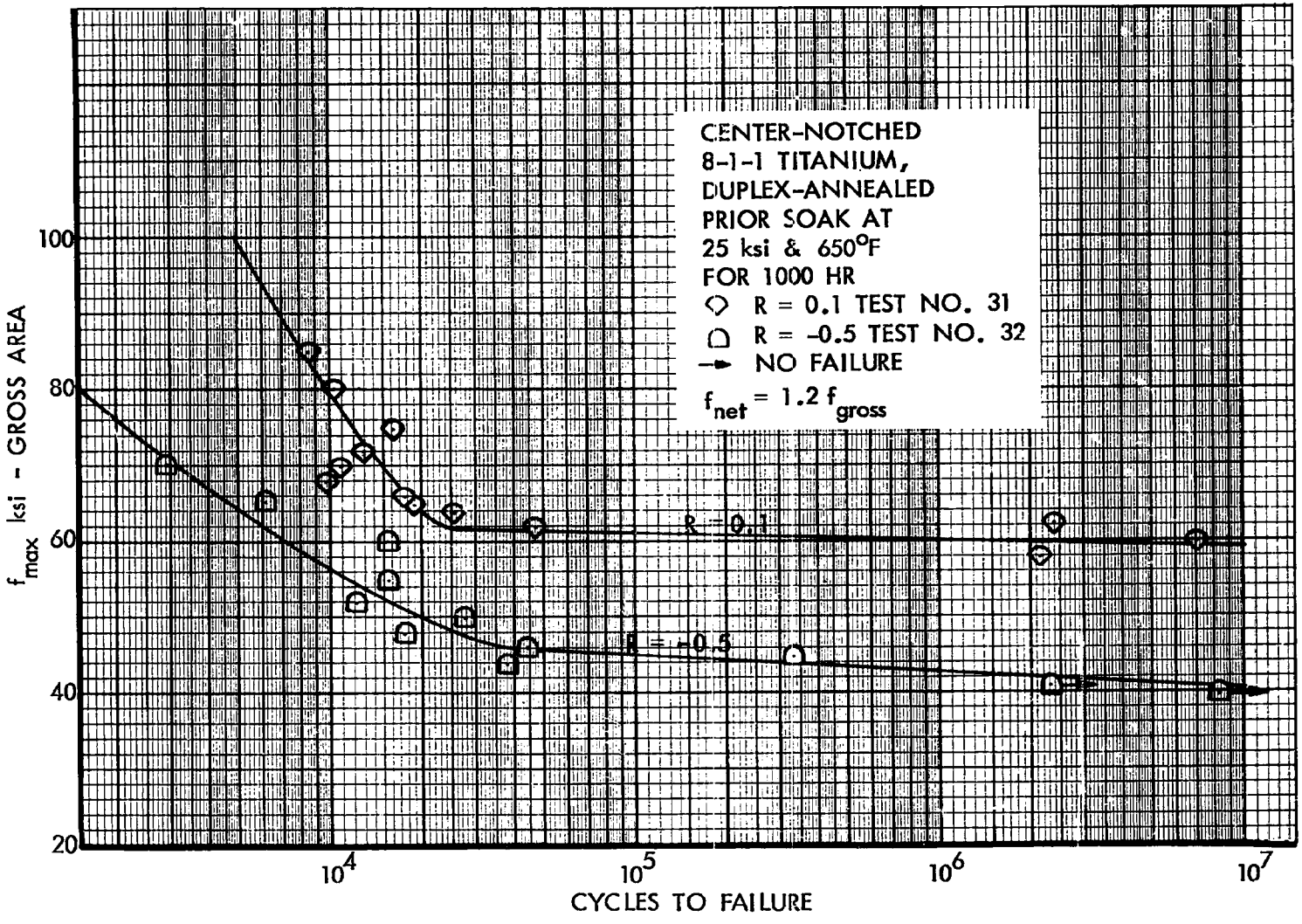



Figure 58. S-N Curves at Room Temperature, Center-Notched 8-1-1 Titanium, R = Constant

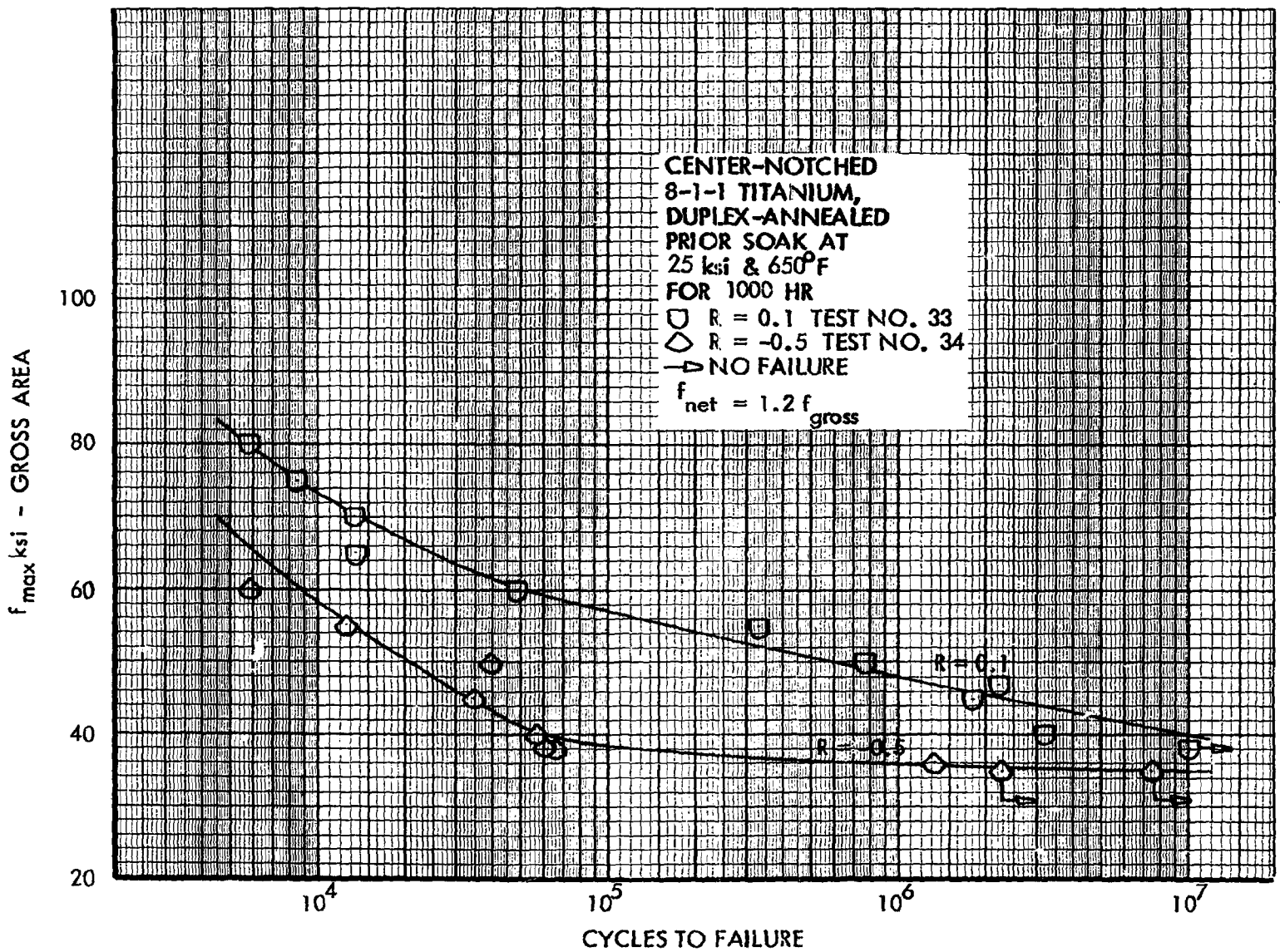



Figure 59 S-N Curves at 400°F, Center-Notched 8-1-1 Titanium, R = Constant

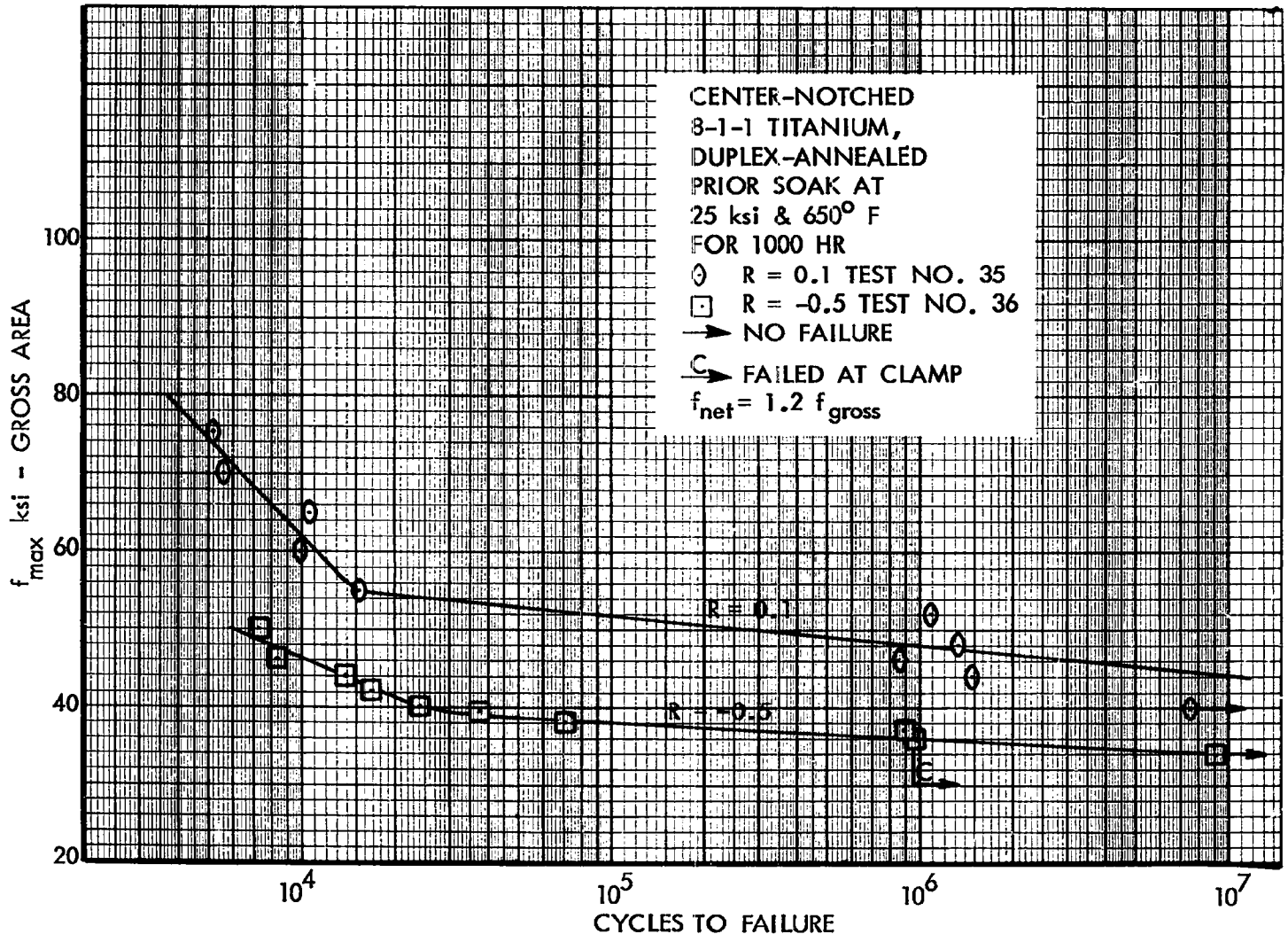



Figure 60. S-N Curves at 650°F, Center-Notched 8-1-1 Titanium, R = Constant

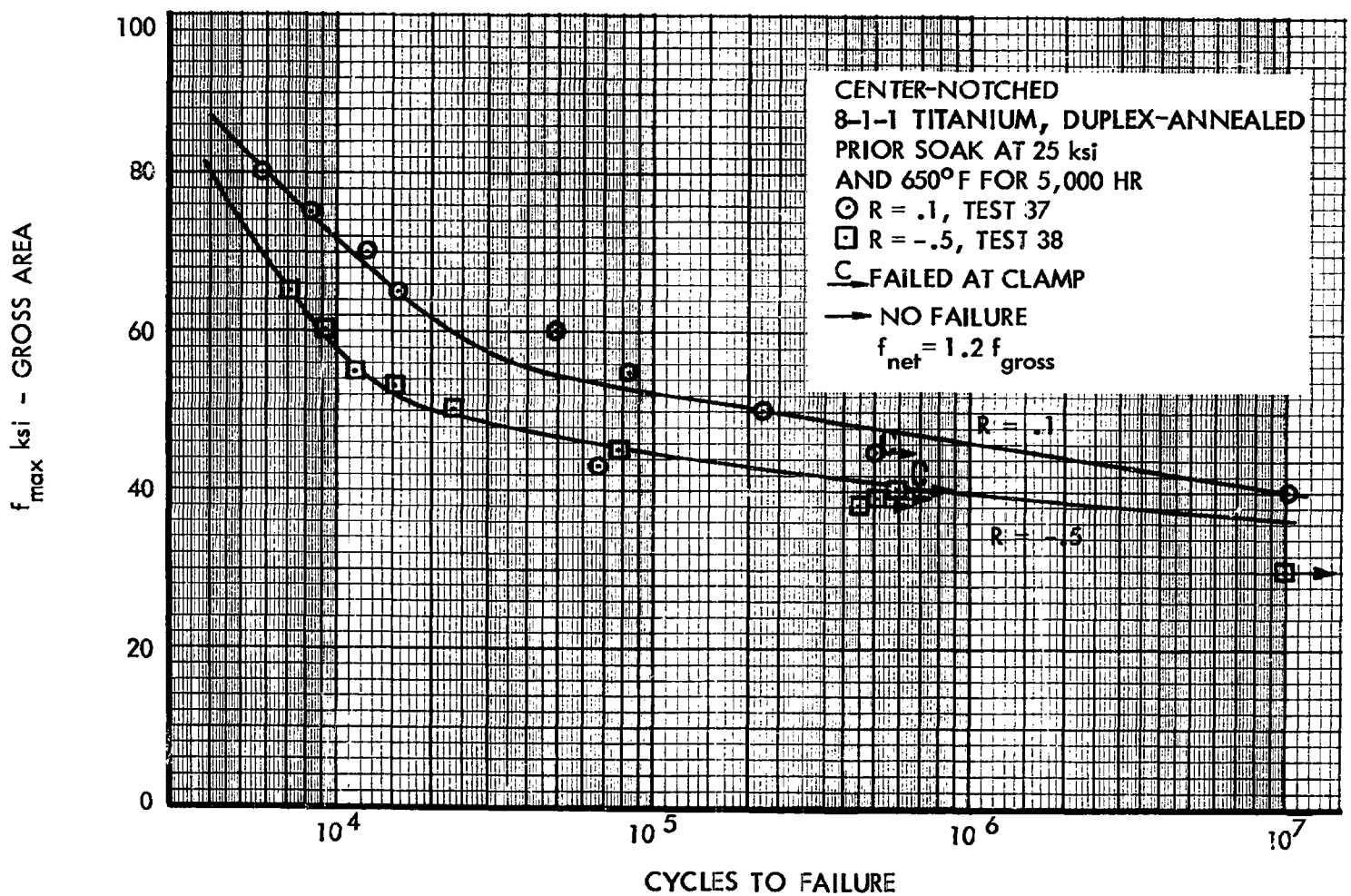



Figure 61. S-N Curves at Room Temperature, Center-Notched 8-1-1 Titanium, R = Constant

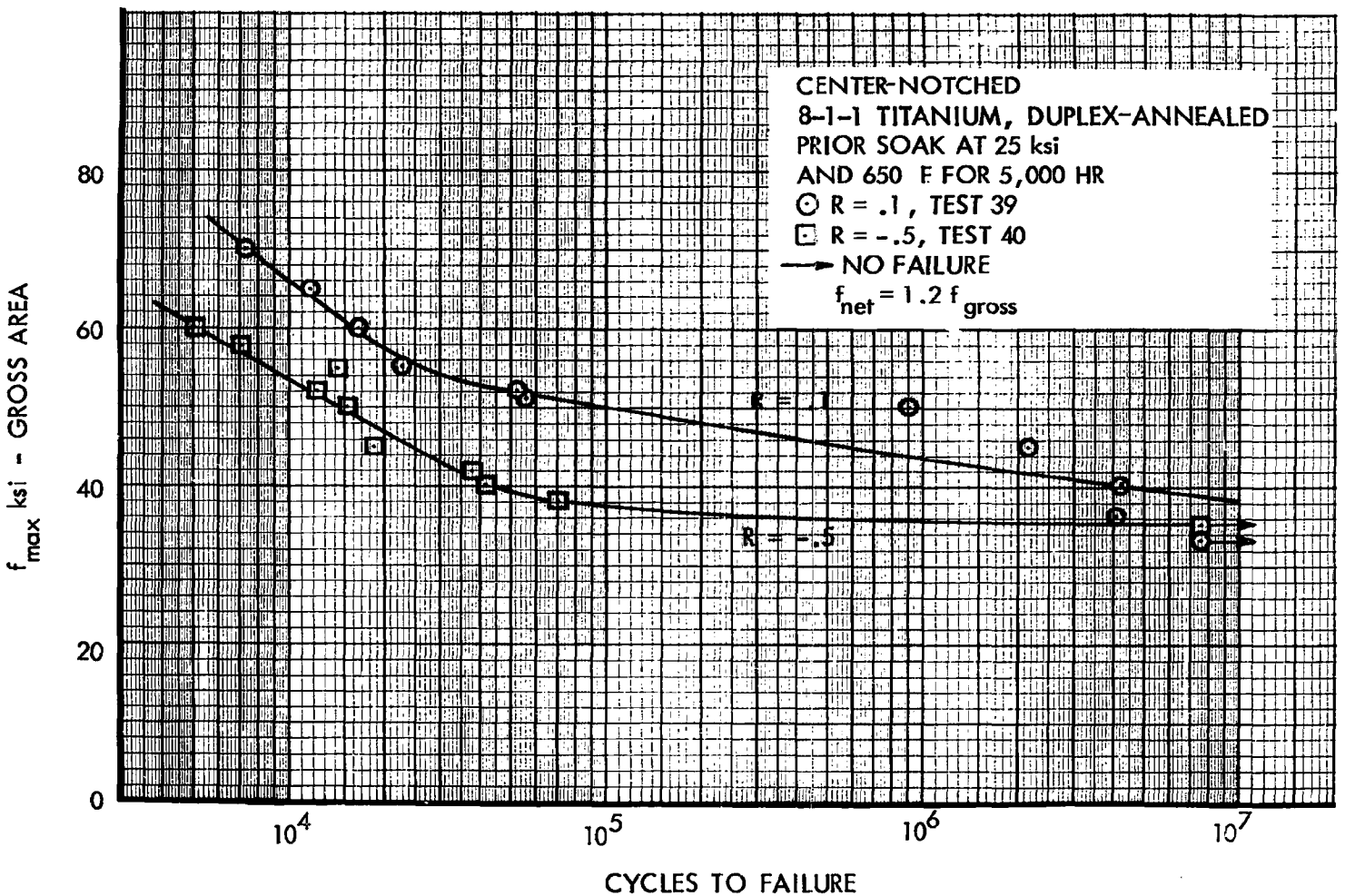



Figure 62. S-N Curves at 400°F, Center-Notched 8-1-1 Titanium, R = Constant

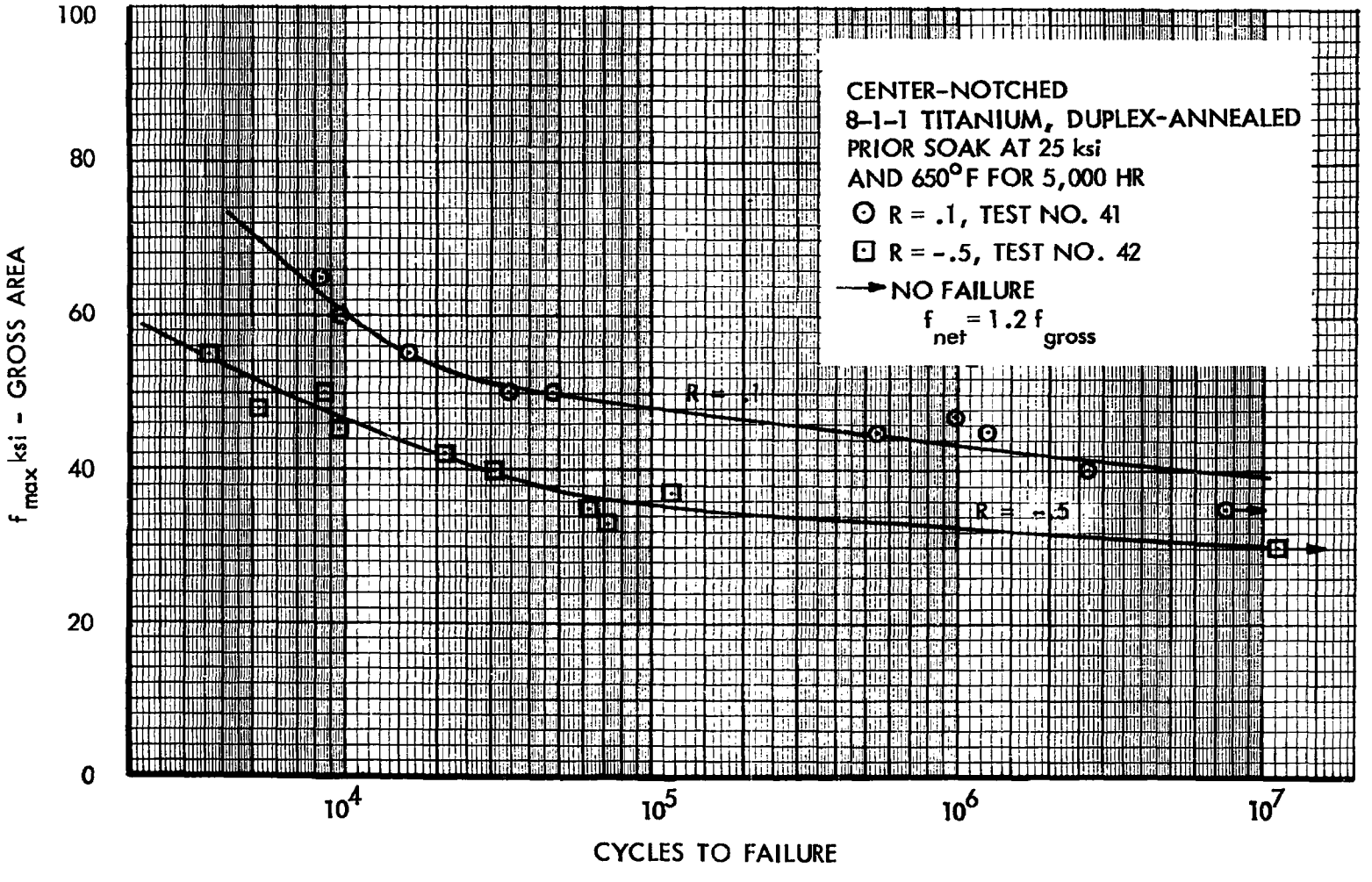



Figure 63. S-N Curves at 650°F, Center-Notched 8-1-1 Titanium, R = Constant

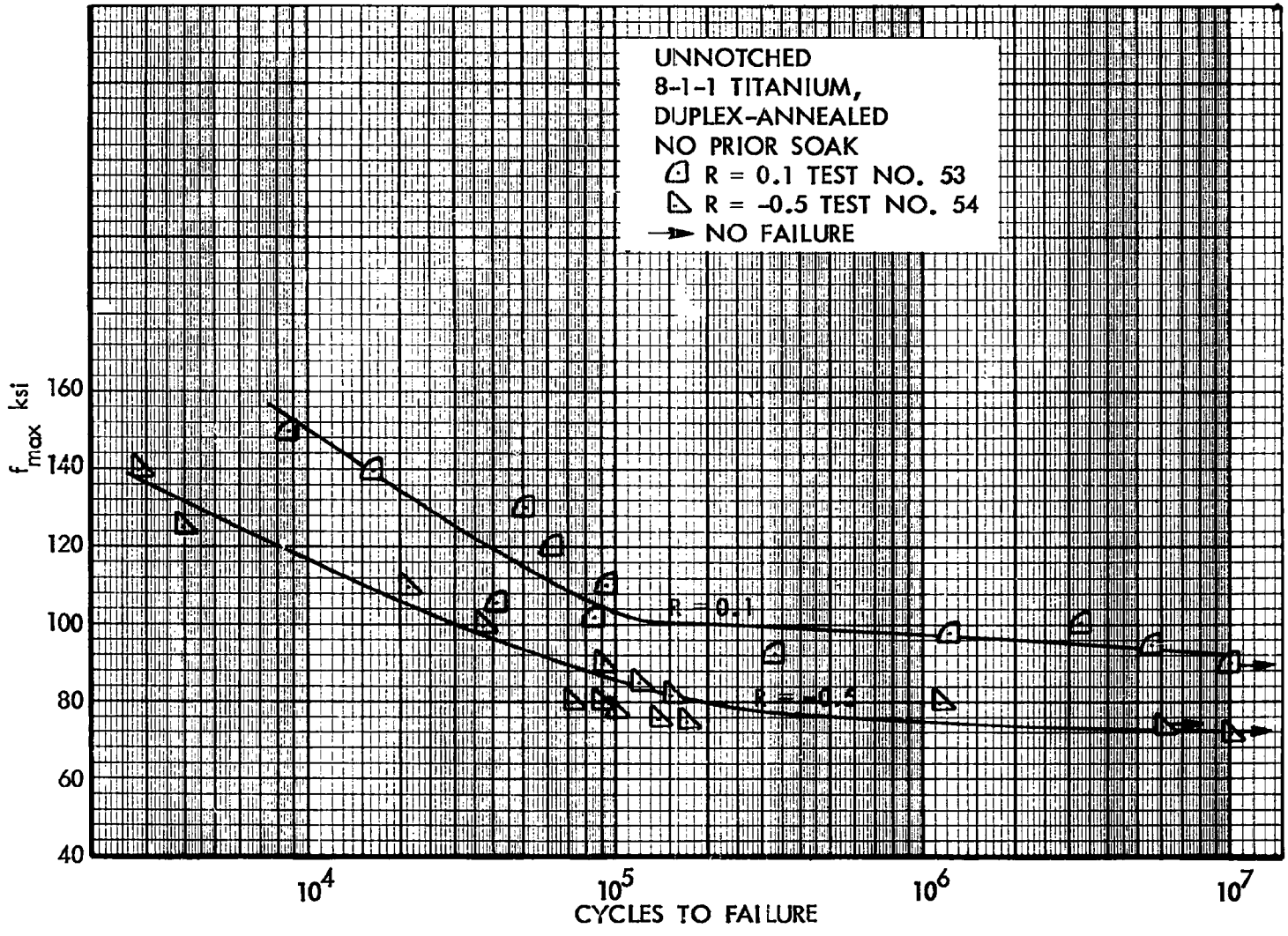



Figure 64. S-N Curves at Room Temperature, Unnotched 8-1-1 Titanium, R = Constant

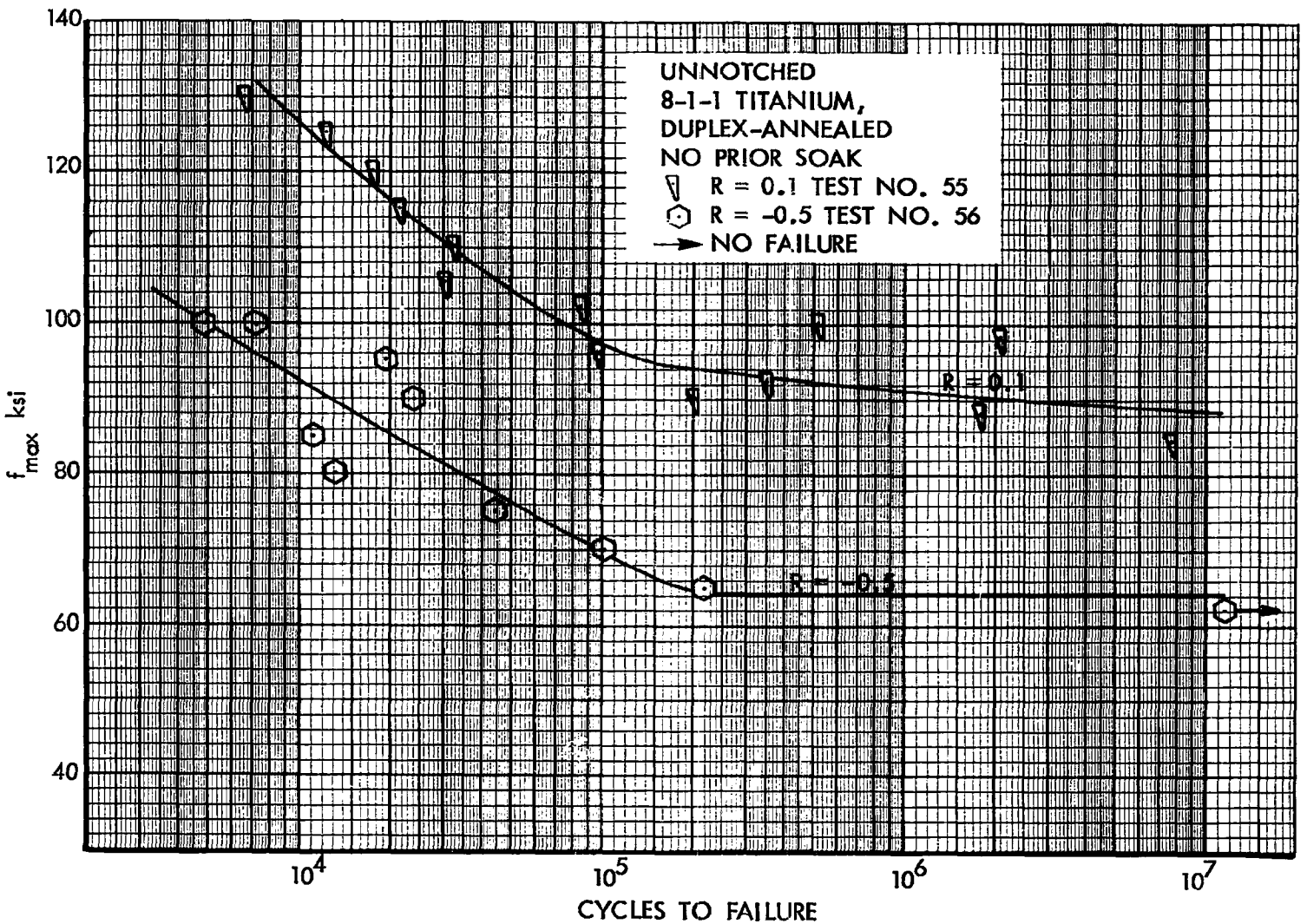



Figure 65. S-N Curves at 400°F, Unnotched 8-1-1 Titanium, R = Constant

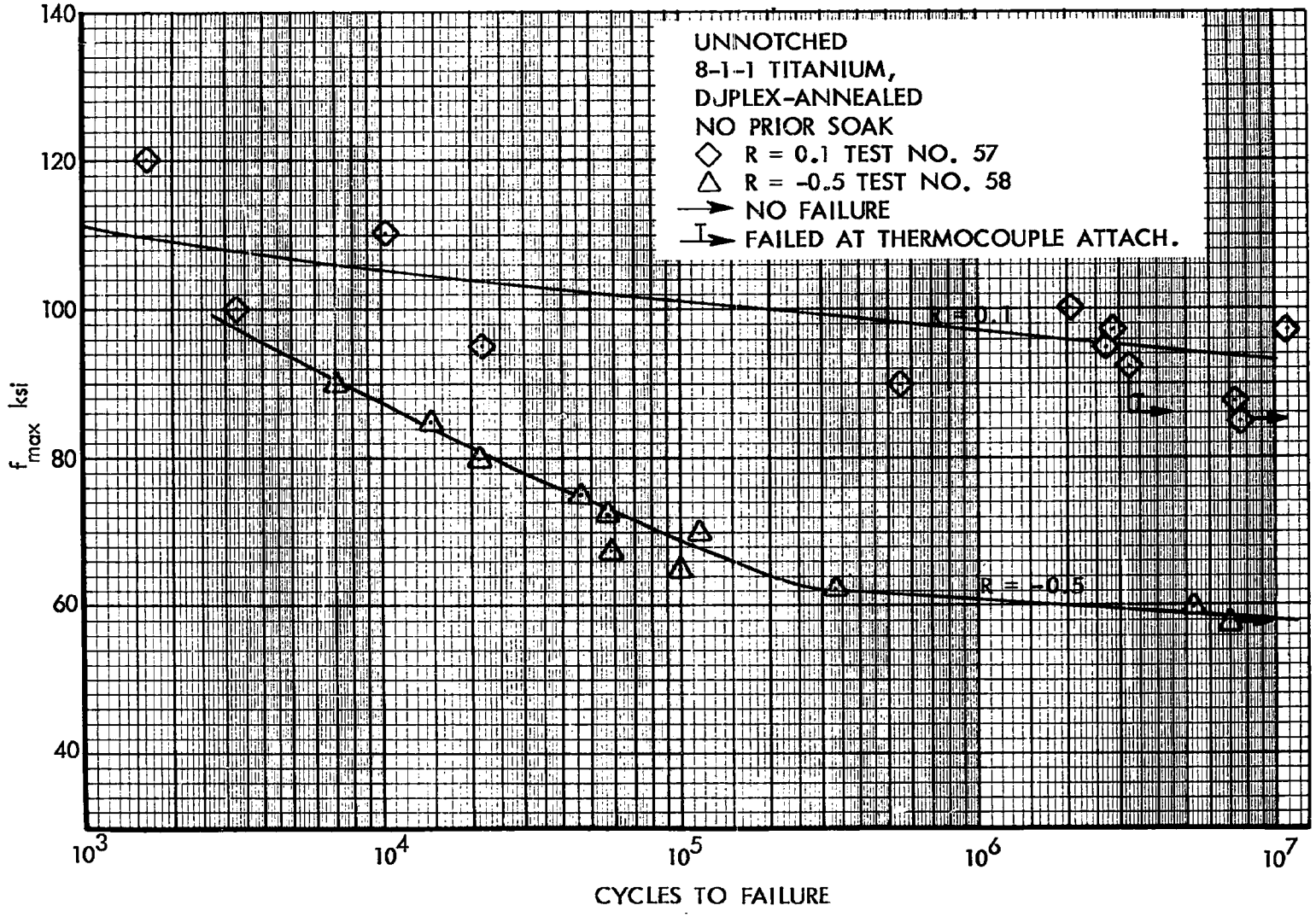



Figure 66. S-N Curves at 650°F, Unnotched 8-1-1 Titanium, R = Constant

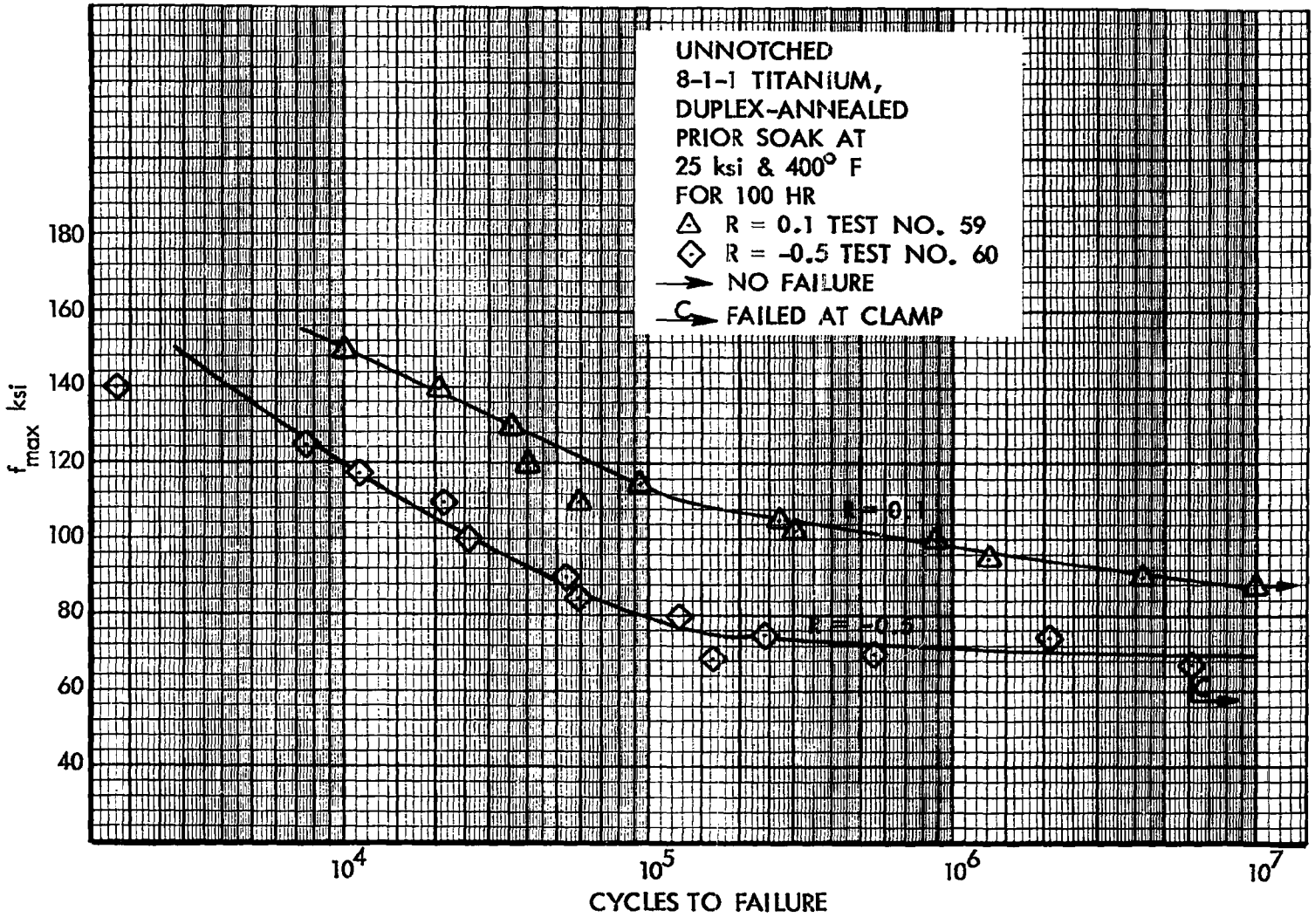



Figure 67. S-N Curves at Room Temperature, Unnotched 8-1-1 Titanium, R = Constant

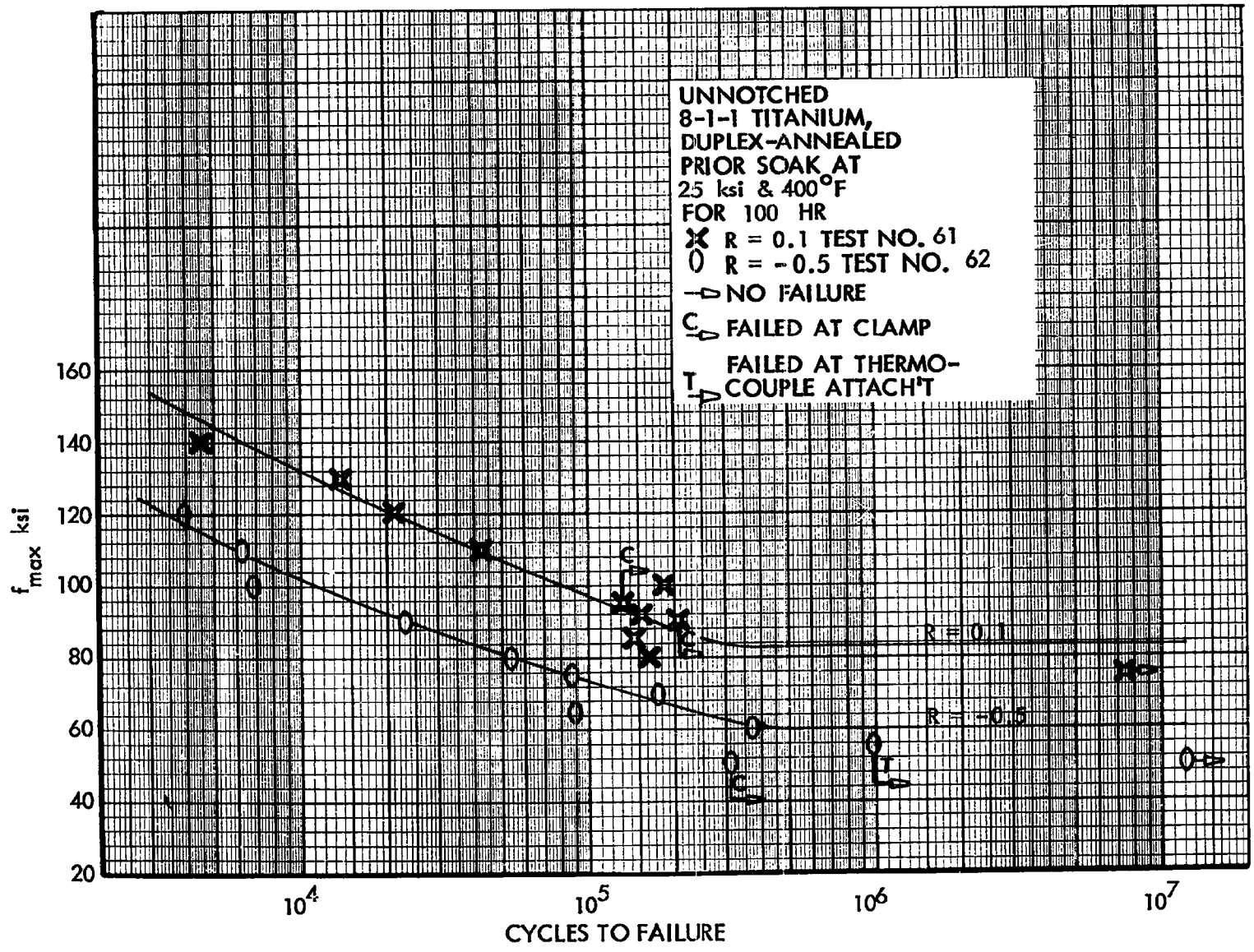



Figure 68. S-N Curves at 400°F, Unnotched 8-1-1 Titanium, R = Constant

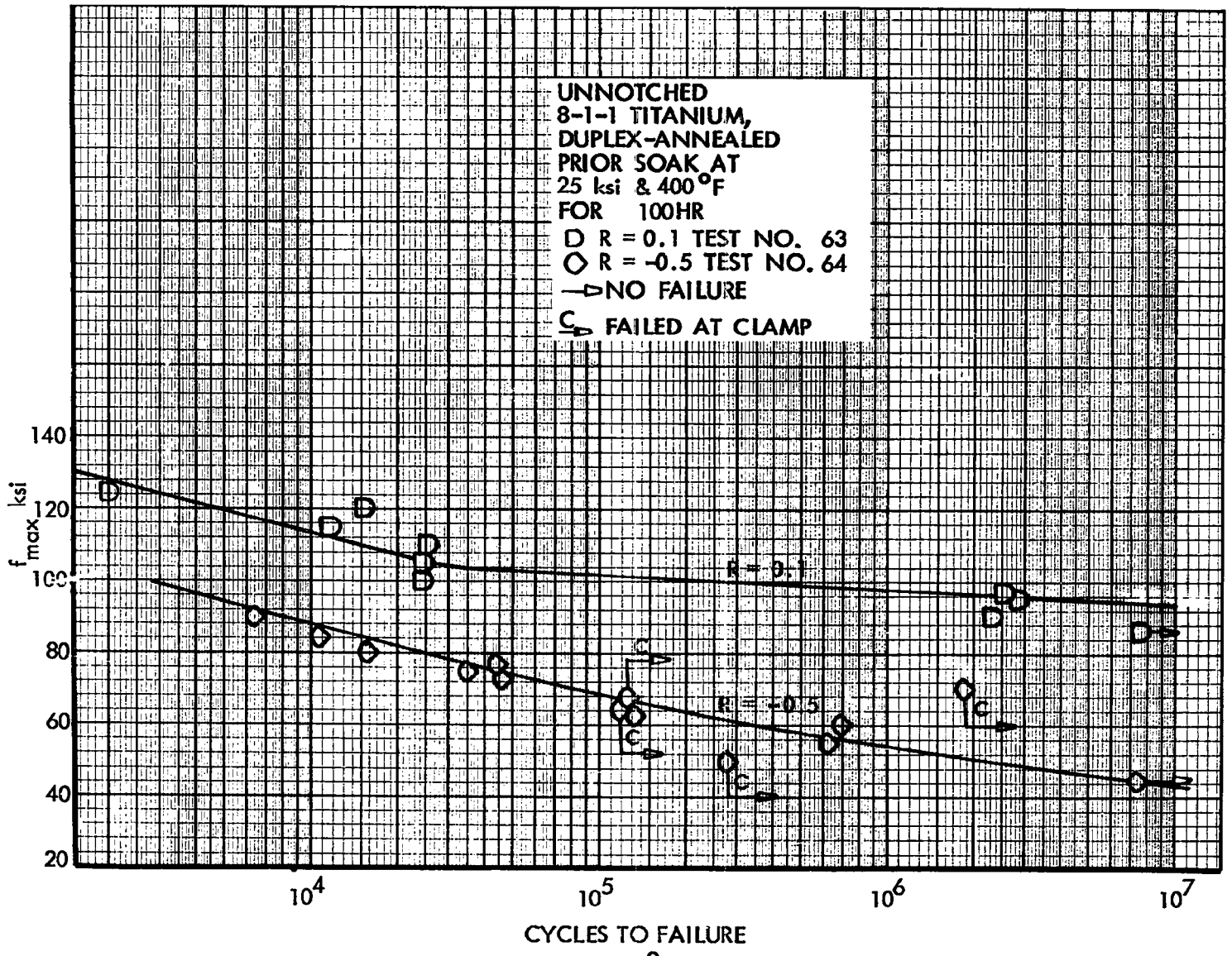



Figure 69. S-N Curves at 650°F, Unnotched 8-1-1 Titanium, R = Constant

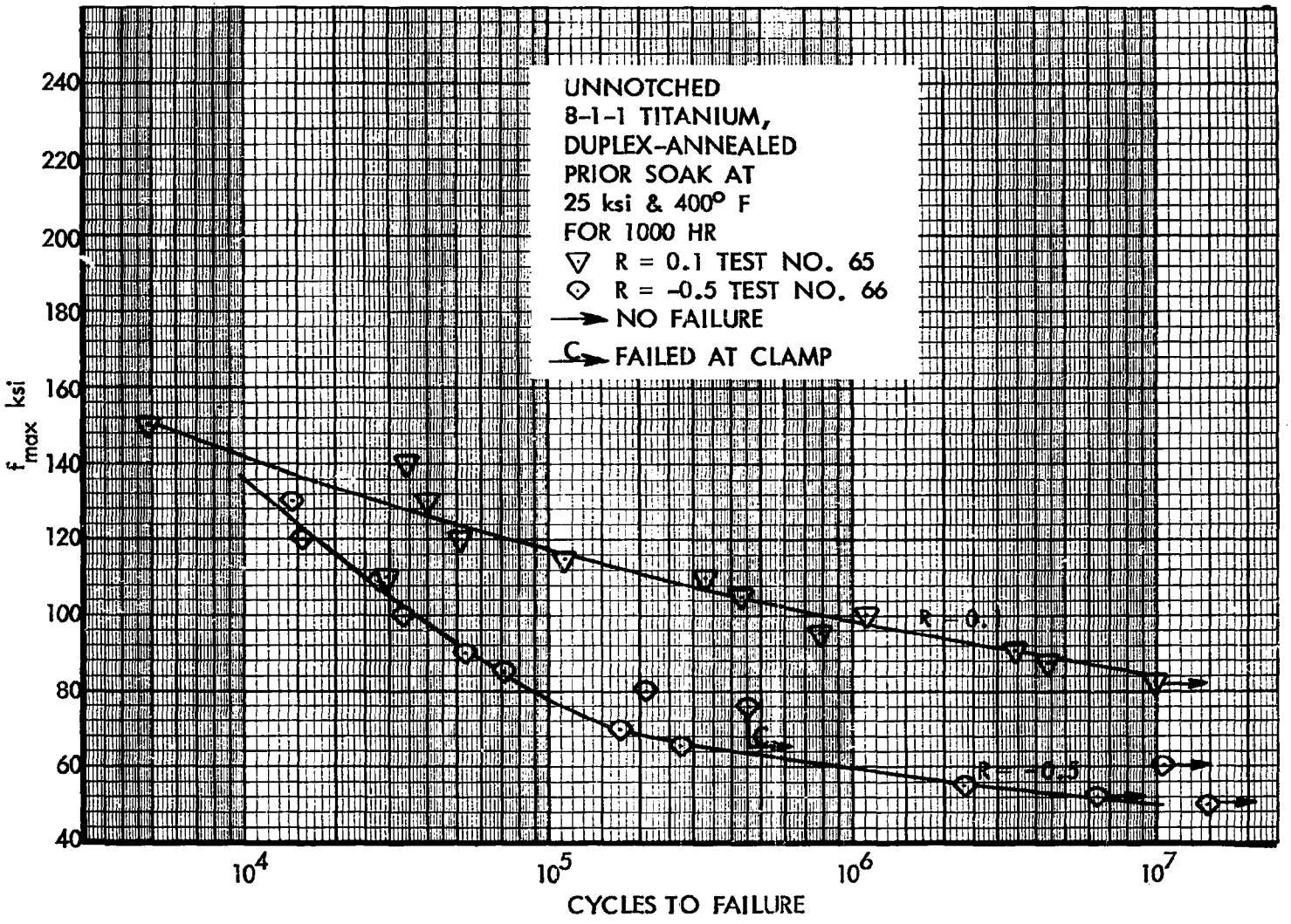



Figure 70. S-N Curves at Room Temperature, Unnotched 8-1-1 Titanium, R = Constant

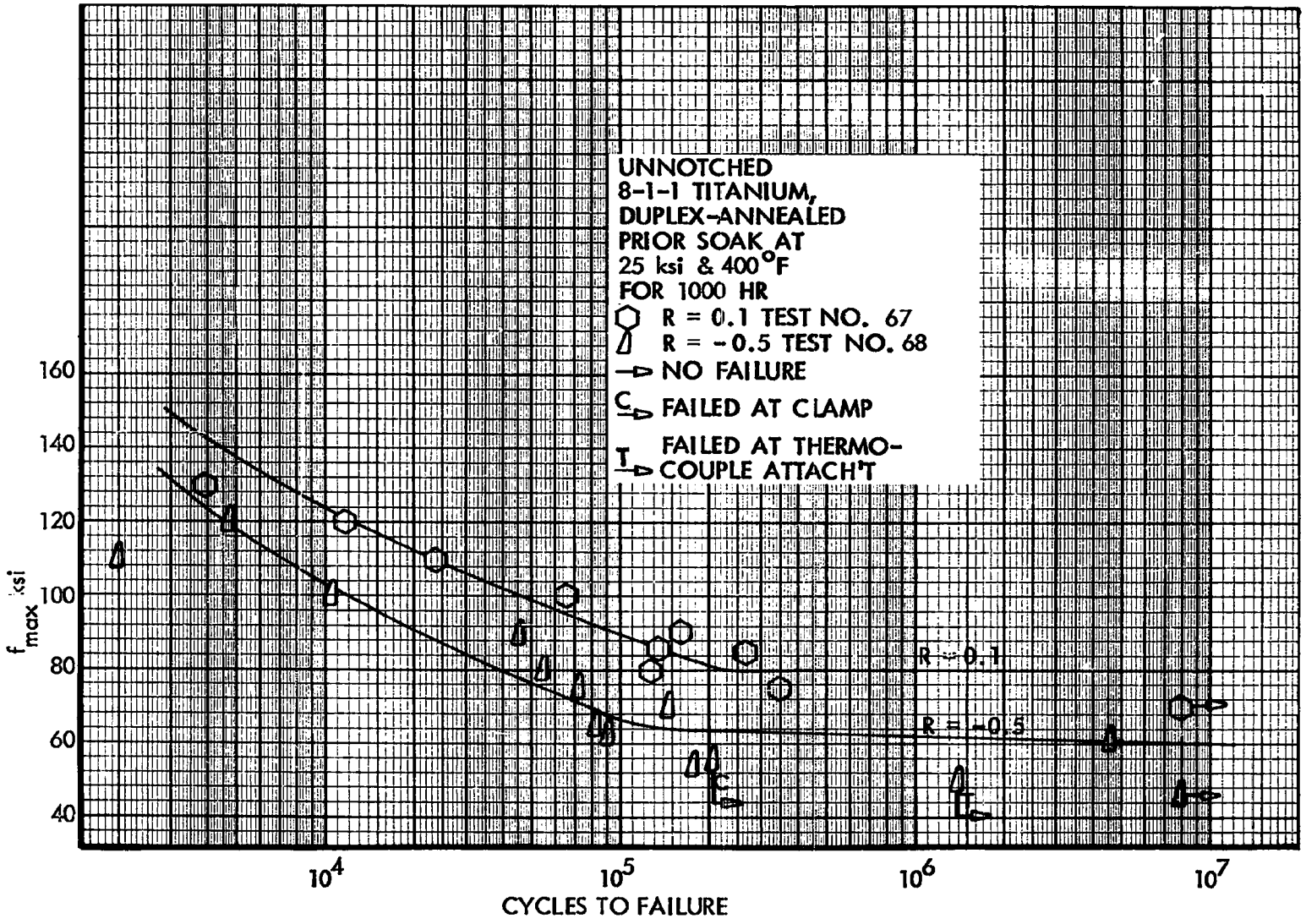



Figure 71. S-N Curves at 400°F, Unnotched 8-1-1 Titanium, R = Constant

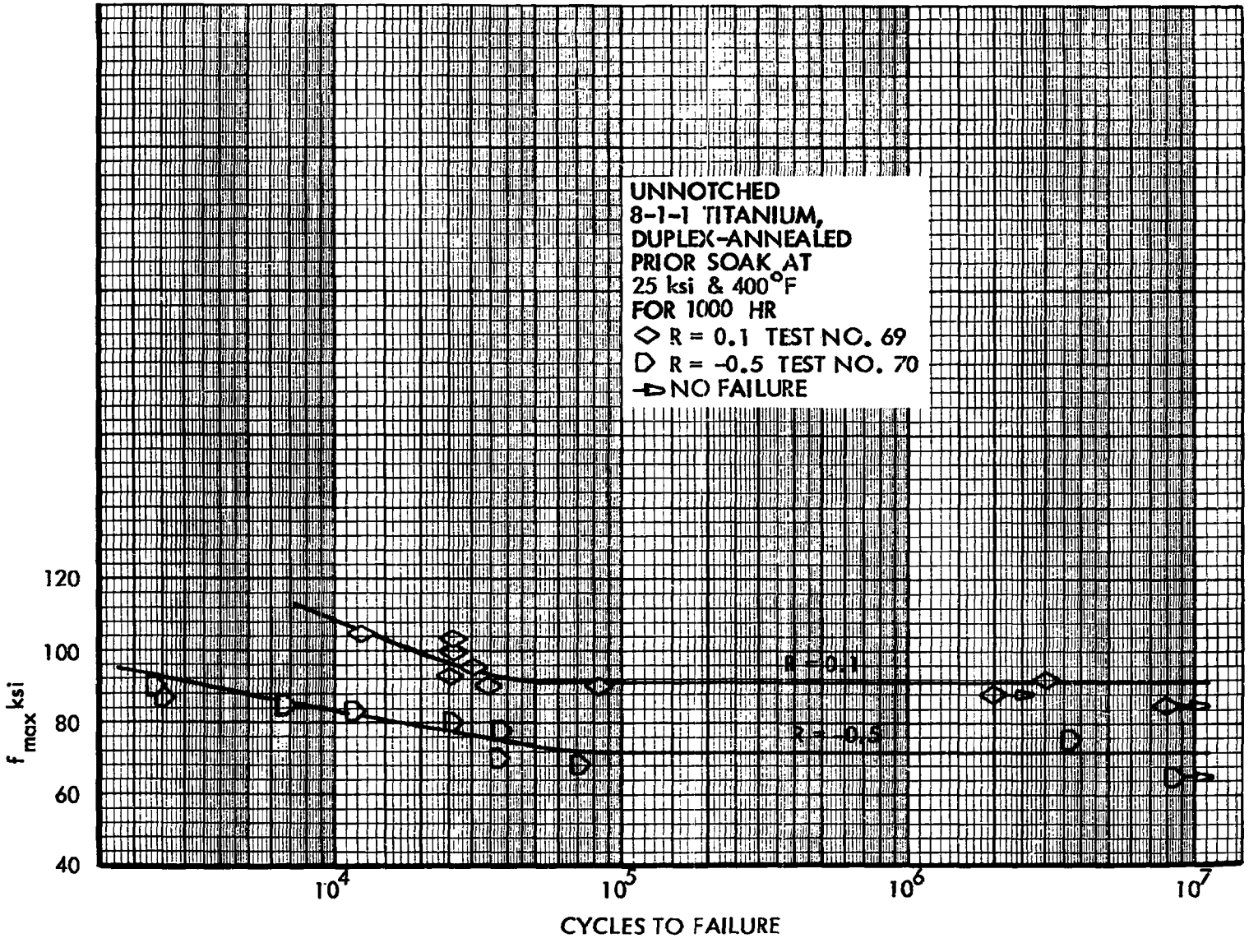



Figure 72. S-N Curves at 650°F, Unnotched 8-1-1 Titanium, R = Constant

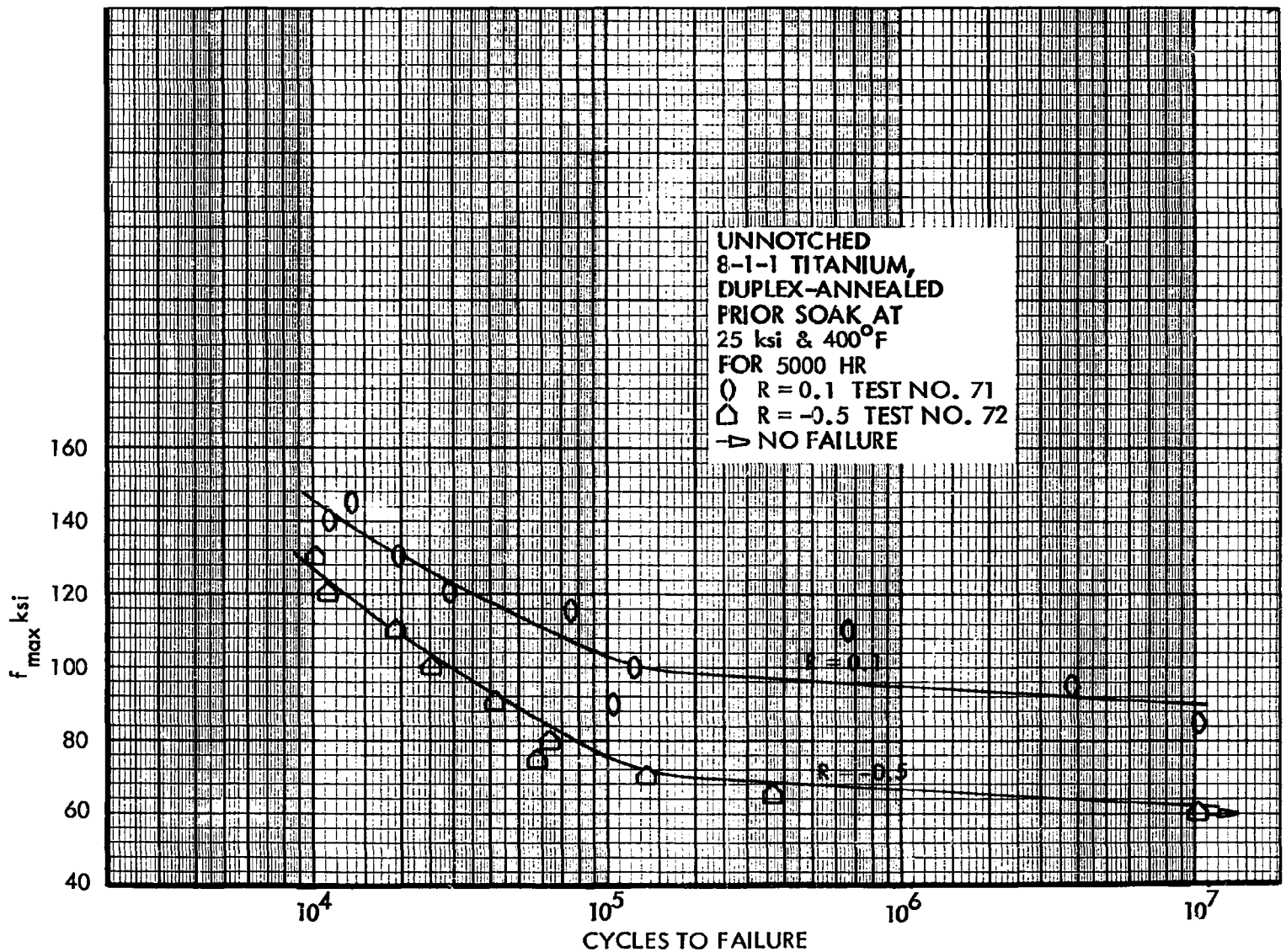



Figure 73. S-N Curves at Room Temperature, Unnotched 8-1-1 Titanium, R = Constant

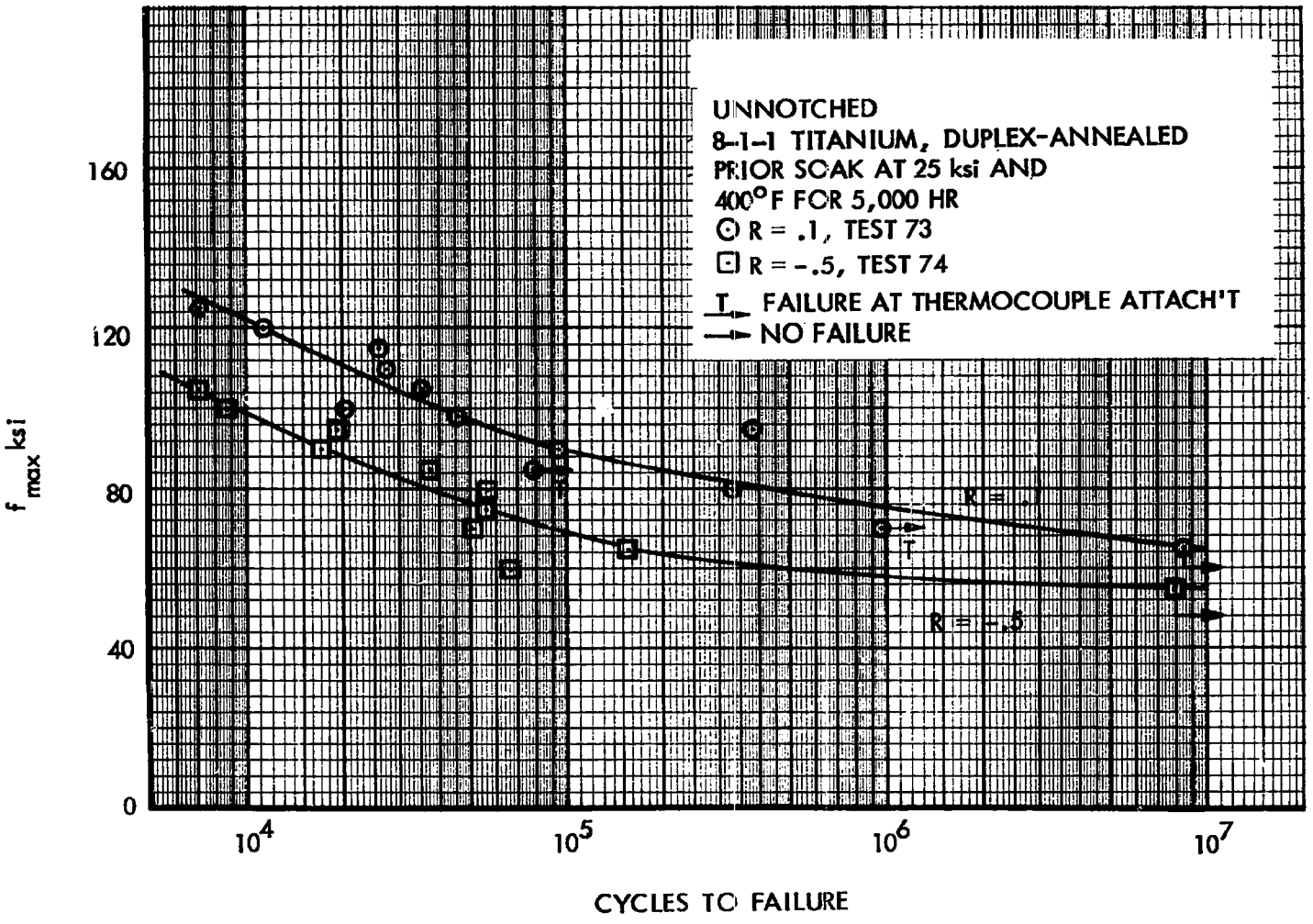



Figure 74. S-N Curves at 400°F, Unnotched 8-1-1 Titanium, R = Constant

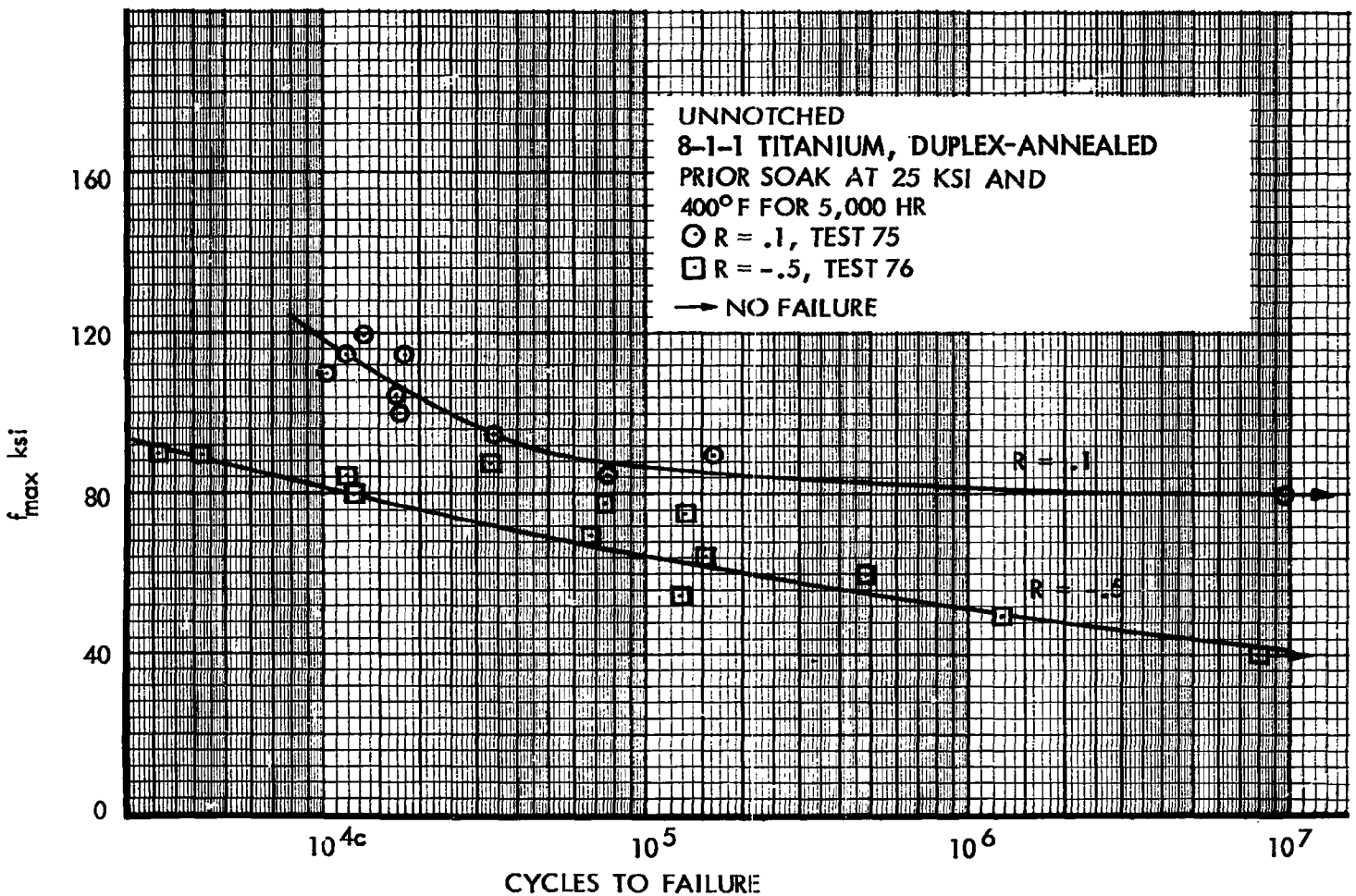



Figure 75. S-N Curves at 650°F, Unnotched 8-1-1 Titanium, R = Constant

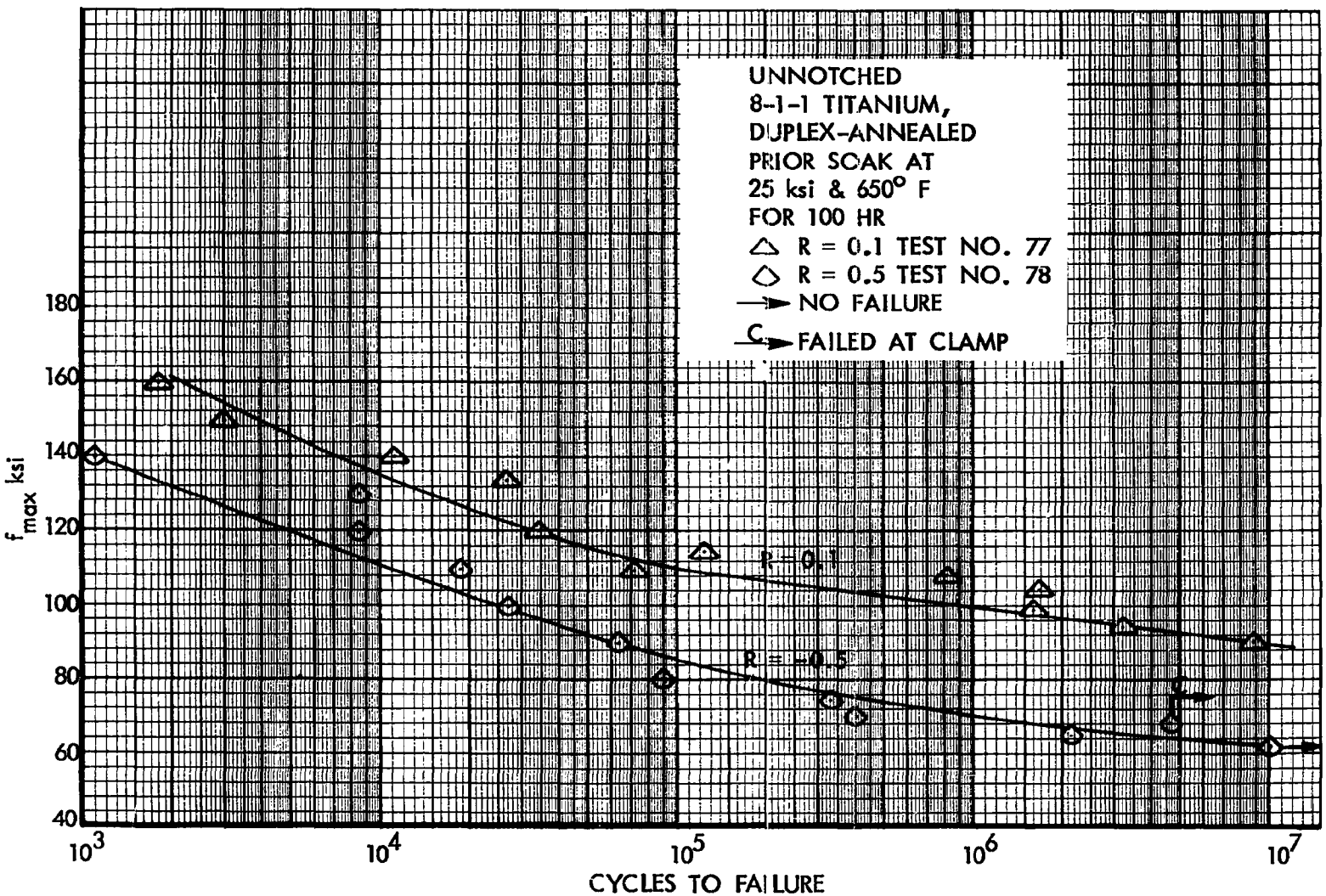



Figure 76. S-N Curves at Room Temperature, Unnotched 8-1-1 Titanium, R = Constant

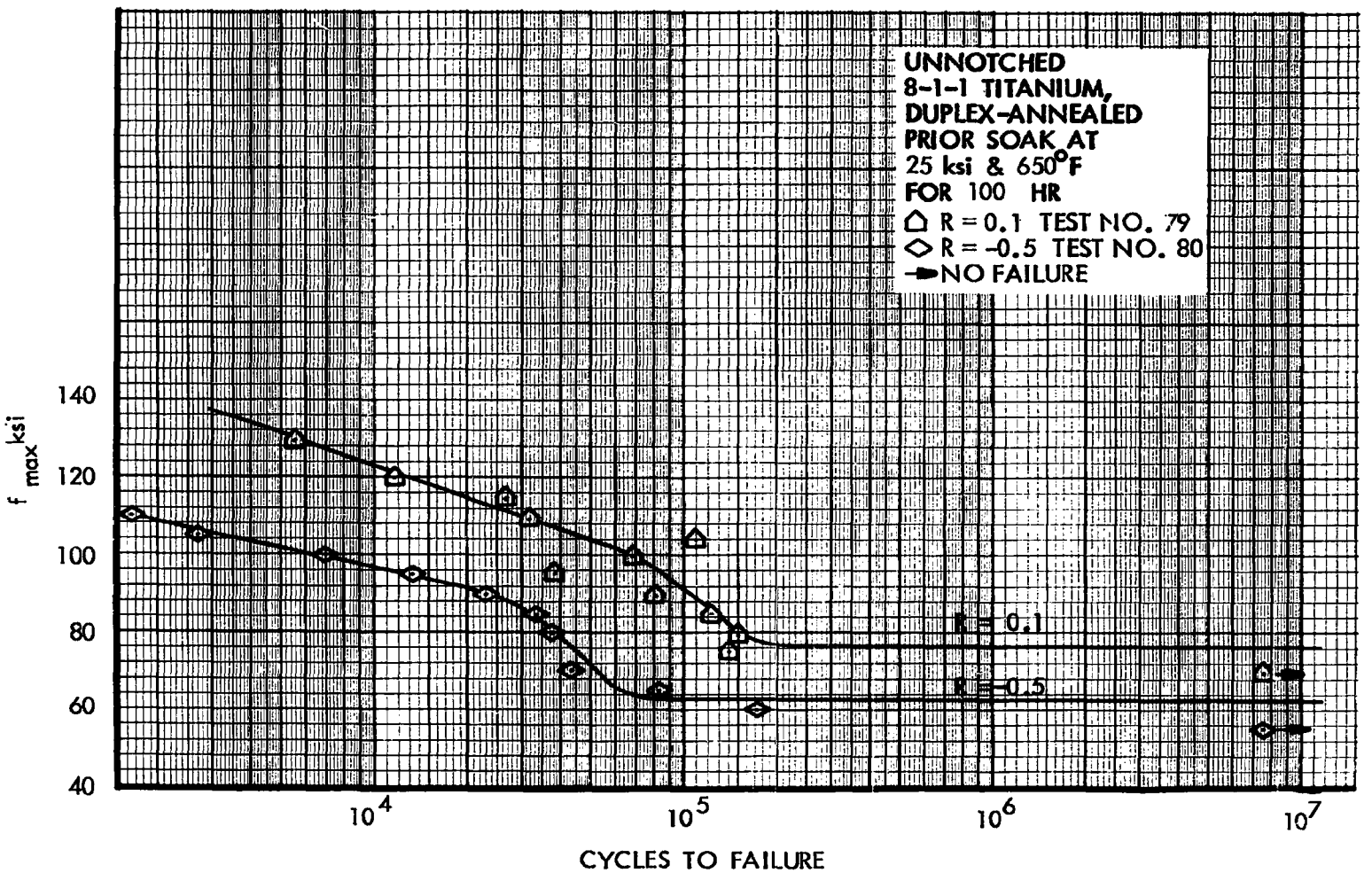



Figure 77. S-N Curves at 400°F, Unnotched 8-1-1 Titanium, R = Constant

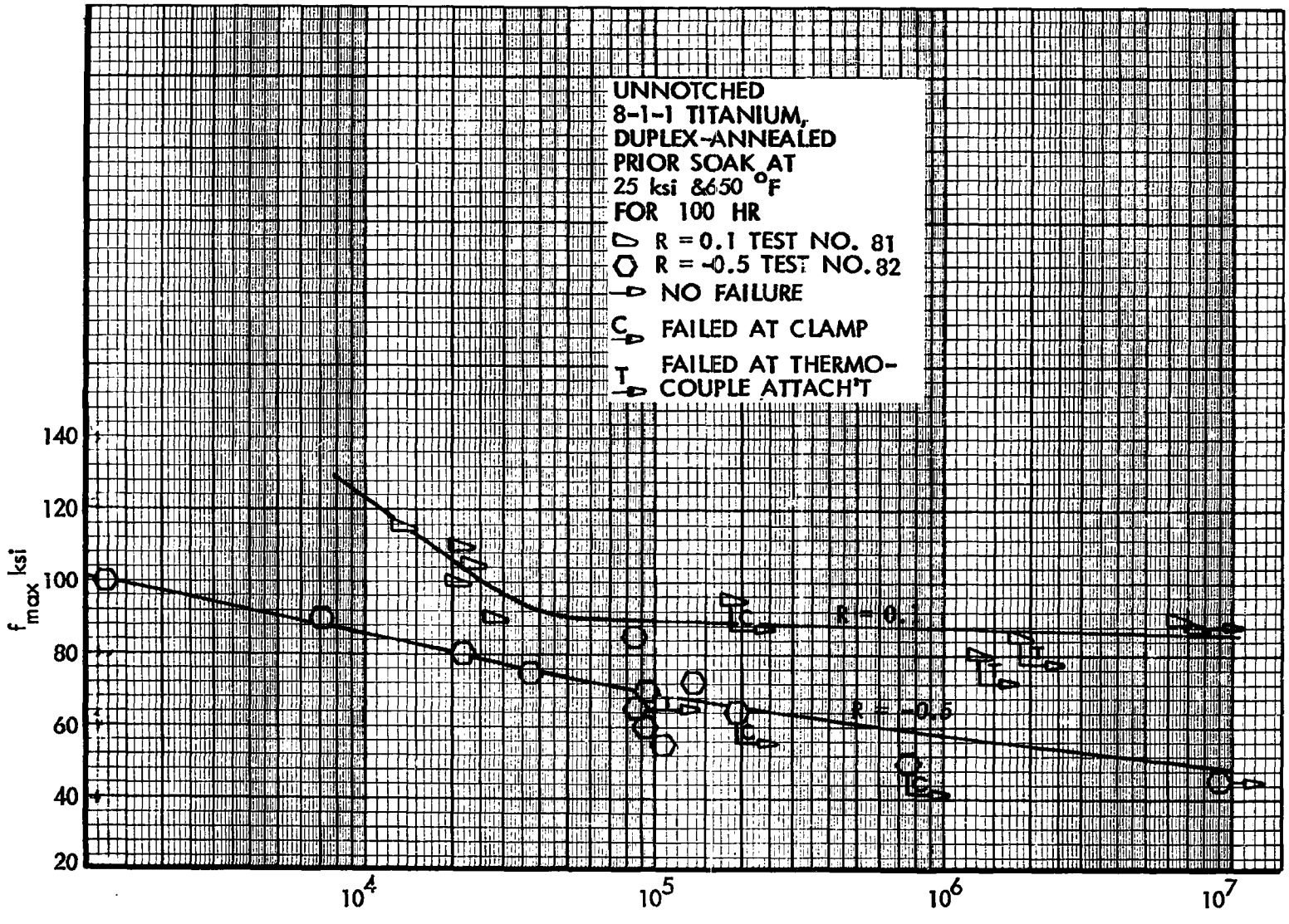



Figure 78. S-N Curves at 650°F, Unnotched 8-1-1 Titanium, R = Constant

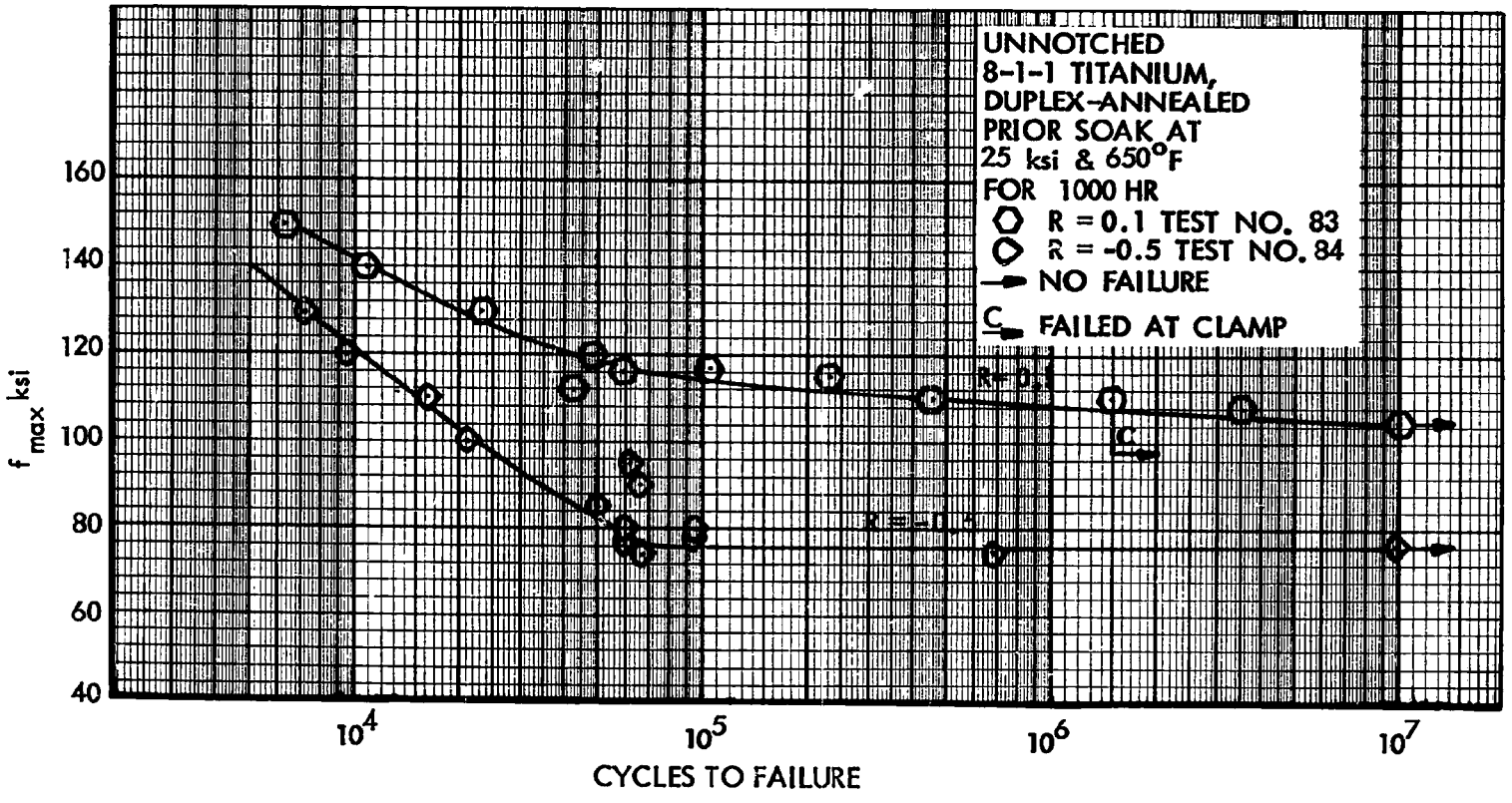



Figure 79. S-N Curves at Room Temperature, Unnotched 8-1-1 Titanium, R = Constant

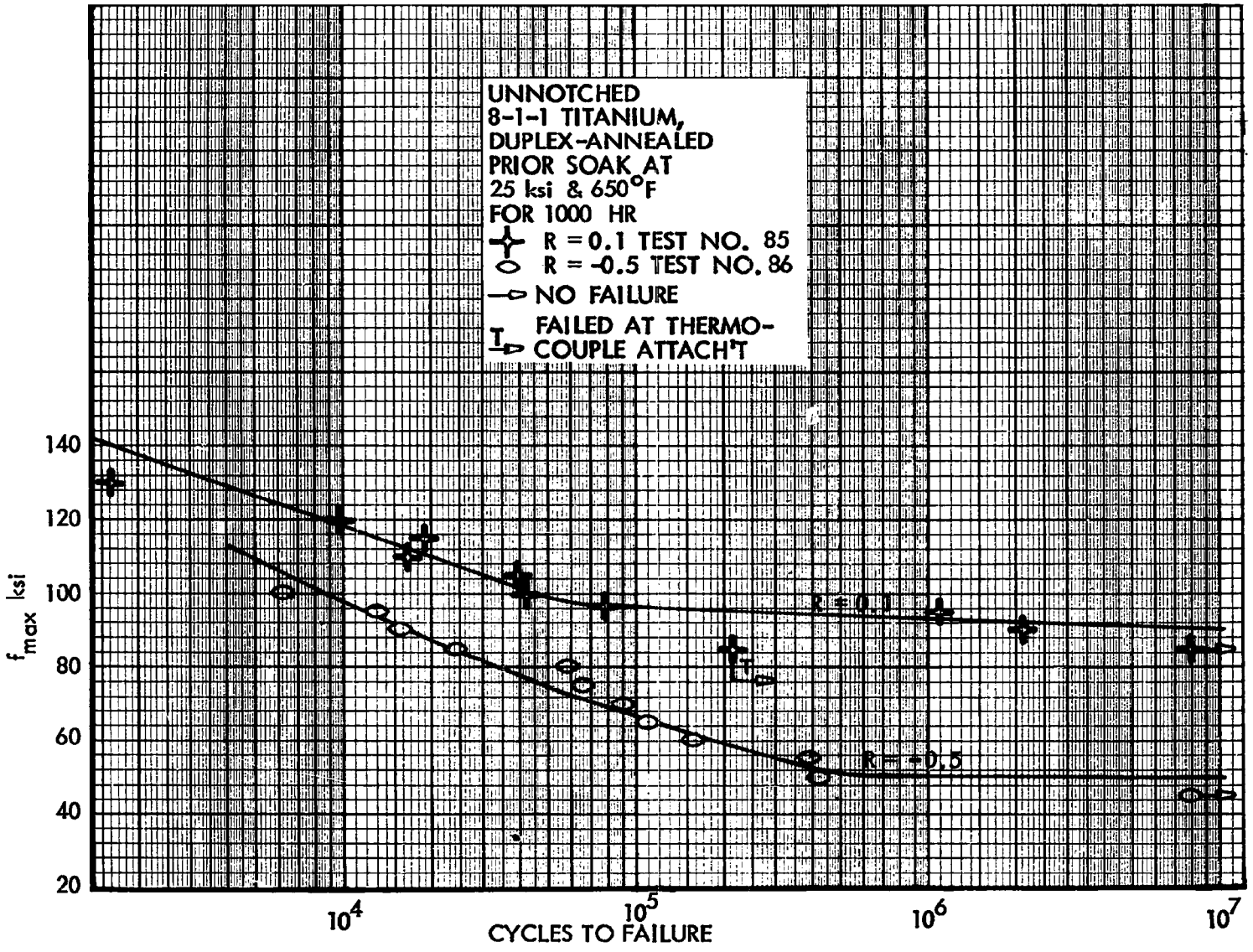



Figure 80. S-N Curves at 400°F, Unnotched 8-1-1 Titanium, R = Constant

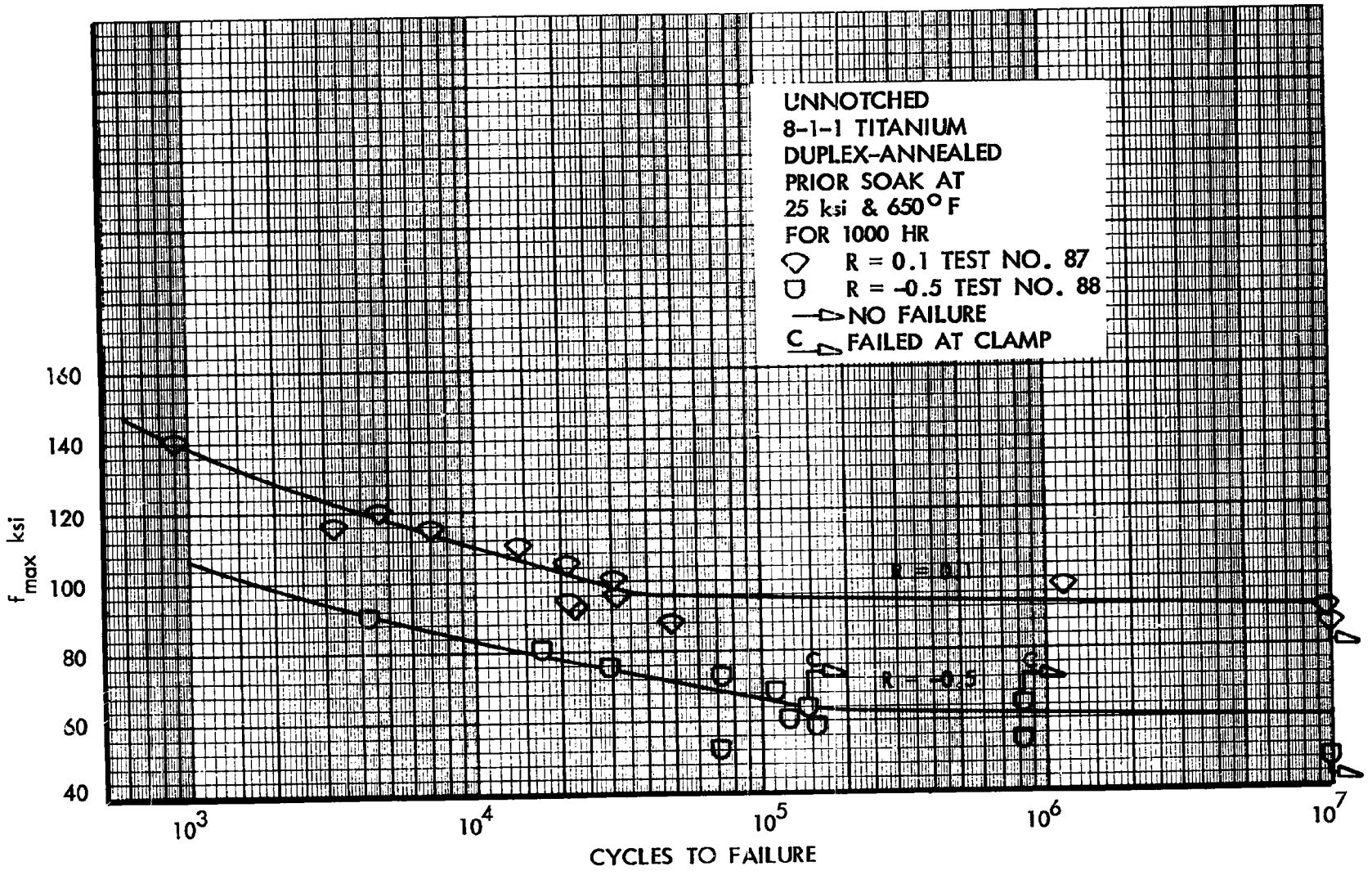



Figure 81. S-N Curves at 650°F, Unnotched 8-1-1 Titanium, R = Constant

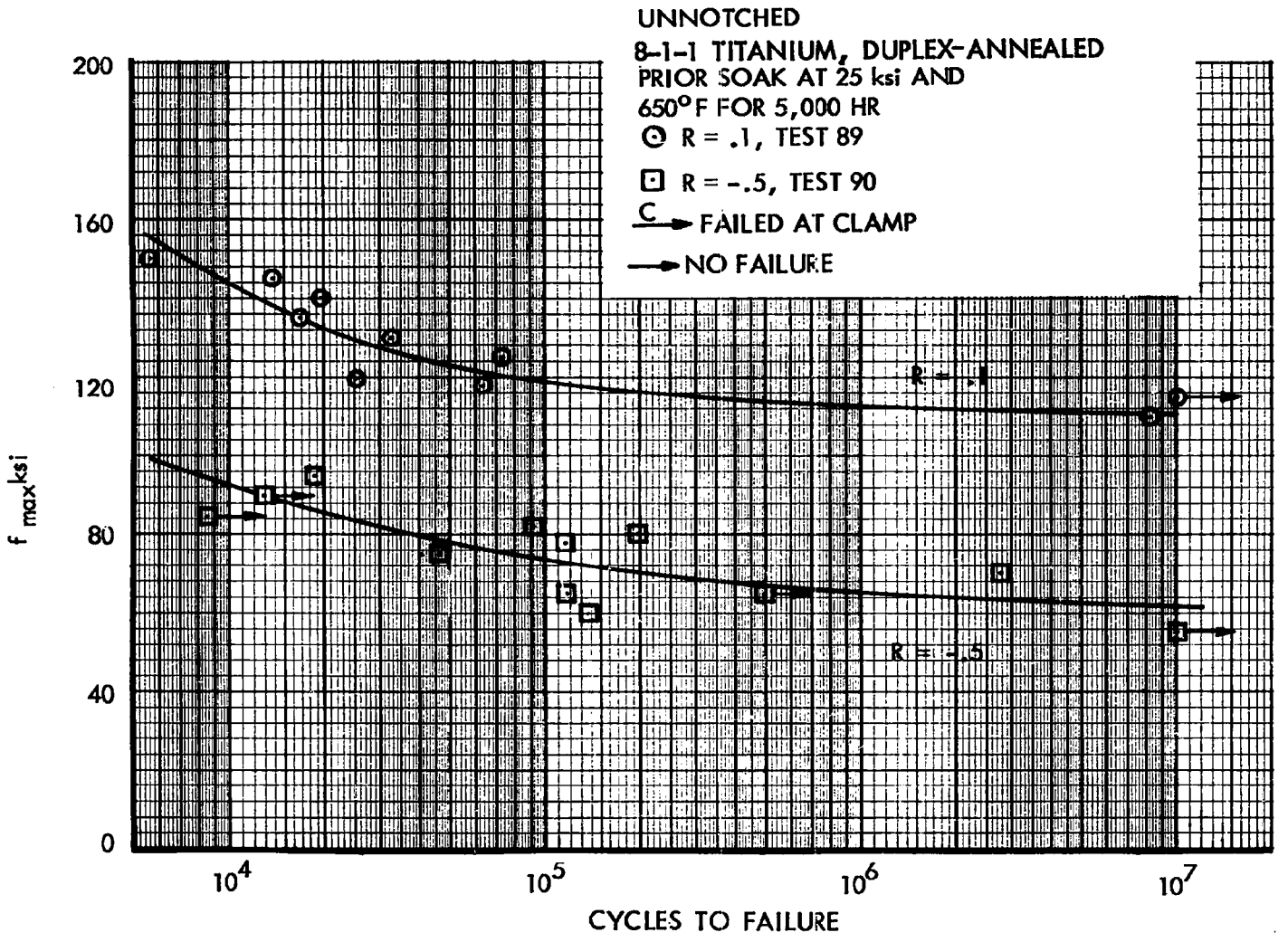



Figure 82. S-N Curves at Room Temperature, Unnotched 8-1-1 Titanium, R = Constant

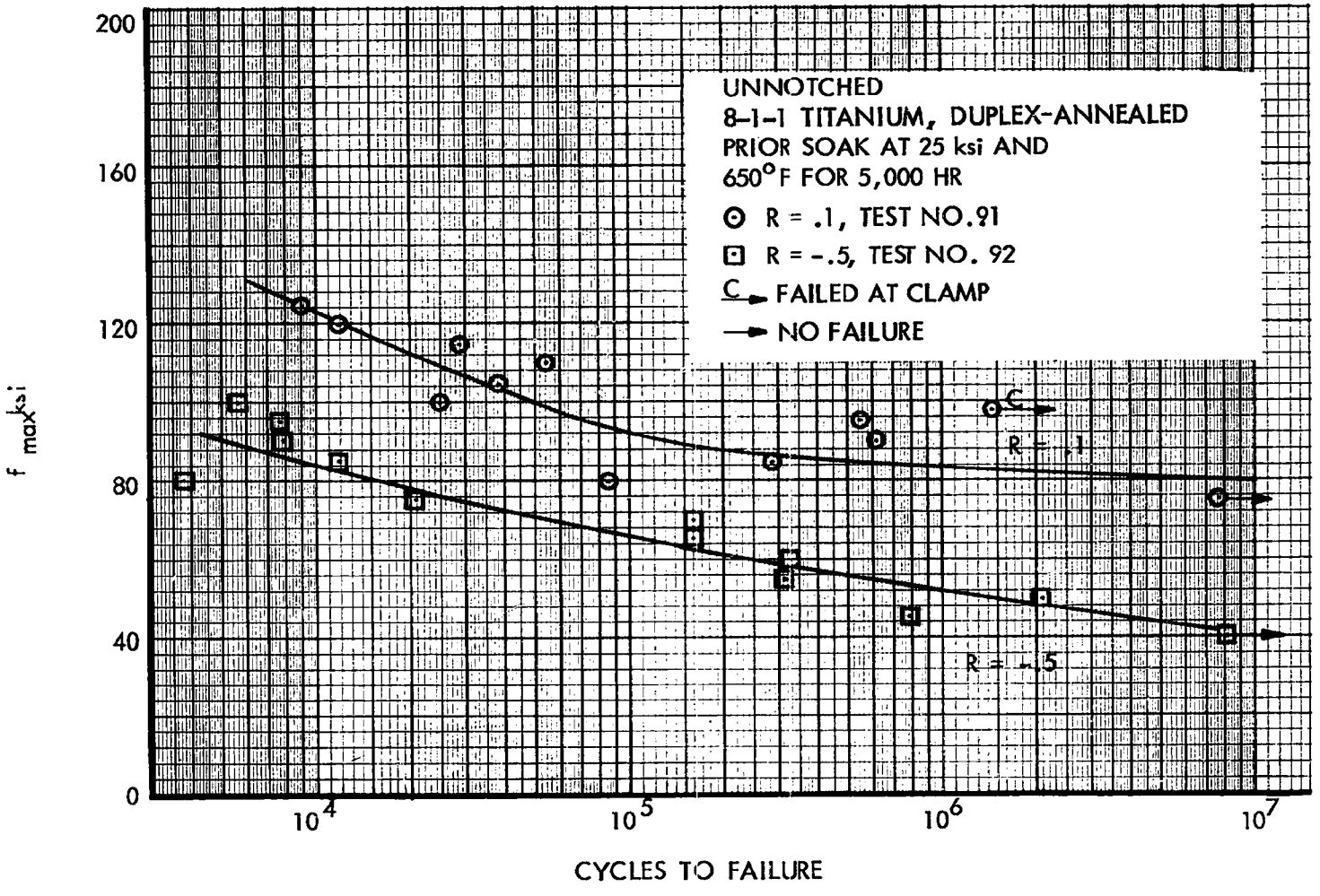



Figure 83. S-N Curves at 400°F, Unnotched 8-1-1 Titanium, R = Constant

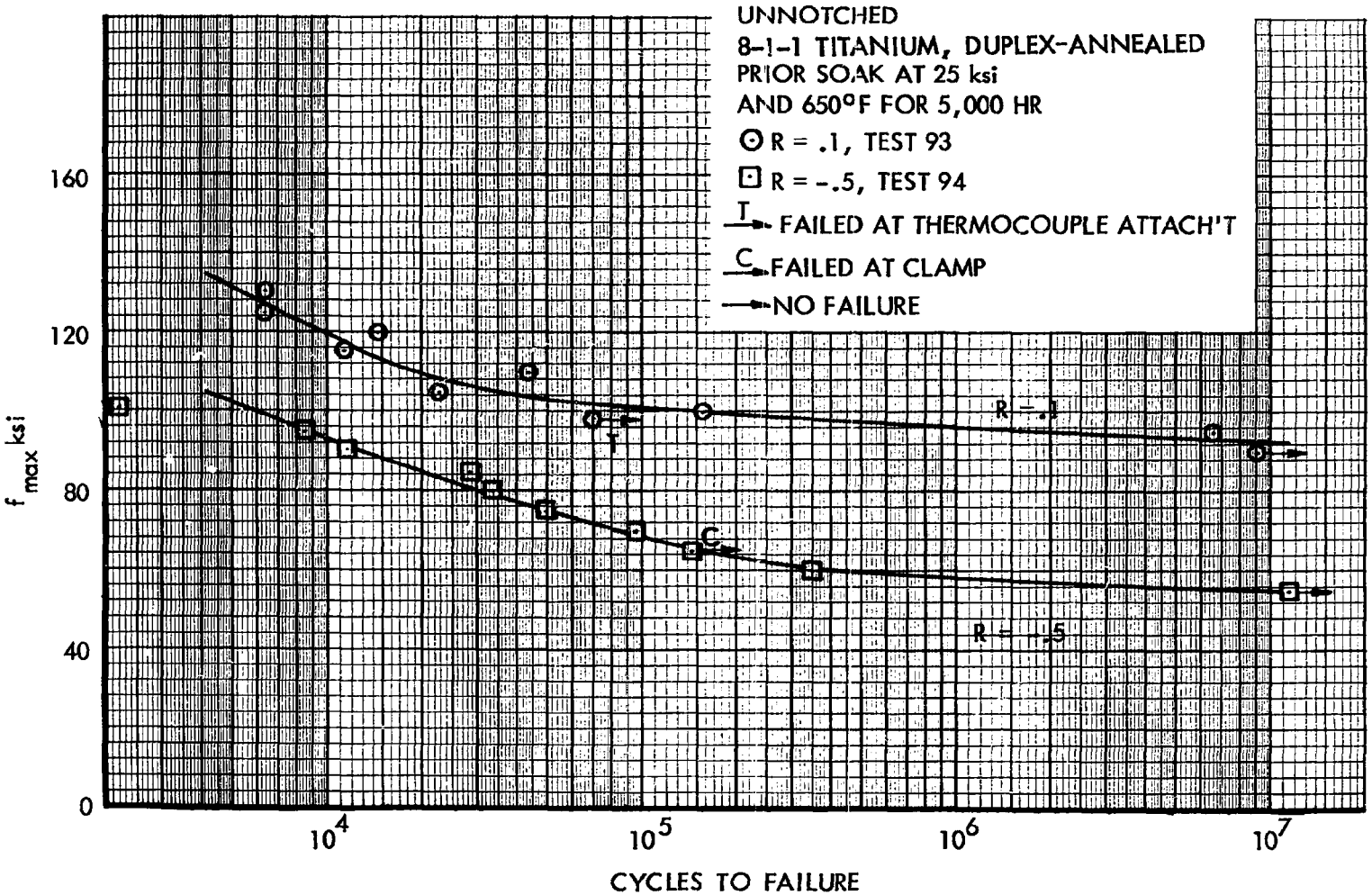



Figure 84. S-N Curves at 650°F, Unnotched 8-1-1 Titanium, R = Constant

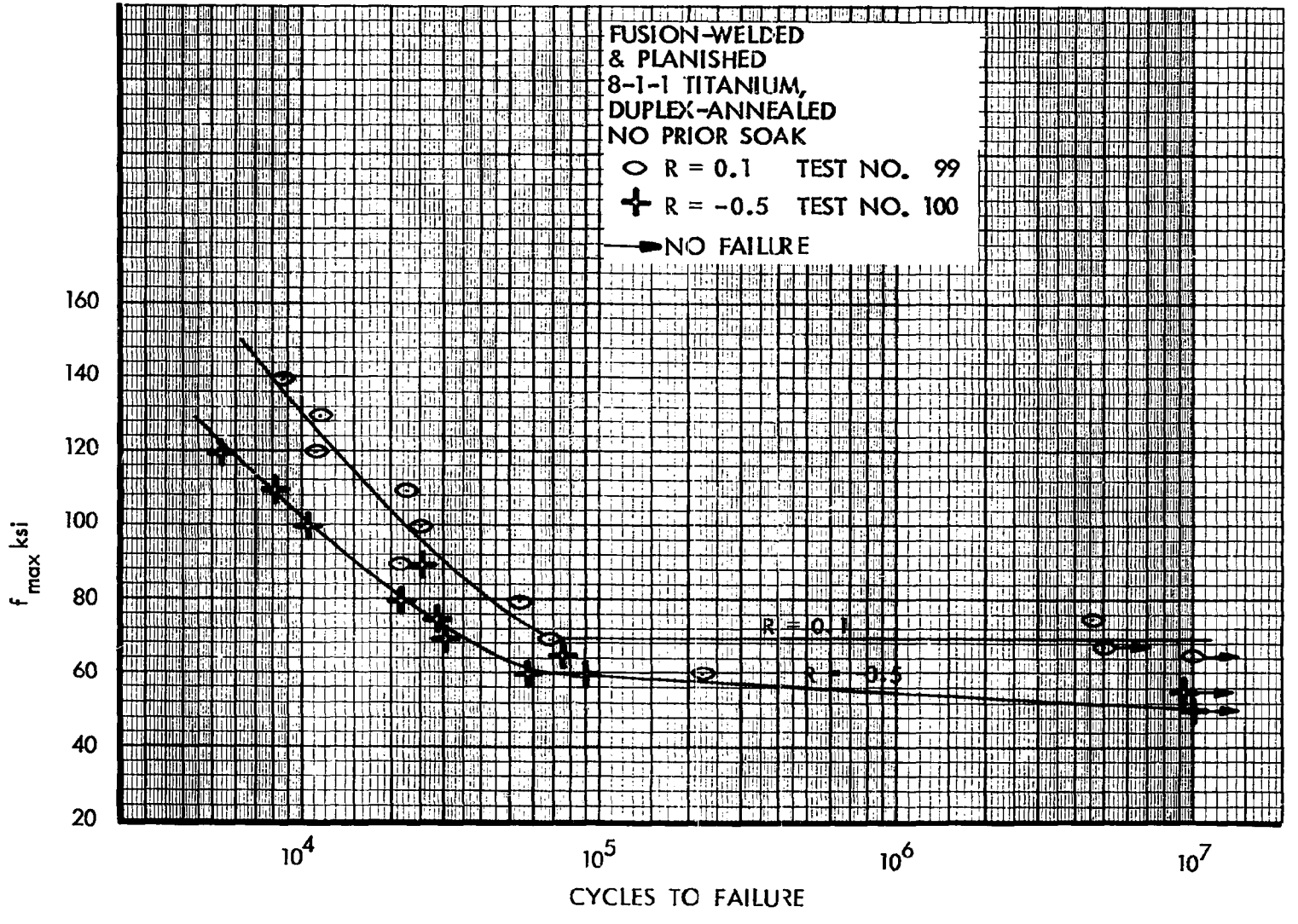



Figure 85. S-N Curves at Room Temperature, Fusion-Welded 8-1-1 Titanium, R = Constant

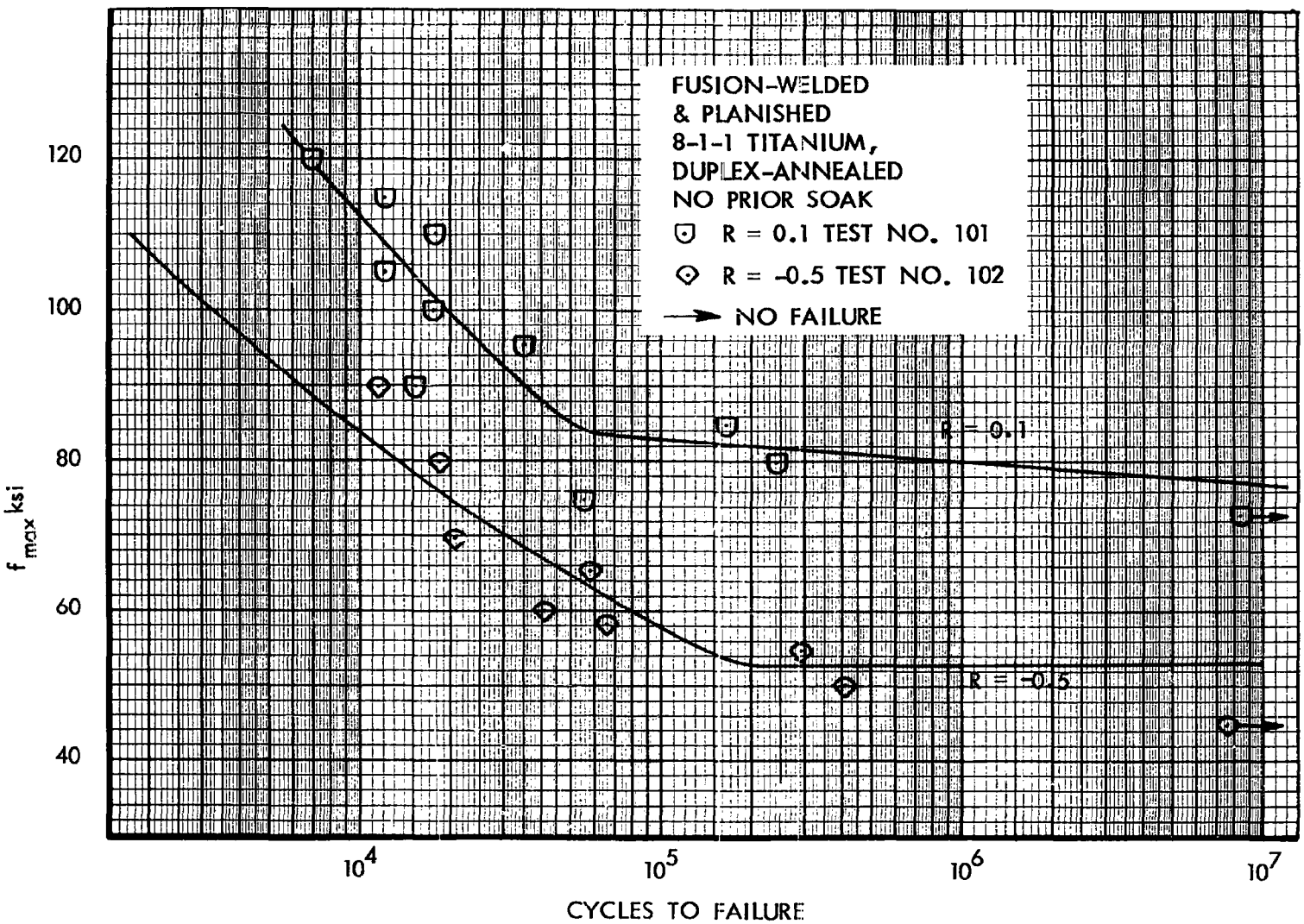



Figure 86. S-N Curves at 400°F, Fusion-Welded 8-1-1 Titanium, R = Constant

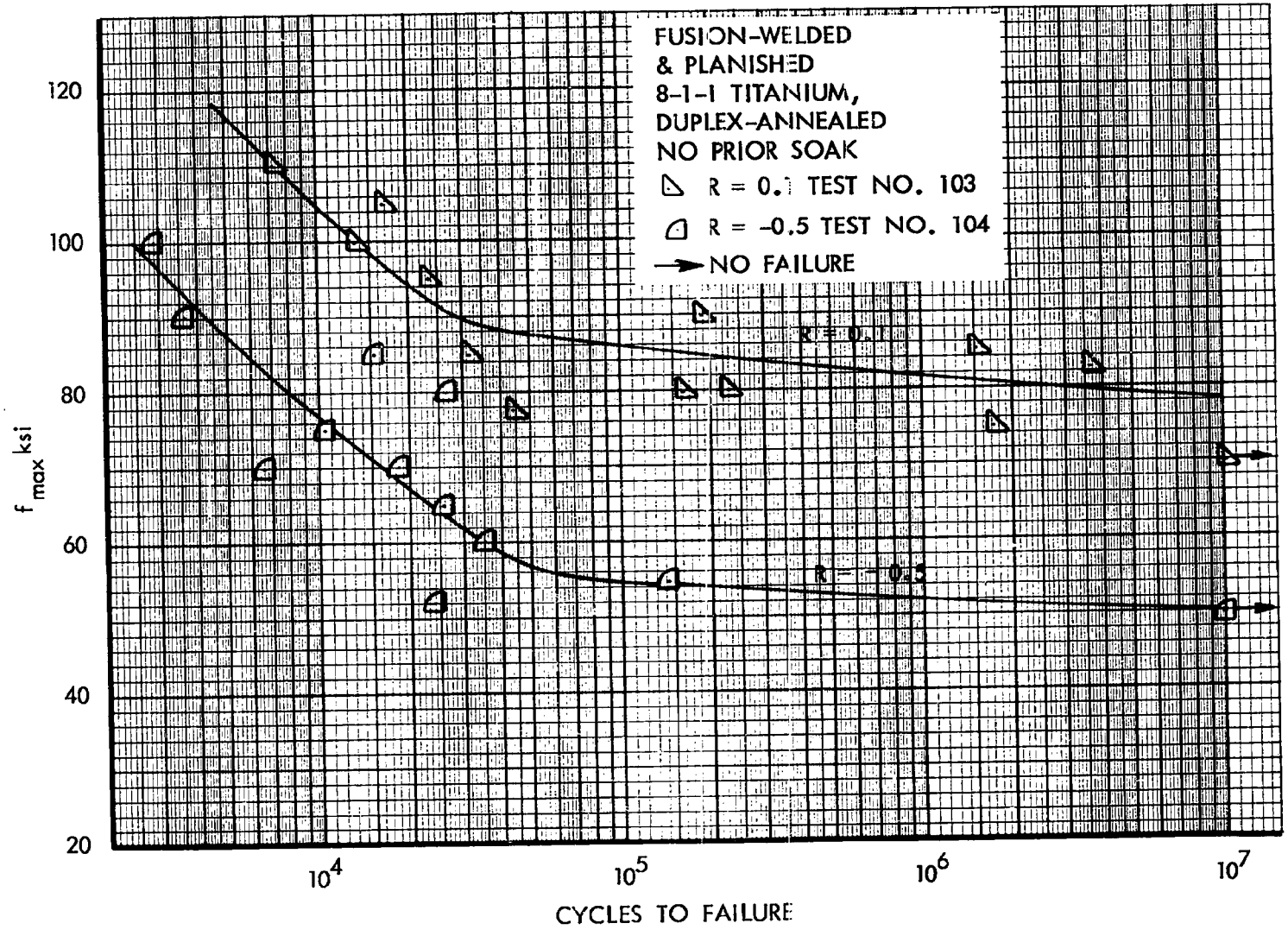



Figure 87. S-N Curves at 650°F, Fusion-Welded 8-1-1 Titanium, R = Constant

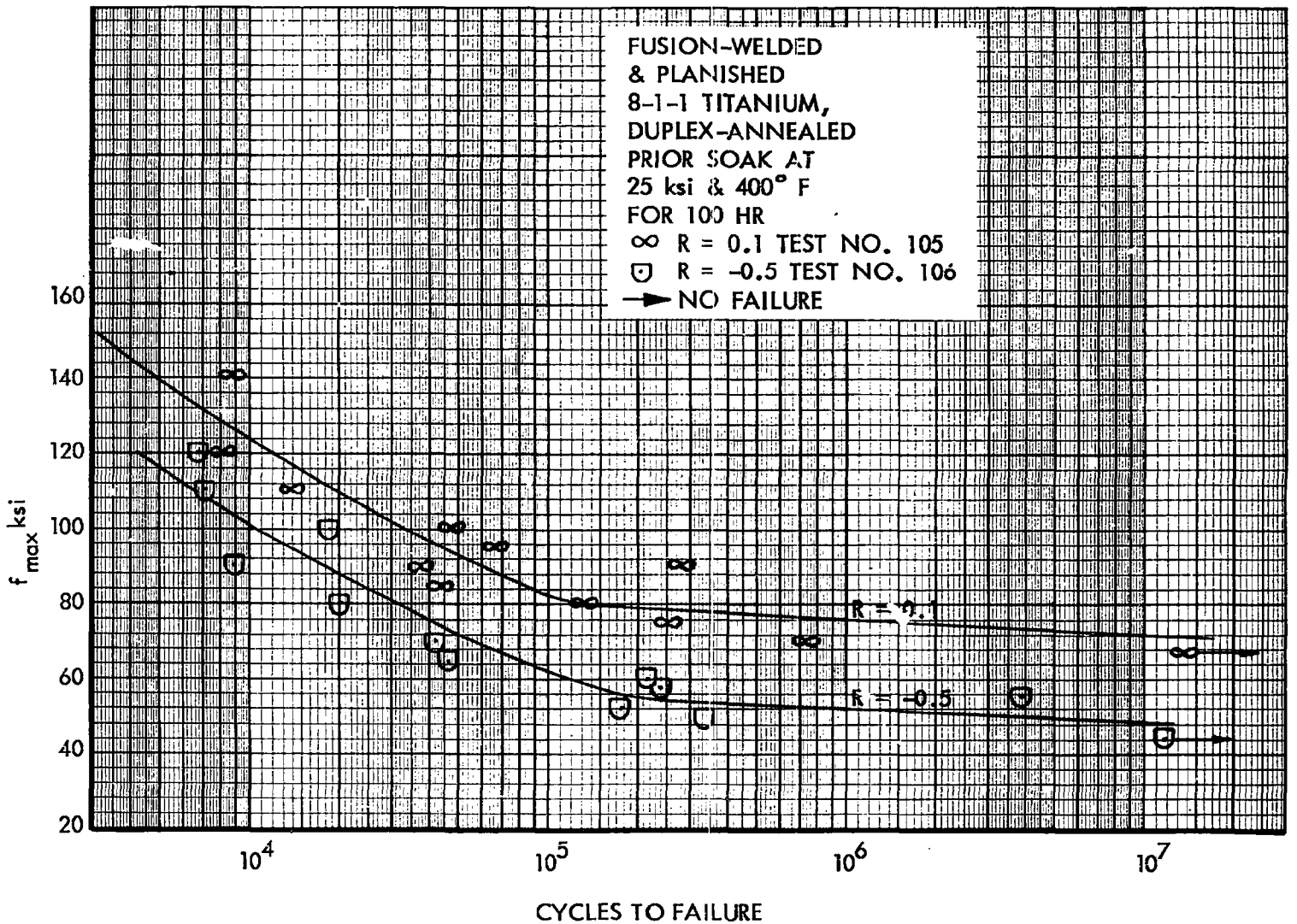



Figure 88. S-N Curves at Room Temperature, Fusion-Welded 8-1-1 Titanium, R = Constant

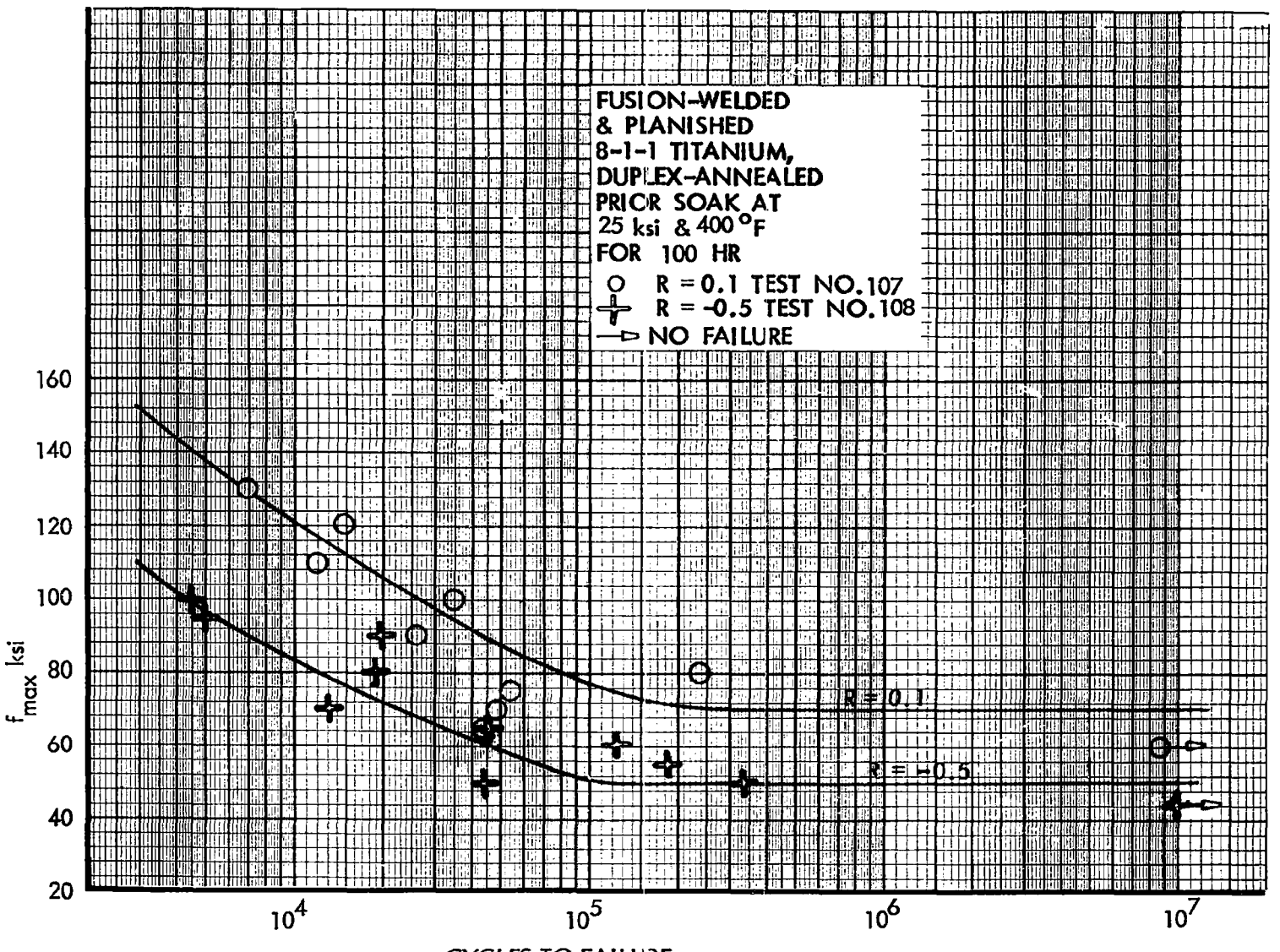



Figure 89. S-N Curves at 400°F, Fusion-Welded 8-1-1 Titanium, R = Constant

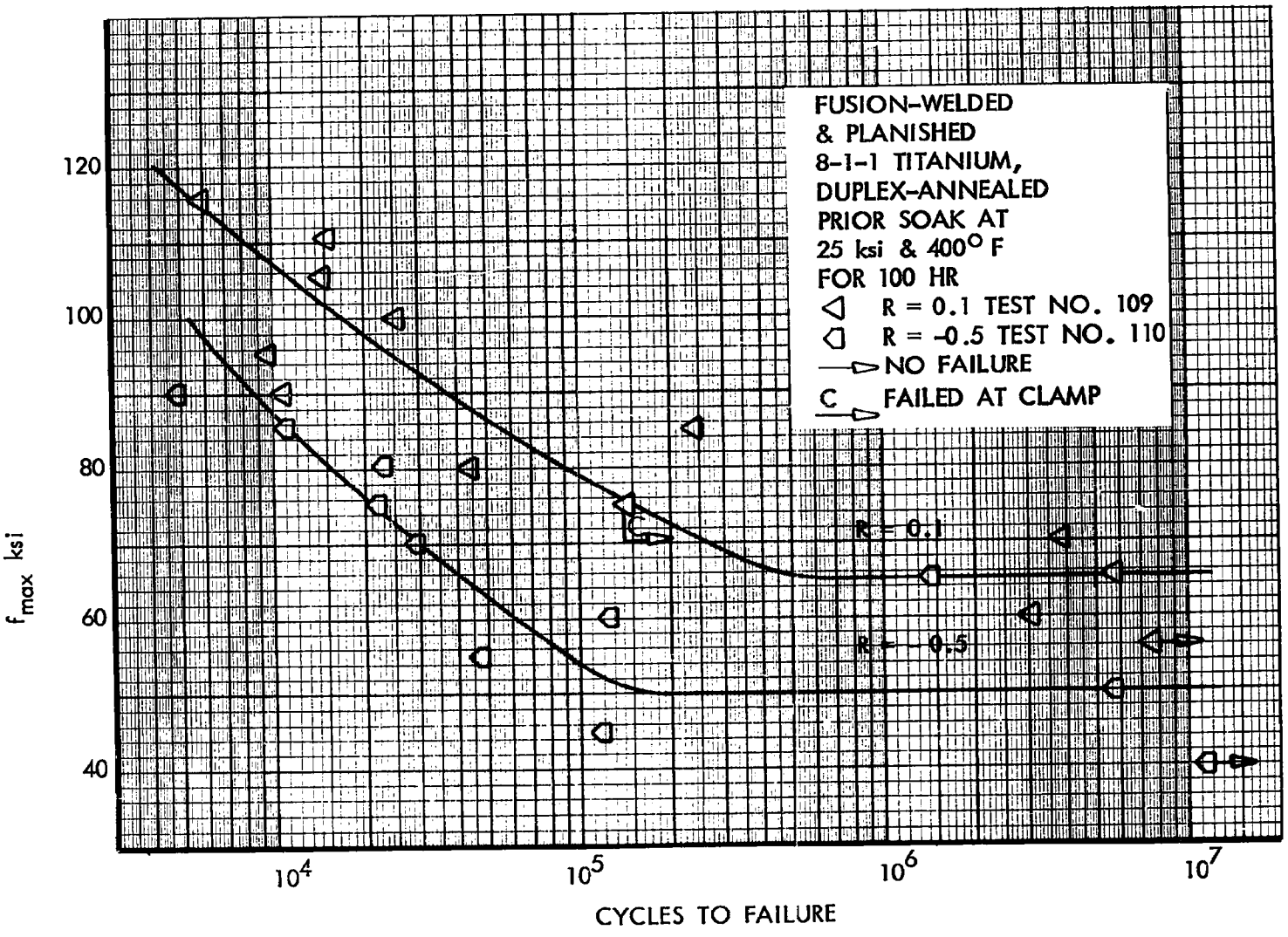



Figure 90. S-N Curves at 650°F, Fusion-Welded 8-1-1 Titanium, R = Constant

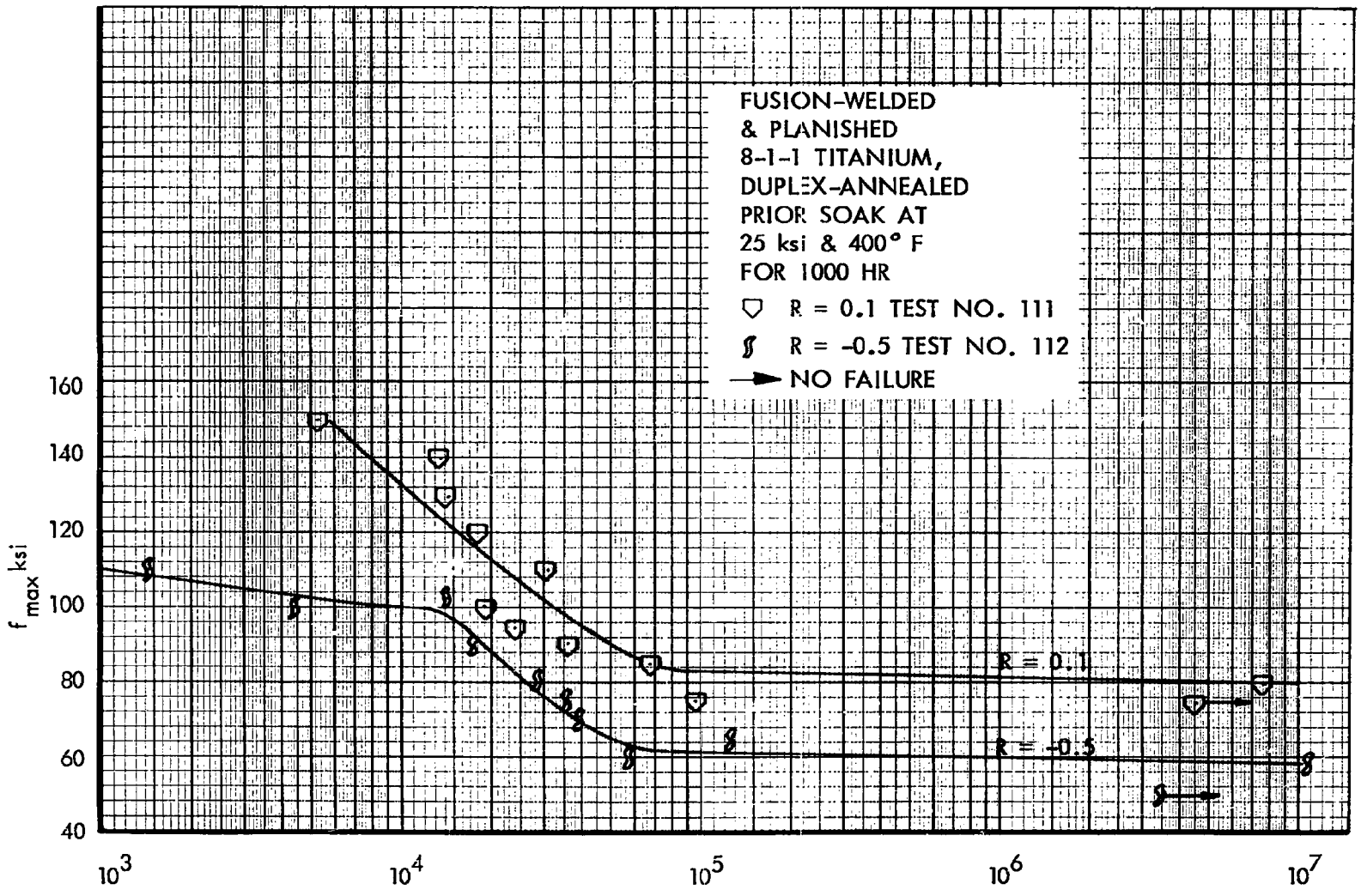



Figure 91. S-N Curves at Room Temperature, Fusion-Welded 8-1-1 Titanium, R = Constant

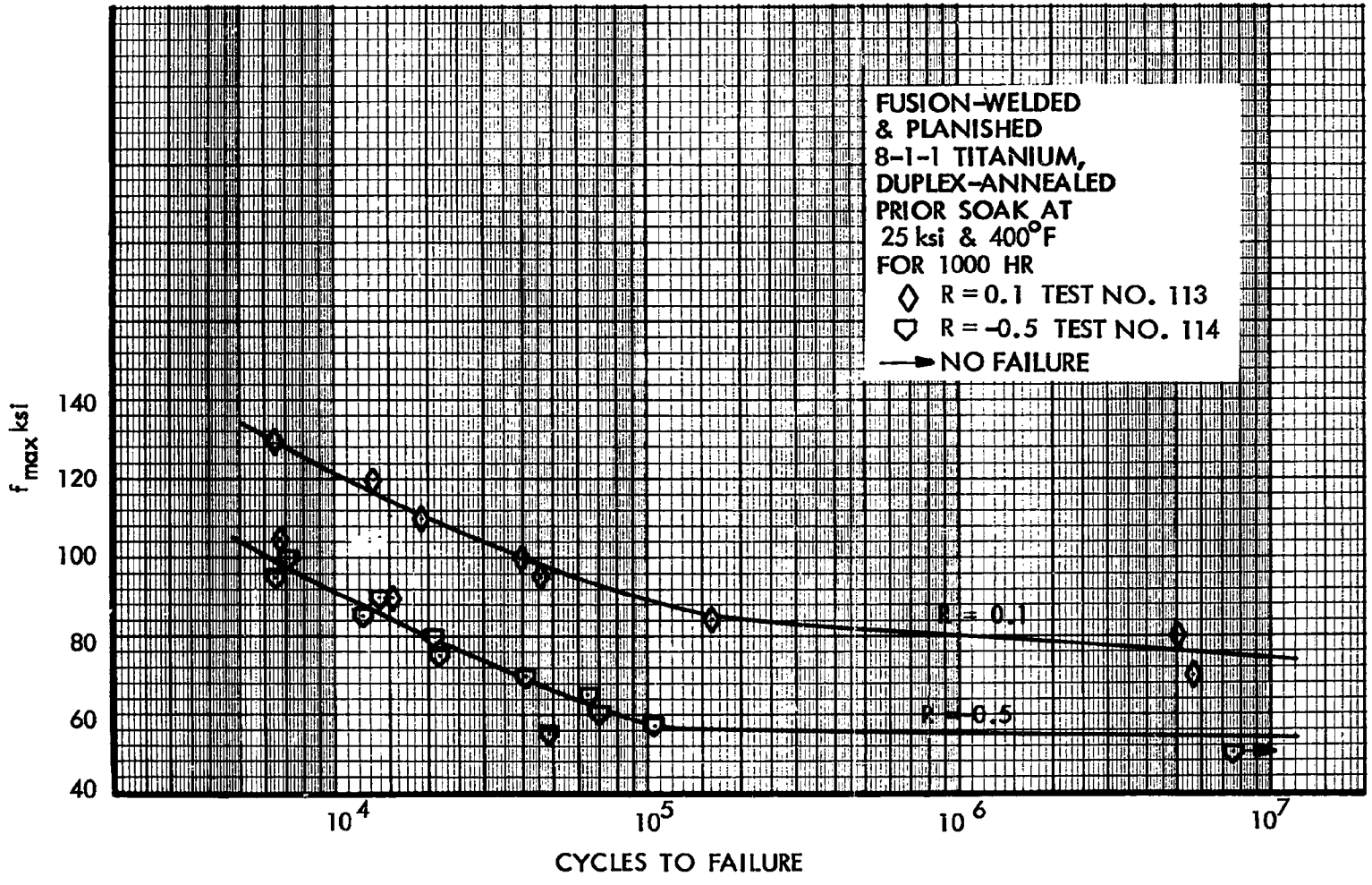



Figure 92. S-N Curves at 400°F, Fusion-Welded 8-1-1 Titanium, R = Constant

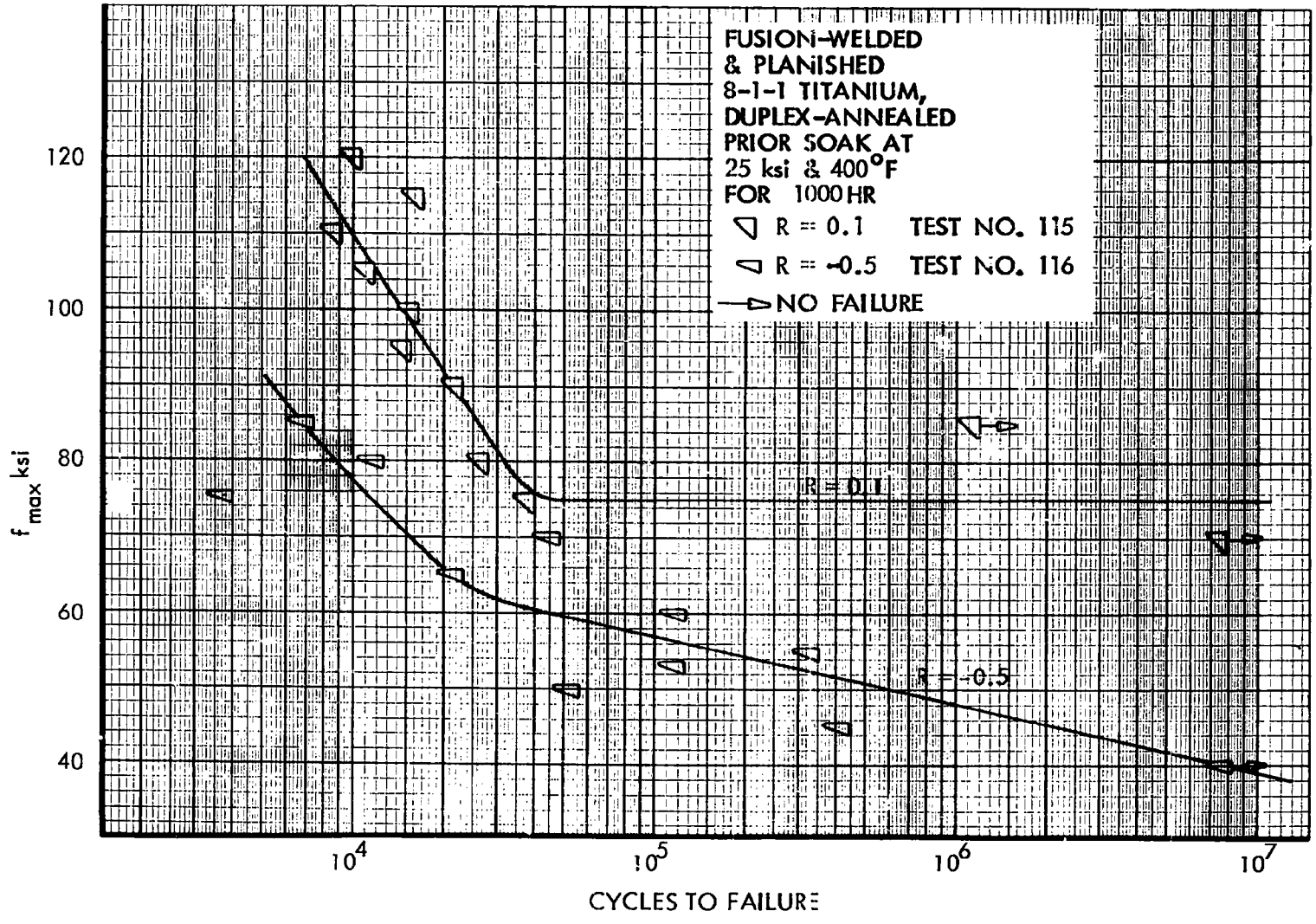



Figure 93. S-N Curves at 650°F, Fusion-Welded 8-1-1 Titanium, R = Constant

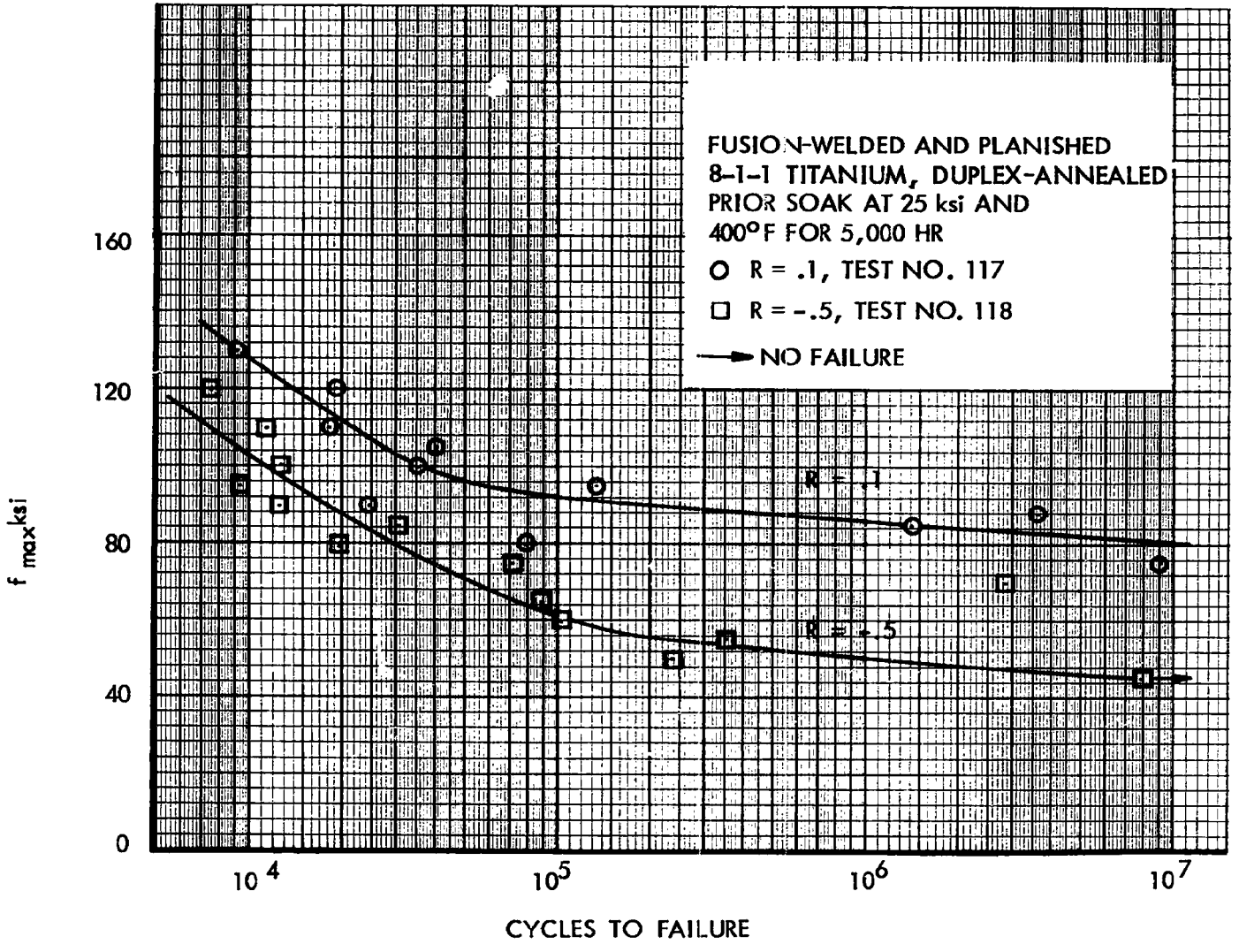



Figure 94. S-N Curves at Room Temperature, Fusion-Welded 8-1-1 Titanium, R = Constant

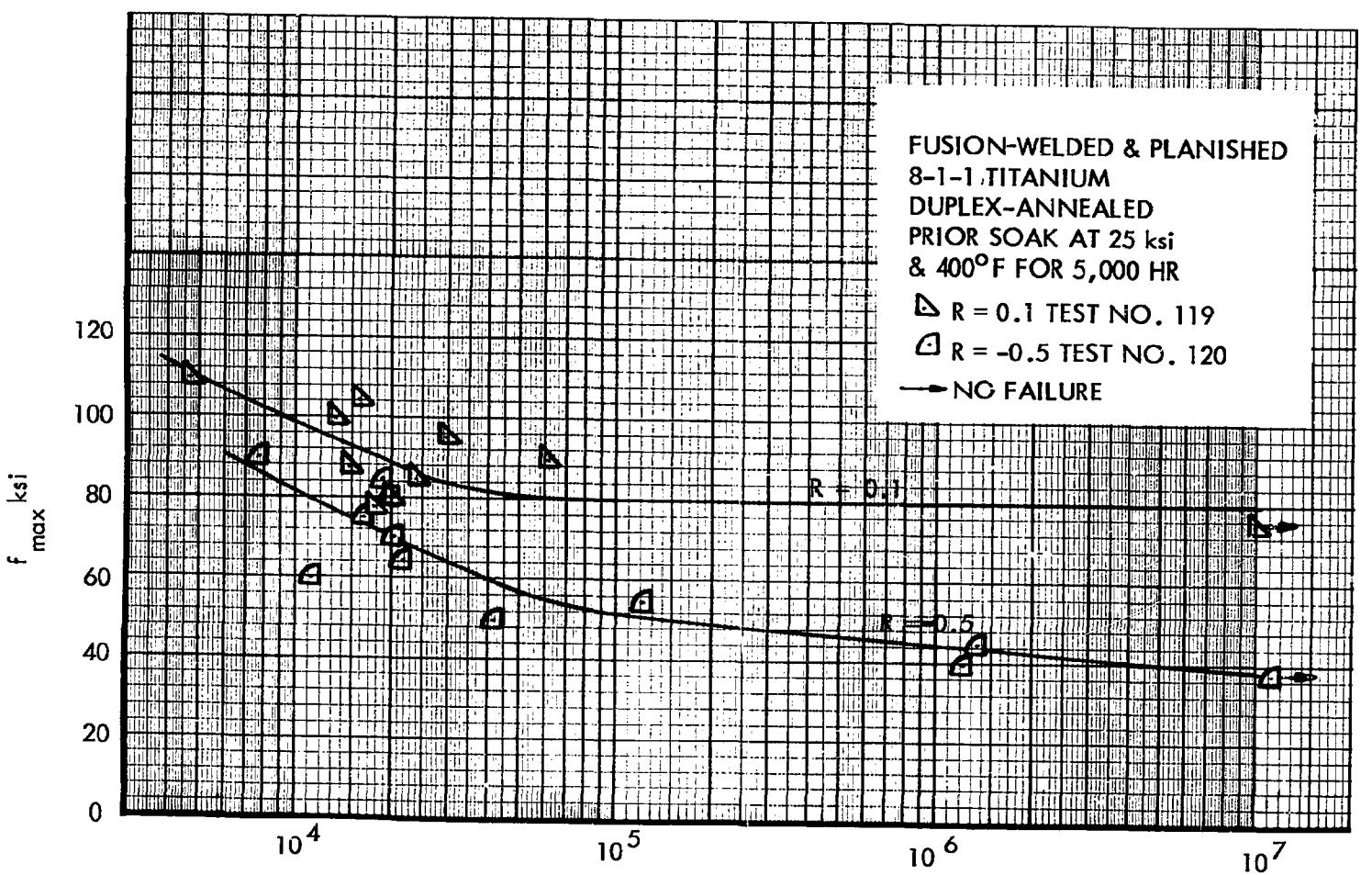



Figure 95. S-N Curves at 400°F, Fusion-Welded 8-1-1 Titanium, R = Constant

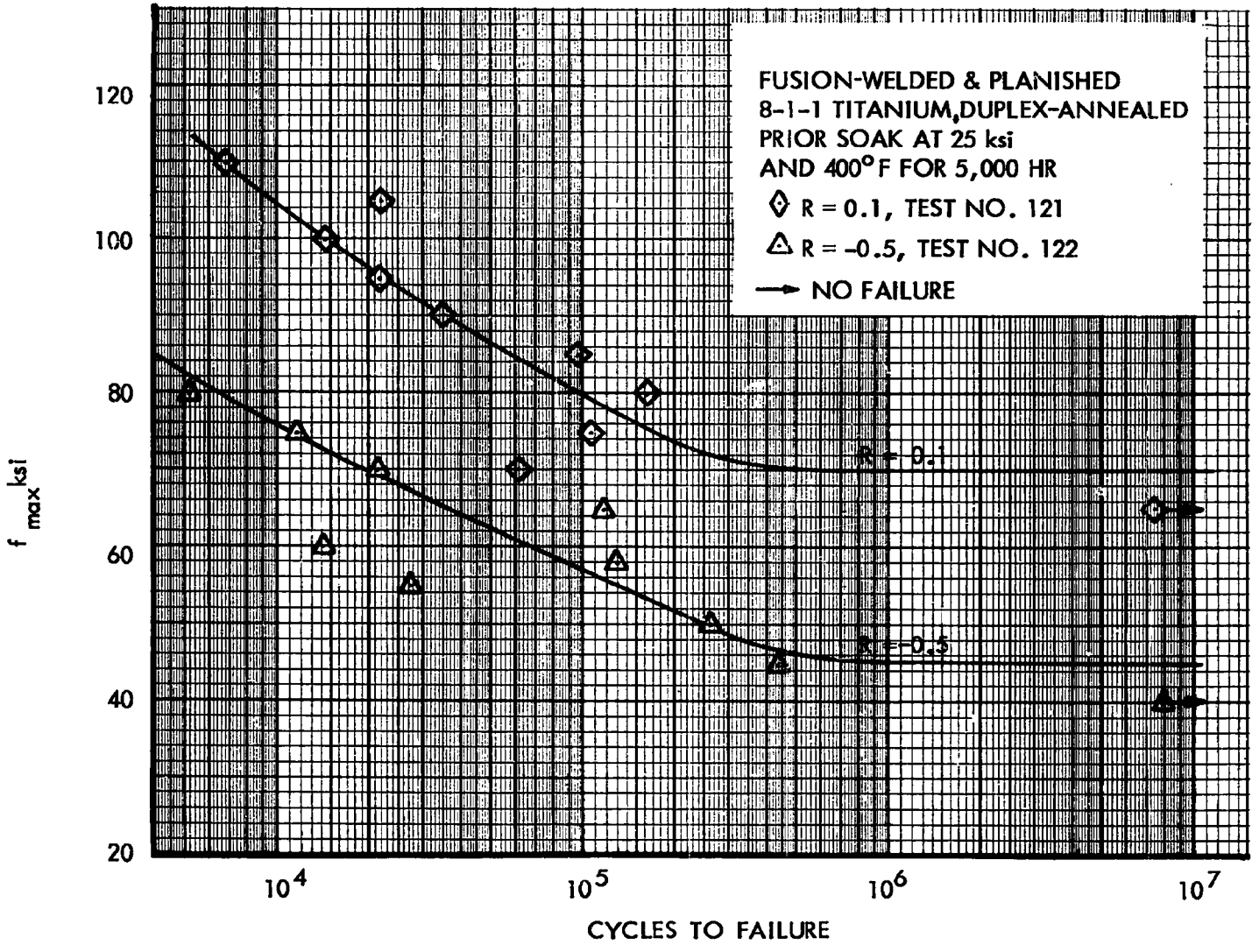



Figure 96. S-N Curves at 650°F, Fusion-Welded 8-1-1 Titanium, R = Constant

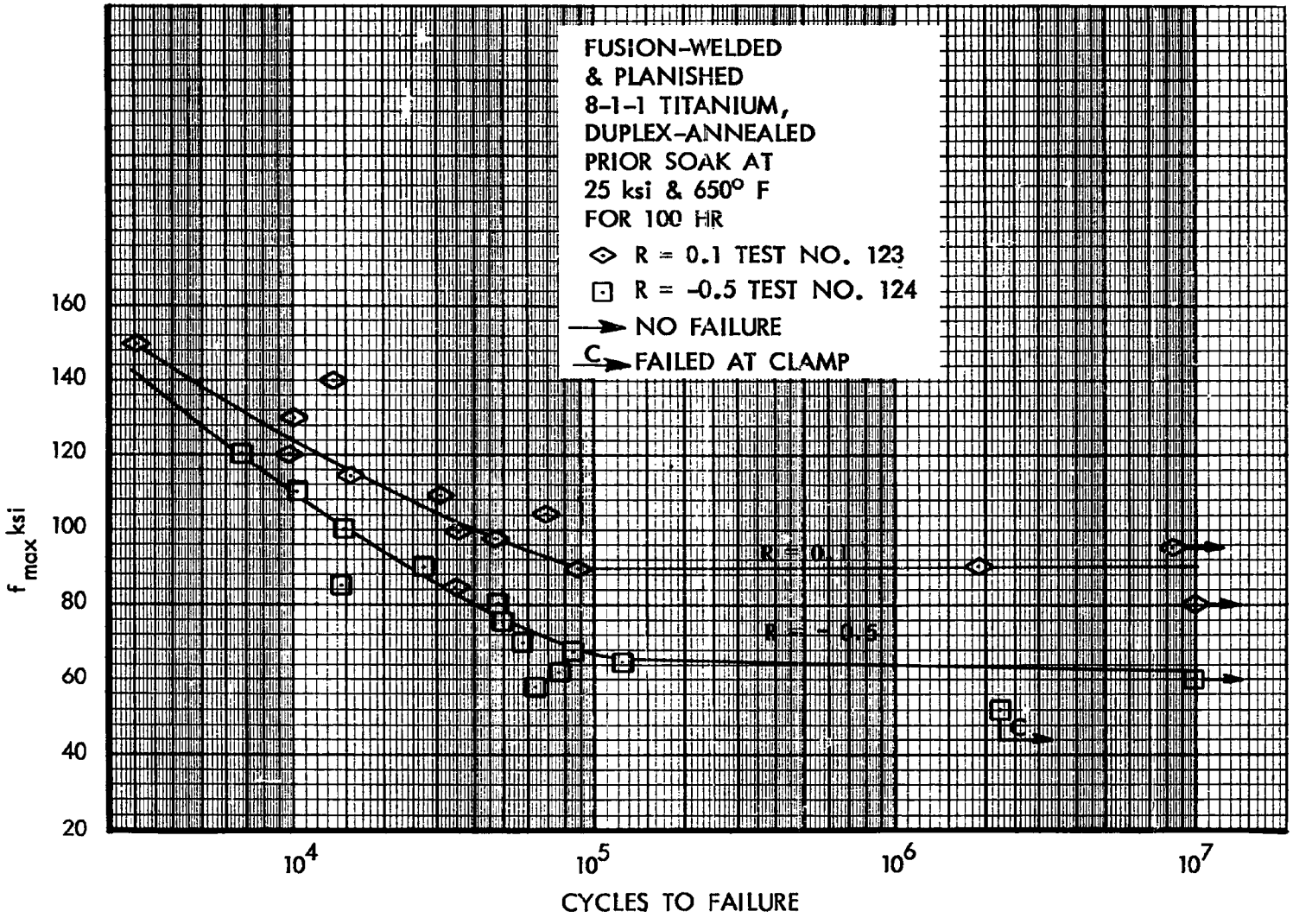



Figure 97. S-N Curves at Room Temperature, Fusion-Welded 8-1-1 Titanium, R = Constant

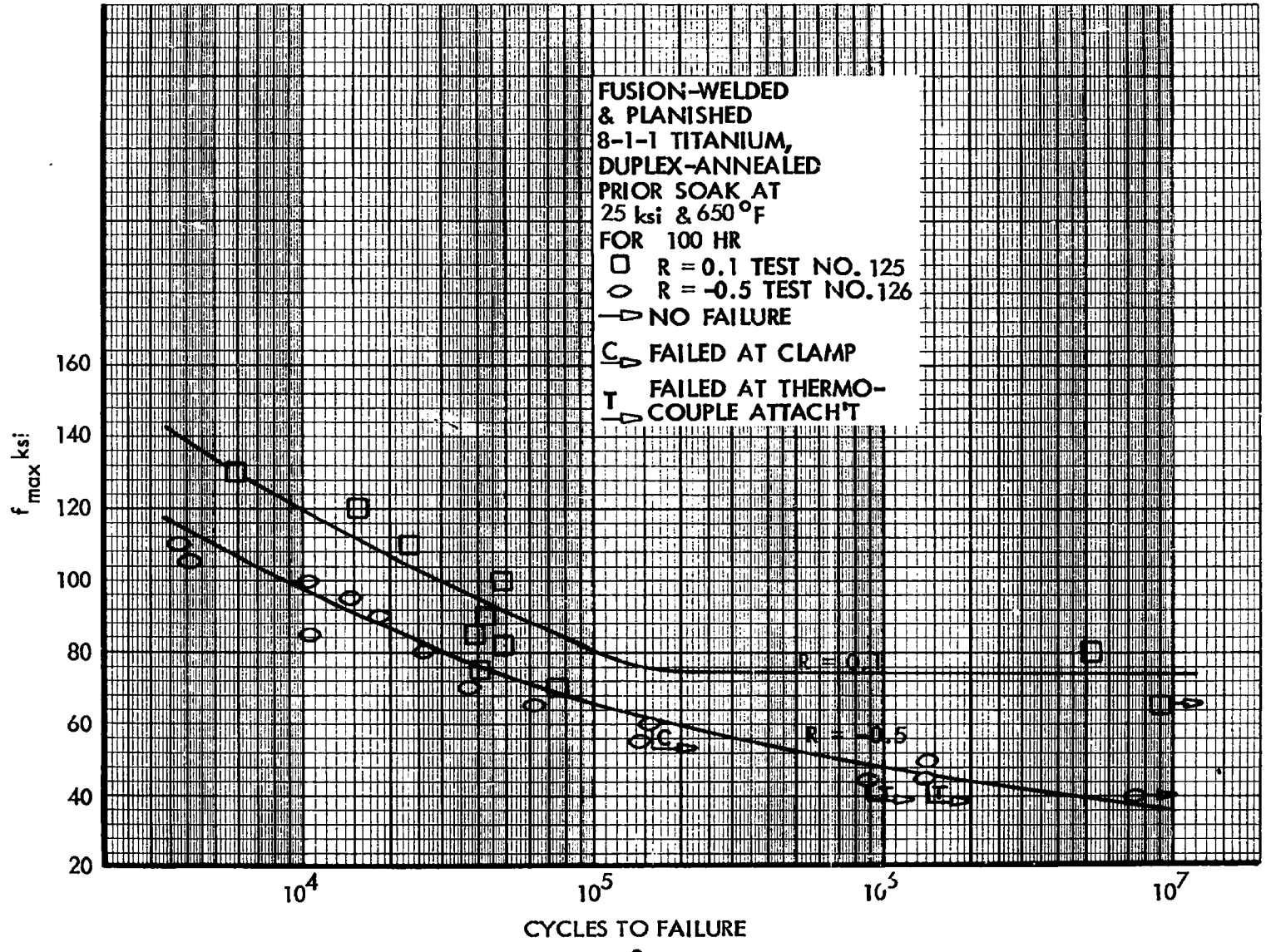



Figure 98. S-N Curves at 400°F, Fusion-Welded 8-1-1 Titanium, R = Constant

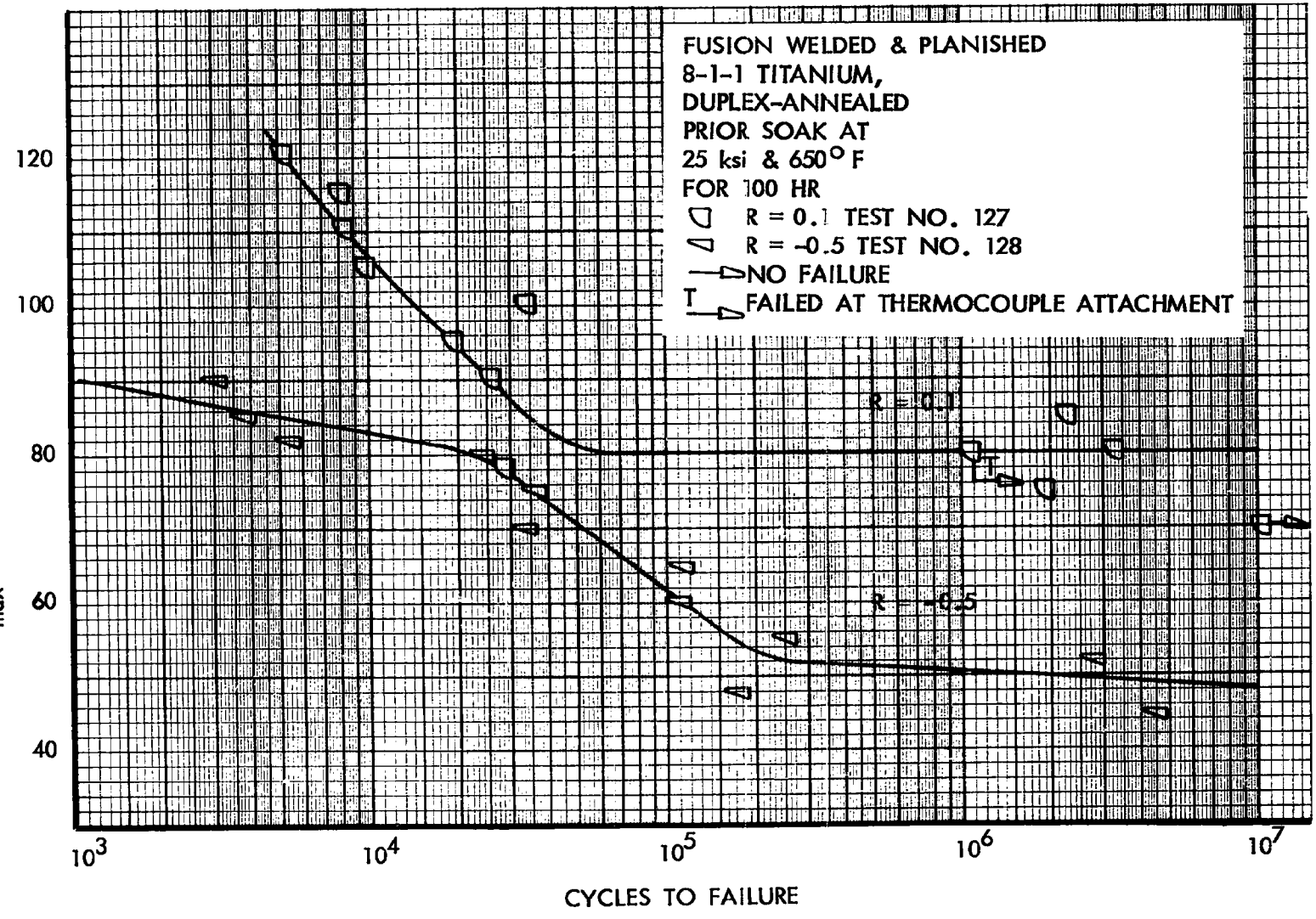



Figure 99. S-N Curves at 650°F, Fusion-Welded 8-1-1 Titanium, R = Constant

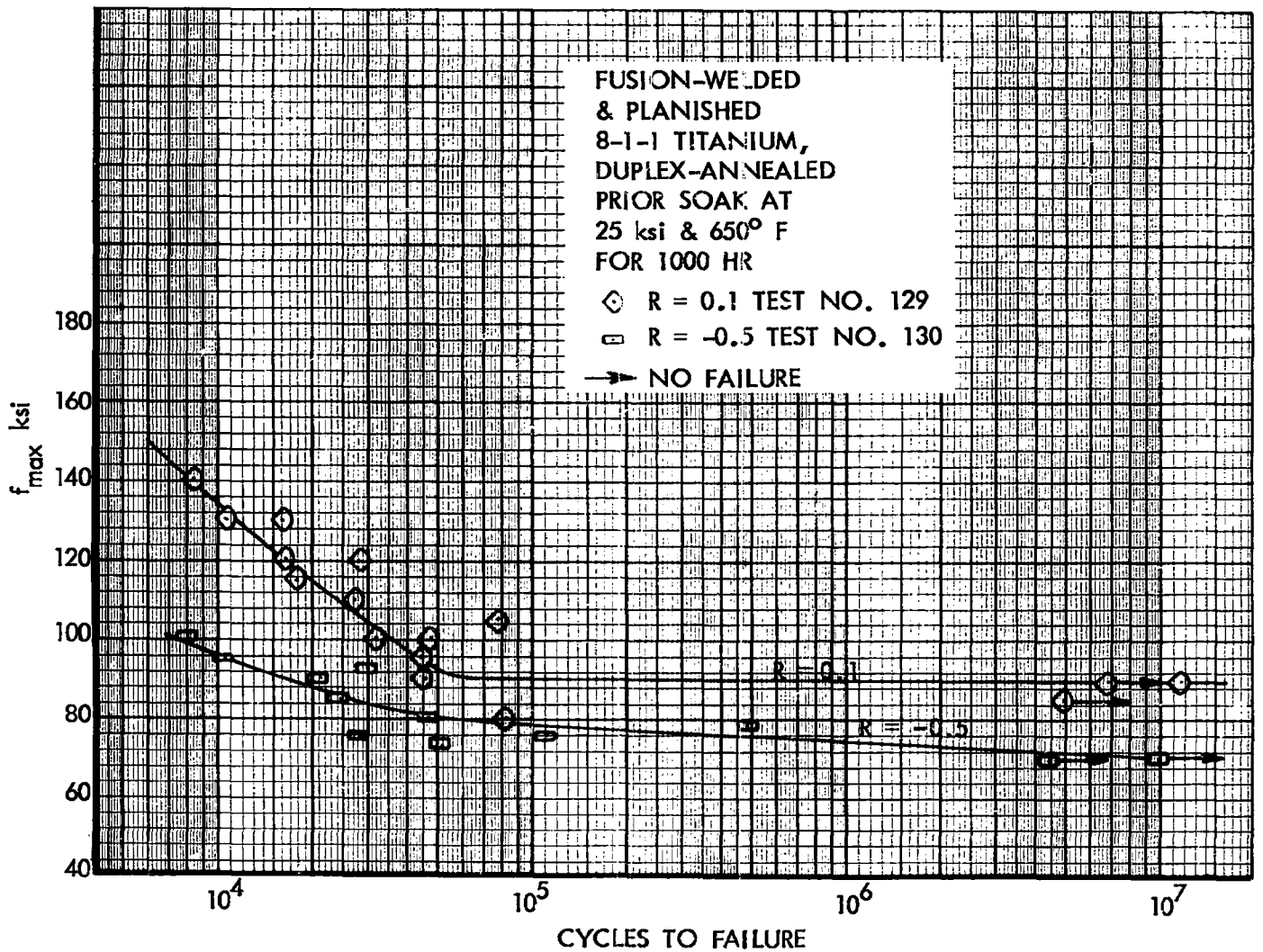



Figure 100. S-N Curves at Room Temperature, Fusion-Welded 8-1-1 Titanium, R = Constant

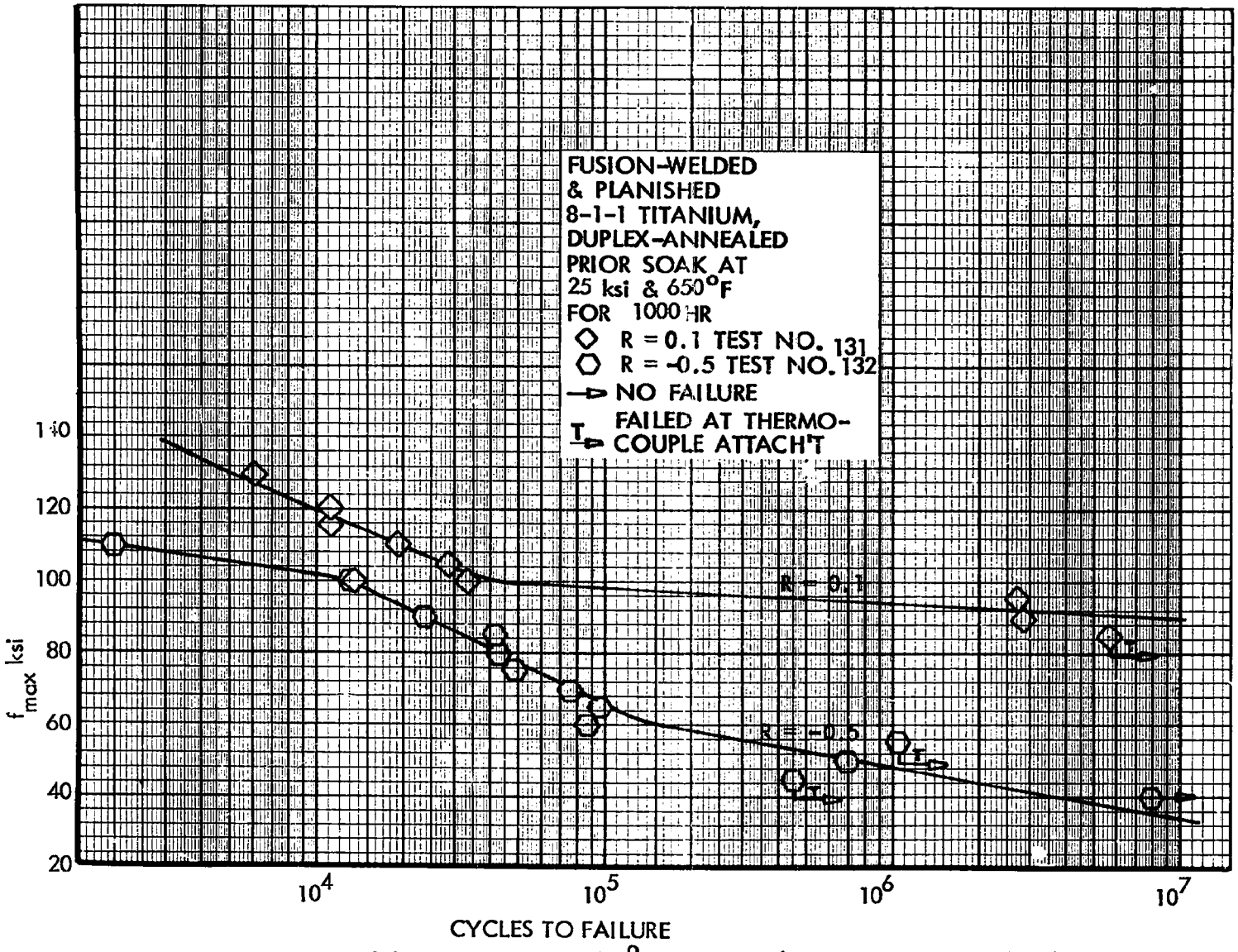



Figure 101. S-N Curves at 400°F, Fusion-Welded 8-1-1 Titanium, R = Constant

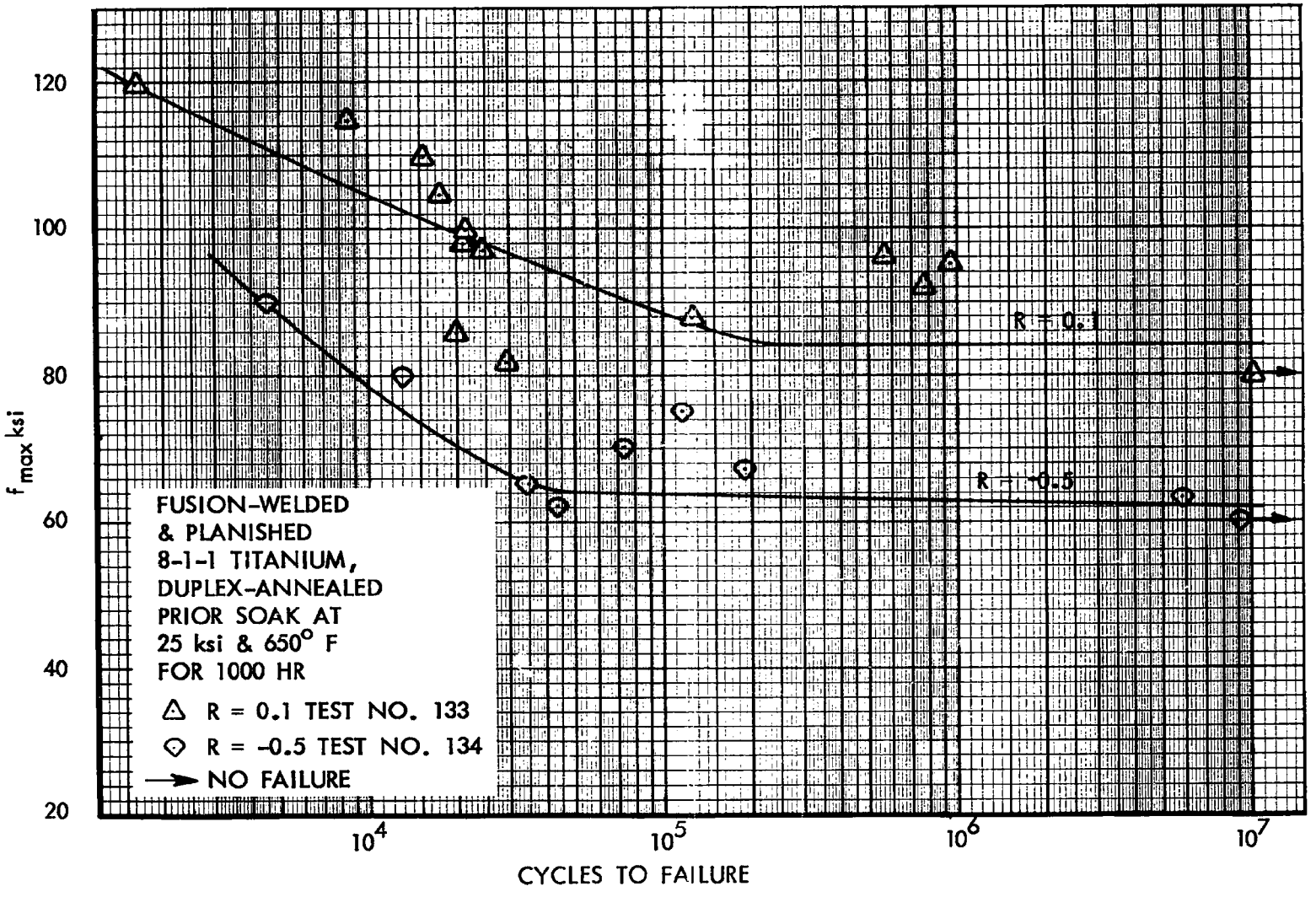



Figure 102. S-N Curves at 650°F, Fusion-Welded 8-1-1 Titanium, R = Constant

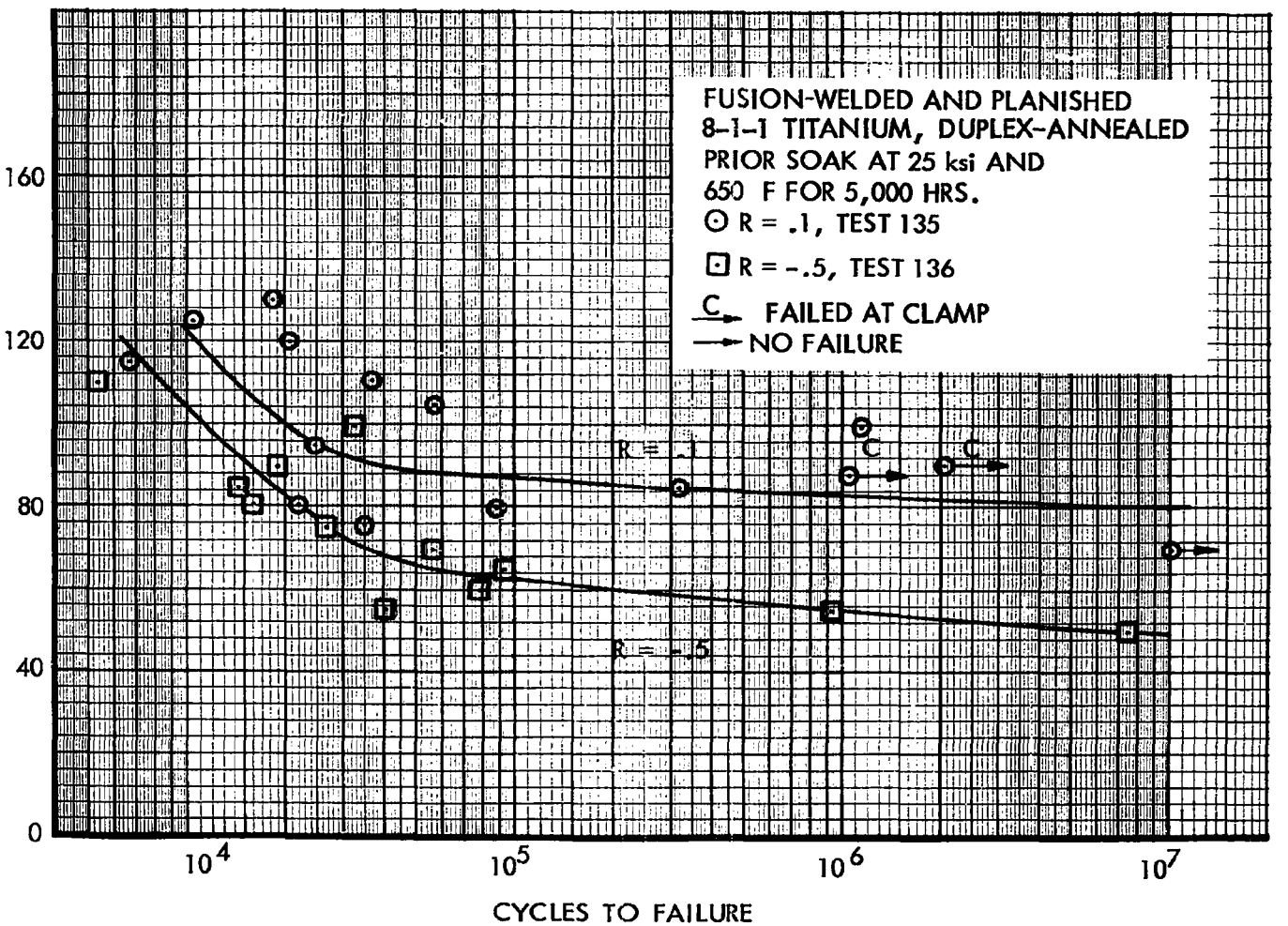



Figure 103. S-N Curves at Room Temperature, Fusion-Welded 8-1-1 Titanium, R = Constant

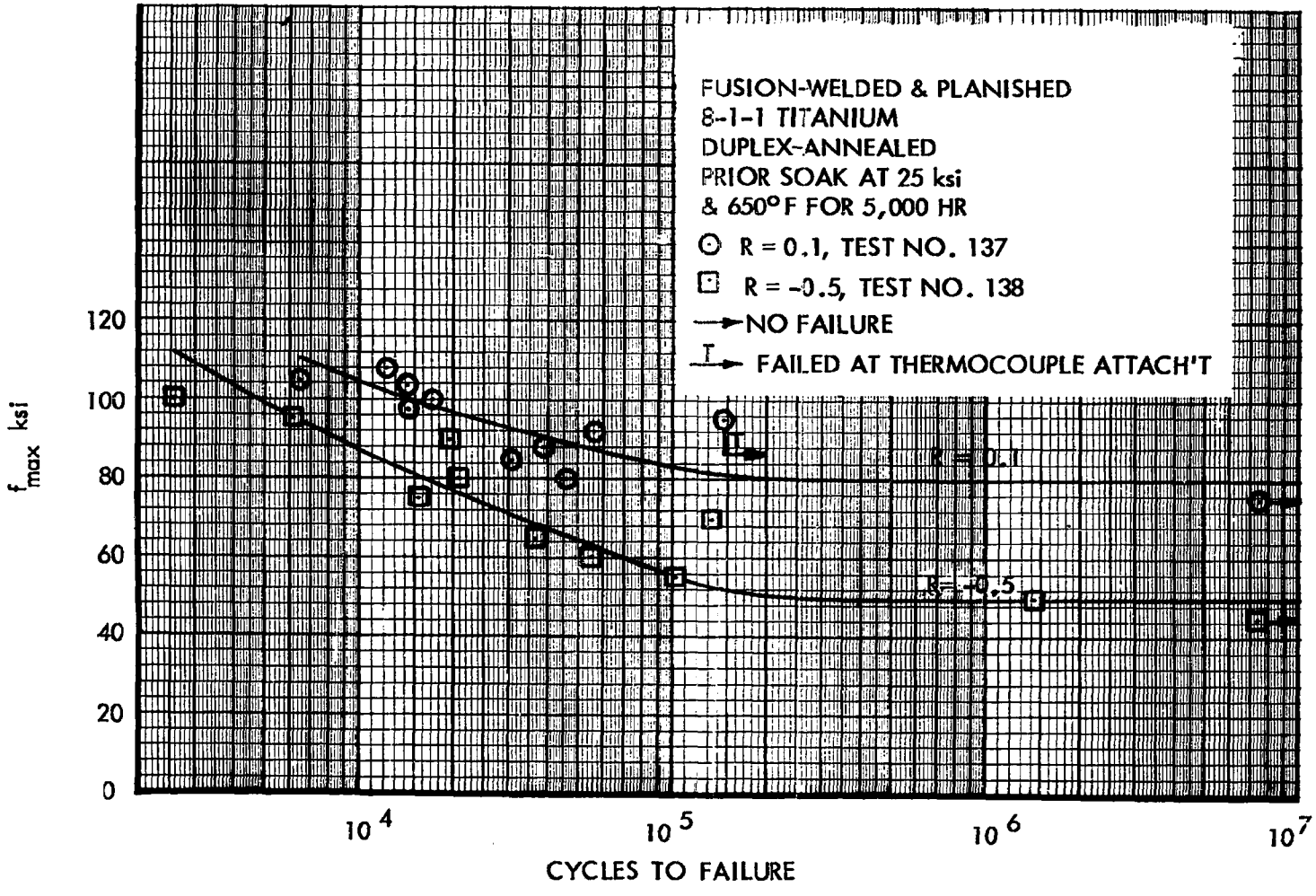



Figure 104. S-N Curves at 400°F, Fusion-Welded 8-1-1 Titanium, R = Constant

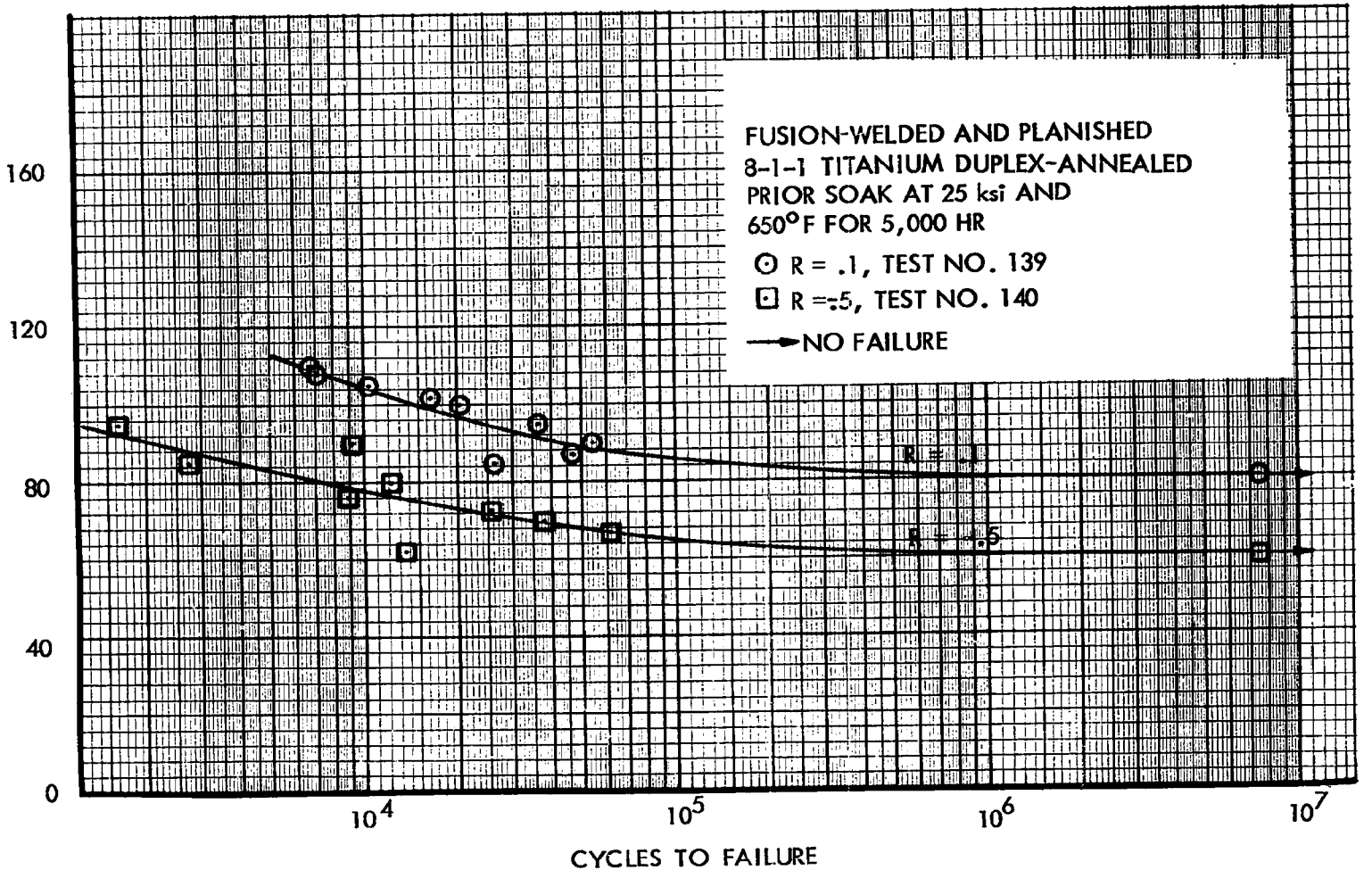



Figure 105. S-N Curves at 650°F, Fusion-Welded 8-1-1 Titanium, R = Constant

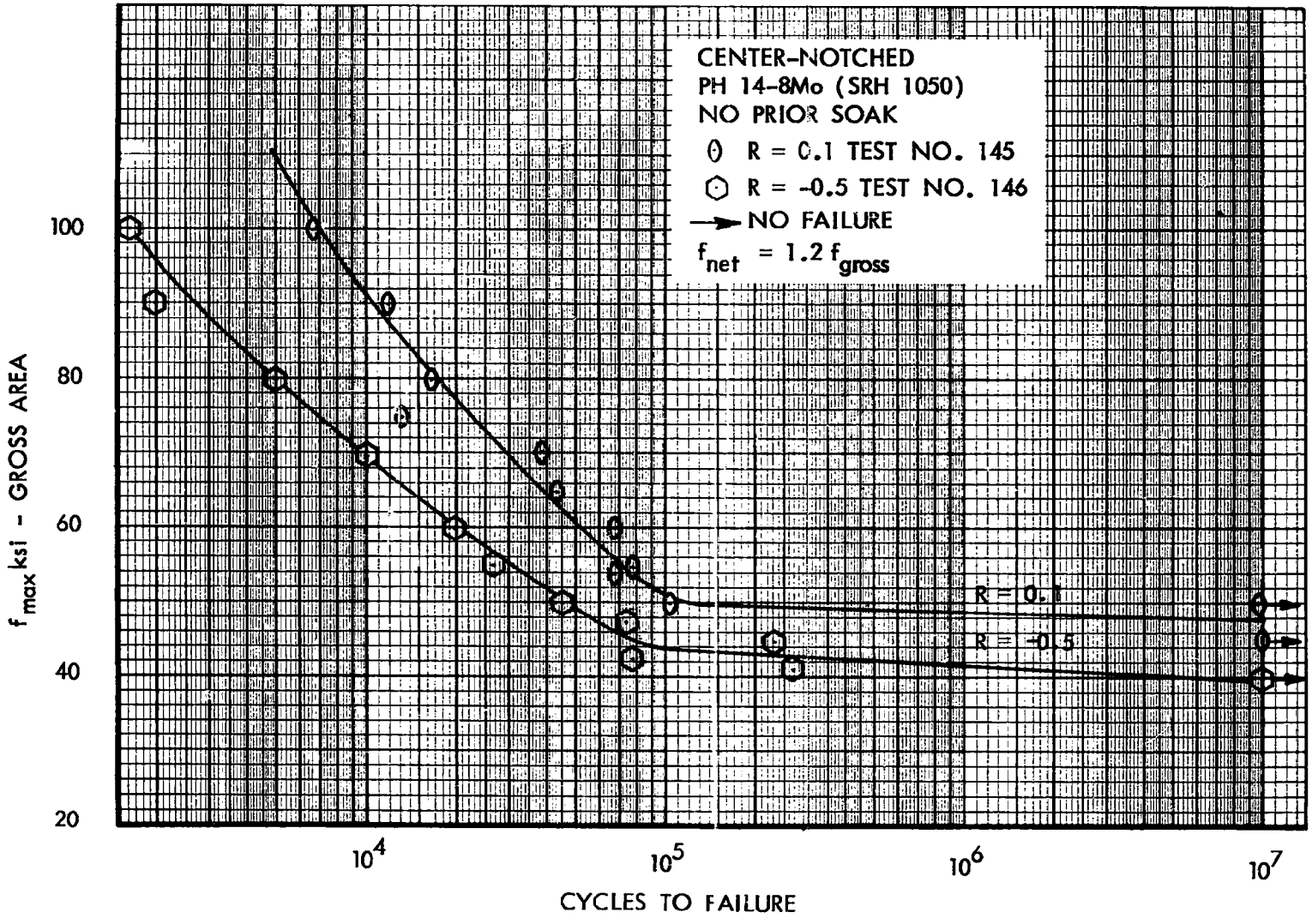



Figure 106. S-N Curves at Room Temperature, Center-Notched PH14-8Mo, R = Constant

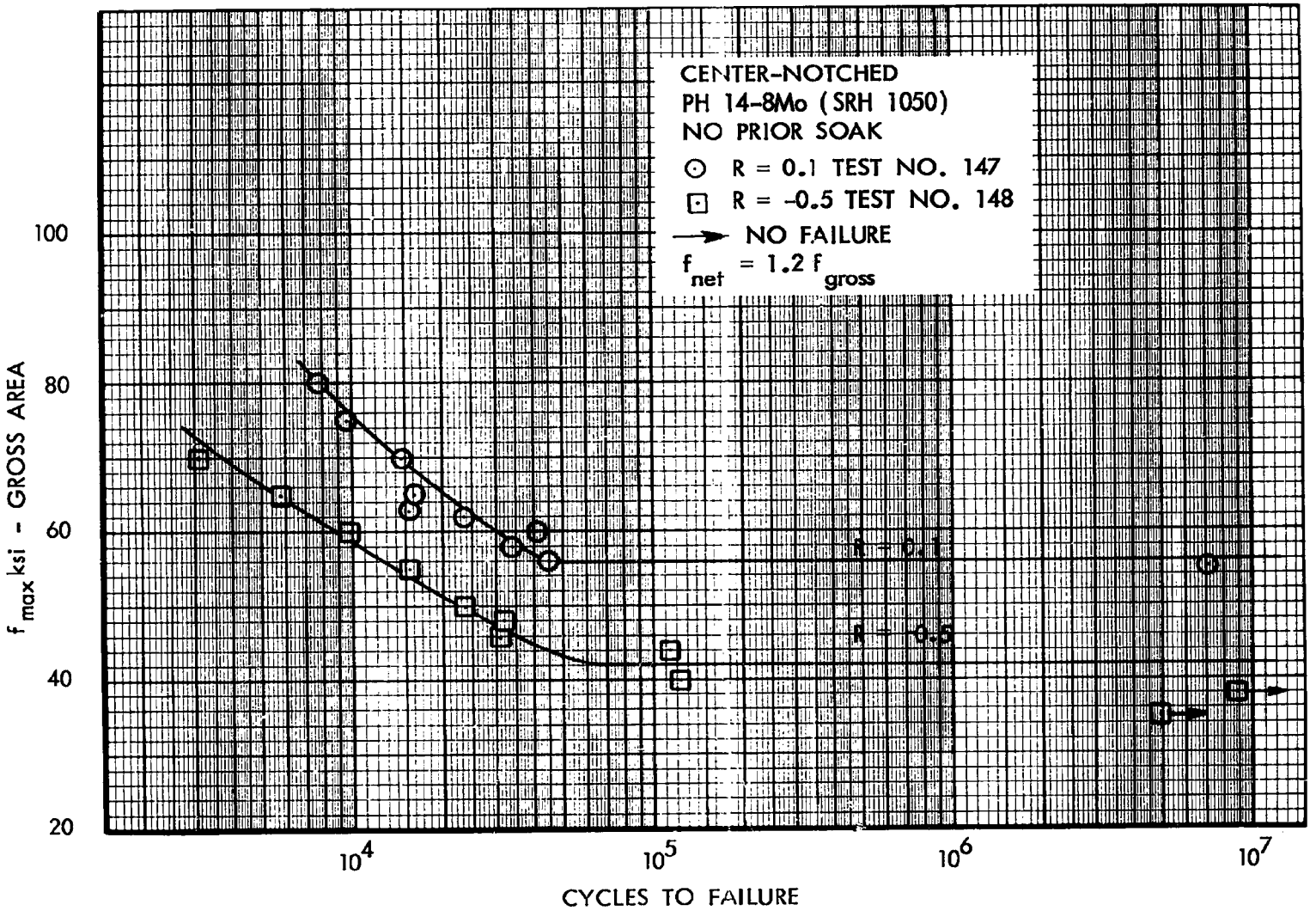



Figure 107. S-N Curves at 400°F, Center-Notched PH14-8Mo, R = Constant

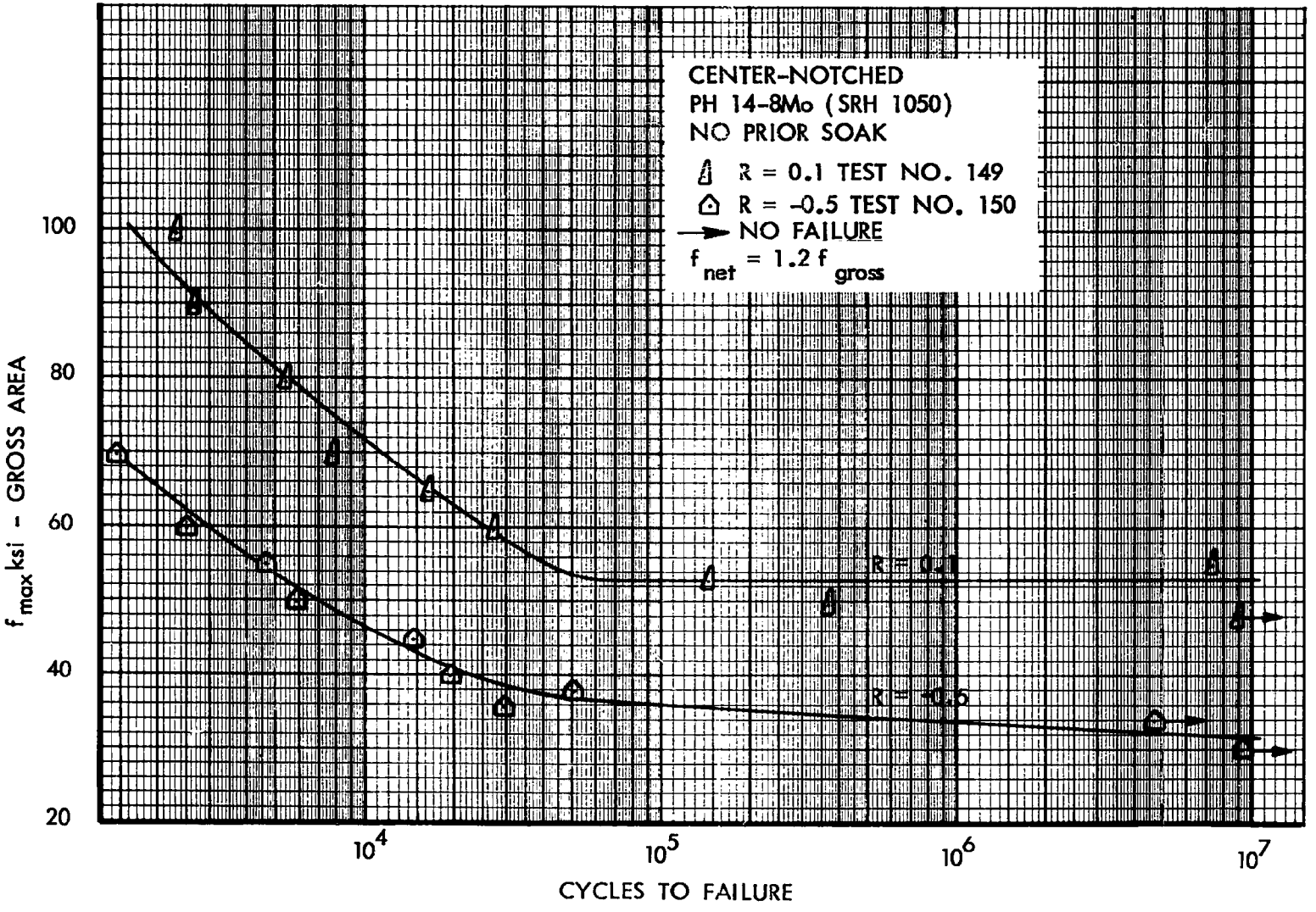



Figure 108. S-N Curves at 650°F, Center-Notched PH14-8Mo, R = Constant

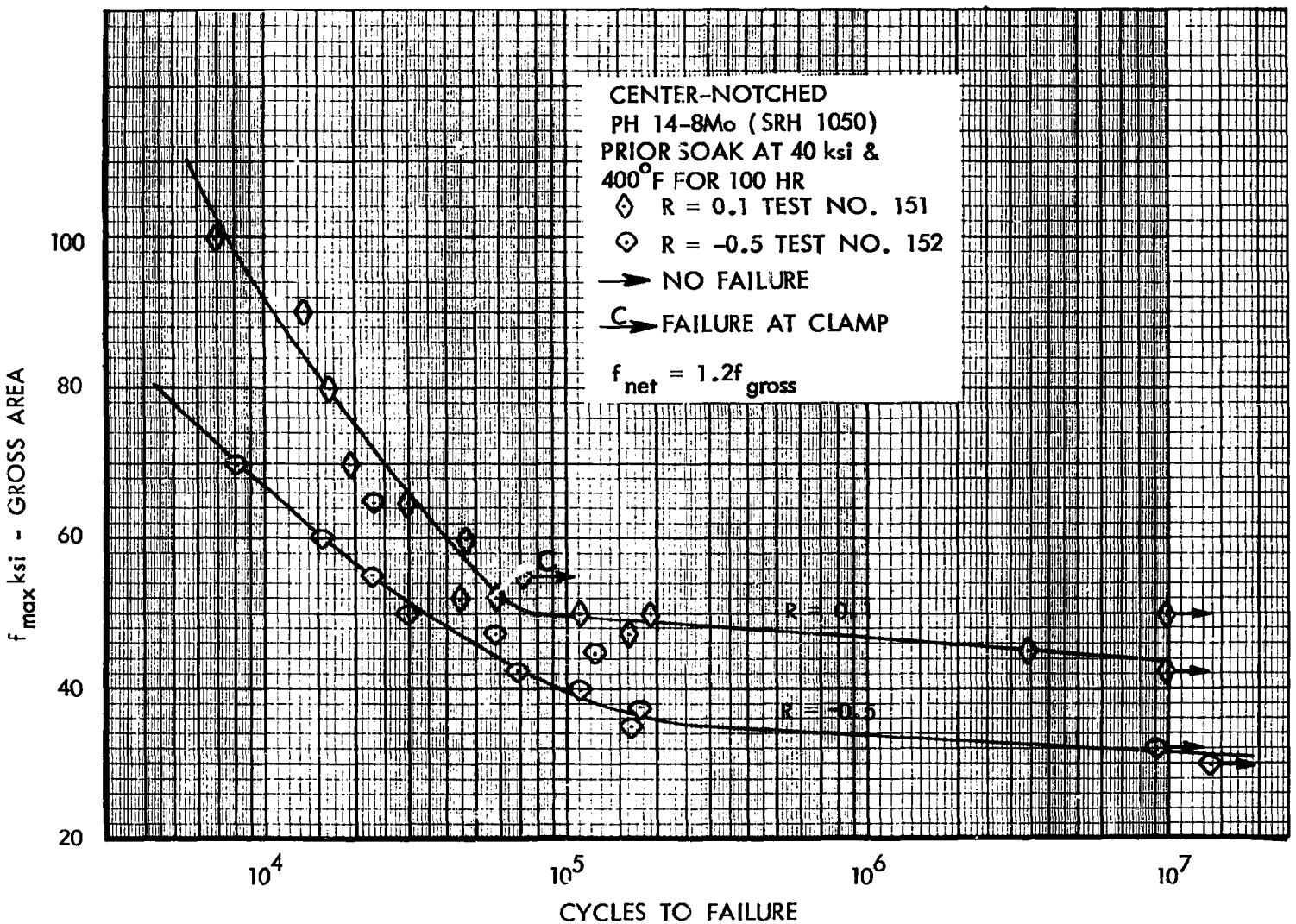



Figure 109. S-N Curves at Room Temperature, Center-Notched PH14-8Mo, R = Constant

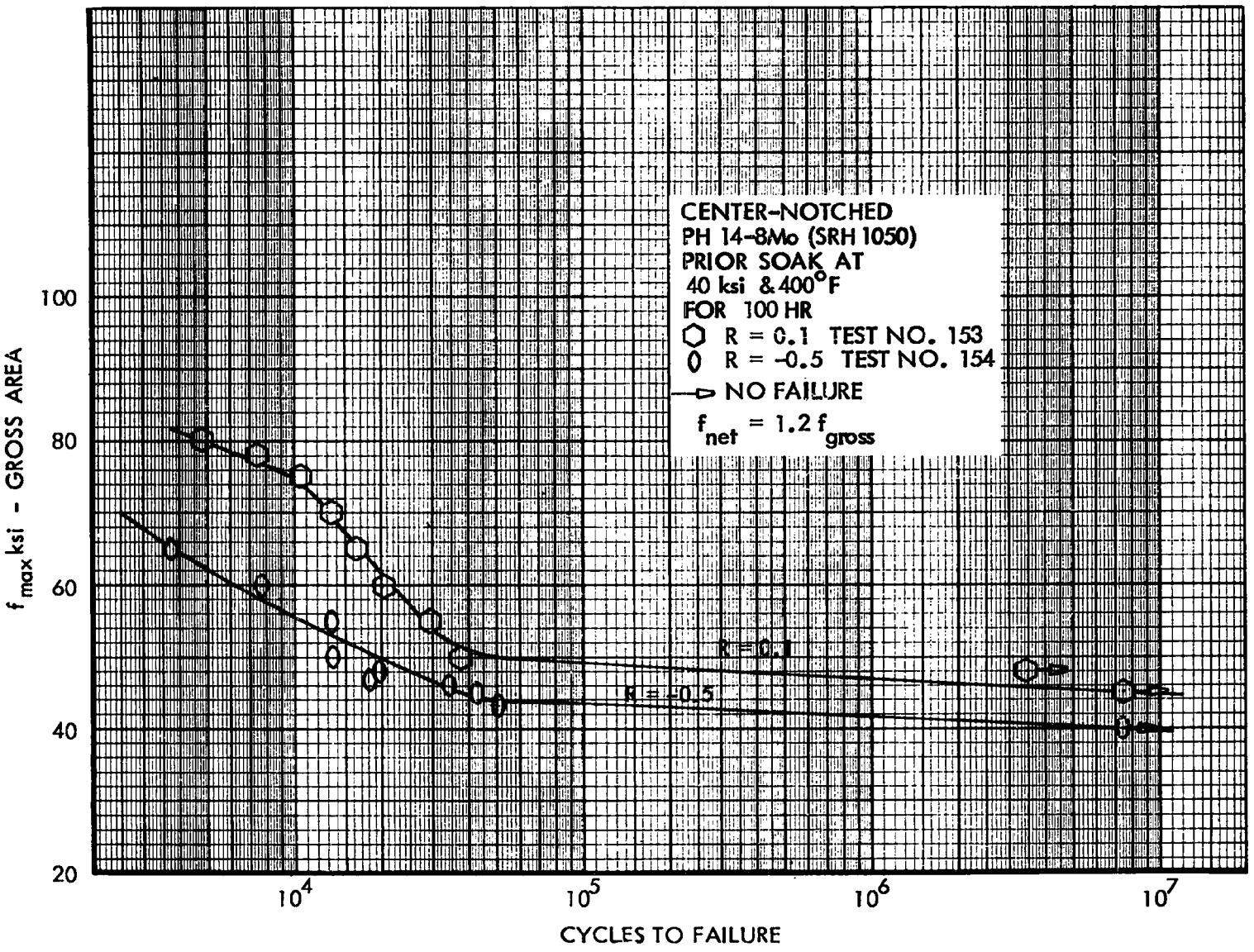



Figure 110. S-N Curves at 400°F, Center-Notched PH14-8Mo, R = Constant

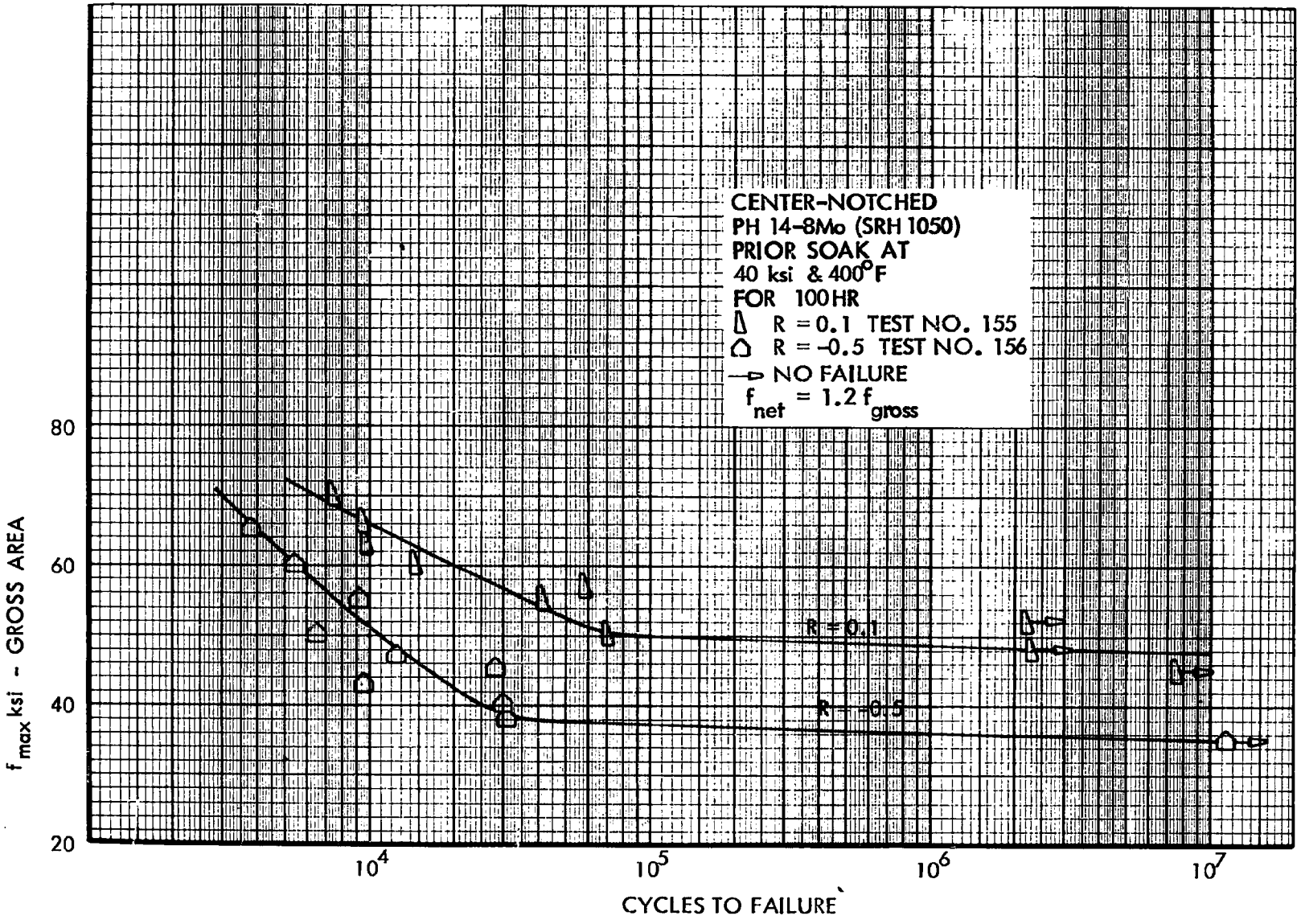



Figure III. S-N Curves at 650°F, Center-Notched PH14-8Mo, R = Constant

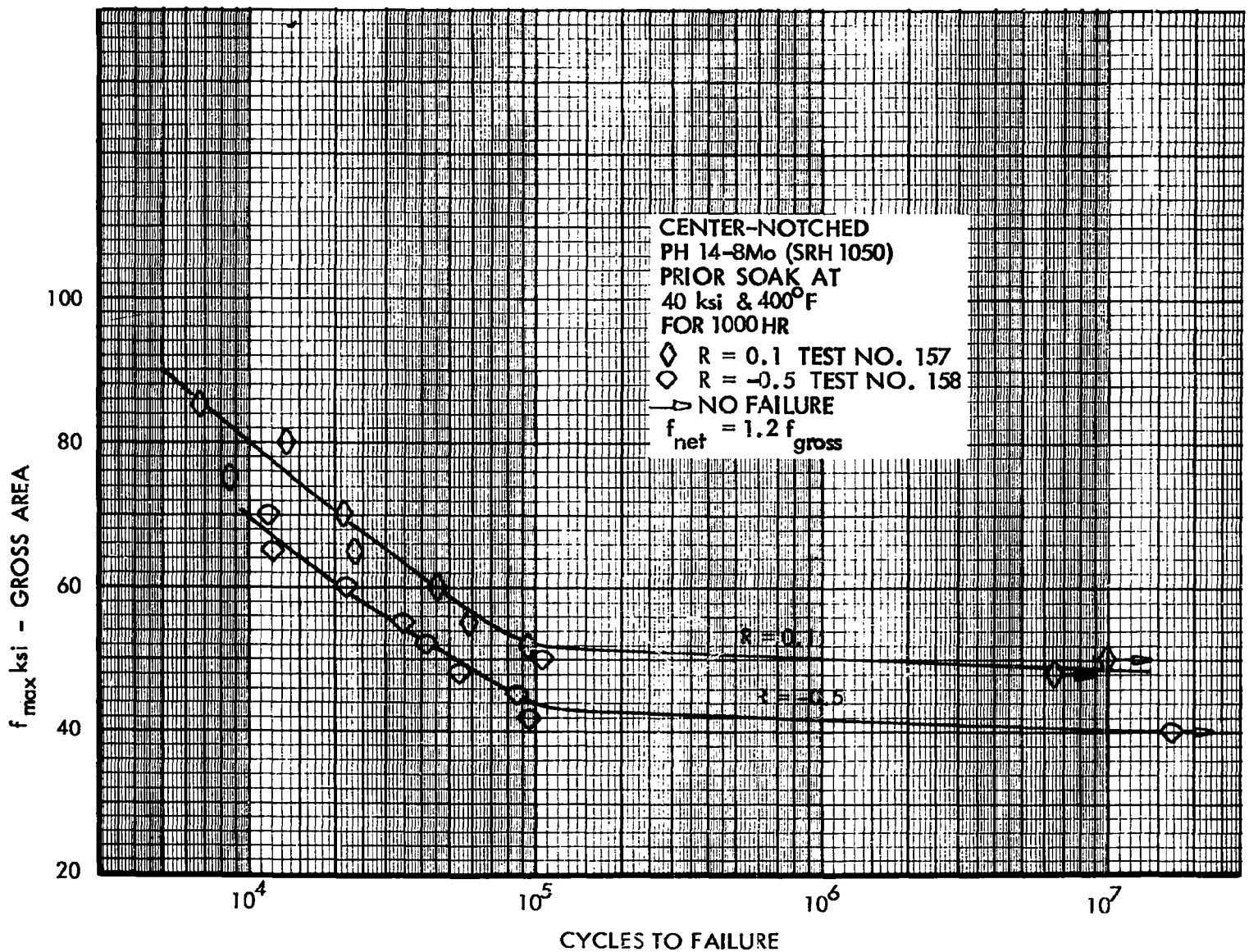



Figure 112. S-N Curves at Room Temperature, Center-Notched PH14-8Mo, R = Constant

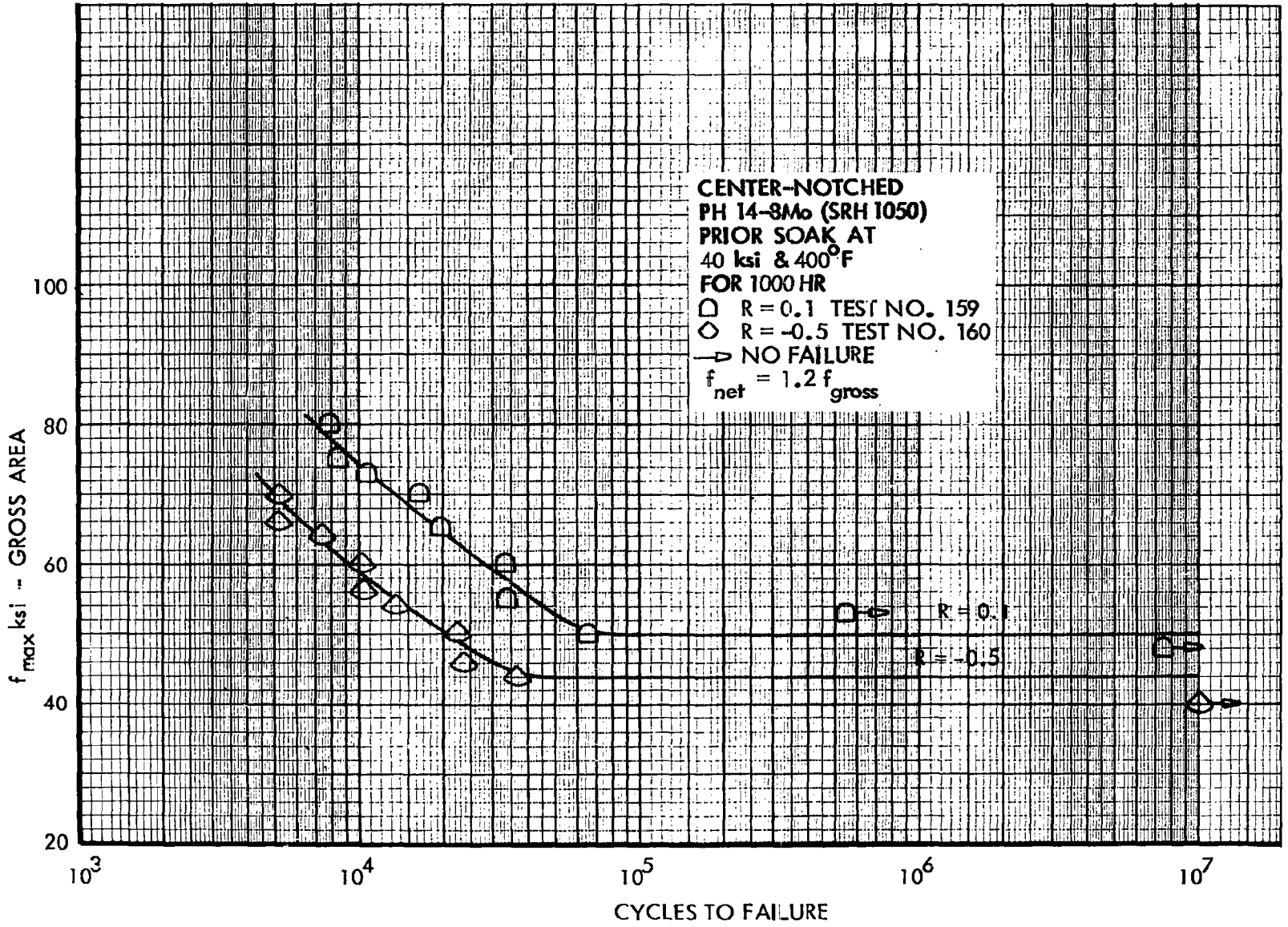



Figure 113. S-N Curves at 400°F, Center-Notched PH14-8Mo, R = Constant

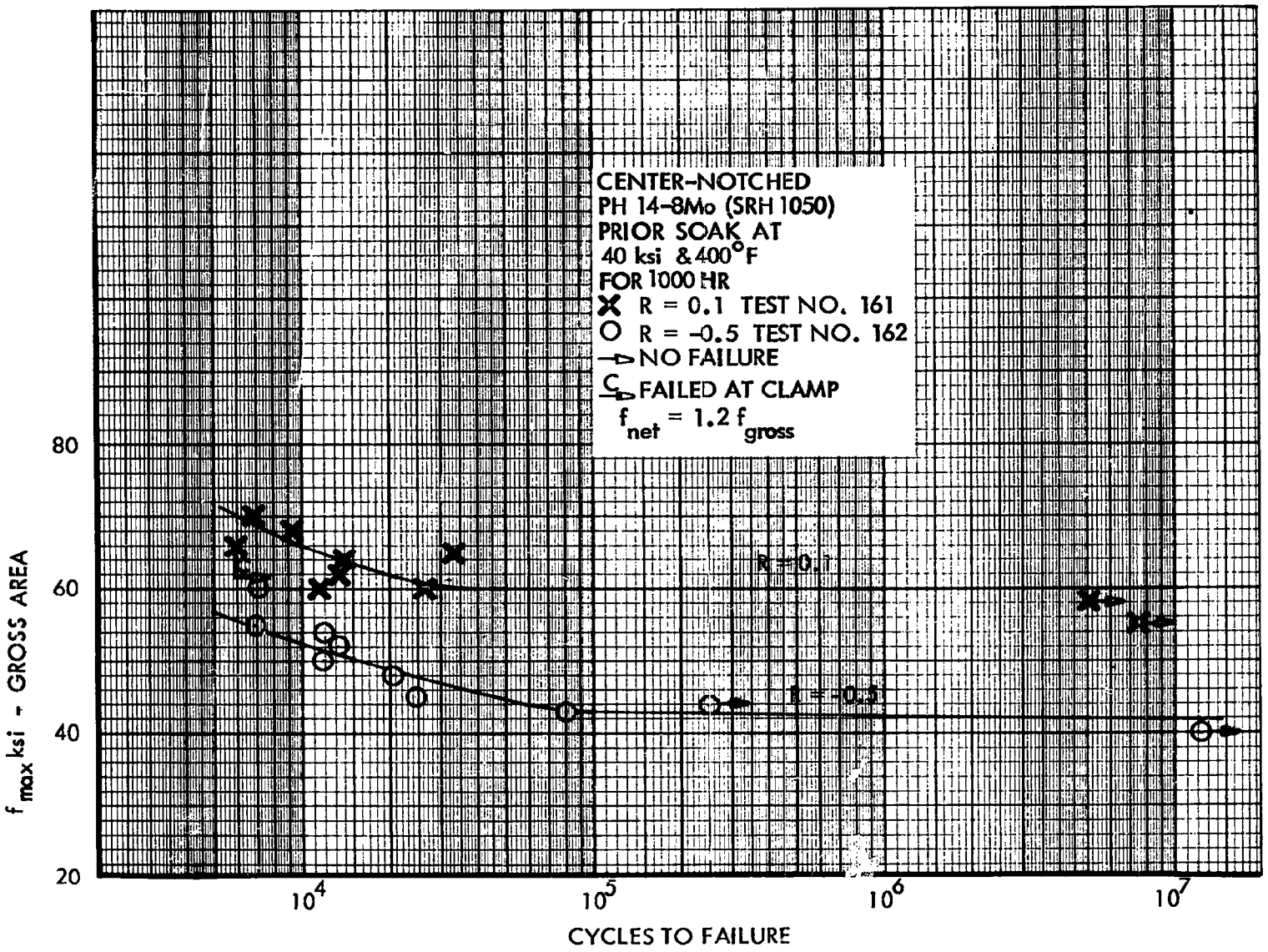



Figure 114. S-N Curves at 650°F, Center-Notched PH14-8Mo, R = Constant

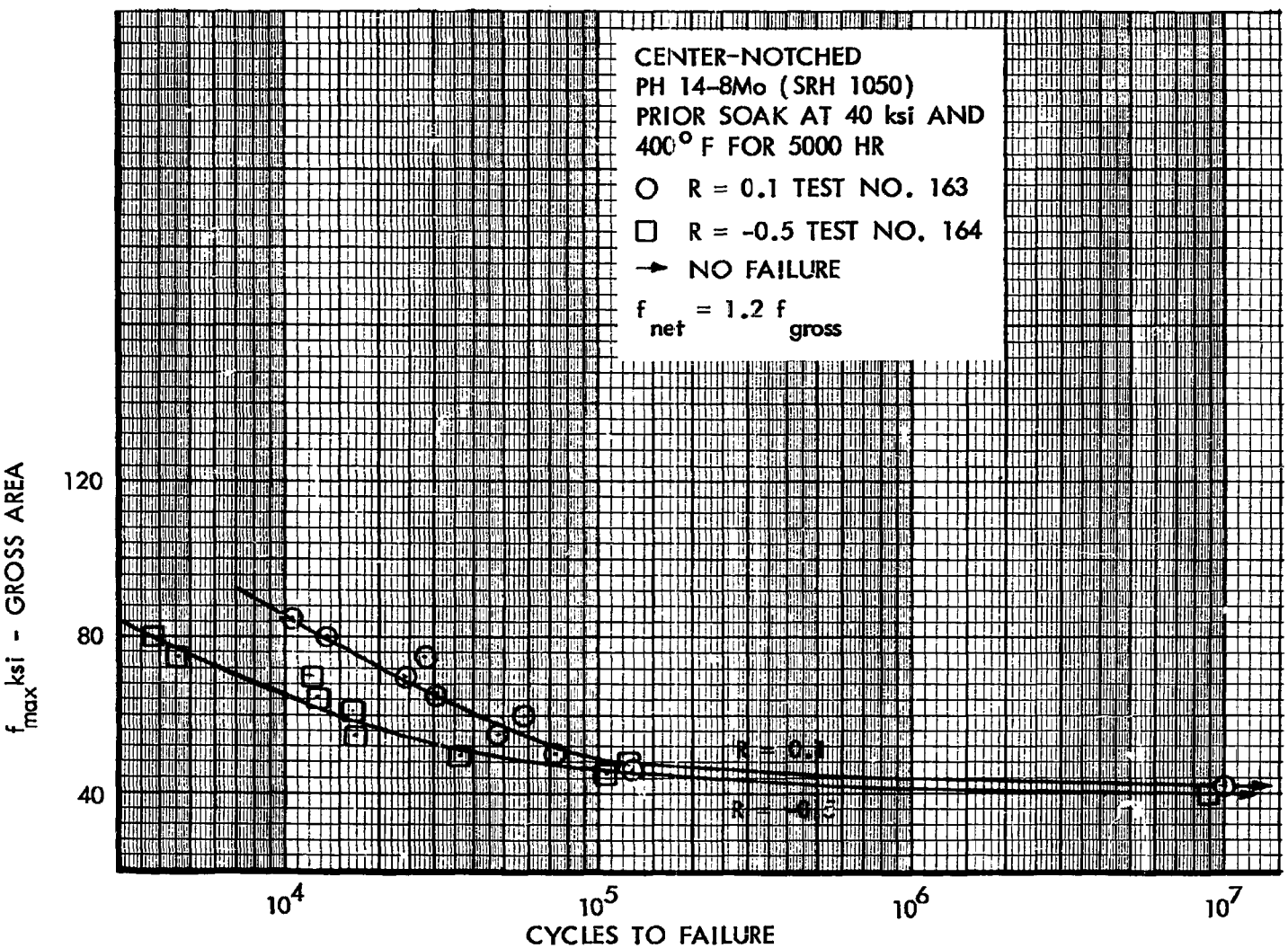



Figure 115. S-N Curves at Room Temperature, Center-Notched PH14-8Mo, R = Constant

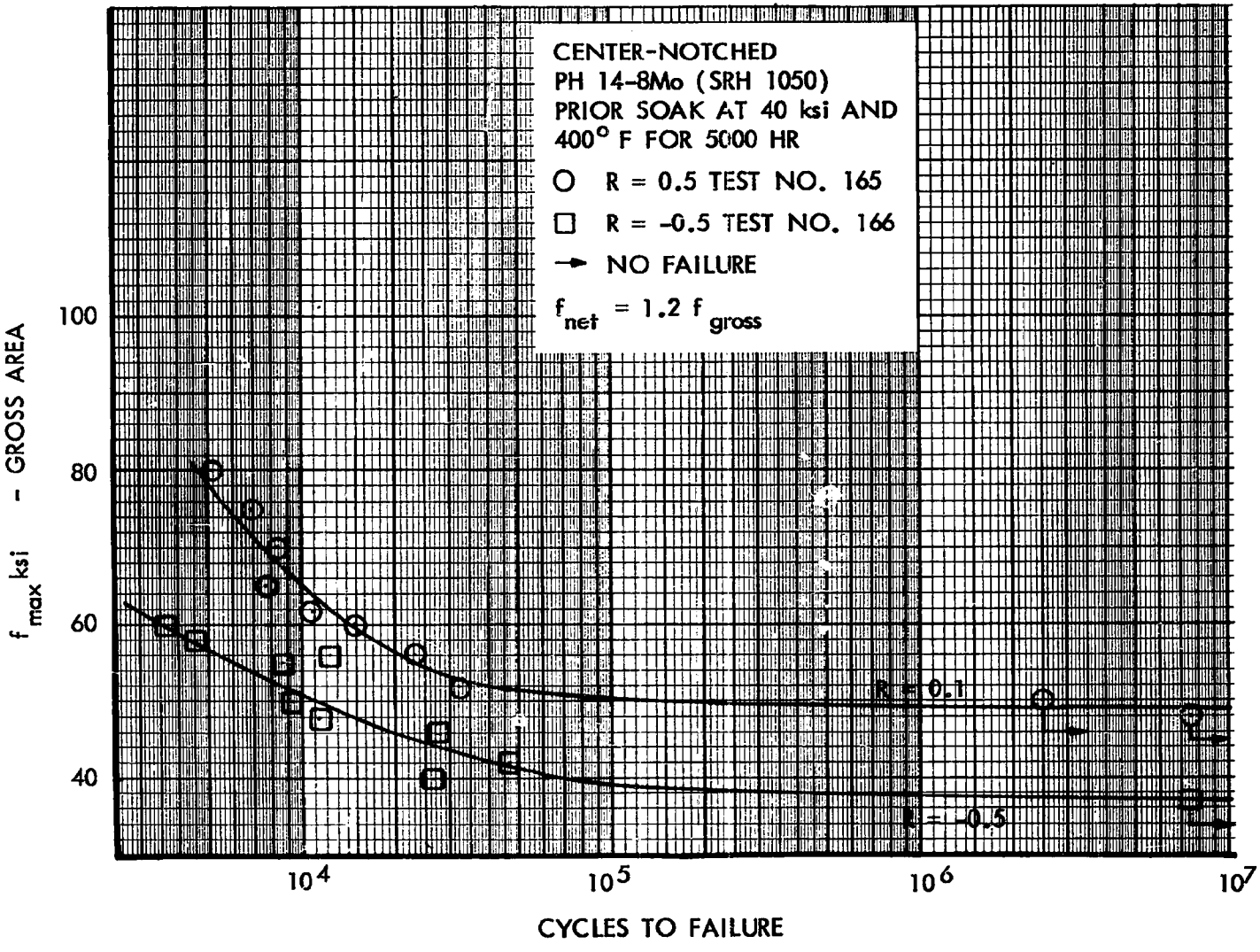



Figure 116. S-N Curves at 400°F, Center-Notched PH14-8Mo, R = Constant

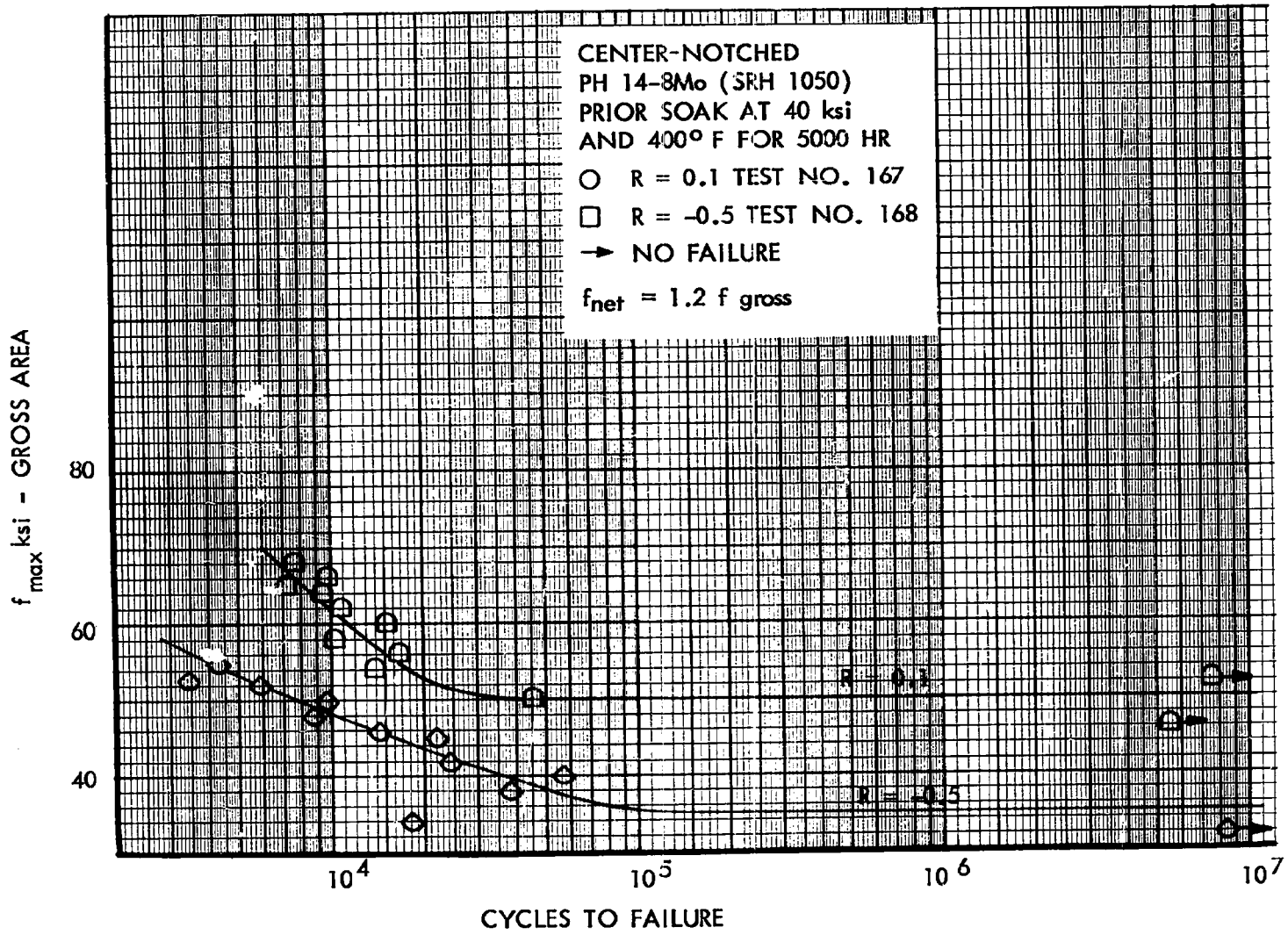



Figure 117. S-N Curves at 650°F, Center-Notched PH14-8Mo, R = Constant

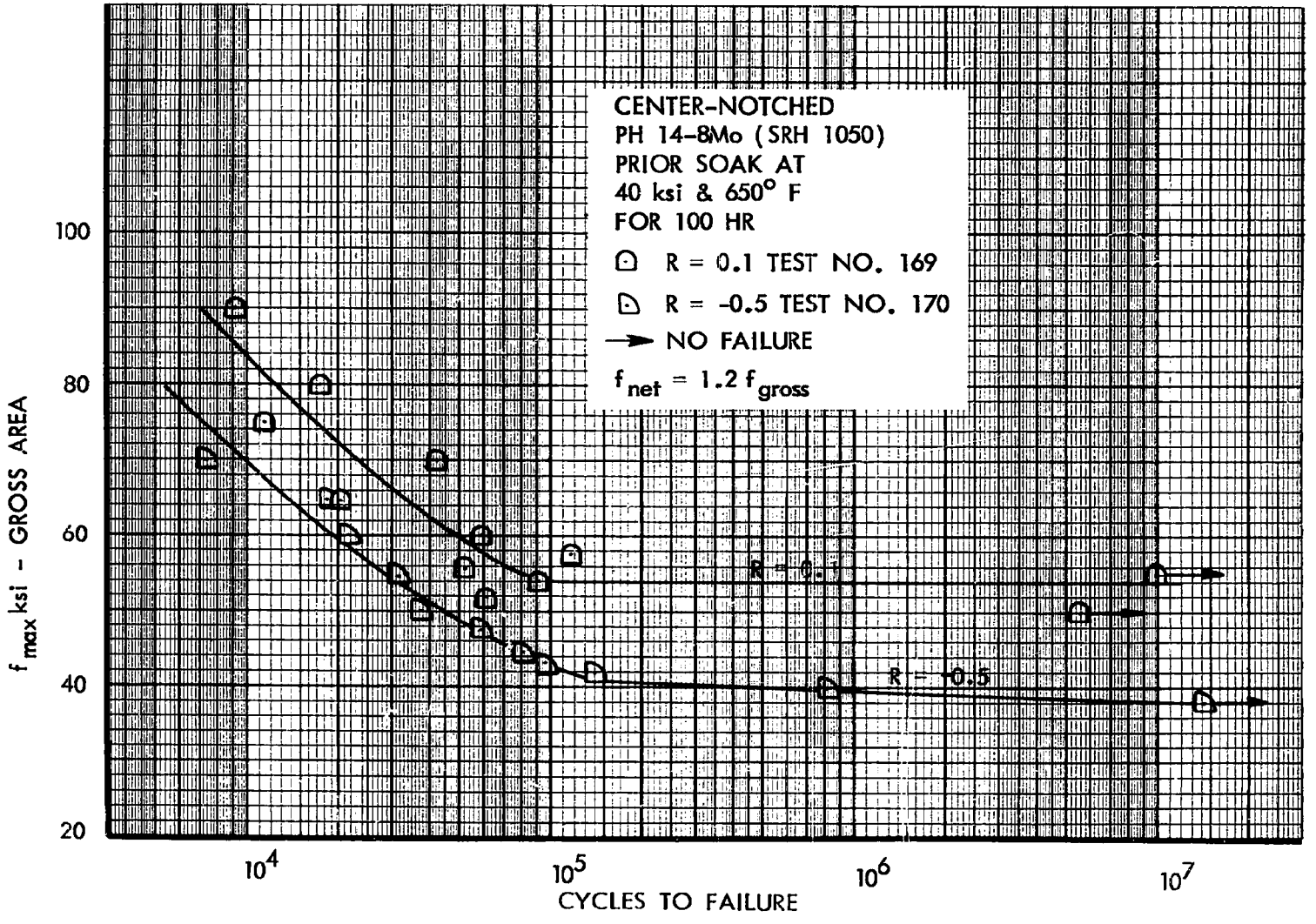



Figure 118. S-N Curves at Room Temperature, Center-Notched PH14-8Mo, R = Constant

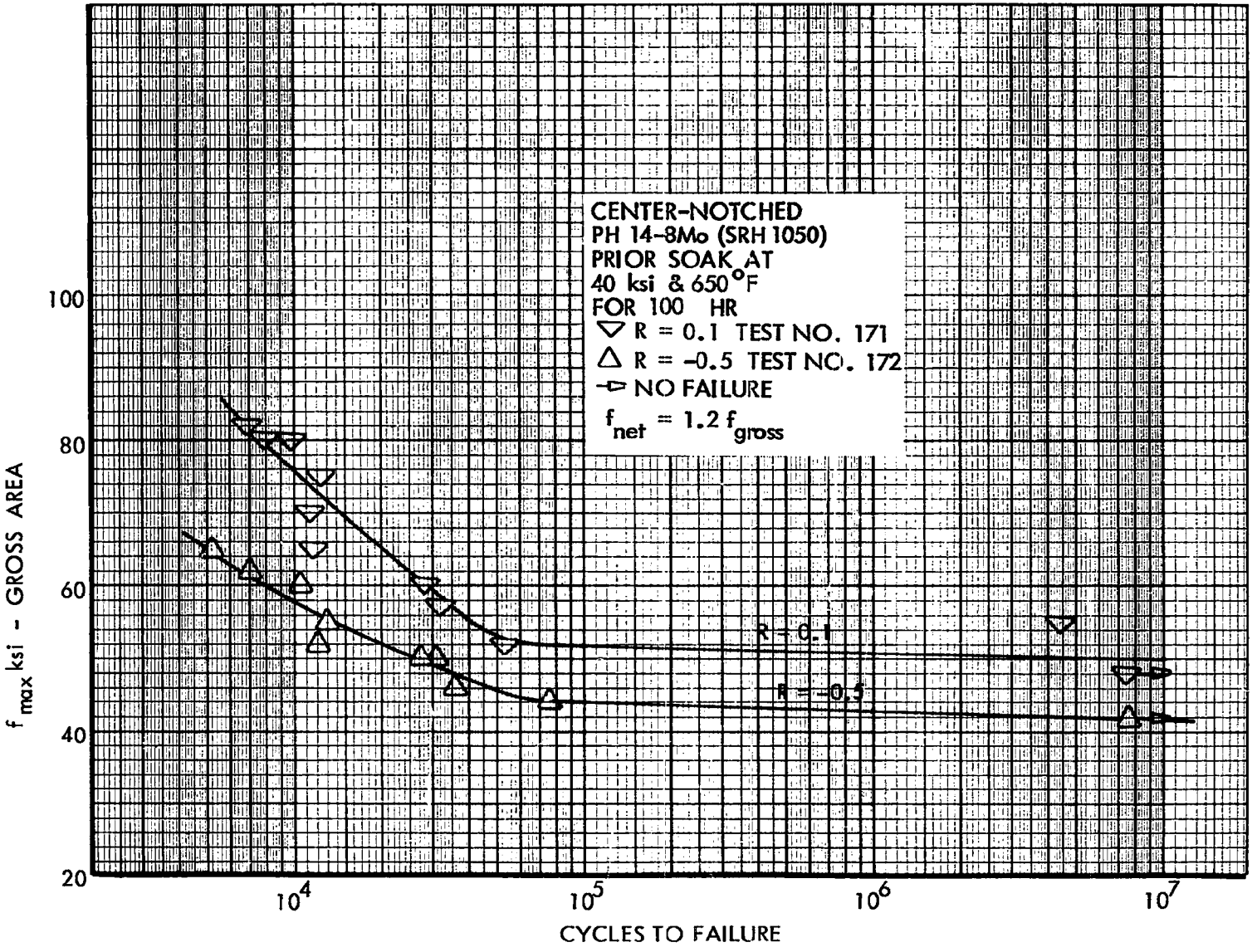



Figure 119. S-N Curves at 400°F, Center-Notched PH14-8Mo, R = Constant

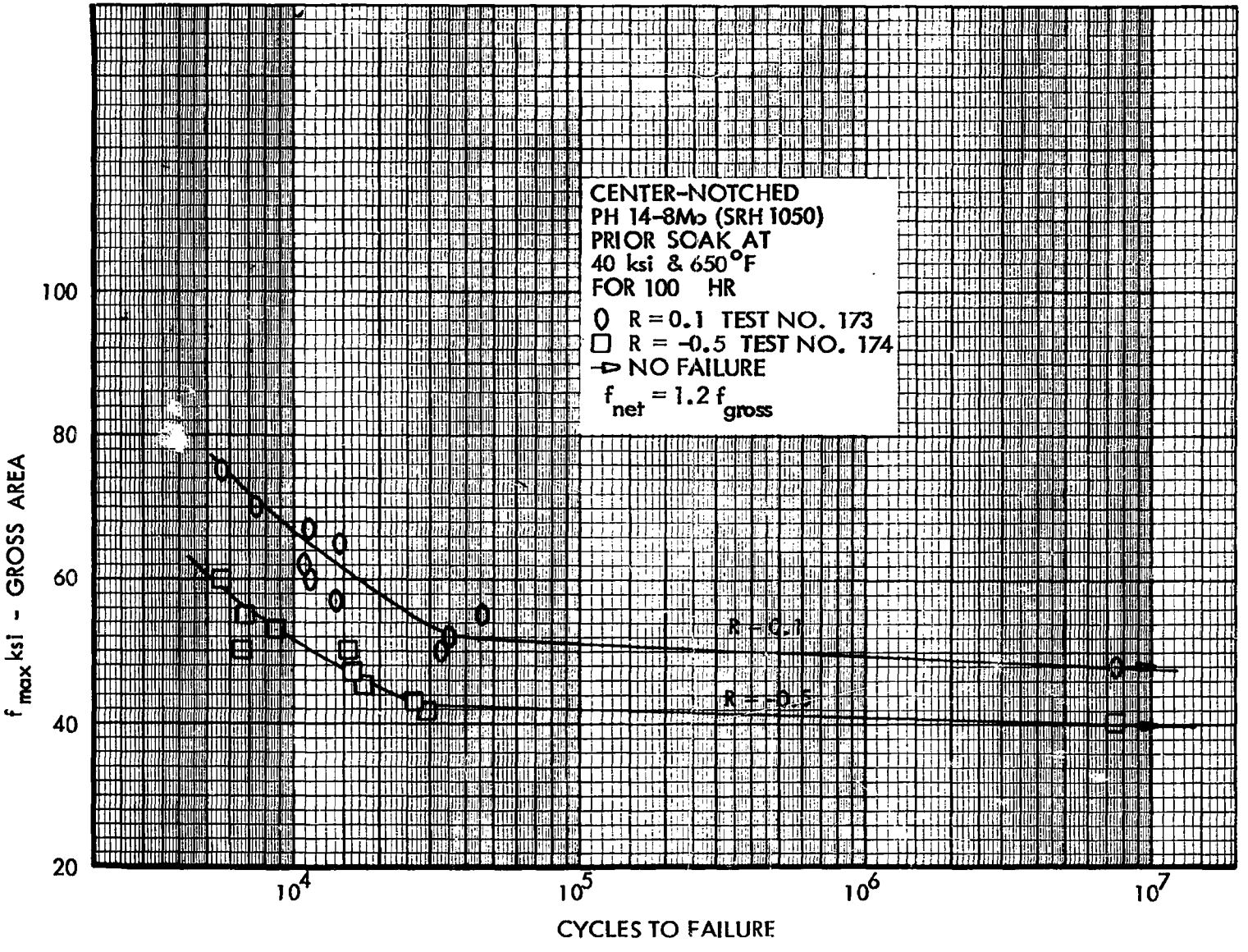



Figure 120. S-N Curves at 650°F, Center-Notched PH14-8Mo, R = Constant

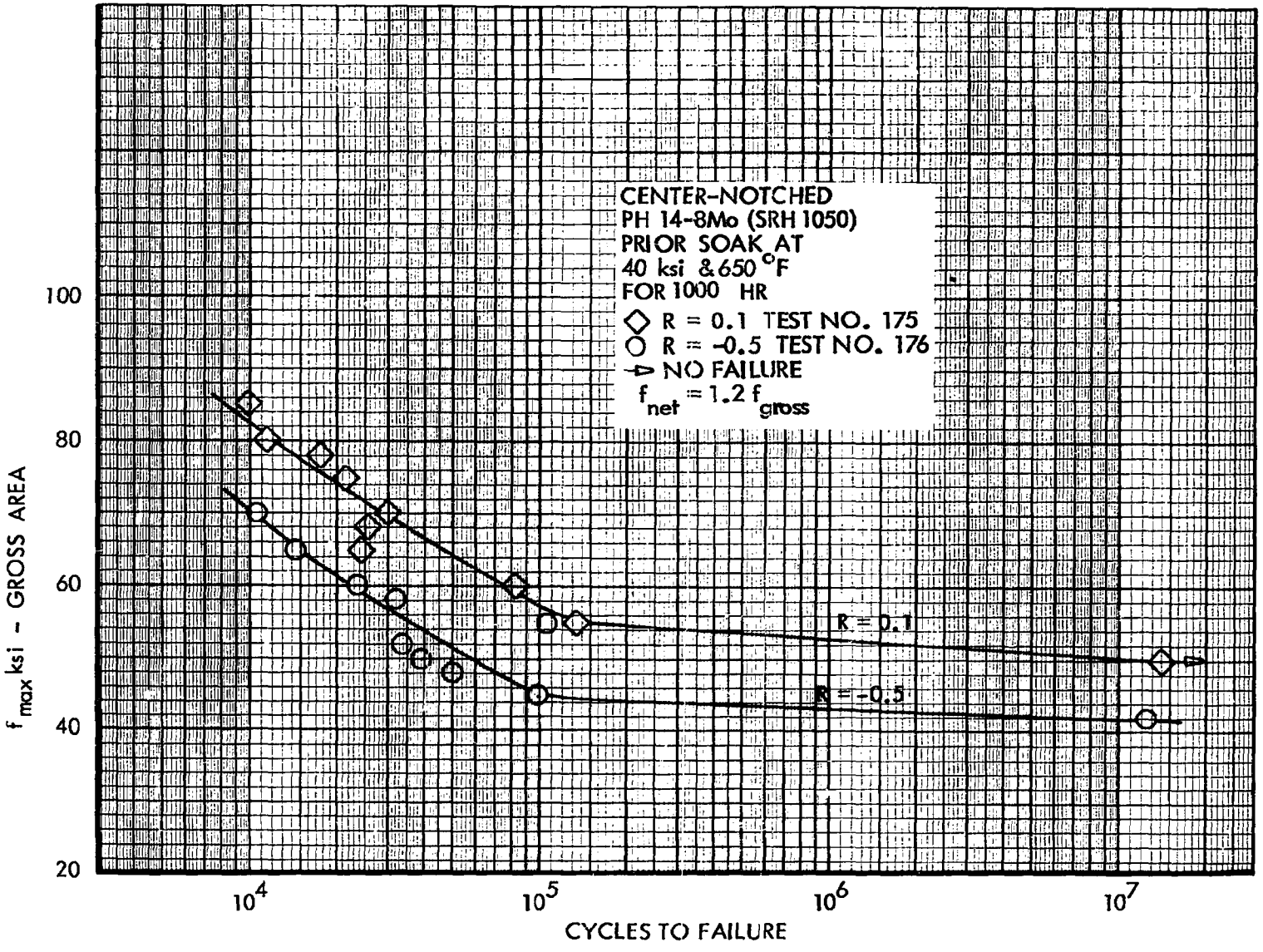



Figure 121. S-N Curves at Room Temperature, Center-Notched PH14-8Mo, R = Constant

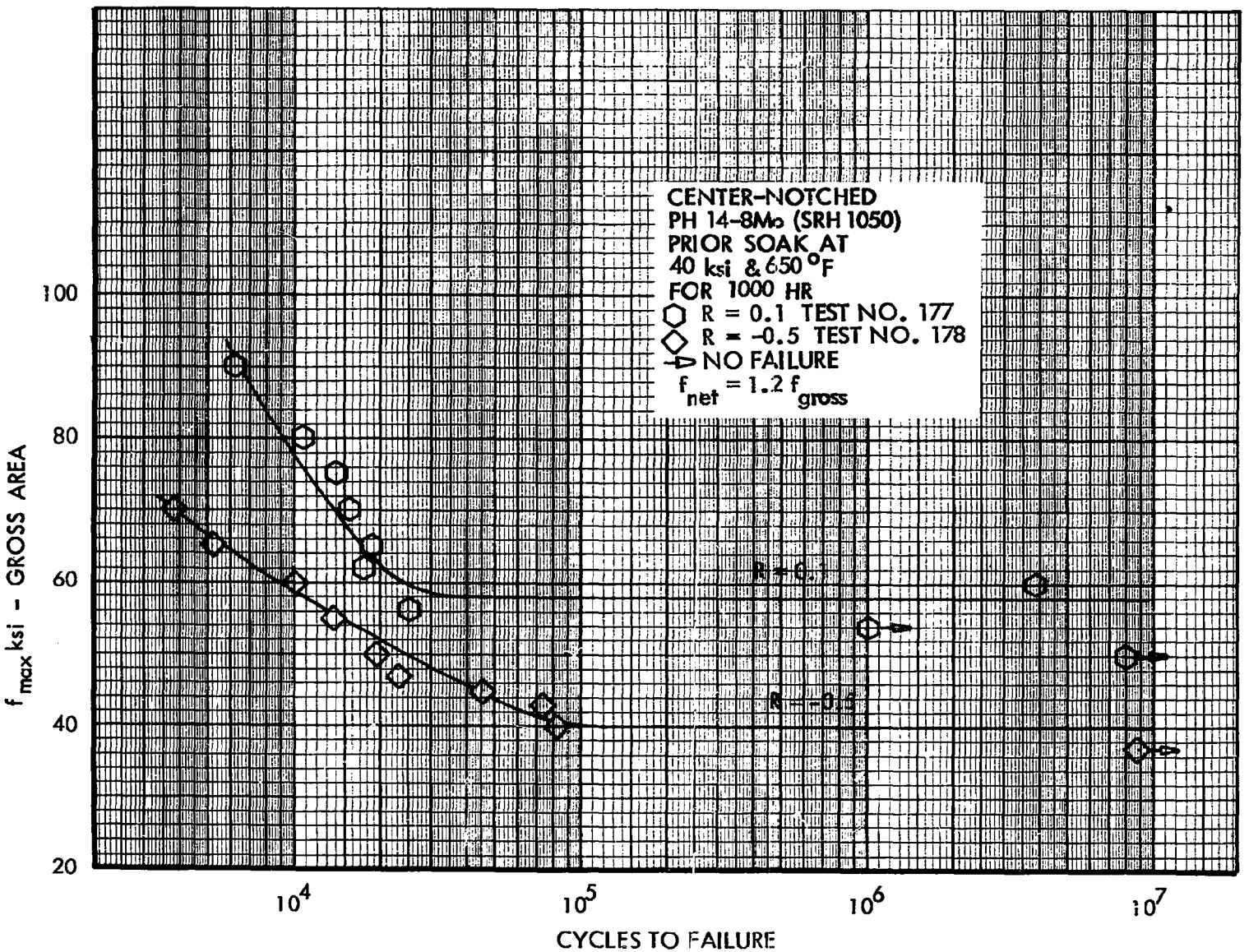



Figure 122. S-N Curves at 400°F, Center-Notched PH14-8Mo, R = Constant

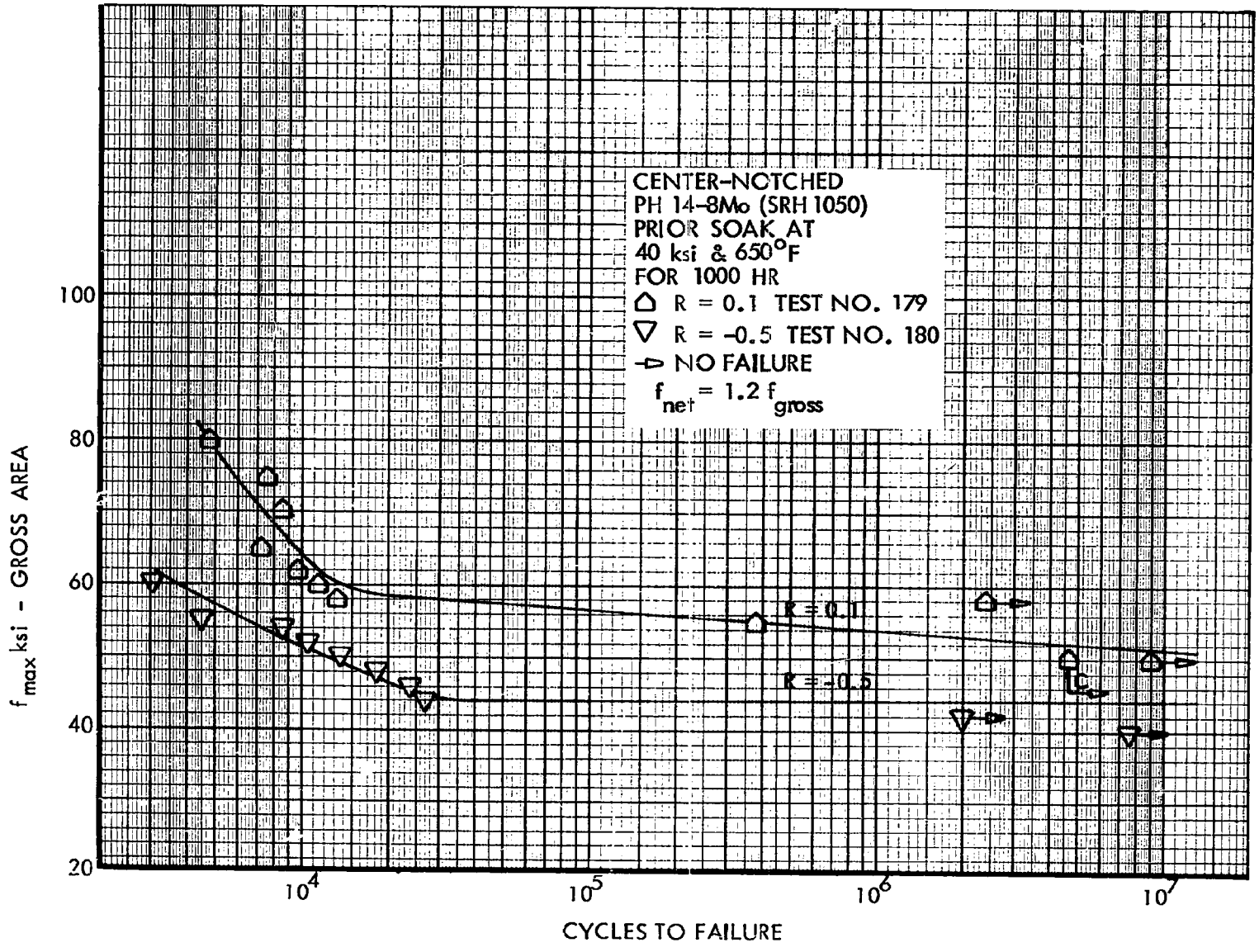



Figure 123. S-N Curves at 650°F, Center-Notched PH14-8Mo, R = Constant

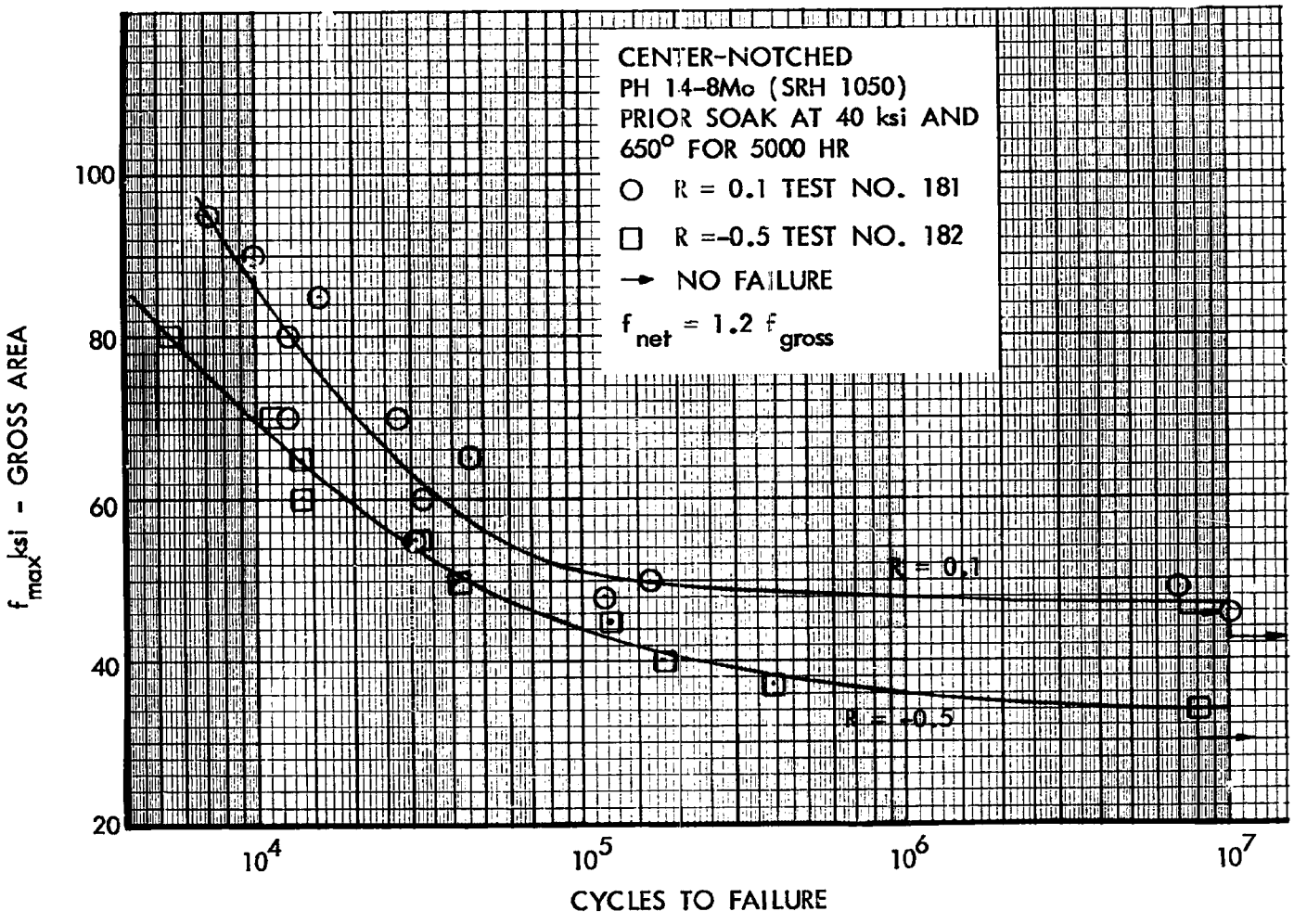



Figure 124. S-N Curves at Room Temperature, Center-Notched PH14-8Mo, R = Constant

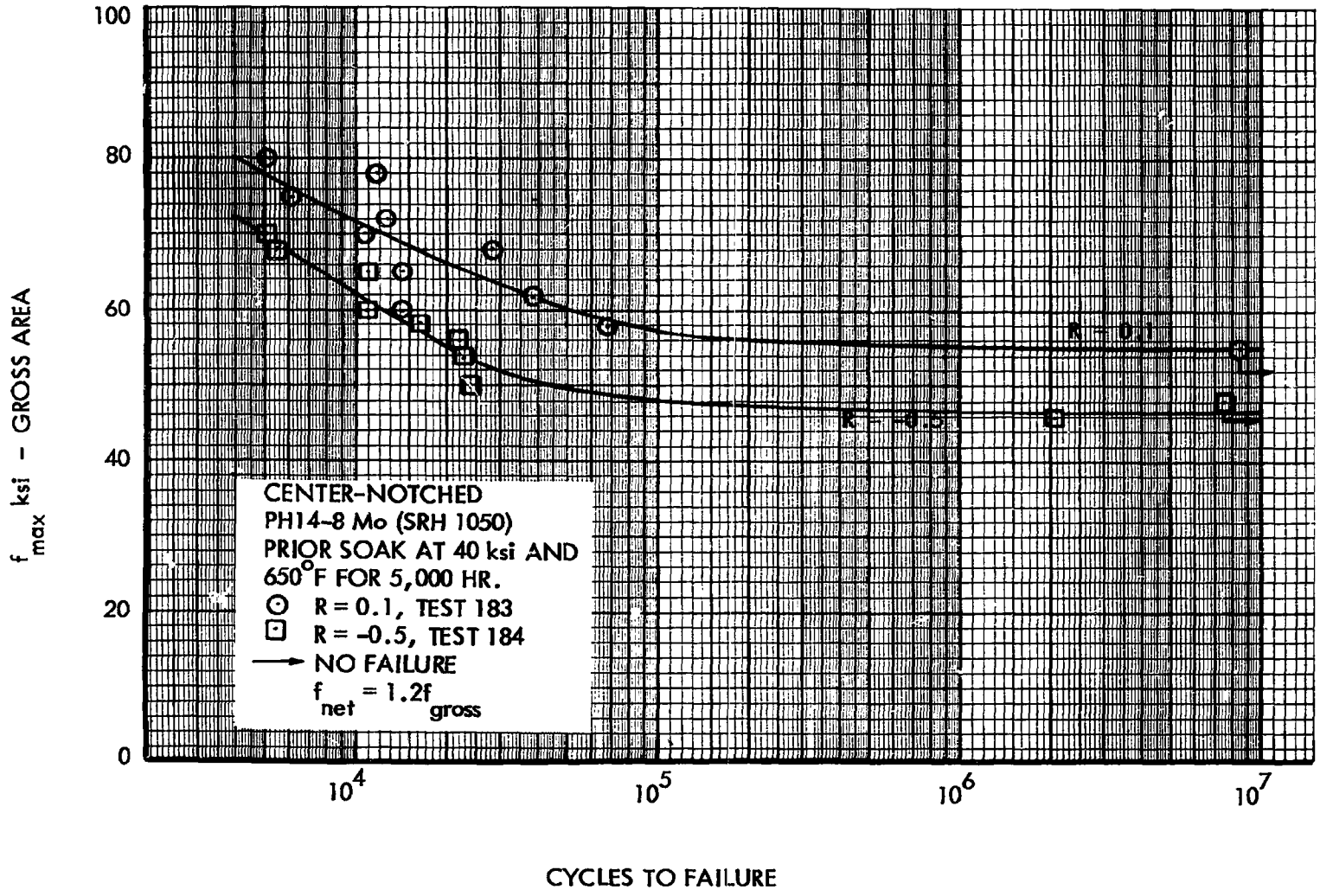



Figure 125. S-N Curves at 400°F, Center-Notched PH14-8Mo, R = Constant

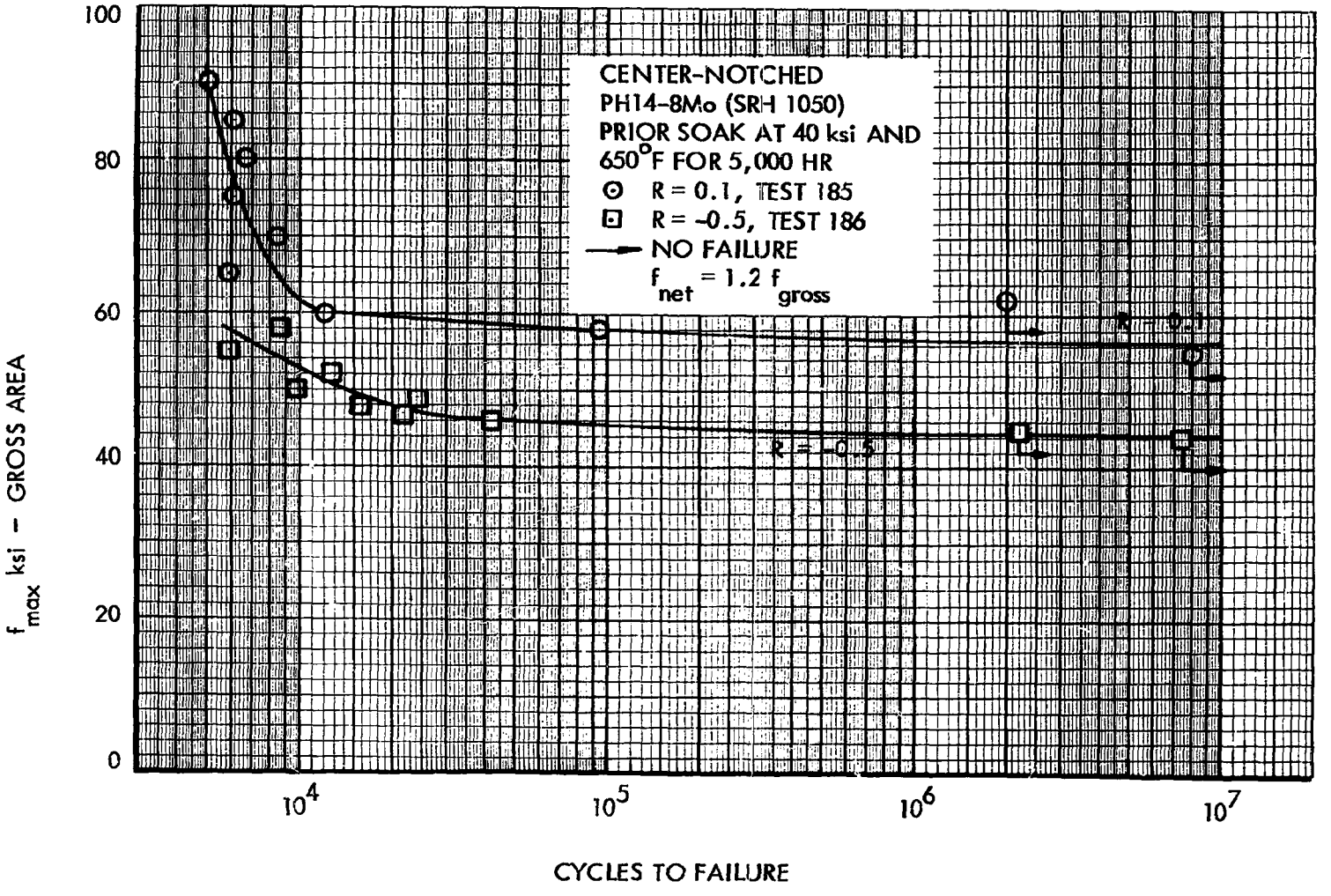



Figure 126. S-N Curves at 650°F, Center-Notched PH14-8Mo, R = Constant

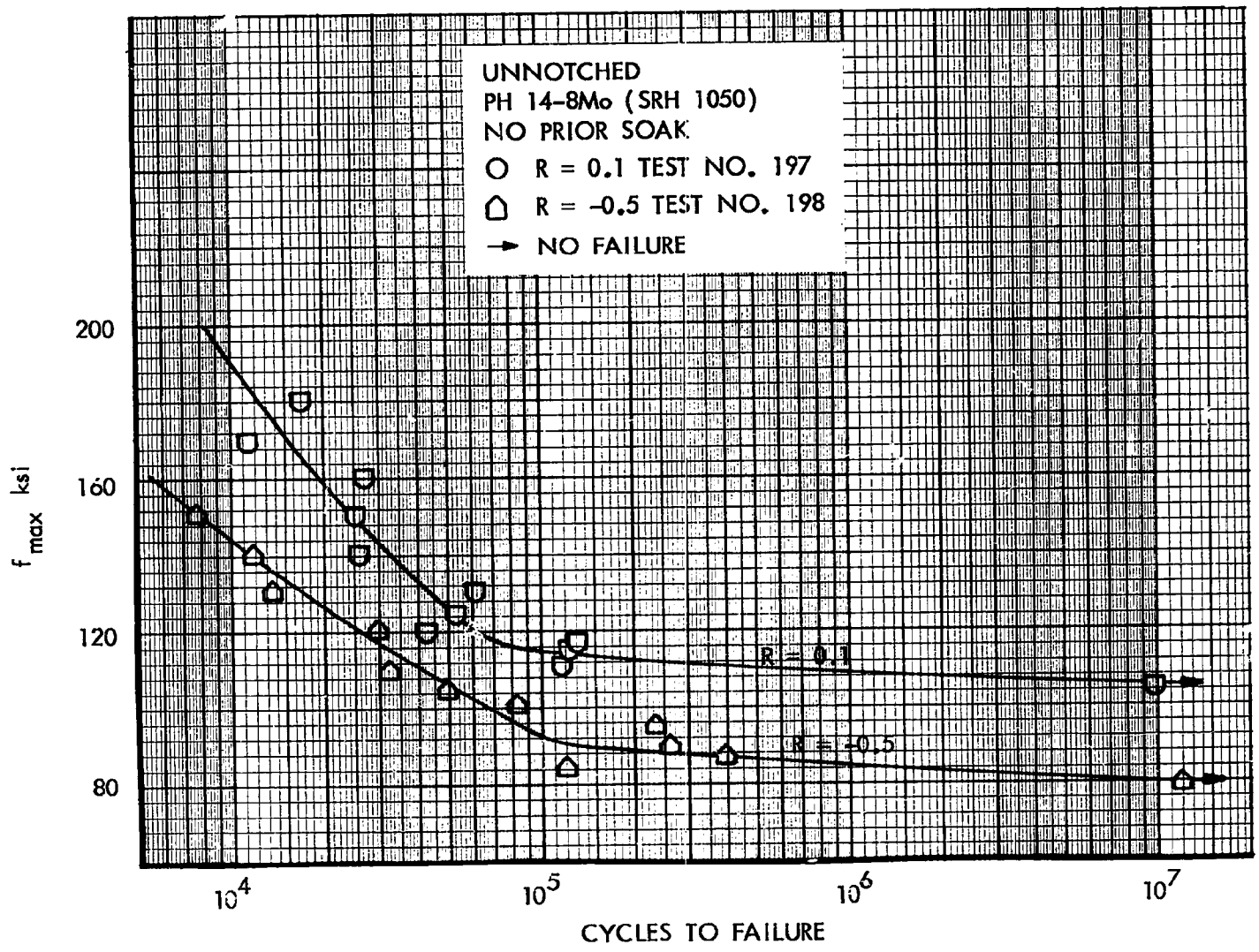



Figure 127. S-N Curves at Room Temperature, Unnotched PH14-8Mo, R = Constant

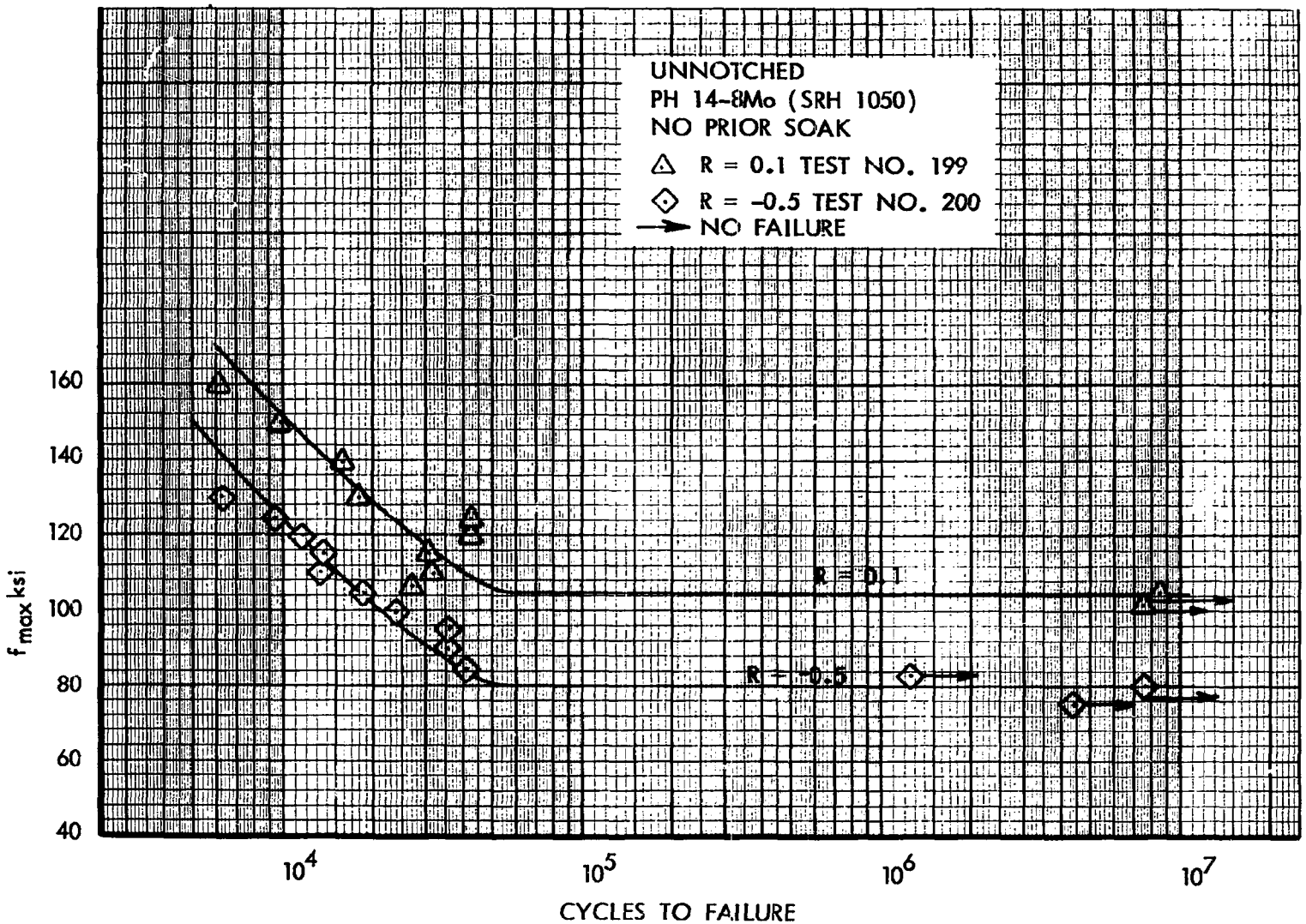



Figure 128. S-N Curves at 400°F, Unnotched PH14-8Mo, R = Constant

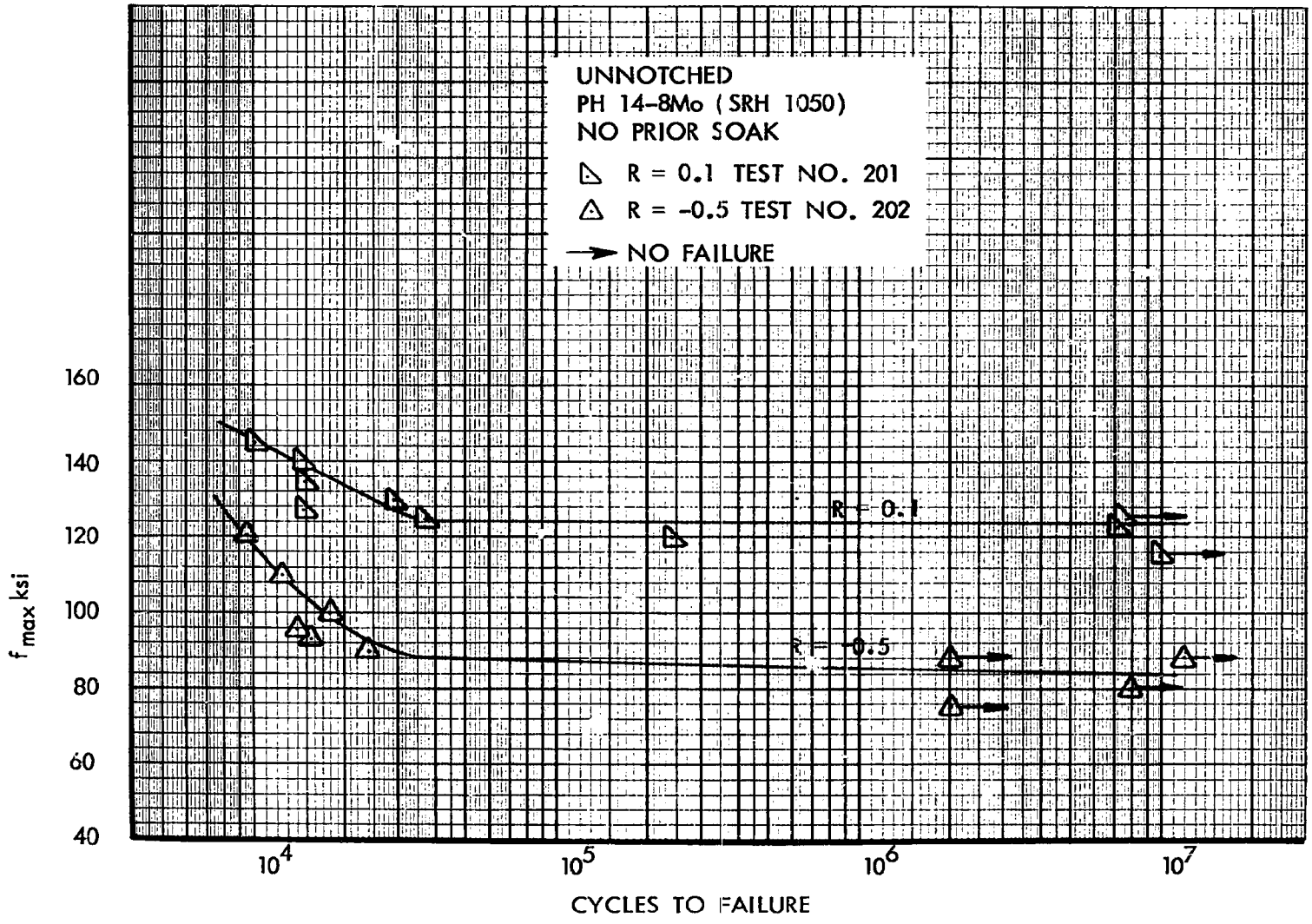



Figure 129. S-N Curves at 650°F, Unnotched PH14-8Mo, R = Constant

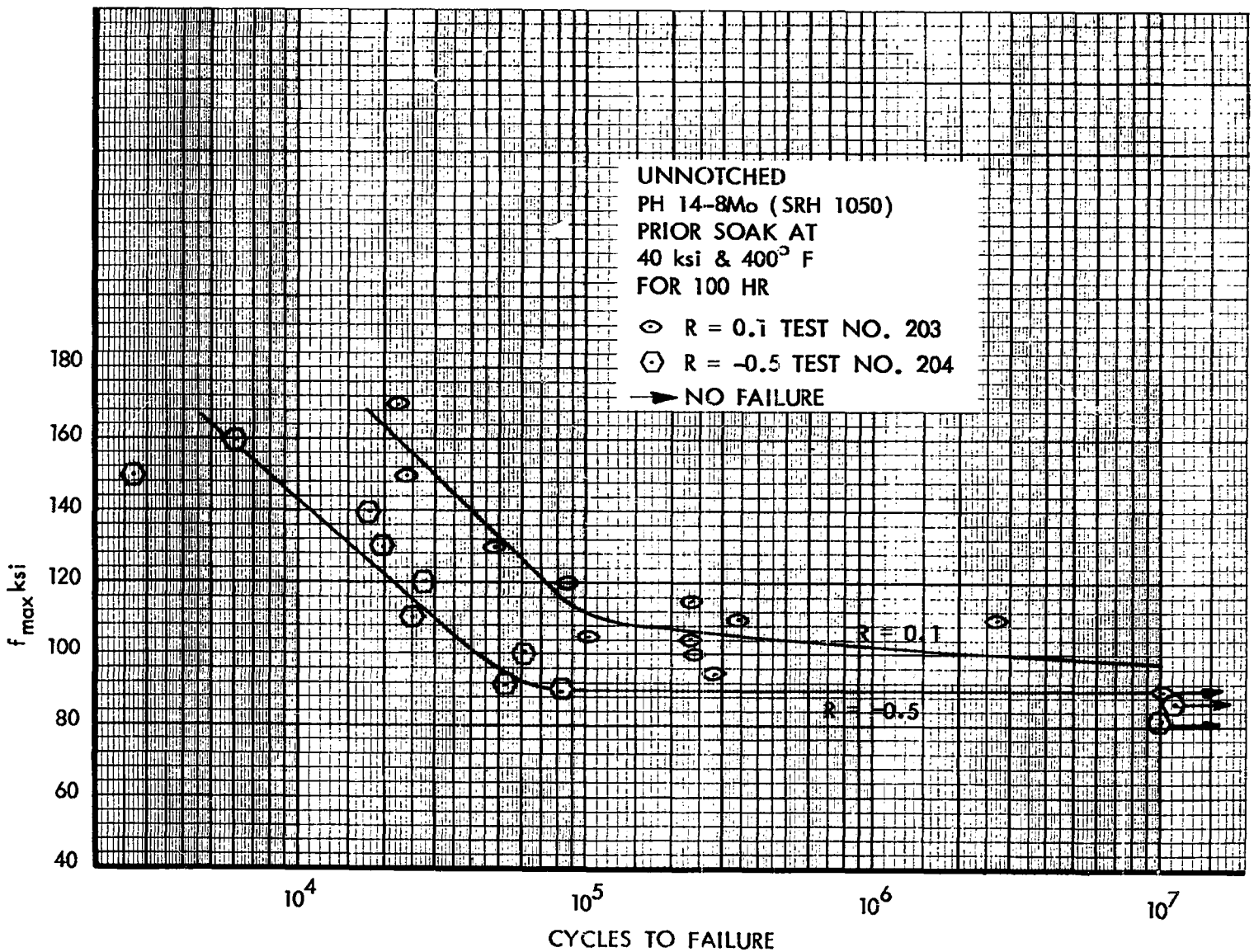



Figure 130. S-N Curves at Room Temperature, Unnotched PH14-8Mo, R = Constant

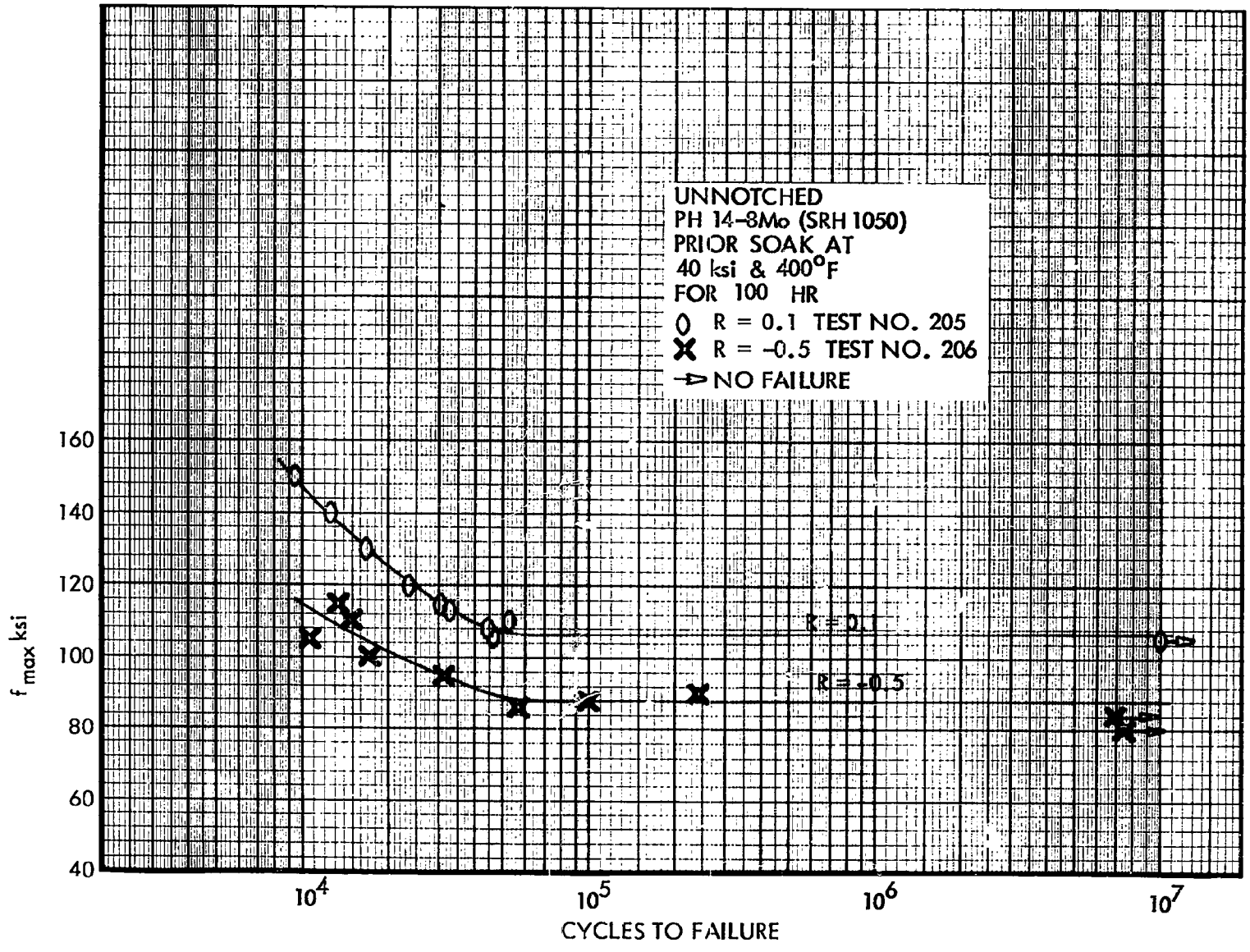



Figure 131. S-N Curves at 400°F, Unnotched PH14-8Mo, R = Constant

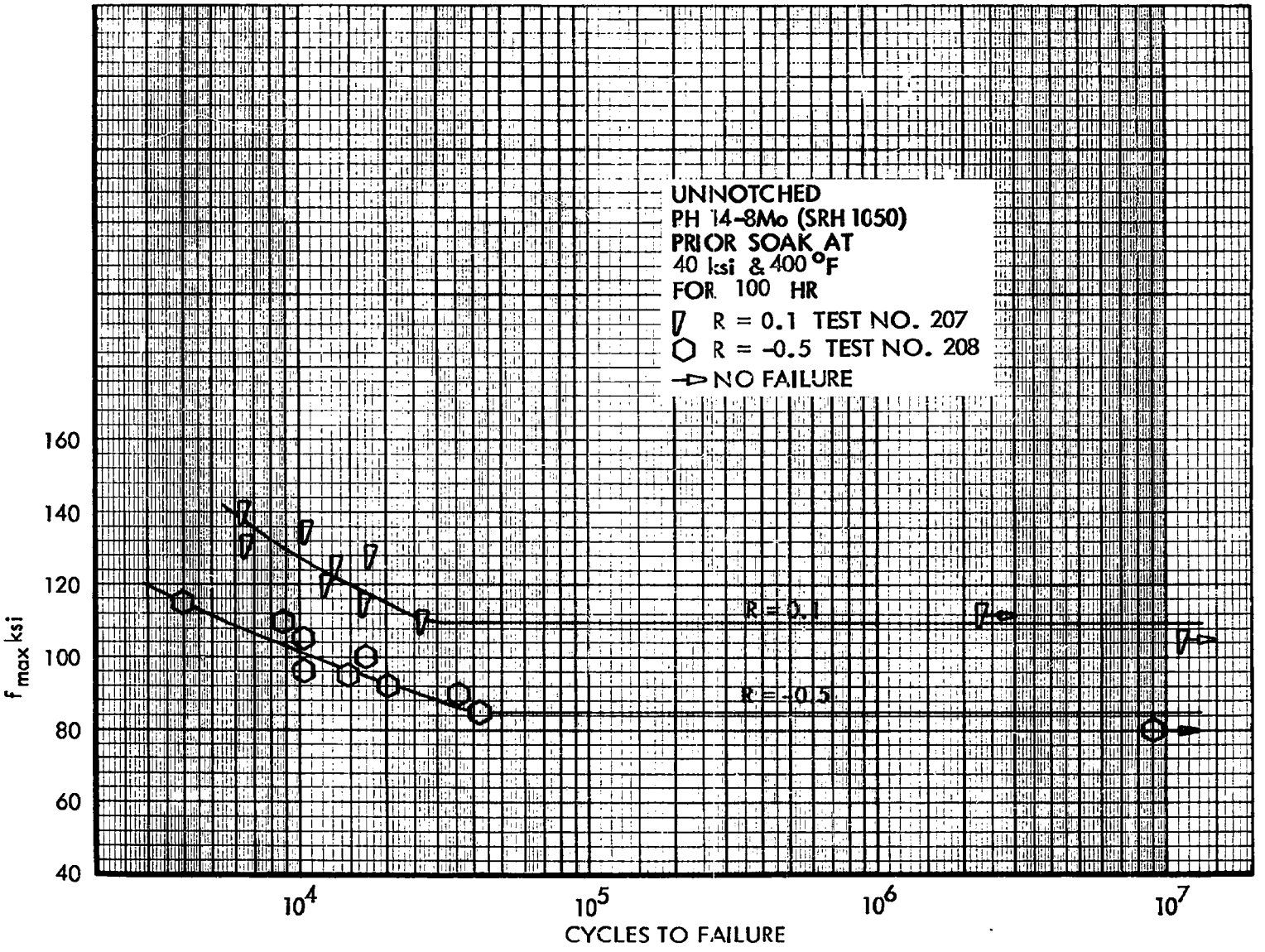



Figure 132. S-N Curves at 650°F, Unnotched PH14-8Mo, R = Constant

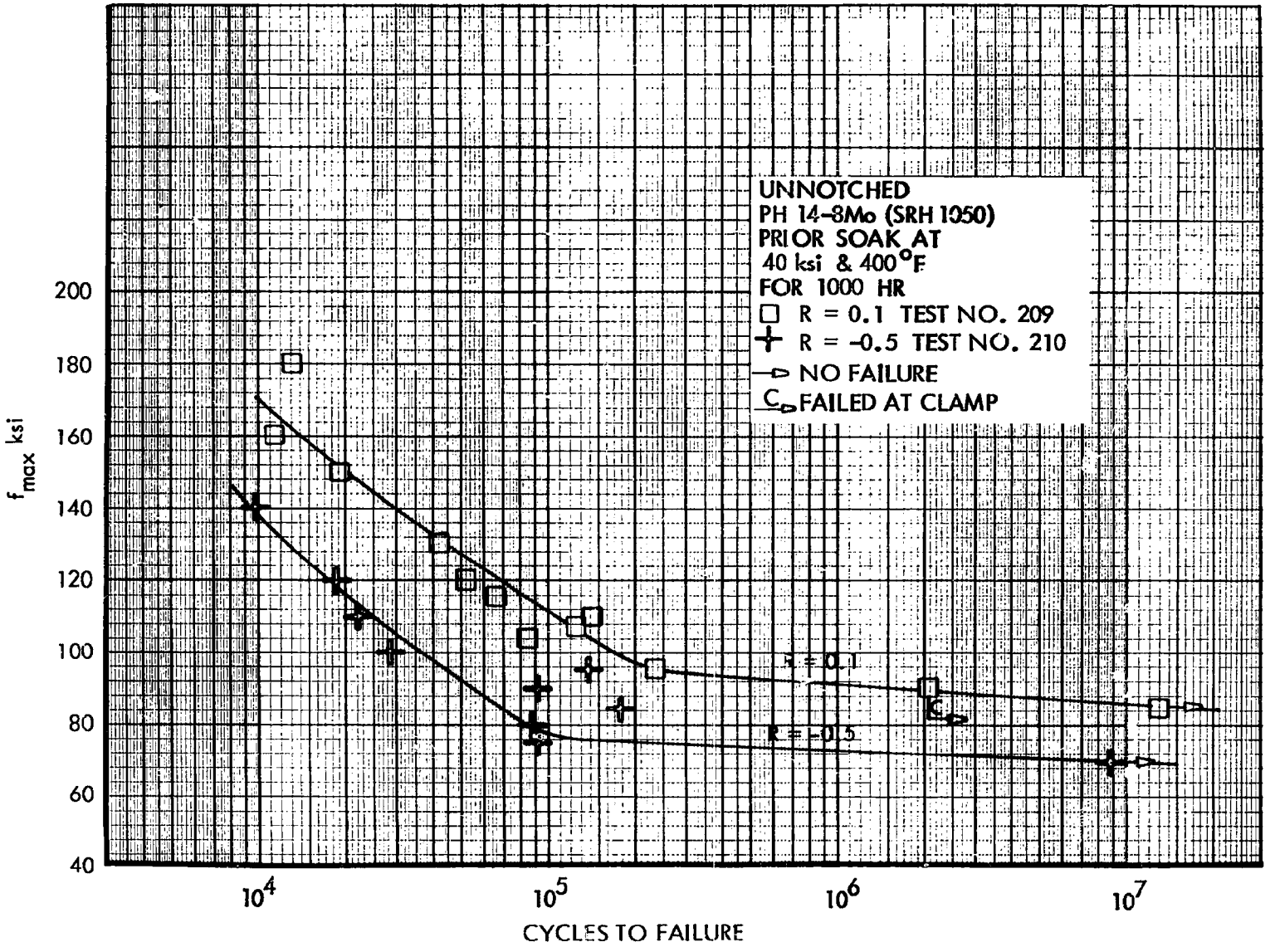



Figure 133. S-N Curves at Room Temperature, Unnotched PH14-8Mo, R = Constant

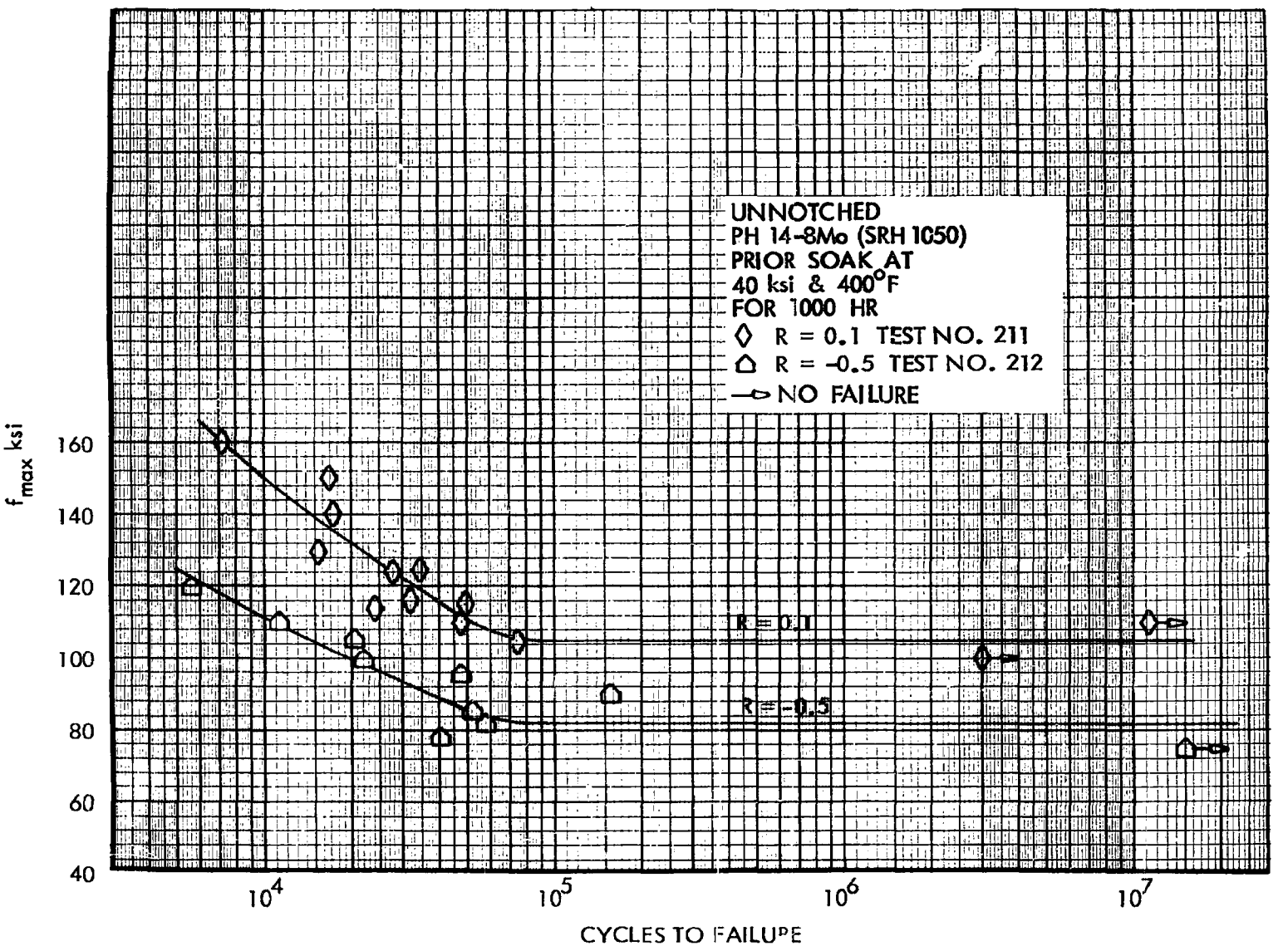



Figure 134. S-N Curves at 400°F, Unnotched PH14-8Mo, R = Constant

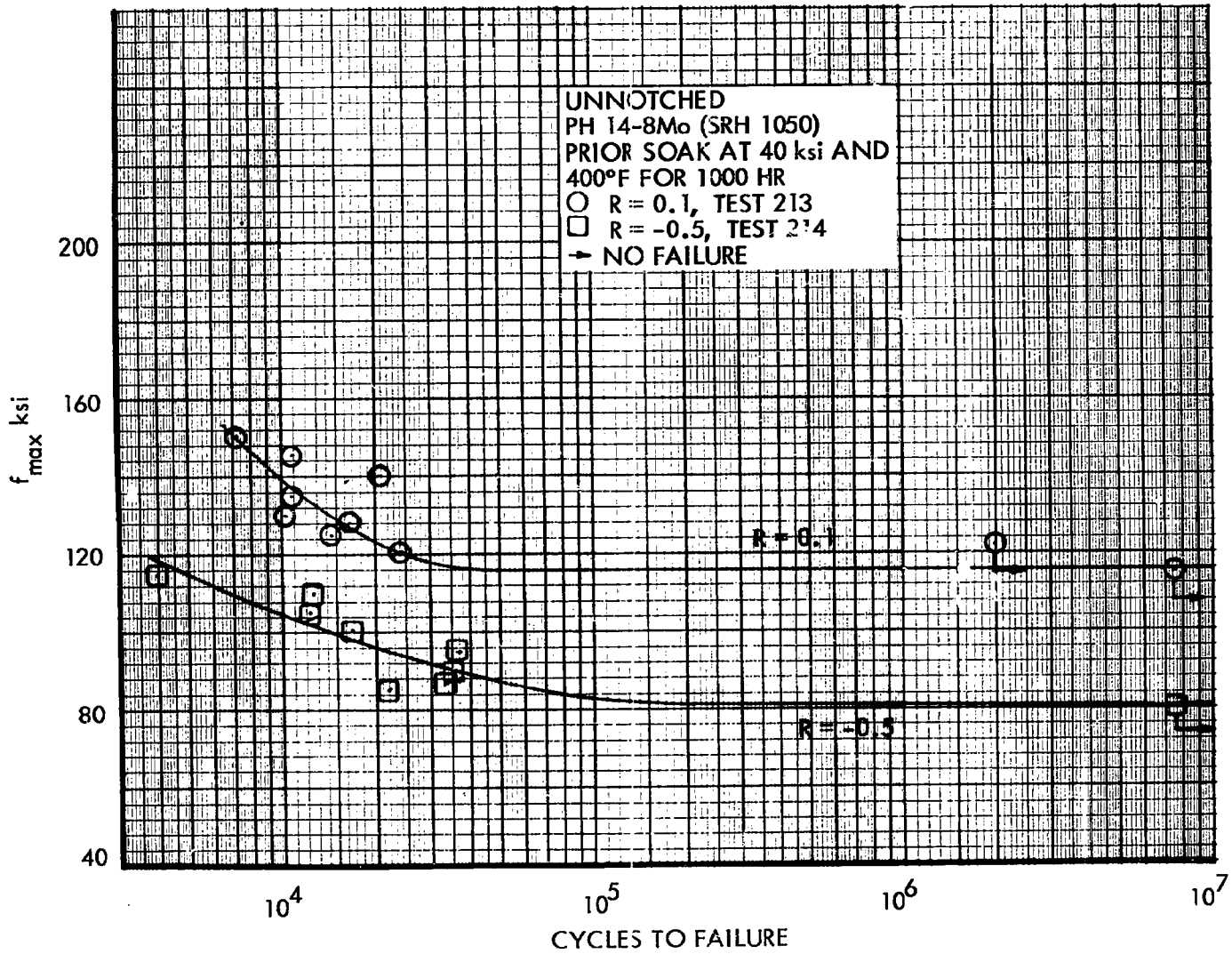



Figure 135. S-N Curves at 650°F, Unnotched PH14-8Mo, R = Constant

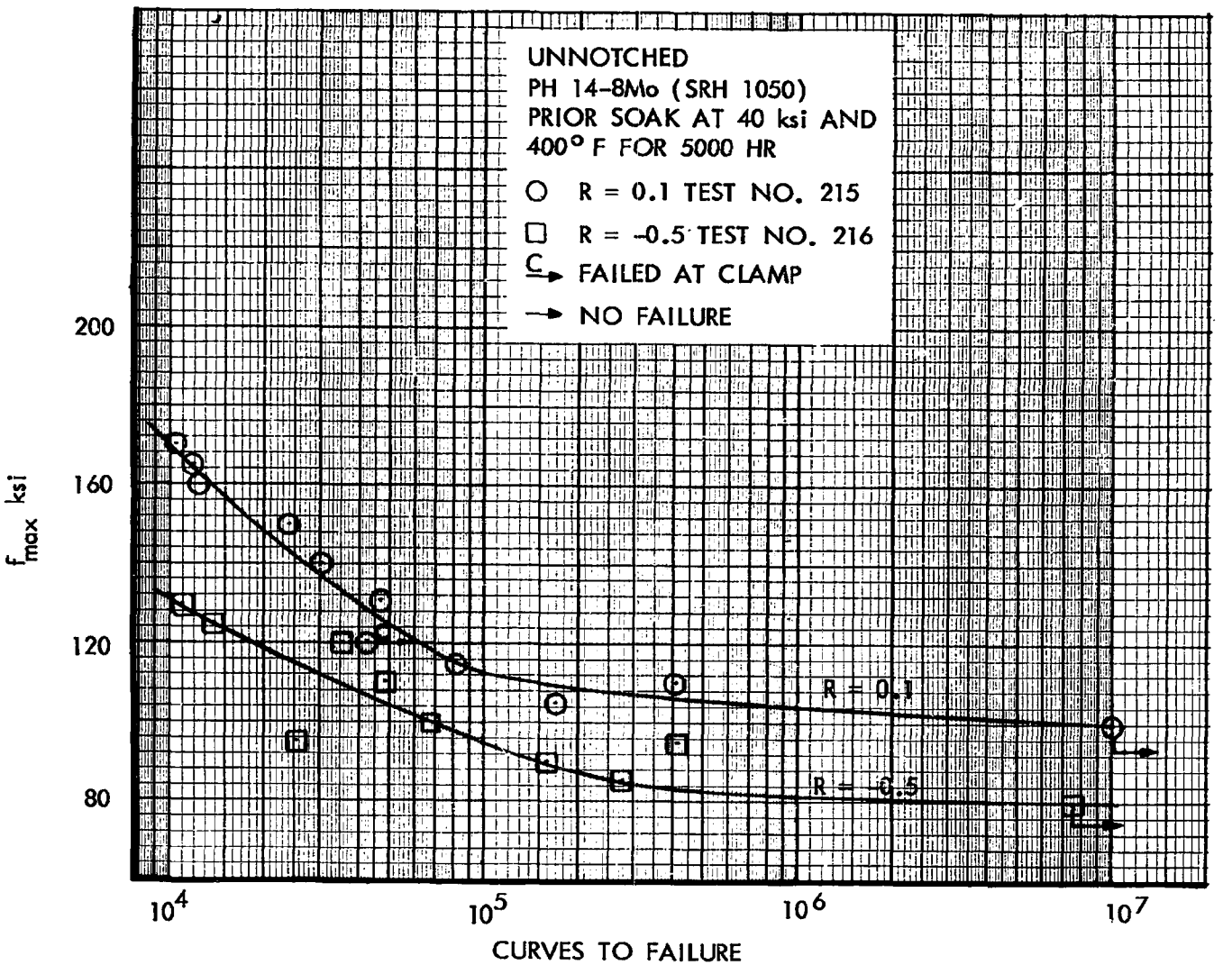



Figure 136. S-N Curves at Room Temperature, Unnotched PH14-8Mo, R = Constant

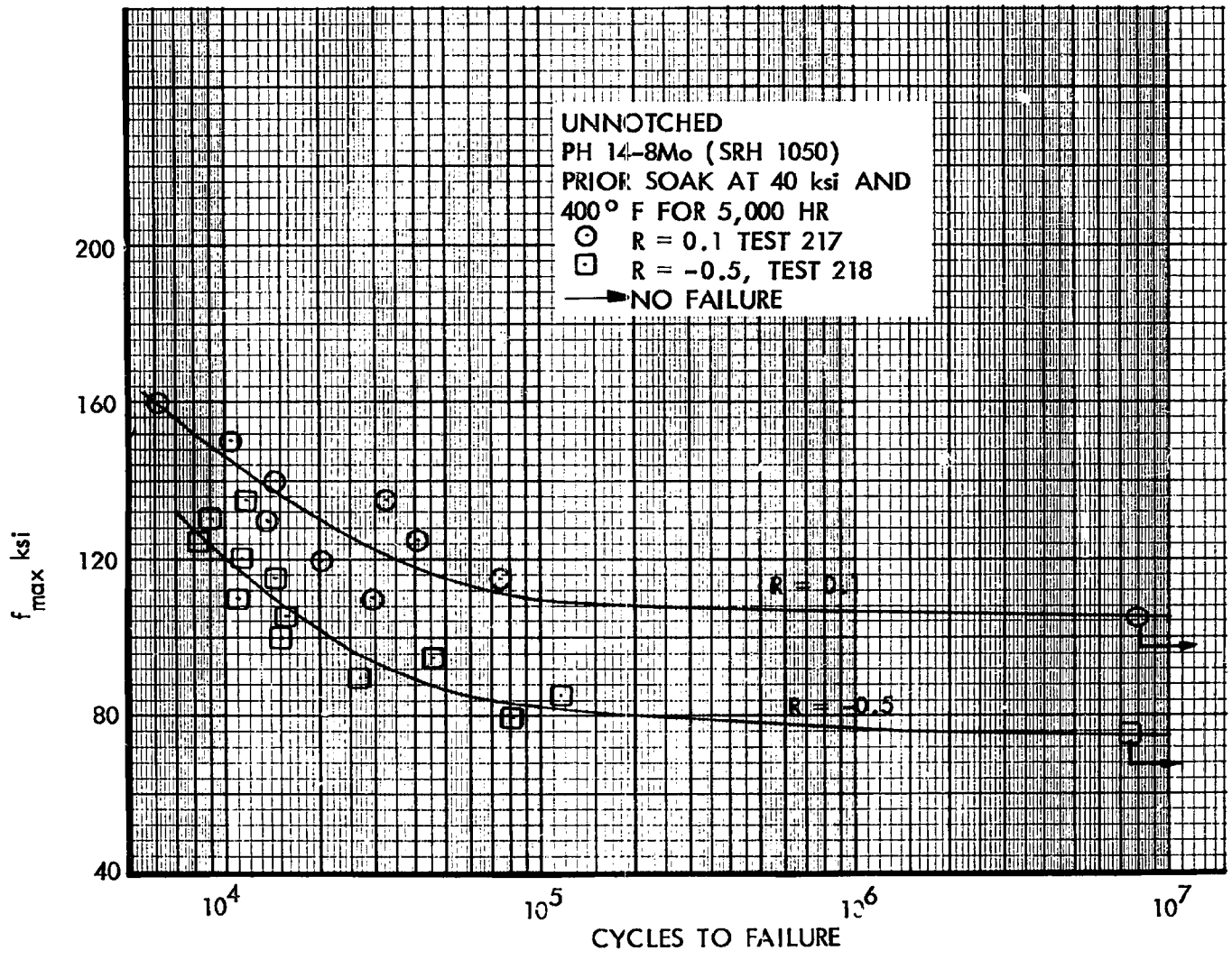



Figure 137. S-N Curves at 400°F, Unnotched PH14-8Mo, R = Constant

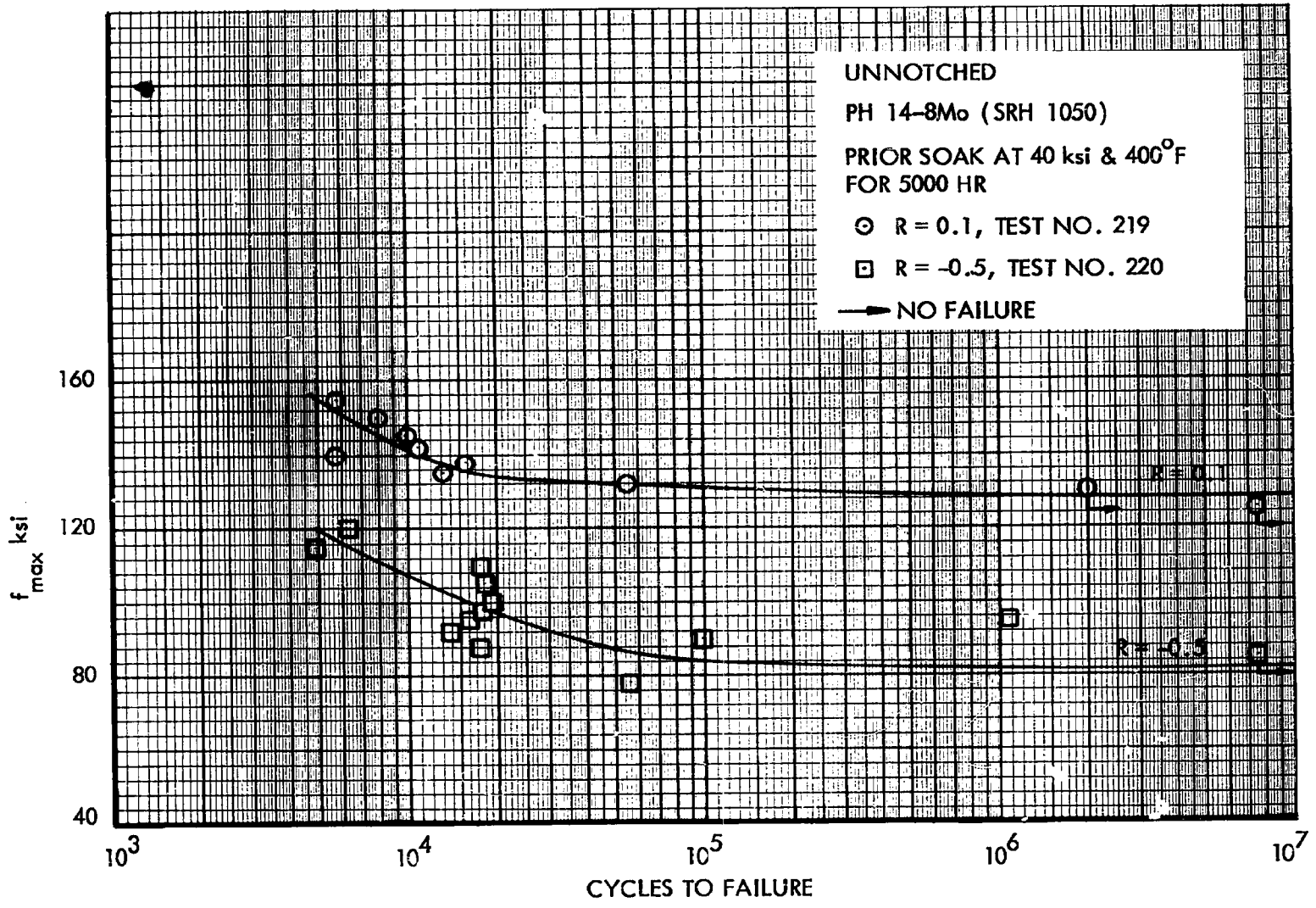



Figure 138. S-N Curves at 650°F, Unnotched PH14-8Mo, R = Constant

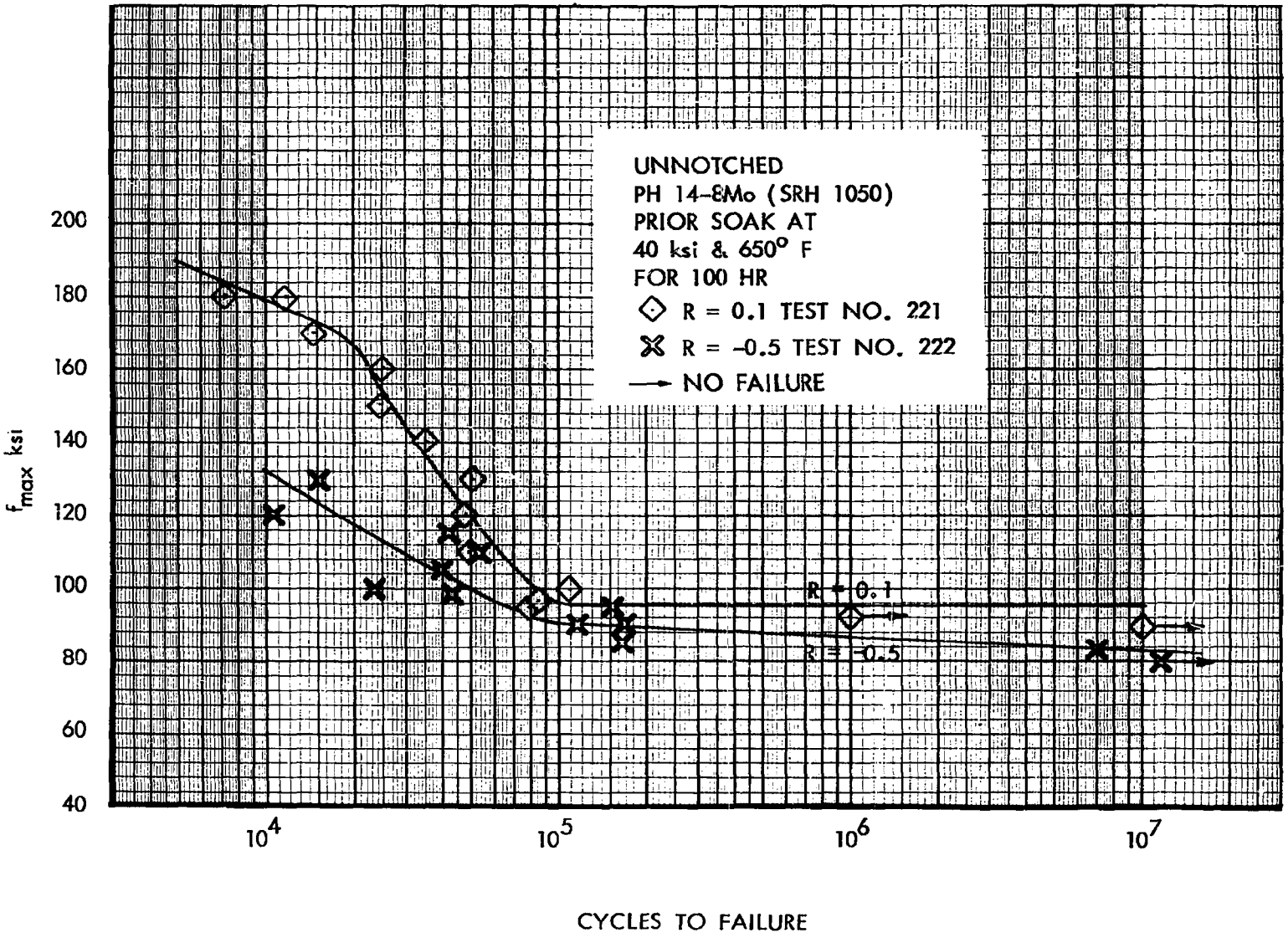



Figure 139. S-N Curves at Room Temperature, Unnotched PH14-8Mo, R = Constant

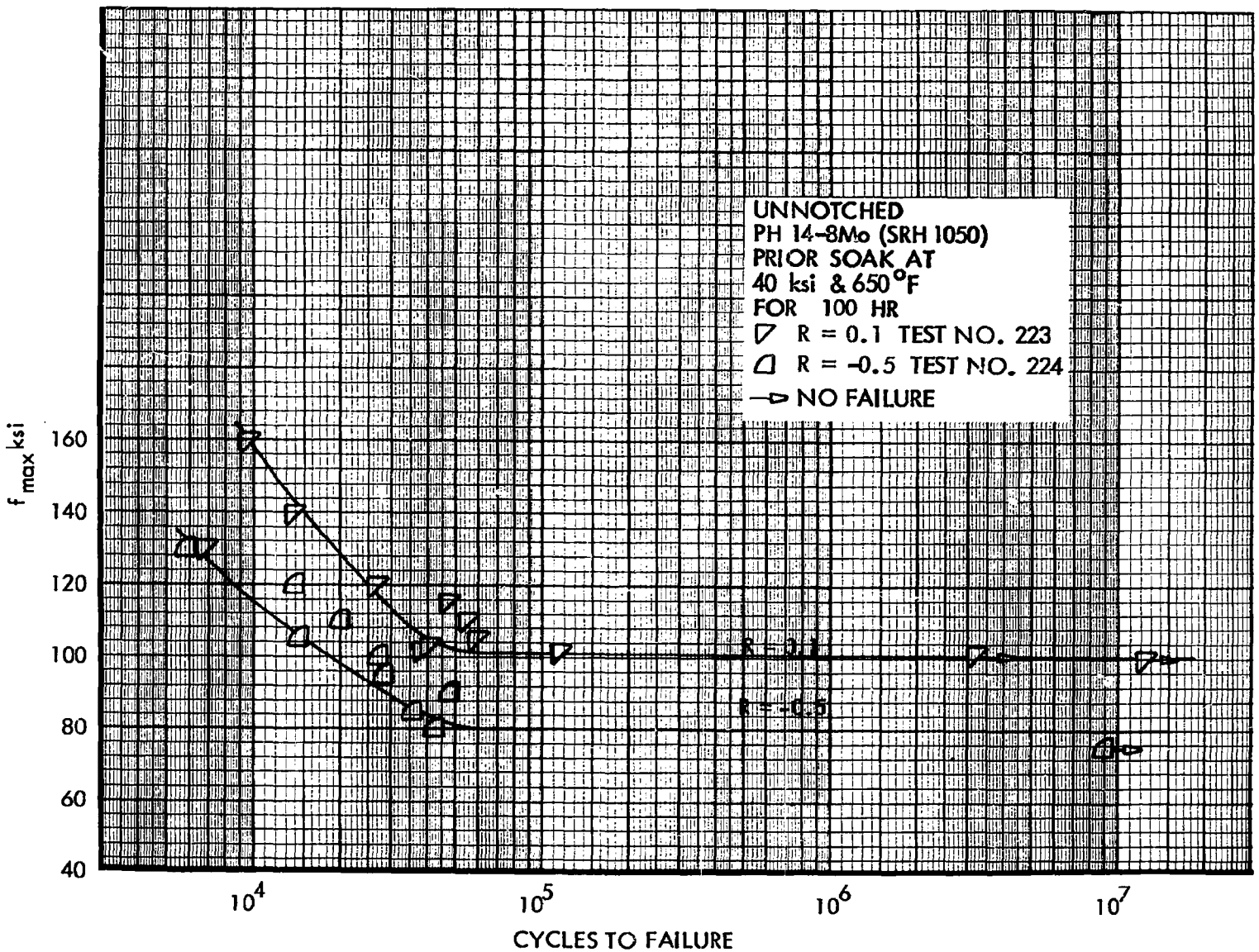



Figure 140. S-N Curves at 400°F, Unnotched PH14-8Mo, R = Constant

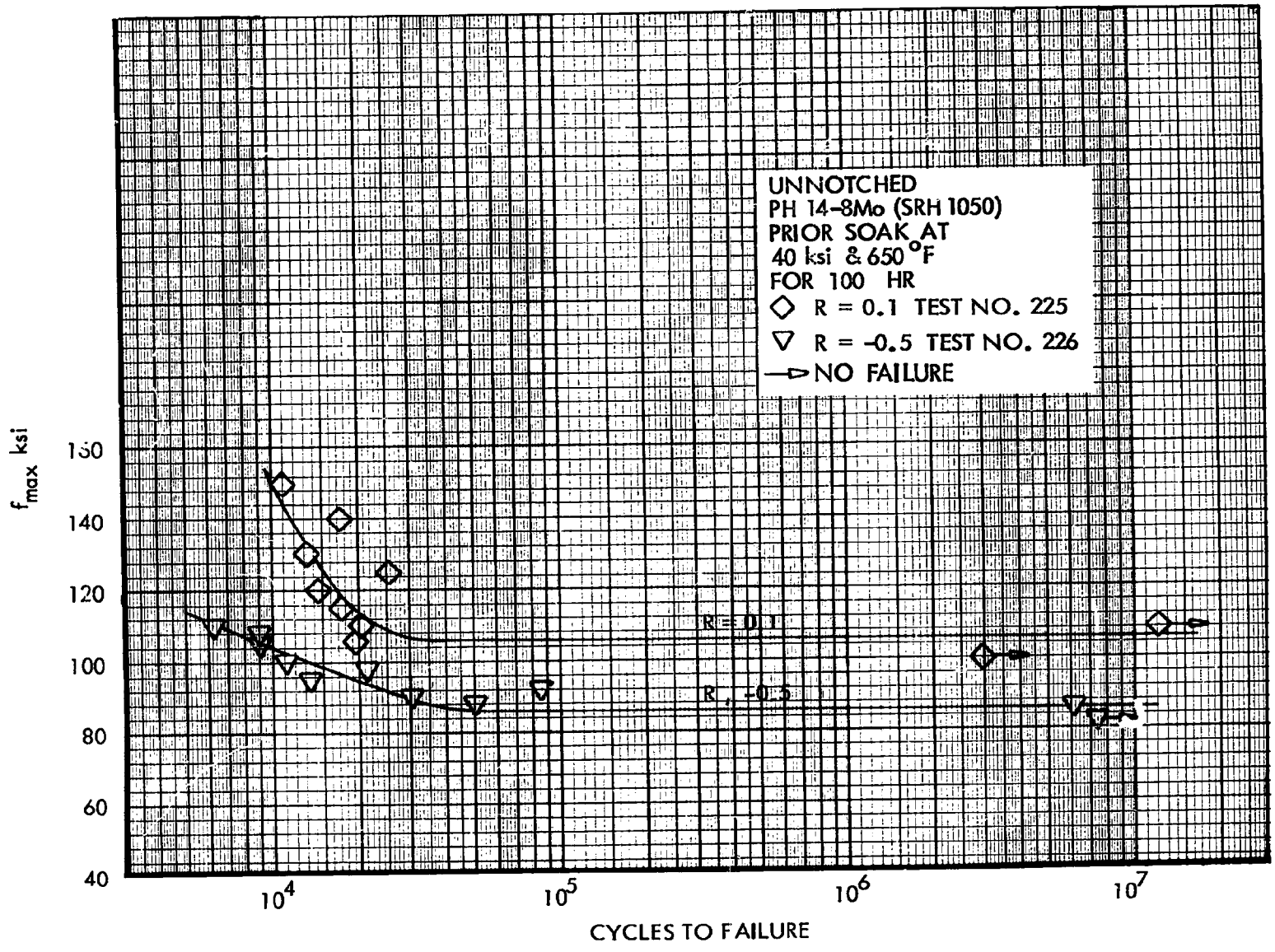



Figure 141. S-N Curves at 650°F, Unnotched PH14-8Mo, R = Constant

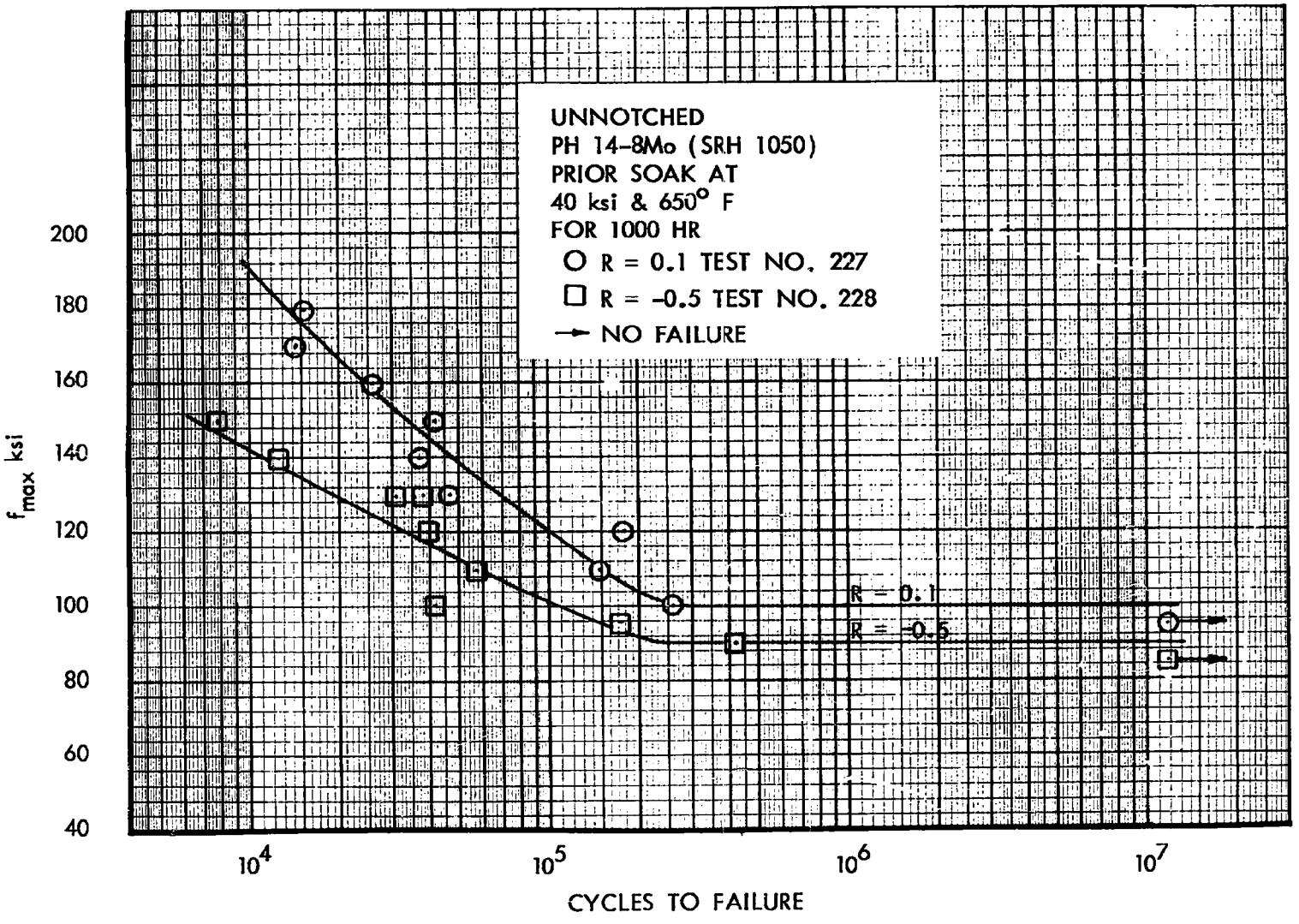



Figure 142. S-N Curves at Room Temperature, Unnotched PH14-8Mo, R = Constant

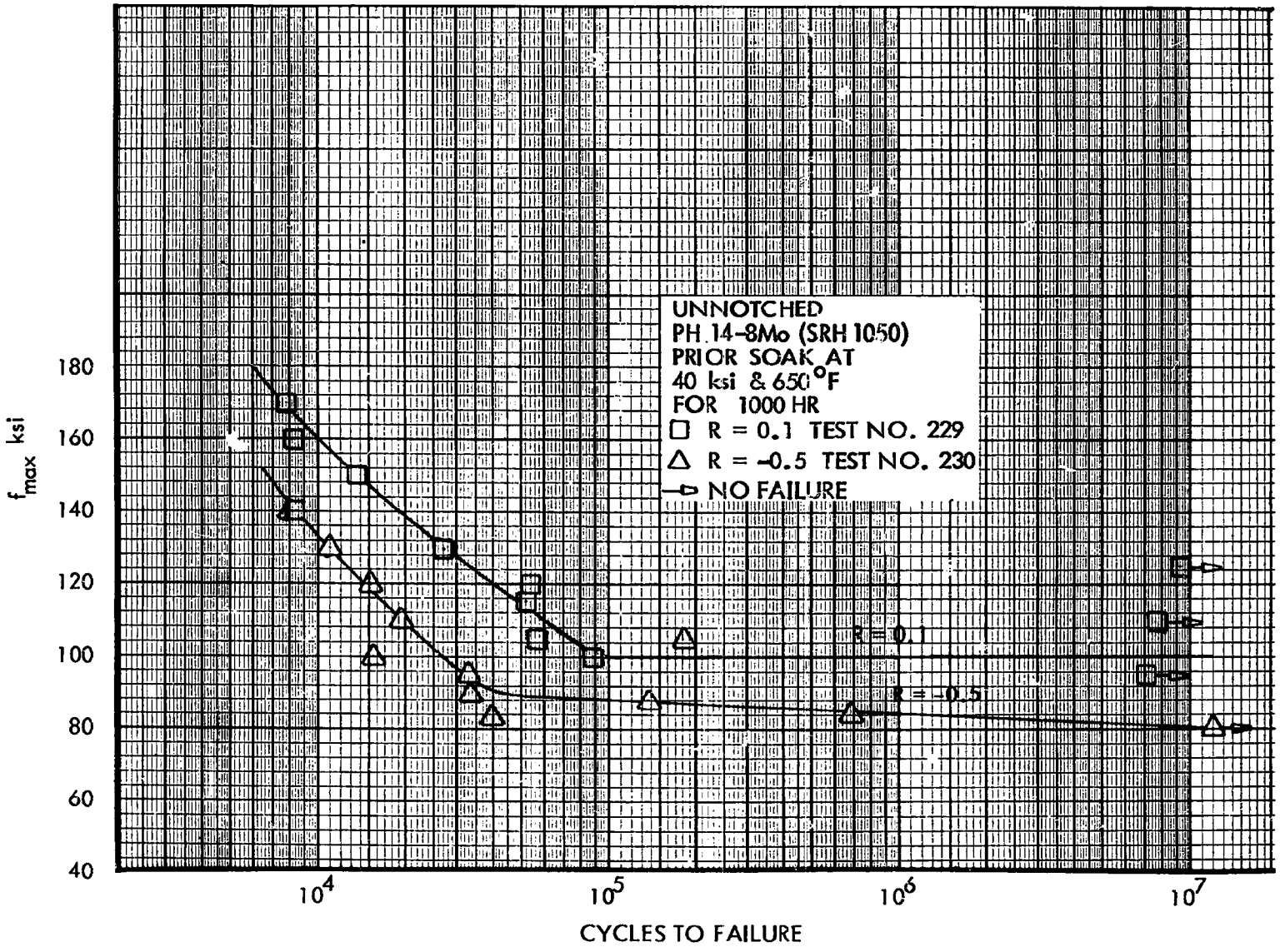



Figure 143. S-N Curves at 400°F, Unnotched PH14-8Mo, R = Constant

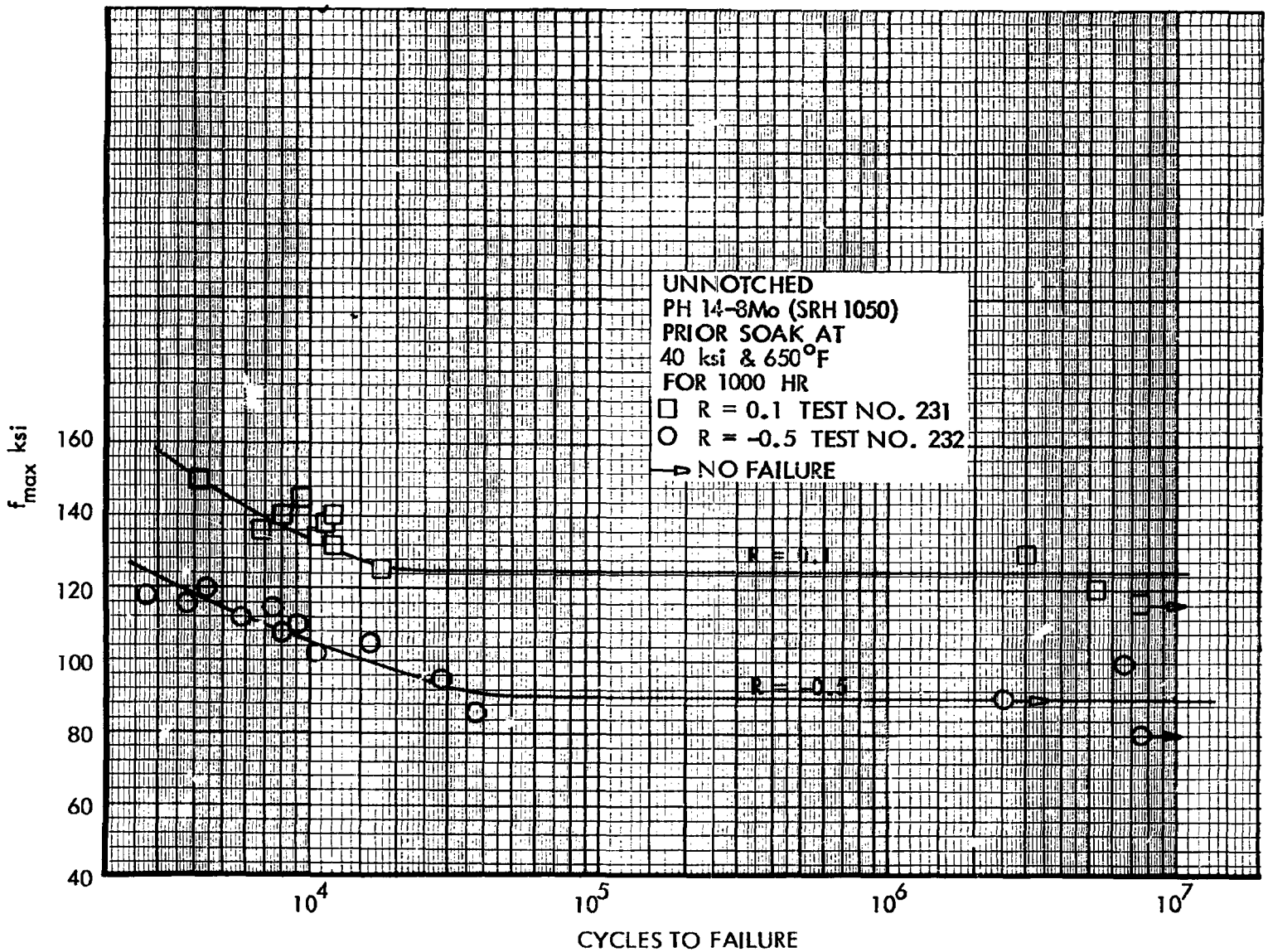



Figure 144. S-N Curves at 650°F, Unnotched PH14-8Mo, R = Constant

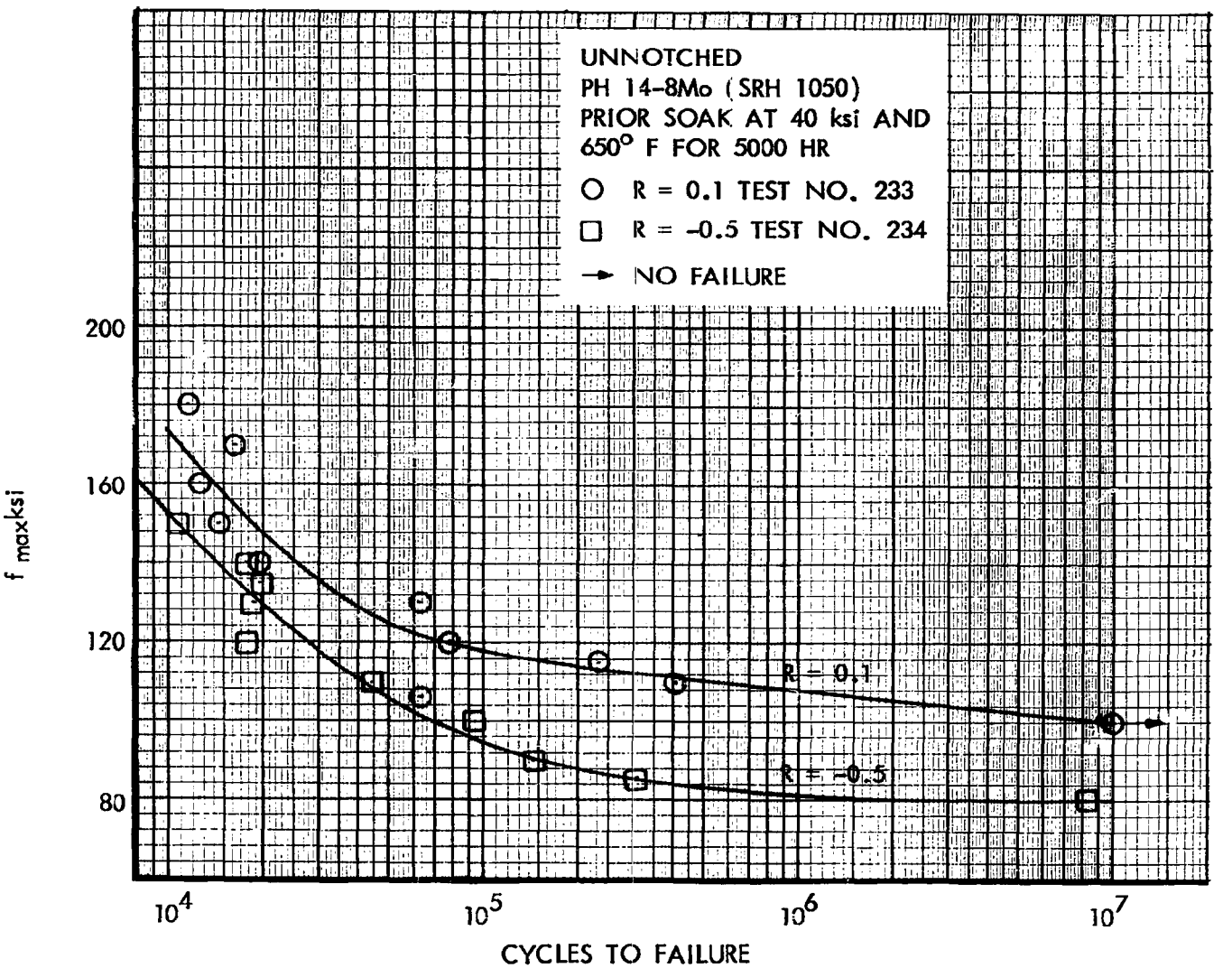



Figure 145. S-N Curves at Room Temperature, Unnotched PH14-8Mo, R = Constant

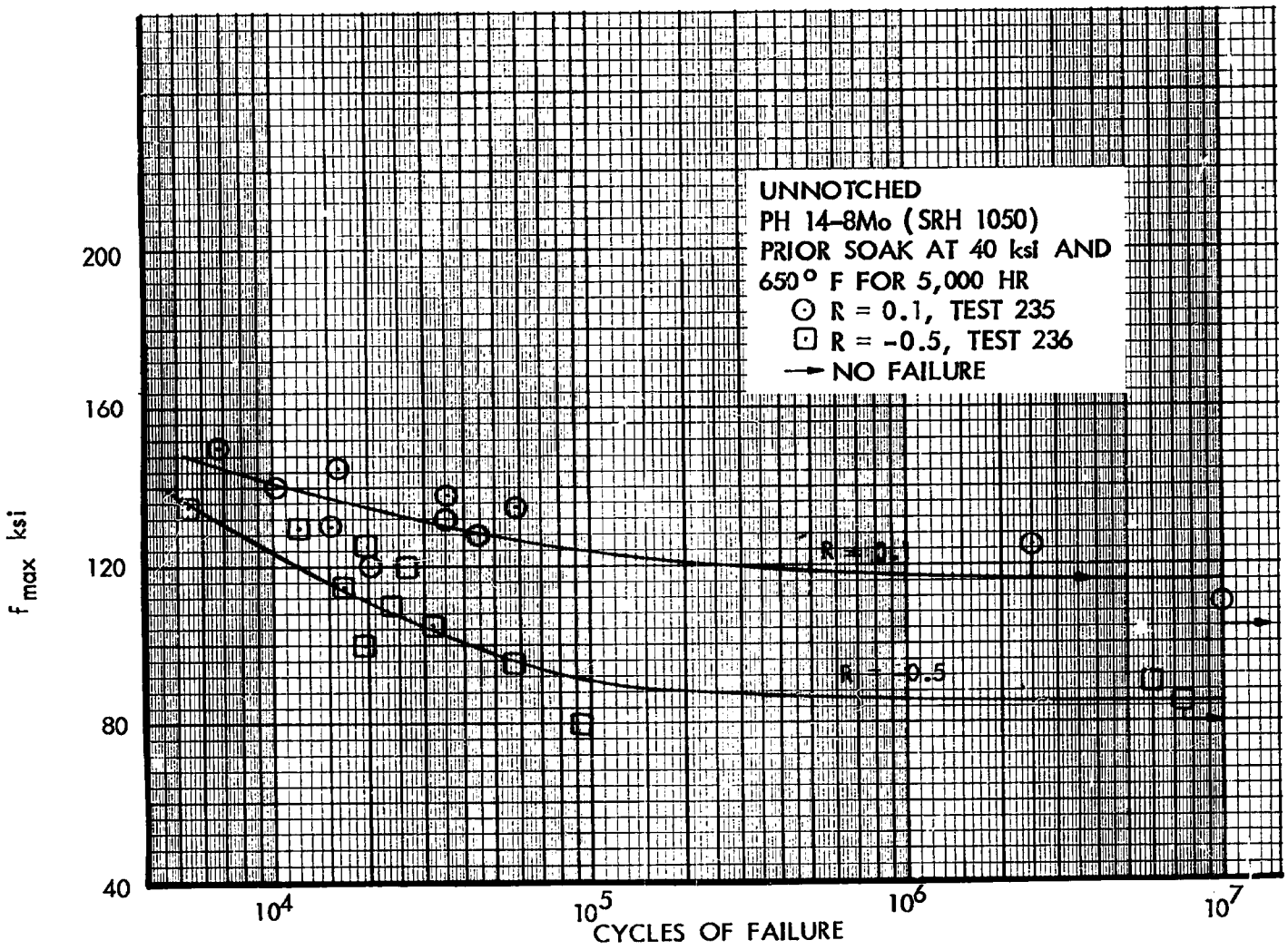



Figure 146. S-N Curves at 400°F, Unnotched PH14-8Mo, R = Constant

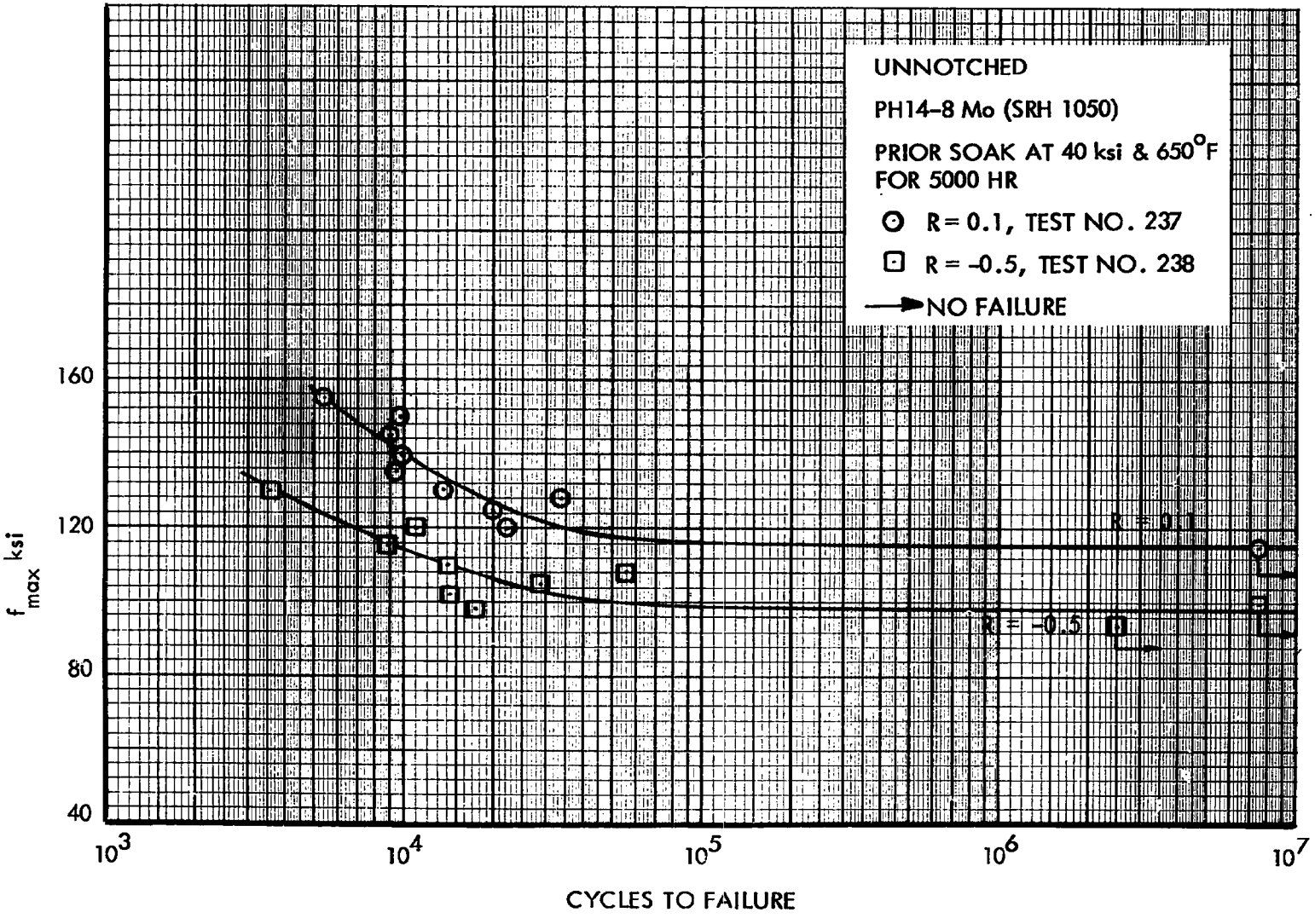



Figure 147. S-N Curves at 650°F, Unnotched PH14-8Mo, R = Constant

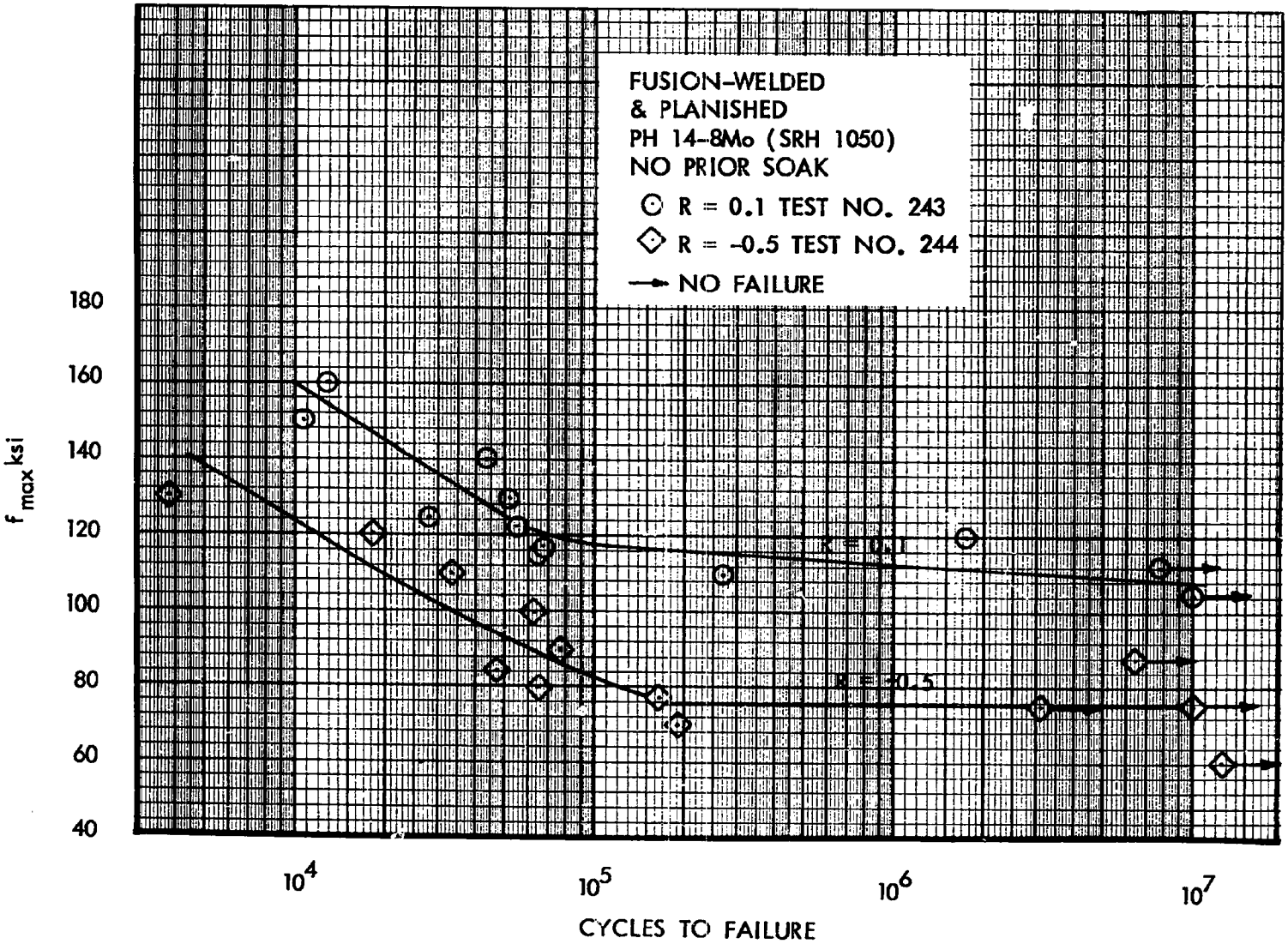



Figure 148. S-N Curves at Room Temperature, Fusion-Welded PH14-8Mo, R = Constant

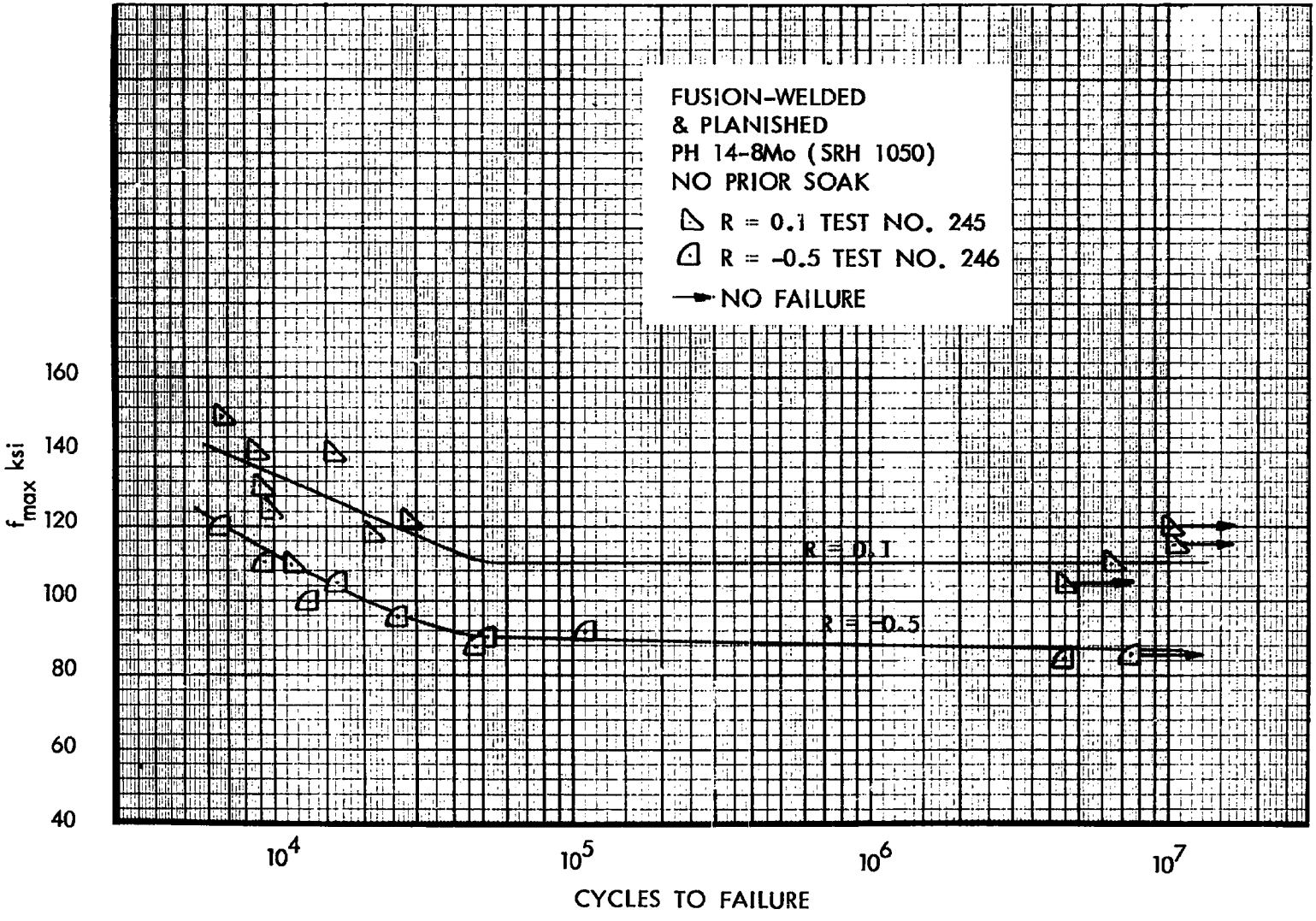



Figure 149. S-N Curves at 400°F, Fusion-Welded PH14-8Mo, R = Constant

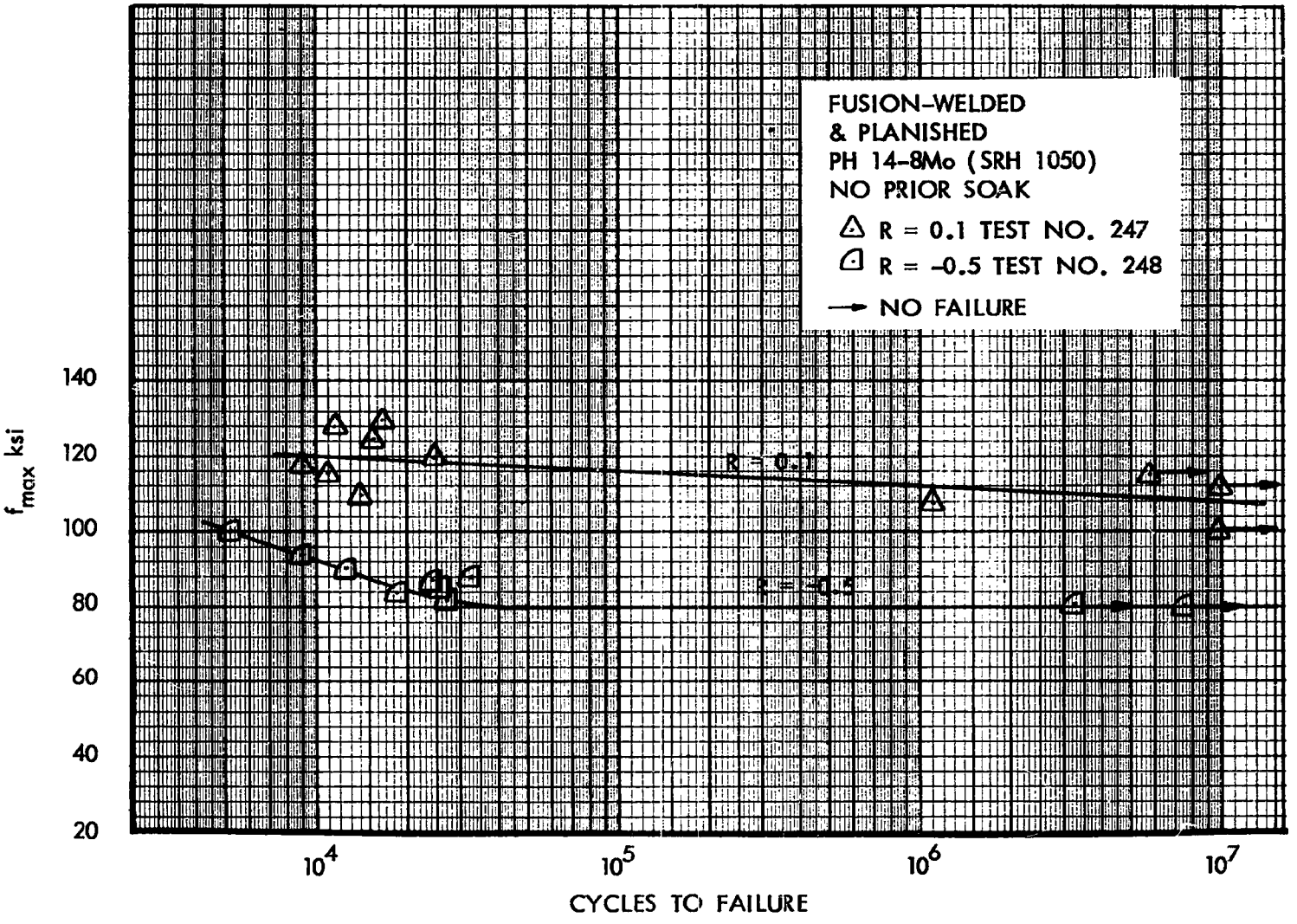



Figure 150. S-N Curves at 650°F, Fusion-Welded PH14-8Mo, R = Constant

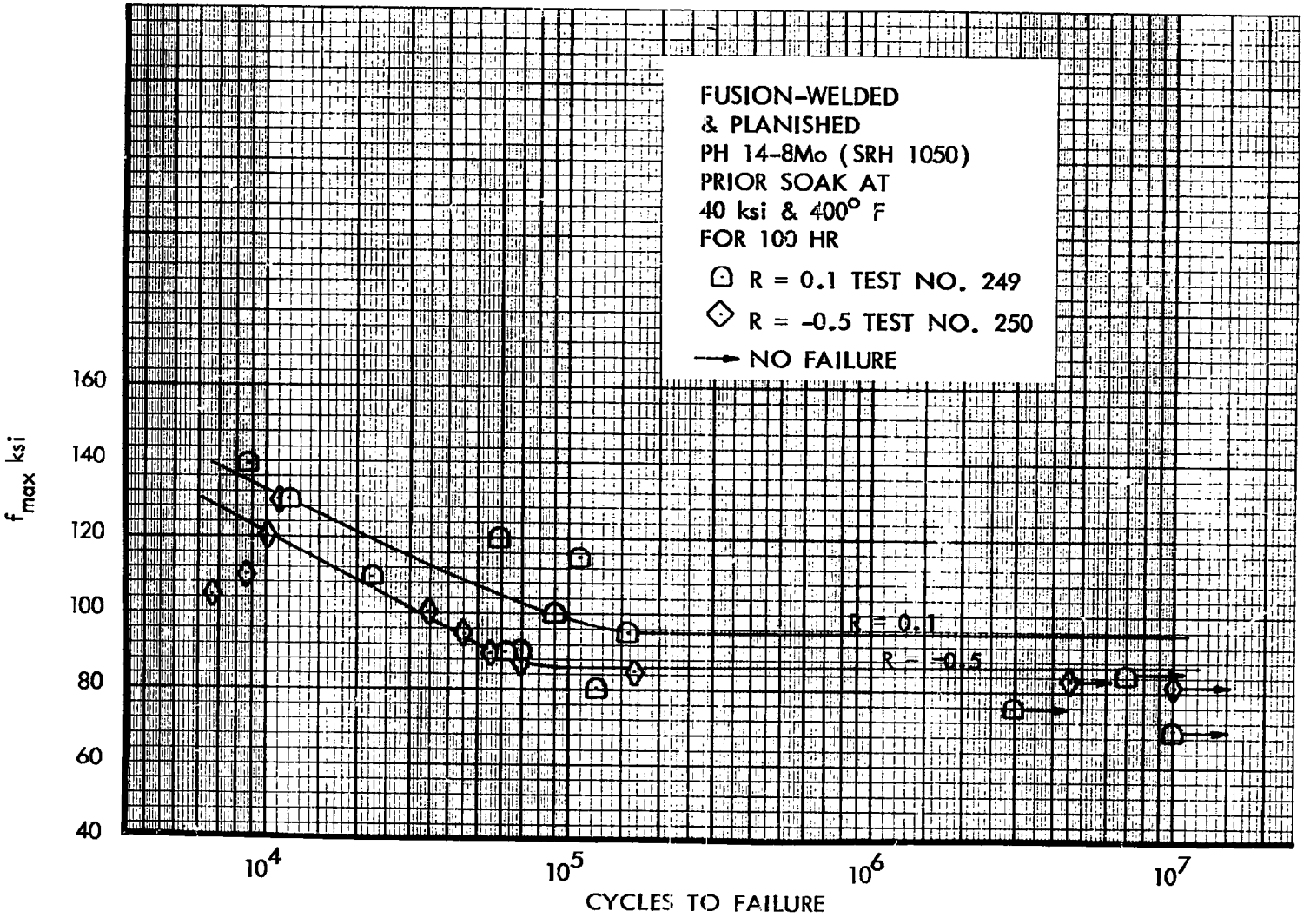



Figure 151. S-N Curves at Room Temperature, Fusion-Welded PH14-8Mo, R = Constant

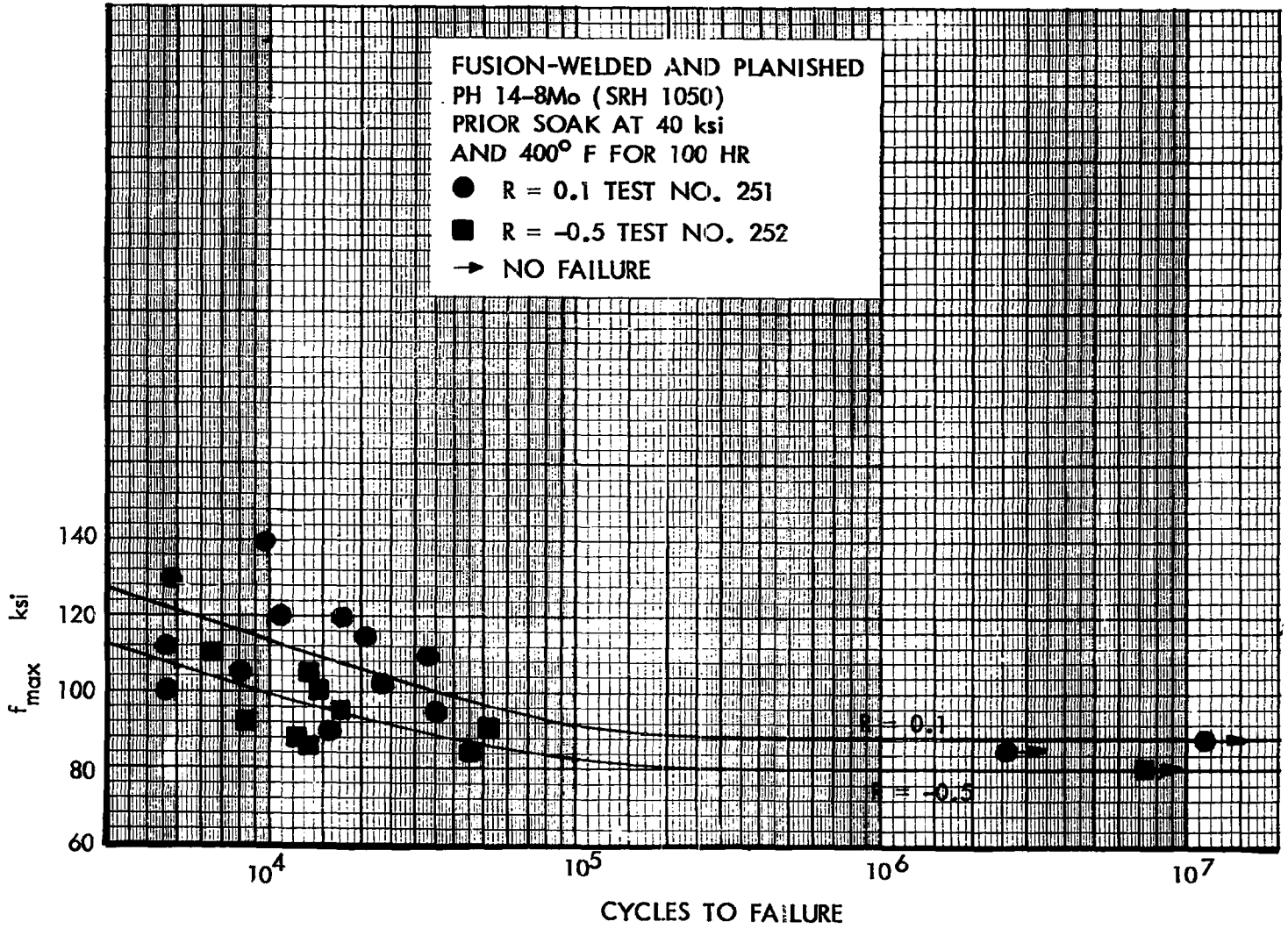



Figure 152. S-N Curves at 400°F, Fusion-Welded PH14-8Mo, R = Constant

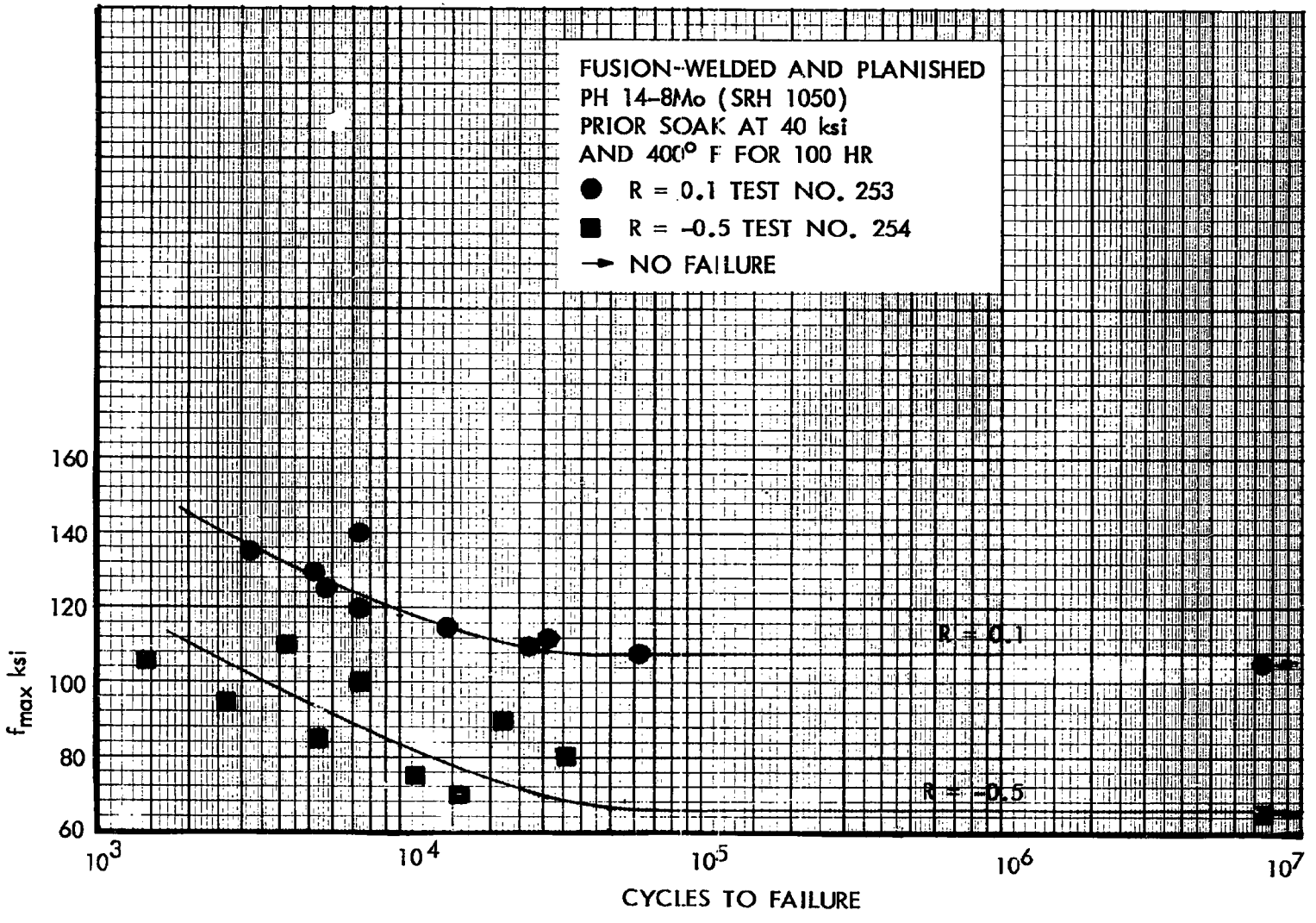



Figure 153. S-N Curves at 650°F, Fusion-Welded PH14-8Mo, R = Constant

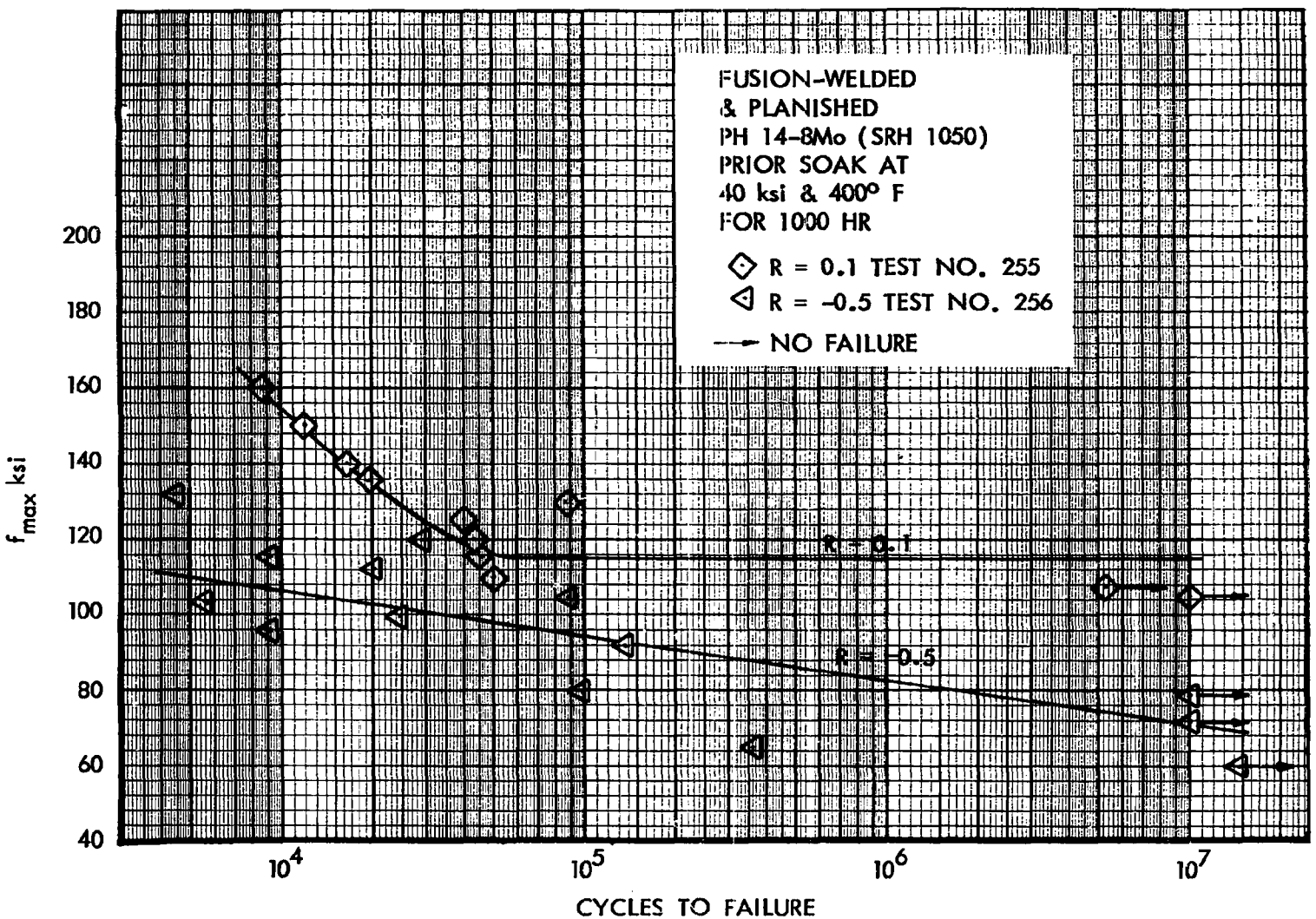



Figure 154. S-N Curves at Room Temperature, Fusion-Welded PH14-8Mo, R = Constant

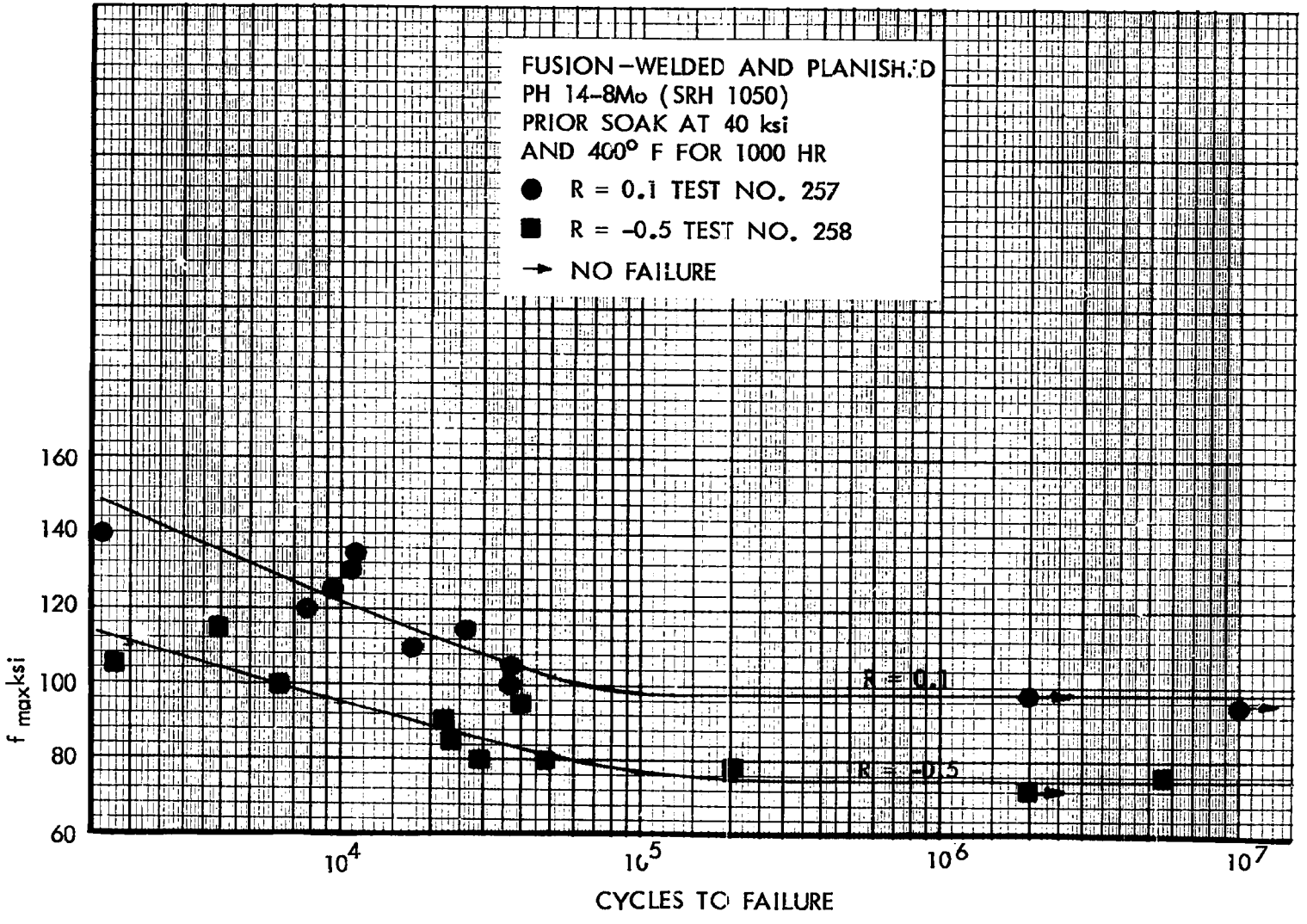



Figure 155. S-N Curves at 400°F, Fusion-Welded PH14-8Mo, R = Constant

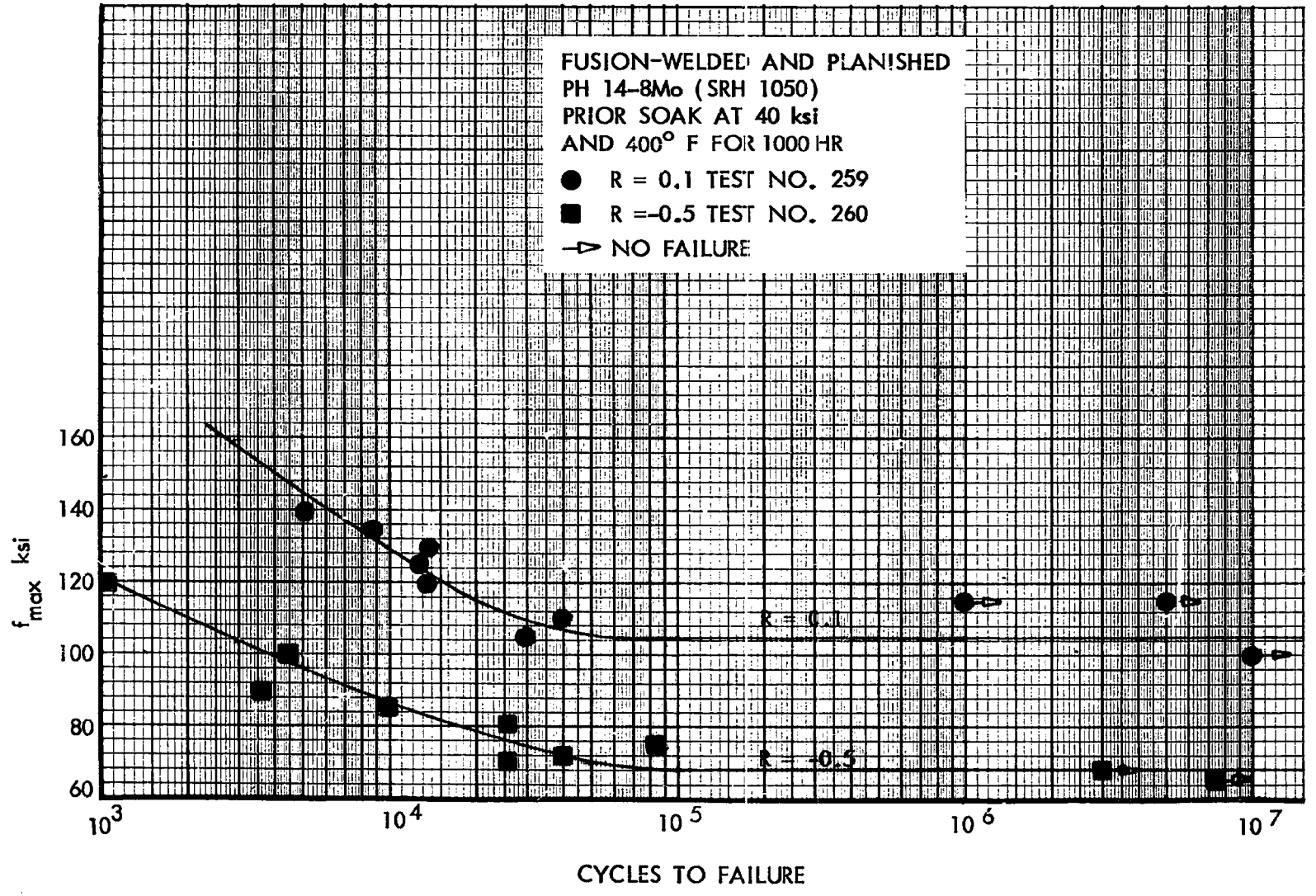



Figure 156. S-N Curves at 650°F, Fusion-Welded PH14-8Mo, R = Constant

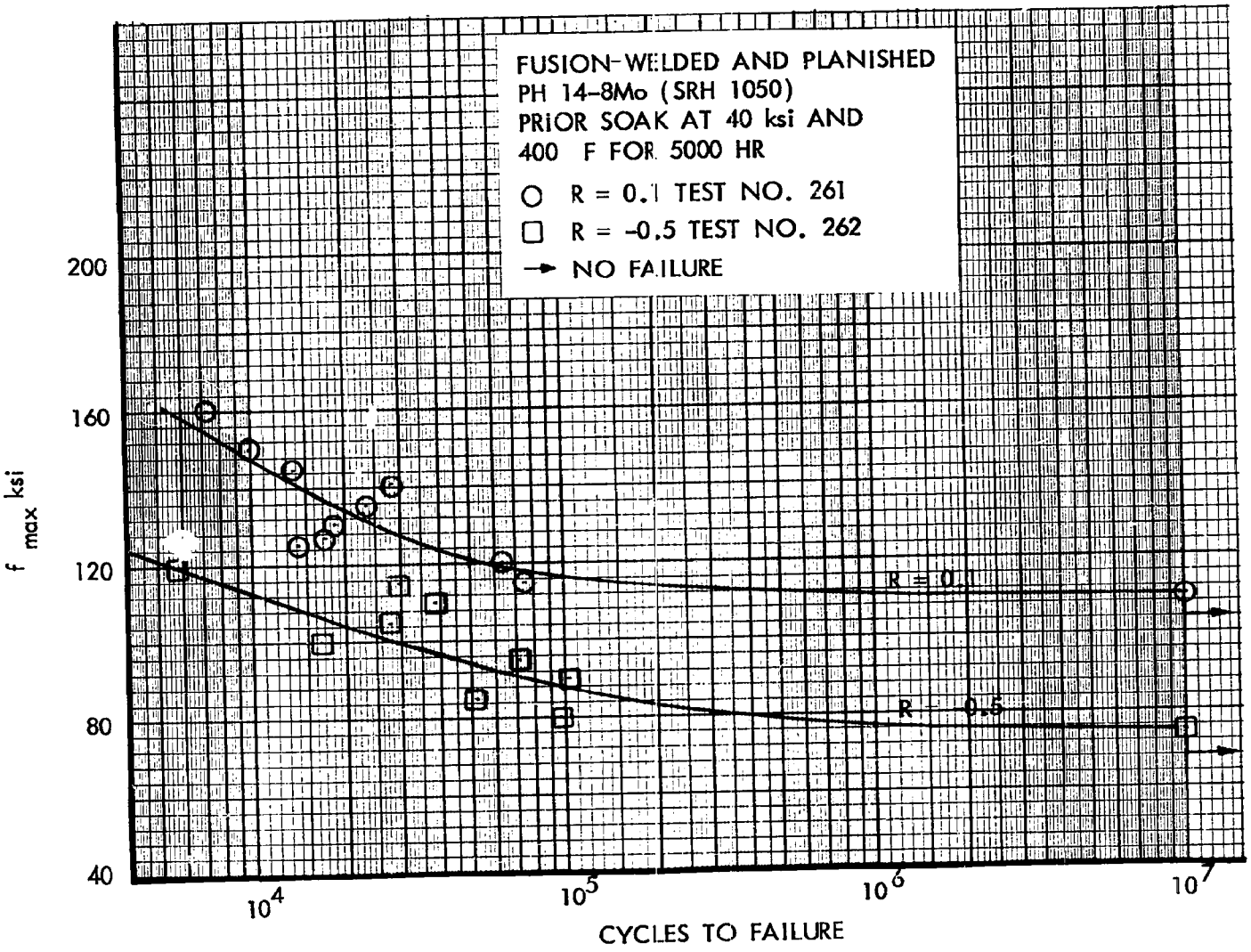



Figure 157. S-N Curves at Room Temperature, Fusion-Welded PH14-8Mo, R = Constant

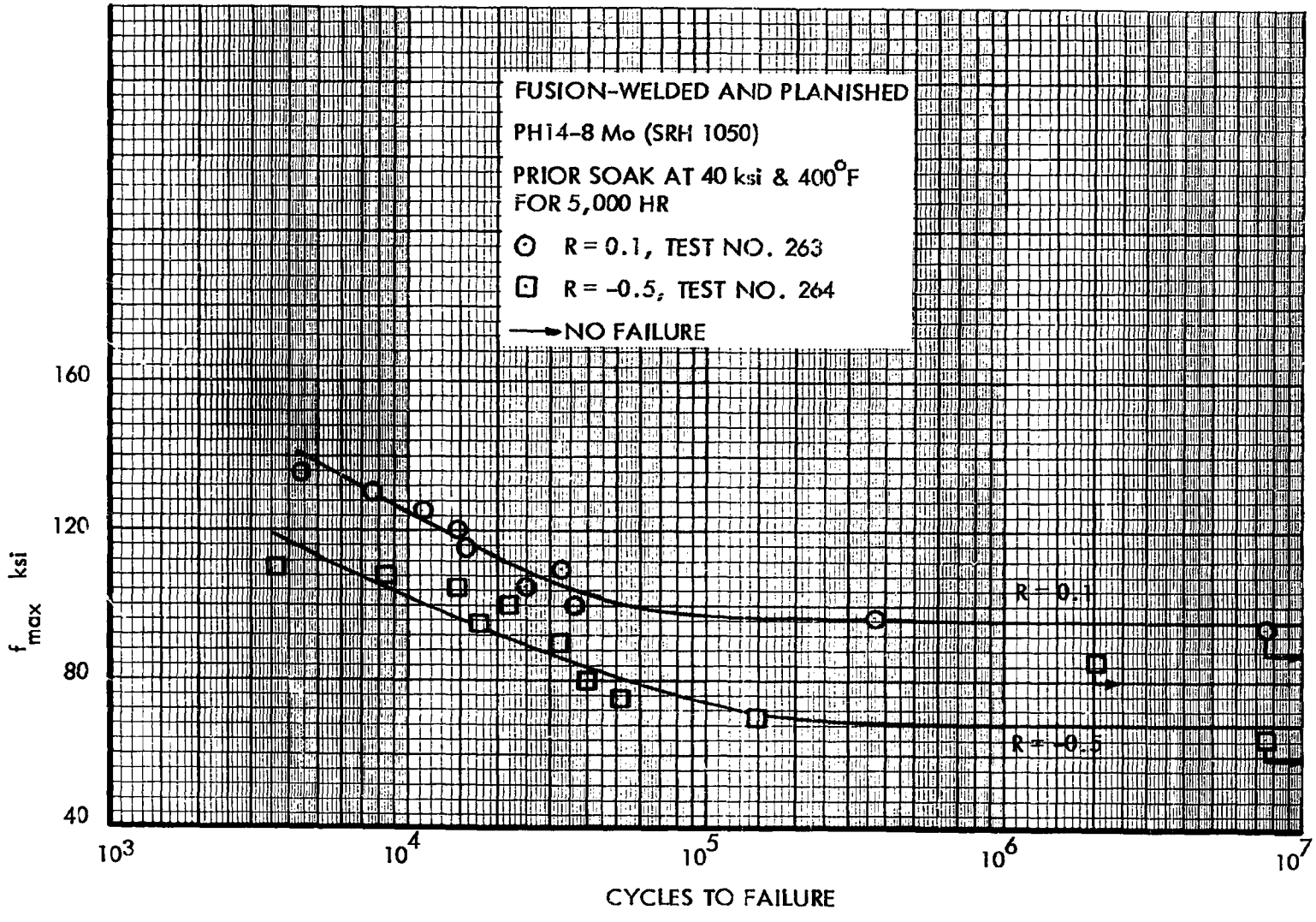



Figure 158. S-N Curves at 400°F, Fusion-Welded PH14-8Mo, R = Constant

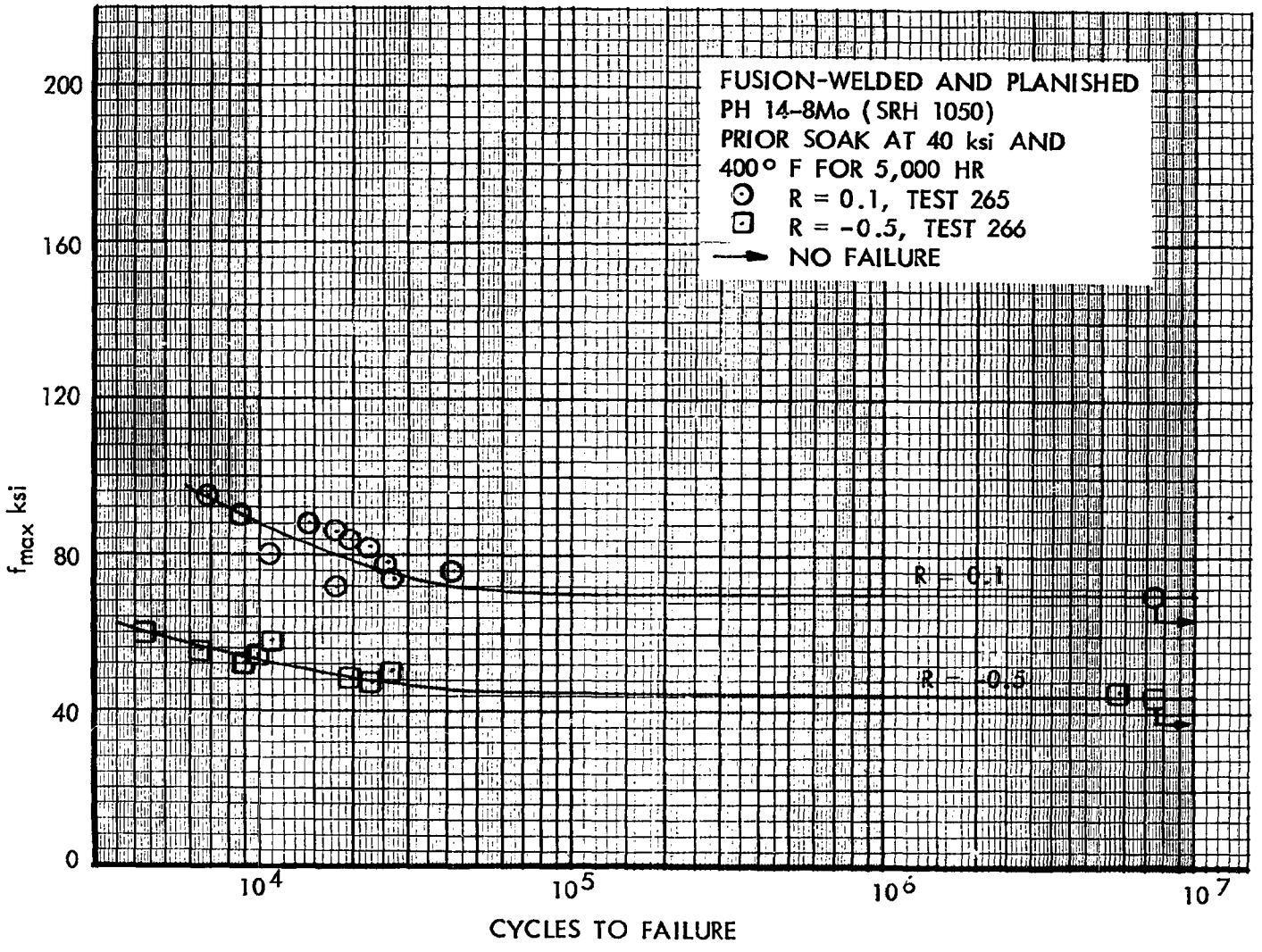



Figure 159. S-N Curves at 650°F, Fusion-Welded PH14-8Mo, R = Constant

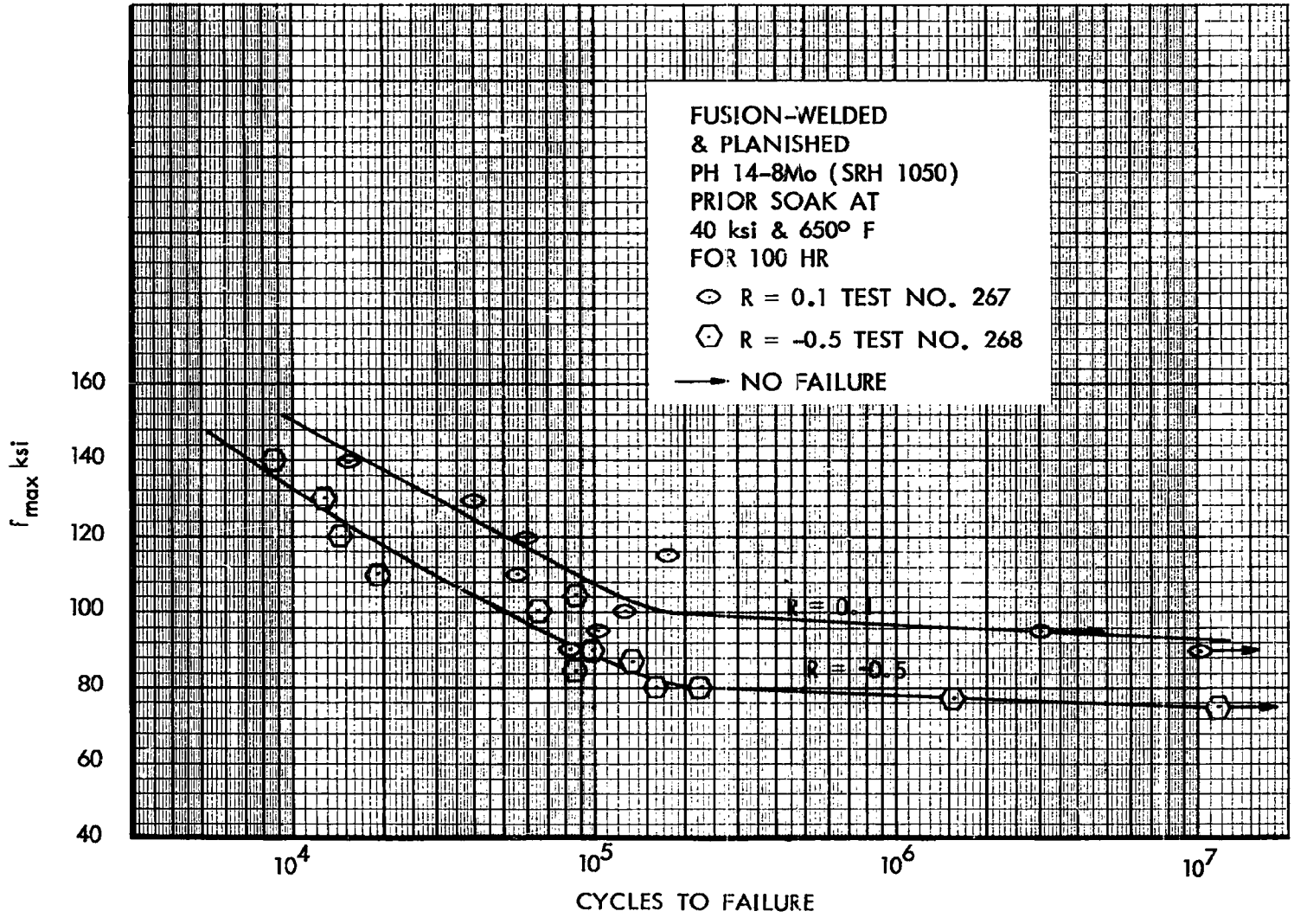



Figure 160. S-N Curves at Room Temperature, Fusion-Welded PH14-8Mo, R = Constant

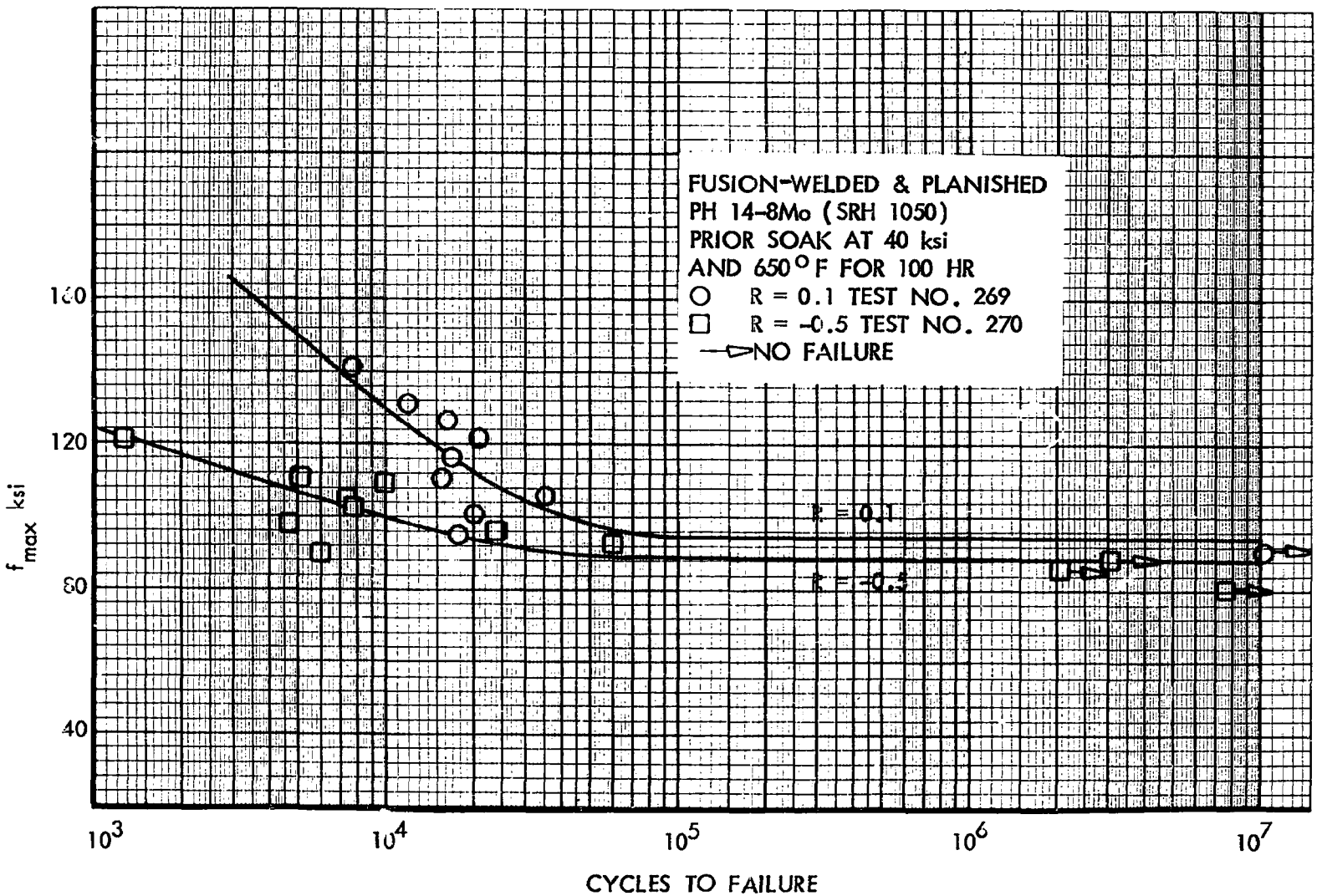



Figure 161. S-N Curves at 400°F, Fusion-Welded PH14-8 Mo, R = Constant

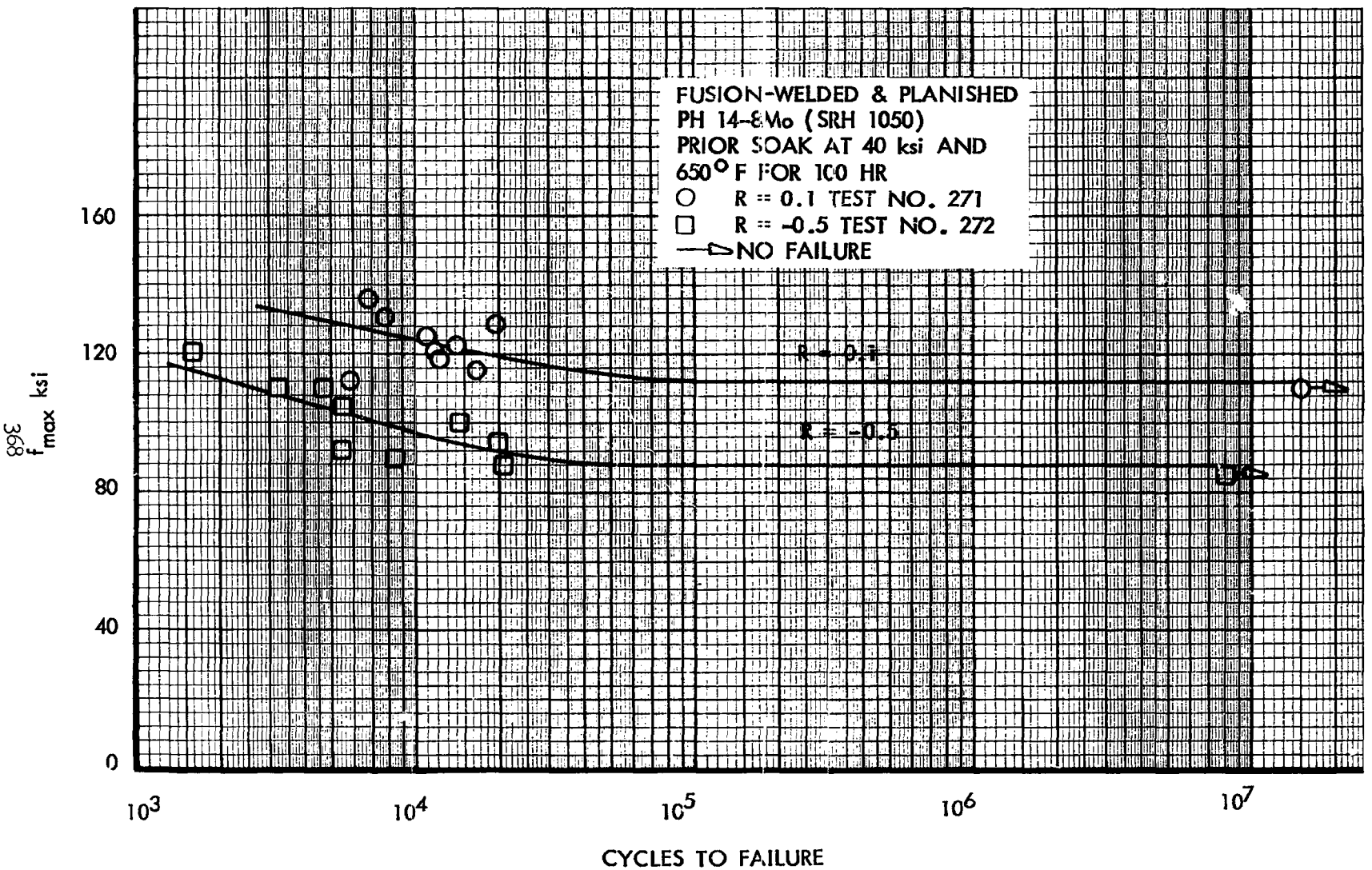



Figure 162. S-N Curves at 650°F, Fusion-Welded PH14-8 Mo, R = Constant

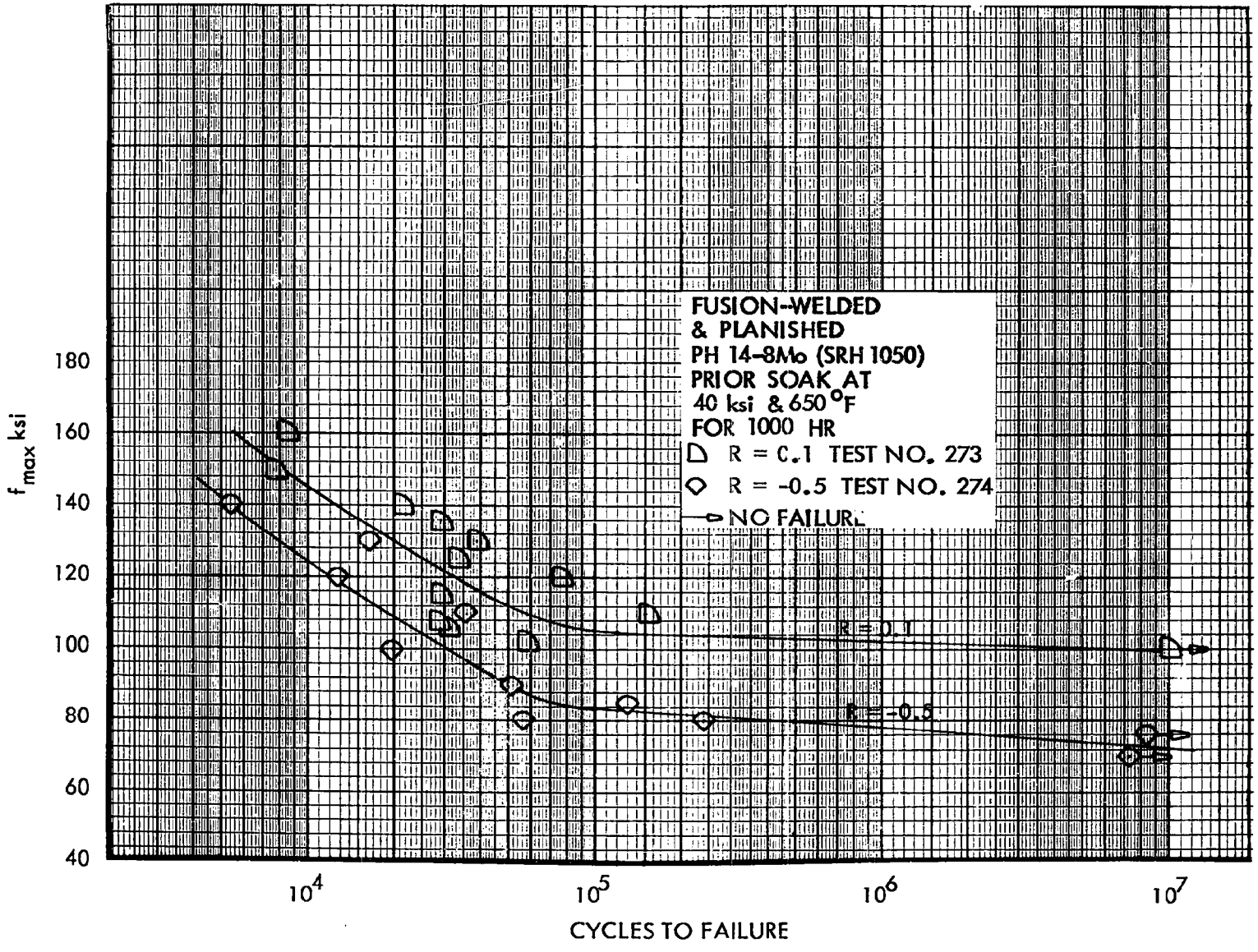



Figure 163. S-N Curves at Room Temperature, Fusion-Welded PH14-8Mo, R = Constant

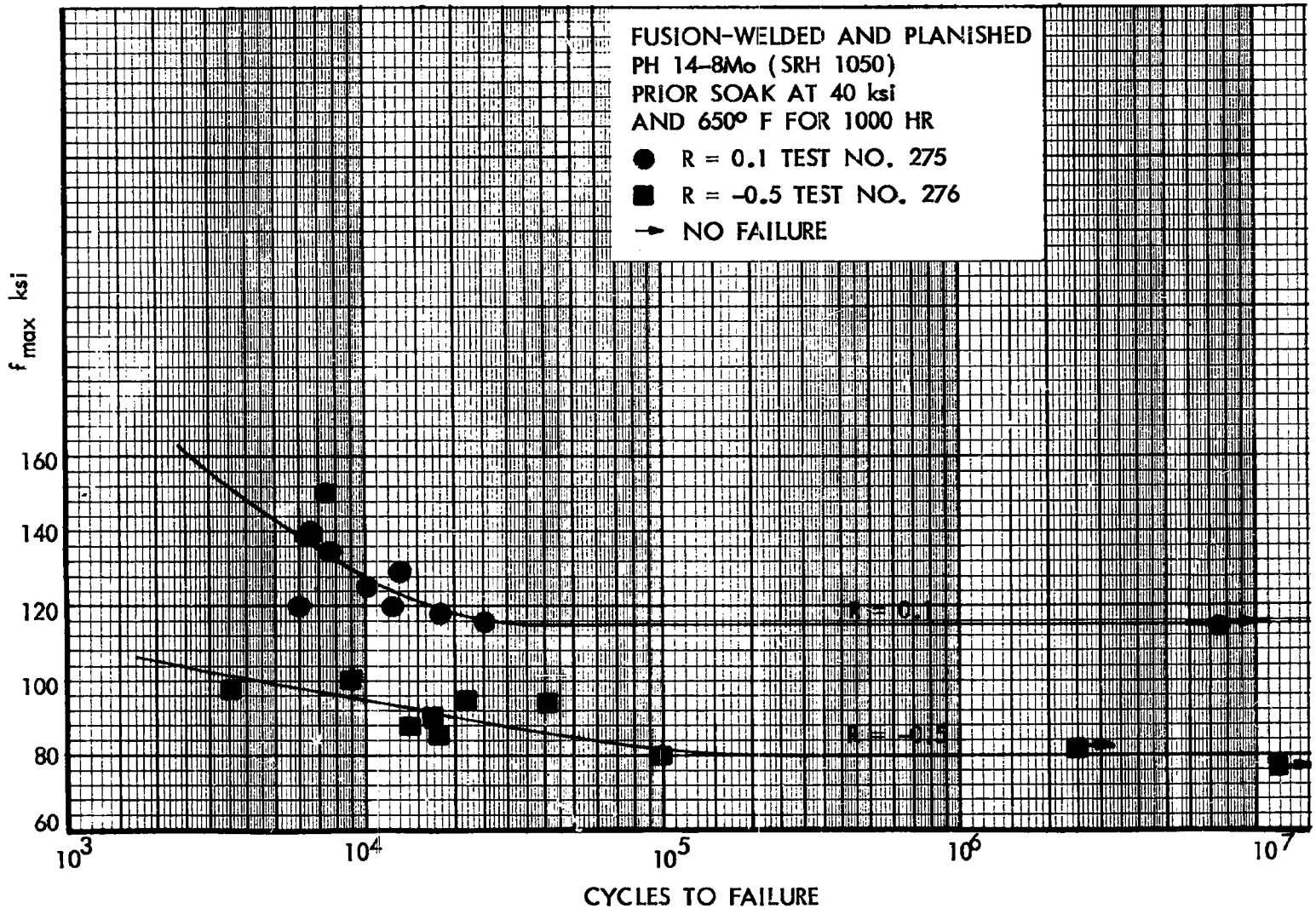



Figure 164. S-N Curves at 400°F, Fusion-Welded PH14-8Mo, R = Constant

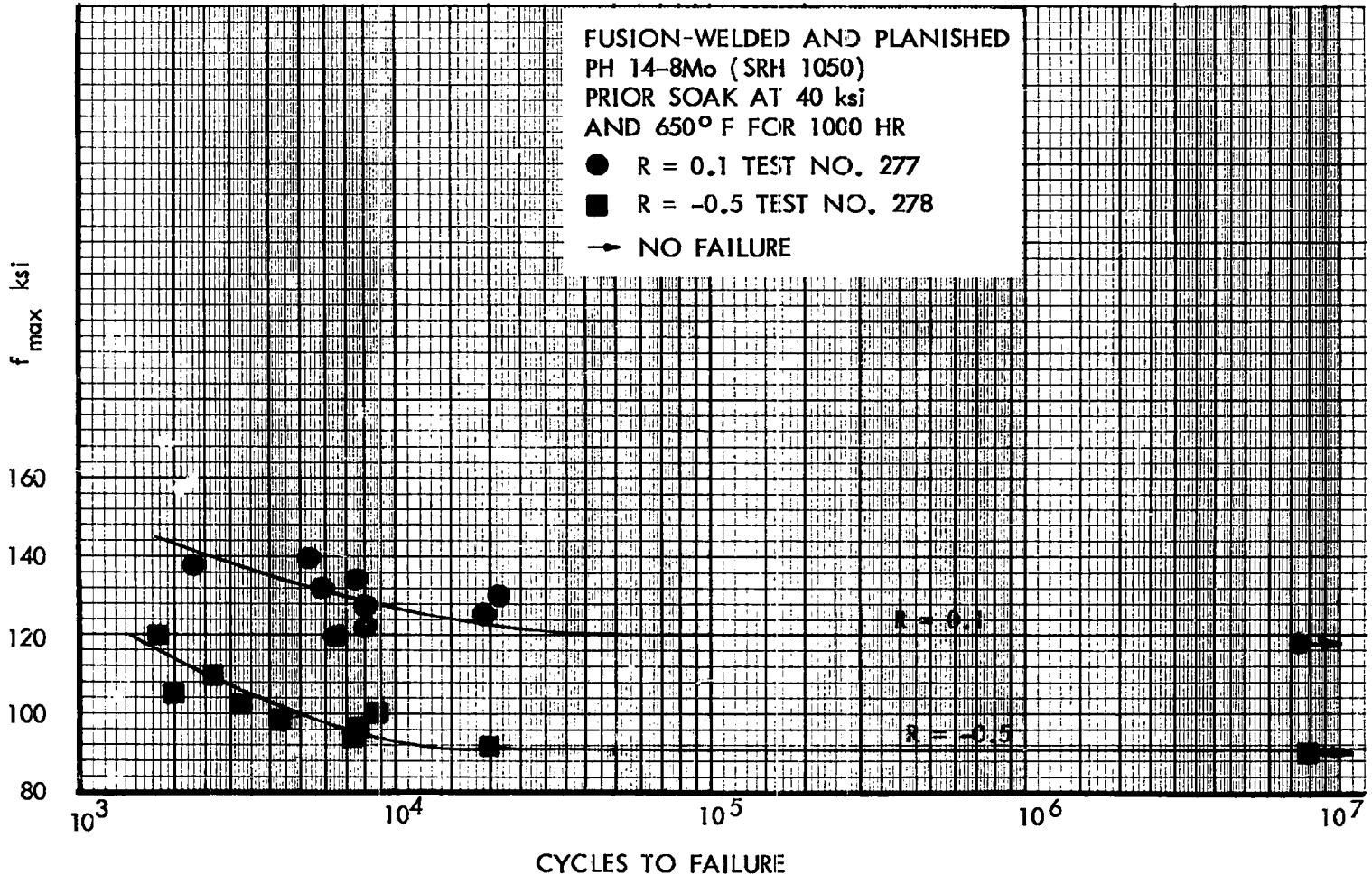



Figure 165. S-N Curves at 650°F, Fusion-Welded PH14-8Mo, R = Constant

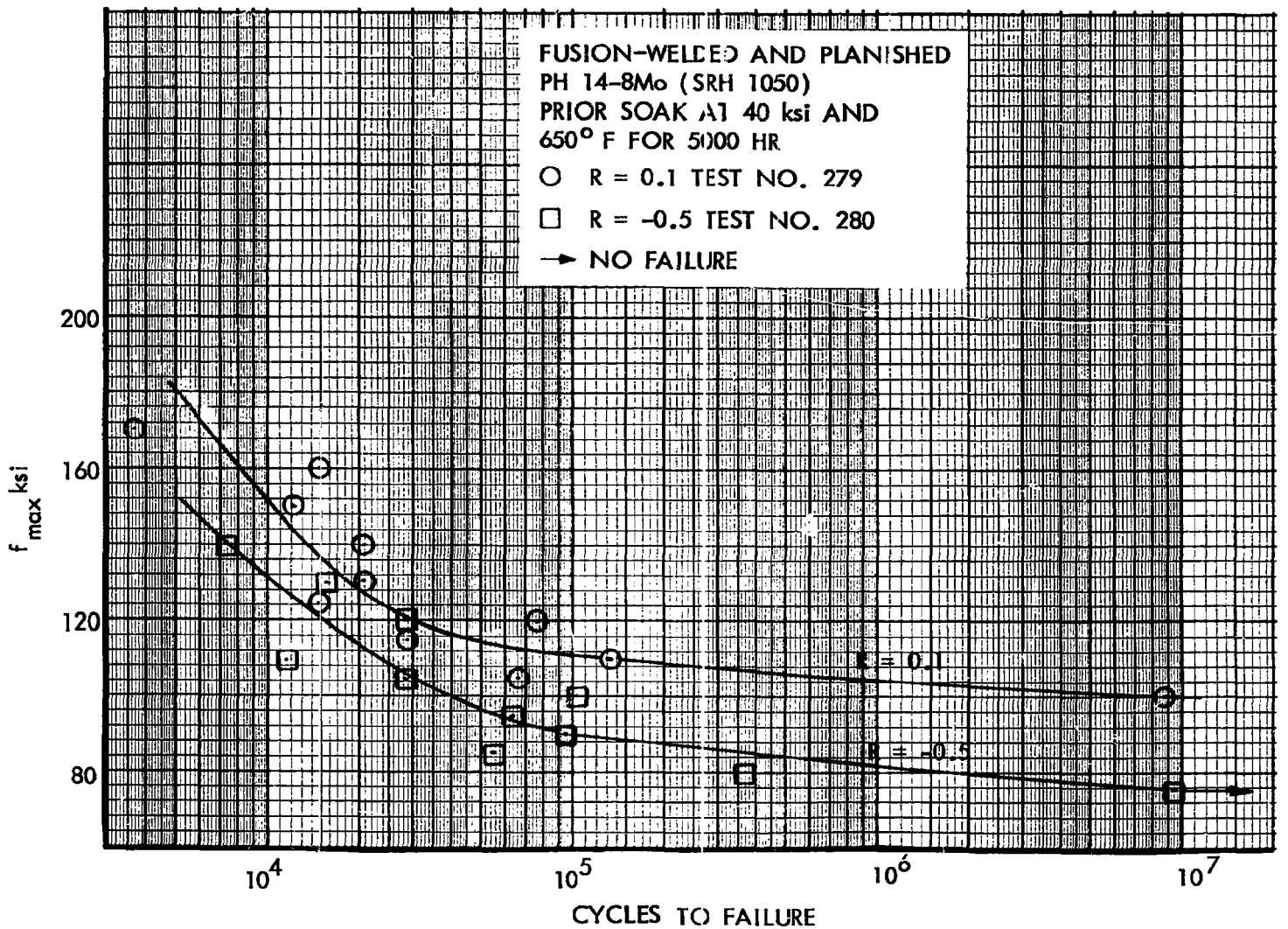



*Figure 166.* S-N Curves at Room Temperature, Fusion-Welded PH14-8Mo, R = Constant

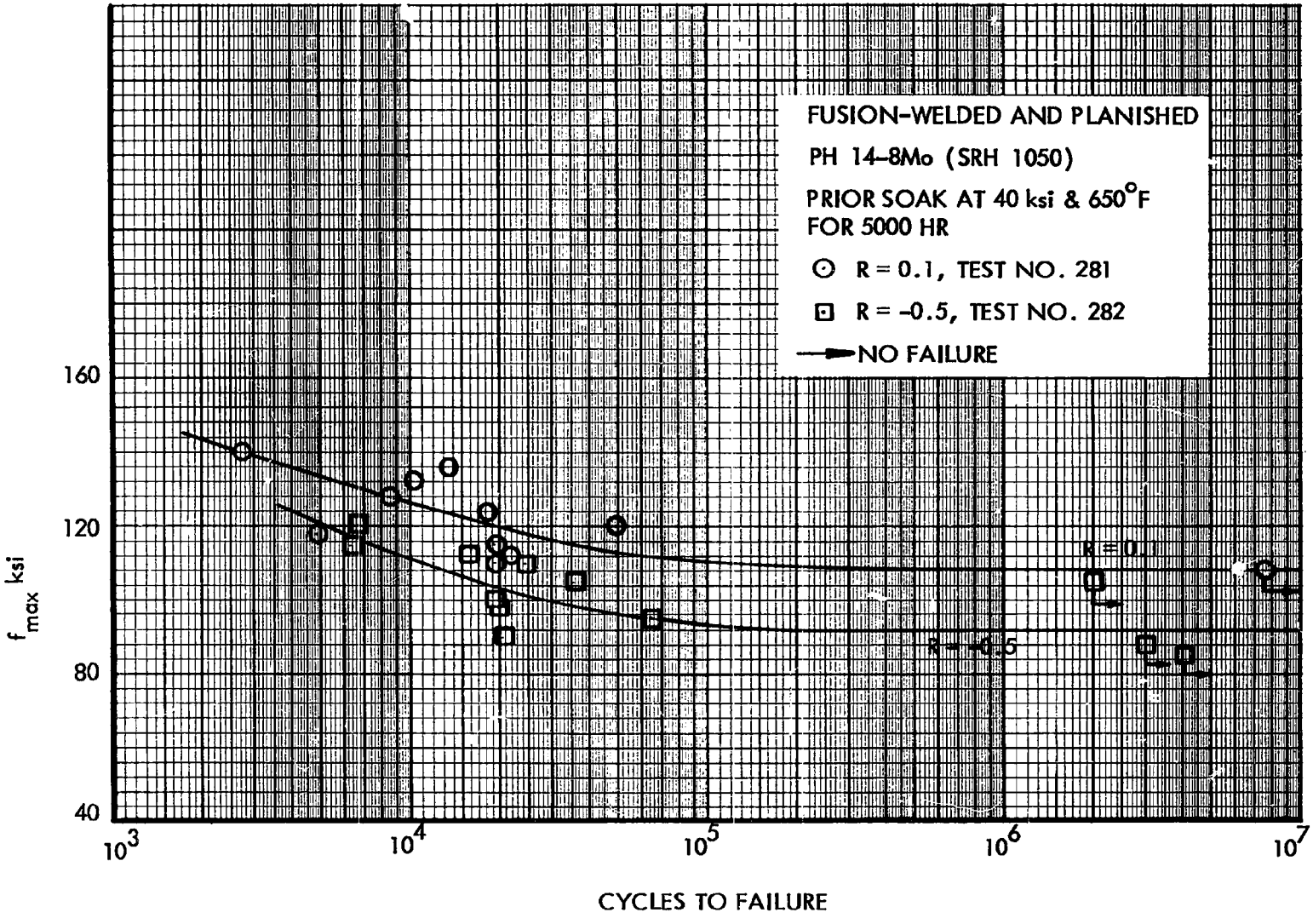



Figure 167. S-N Curves at 400°F, Fusion-Welded PH14-8Mo, R = Constant

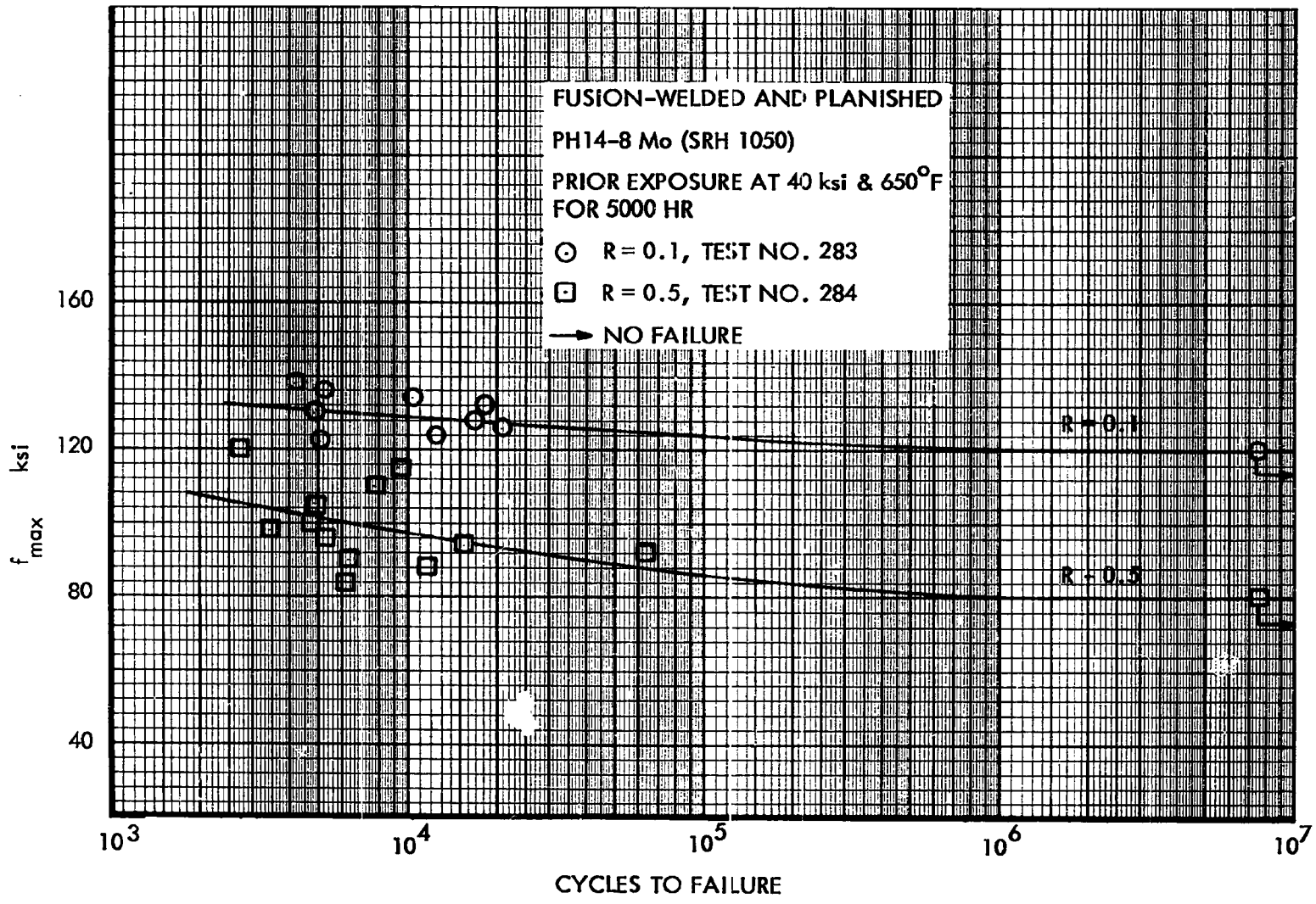



Figure 168. S-N Curves at 650°F, Fusion-Welded PH14-8Mo, R = Constant

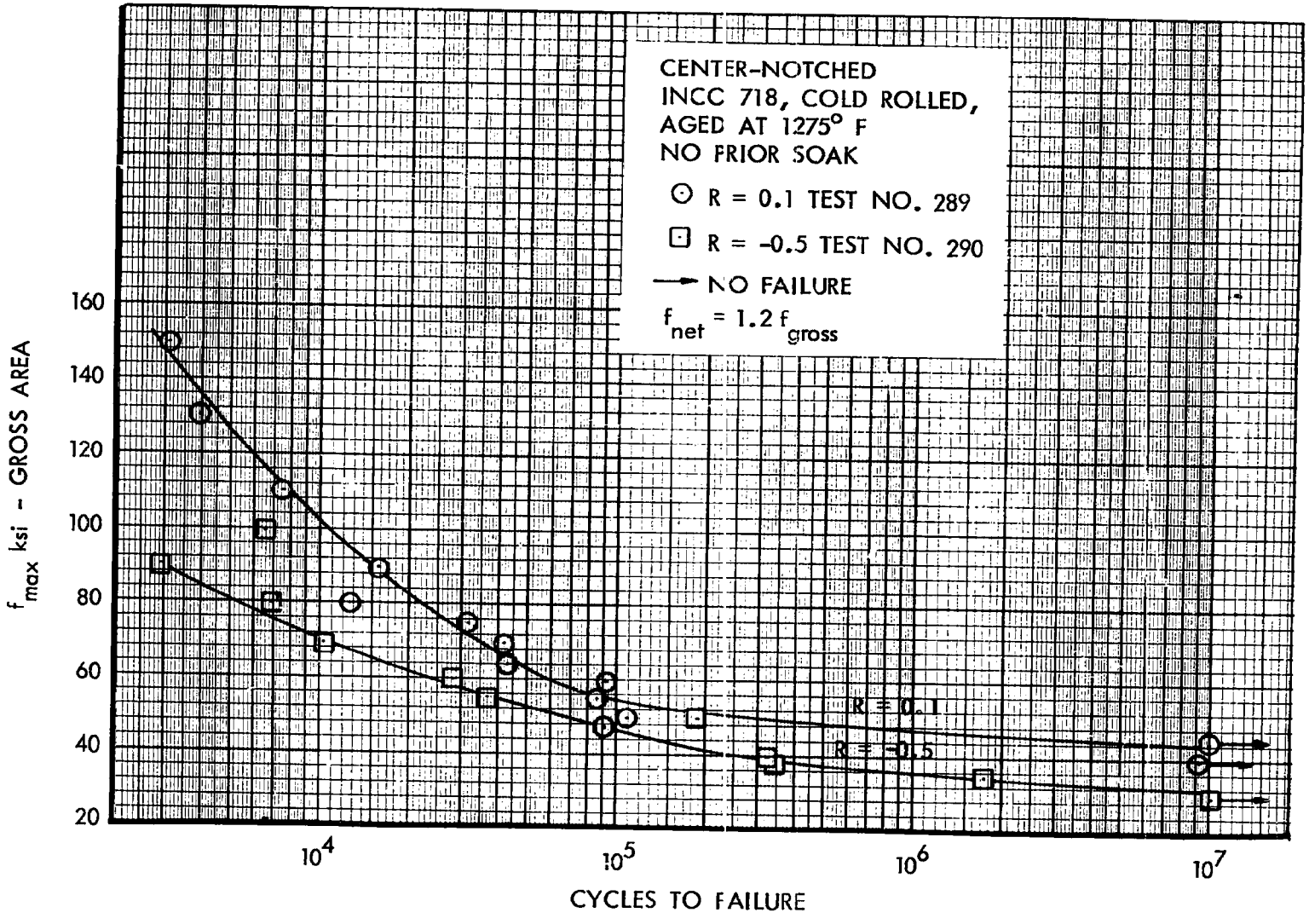



Figure 169. S-N Curves at Room Temperature, Center-Notched INCO 718, R = Constant

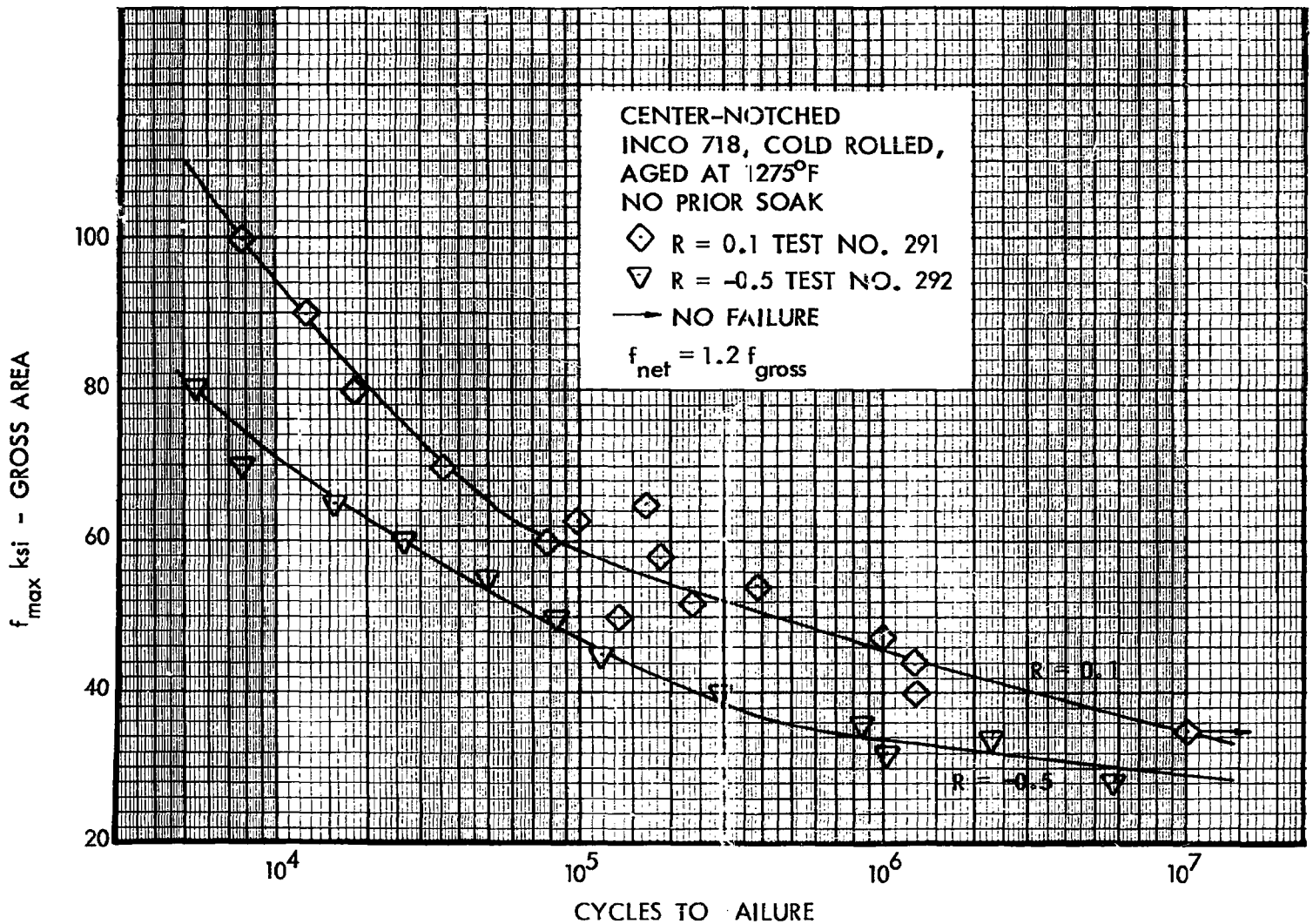



Figure 170. S-N Curves at 400°F, Center-Notched INCO 718, R = Constant

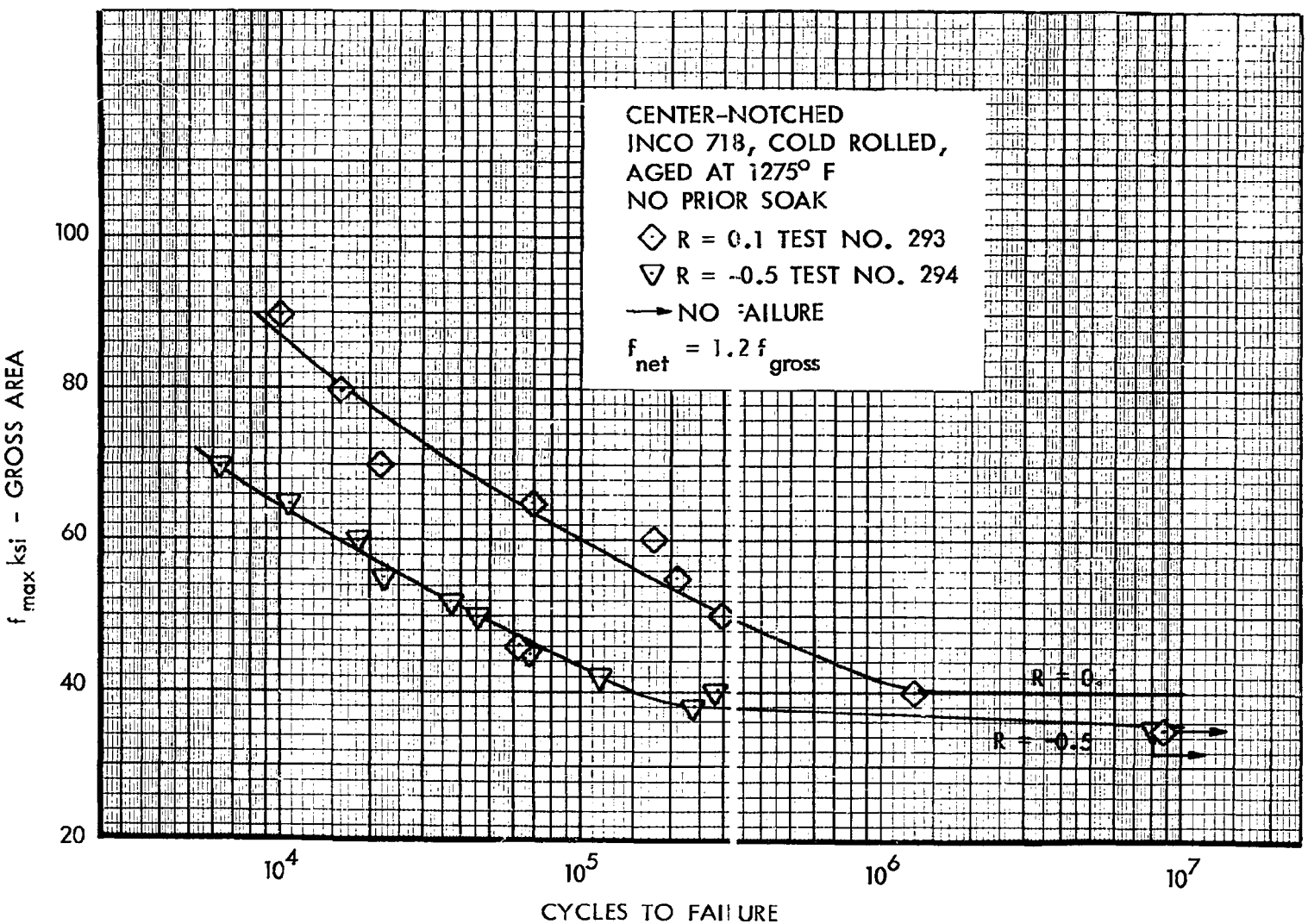



Figure 171. S-N Curves at 650°F, Center-Notched INCO 718, R = Constant

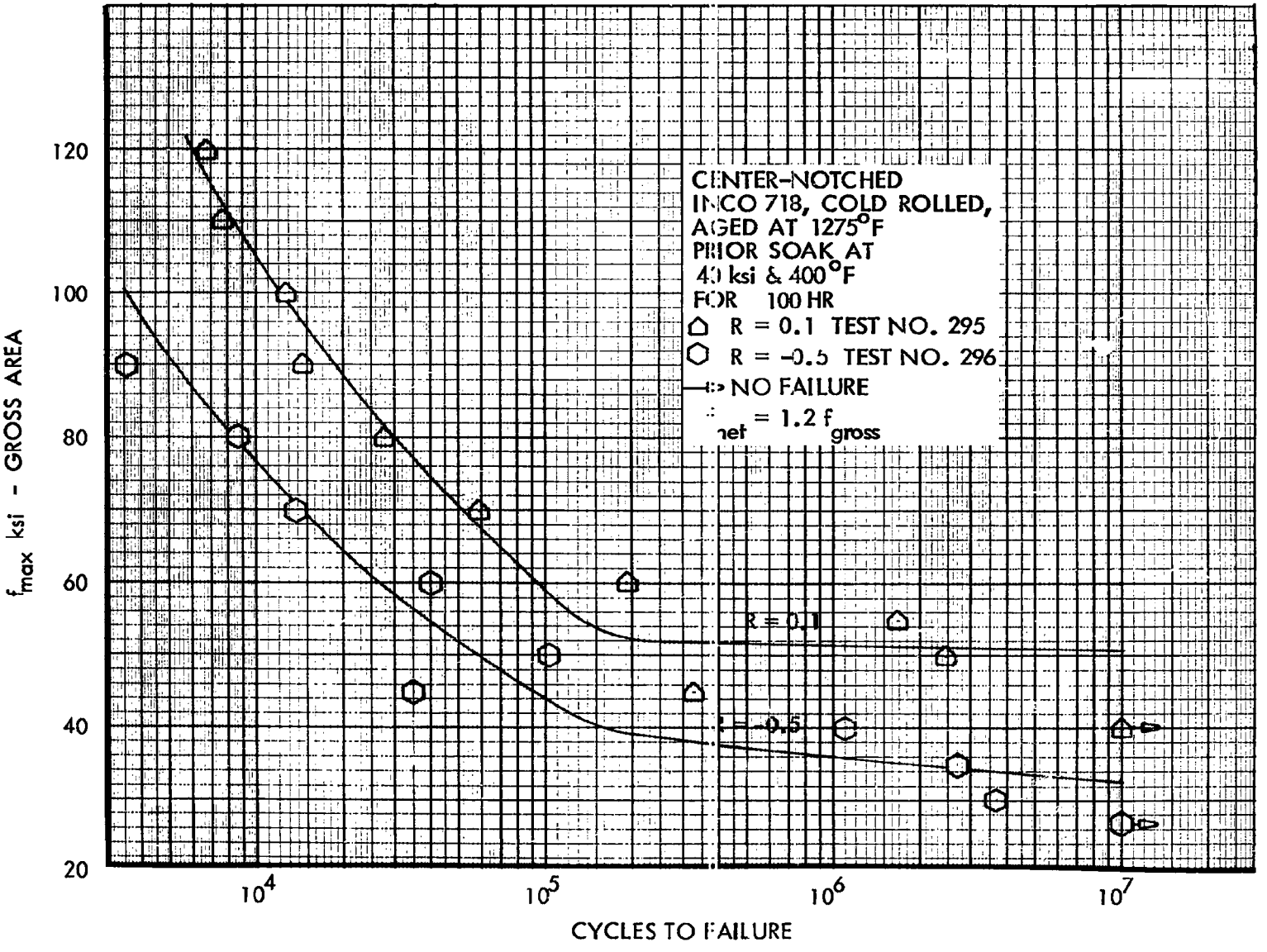



Figure 172. S-N Curves at Room Temperature, Center-Notched INCO 718, R = Constant

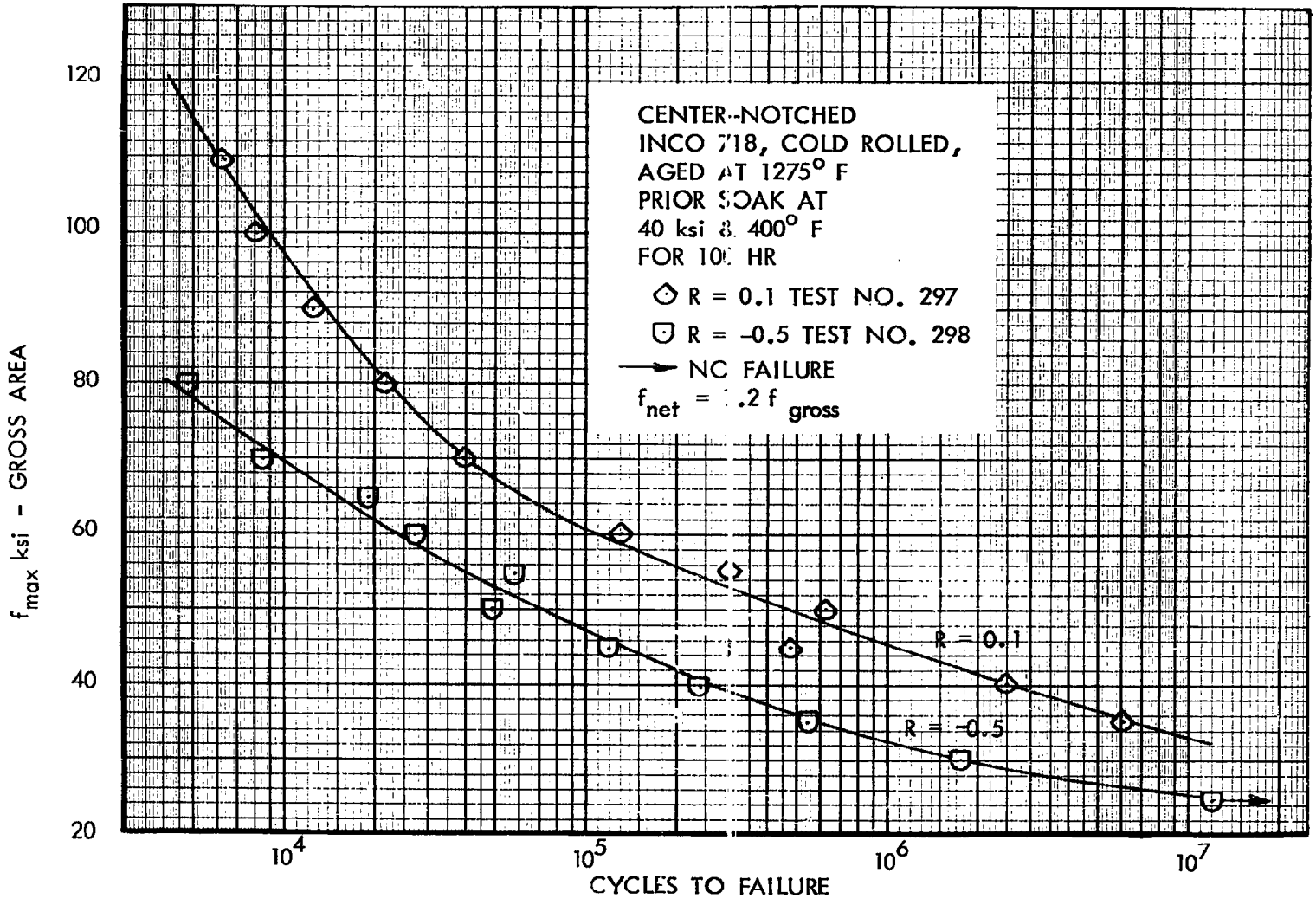



Figure 173. S-N Curves at 400°F, Center-Notched INCO 718, R = Constant

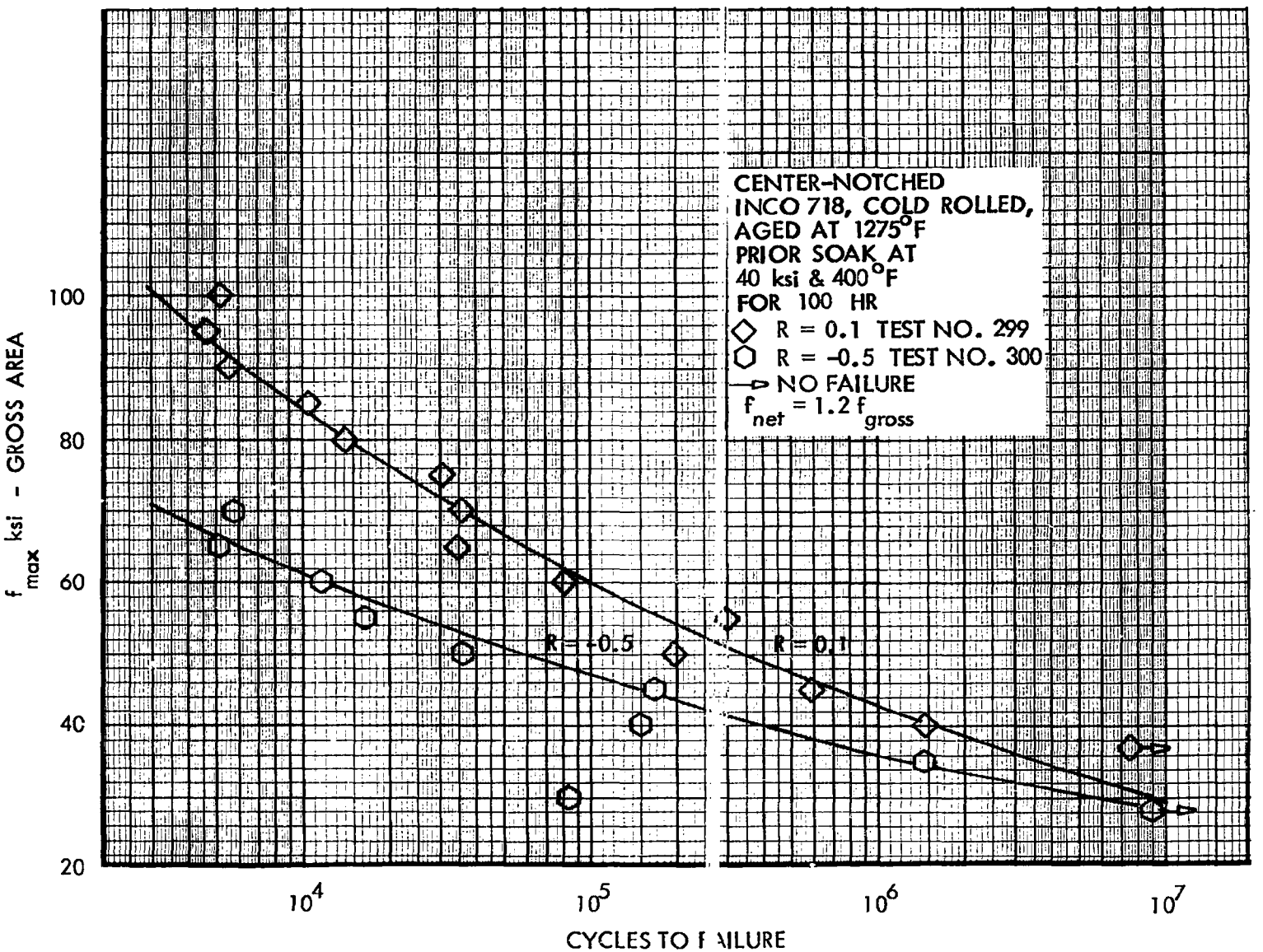



Figure 174. S-N Curves at 650°F, Center-Notched INCO 718, R = Constant

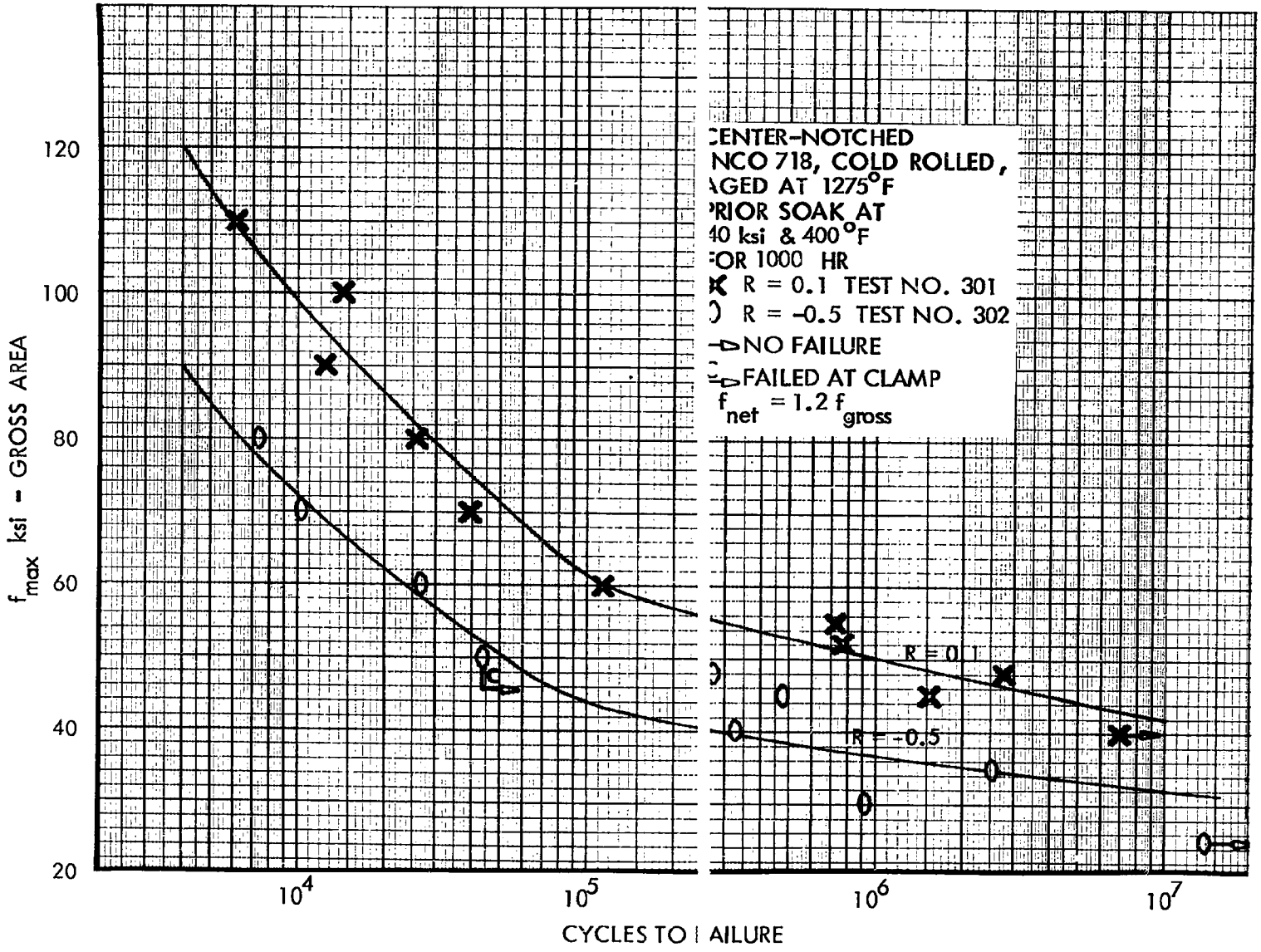



Figure 175. S-N Curves at Room Temperature, Center-Notched INCO 718, R = Constant

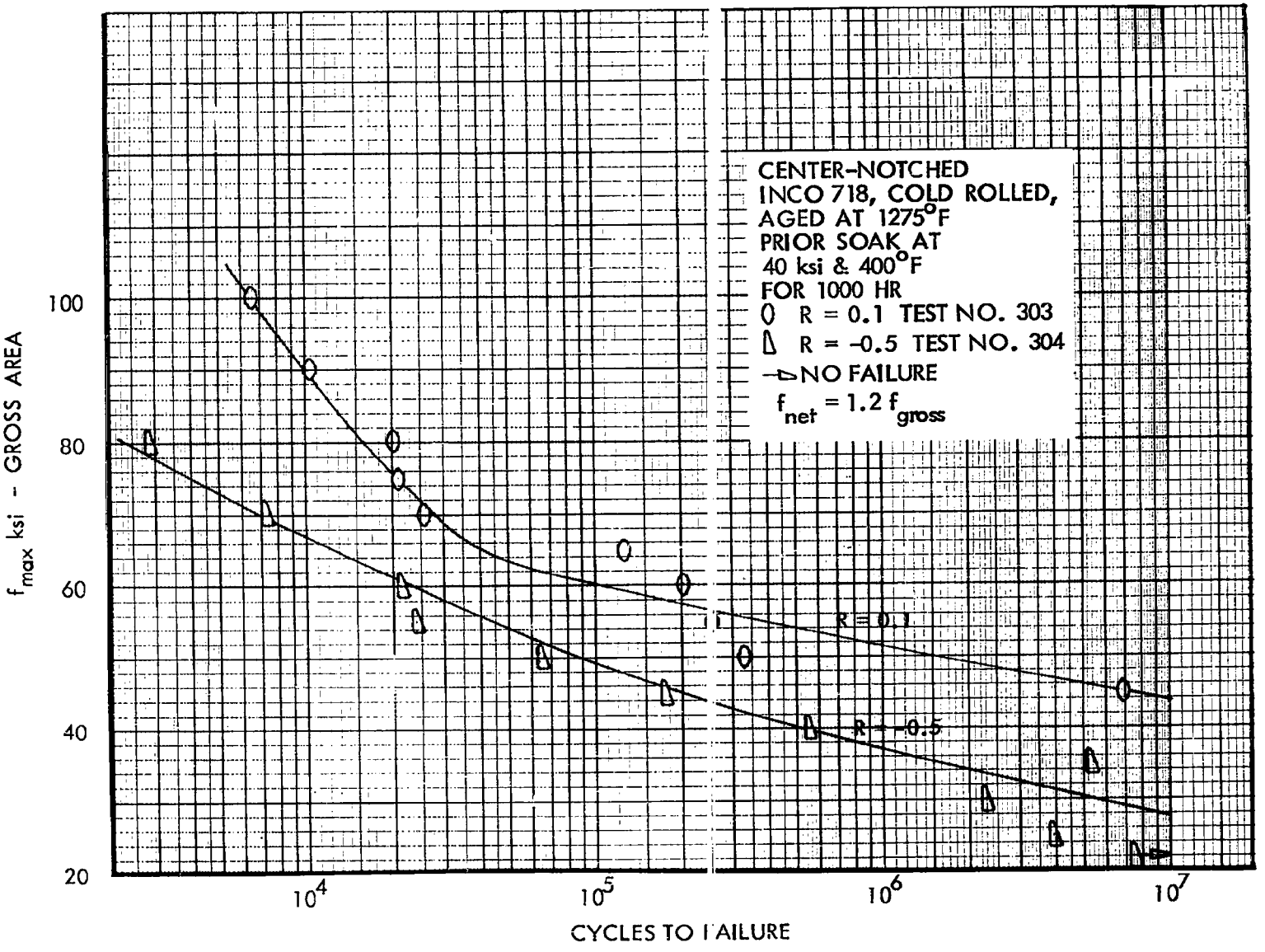



Figure 176. S-N Curves at 400°F, Center-Notched INCO 718, R = Constant

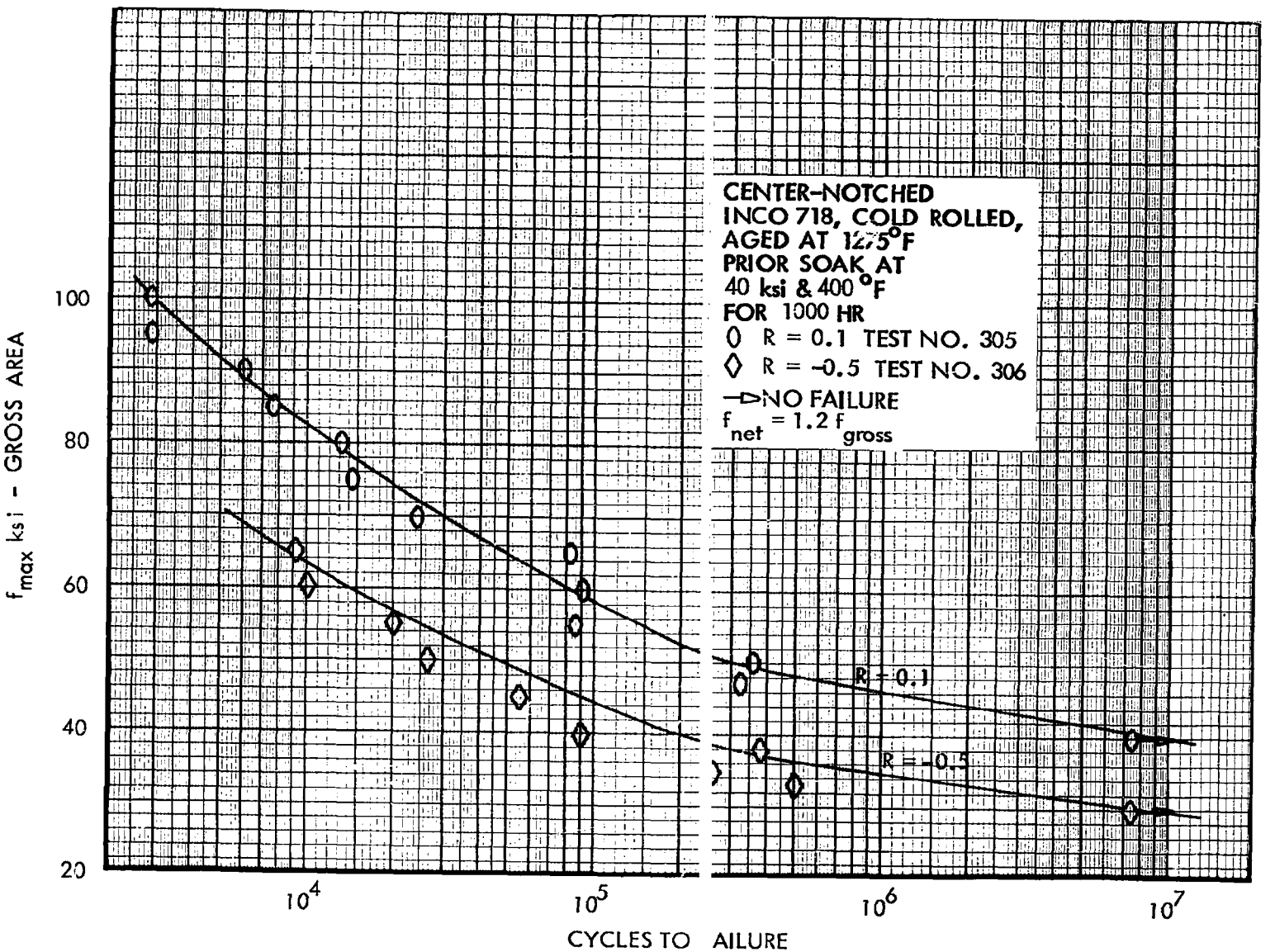



Figure 177. S-N Curves at 650°F, Center-Notched INCO 718, R = Constant

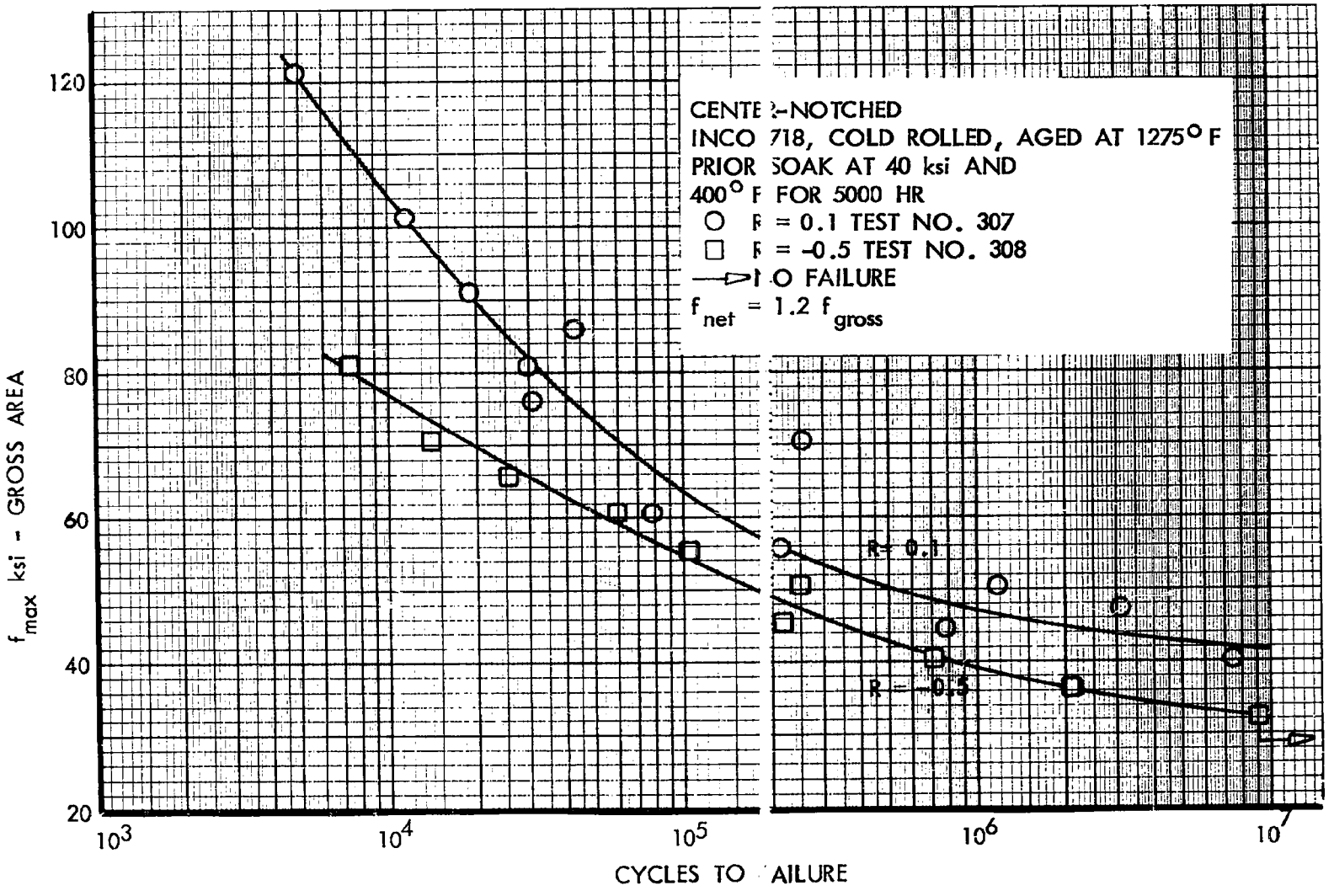



Figure 178. S-N Curves at Room Temperature, Center-Notched INCO 718, R = Constant

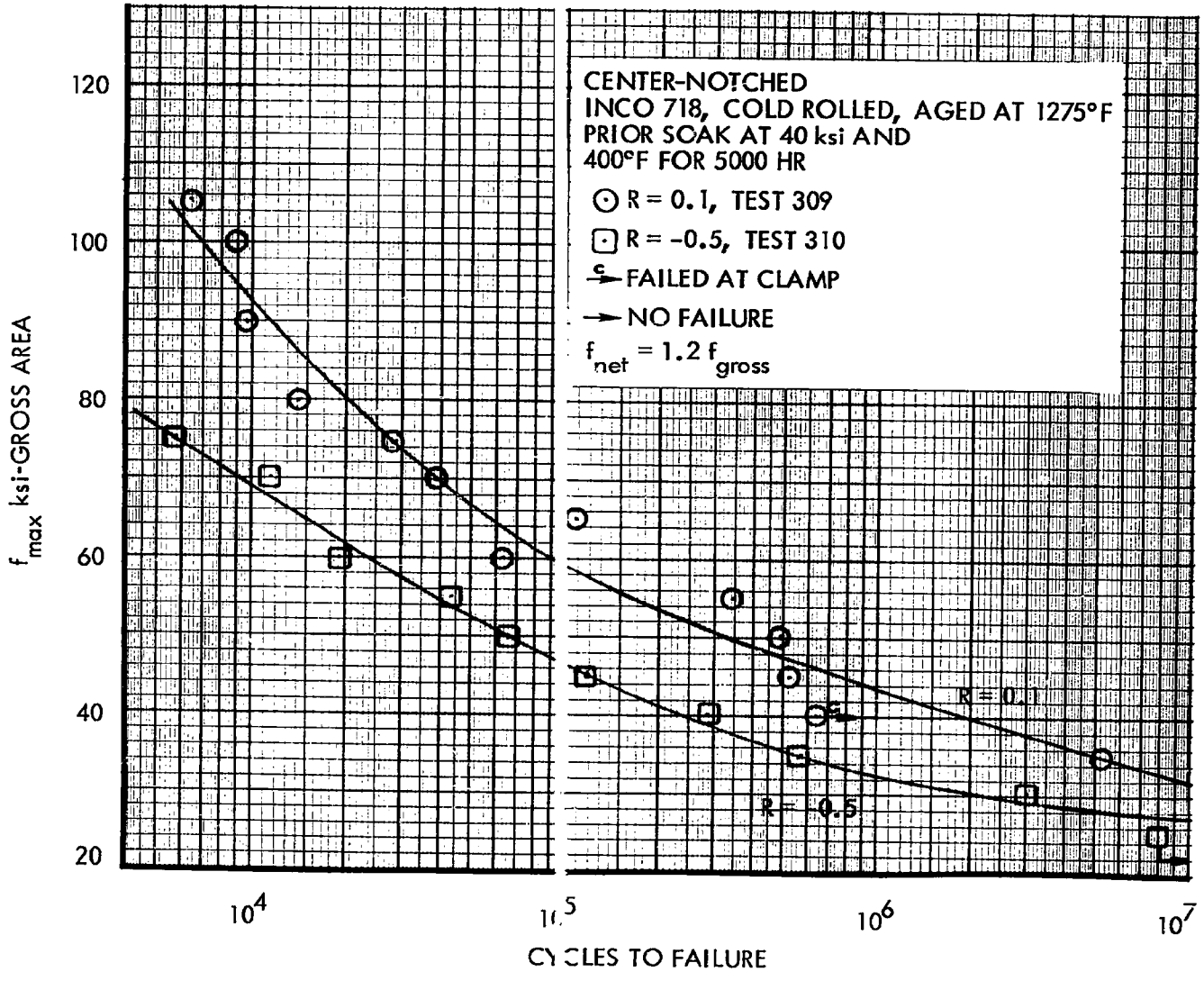



Figure 179. S-N Curves at 400°F, Center-Notched INCO 718, R = Constant

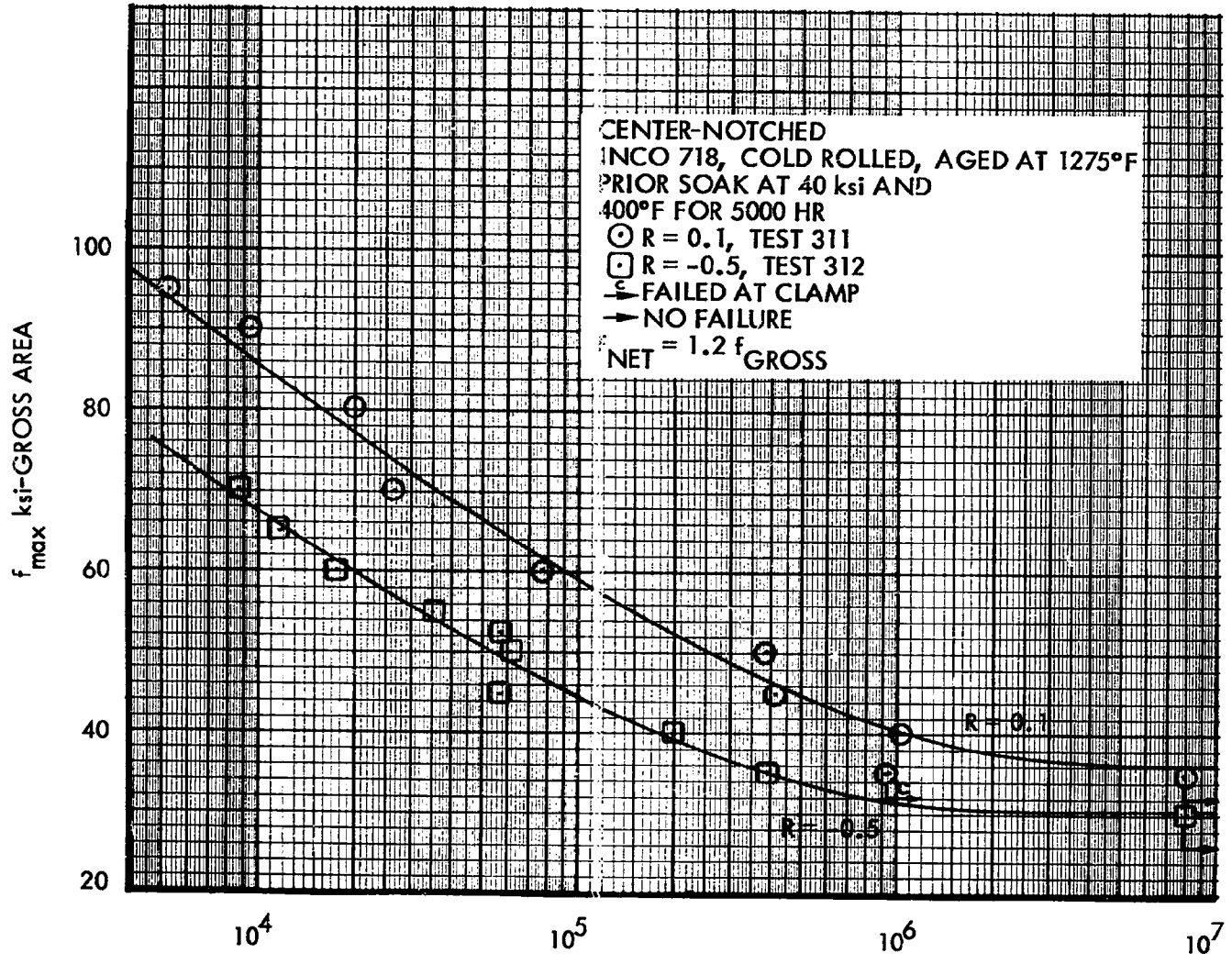



Figure 180. S-N Curves at 650°F, Center-Notched INCO 718, R = Constant

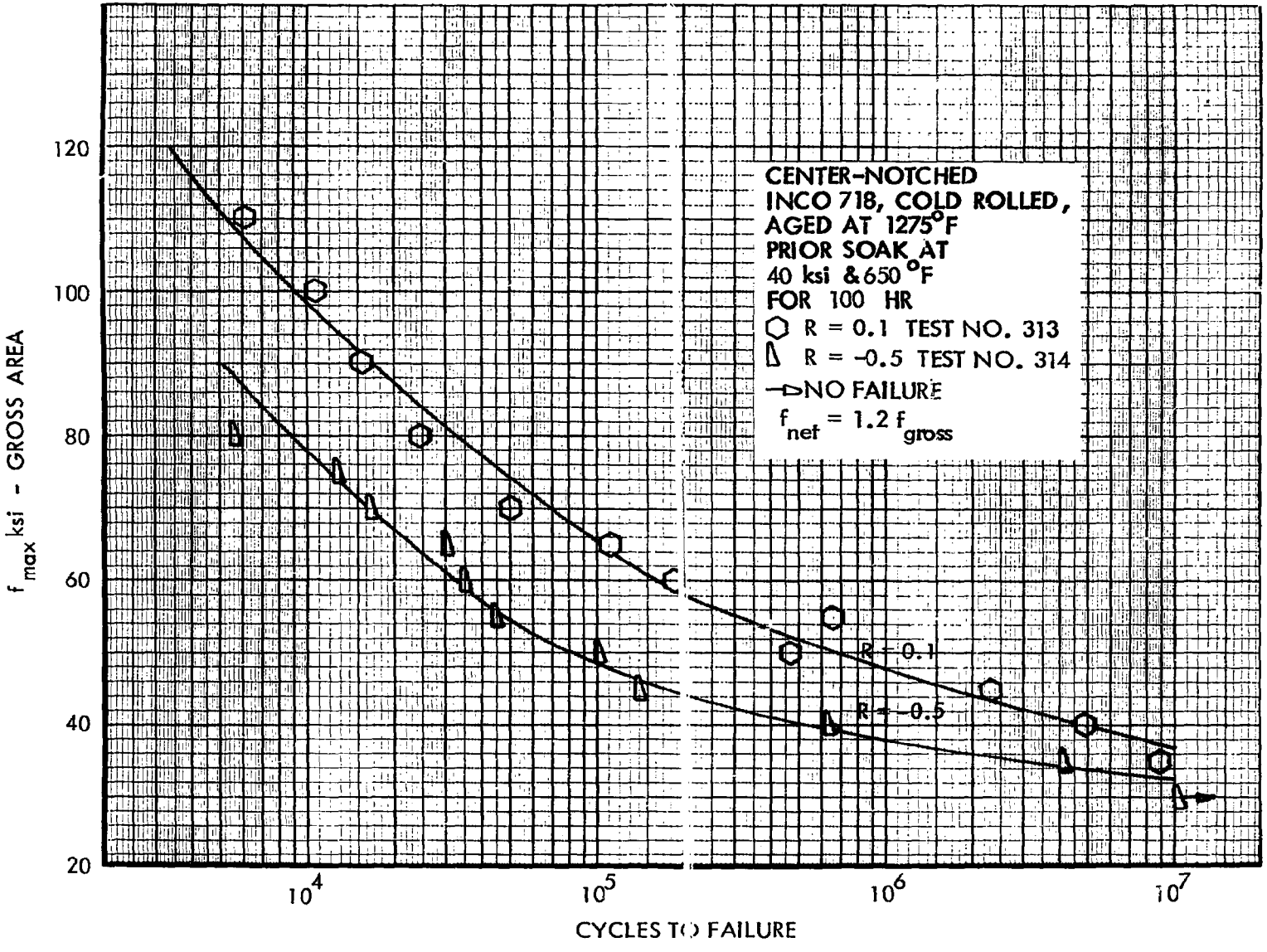



Figure 181. S-N Curves at Room Temperature, Center-Notched INCO 718, R = Constant

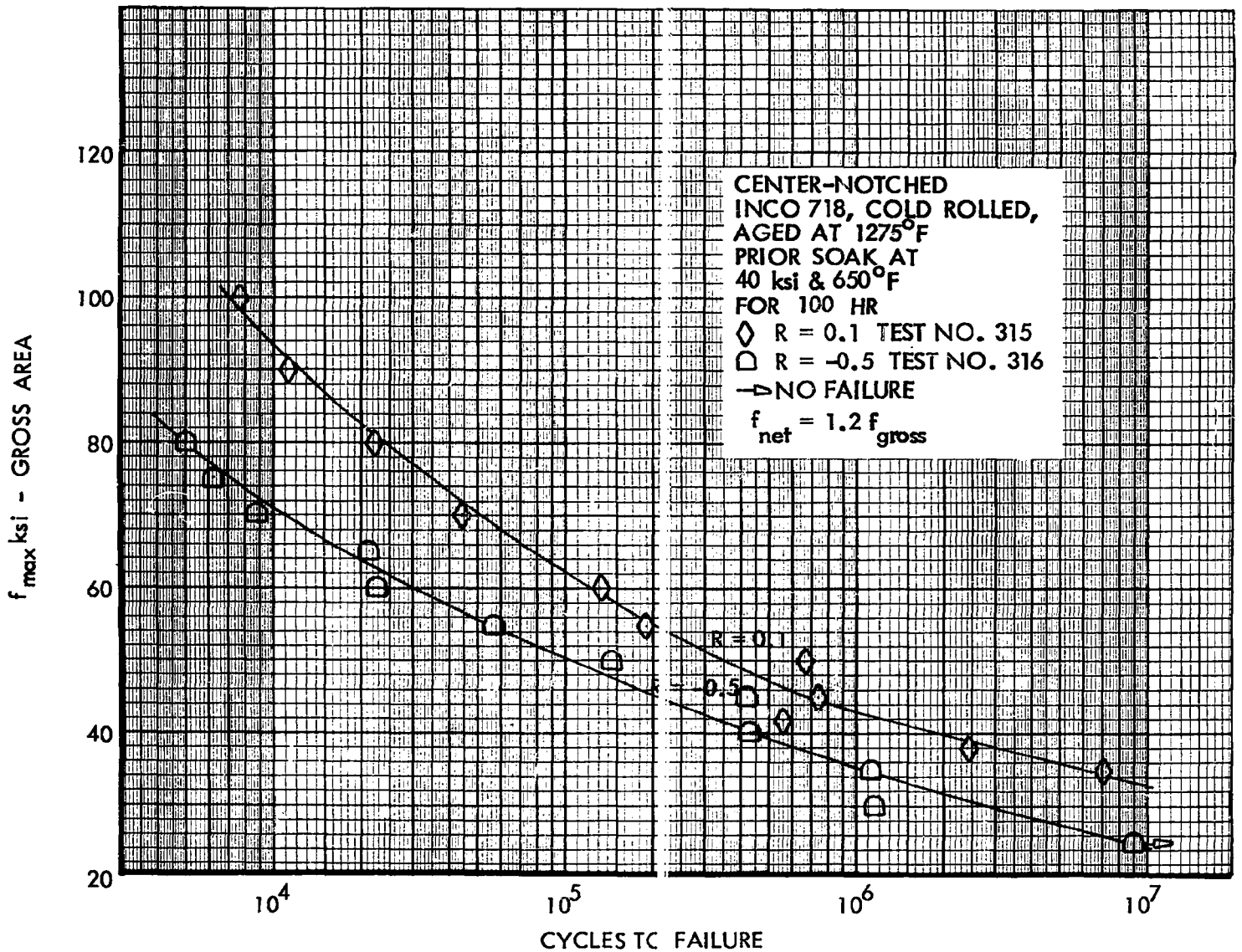



Figure 182. S-N Curves at 400°F Center-Notched INCO 718, R = Constant

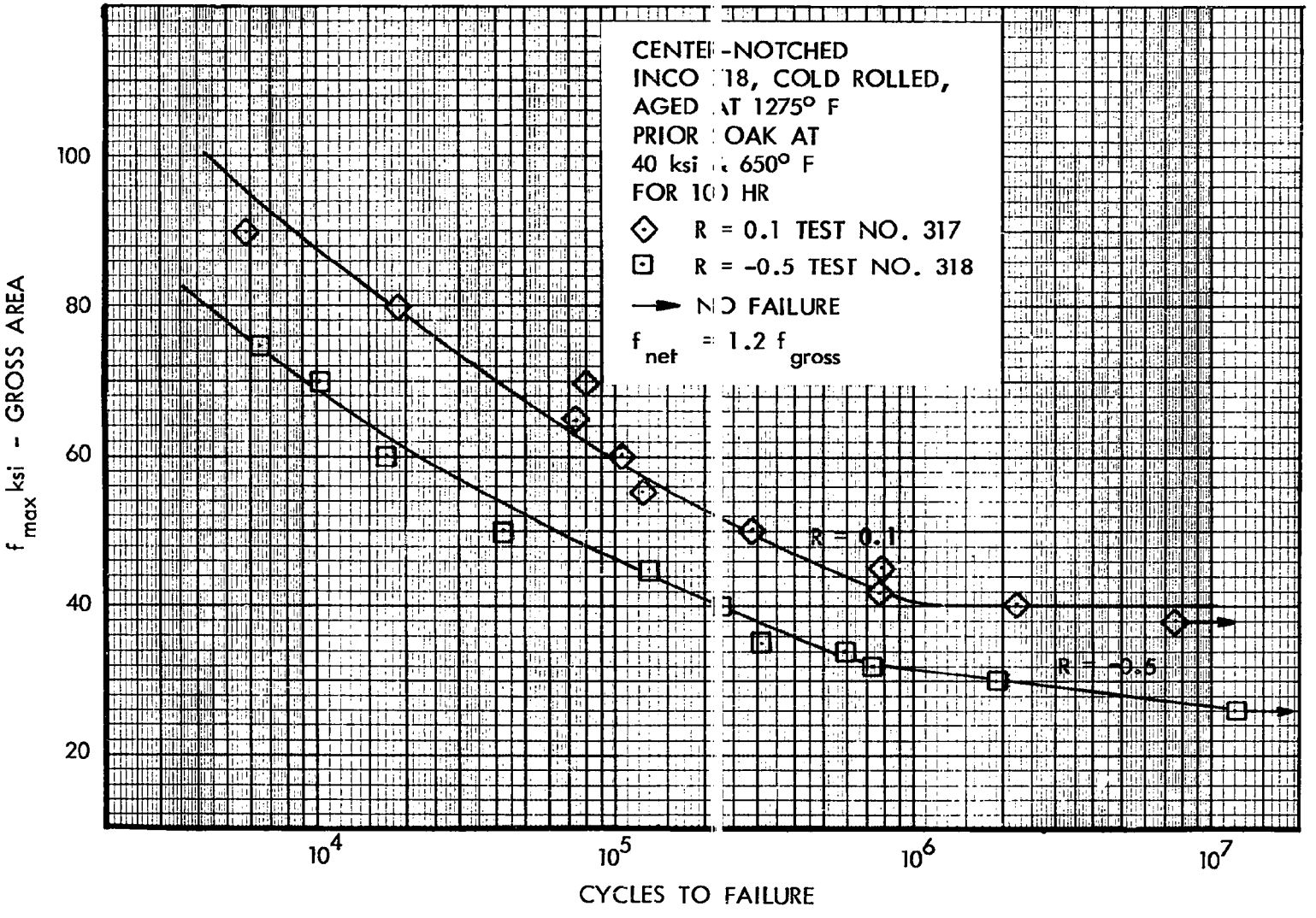



Figure 183. S-N Curves at 650°F Center-Notched INCO 718, R = Constant

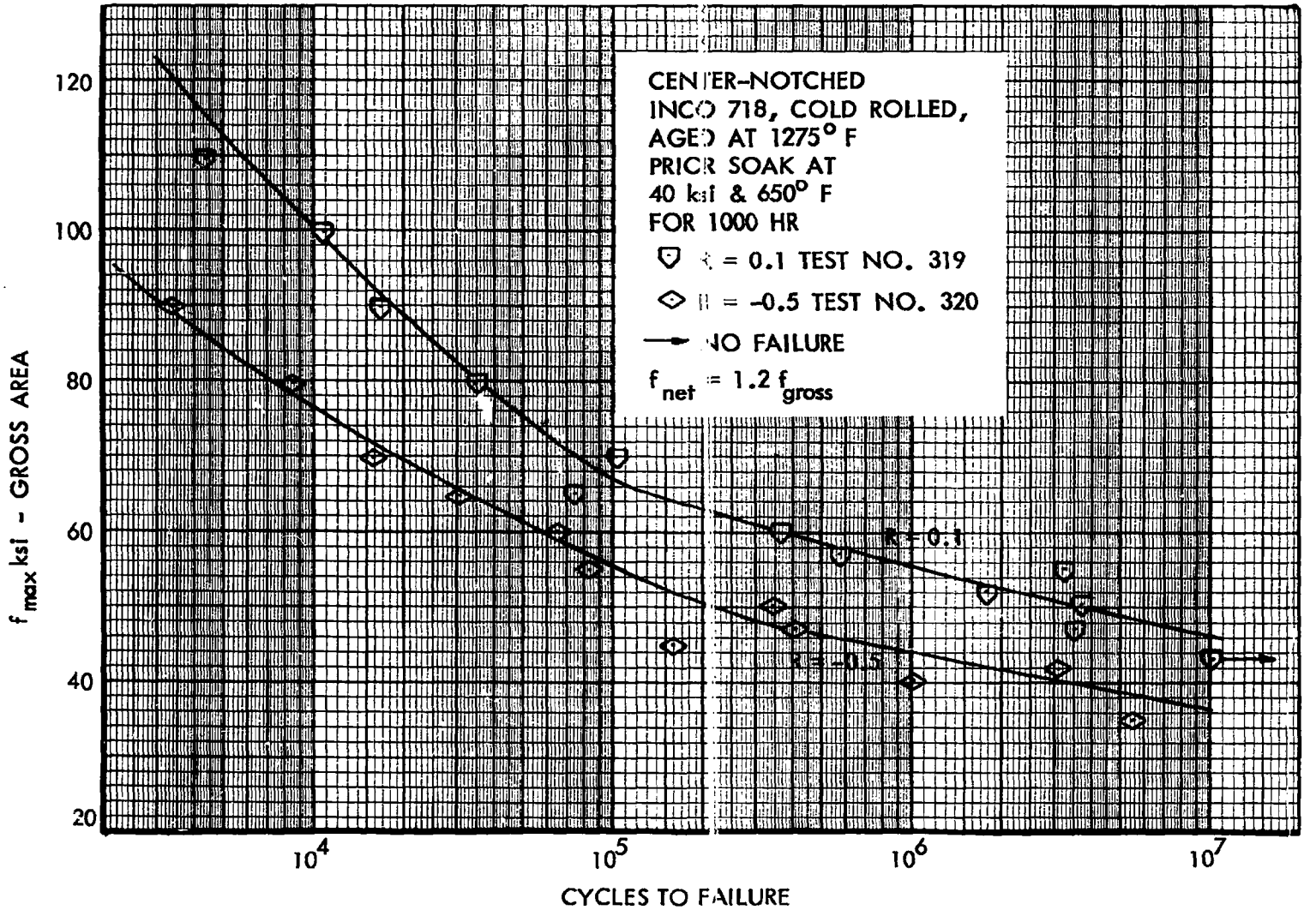



Figure 184. S-N Curves at Room Temperature, Center-Notched INCO 718, R = Constant

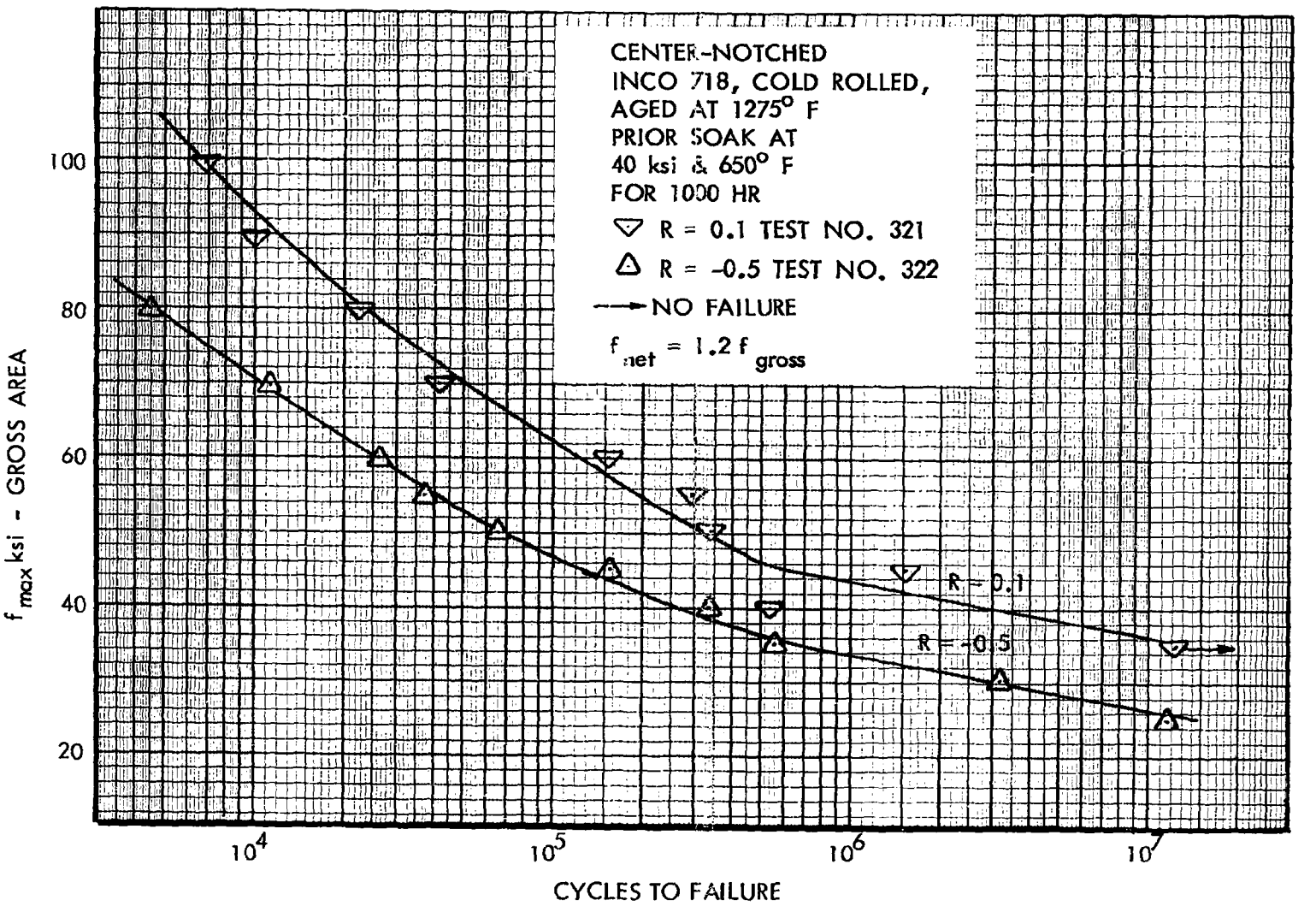



Figure 185. S-N Curves at 400°F, Center-Notched INCO 718, R = Constant

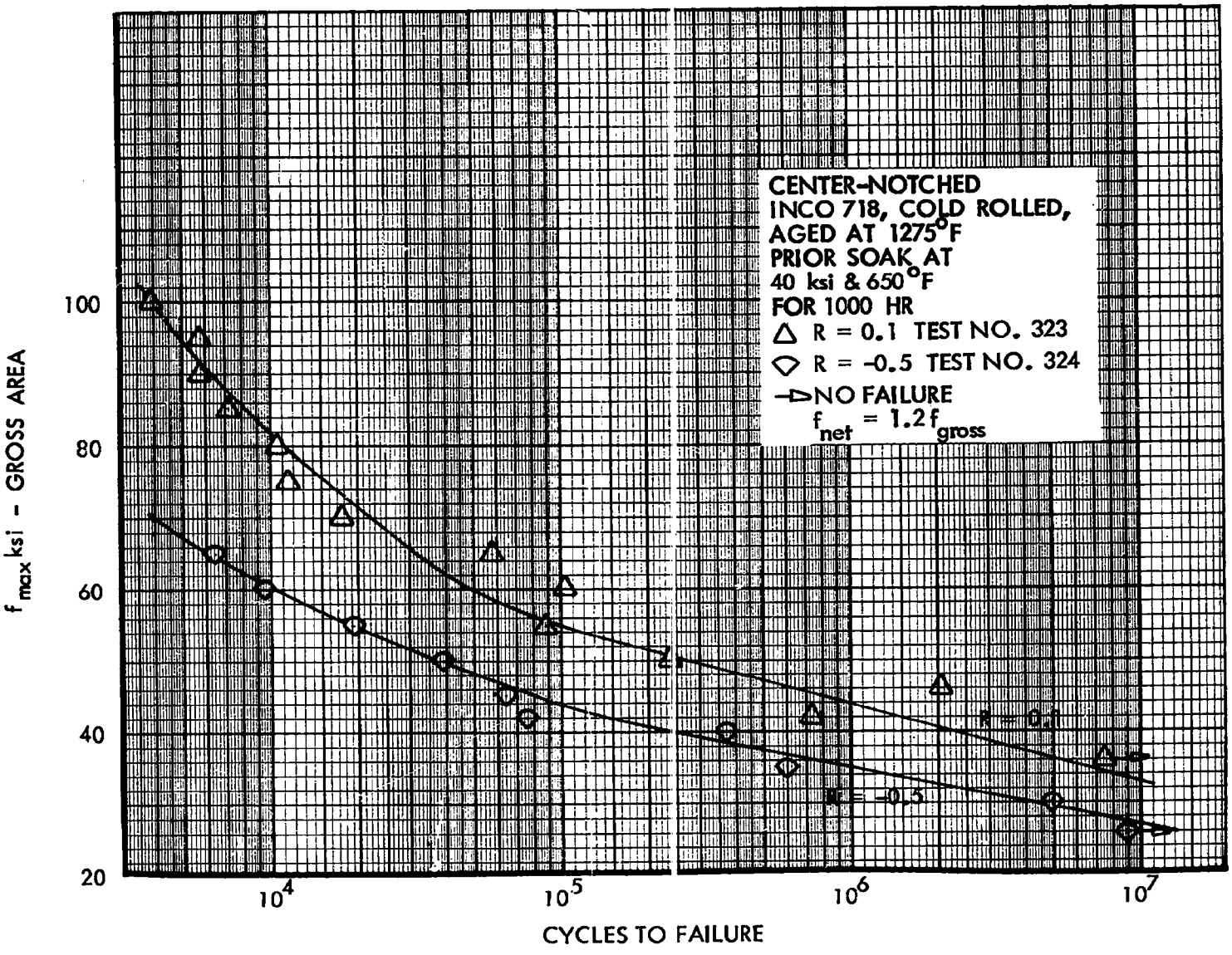



Figure 186. S-N Curves at 650°F, Center-Notched INCO 718, R = Constant

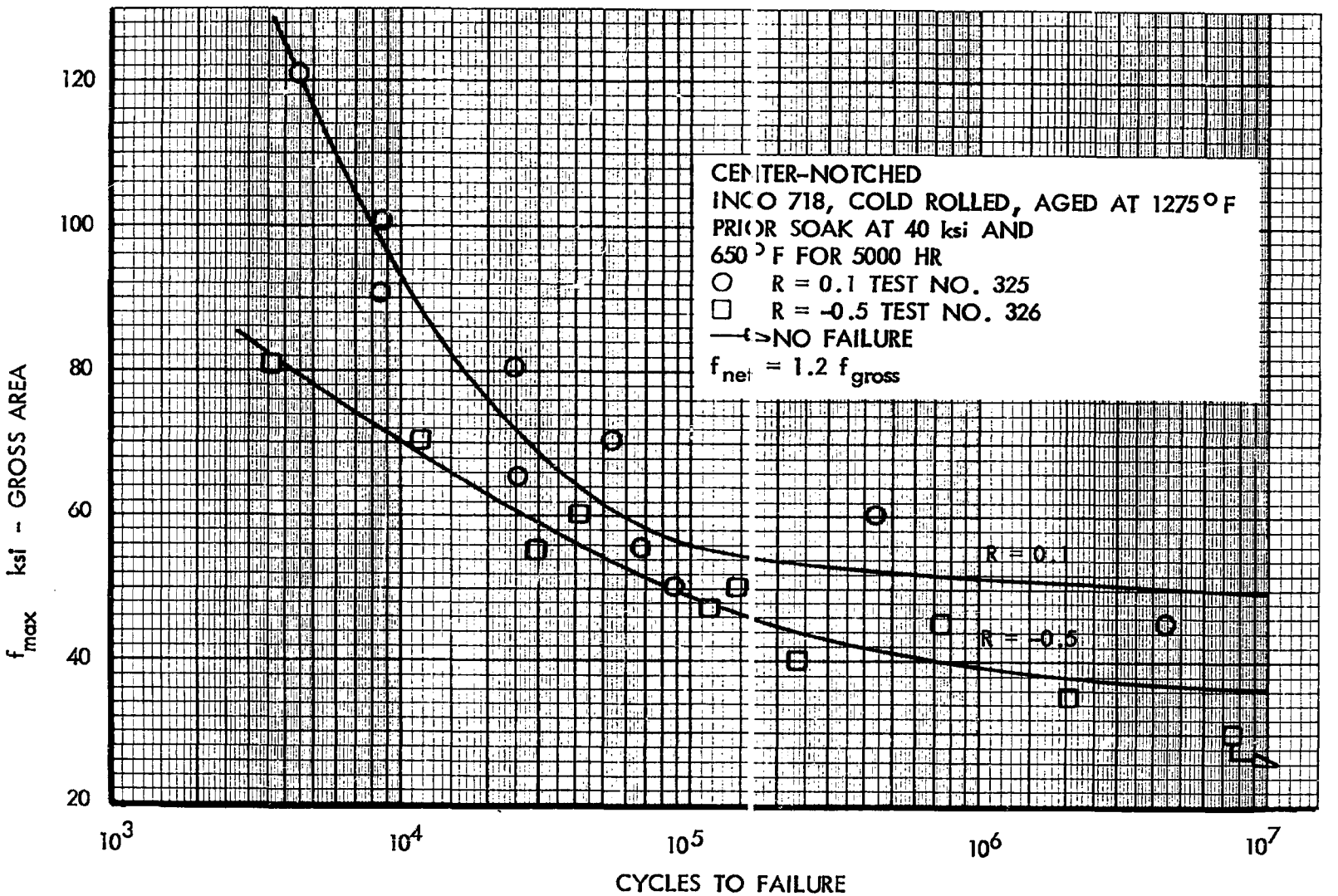



Figure 187. S-N Curves at Room Temperature, Center-Notched INCO 718, R = Constant

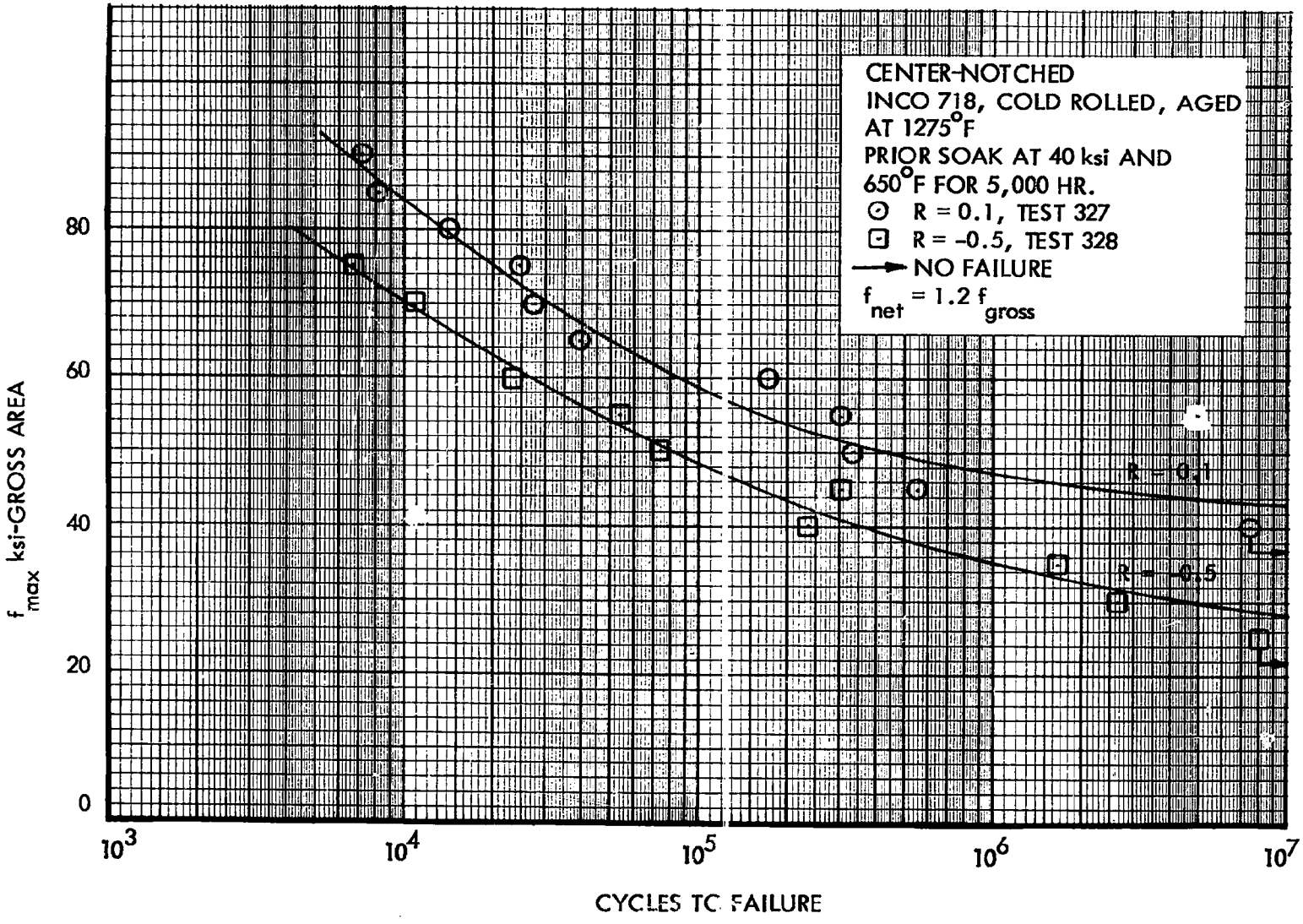



Figure 188. S-N Curves at 400°F, Center-Notched INCO 718, R = Constant

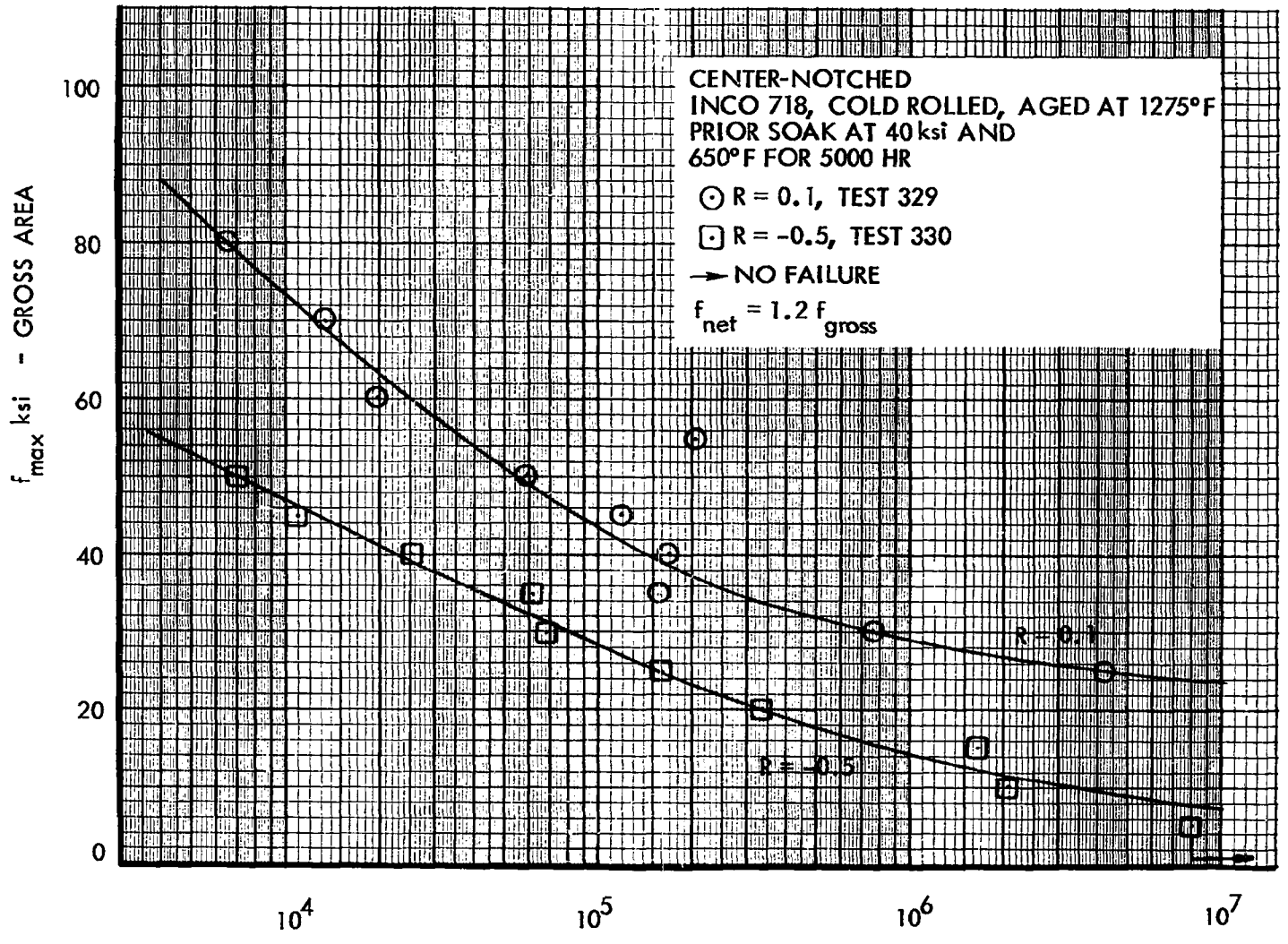



Figure 189. S-N Curves at 650°F, Center-Notched INCO 718, R = Constant

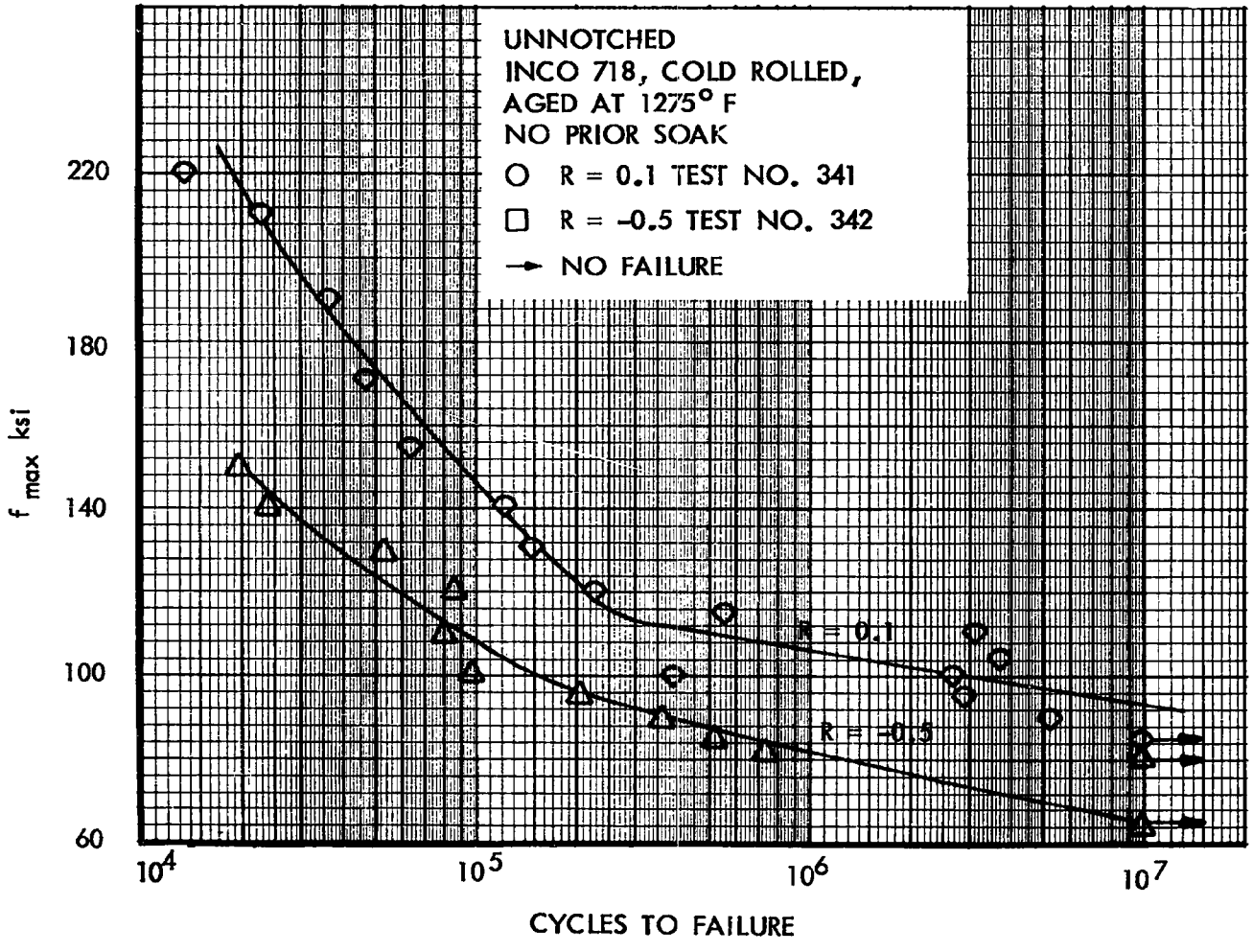



Figure 190. S-N Curves at Room Temperature, Unnotched INCO 718, R = Constant

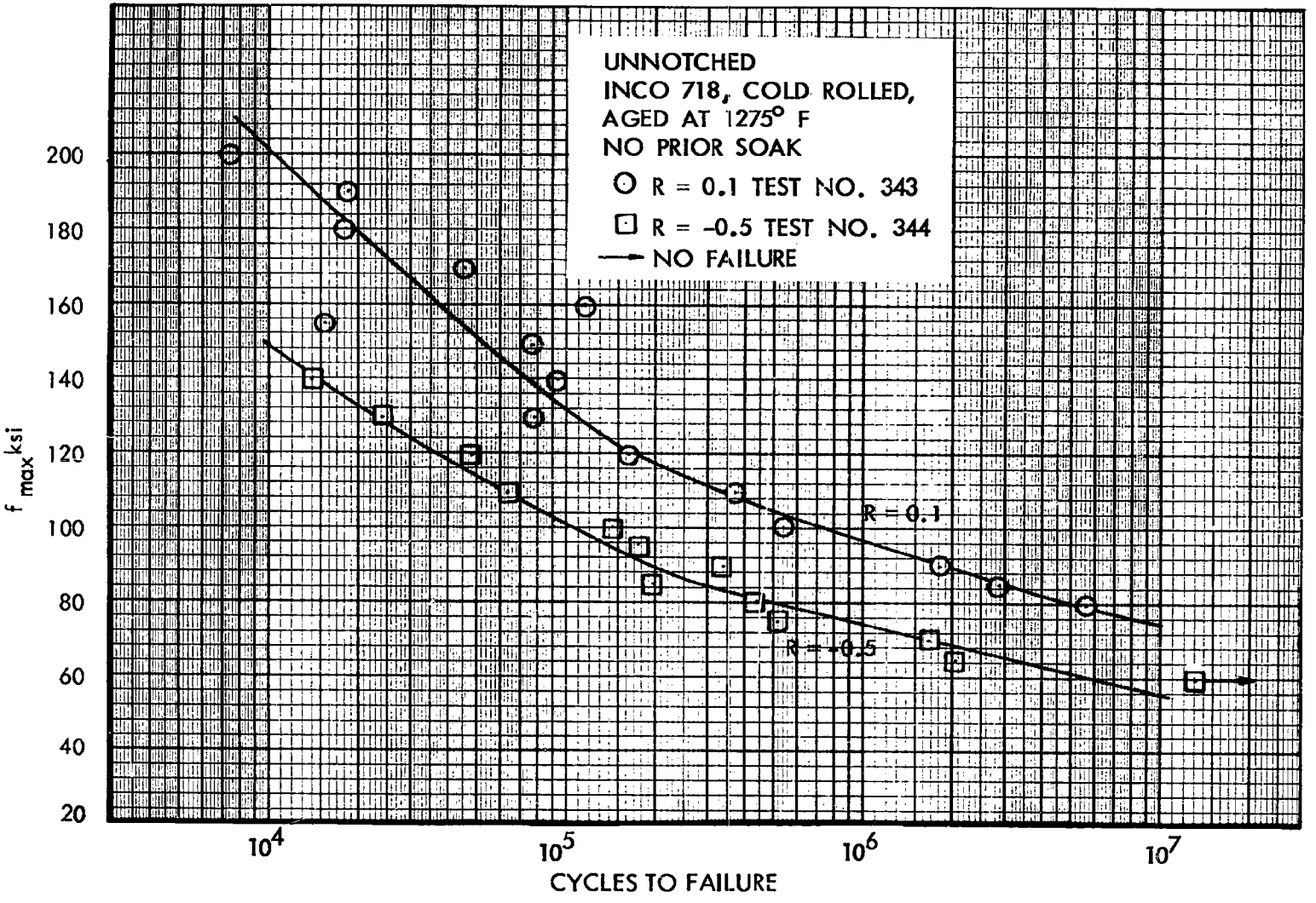



Figure 191. S-N Curves at 400°F, Unnotched INCO 718, R = Constant

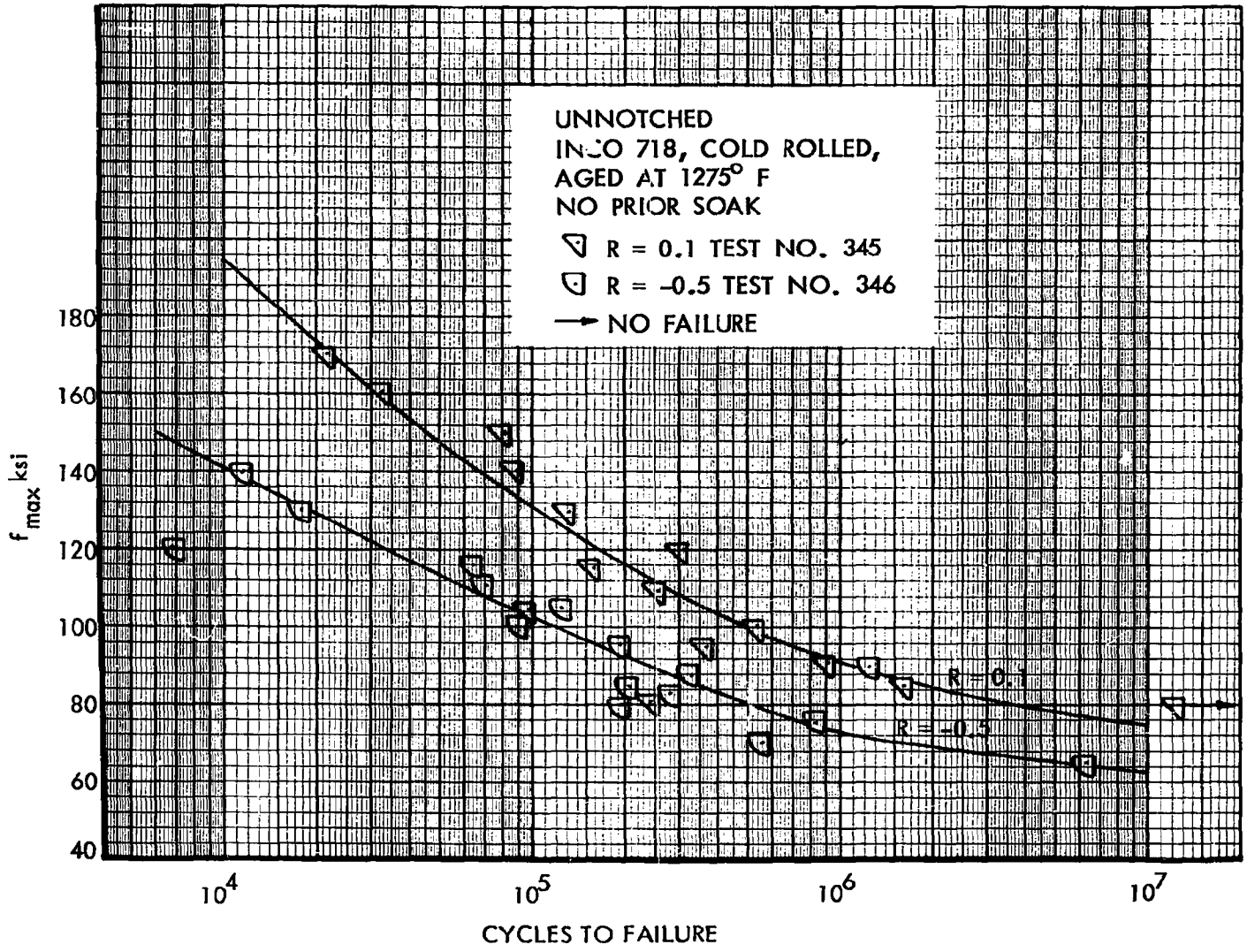



Figure 192. S-N Curves at 650°F, Unnotched INCO 718, R = Constant

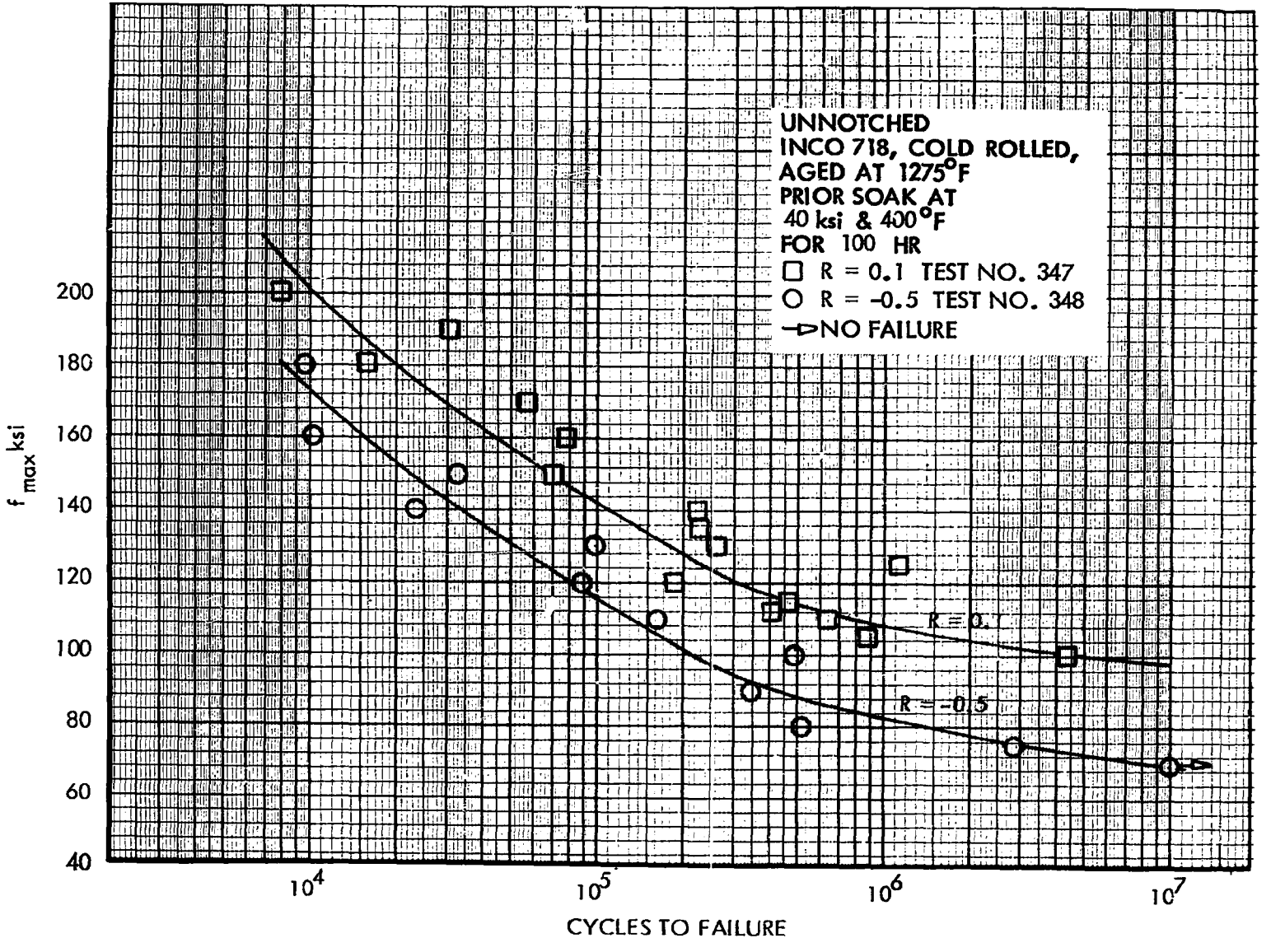



Figure 193. S-N Curves at Room Temperature, Unnotched INCO 718, R = Constant

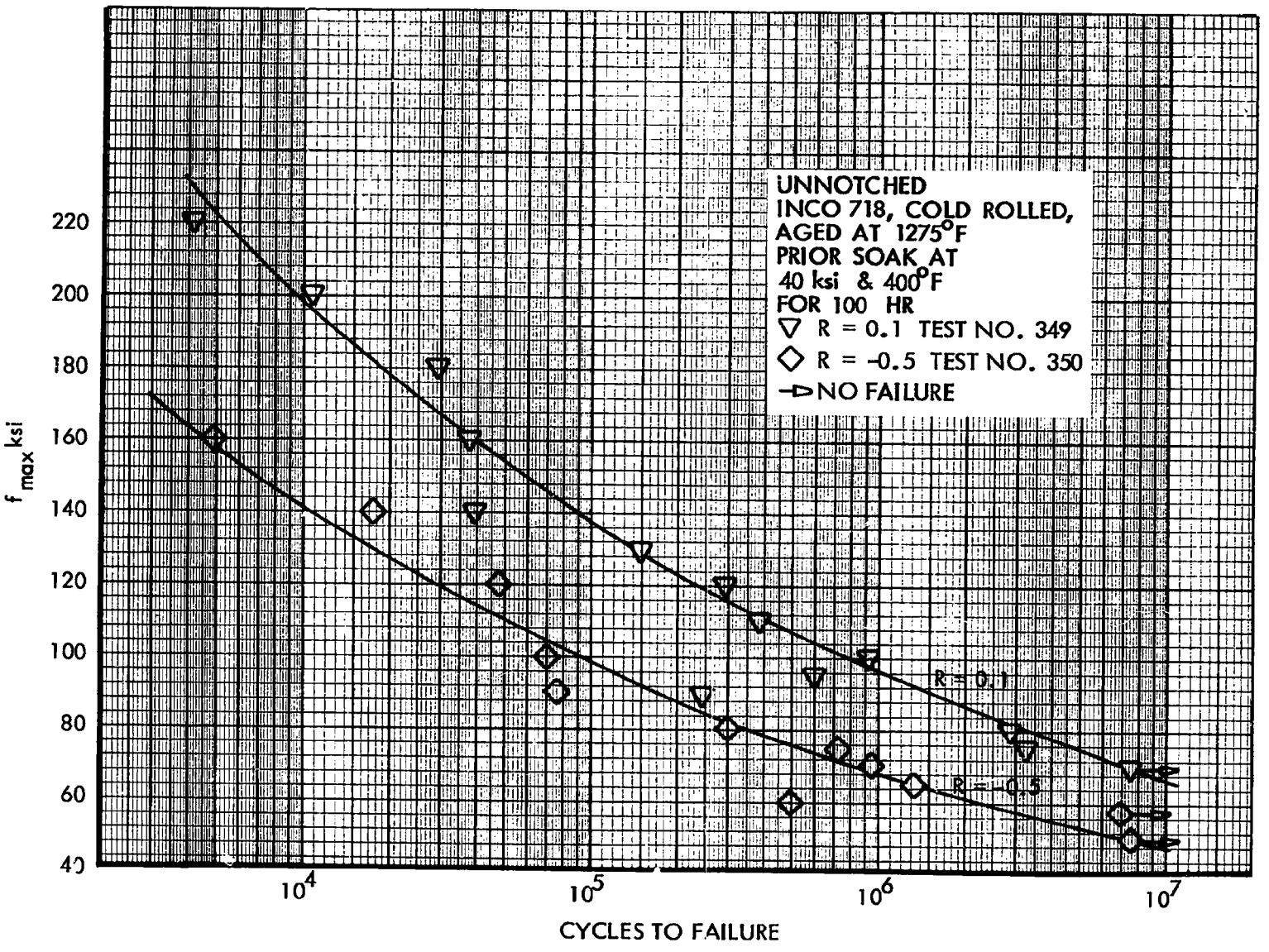



Figure 194. S-N Curves at 400°F, Unnotched INCO 718, R = Constant

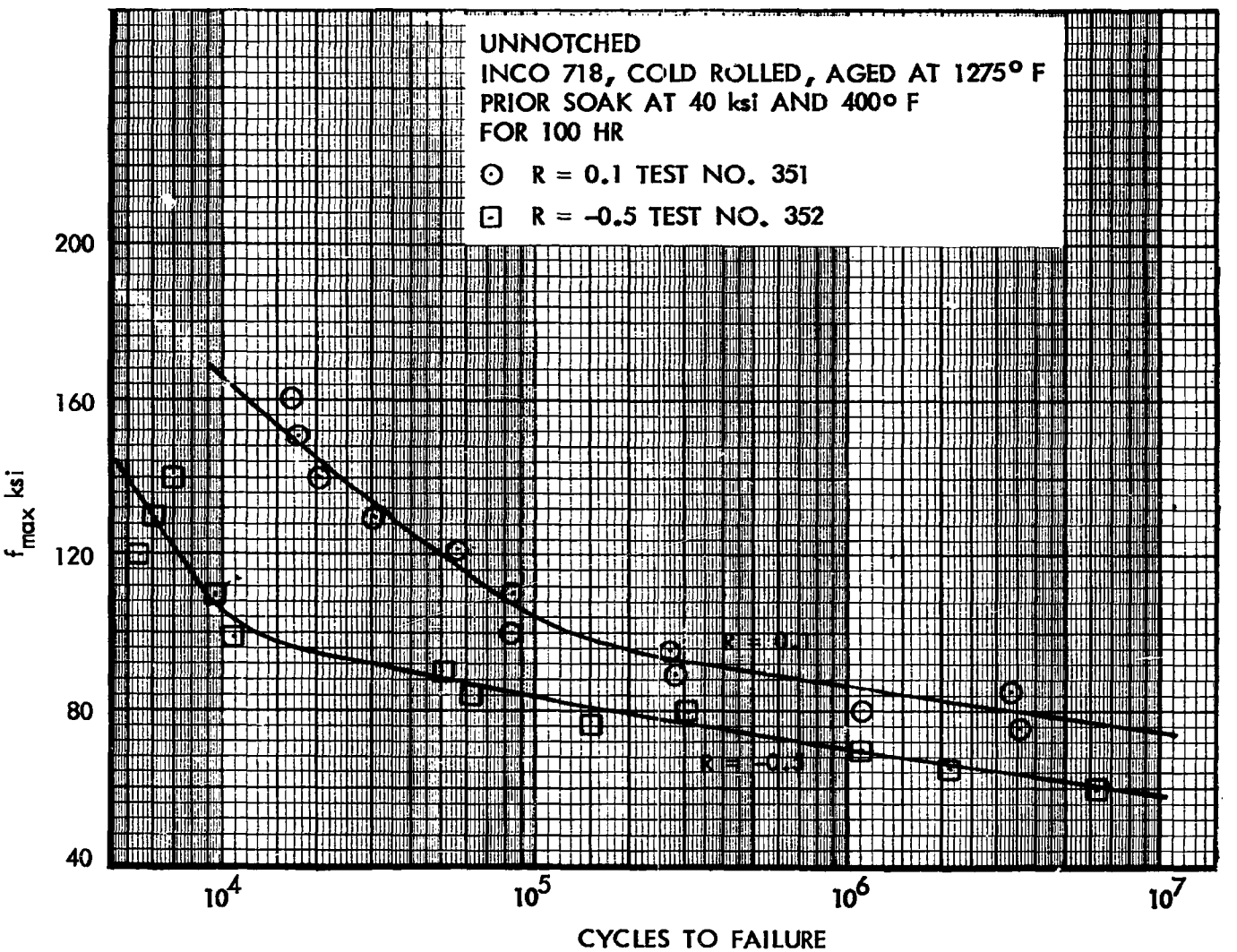



Figure 195. S-N Curves at 650°F, Unnotched INCO 718, R = Constant

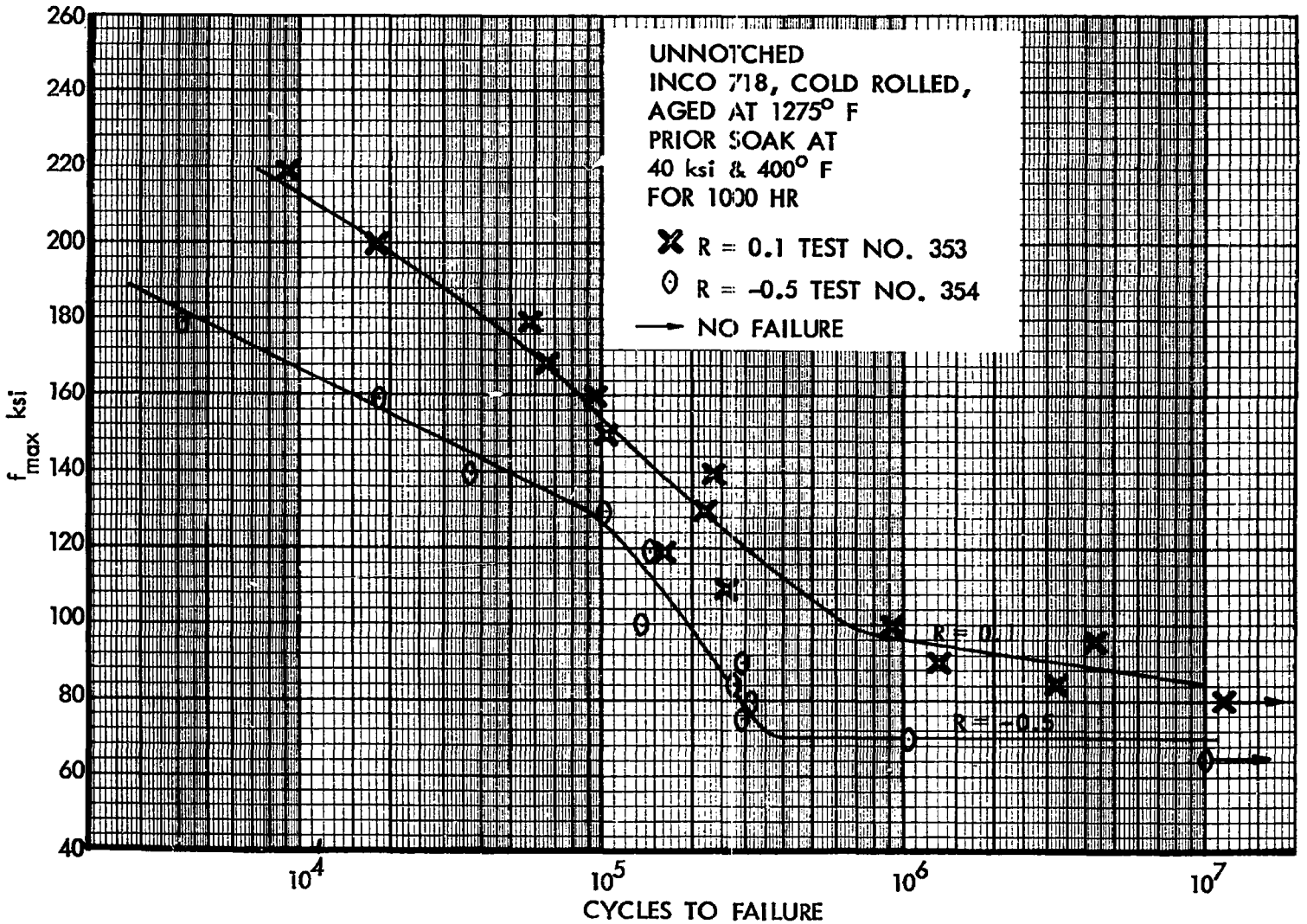



Figure 196. S-N Curves at Room Temperature, Unnotched INCO 718, R = Constant

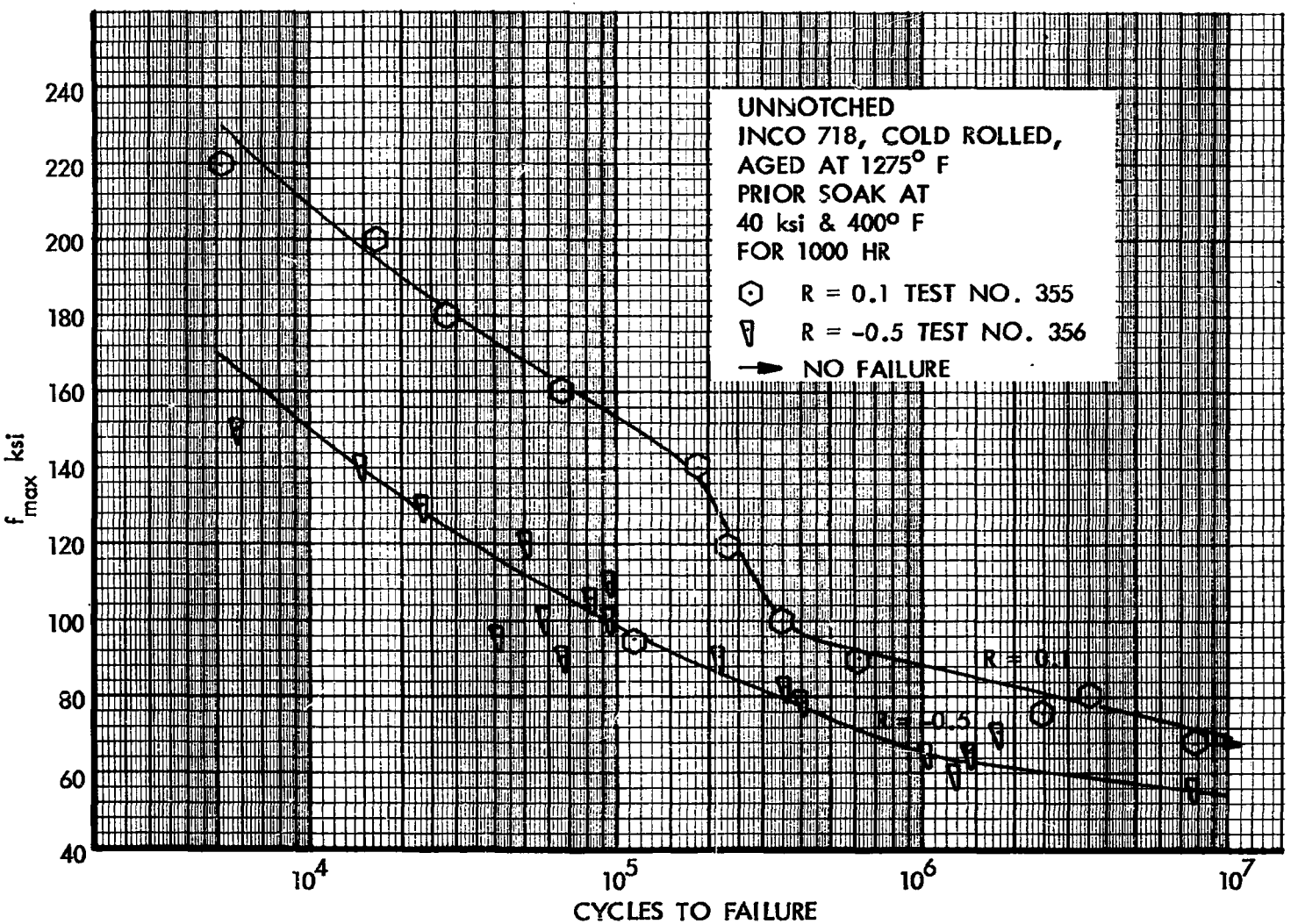



Figure 197. S-N Curves at 400°F, Unnotched INCO 718, R = Constant

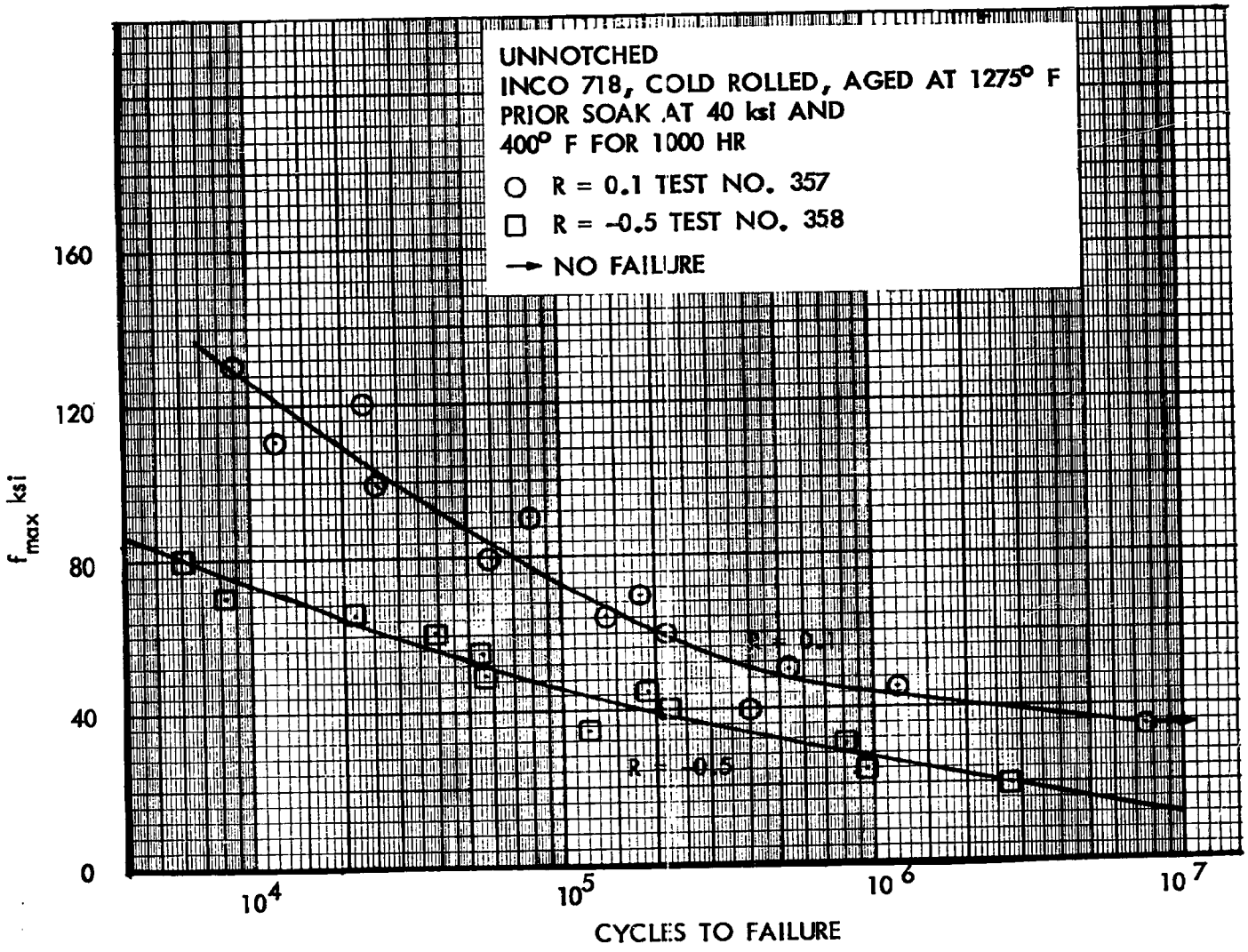



Figure 198. S-N Curves at 650°F, Unnotched INCO 718, R = Constant

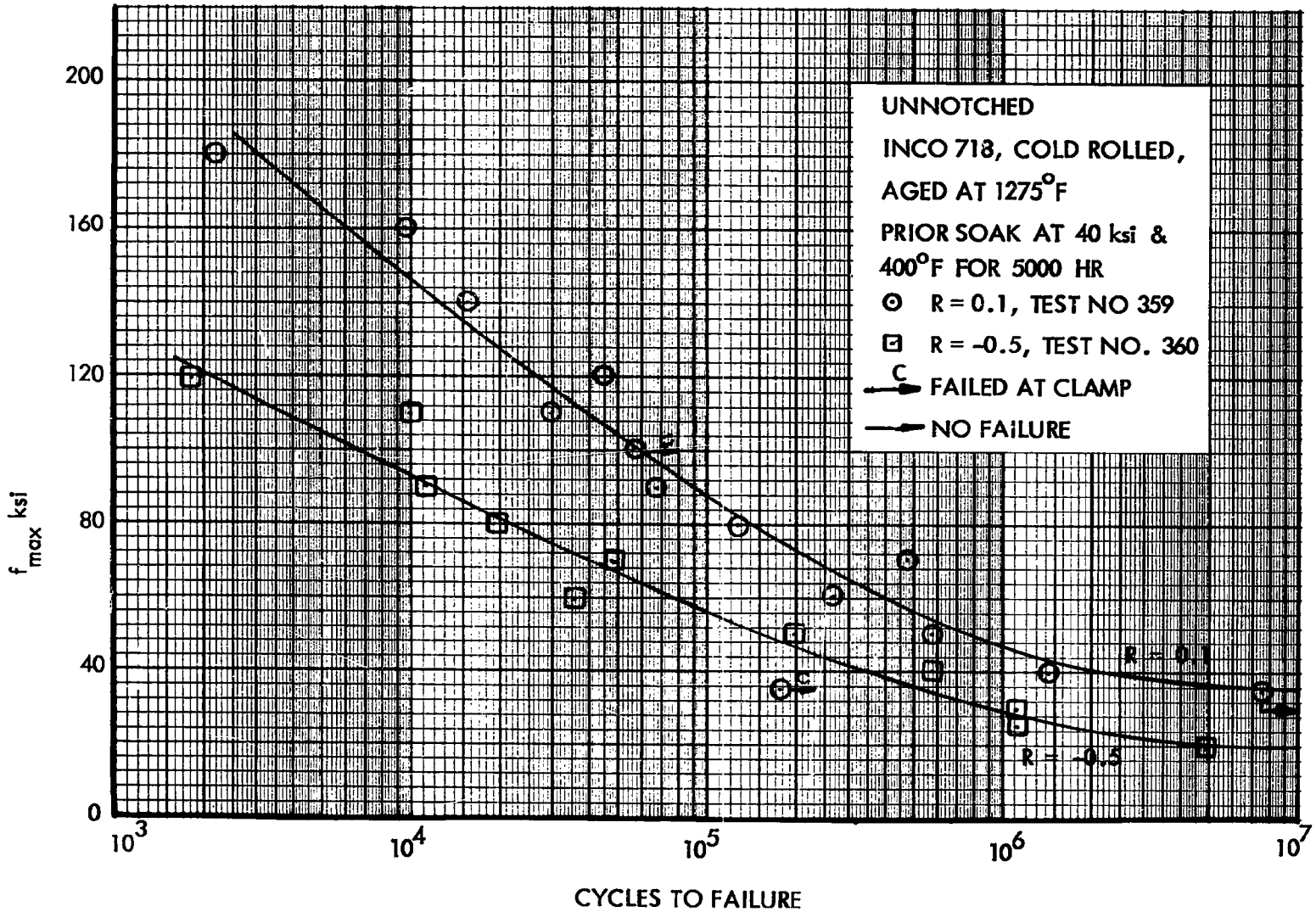



Figure 199. S-N Curves at Room Temperature, Unnotched INCO 718, R = Constant

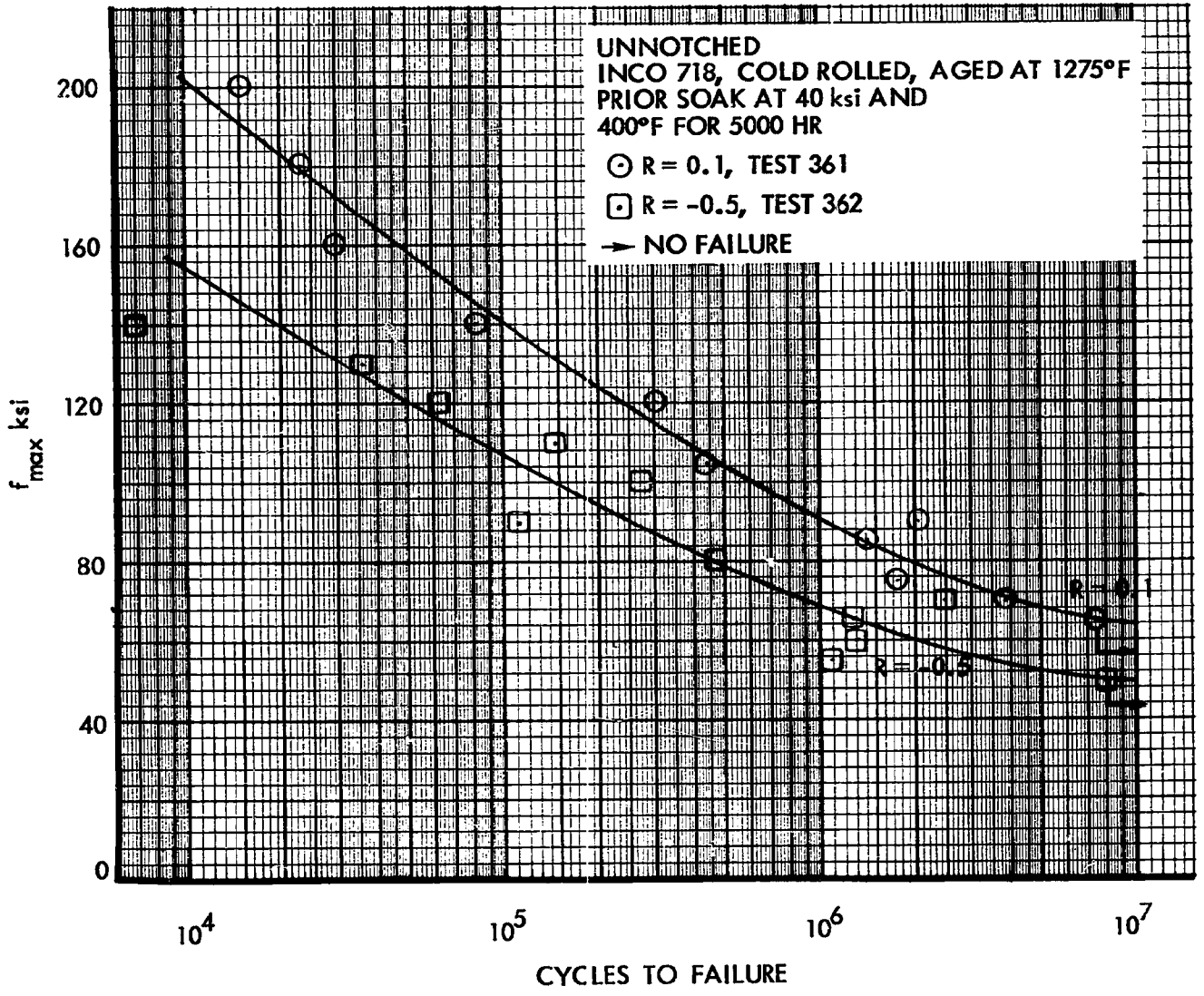



Figure 200. S-N Curves at 400°F, Unnotched INCO 718, R = Constant

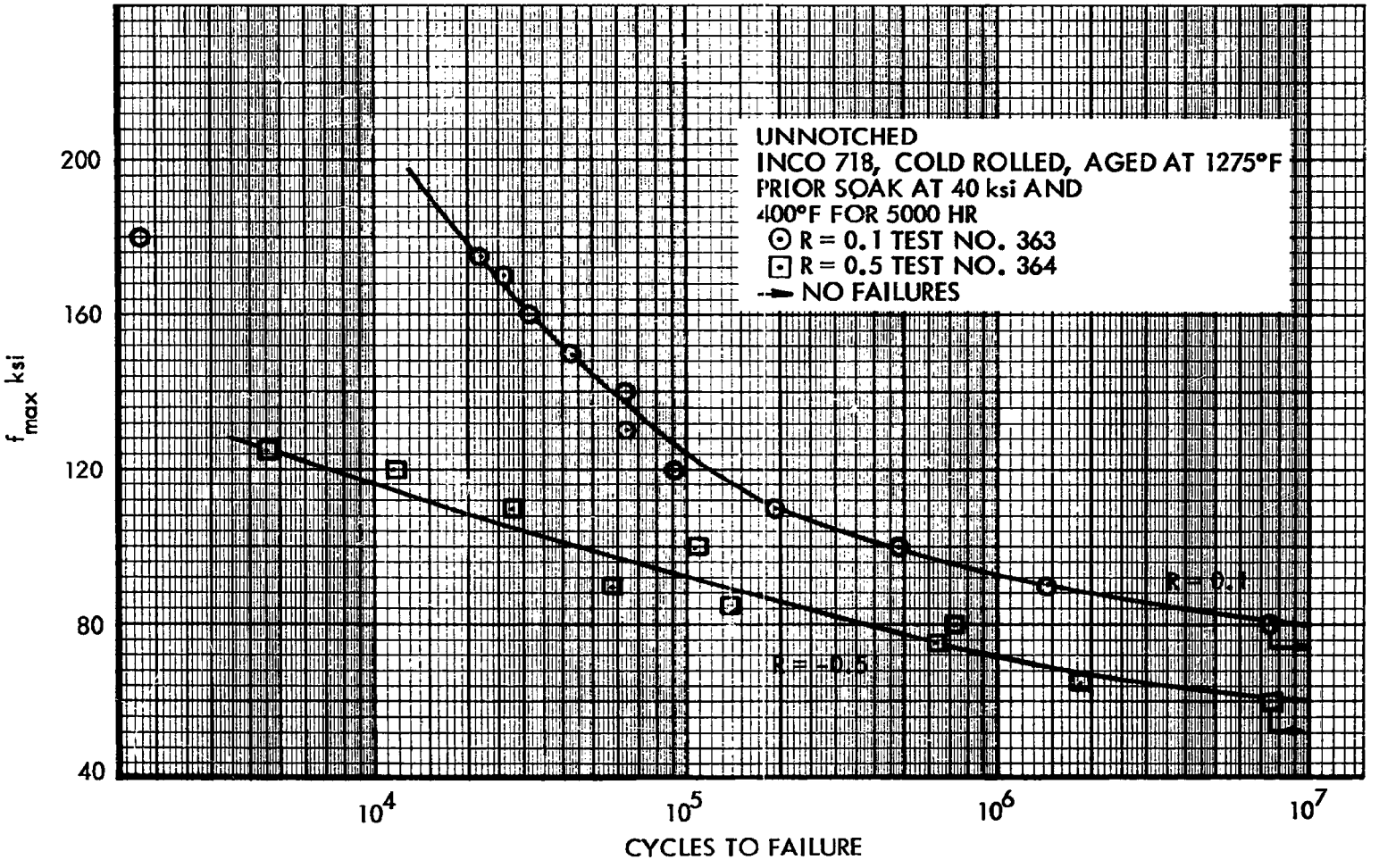



Figure 201. S-N Curves at 650°F, Unnotched INCO 718, R = Constant

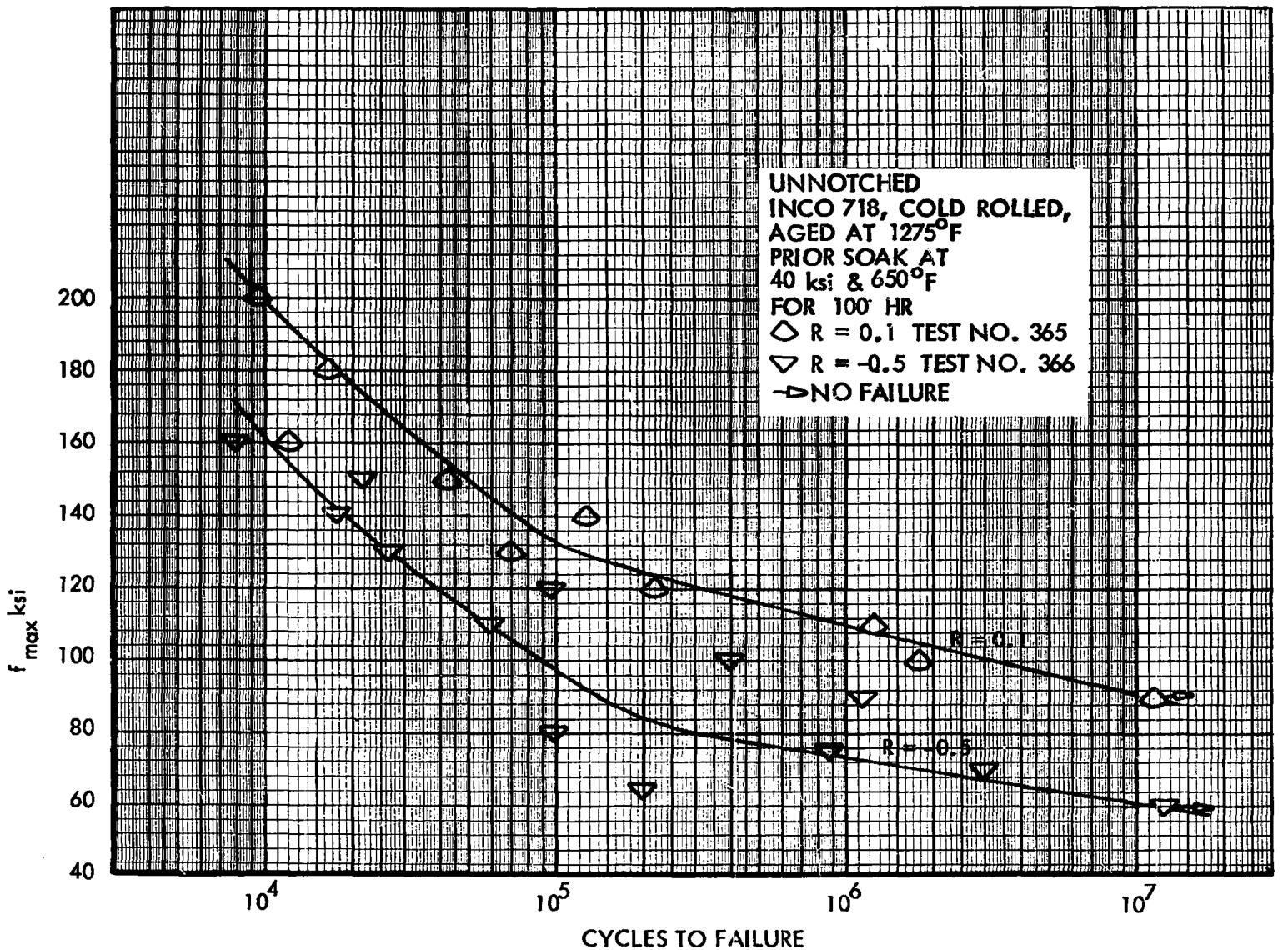



Figure 202. S-N Curves at Room Temperature, Unnotched INCO 718, R = Constant

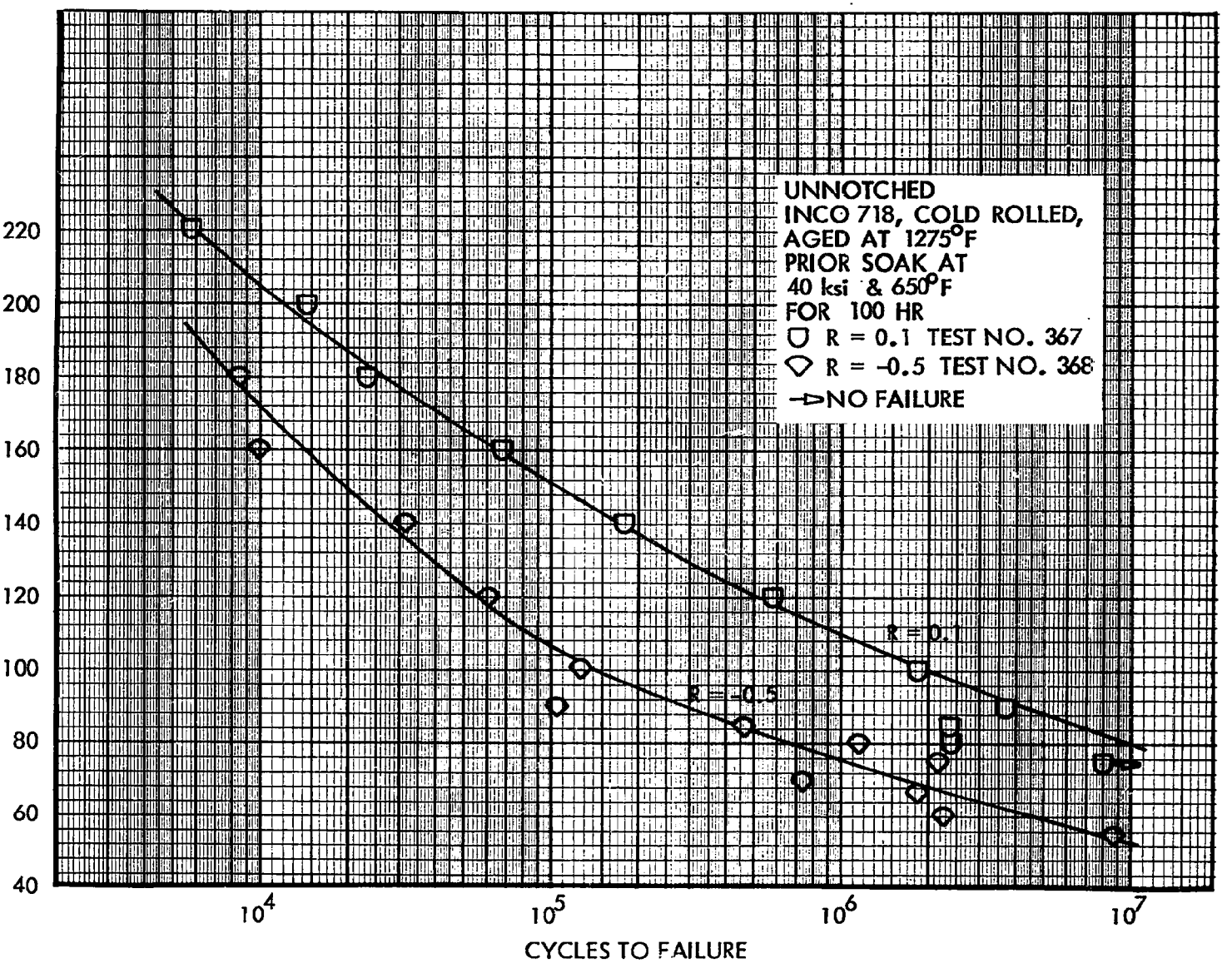



Figure 203. S-N Curves at 400°F, Unnotched INCO 718, R = Constant

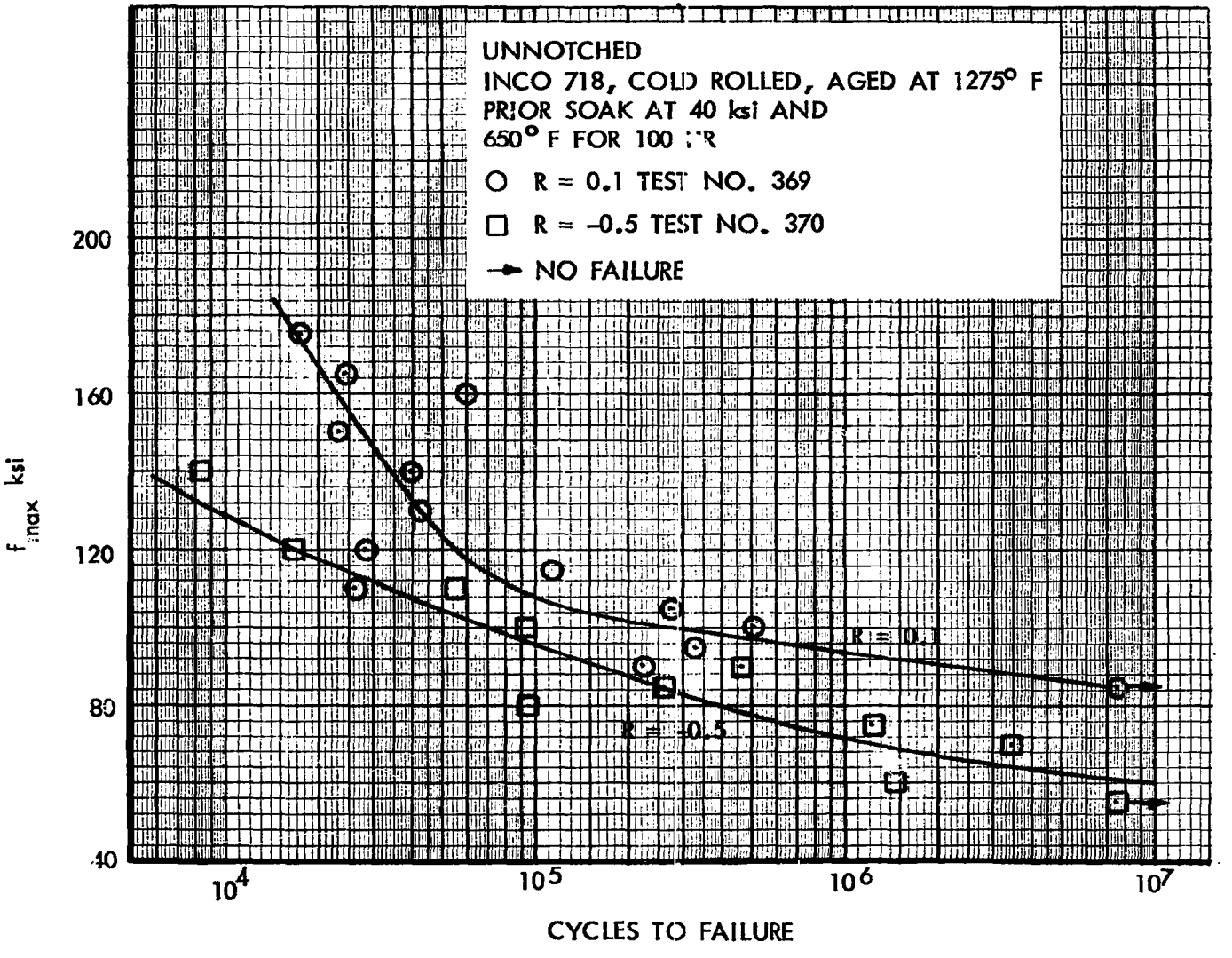



Figure 204. S-N Curves at 650°F, Unnotched INCO 718, R = Constant

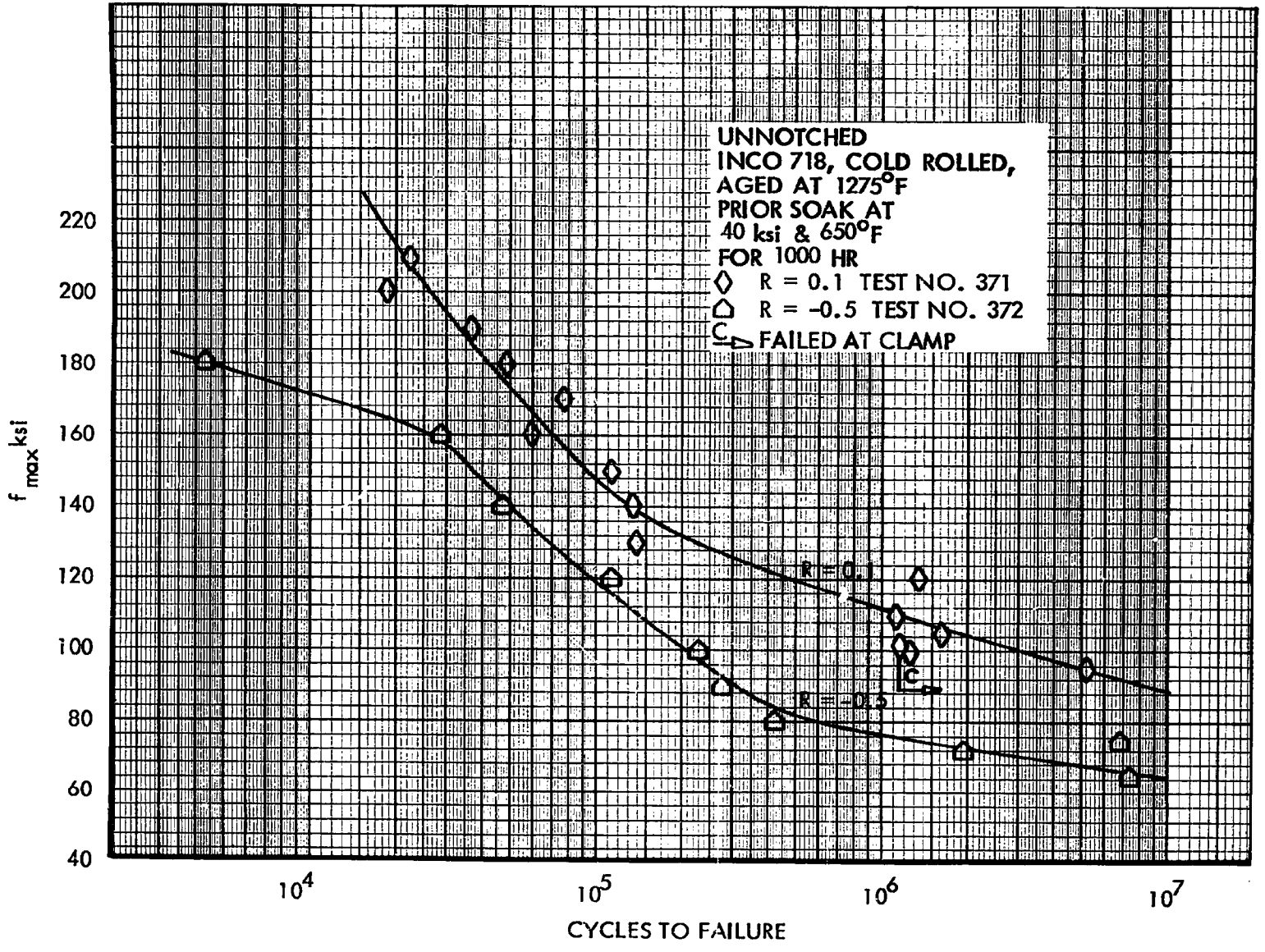



Figure 205. S-N Curves at Room Temperature, Unnotched INCO 718, R = Constant

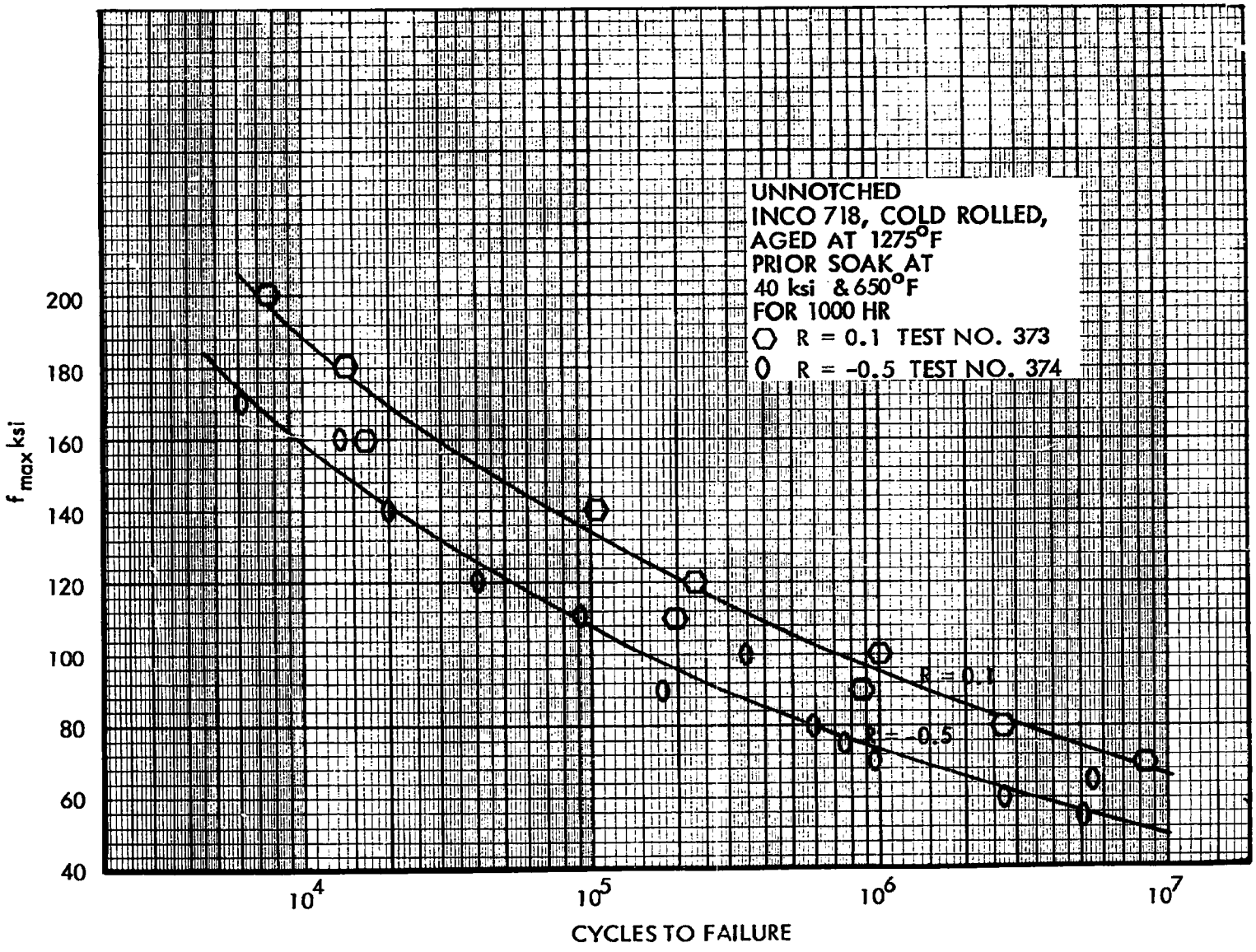



Figure 206. S-N Curves at 400°F, Unnotched INCO 718, R = Constant

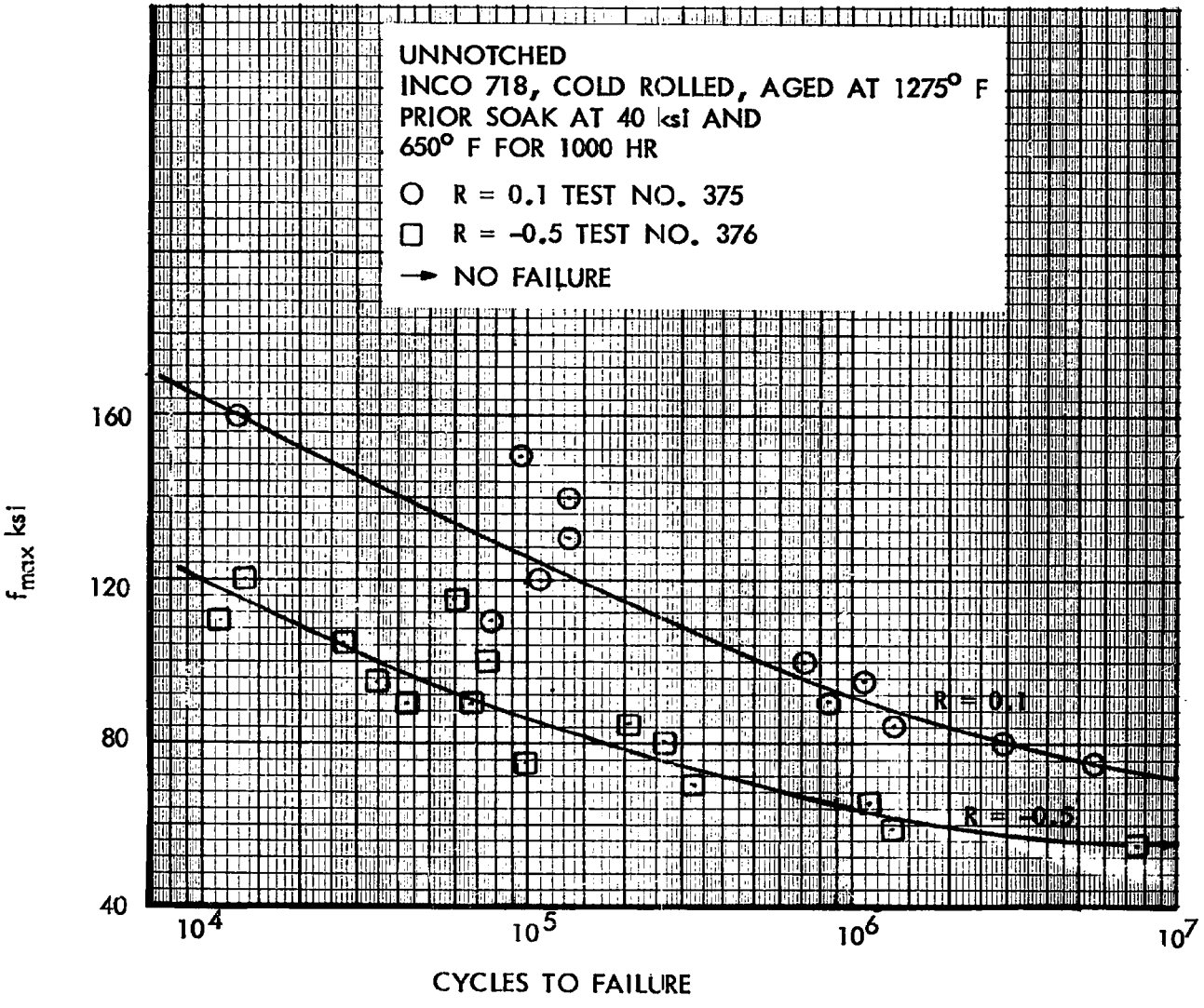



Figure 207. S-N Curves at 650°F, Unnotched INCO 718, R = Constant

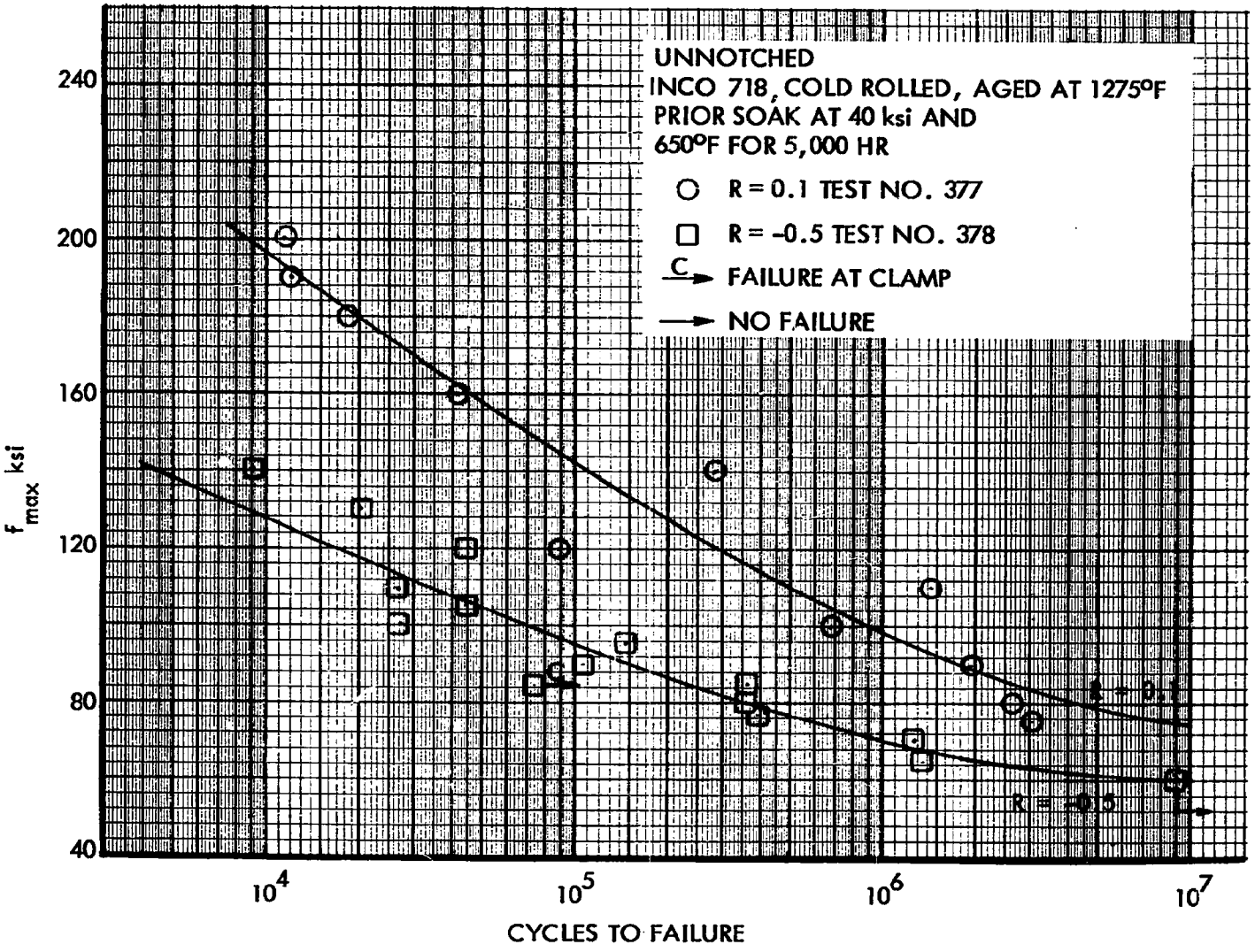



Figure 208. S-N Curves at Room Temperature, Unnotched INCO 718, R = Constant

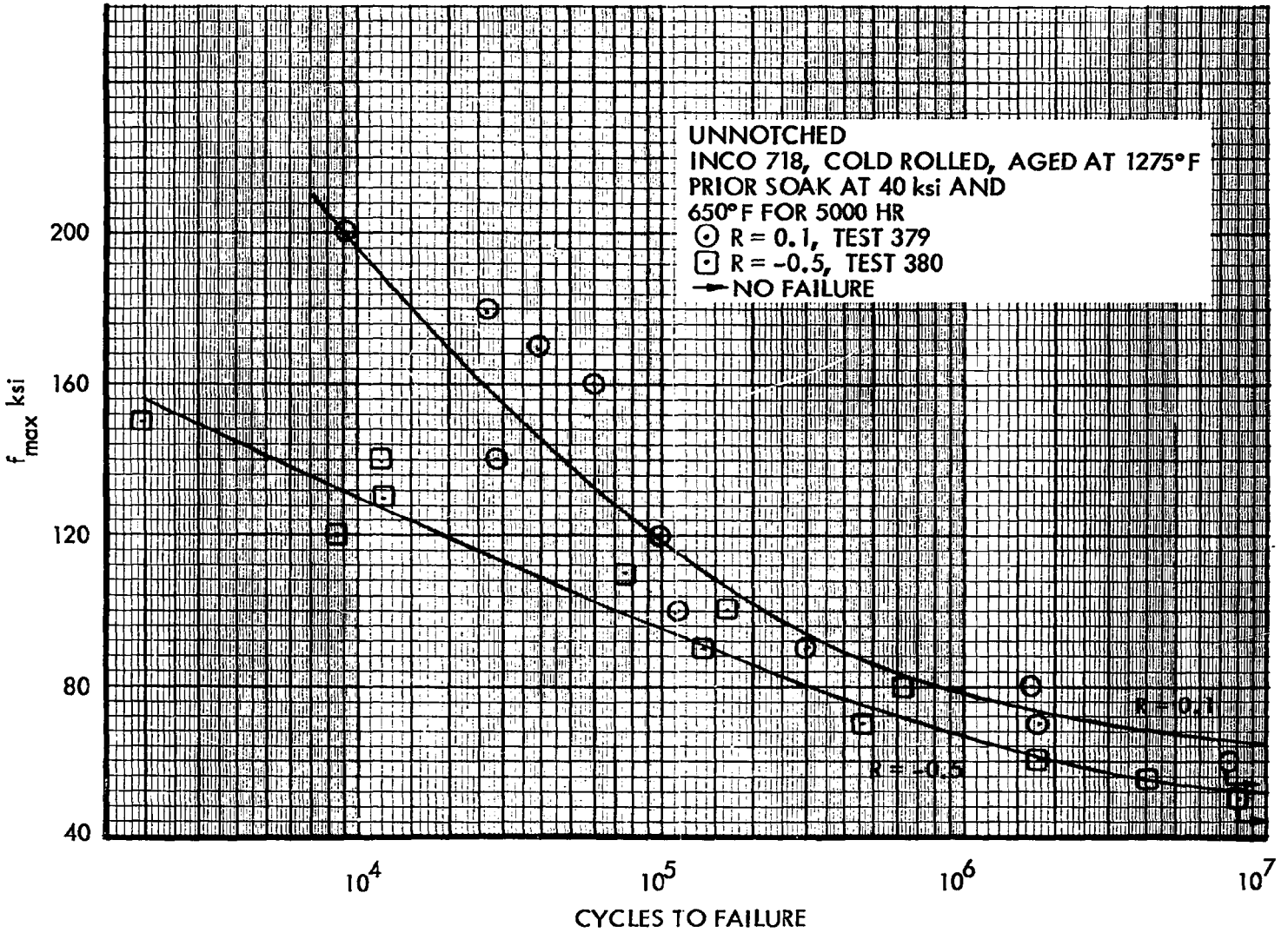



Figure 209. S-N Curves at 400°F, Unnotched INCO 718, R = Constant

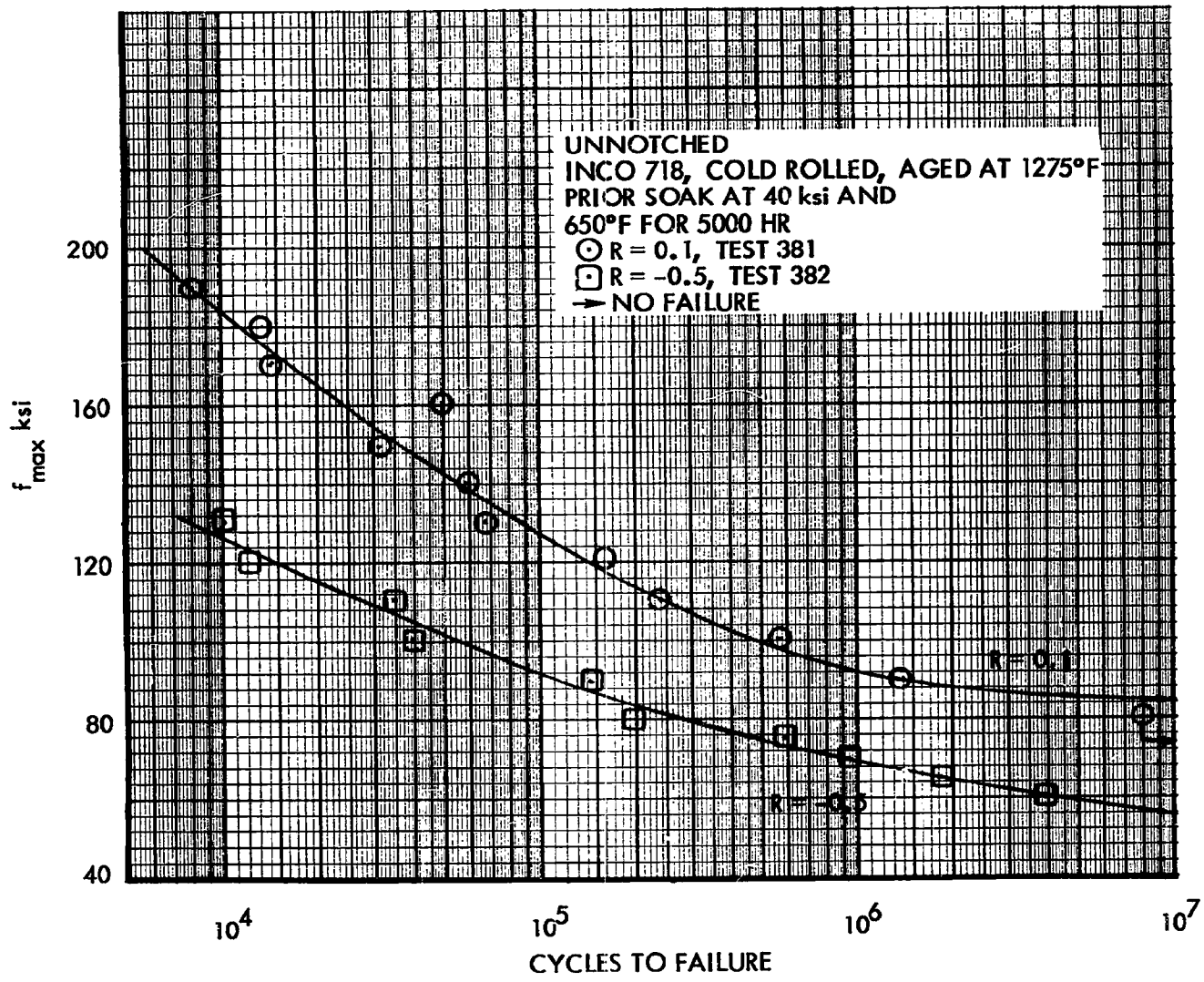



Figure 210. S-N Curves at 650°F, Unnotched INCO 718, R = Constant

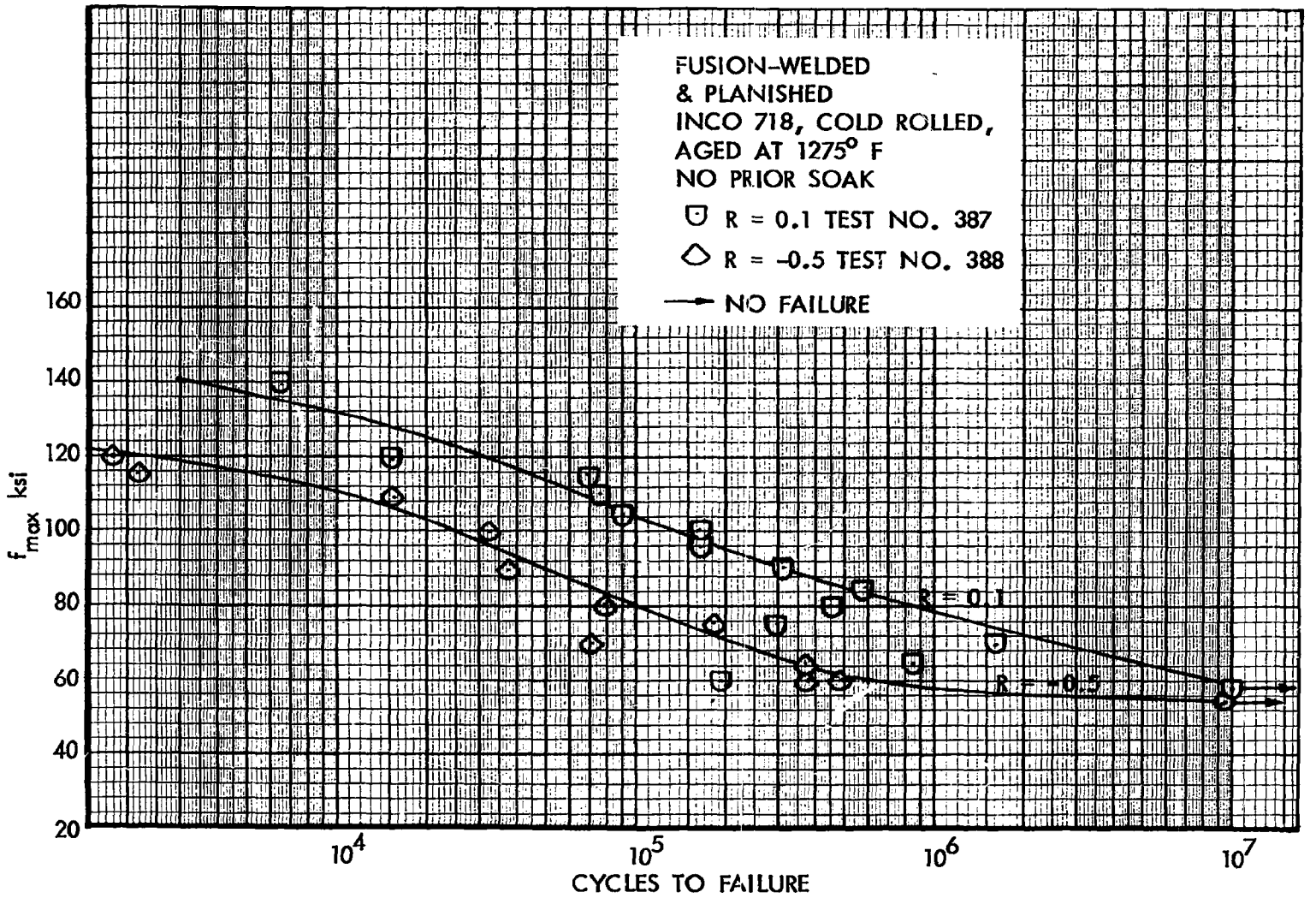



Figure 211. S-N Curves at Room Temperature, Fusion-Welded INCO 718, R = Constant

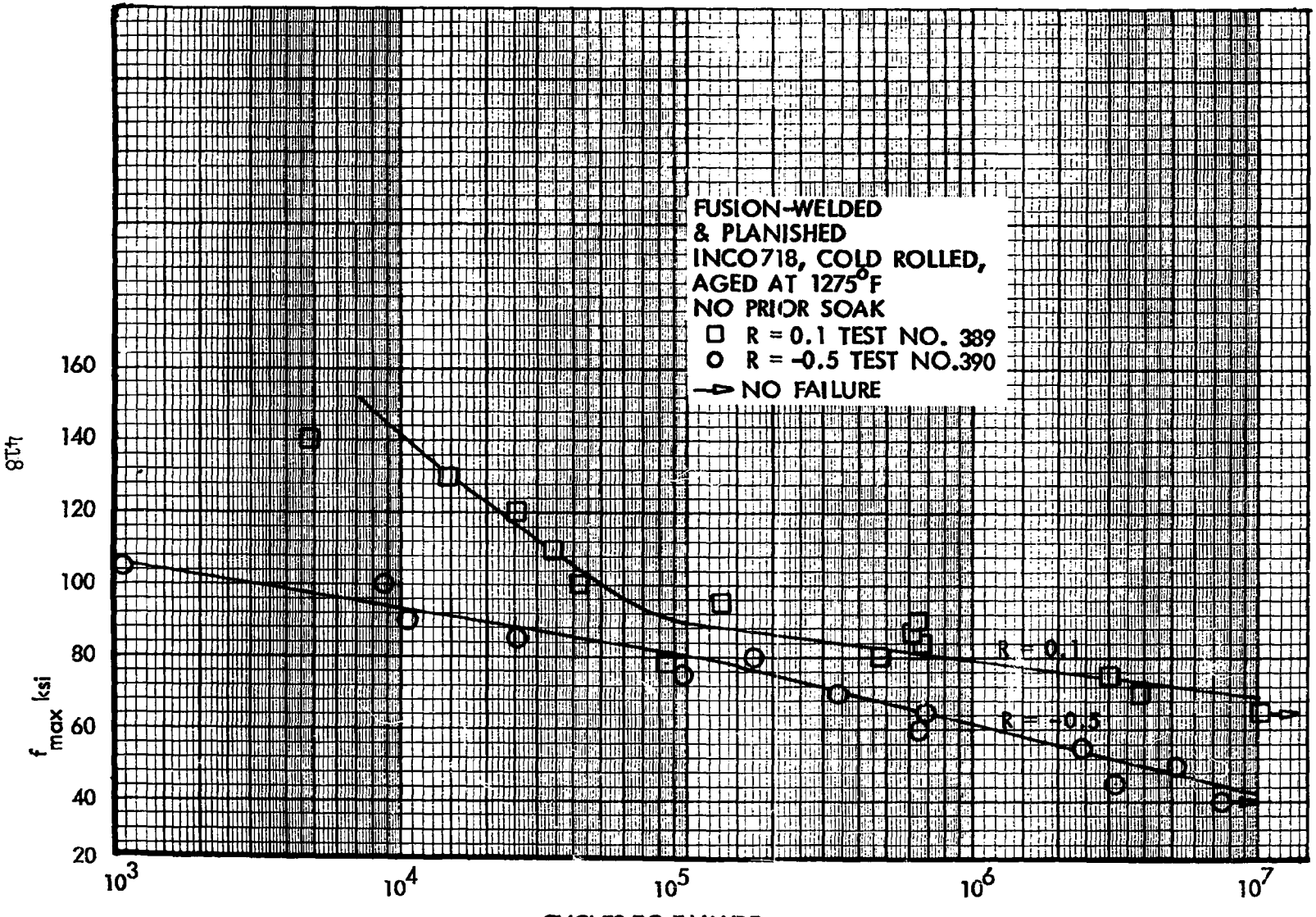



Figure 212. S-N Curves at 400°F, Fusion-Welded INCO 718, R = Constant

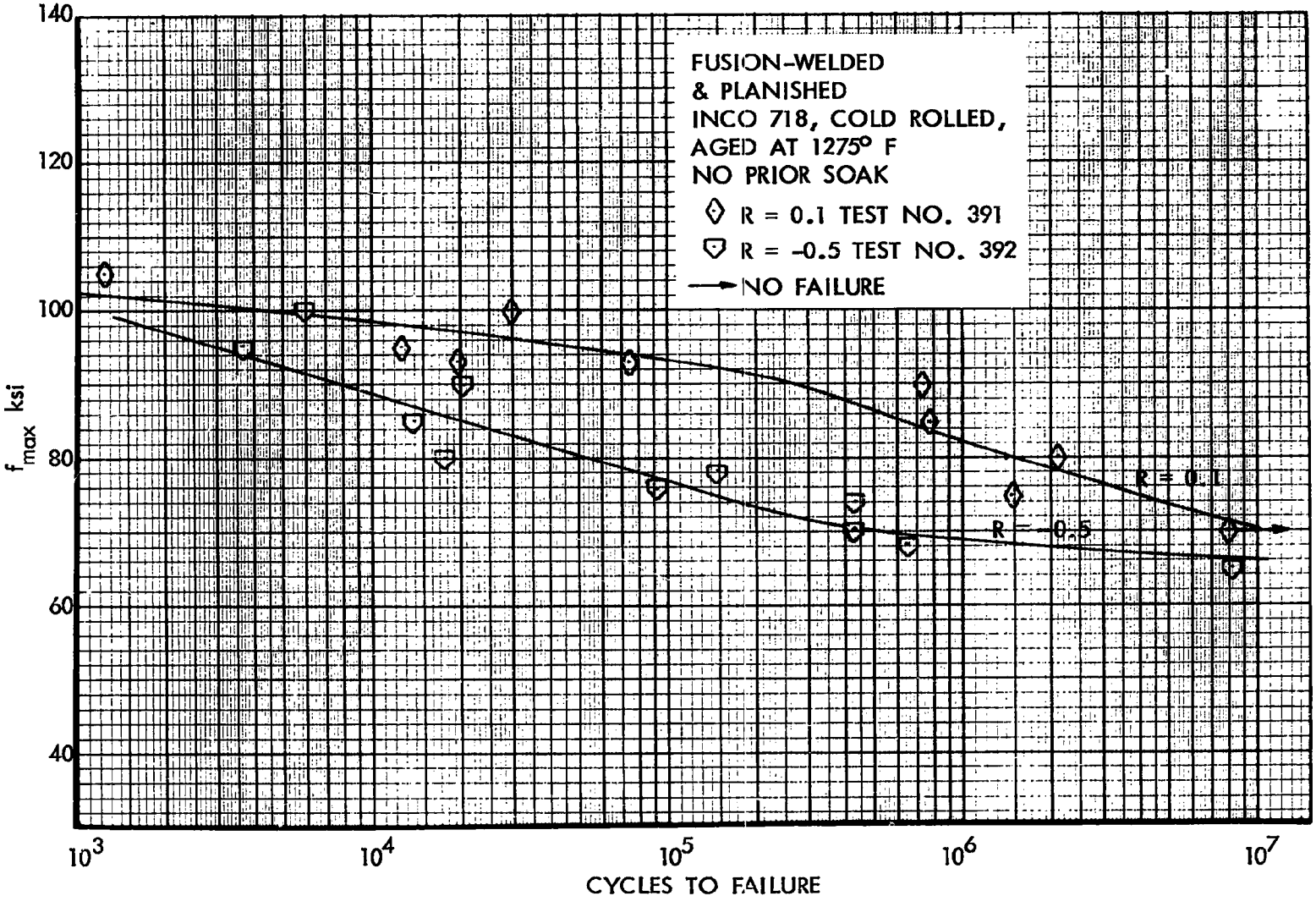



Figure 213. S-N Curves at 650°F, Fusion-Welded INCO 718, R = Constant

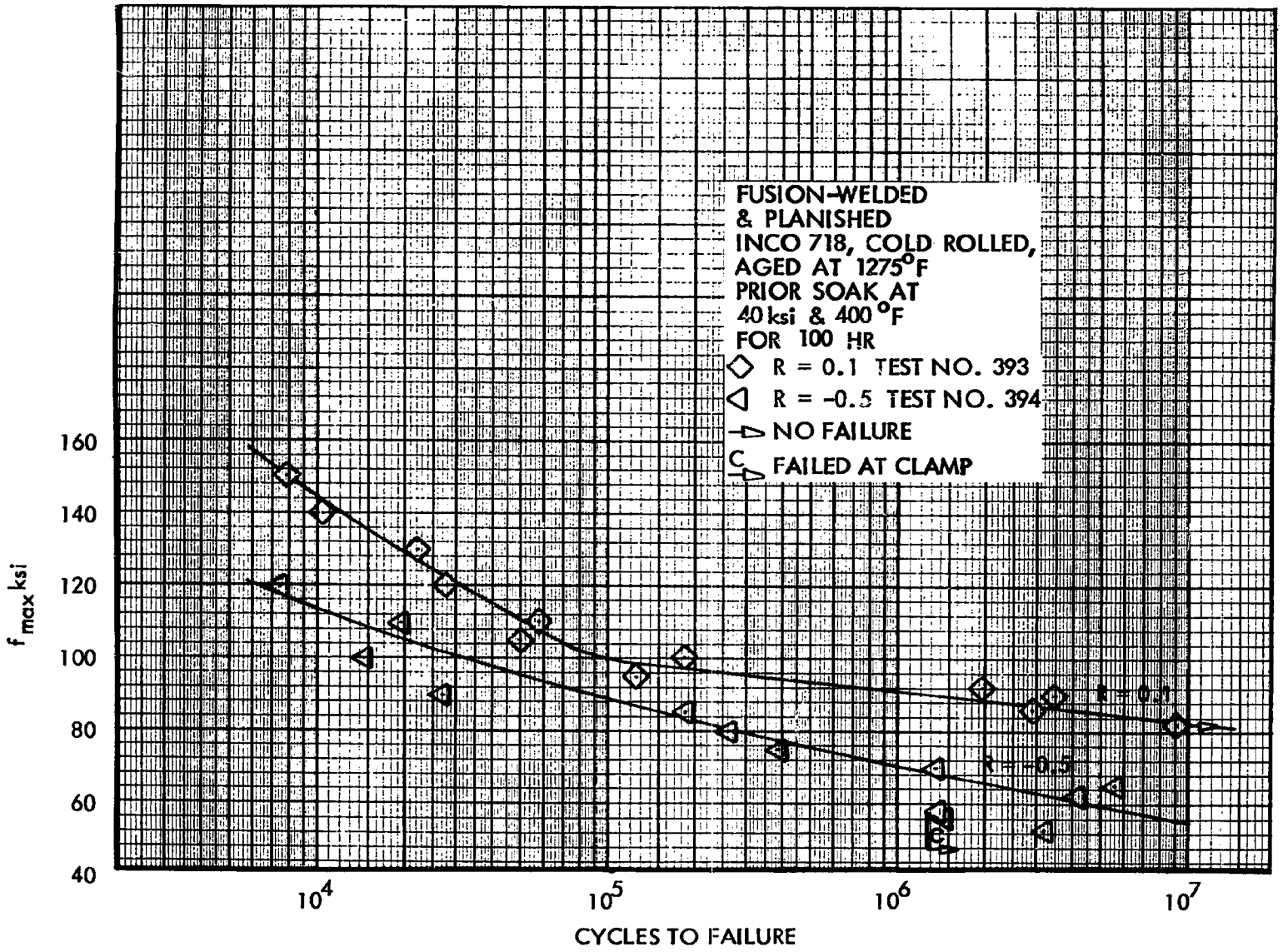



Figure 214. S-N Curves at Room Temperature, Fusion-Welded INCO 718, R = Constant

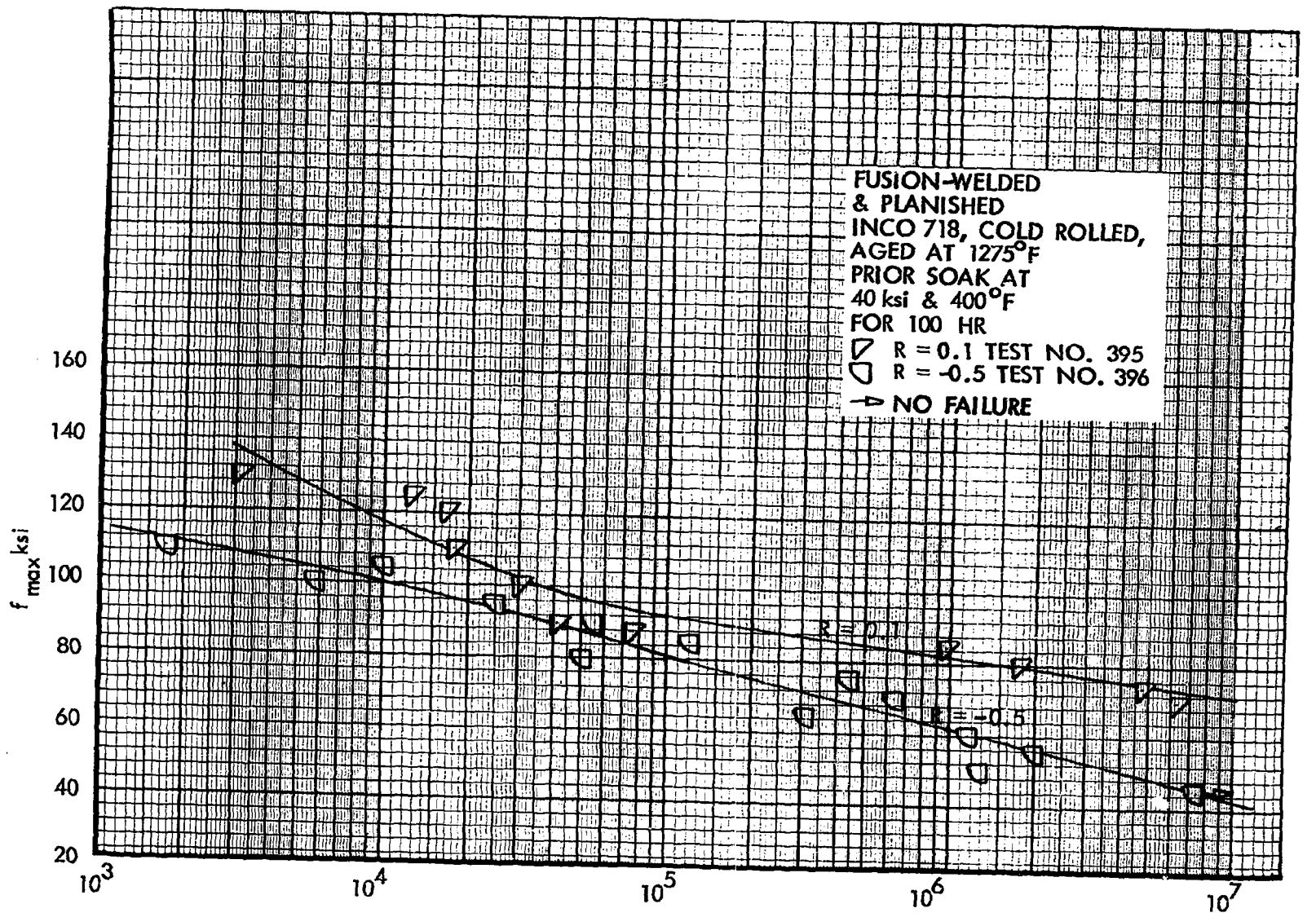



Figure 215. S-N Curves at 400°F, Fusion-Welded INCO 718, R = Constant

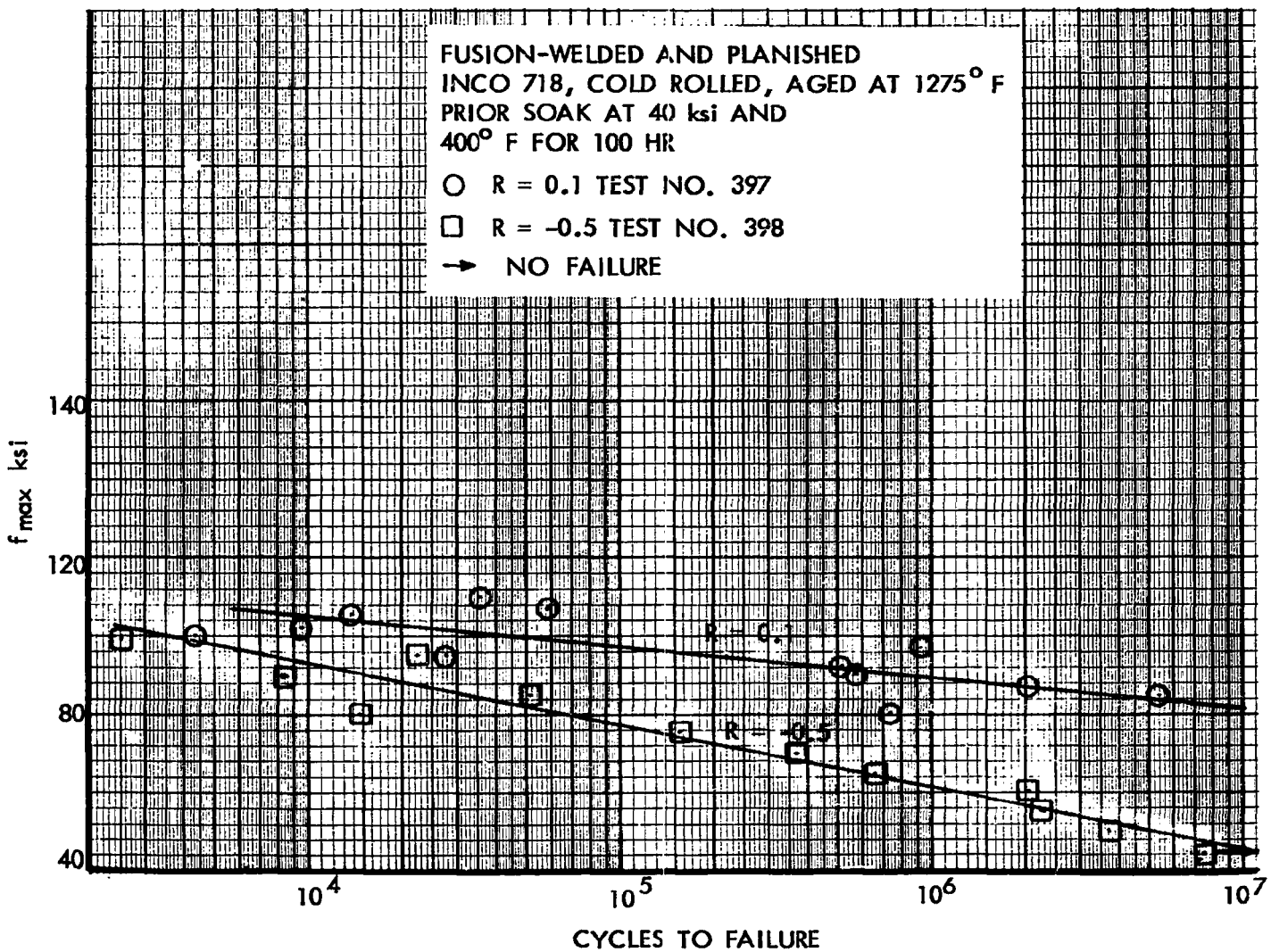



Figure 216. S-N Curves at 650°F, Fusion-Welded INCO 718, R = Constant

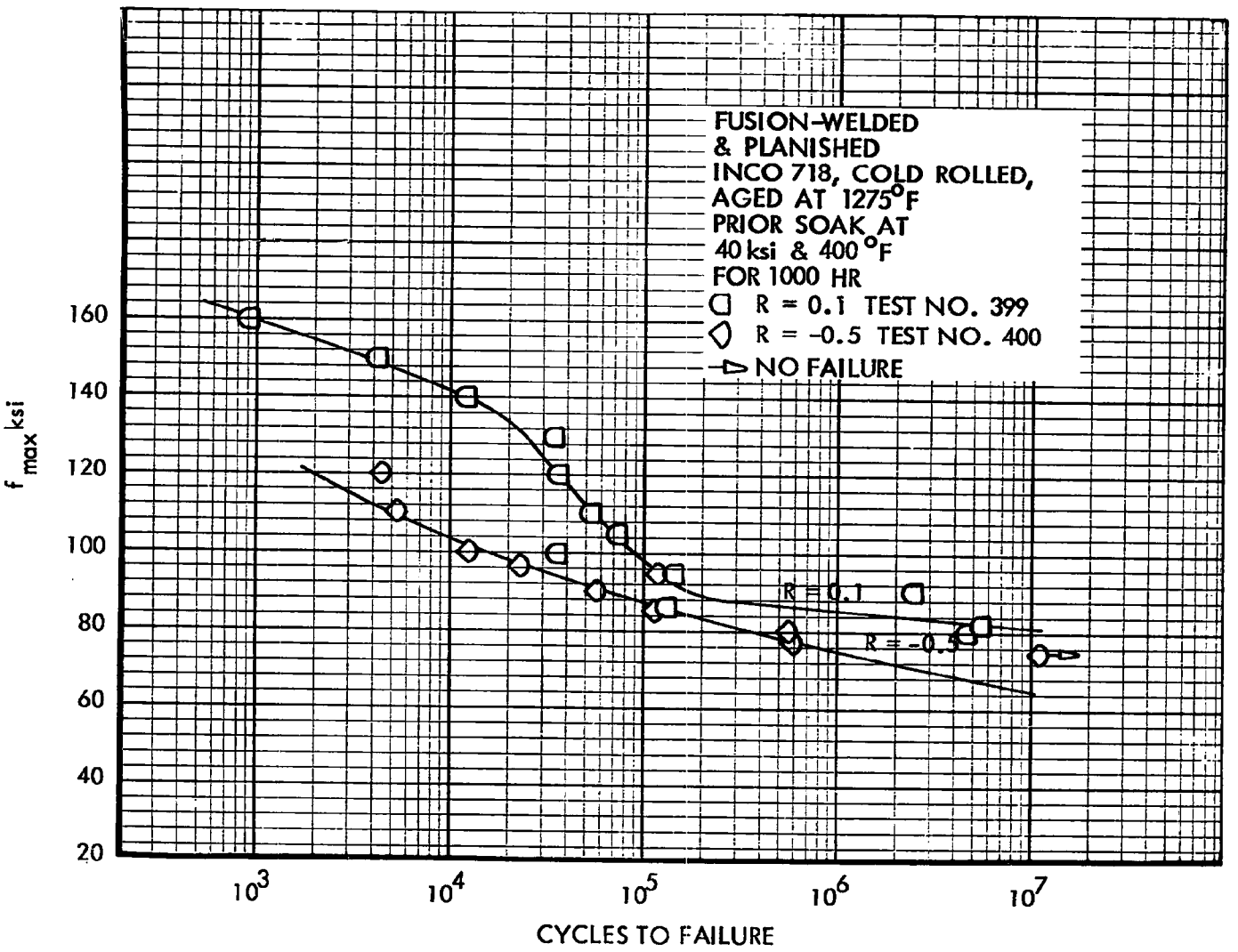



Figure 217. S-N Curves at Room Temperature, Fusion-Welded INCO 718, R = Constant

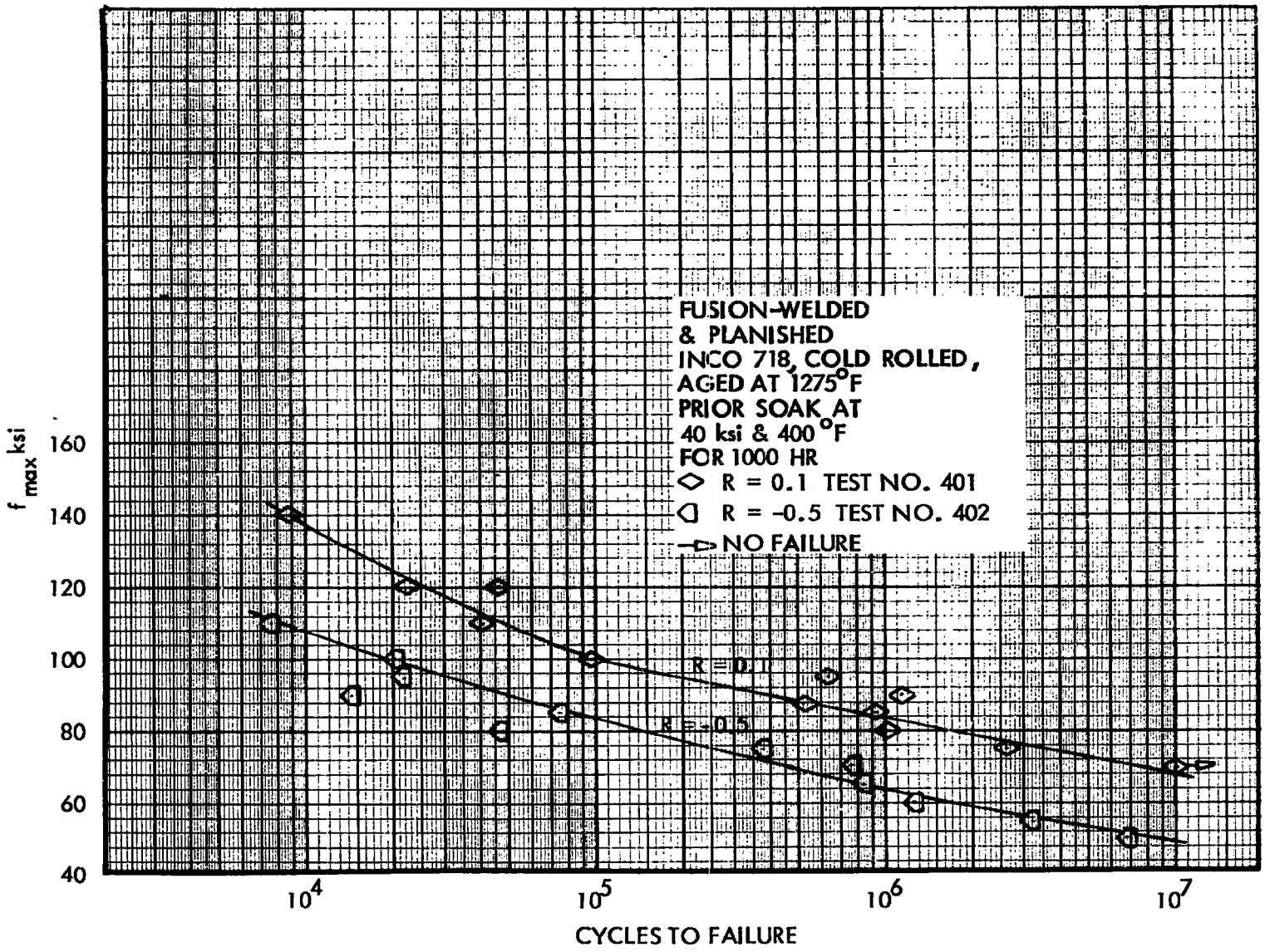



Figure 218. S-N Curves at 400°F, Fusion-Welded INCO 718, R = Constant

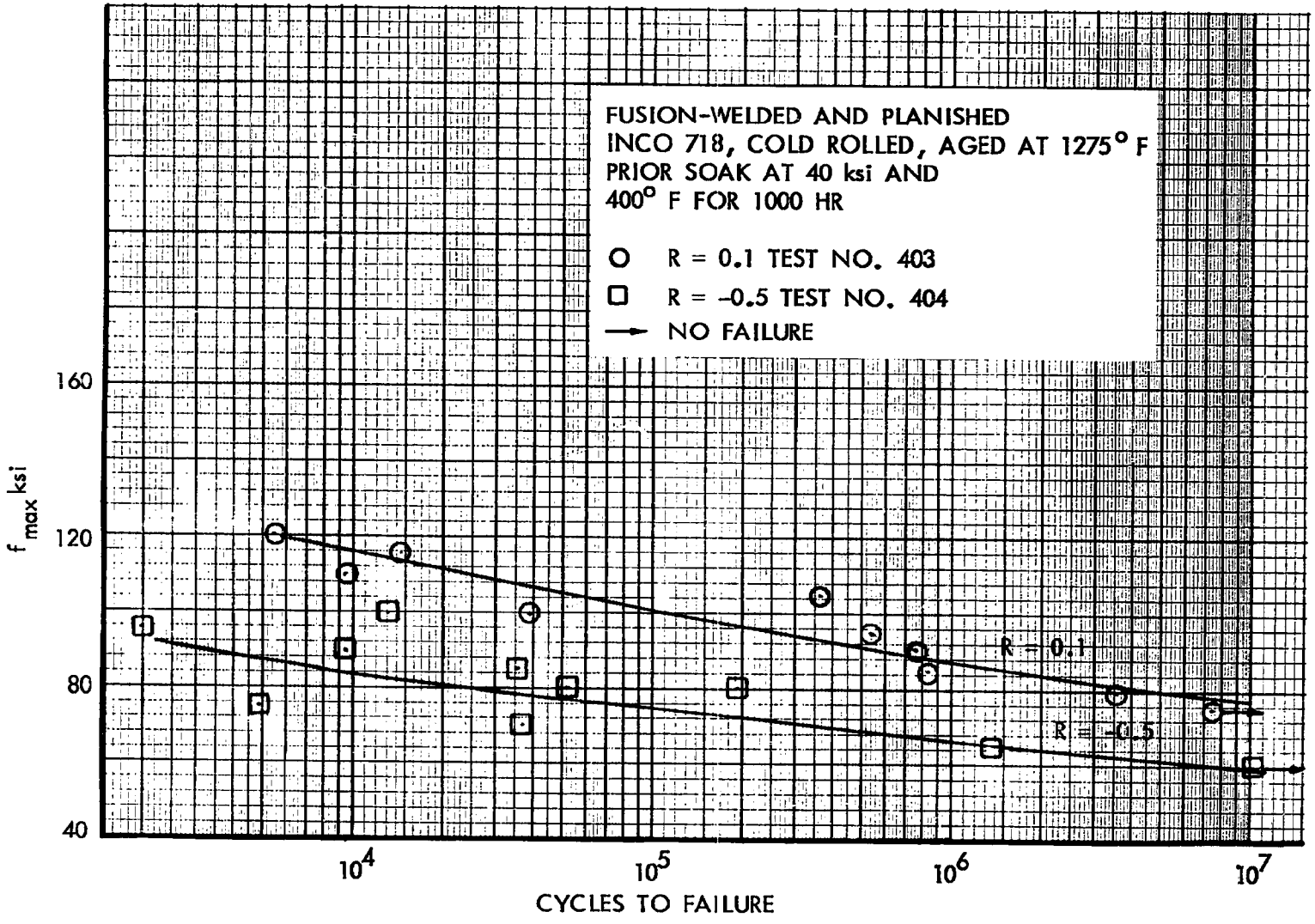



Figure 219. S-N Curves at 650°F, Fusion-Welded INCO 718, R = Constant

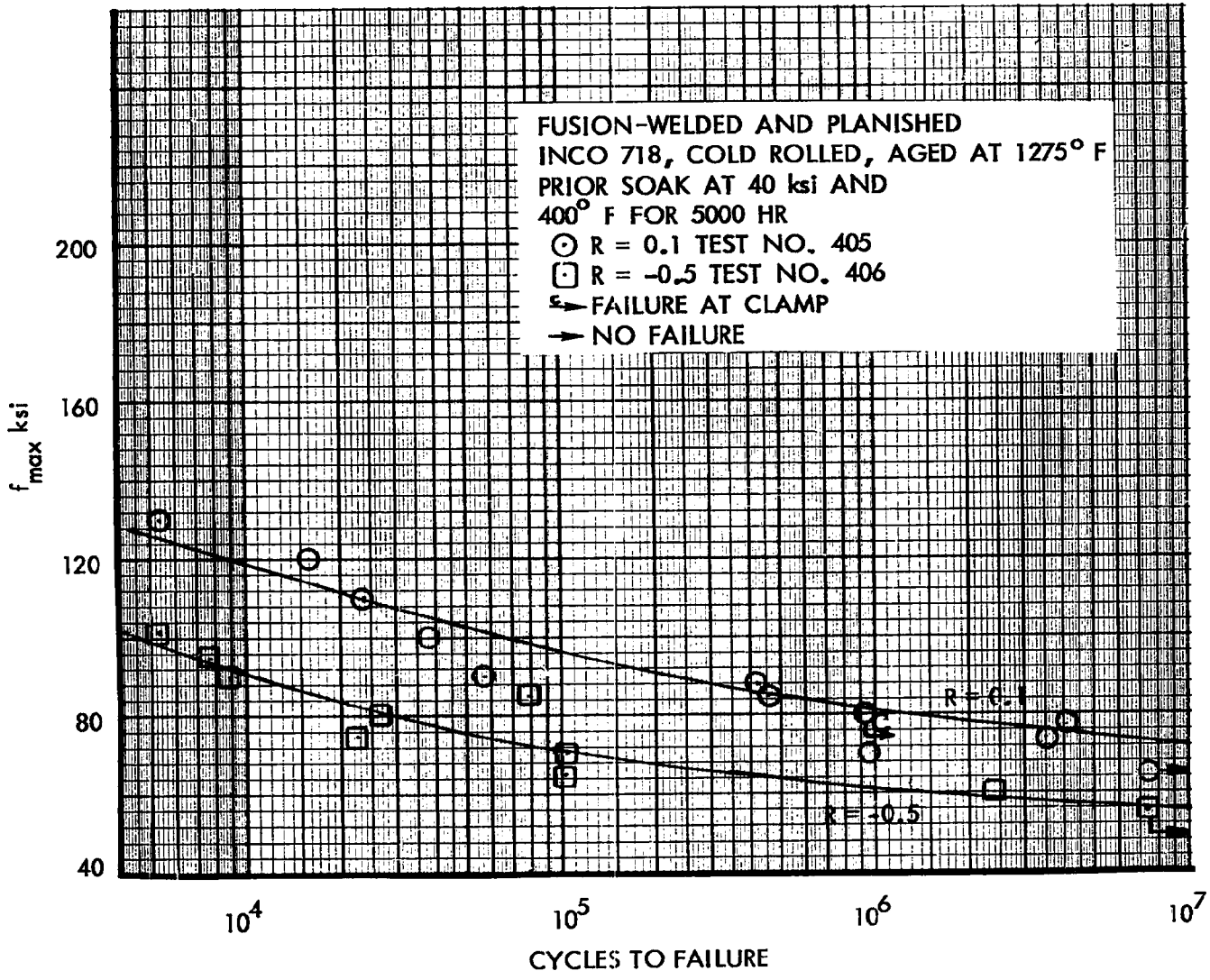



Figure 220. S-N Curves at Room Temperature, Fusion-Welded INCO 718, R = Constant

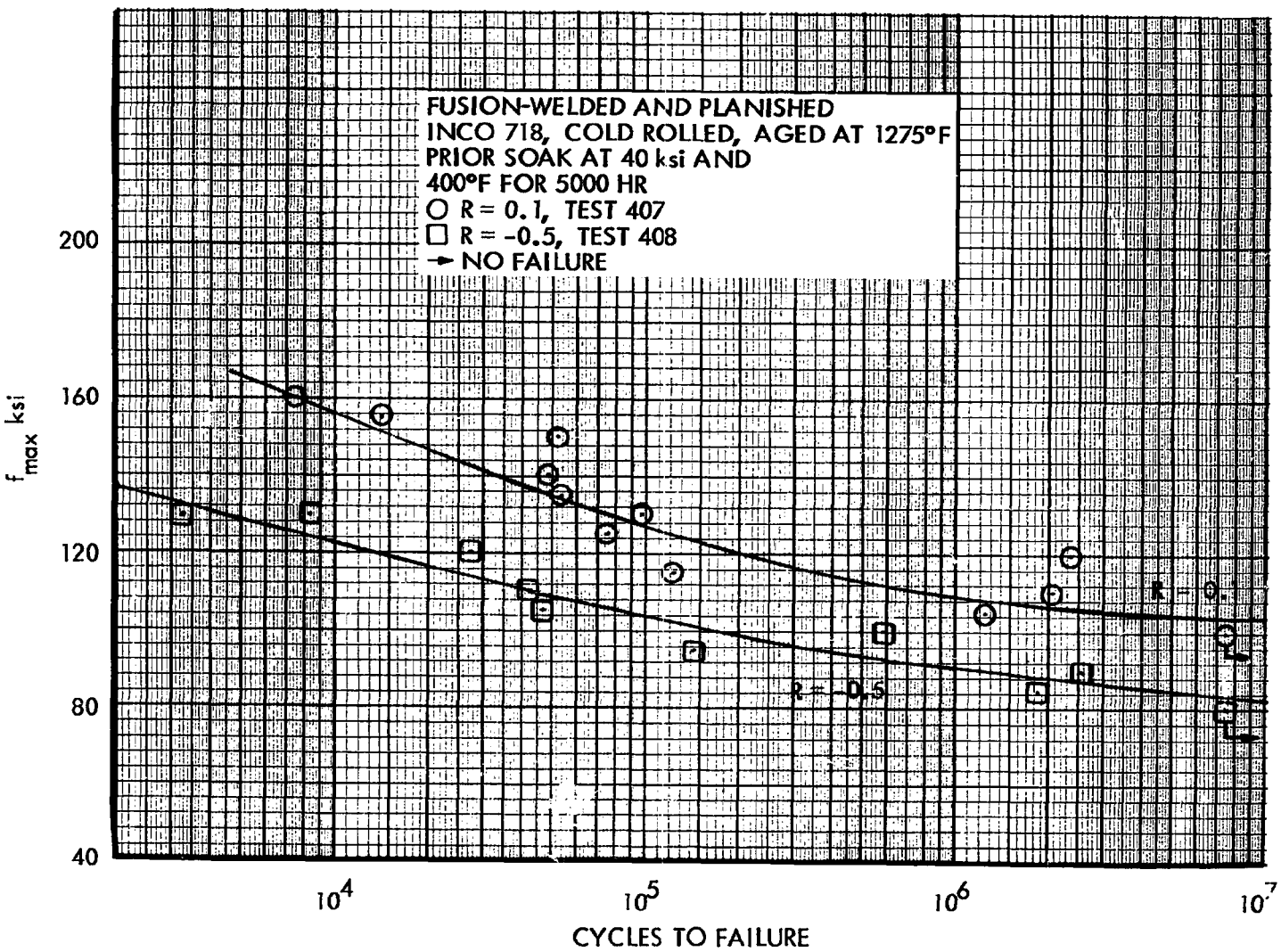



Figure 221. S-N Curves at 400°F, Fusion-Welded INCO 718, R = Constant

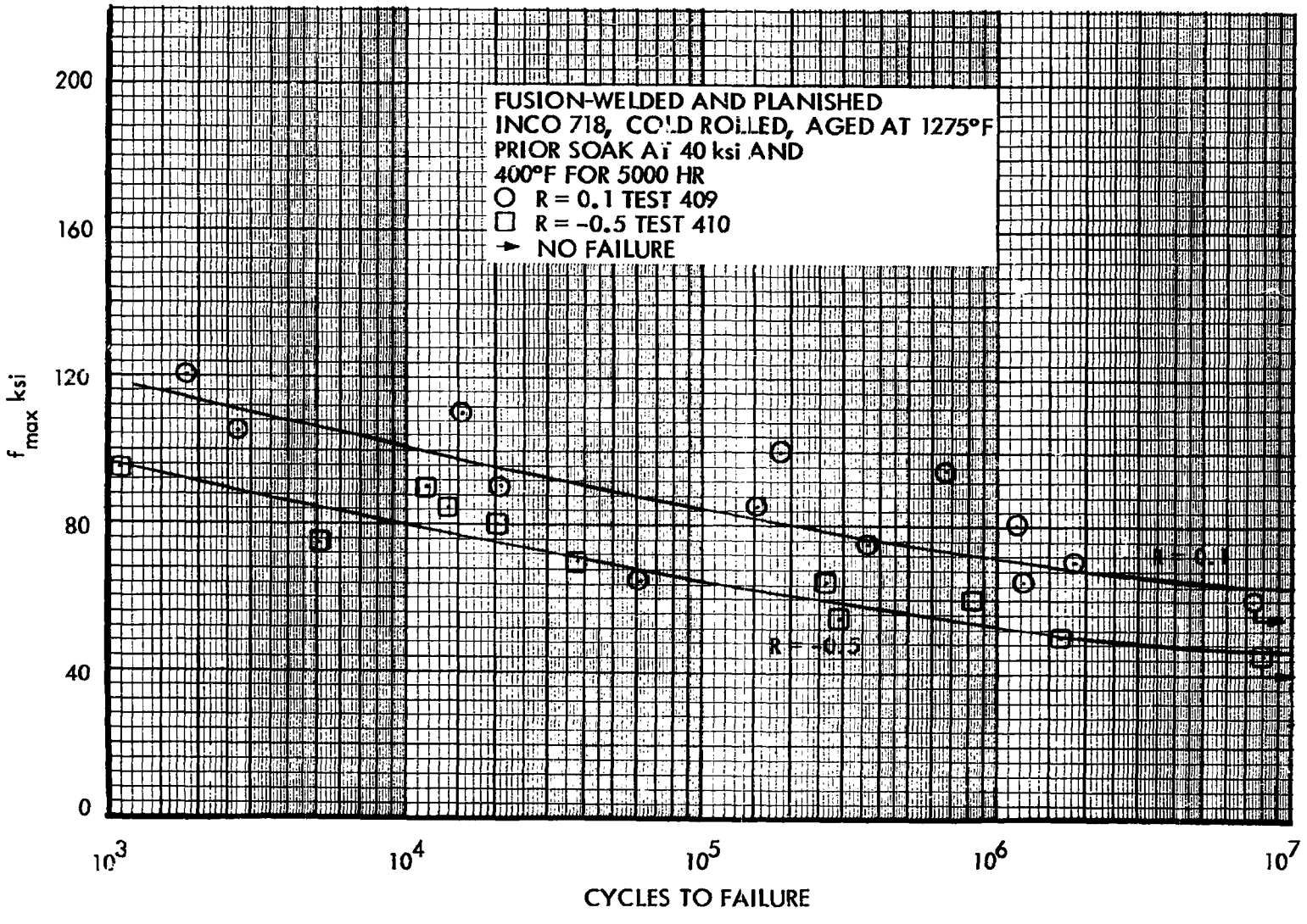



Figure 222. S-N Curves at 650°F, Fusion-Welded INCO 718, R = Constant

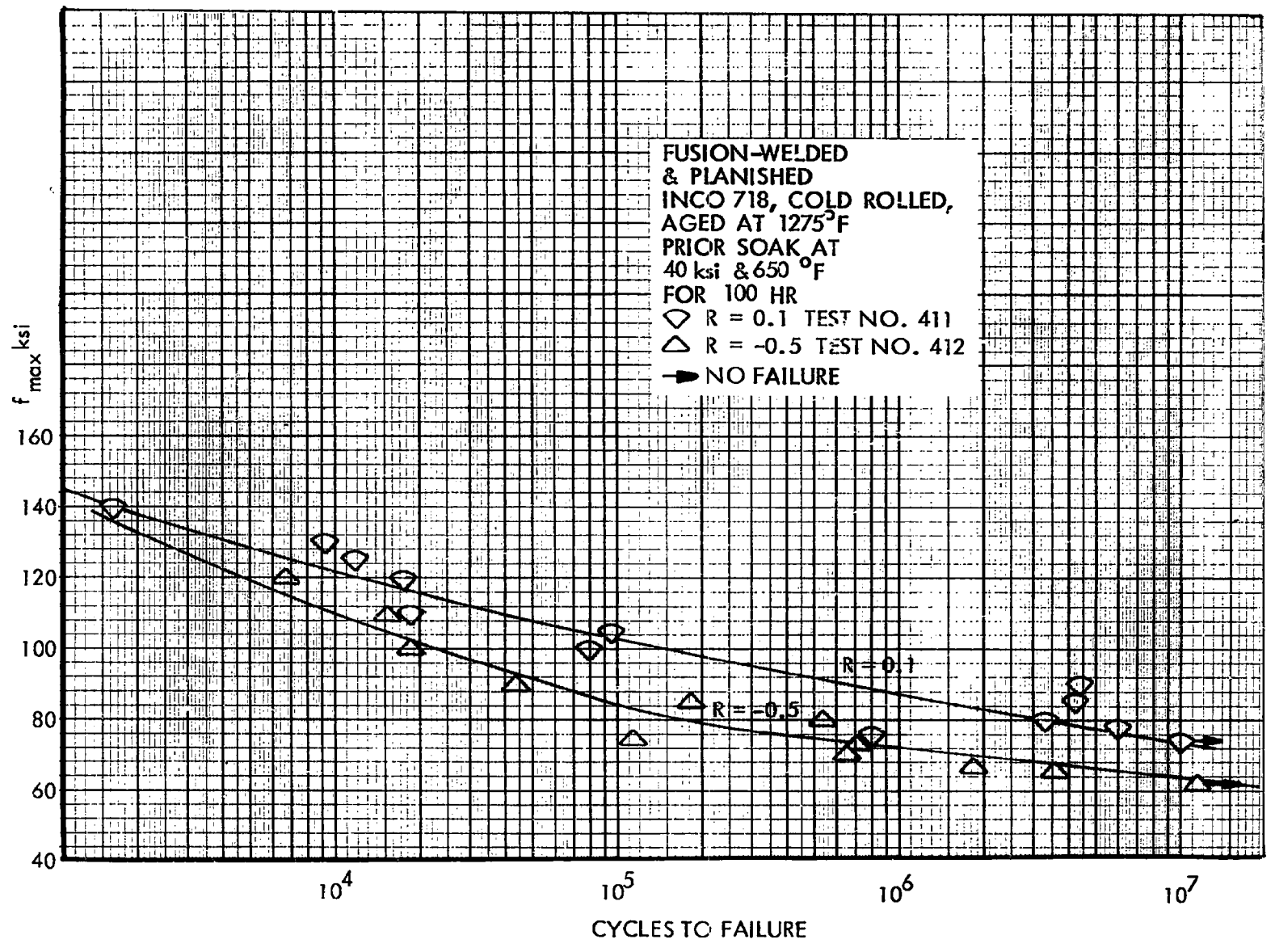



Figure 223. S-N Curves at Room Temperature, Fusion-Welded INCO 718, R = Constant

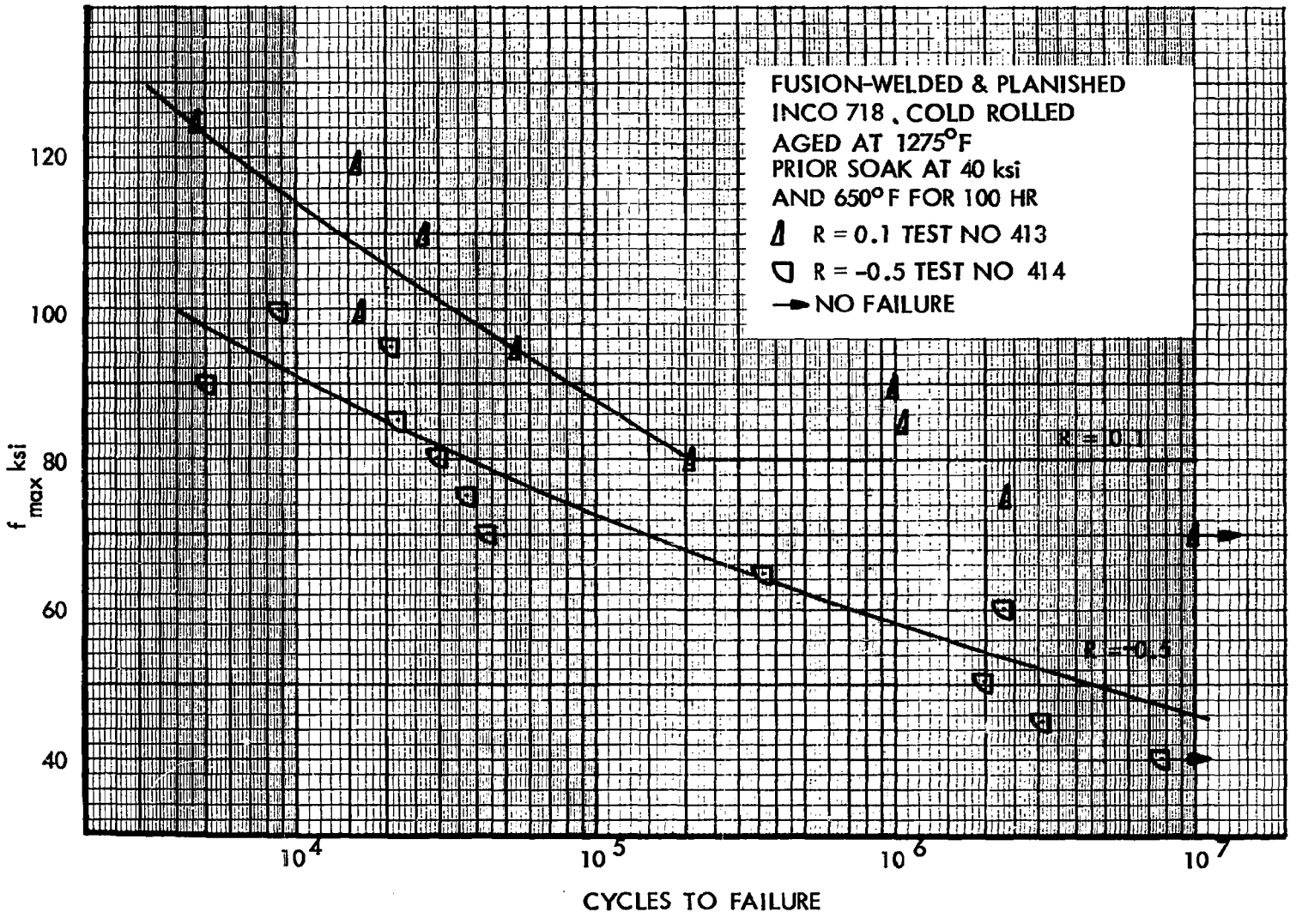



Figure 224. S-N Curves at 400°F, Fusion-Welded INCO 718, R = Constant

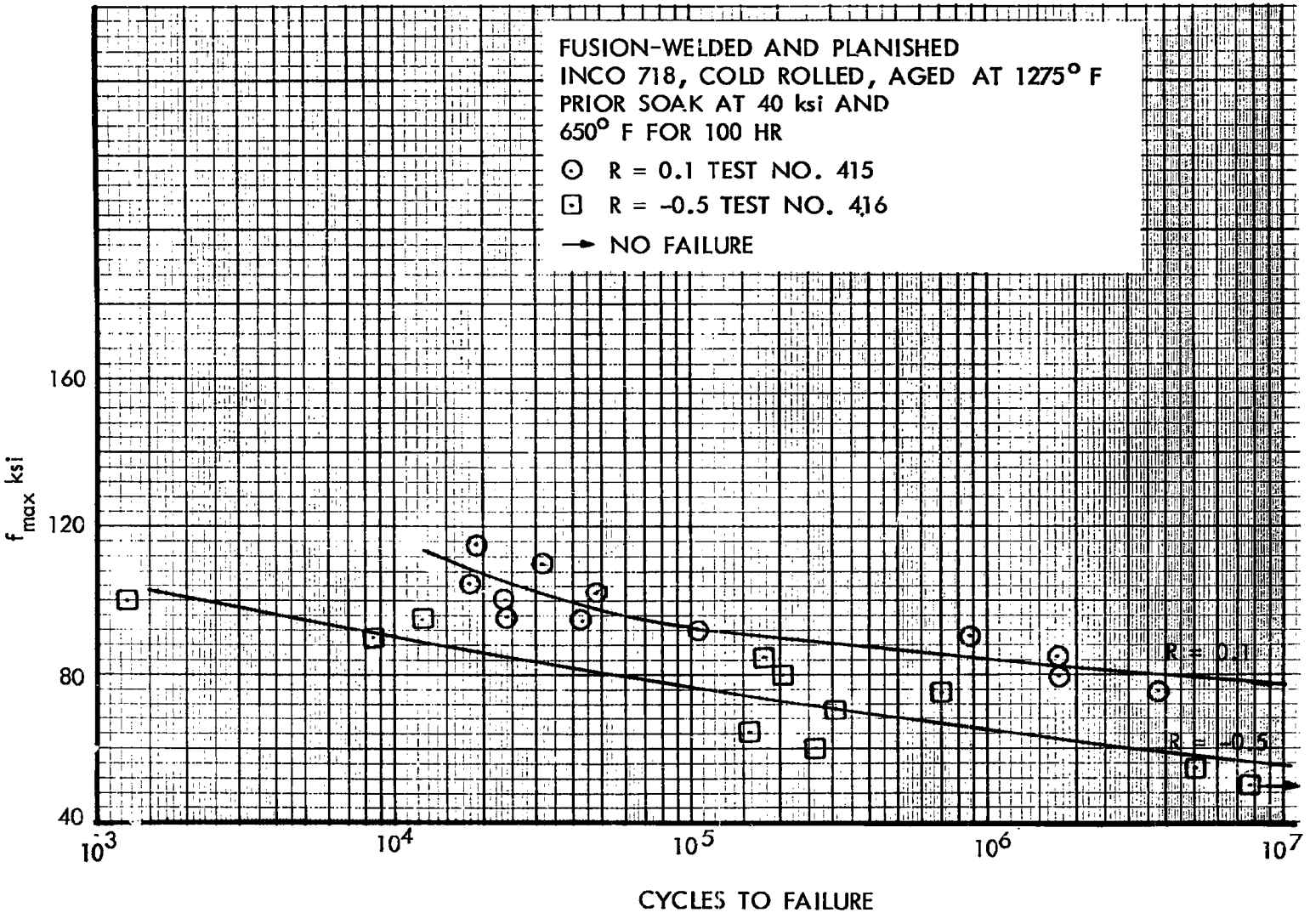



Figure 225. S-N Curves at 650°F, Fusion-Welded INCO 718, R = Constant

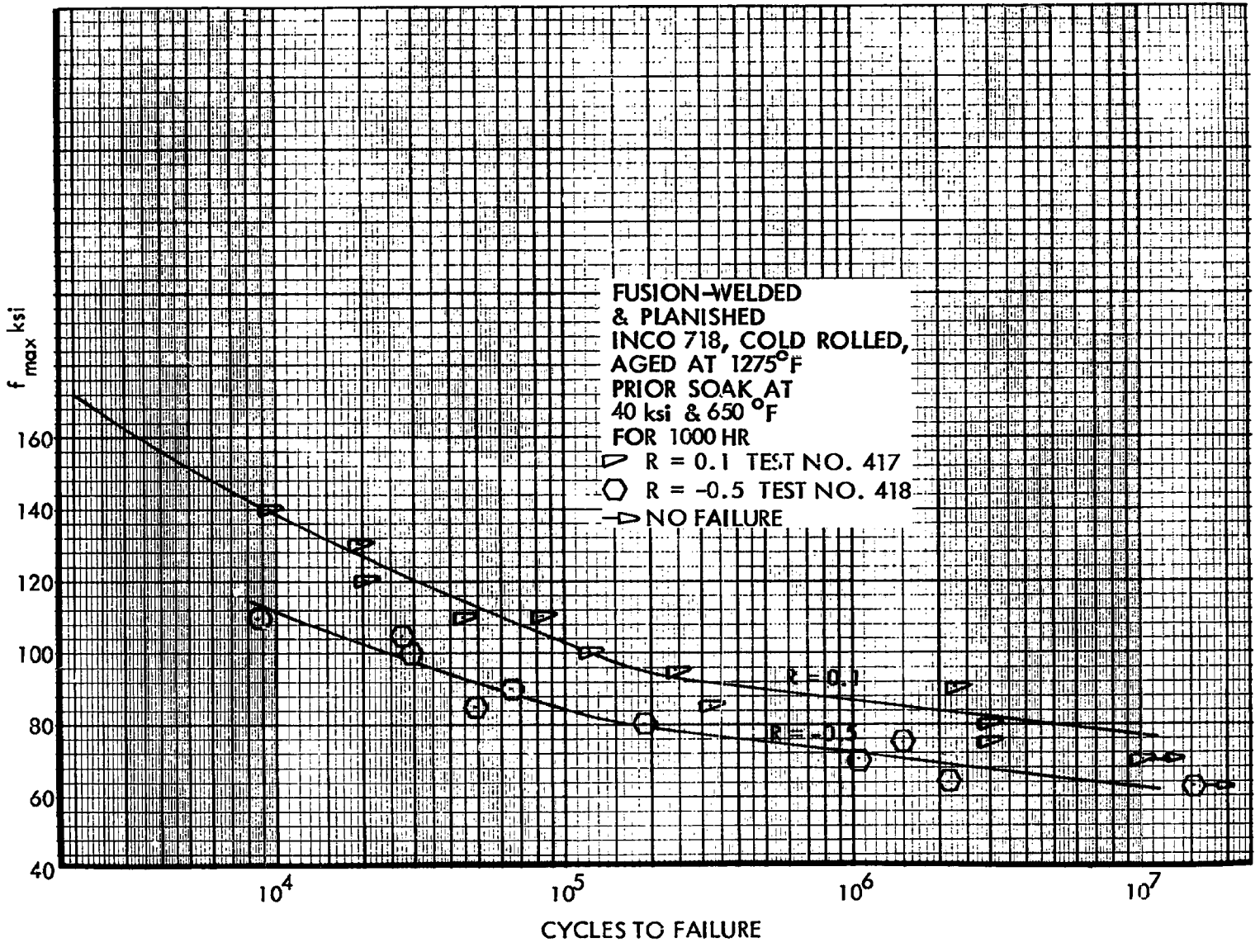



Figure 226. S-N Curves at Room Temperature, Fusion-Welded INCO 718, R = Constant

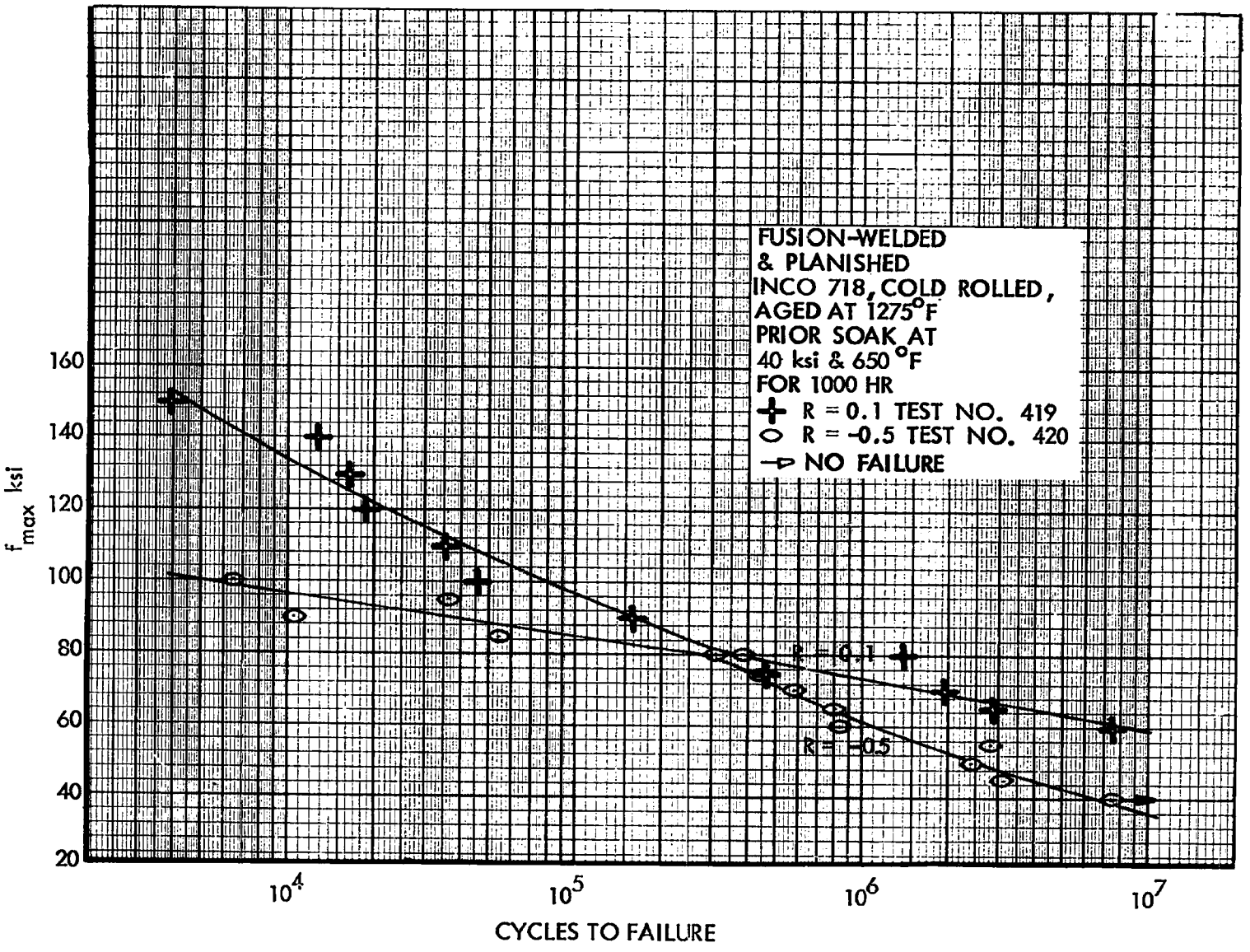



Figure 227. S-N Curves at 400°F, Fusion-Welded INCO 718, R = Constant

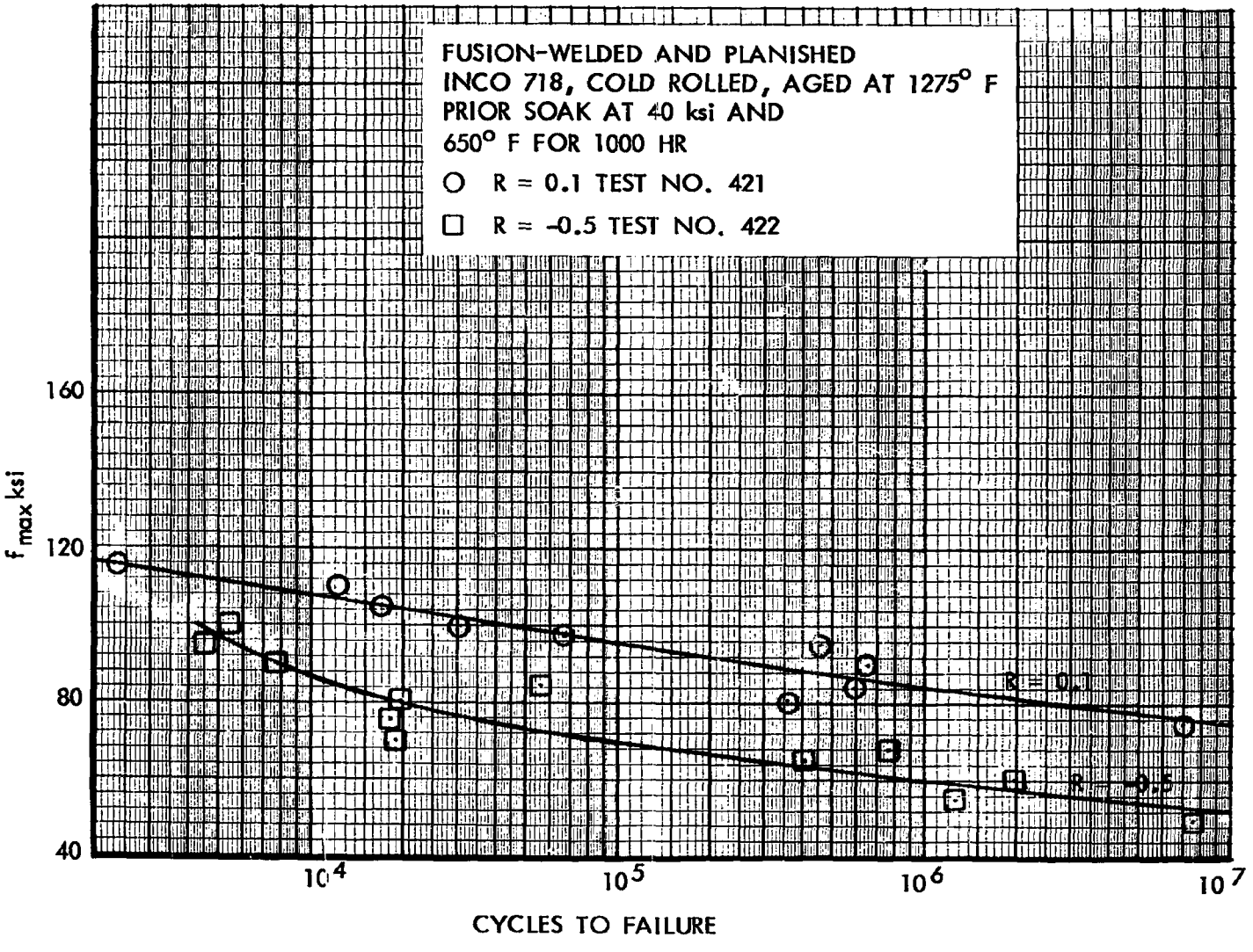



Figure 228. S-N Curves at 650°F, Fusion-Welded INCO 718, R = Constant

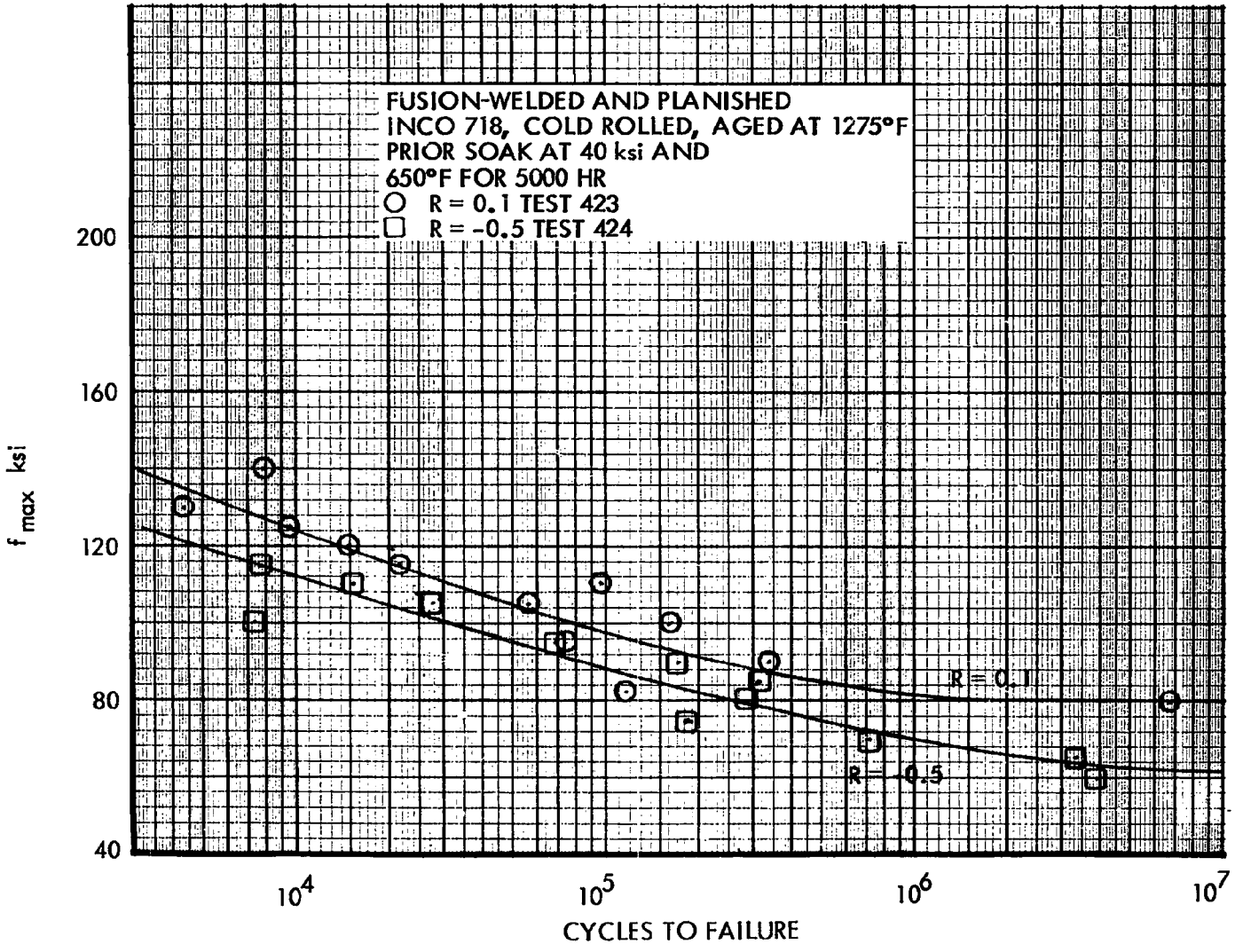



Figure 229. S-N Curves at Room Temperature, Fusion-Welded INCO 718, R = Constant

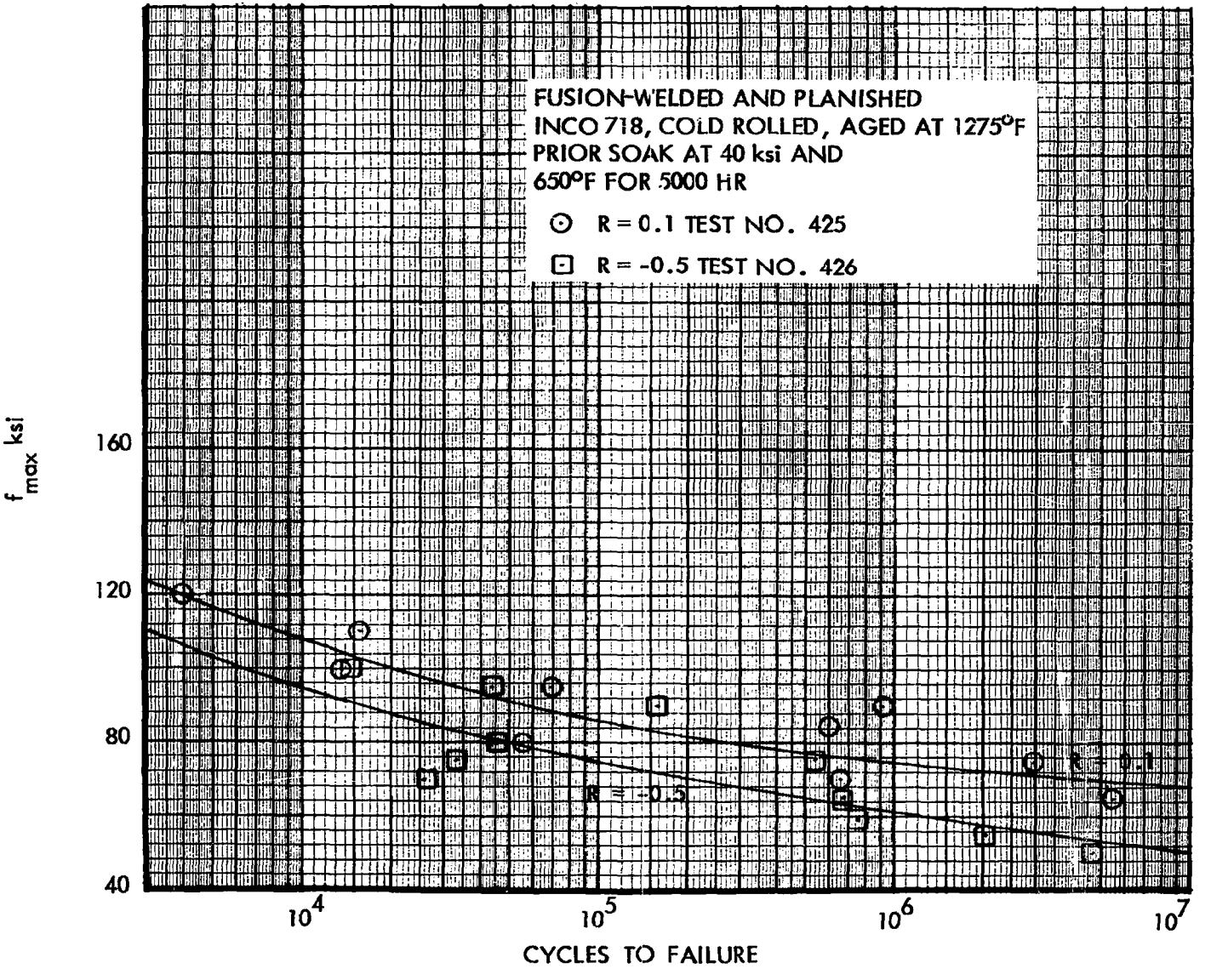



Figure 230. S-N Curves at 400°F, Fusion-Welded INCO 718, R = Constant

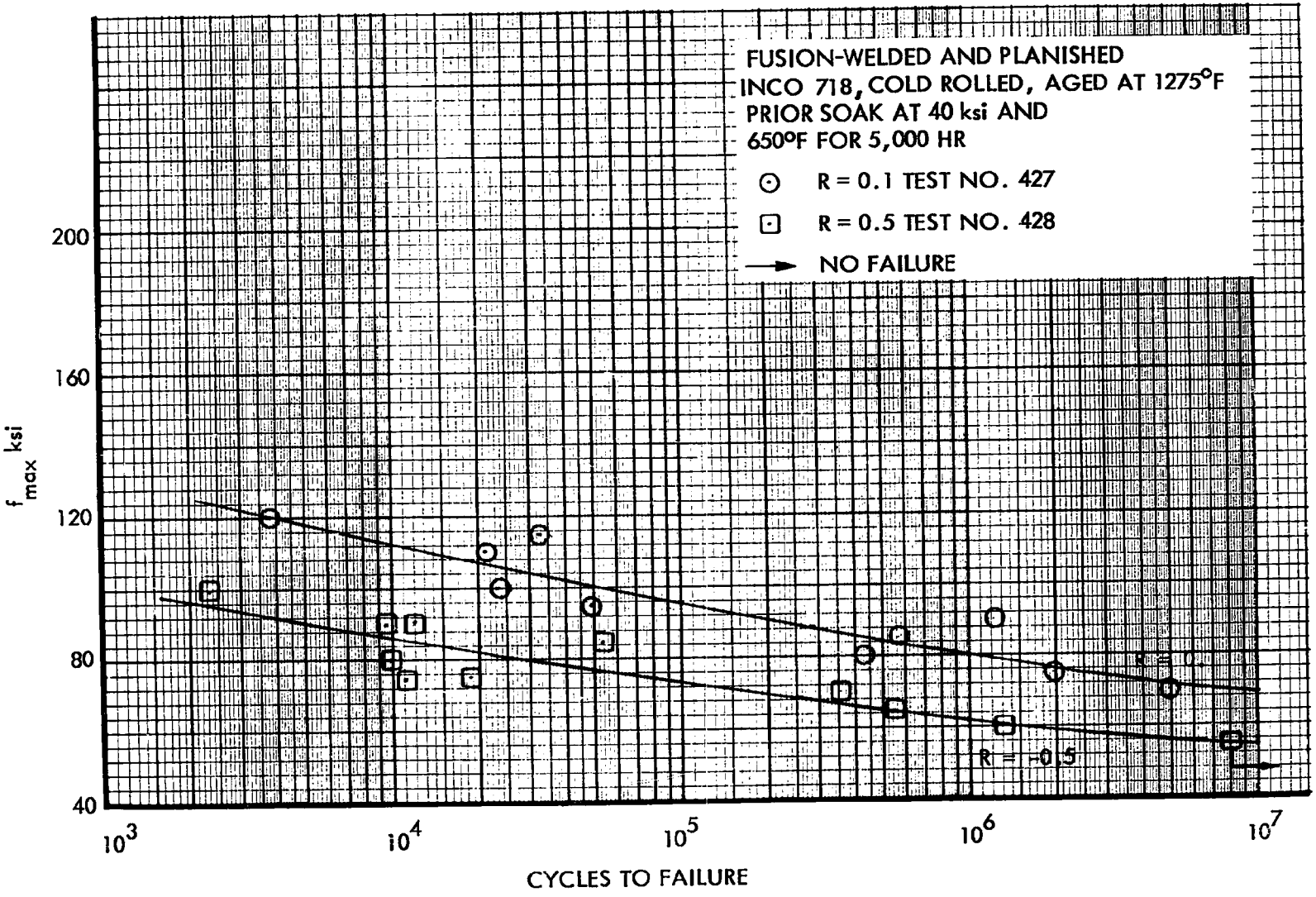



Figure 231. S-N Curves at 650°F, Fusion-Welded INCO 718, R = Constant

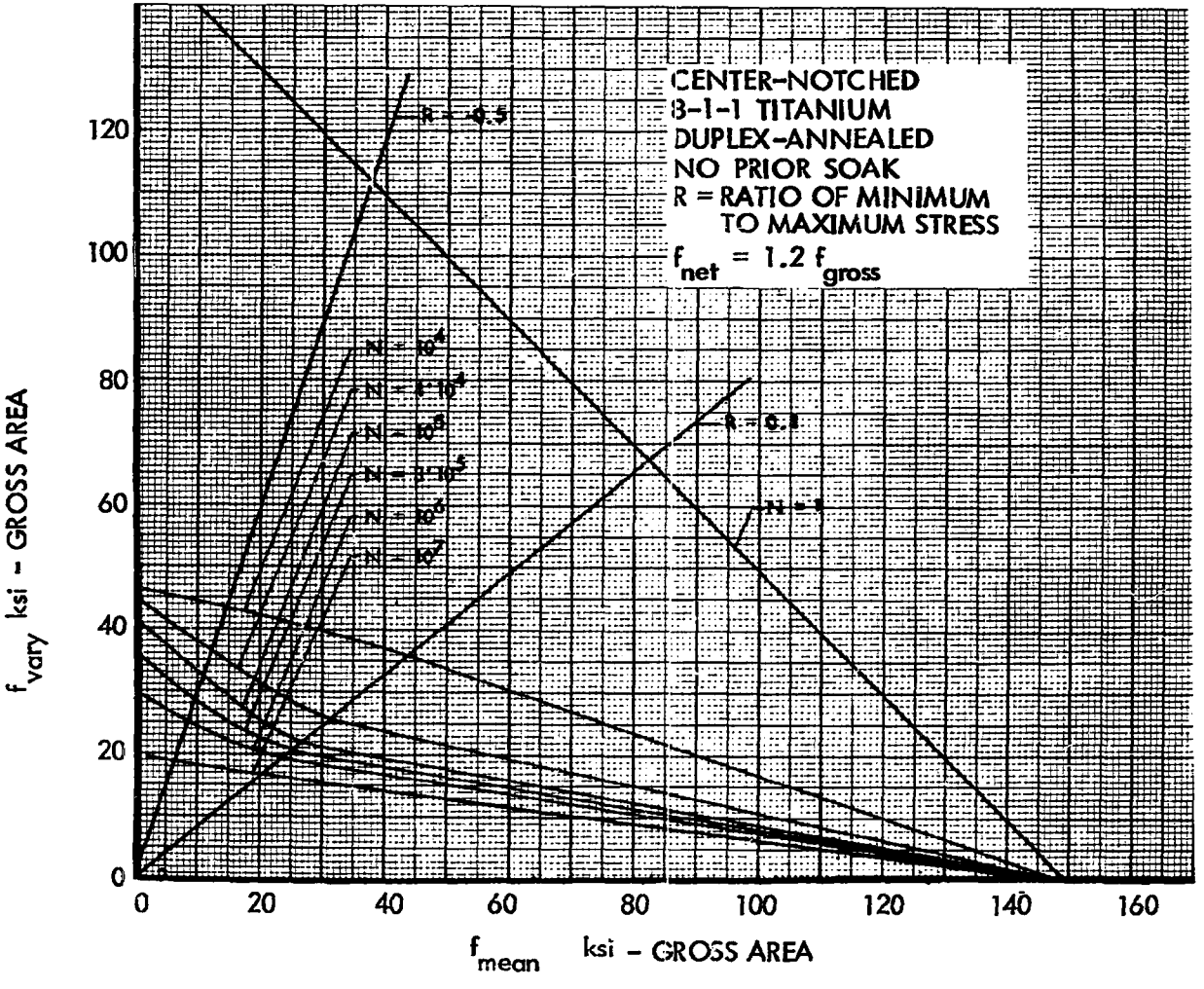



Figure 232. S-N Diagram at Room Temperature, Center-Notched 8-1-1 Titanium

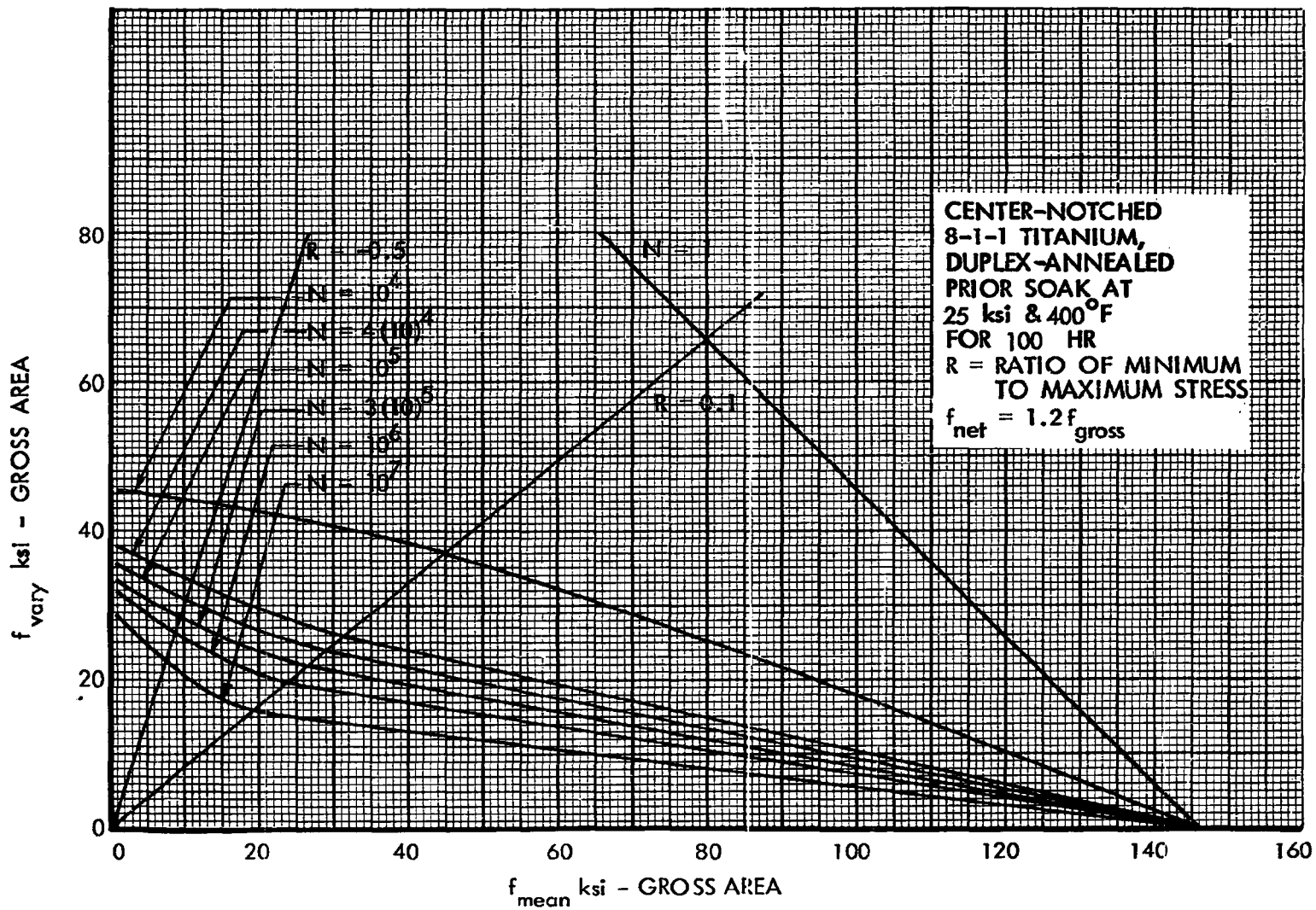



Figure 233. S-N Diagram at Room Temperature, Center-Notched 8-1-1 Titanium

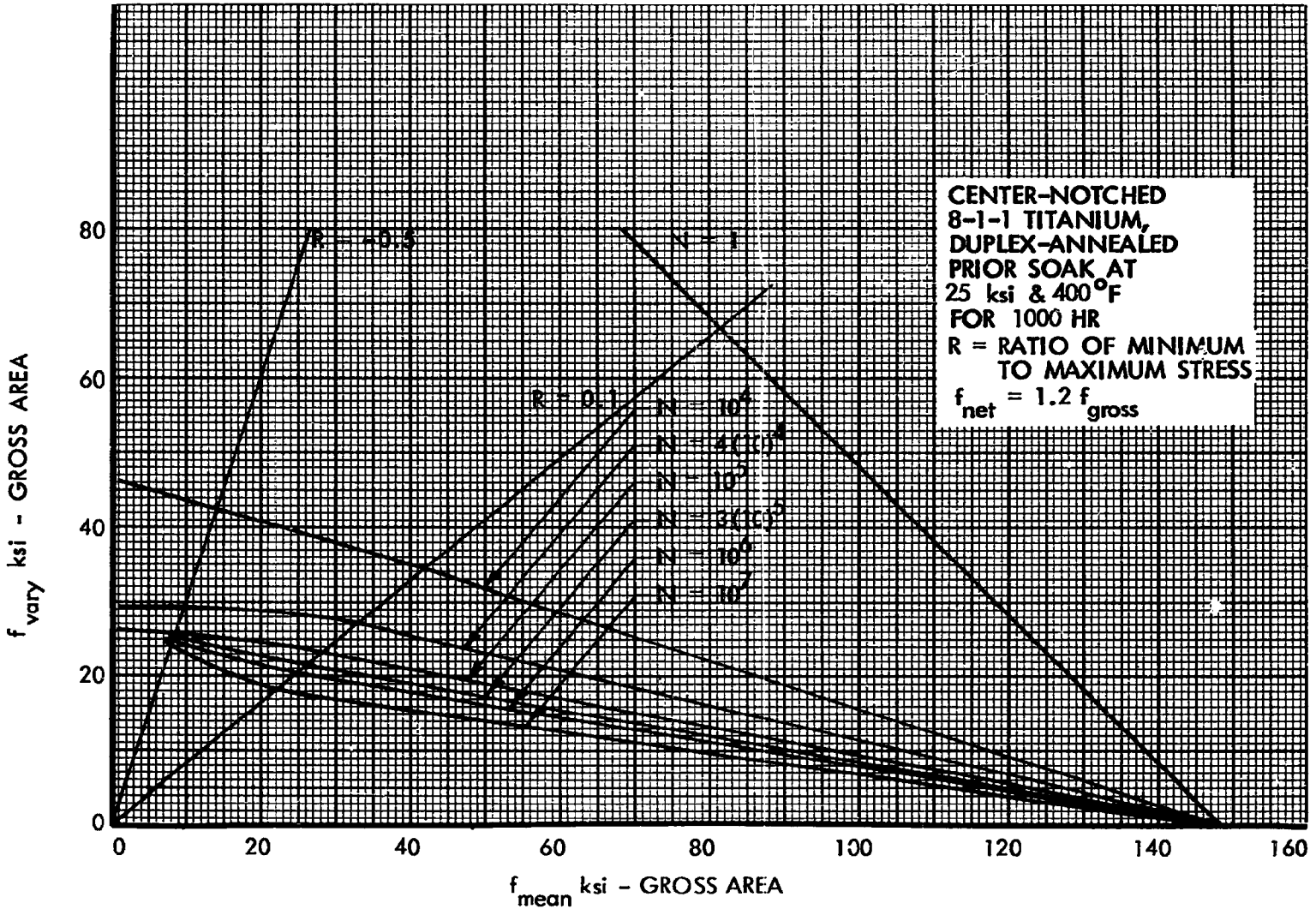



Figure 234. S-N Diagram at Room Temperature, Center-Notched 8-1-1 Titanium

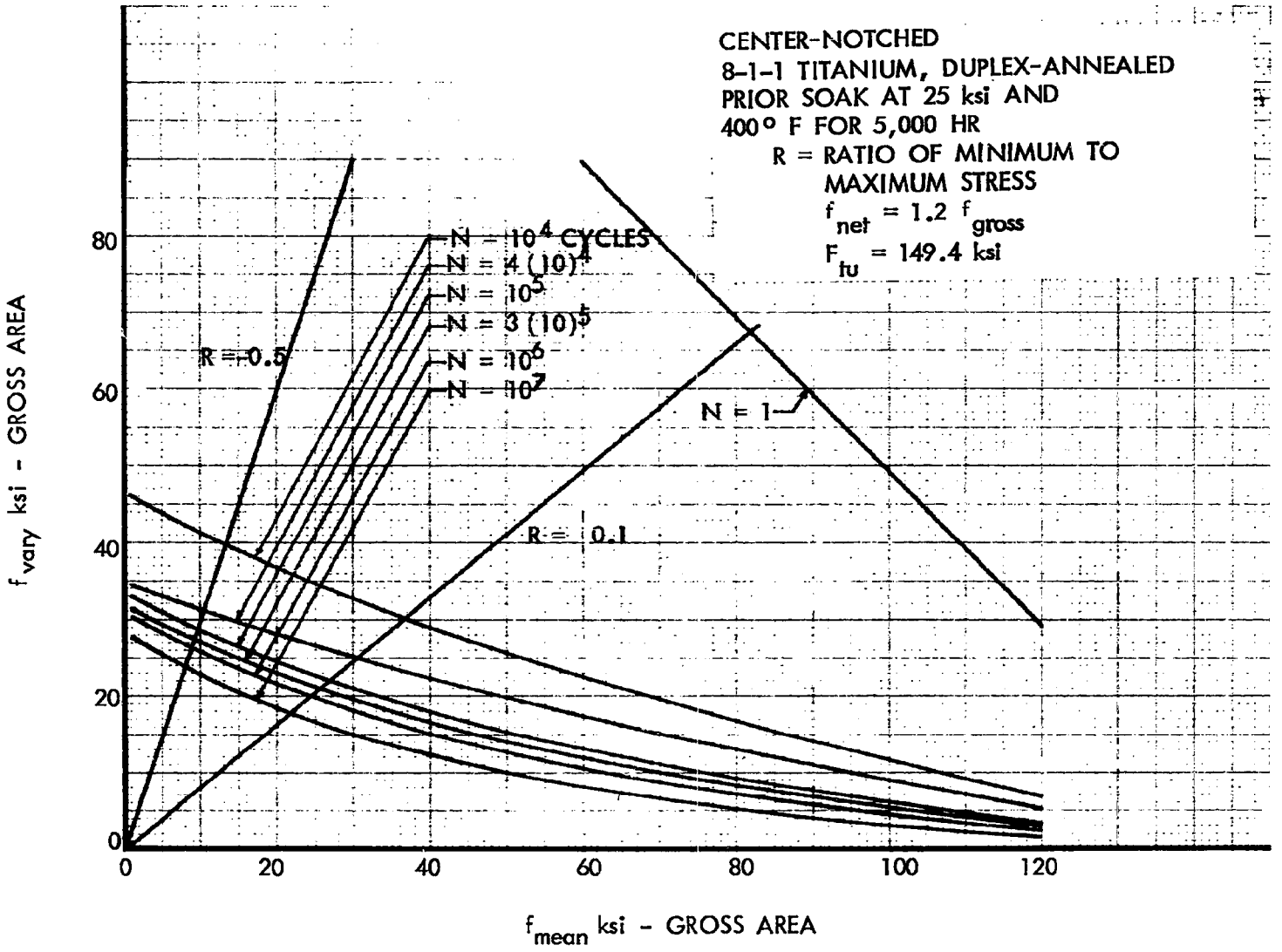



Figure 235. S-N Diagram at Room Temperature, Center-Notched 8-1-1 Titanium

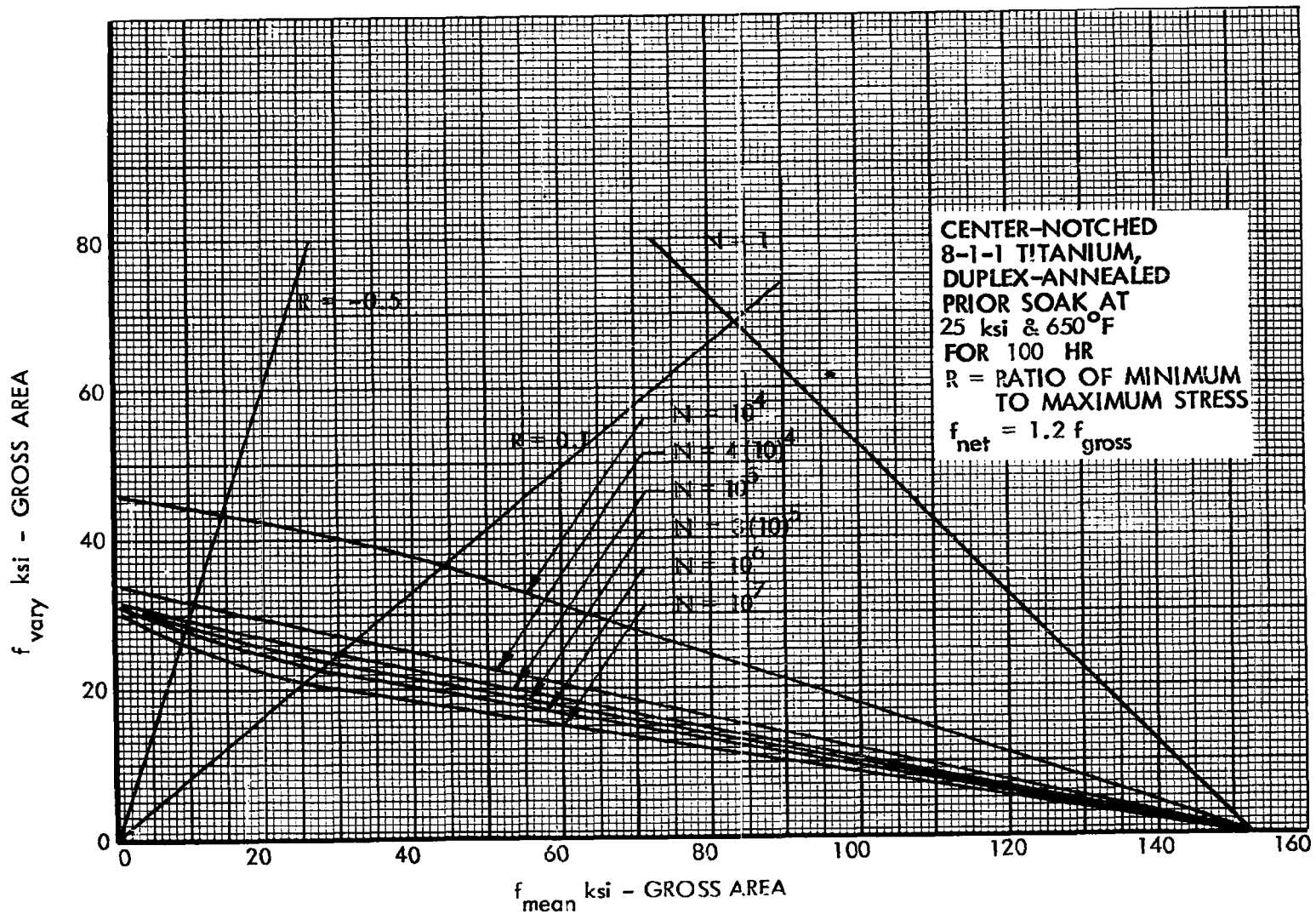



Figure 236. S-N Diagram at Room Temperature, Center-Notched 8-1-1 Titanium

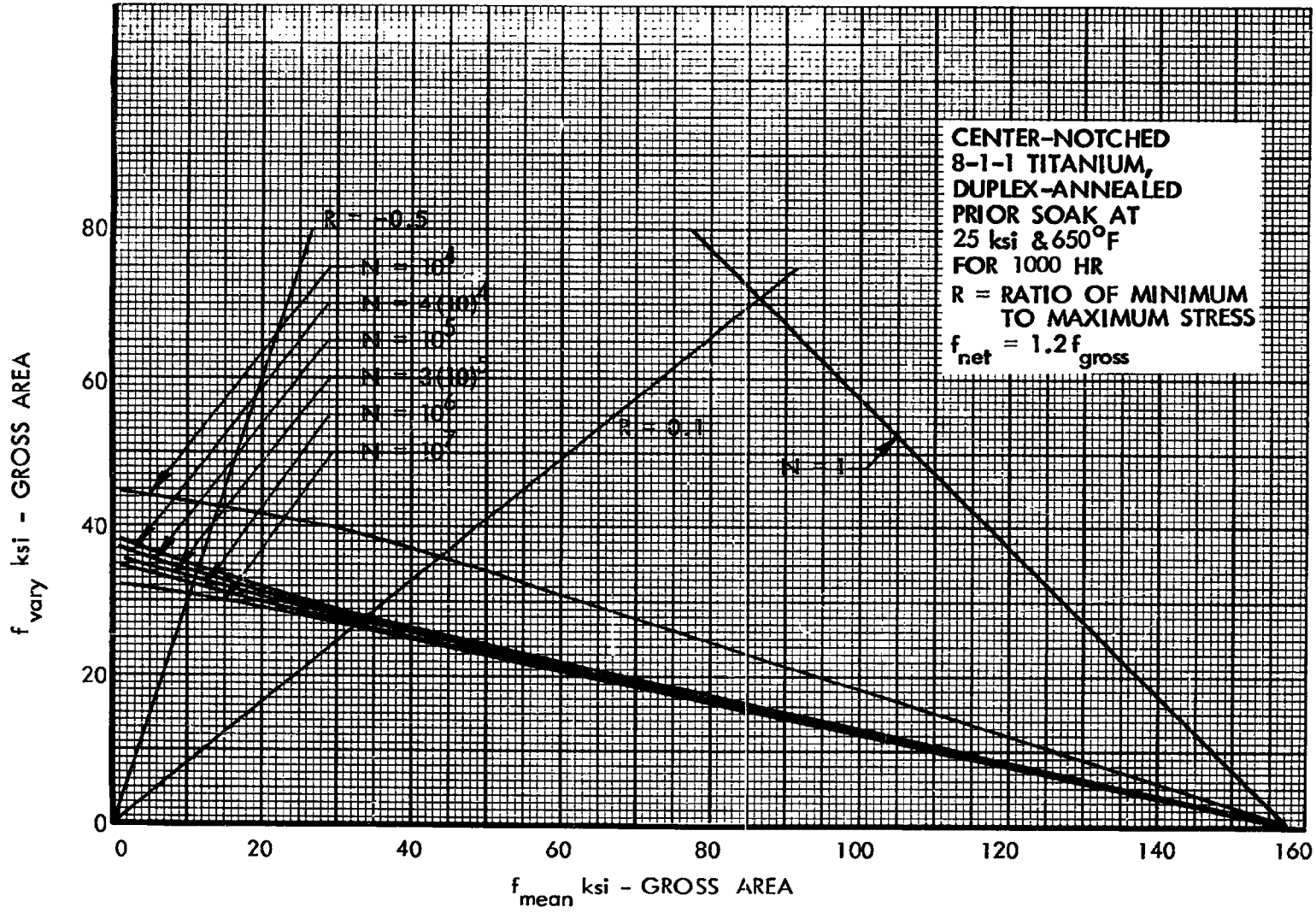



Figure 237. S-N Diagram at Room Temperature, Center-Notched 8-1-1 Titanium

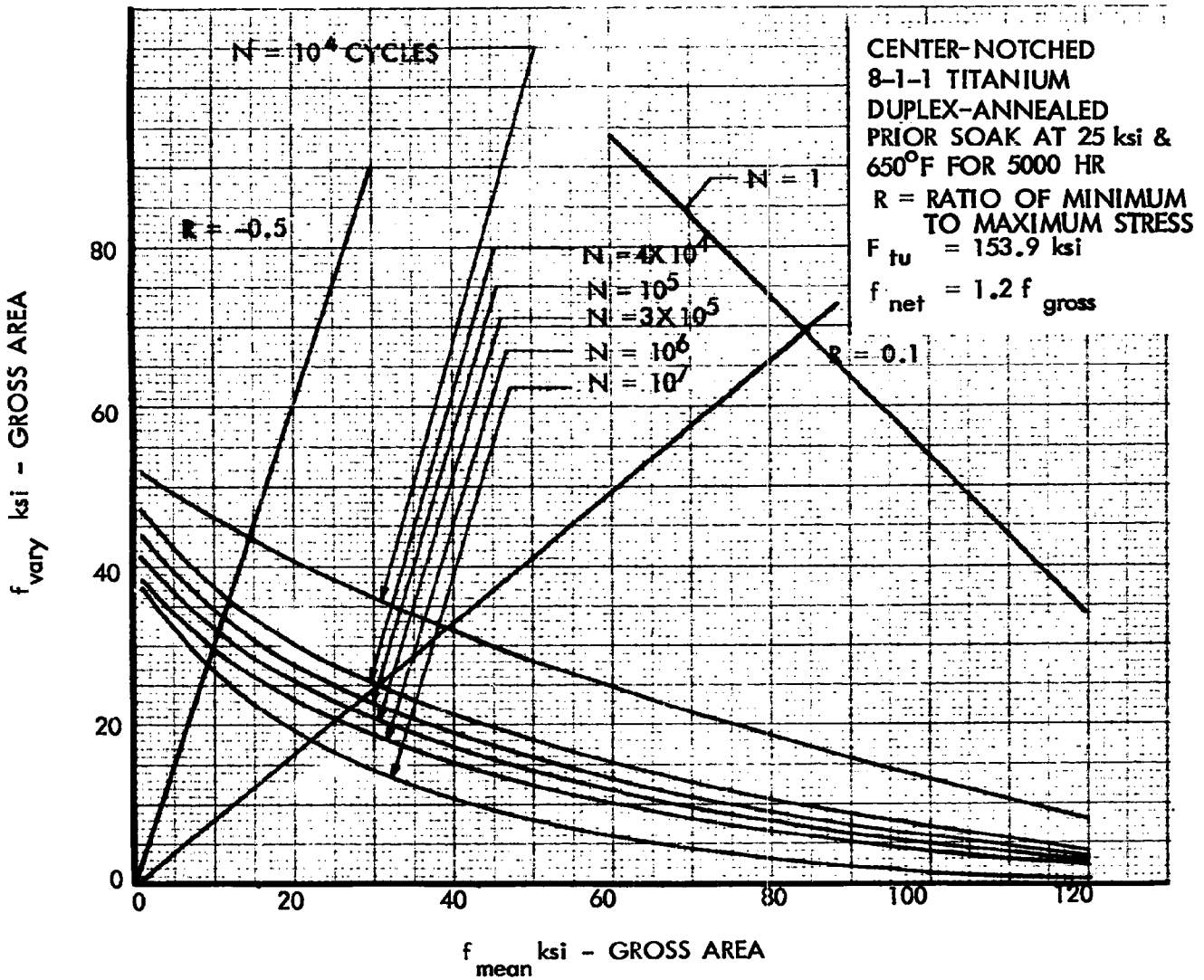



Figure 238. S-N Diagram at Room Temperature, Center-Notched 8-1-1 Titanium

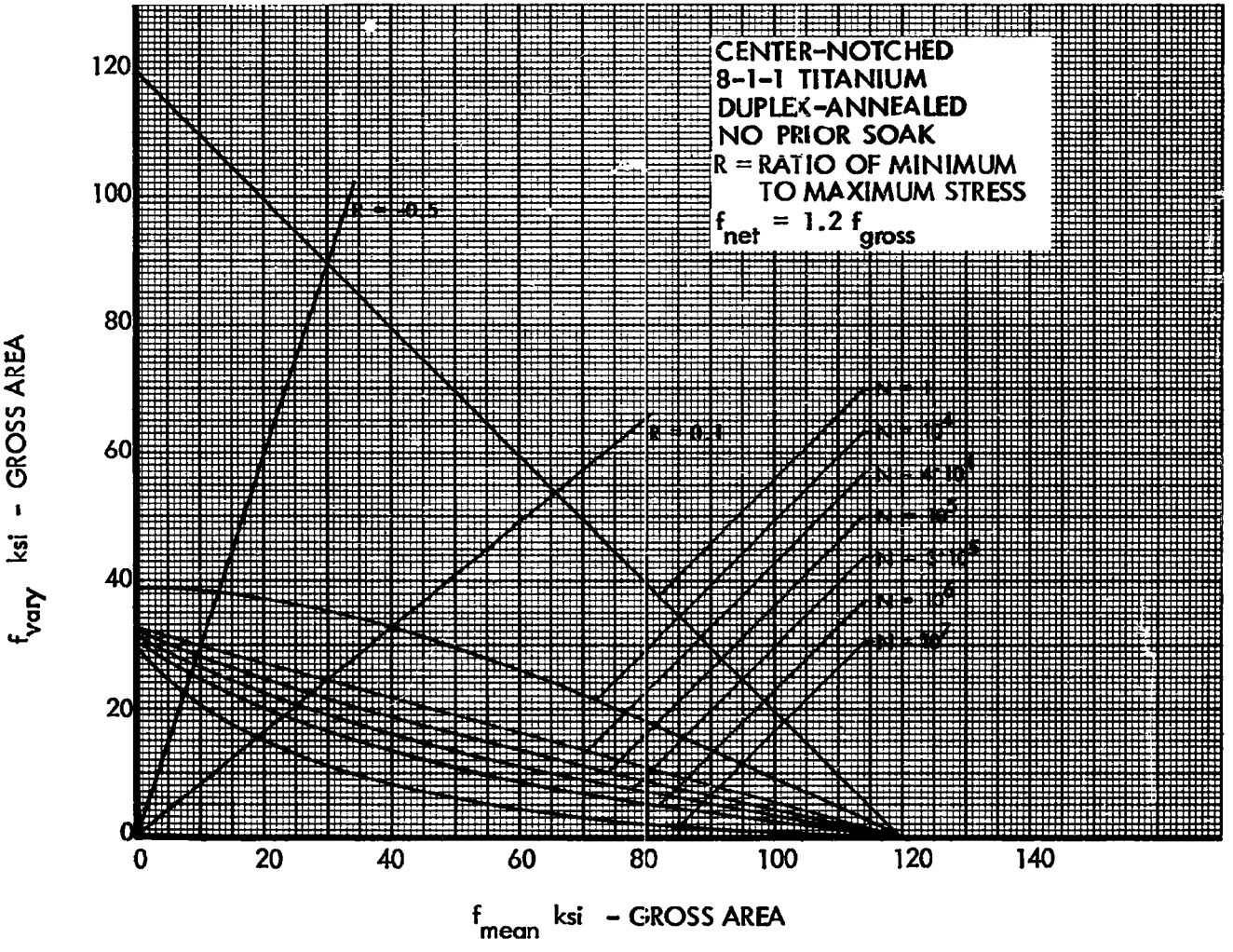



Figure 239. S-N Diagram at 400°F, Center-Notched 8-1-1 Titanium

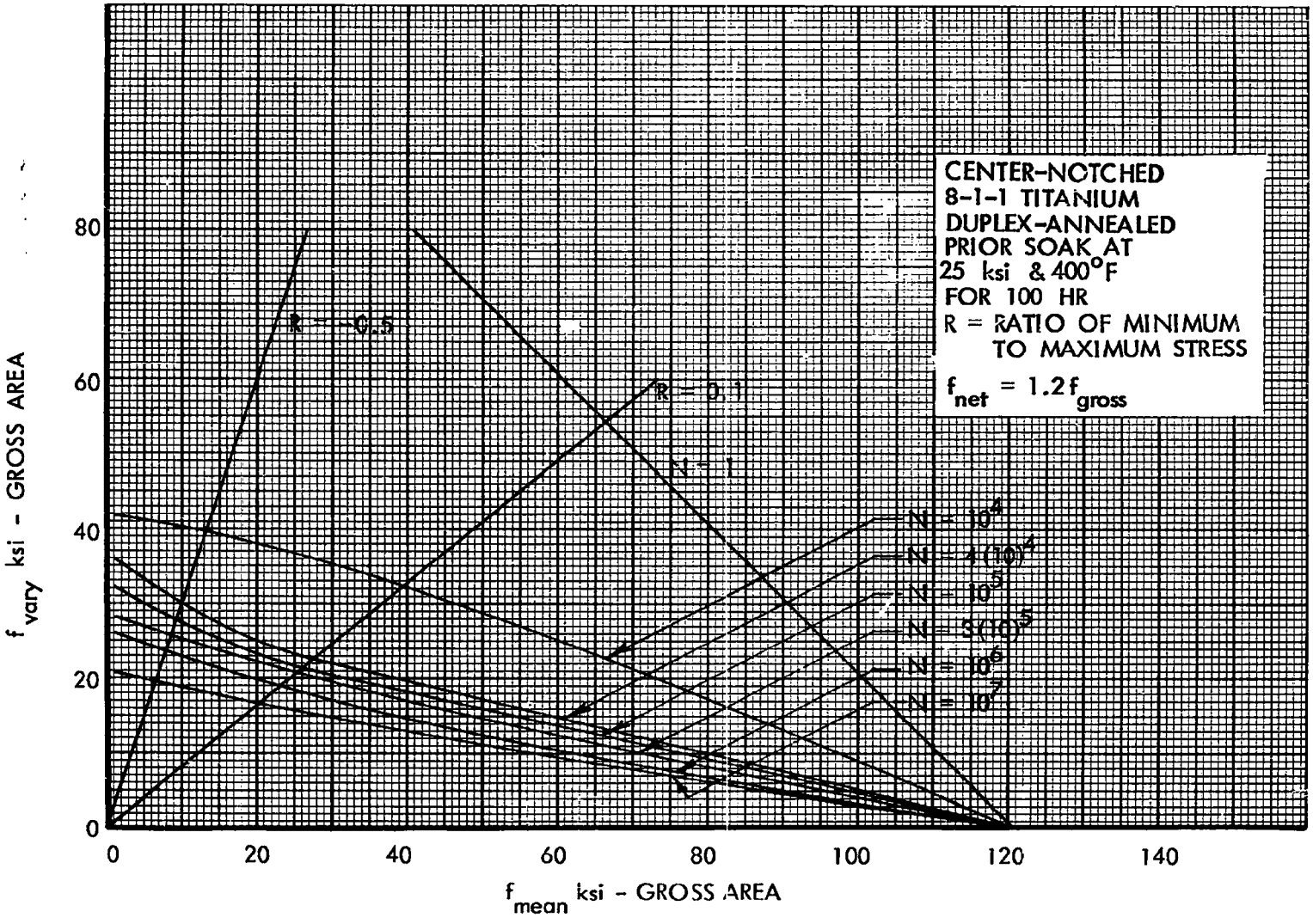



Figure 240. S-N Diagram at 400°F, Center-Notched 8-1-1 Titanium

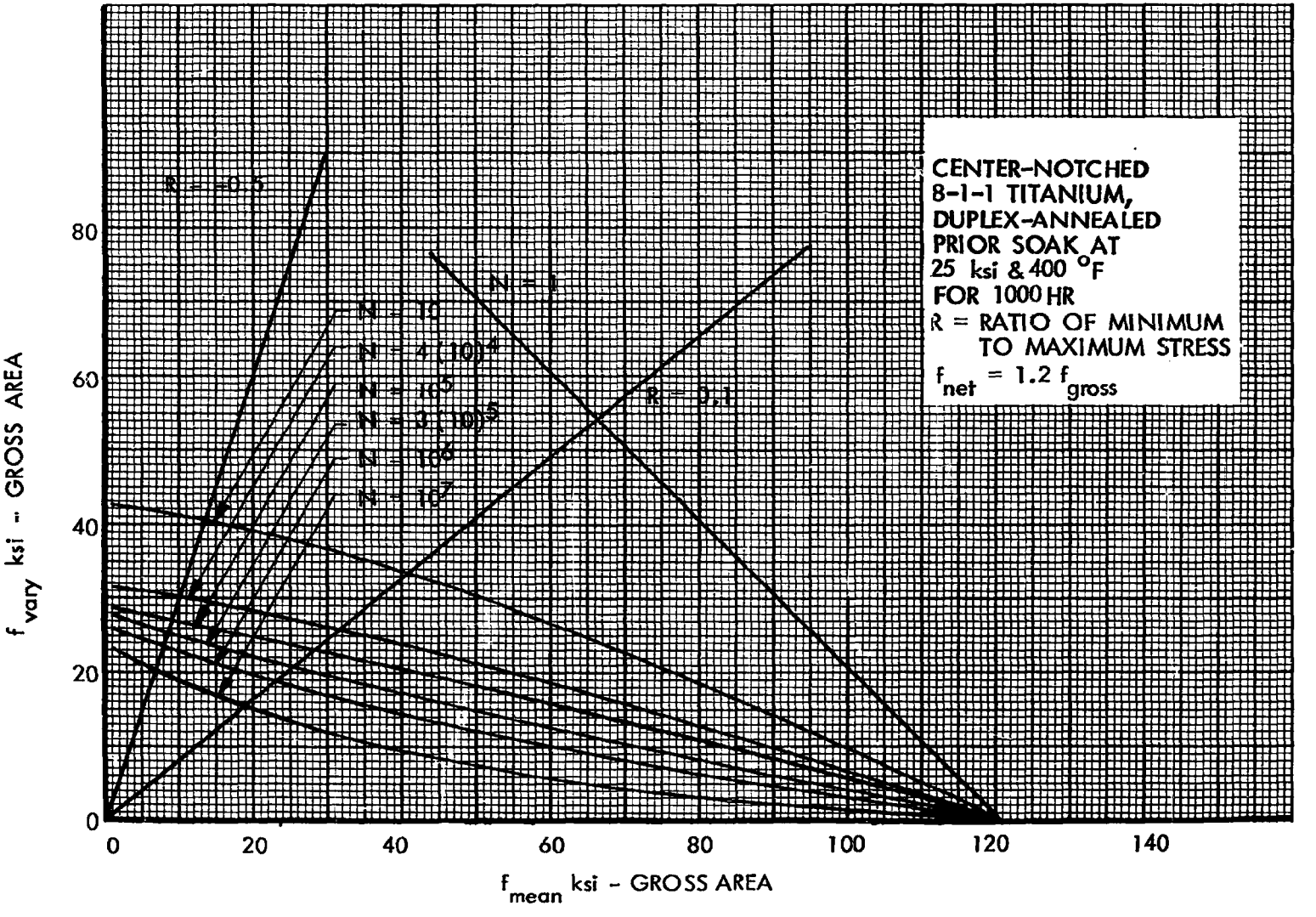



Figure 241. S-N Diagram at 400°F, Center-Notched 8-1-1 Titanium

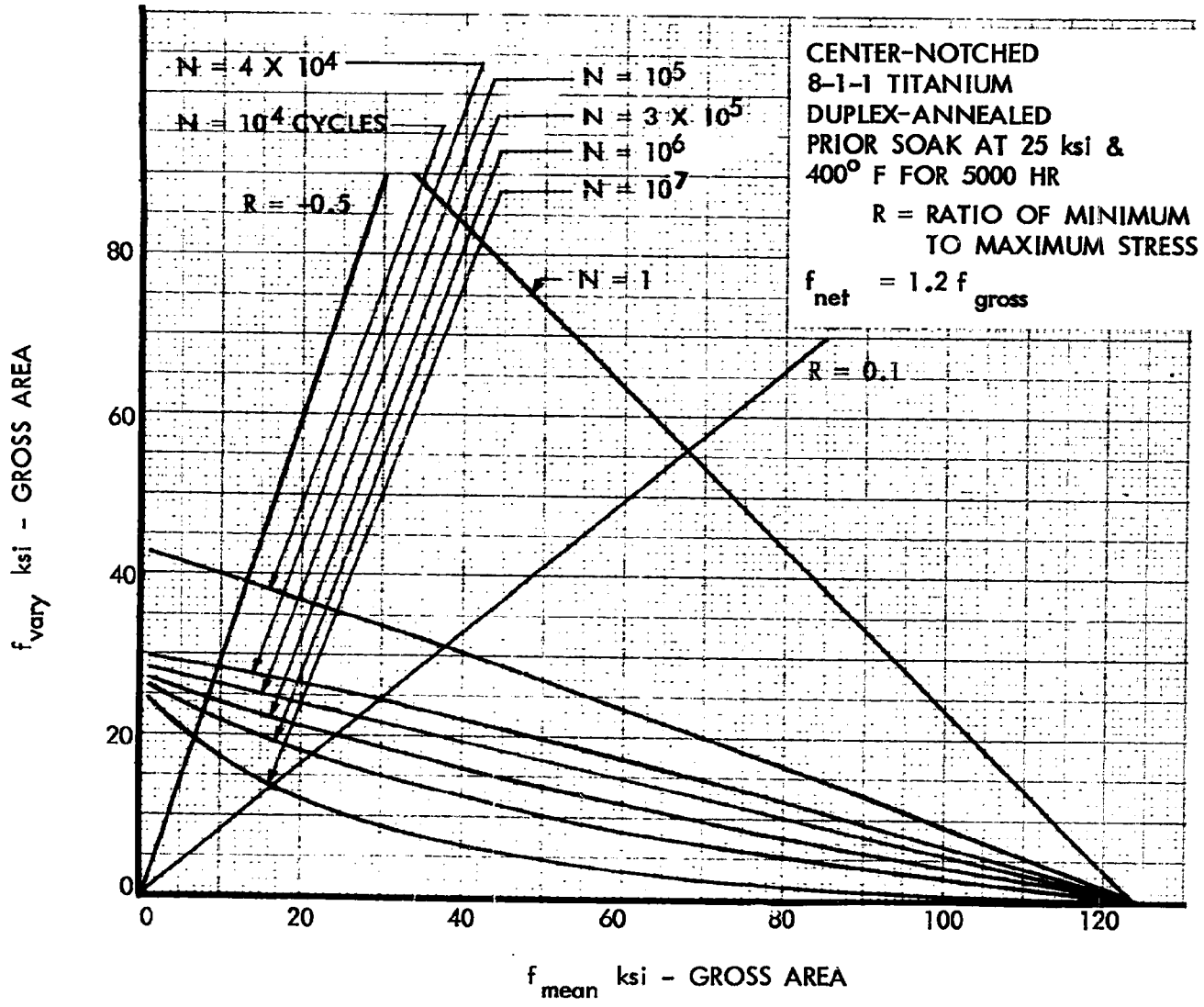



Figure 242. S-N Diagram at 400°F, Center-Notched 8-1-1 Titanium

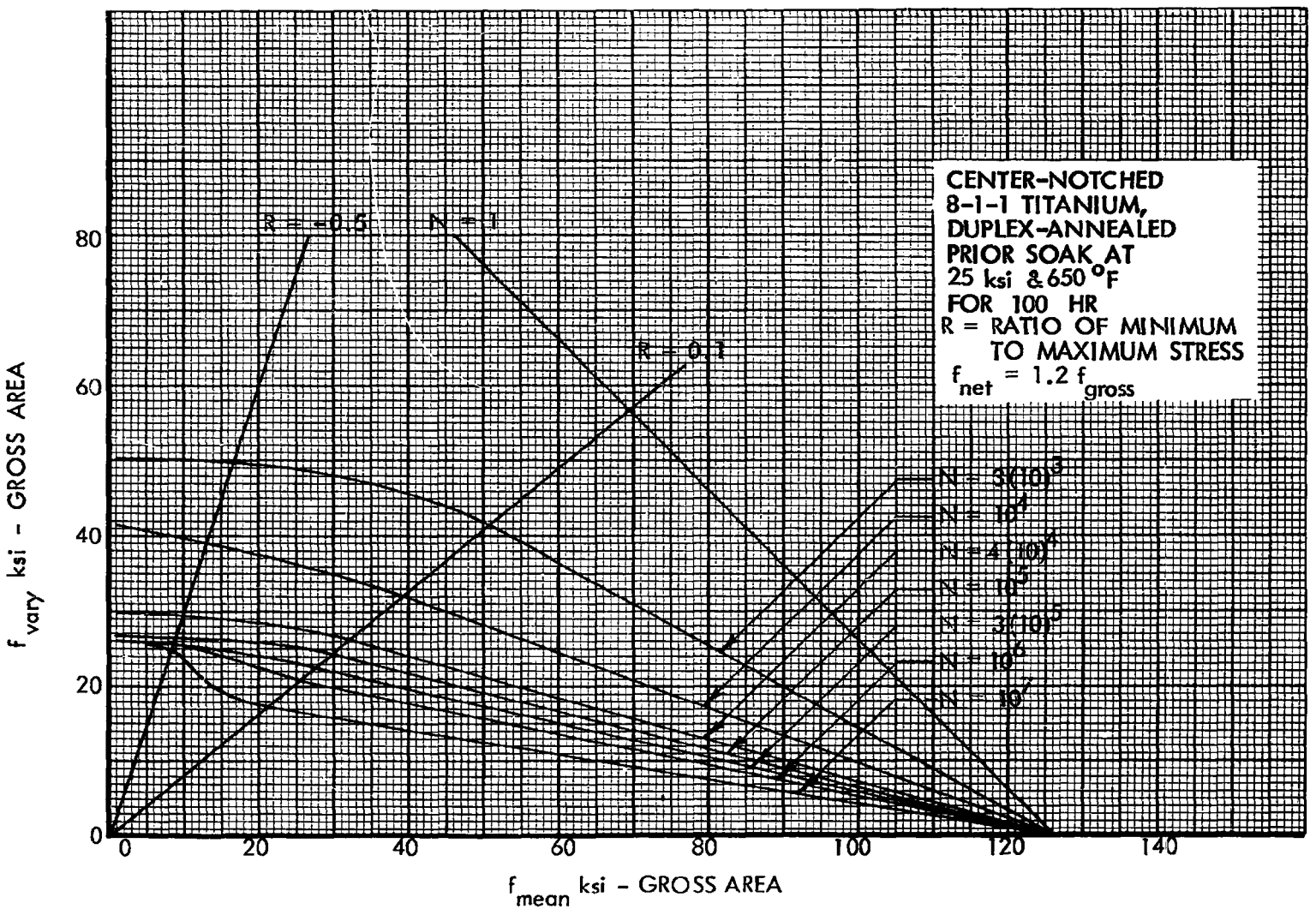



Figure 243. S-N Diagram at 400°F, Center-Notched 8-1-1 Titanium

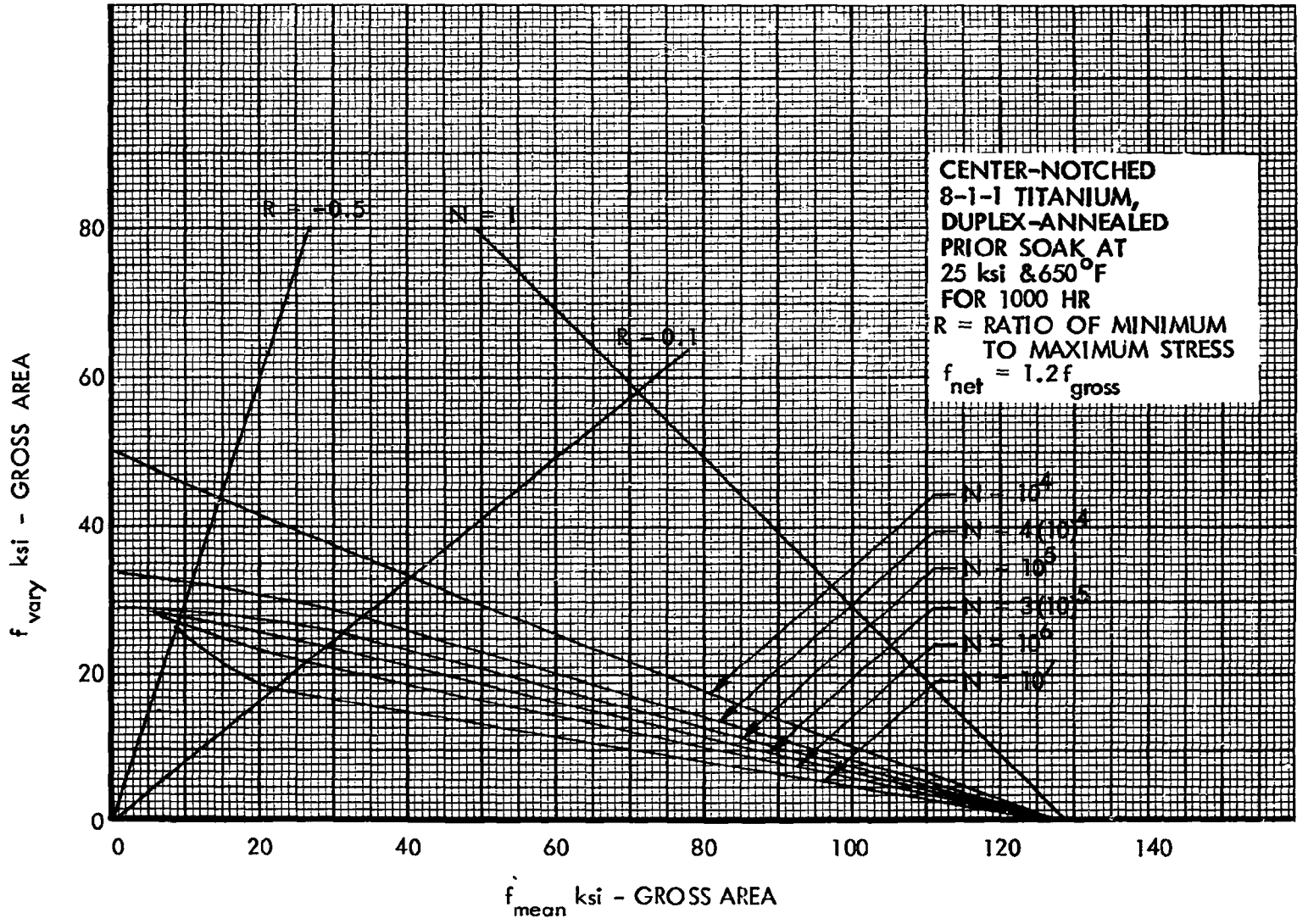



Figure 244. S-N Diagram at 400°F, Center-Notched 8-1-1 Titanium

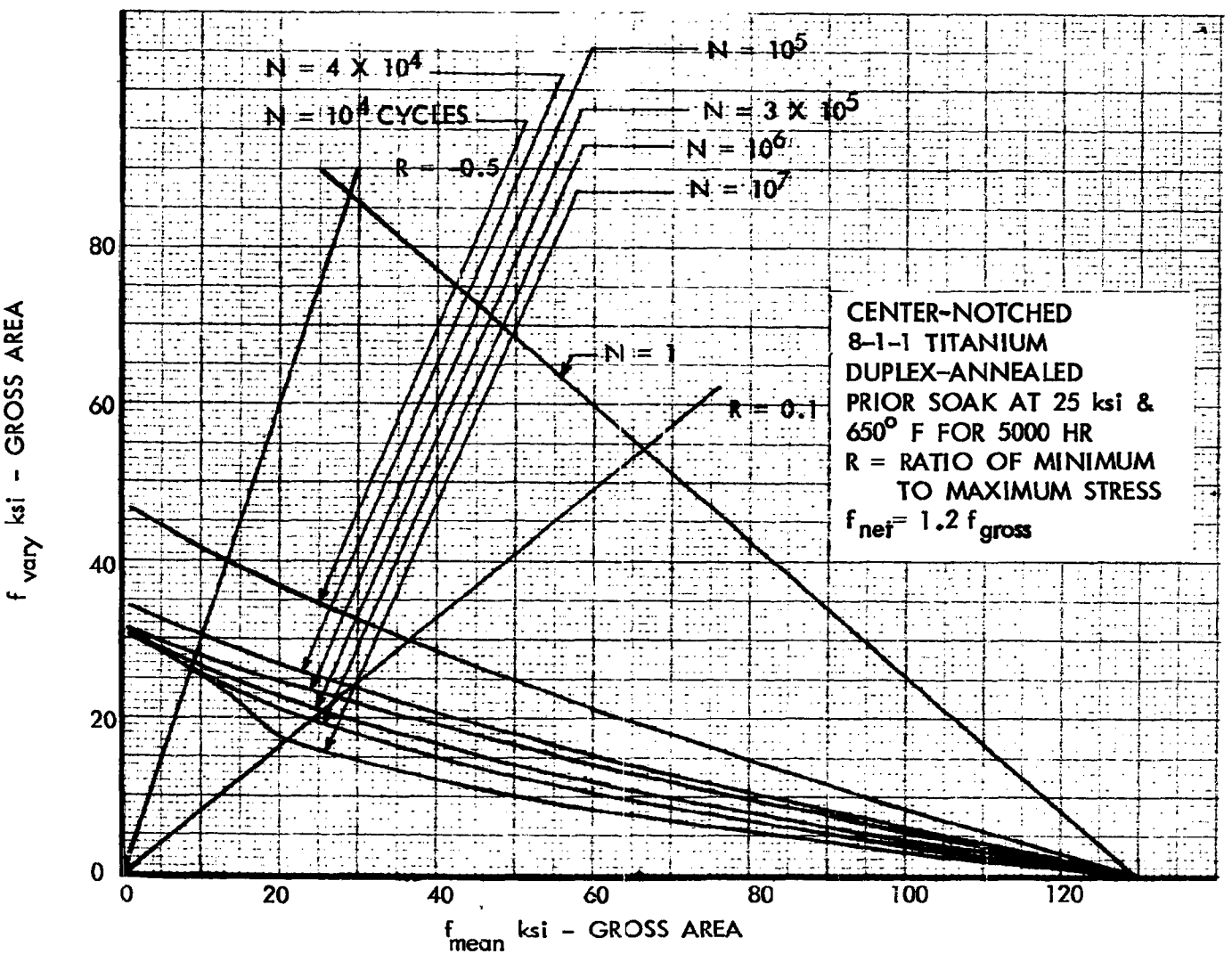



Figure 245. S-N Diagram at 400°F, Center-Notched 8-1-1 Titanium

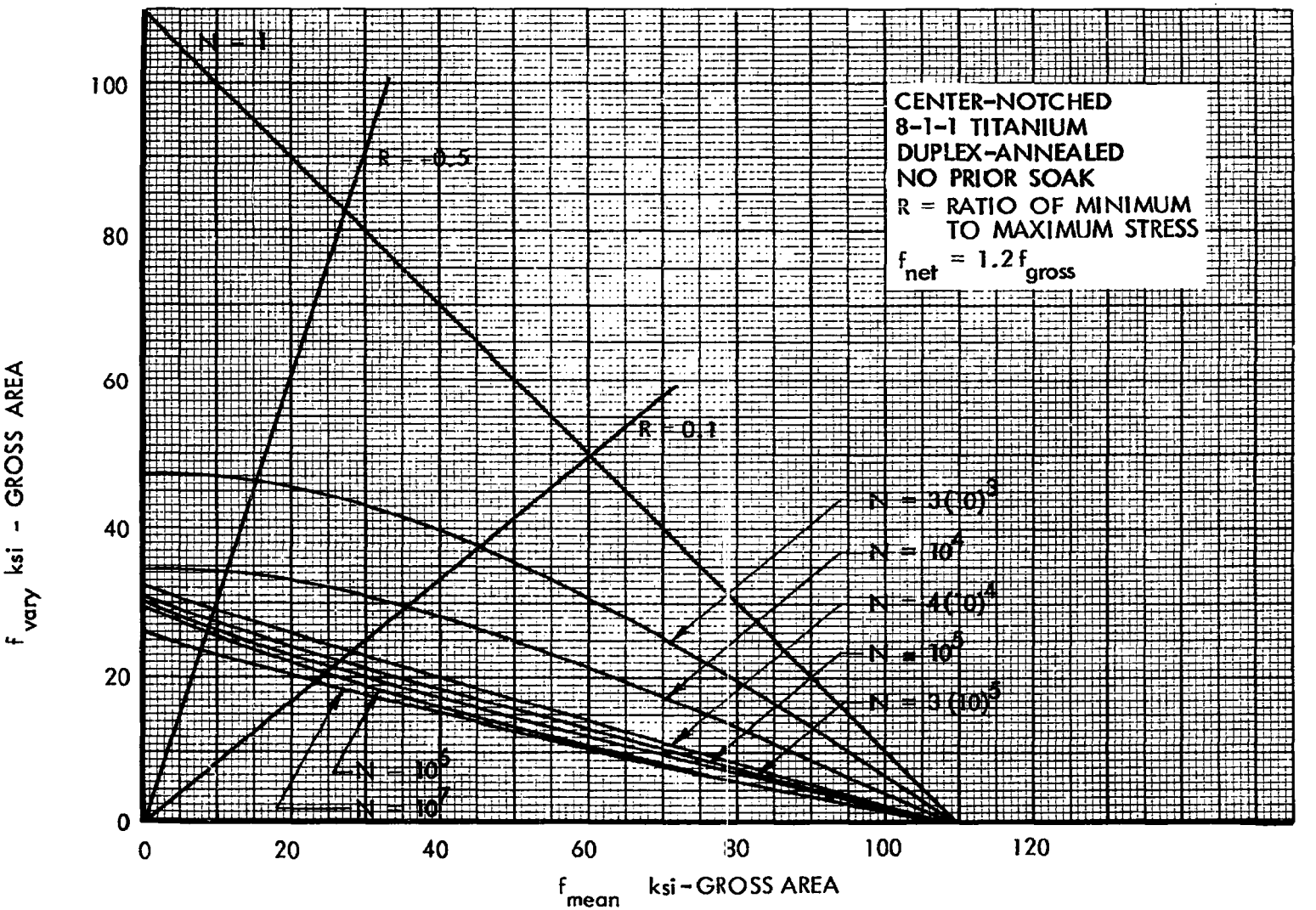



Figure 246. S-N Diagram at 650°F, Center-Notched 8-1-1 Titanium

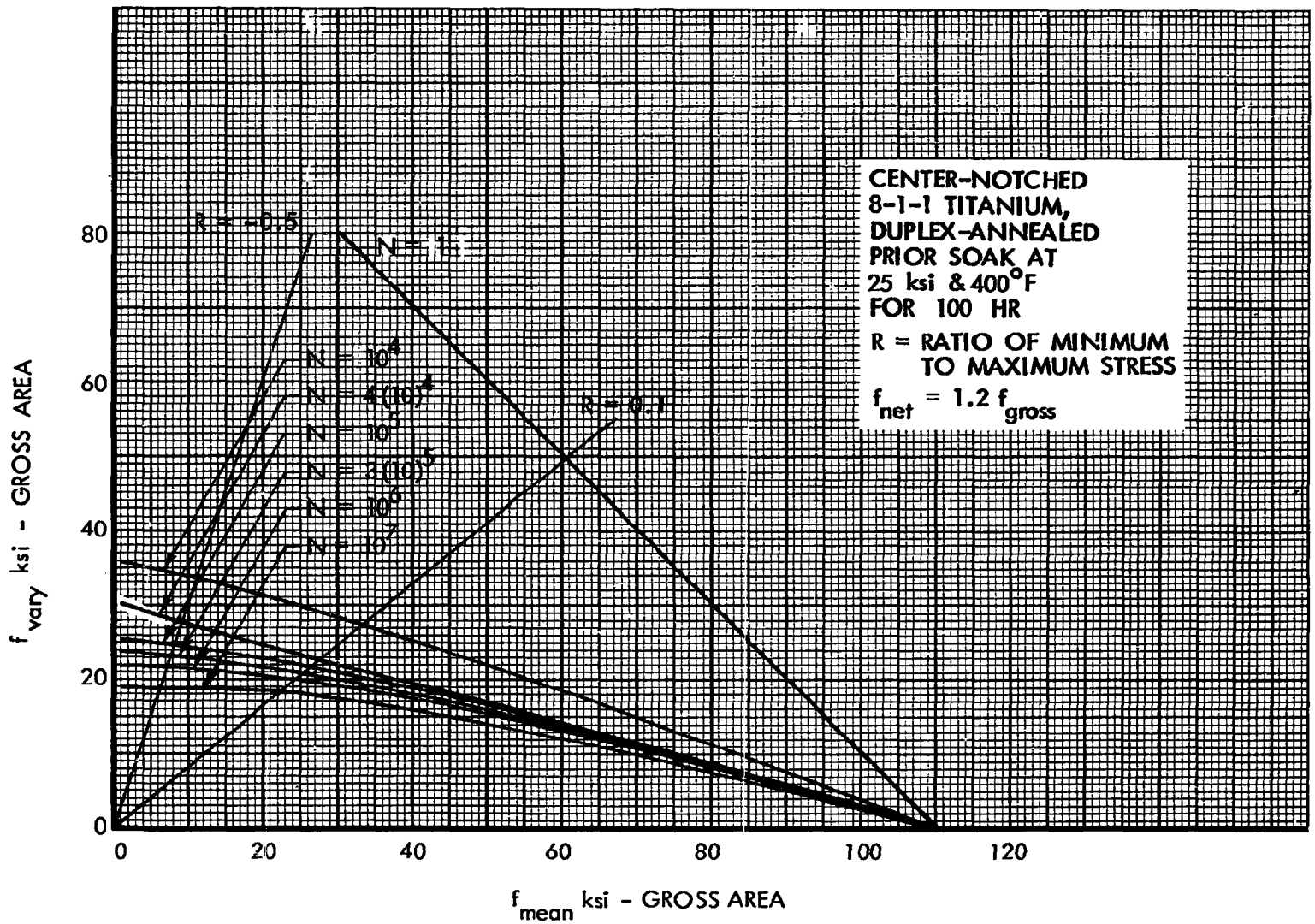



Figure 247. S-N Diagram at 650°F, Center-Notched 8-1-1 Titanium

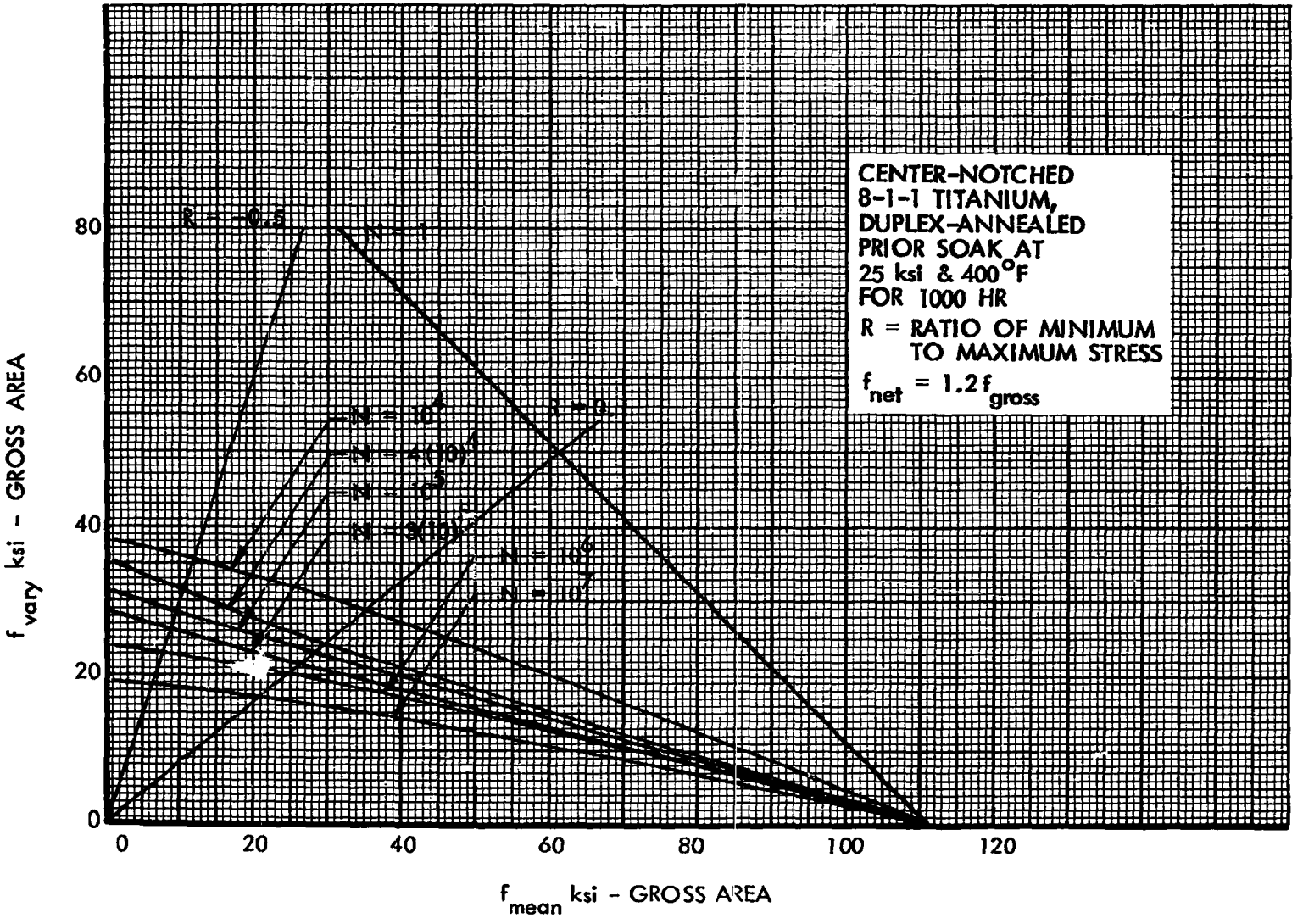



Figure 248. S-N Diagram at 650°F, Center-Notched 8-1-1 Titanium

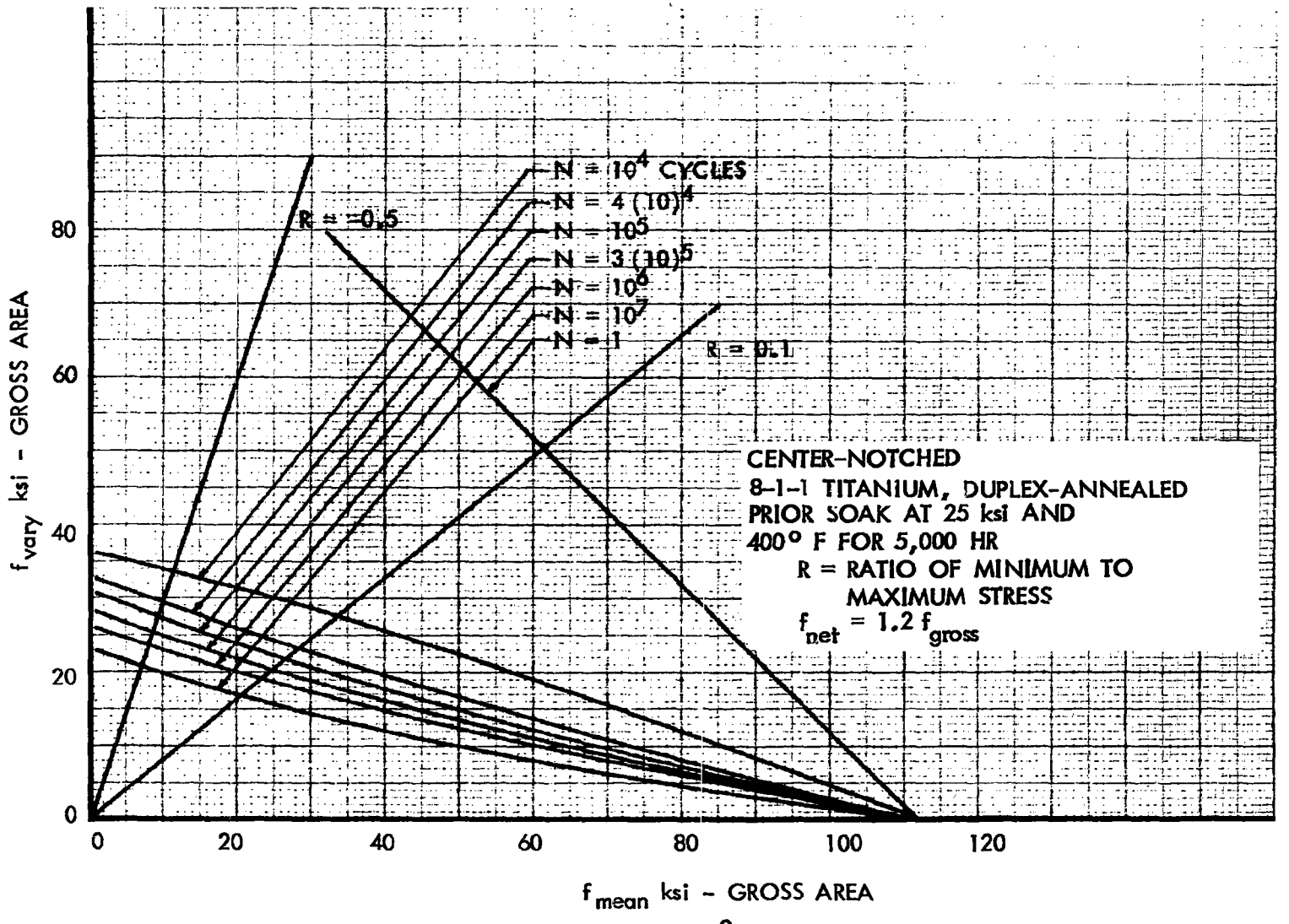



Figure 249. S-N Diagram at 650°F, Center-Notched 8-1-1 Titanium

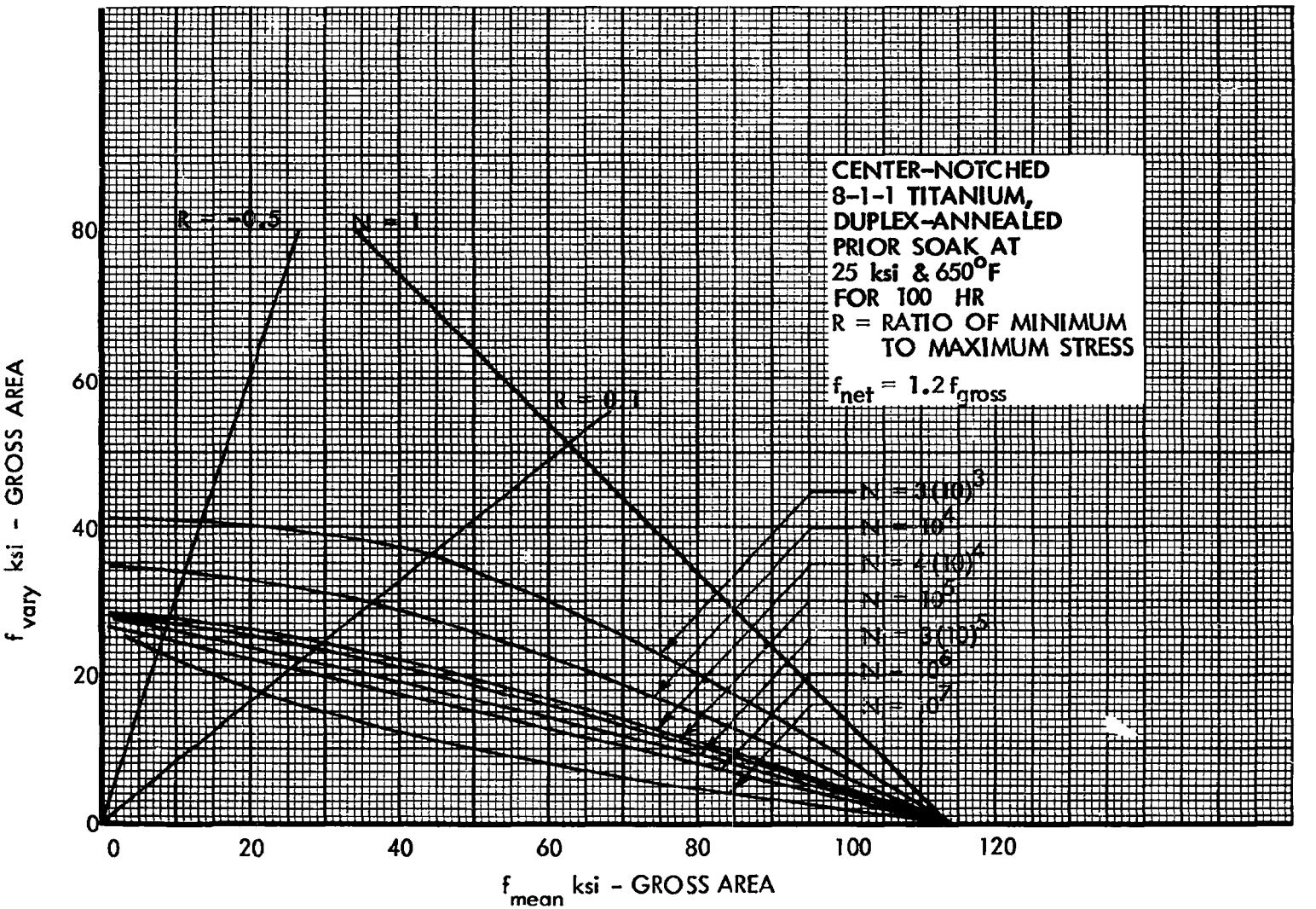



Figure 250. S-N Diagram at 650°F, Center-Notched 8-1-1 Titanium

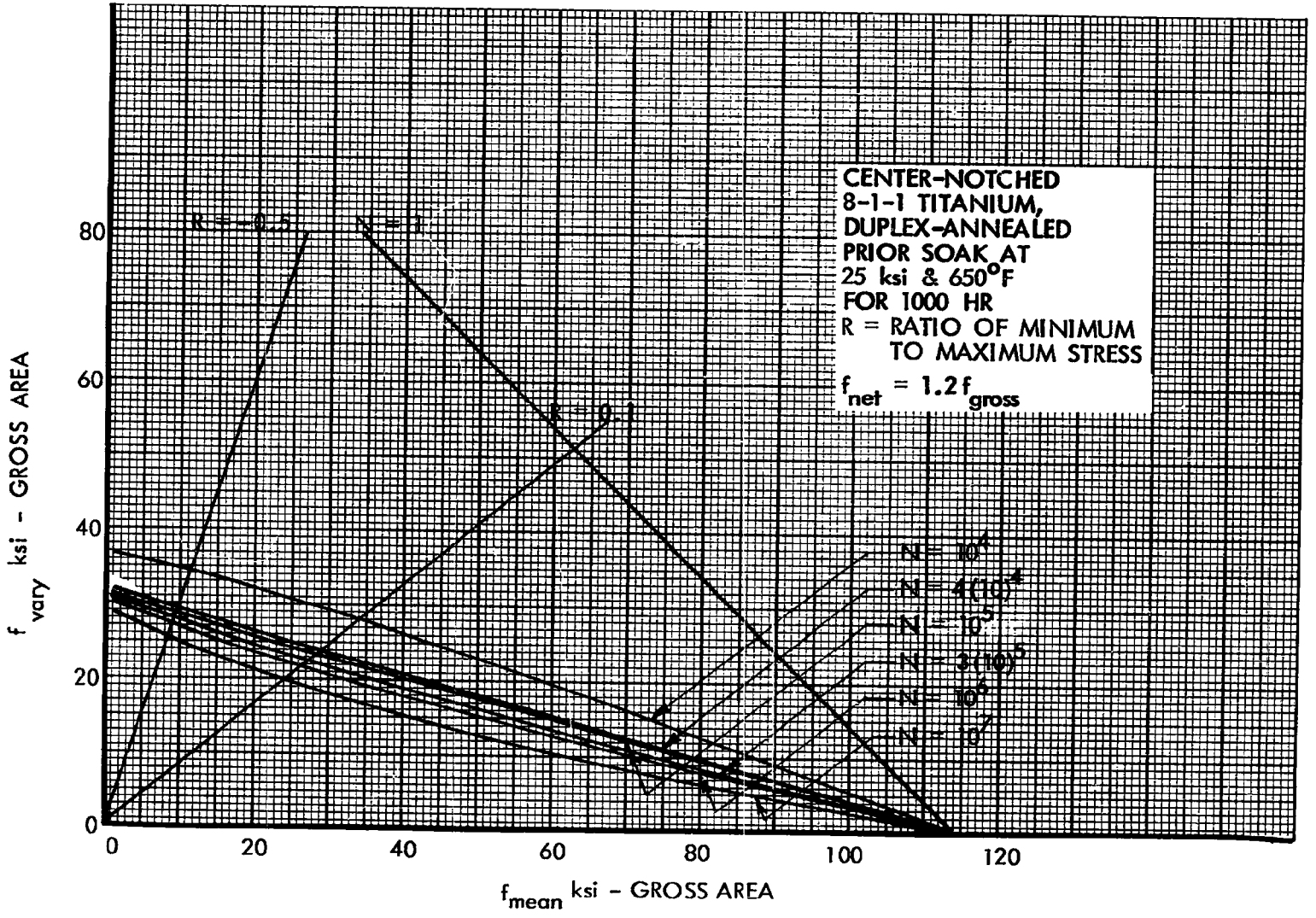



Figure 251. S-N Diagram at 650°F, Center-Notched 8-1-1 Titanium

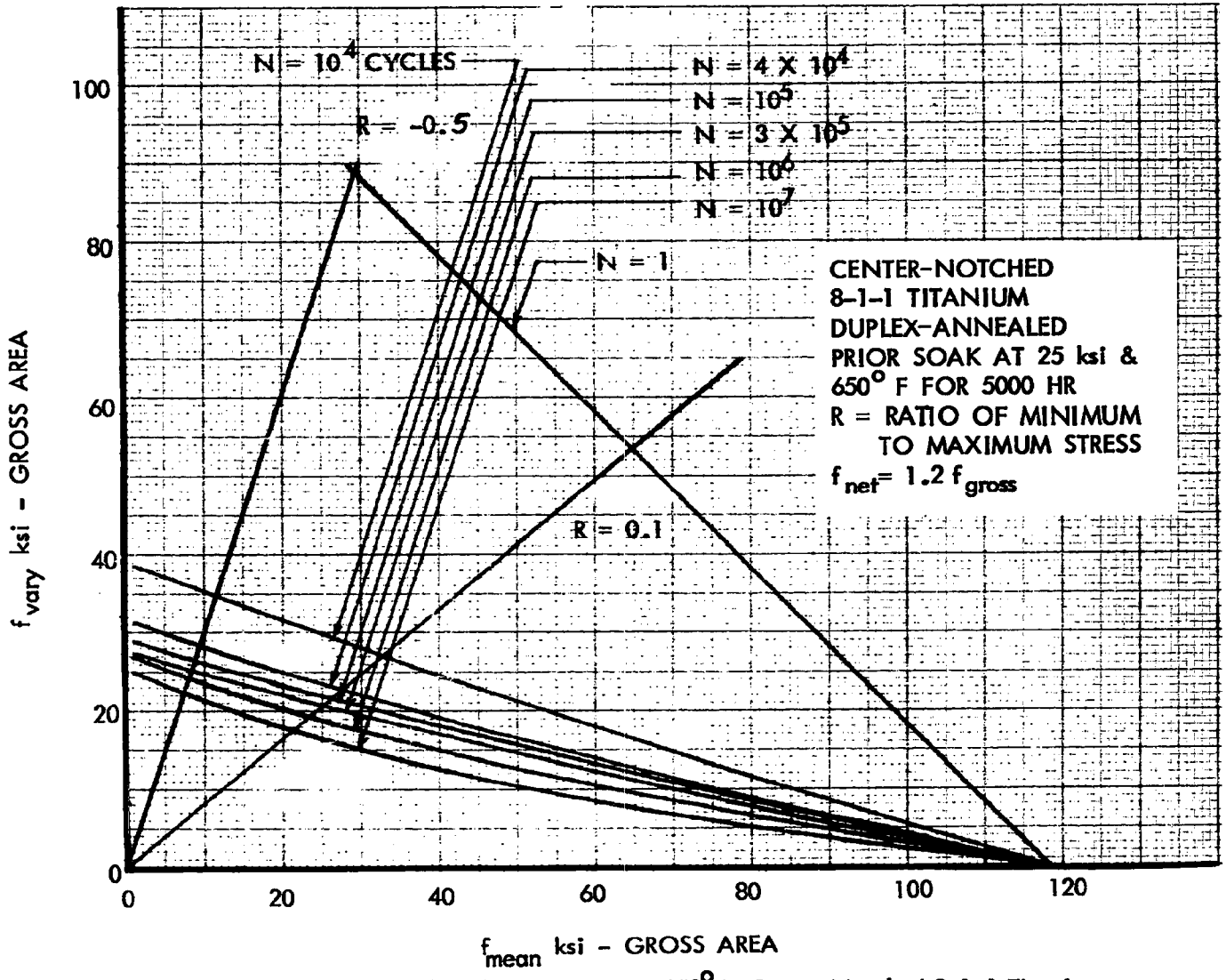



Figure 252. S-N Diagram at 650°F, Center-Notched 8-1-1 Titanium

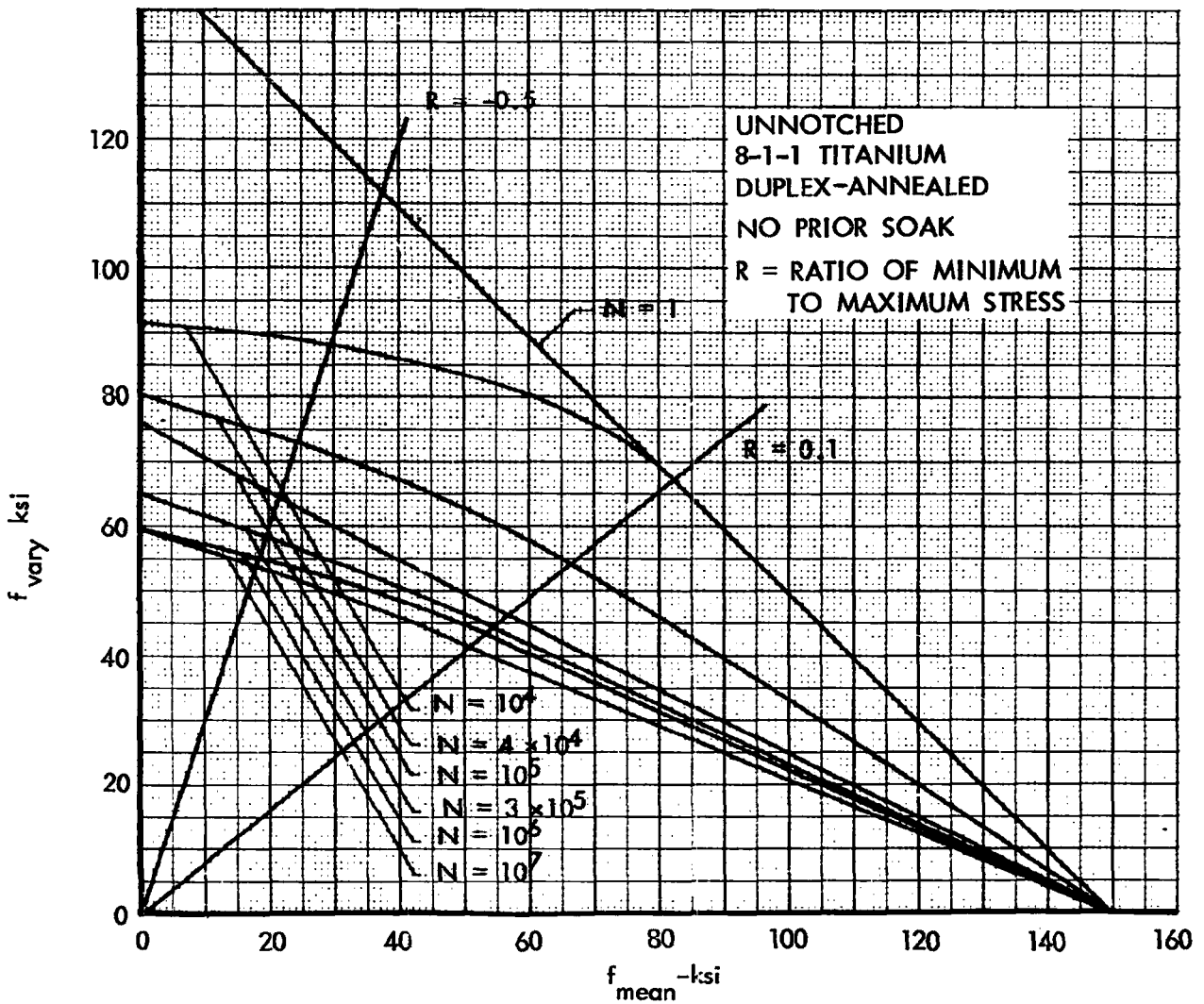



Figure 253. S-N Diagram at Room Temperature, Unnotched 8-1-1 Titanium

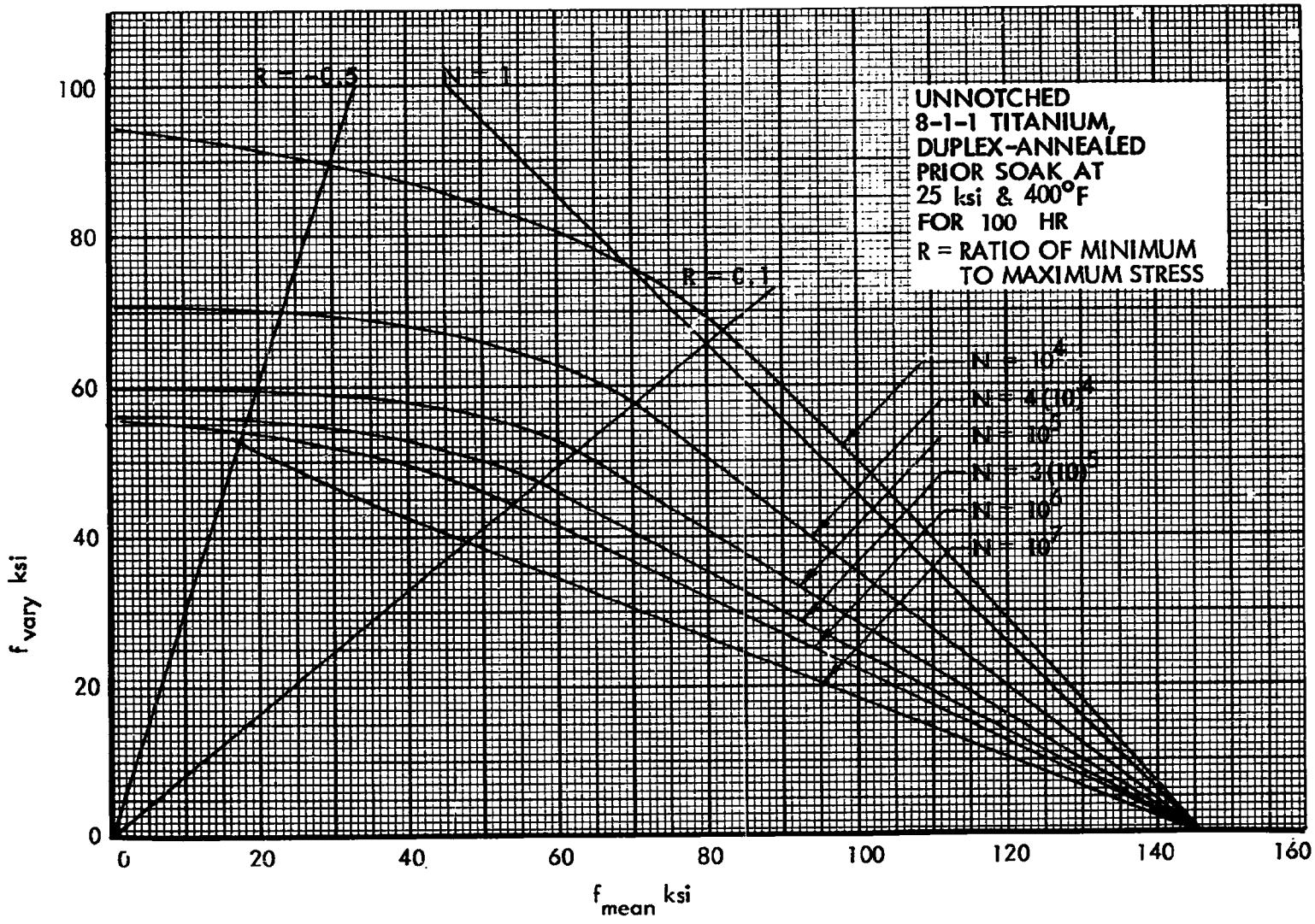



Figure 254. S-N Diagram at Room Temperature, Unnotched 8-1-1 Titanium

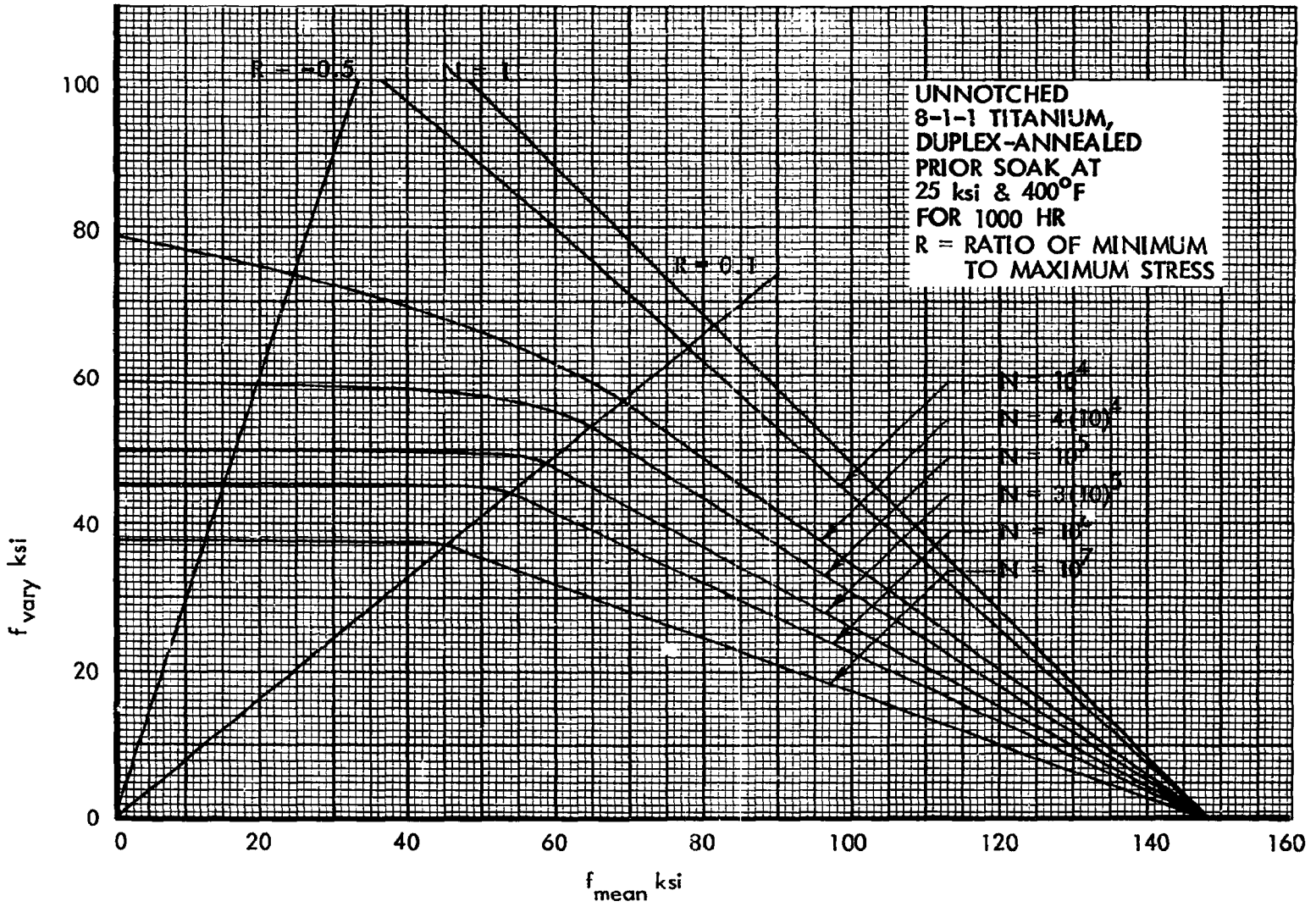



Figure 255. S-N Diagram at Room Temperature, Unnotched 8-1-1 Titanium

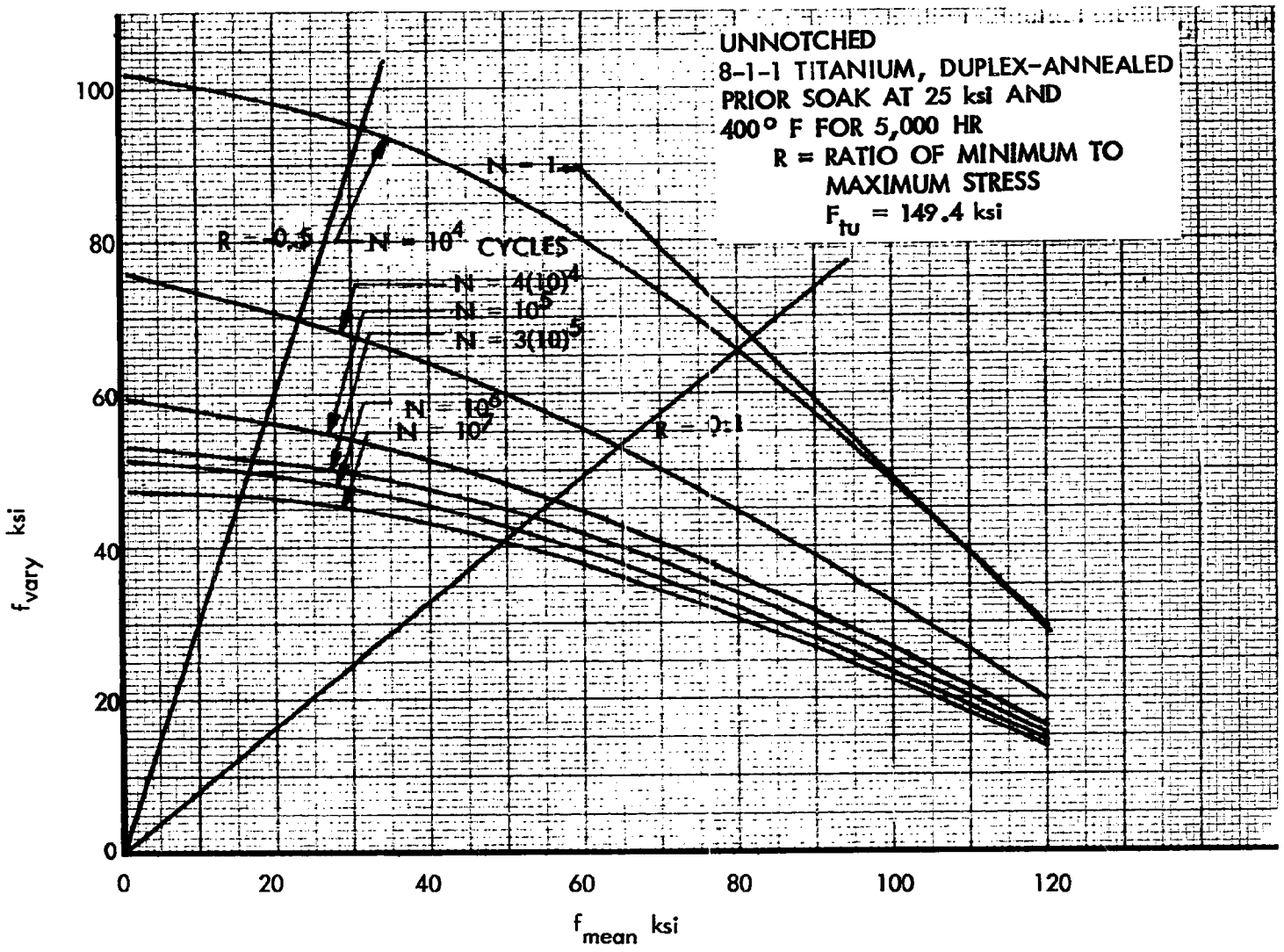



Figure 256. S-N Diagram at Room Temperature, Unnotched 8-1-1 Titanium

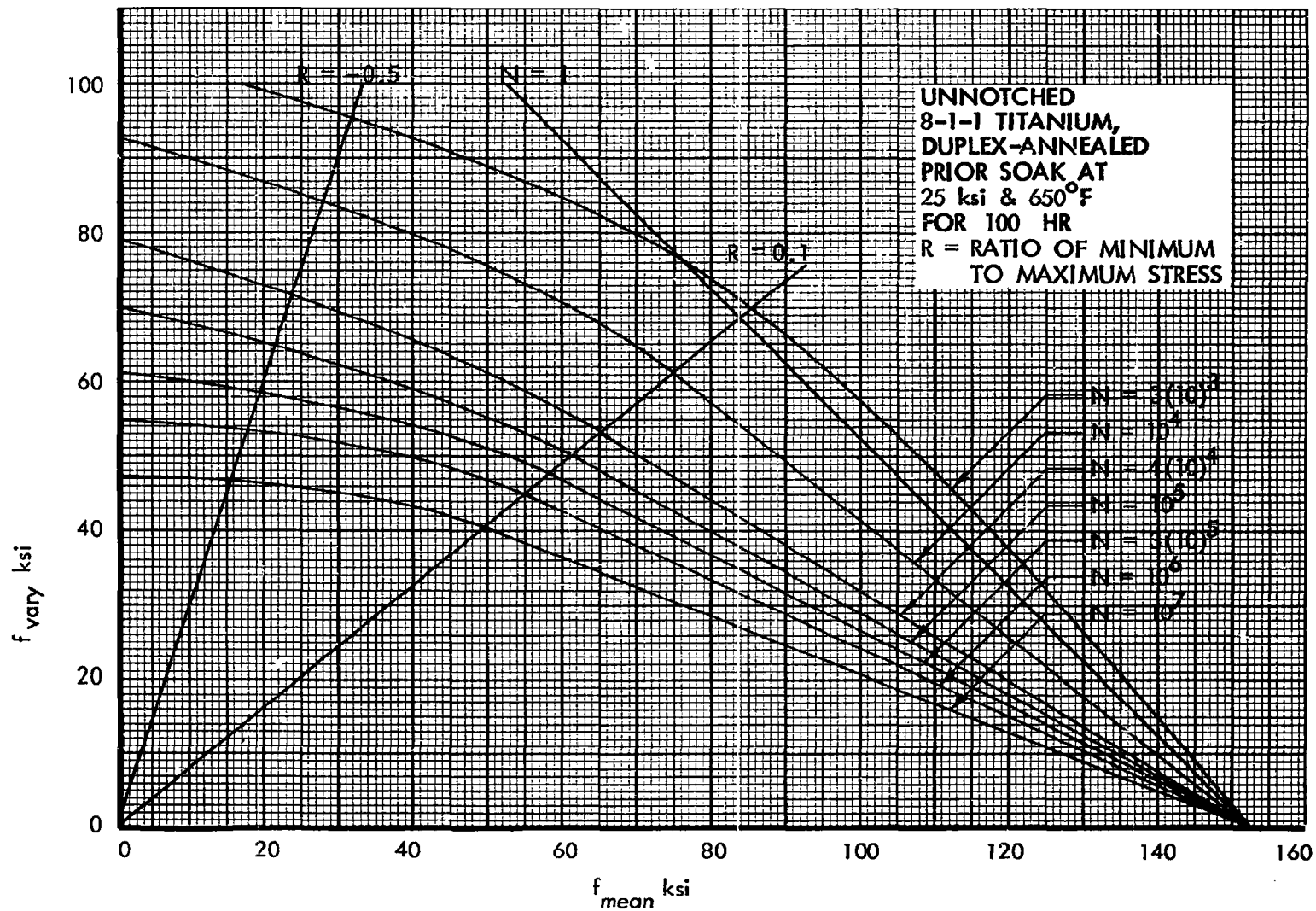



Figure 257. S-N Diagram at Room Temperature, Unnotched 8-1-1 Titanium

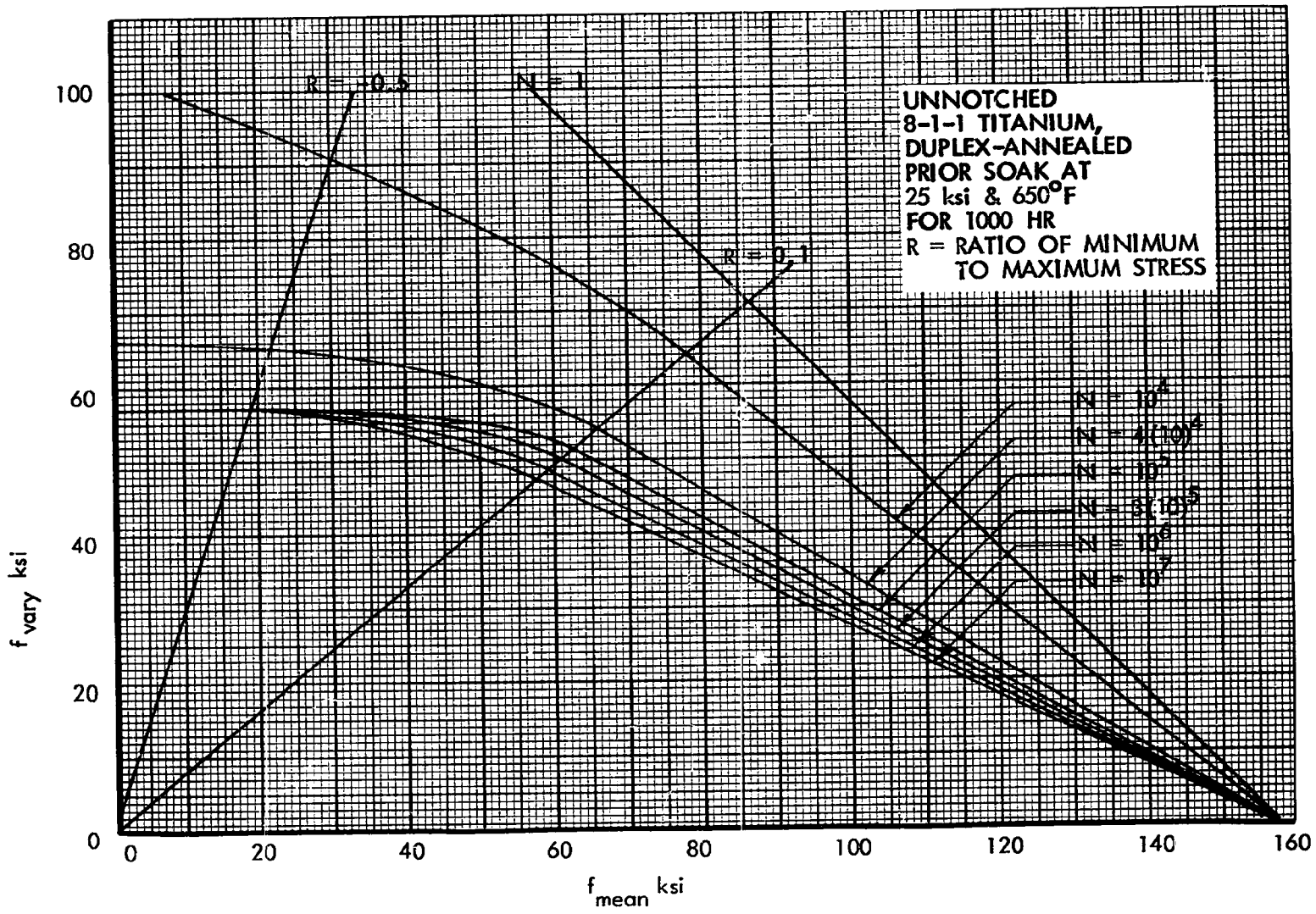



Figure 258. S-N Diagram at Room Temperature, Unnotched 8-1-1 Titanium

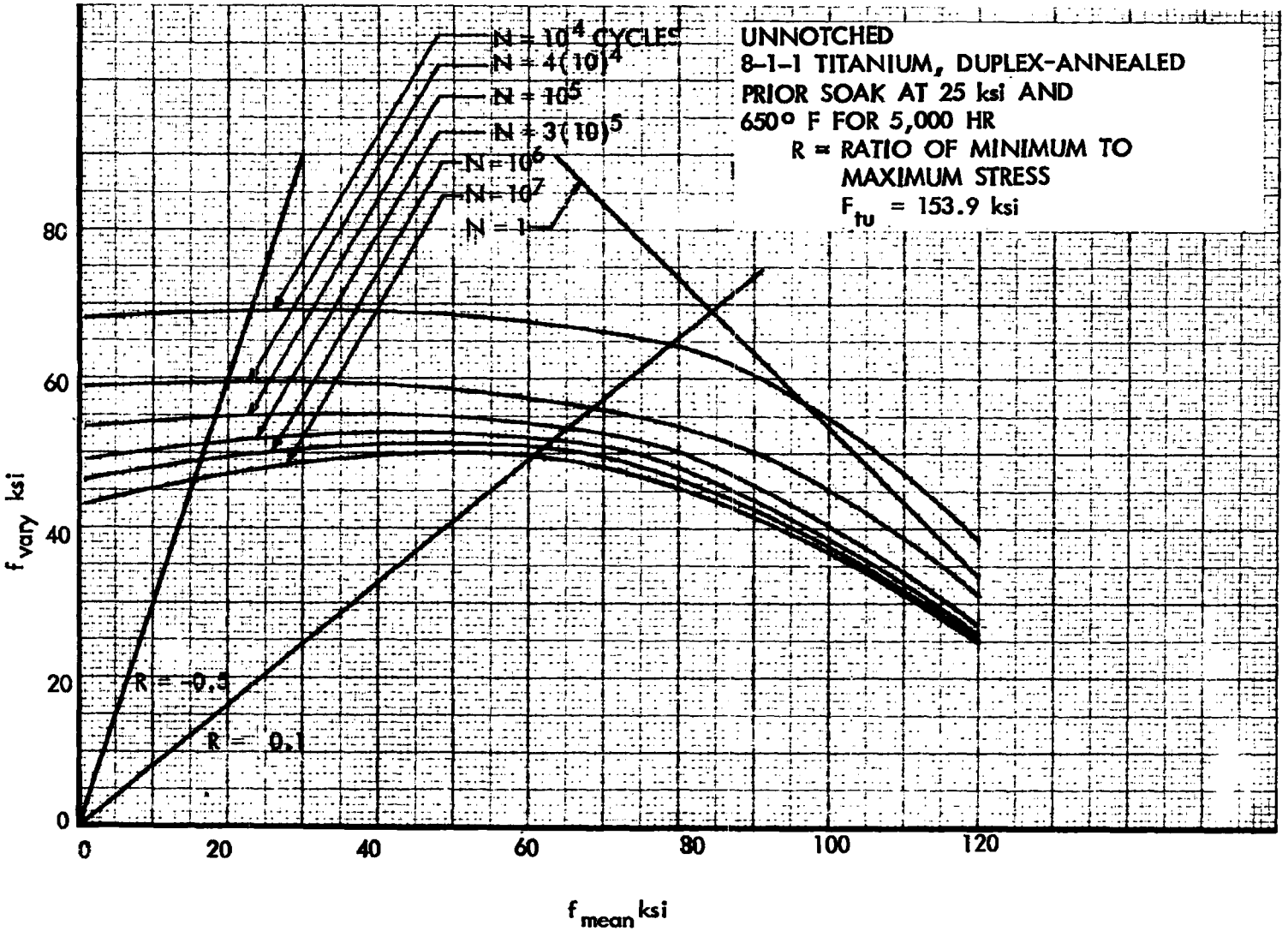



Figure 259. S-N Diagram at Room Temperature, Unnotched 8-1-1 Titanium

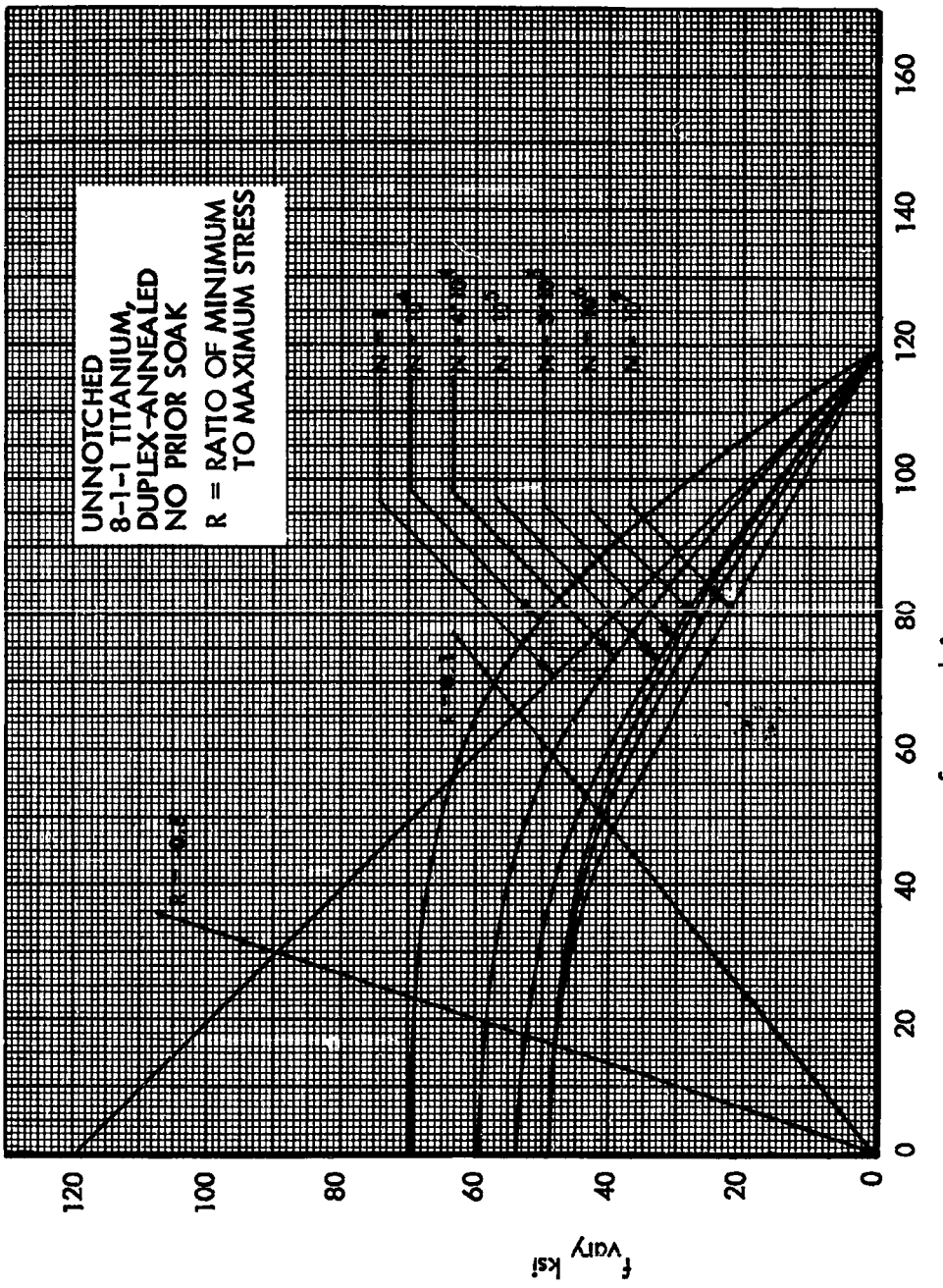



Figure 260. S-N Diagram at 400°F, Unnotched 8-1-1 Titanium

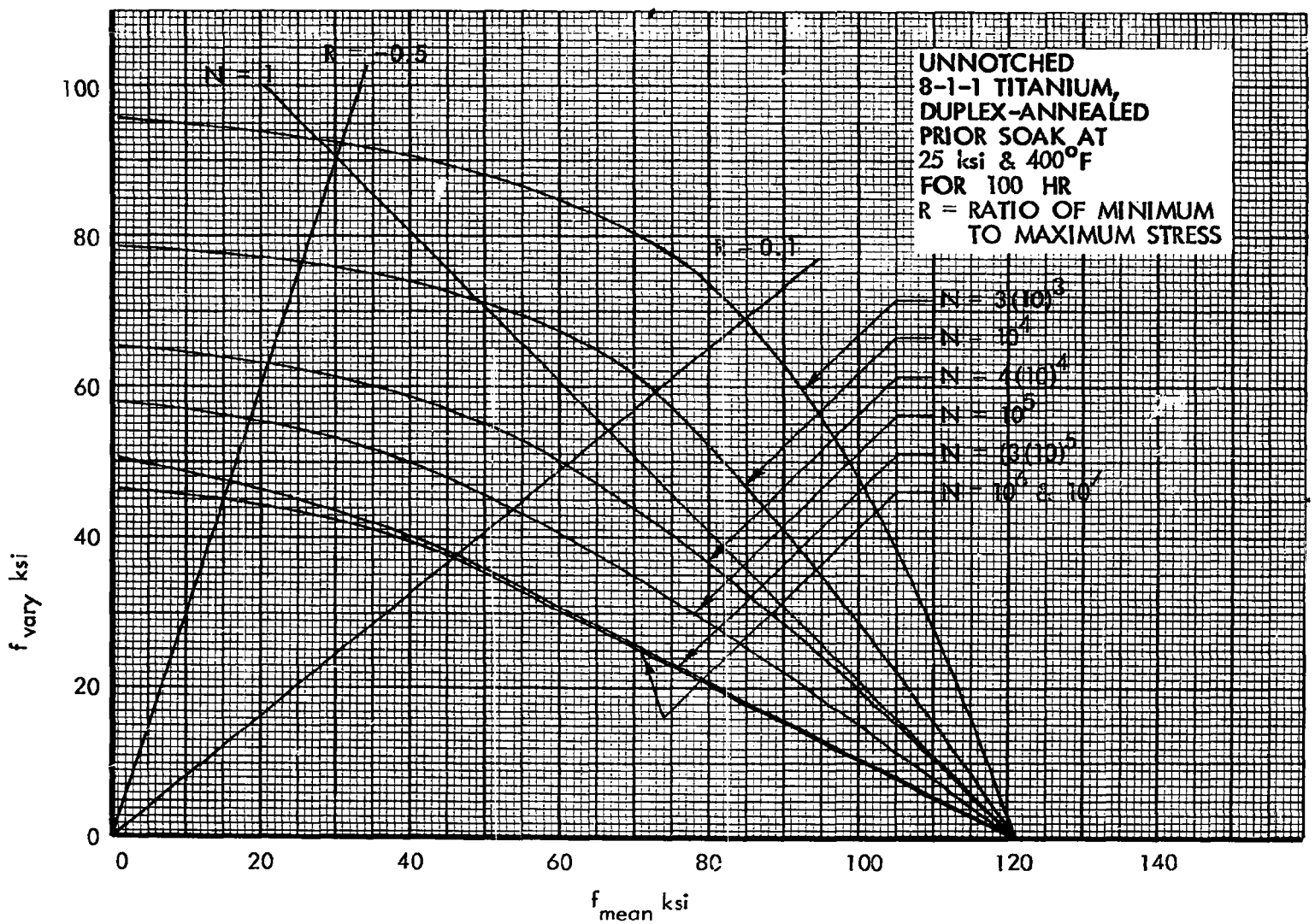



Figure 261. S-N Diagram at 400°F, Unnotched 8-1-1 Titanium

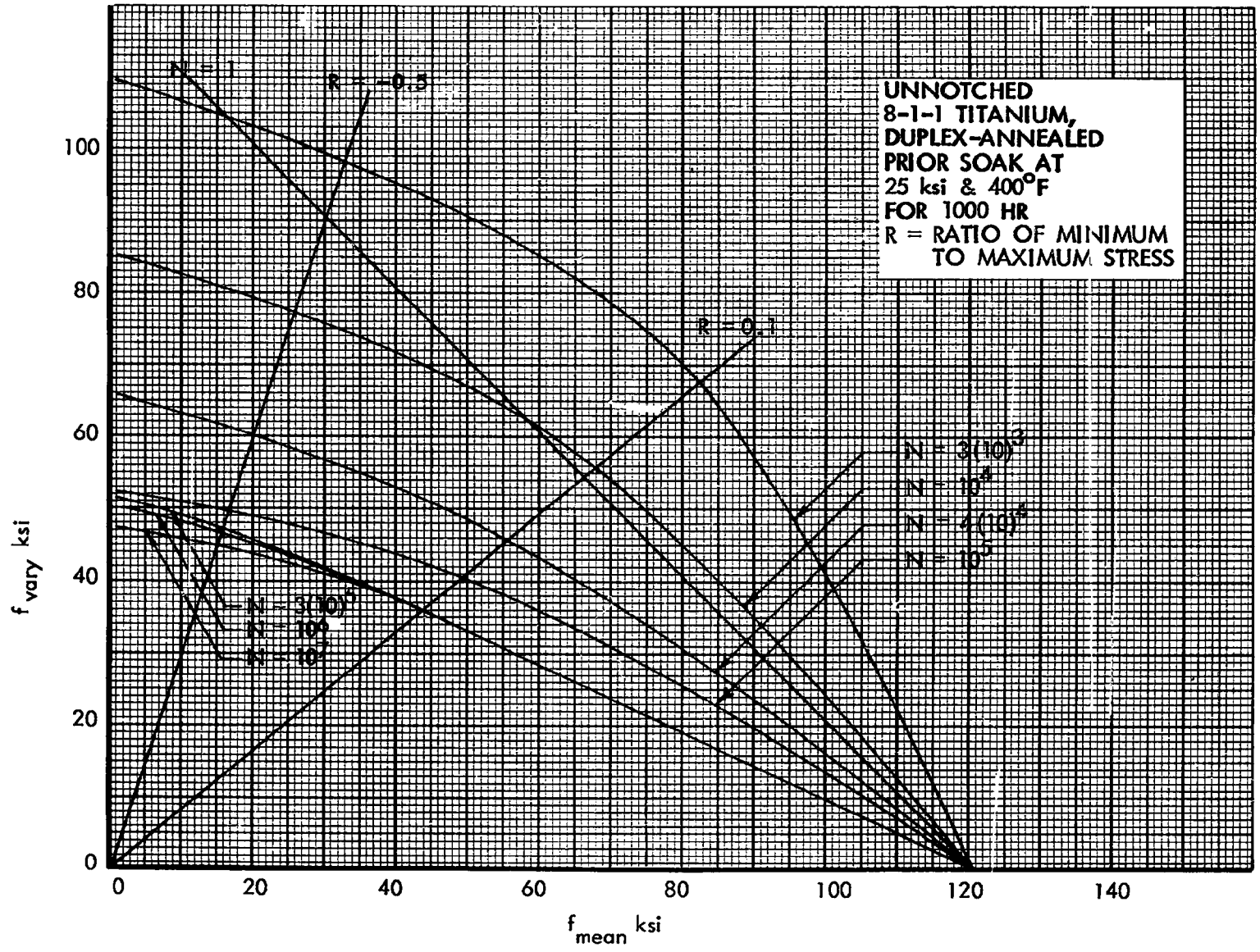



Figure 262. S-N Diagram at 400°F, Unnotched 8-1-1 Titanium

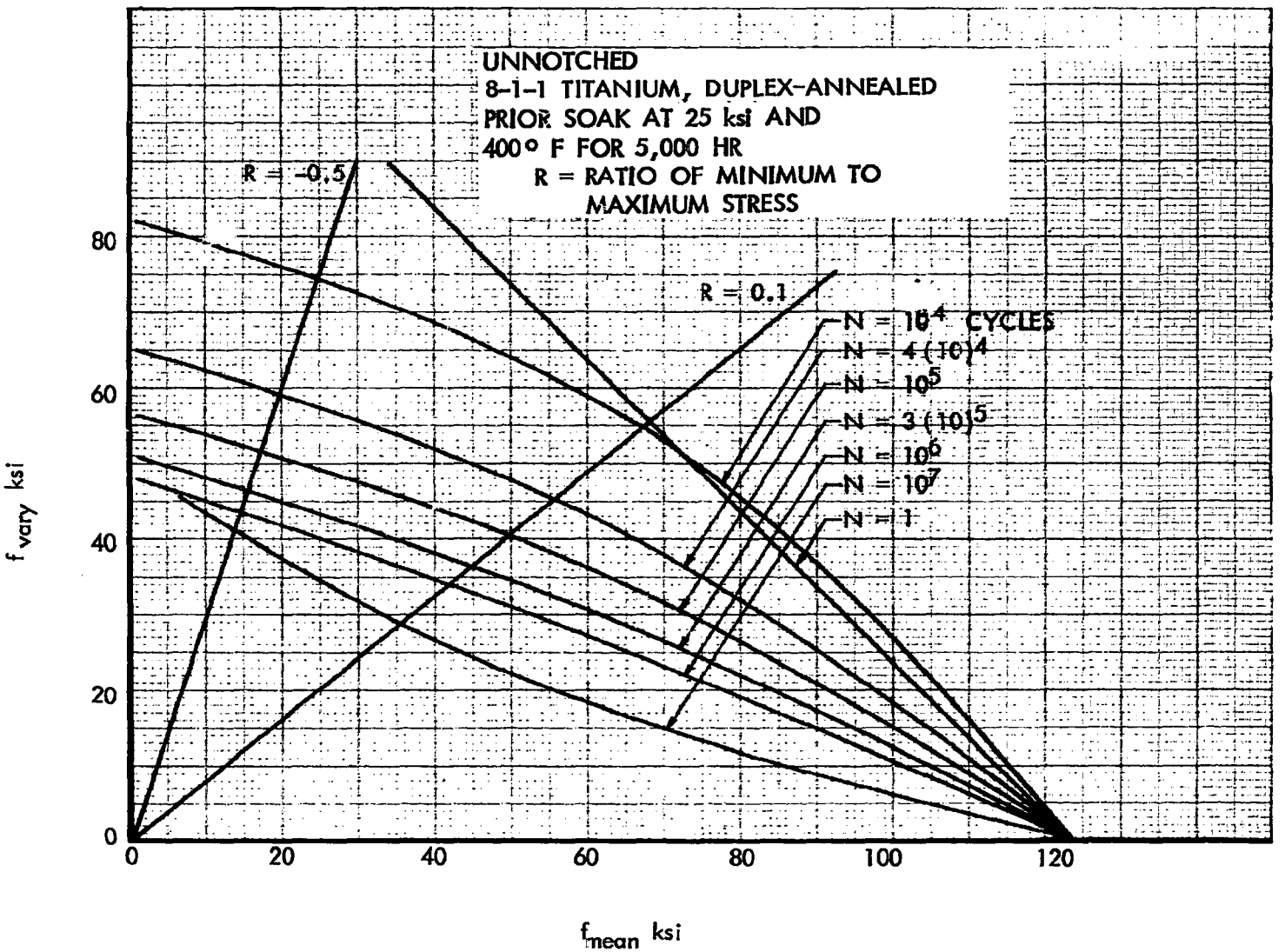



Figure 263. S-N Diagram at 400°F, Unnotched 8-1-1 Titanium

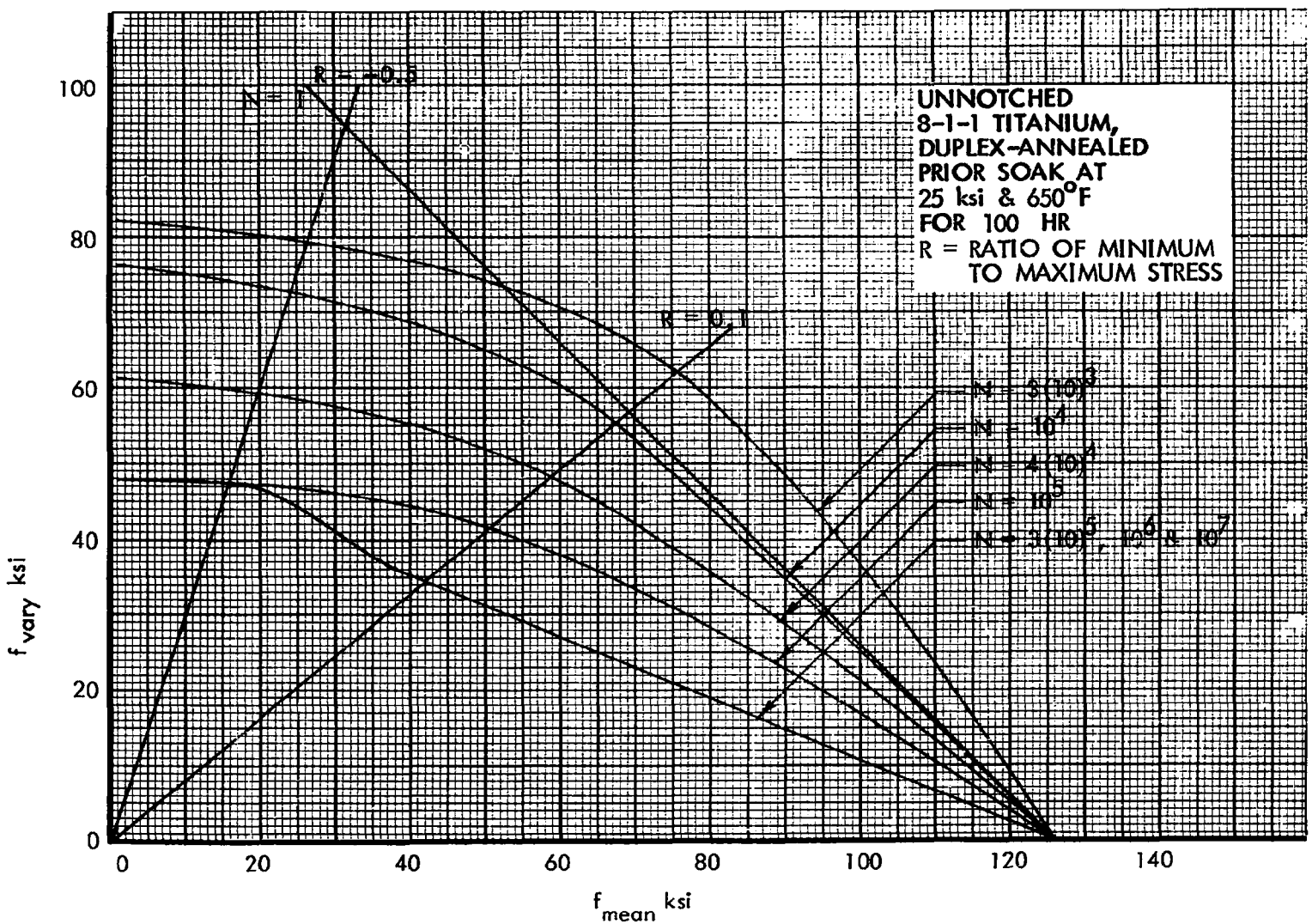



Figure 264. S-N Diagram at 400°F, Unnotched 8-1-1 Titanium

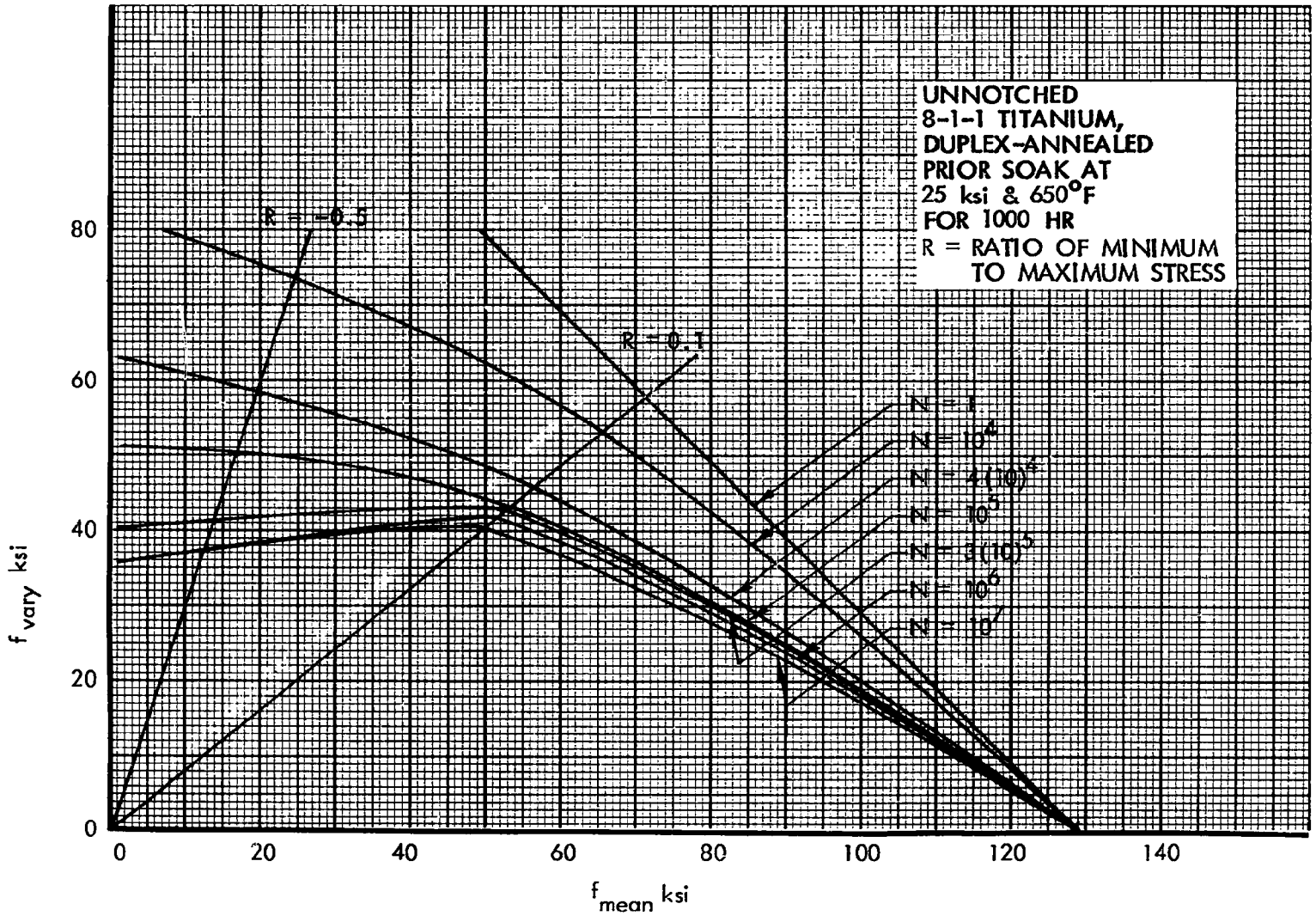



Figure 265. S-N Diagram at 400°F, Unnotched 8-1-1 Titanium

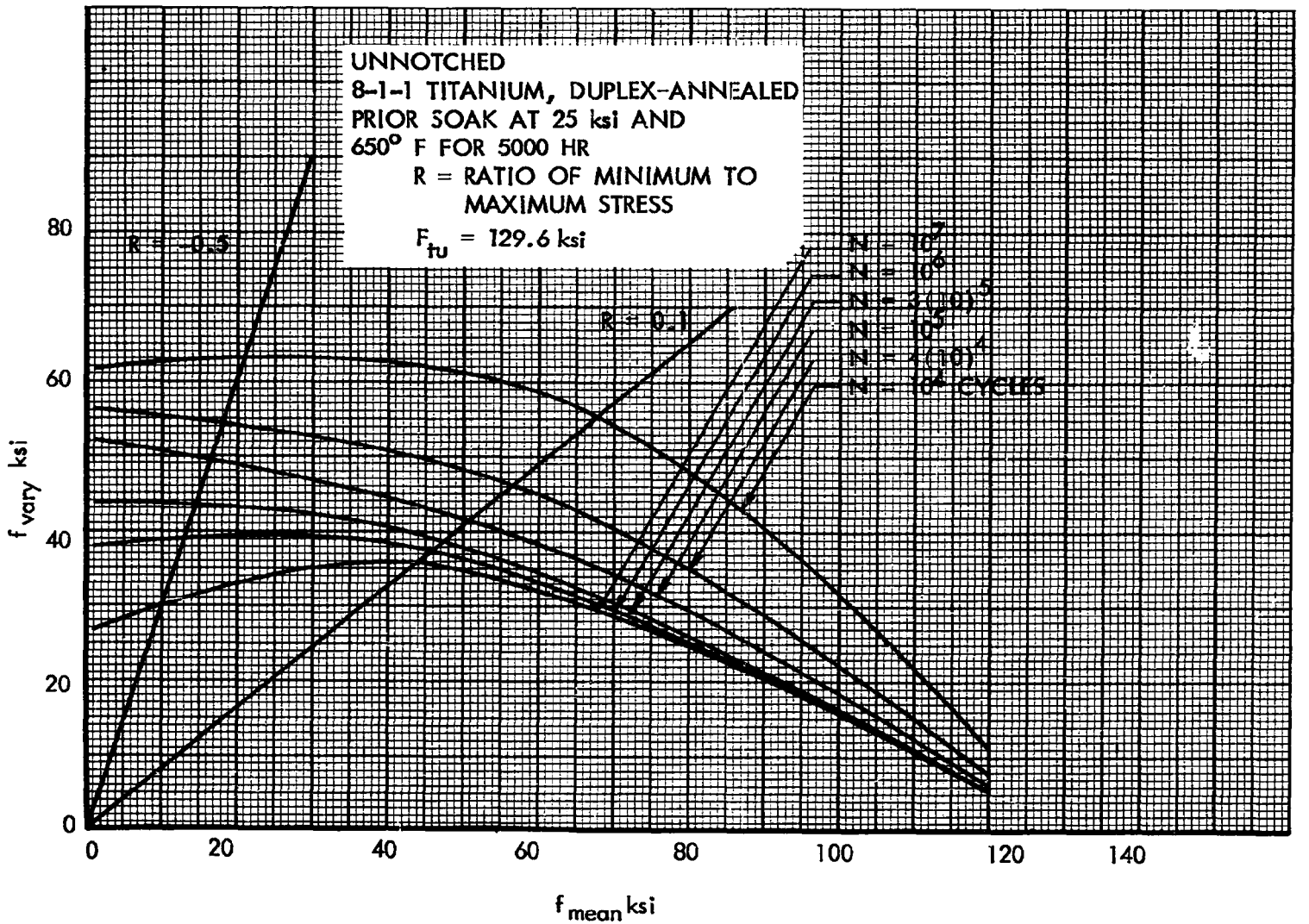



Figure 266. S-N Diagram at 400°F, Unnotched 8-1-1 Titanium

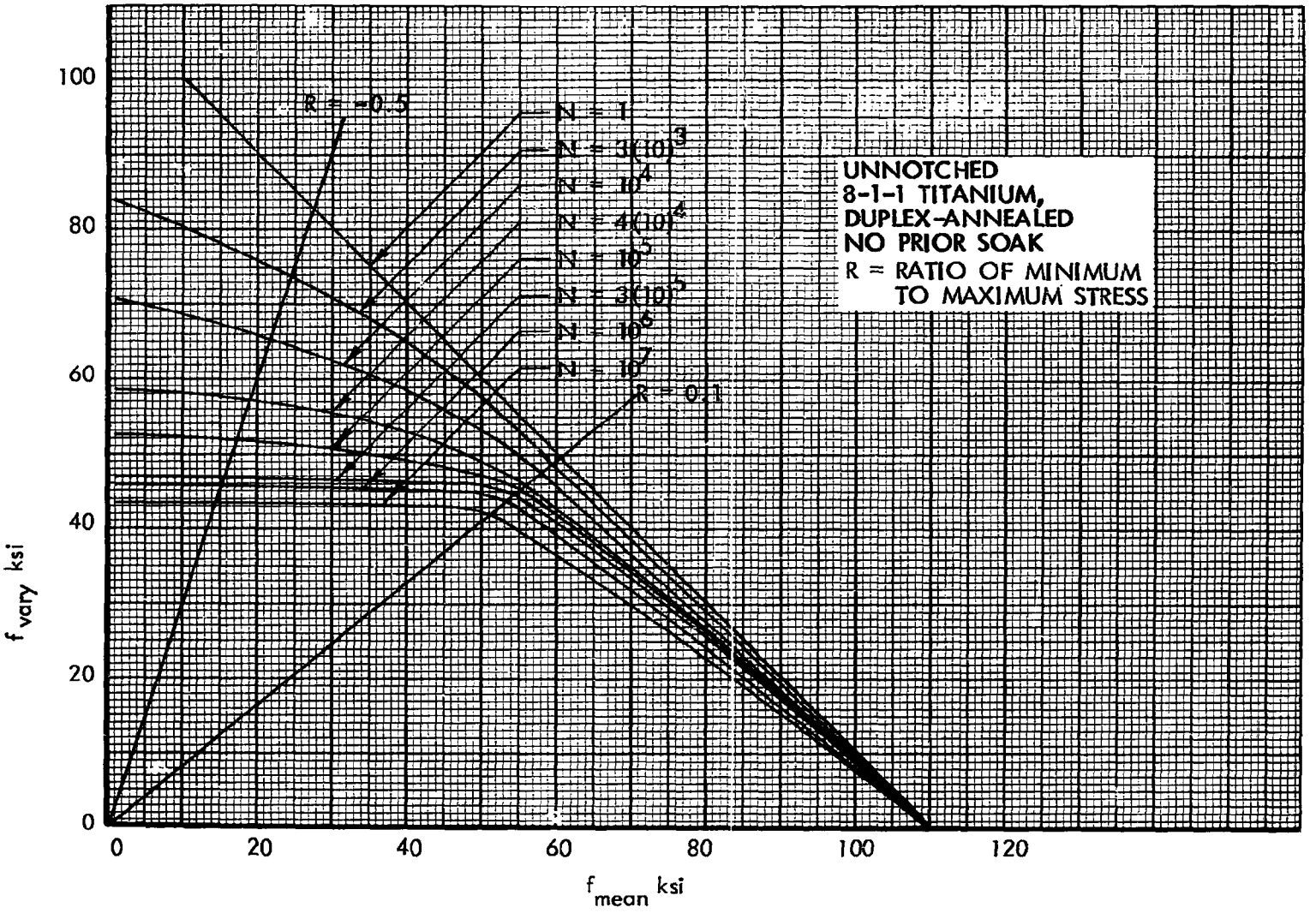



Figure 267. S-N Diagram at 650°F, Unnotched 8-1-1 Titanium

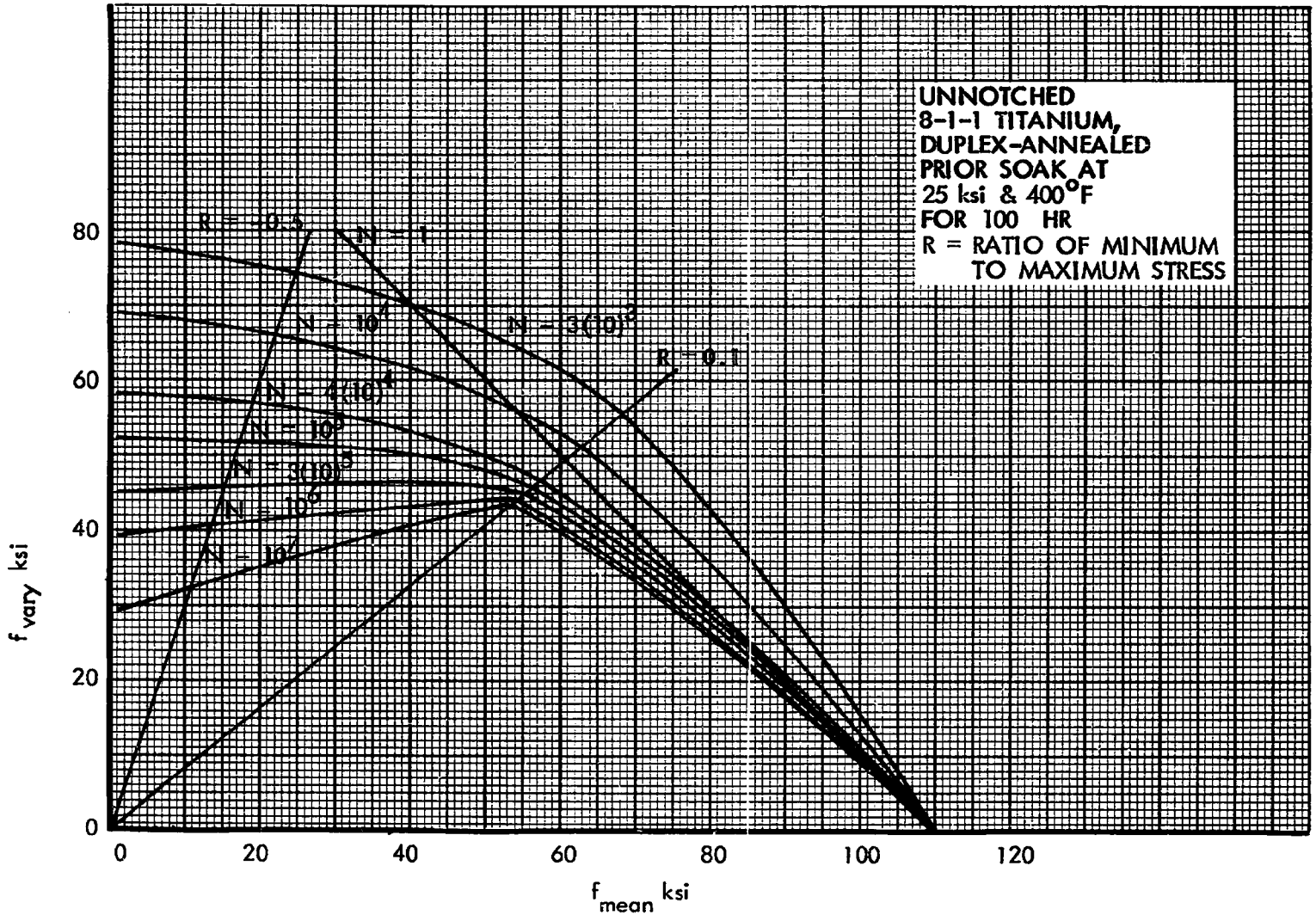



Figure 268. S-N Diagram at 650°F, Unnotched 8-1-1 Titanium

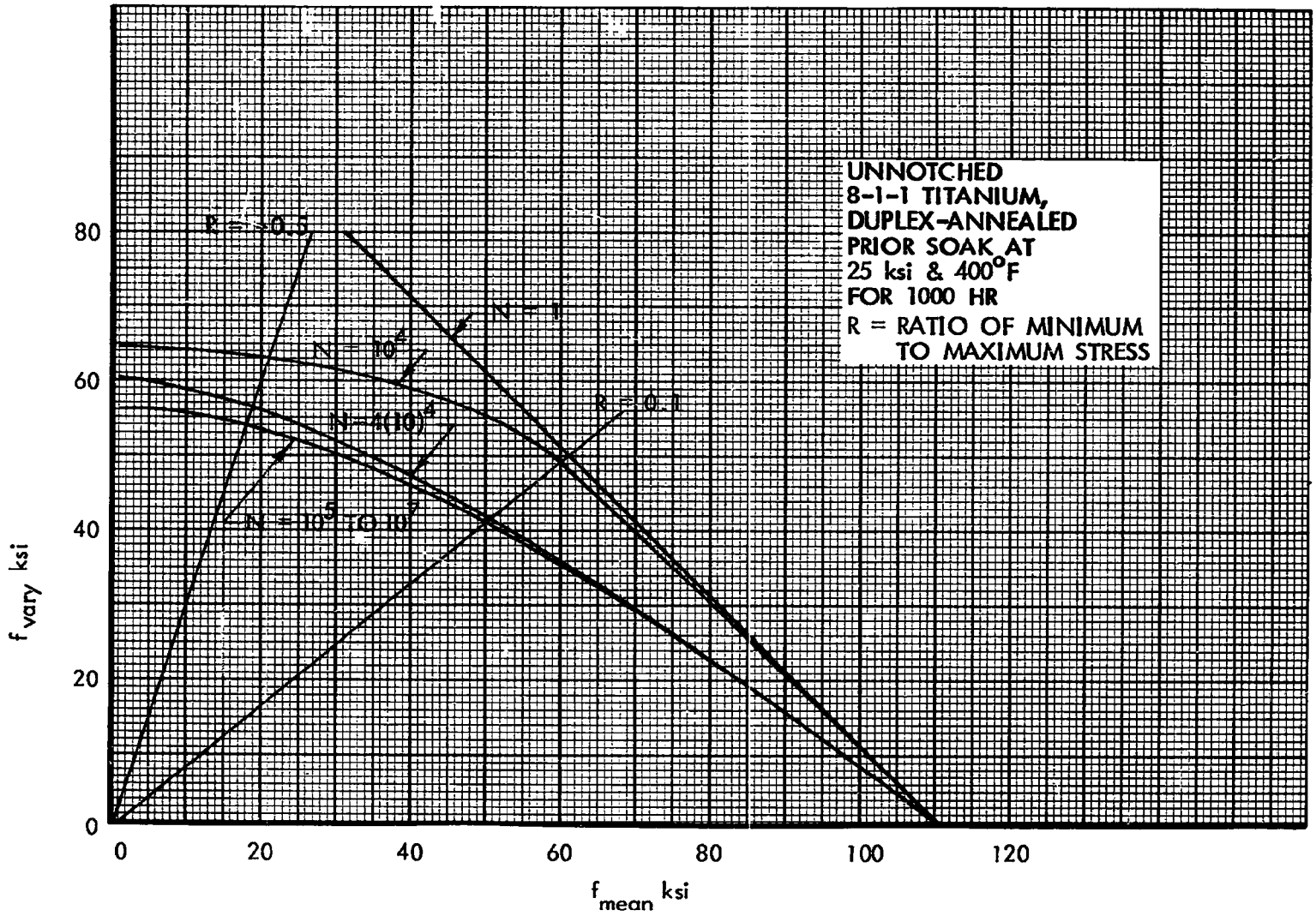



Figure 269. S-N Diagram at 650°F, Unnotched 8-1-1 Titanium

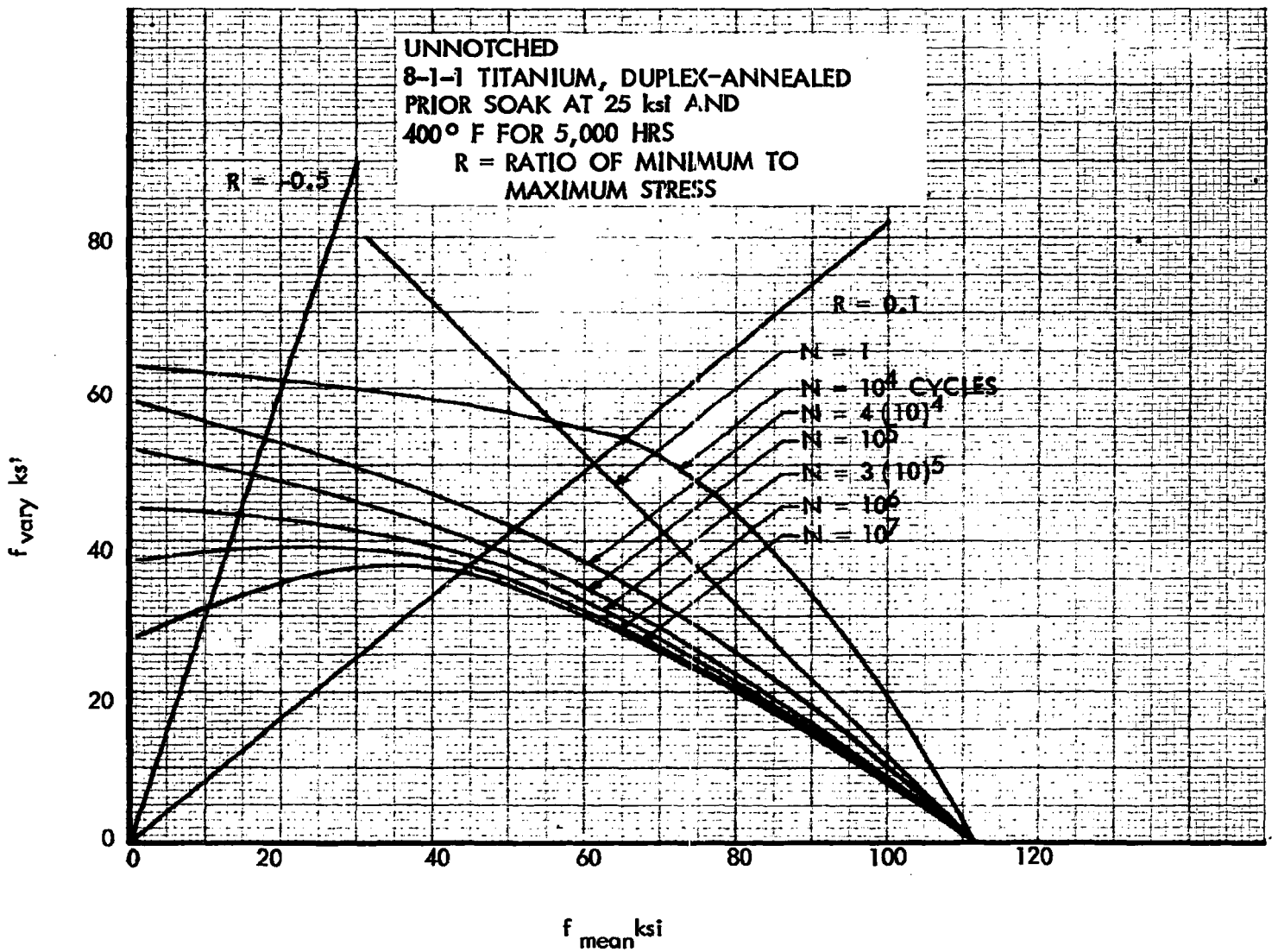



Figure 270. S-N Diagram at 650°F, Unnotched 8-1-1 Titanium

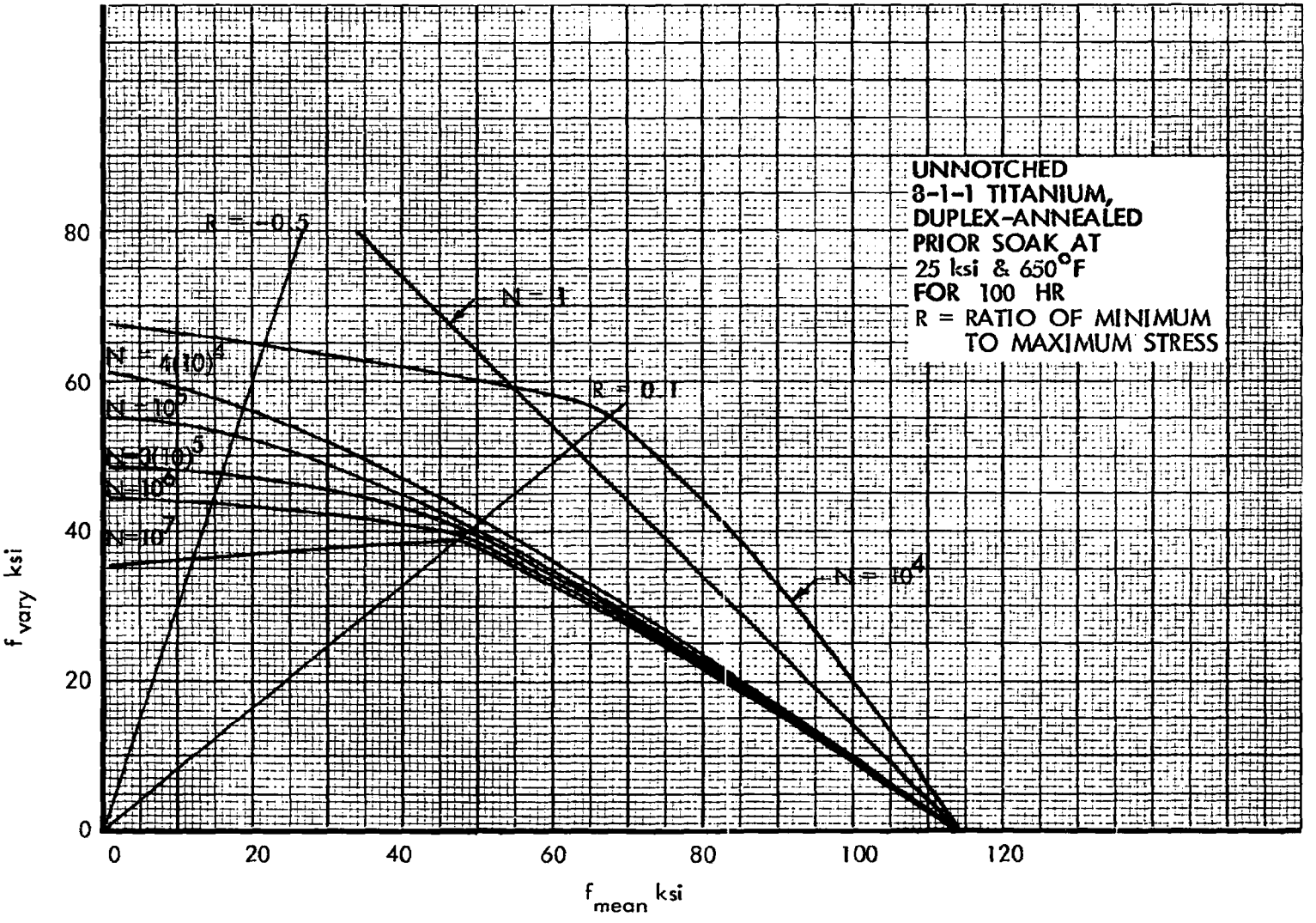



Figure 271. S-N Diagram at 650°F, Unnotched 8-1-1 Titanium

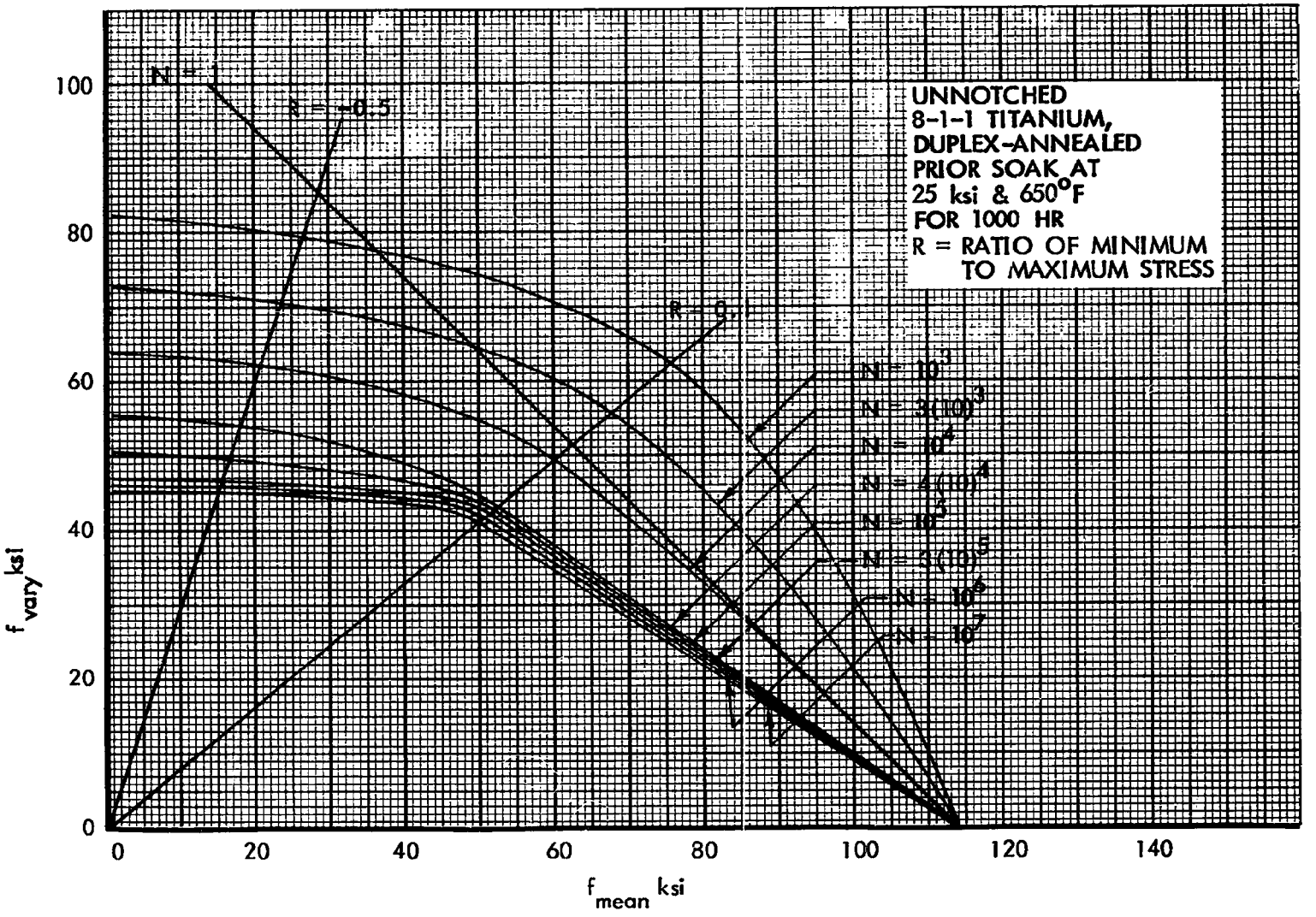



Figure 272. S-N Diagram at 650°F, Unnotched 8-1-1 Titanium

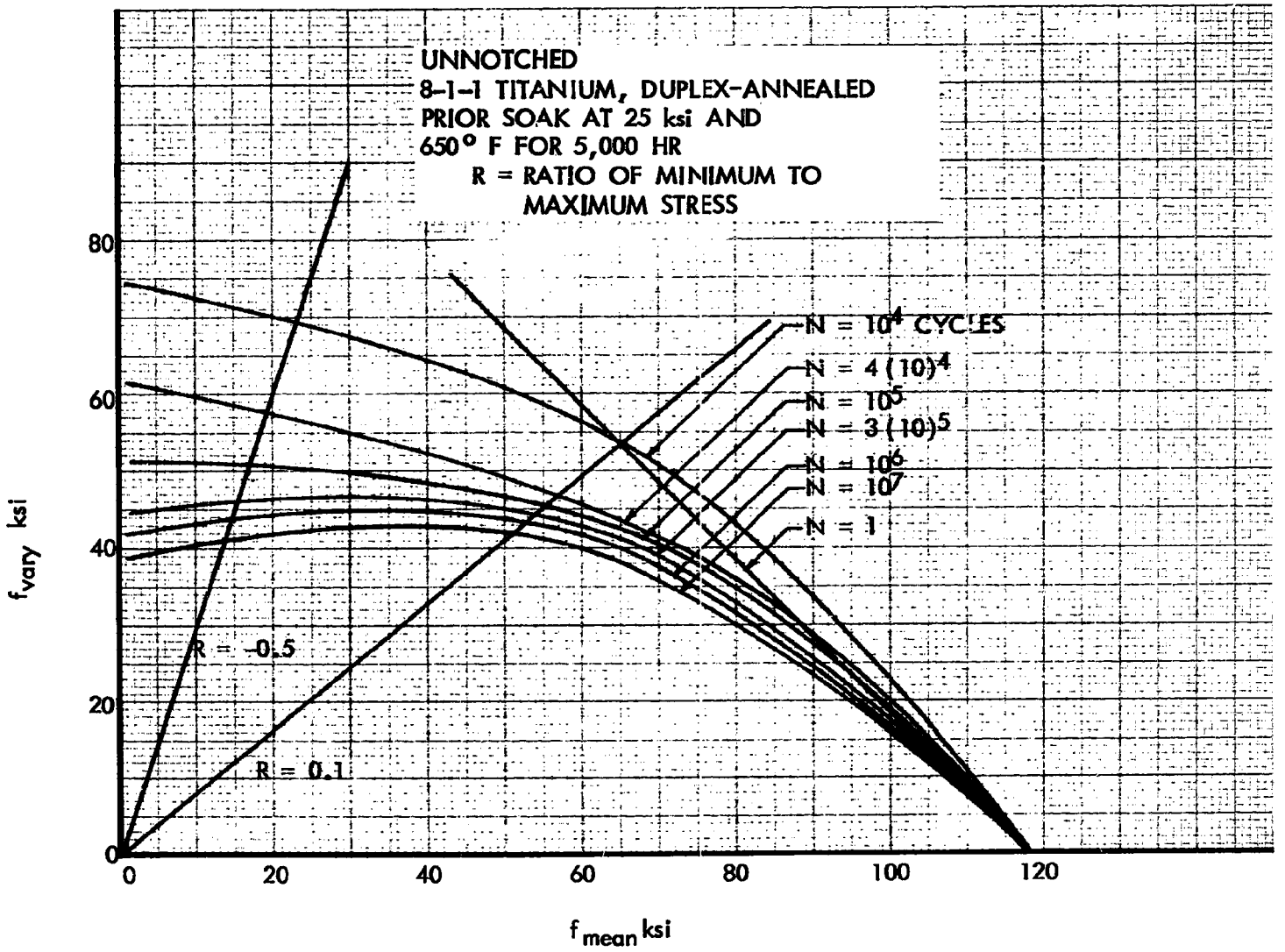



Figure 273. S-N Diagram at 650°F, Unnotched 8-1-1 Titanium

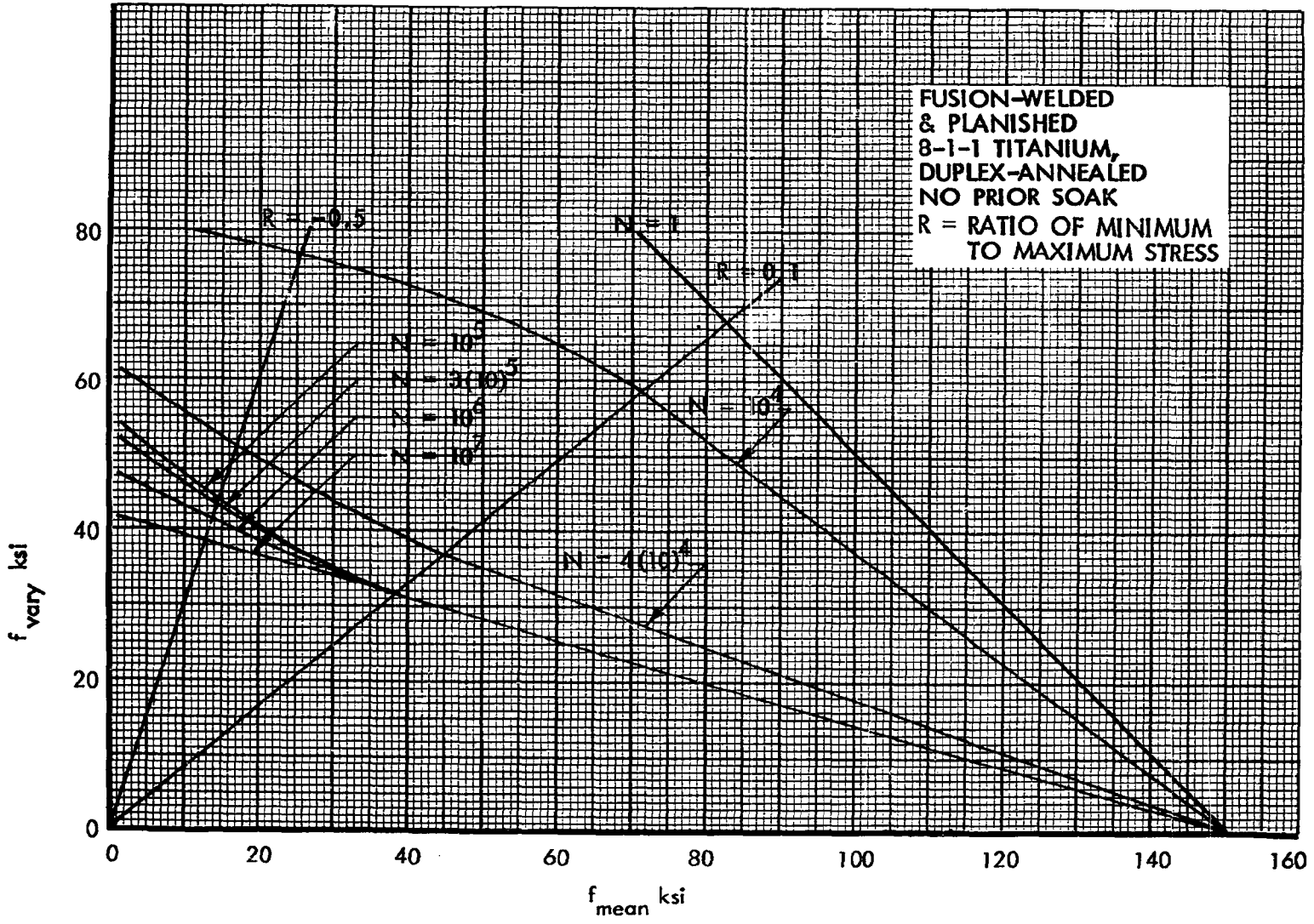



Figure 274. S-N Diagram at Room Temperature, Fusion-Welded 8-1-1 Titanium

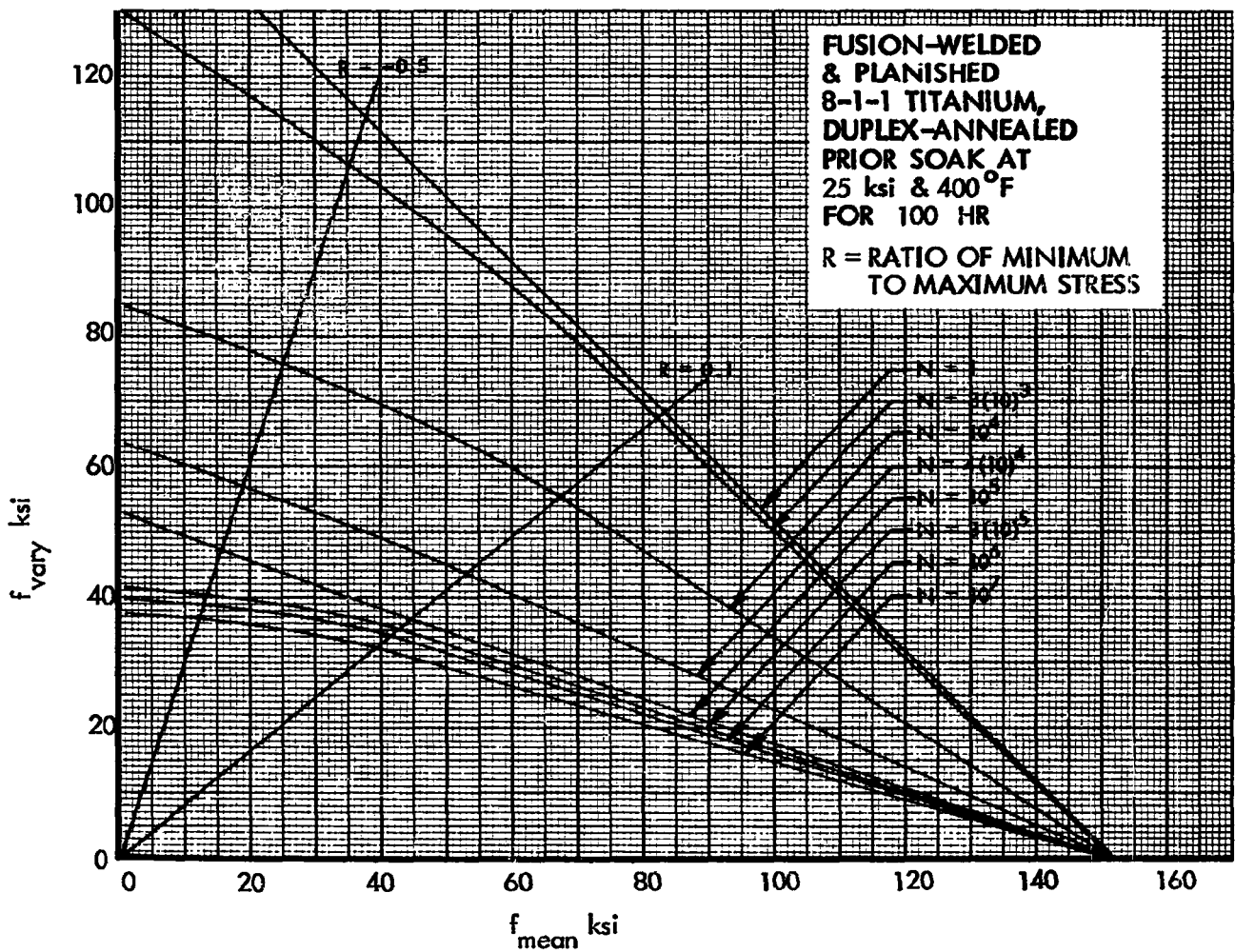



Figure 275. S-N Diagram at Room Temperature, Fusion-Welded 8-1-1 Titanium

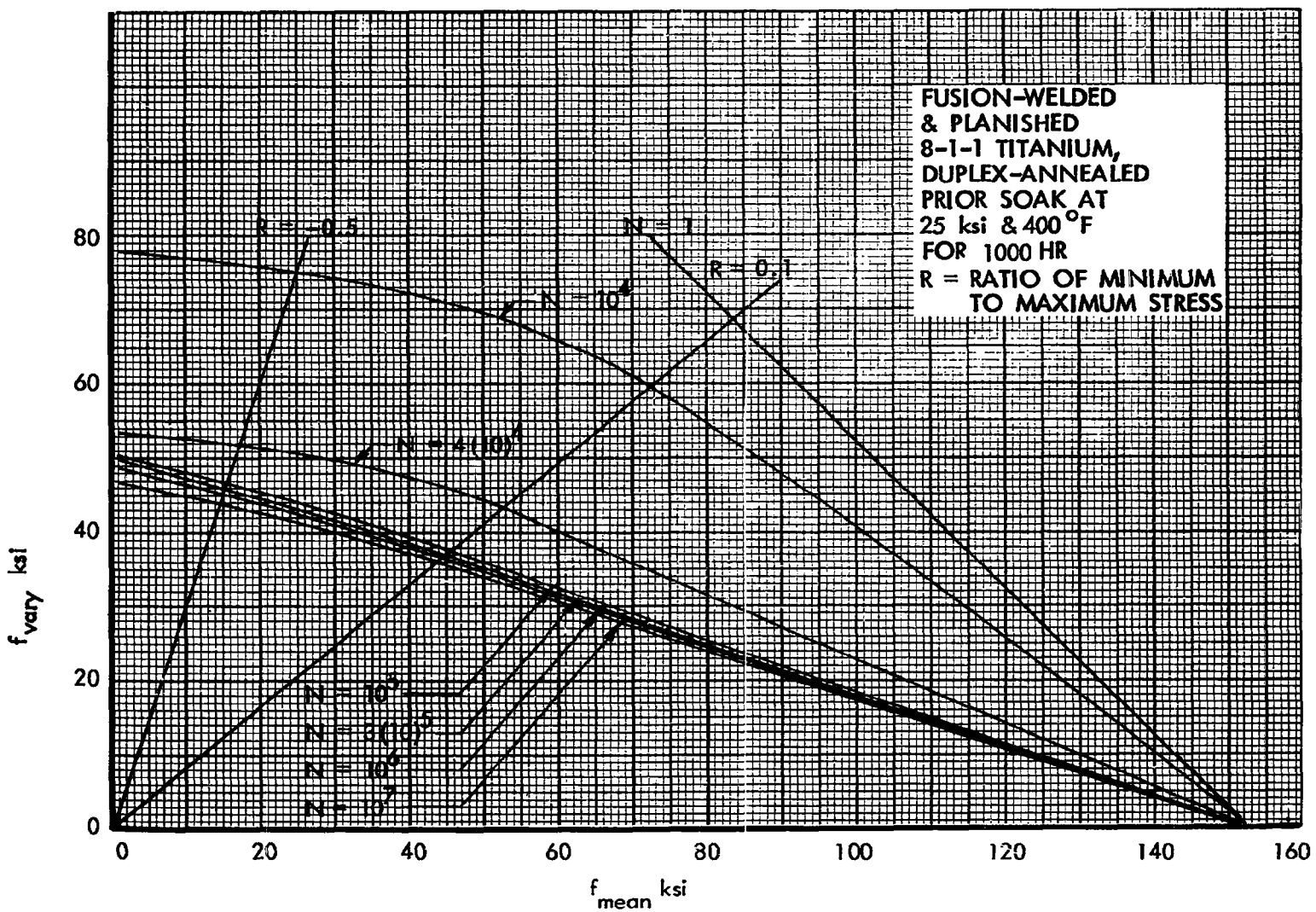



Figure 276. S-N Diagram at Room Temperature, Fusion-Welded 8-1-1 Titanium

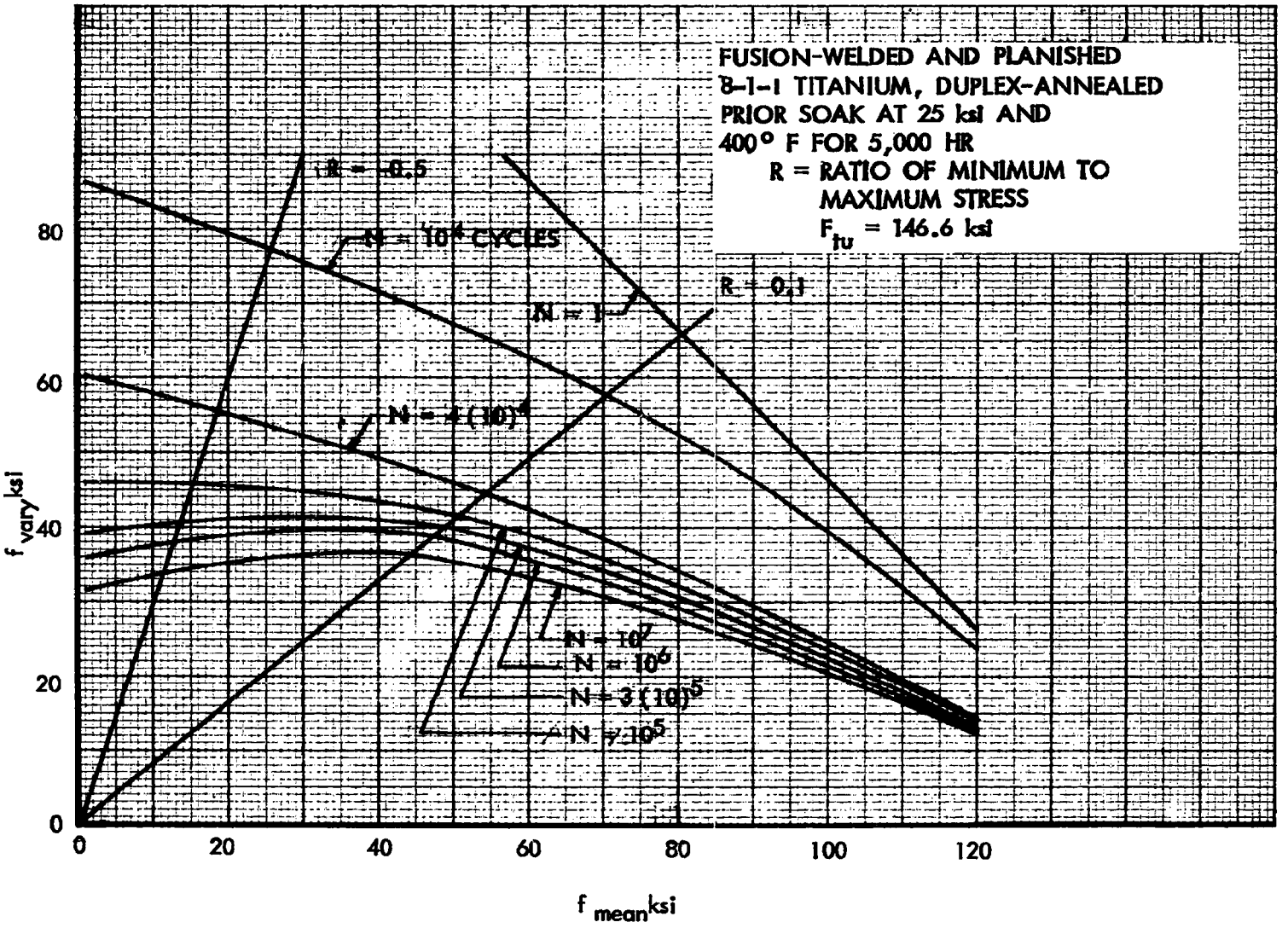



Figure 277. S-N Diagram at Room Temperature, Fusion-Welded 8-1-1 Titanium

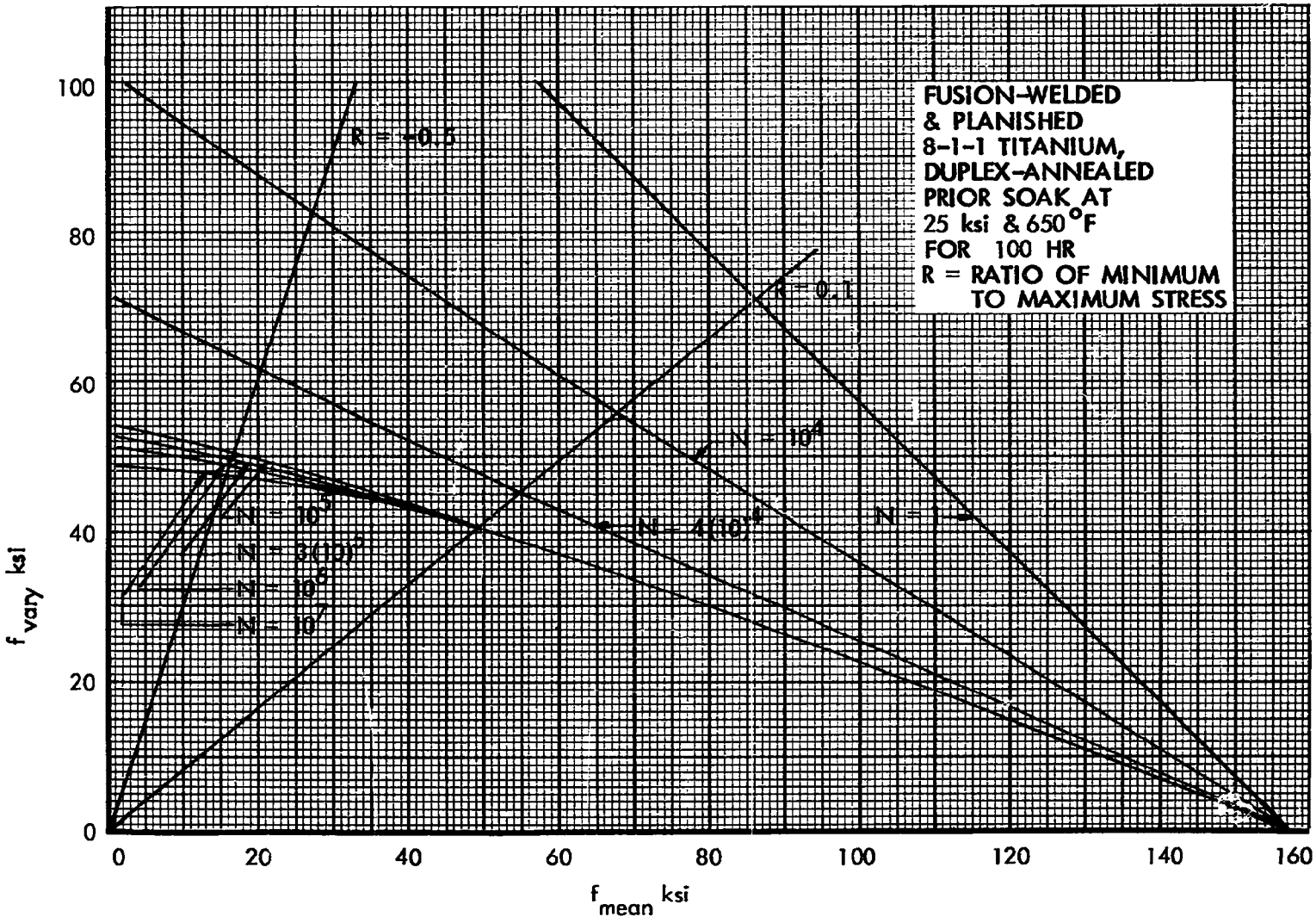



Figure 278. S-N Diagram at Room Temperature, Fusion-Welded 8-1-1 Titanium

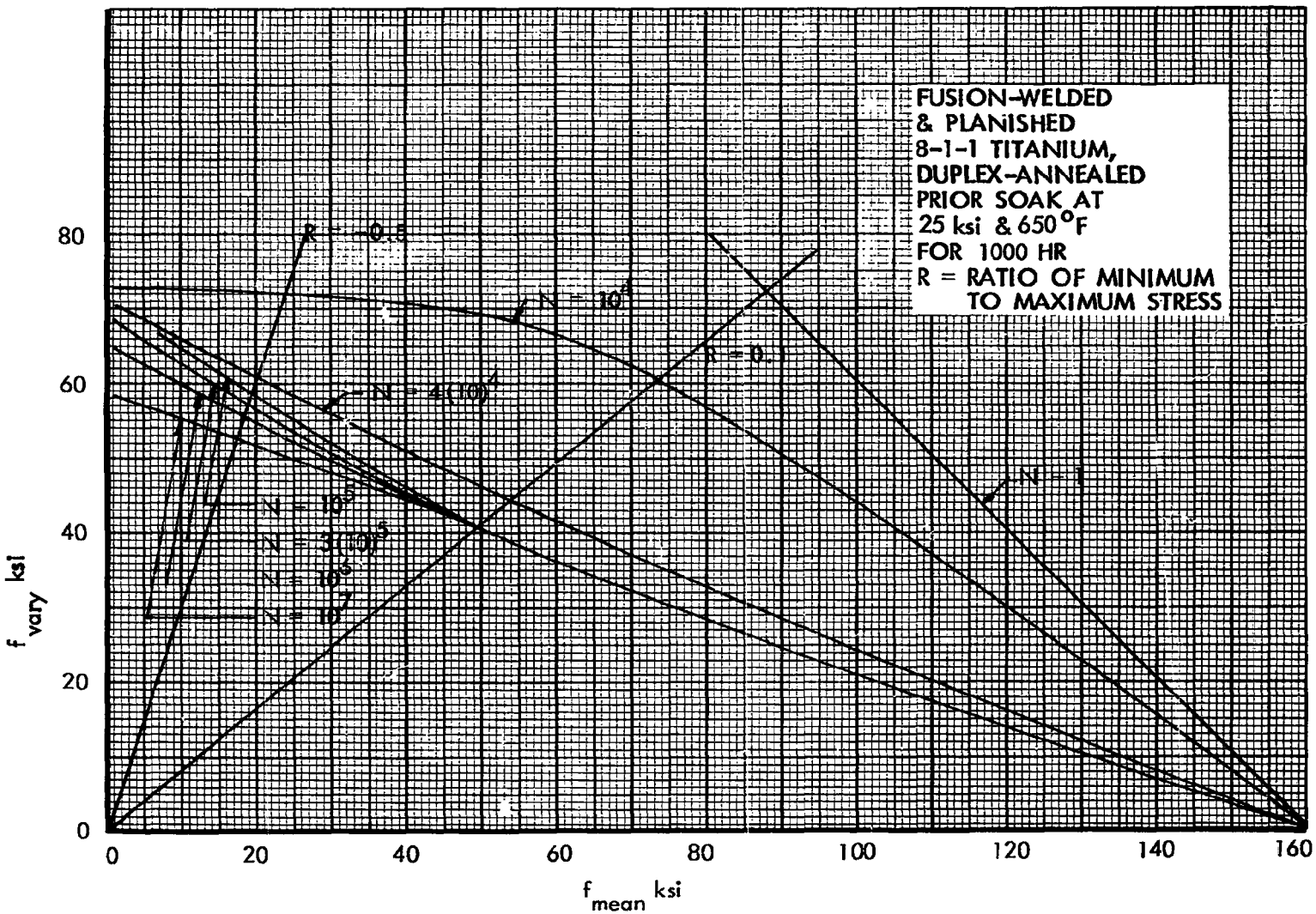



Figure 279. S-N Diagram at Room Temperature, Fusion-Welded 8-1-1 Titanium

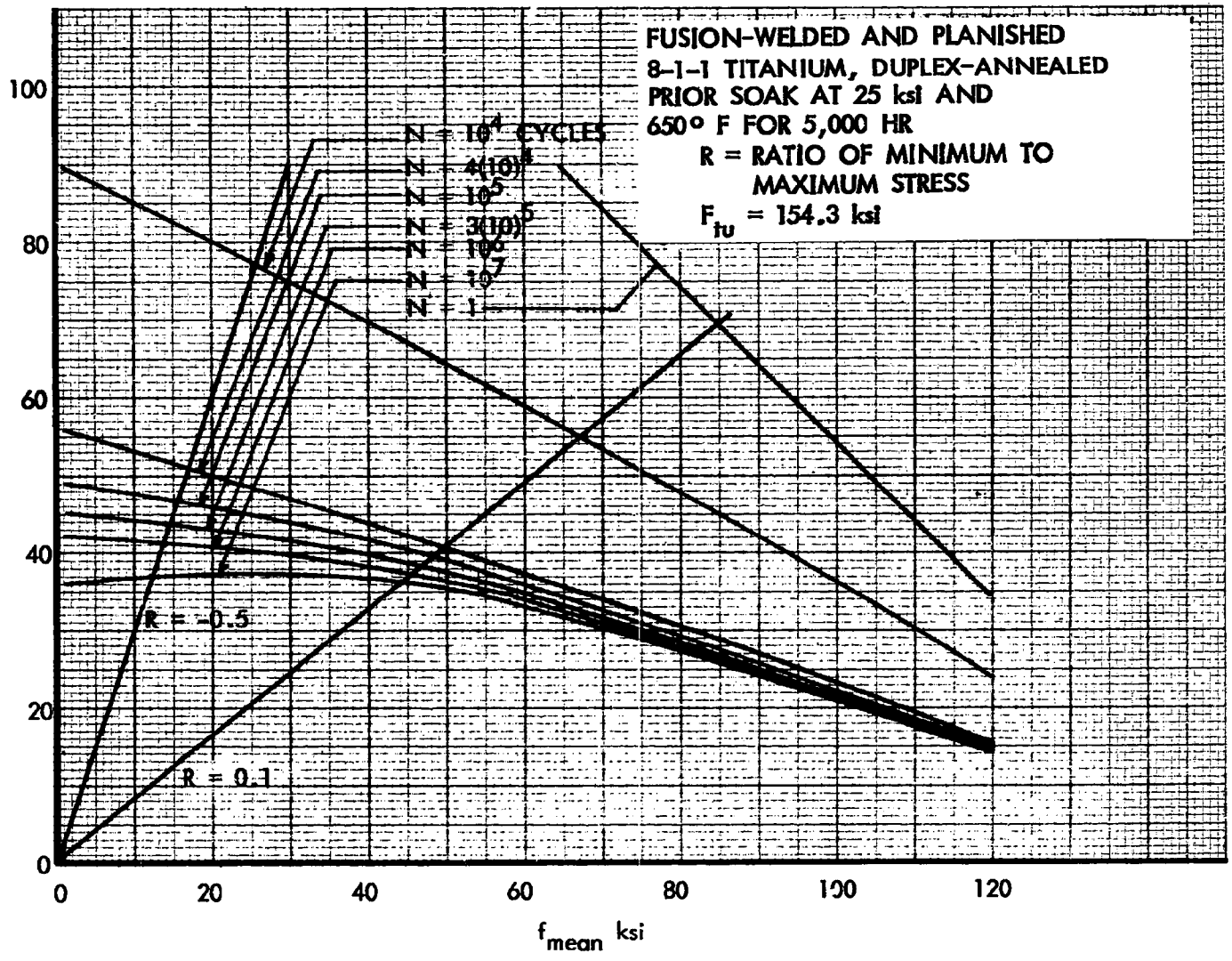



Figure 280. S-N Diagram at Room Temperature, Fusion-Welded 8-1-1 Titanium

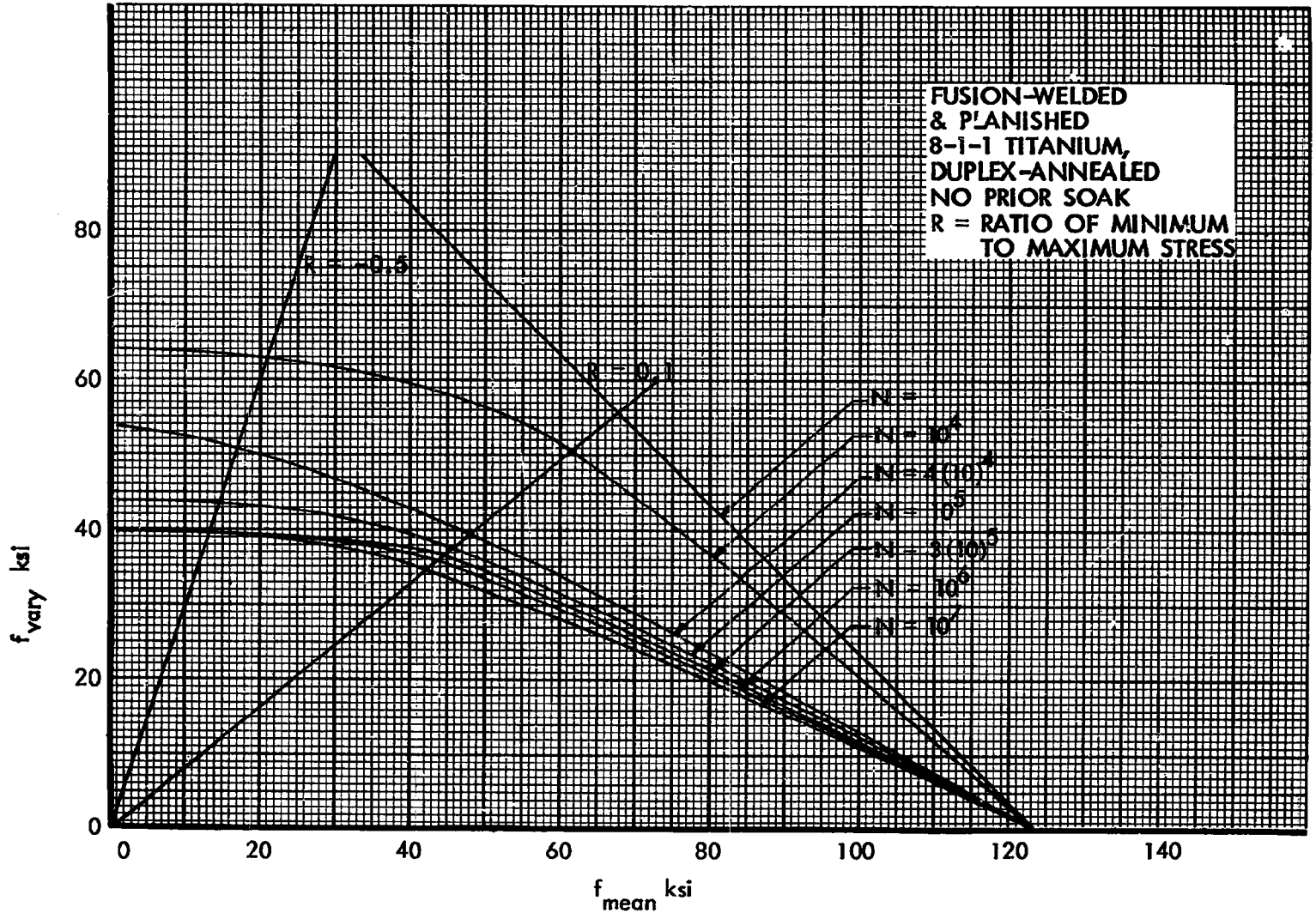



Figure 281. S-N Diagram at 400°F, Fusion-Welded 8-1-1 Titanium

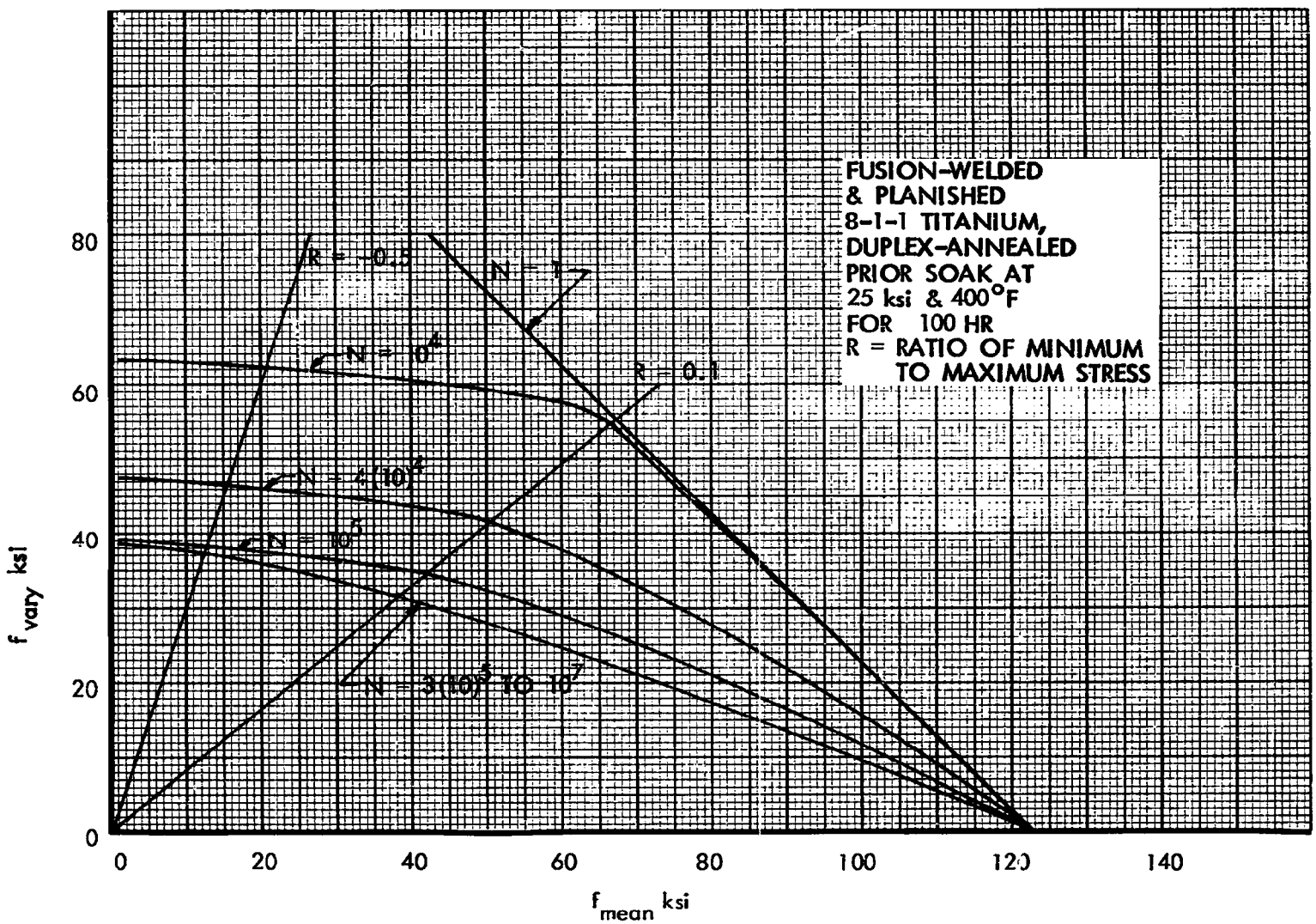



Figure 282. S-N Diagram at 400°F, Fusion-Welded 8-1-1 Titanium

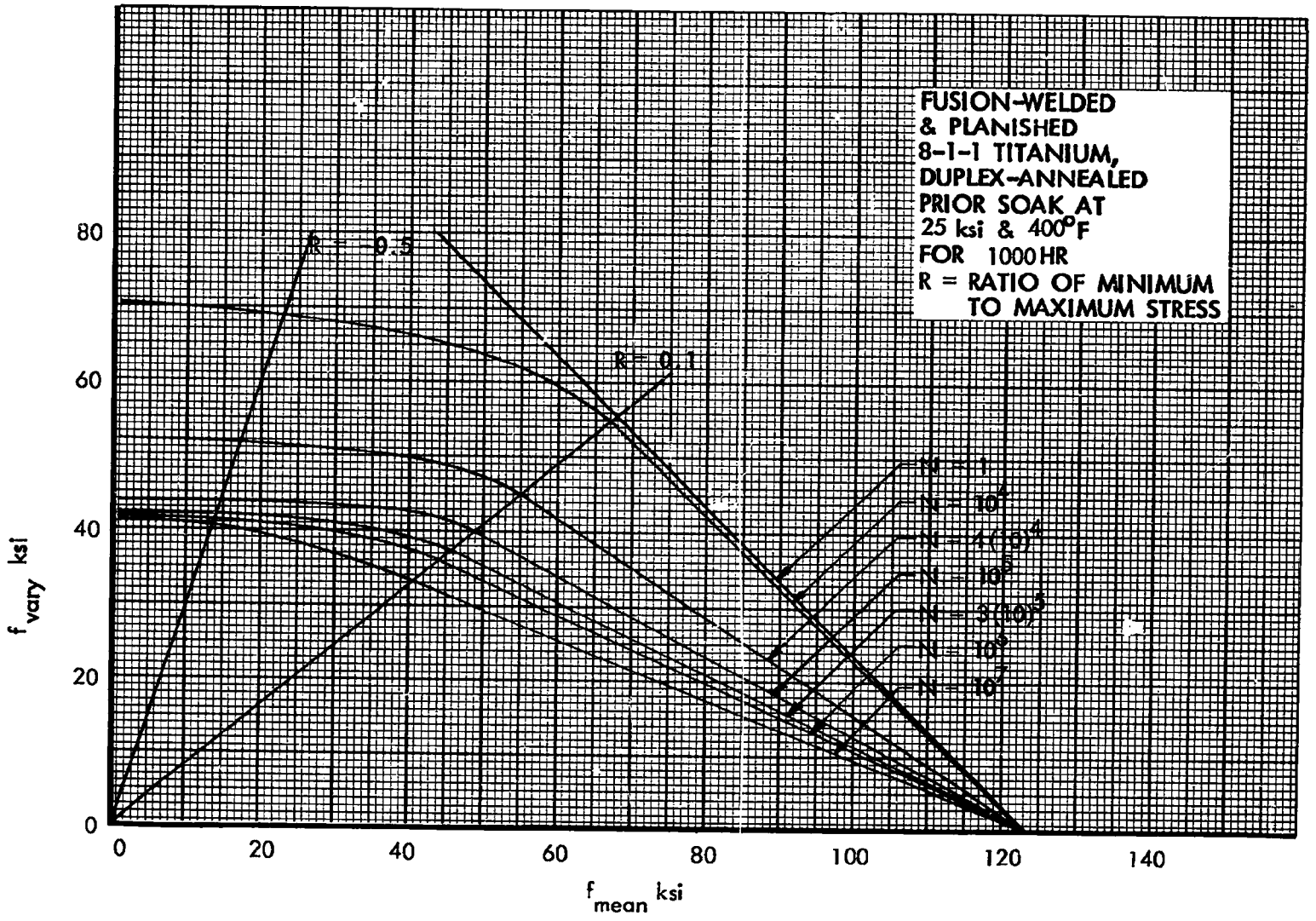



Figure 283. S-N Diagram at 400°F, Fusion-Welded 8-1-1 Titanium

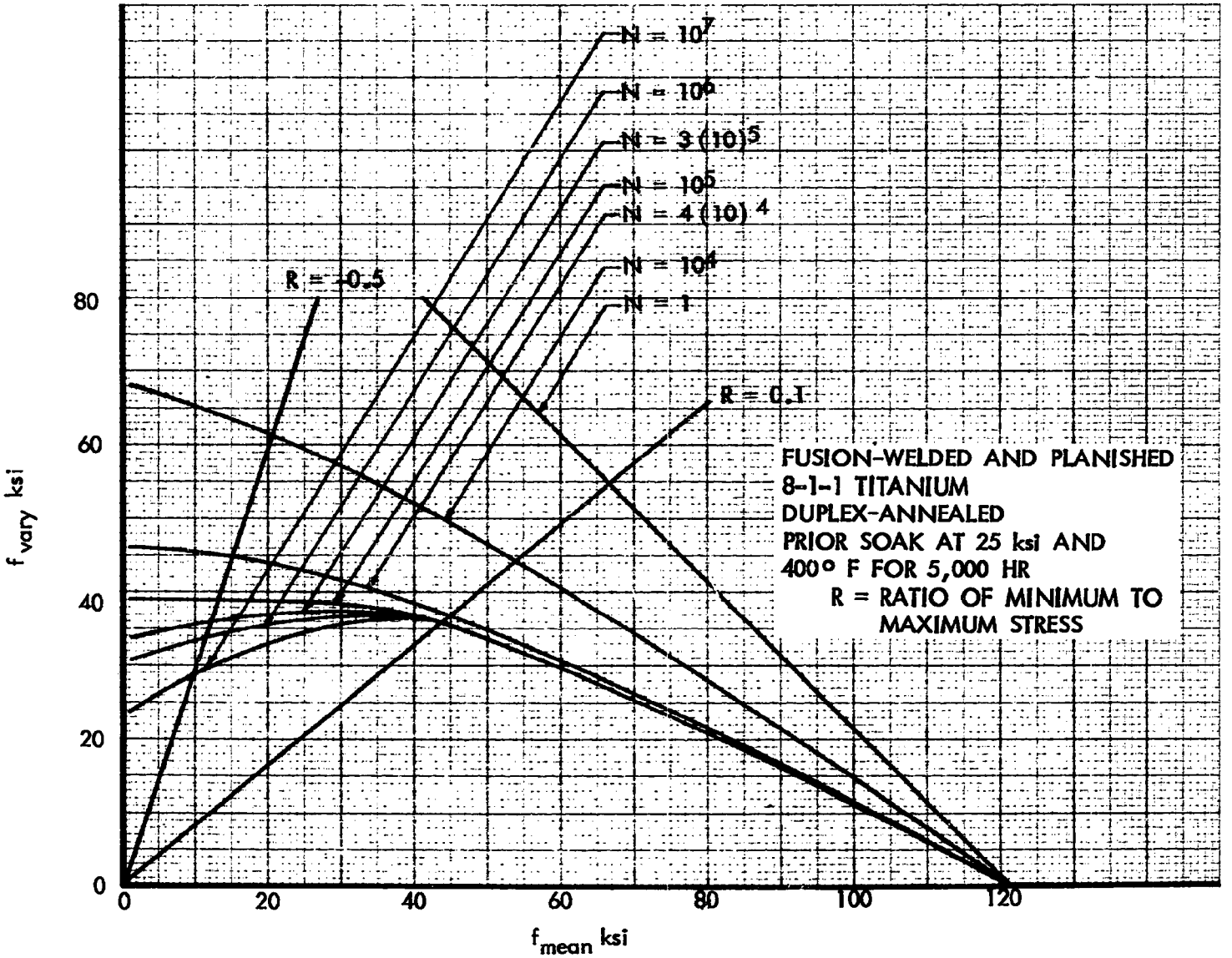



Figure 284. S-N Diagram at 400°F, Fusion-Welded 8-1-1 Titanium

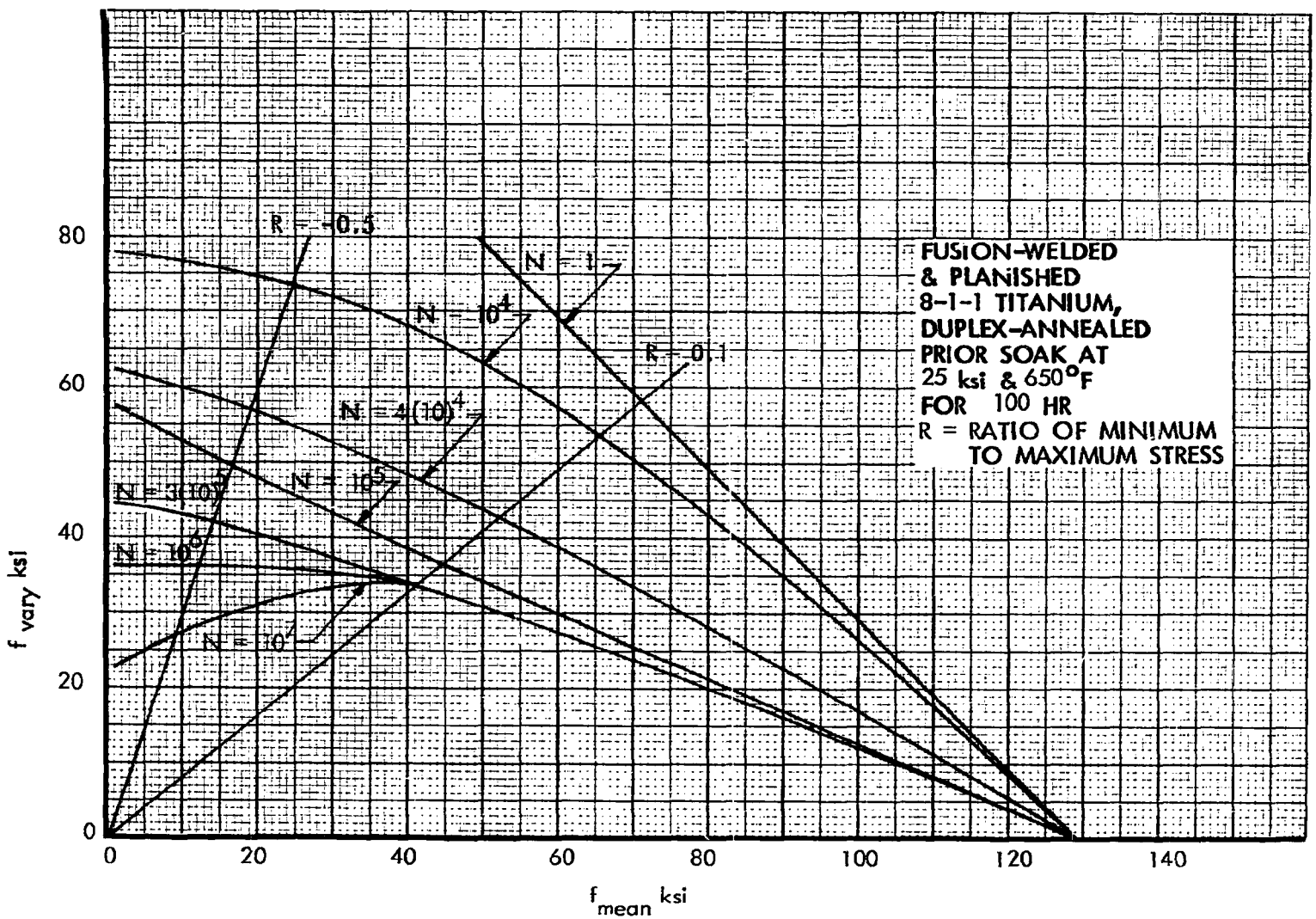



Figure 285. S-N Diagram at 400°F, Fusion-Welded 8-1-1 Titanium

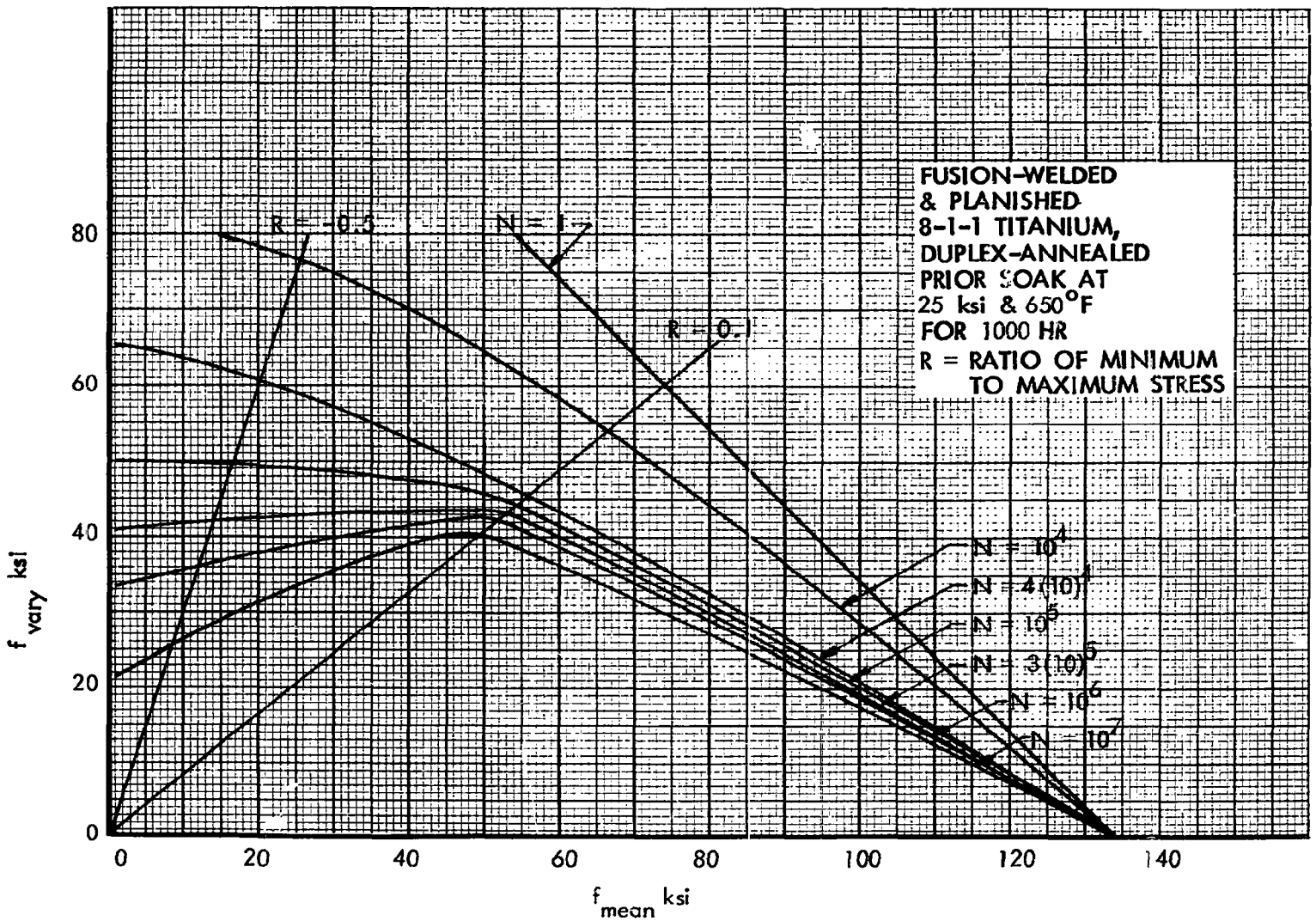



Figure 286. S-N Diagram at 400°F, Fusion-Welded 8-1-1 Titanium

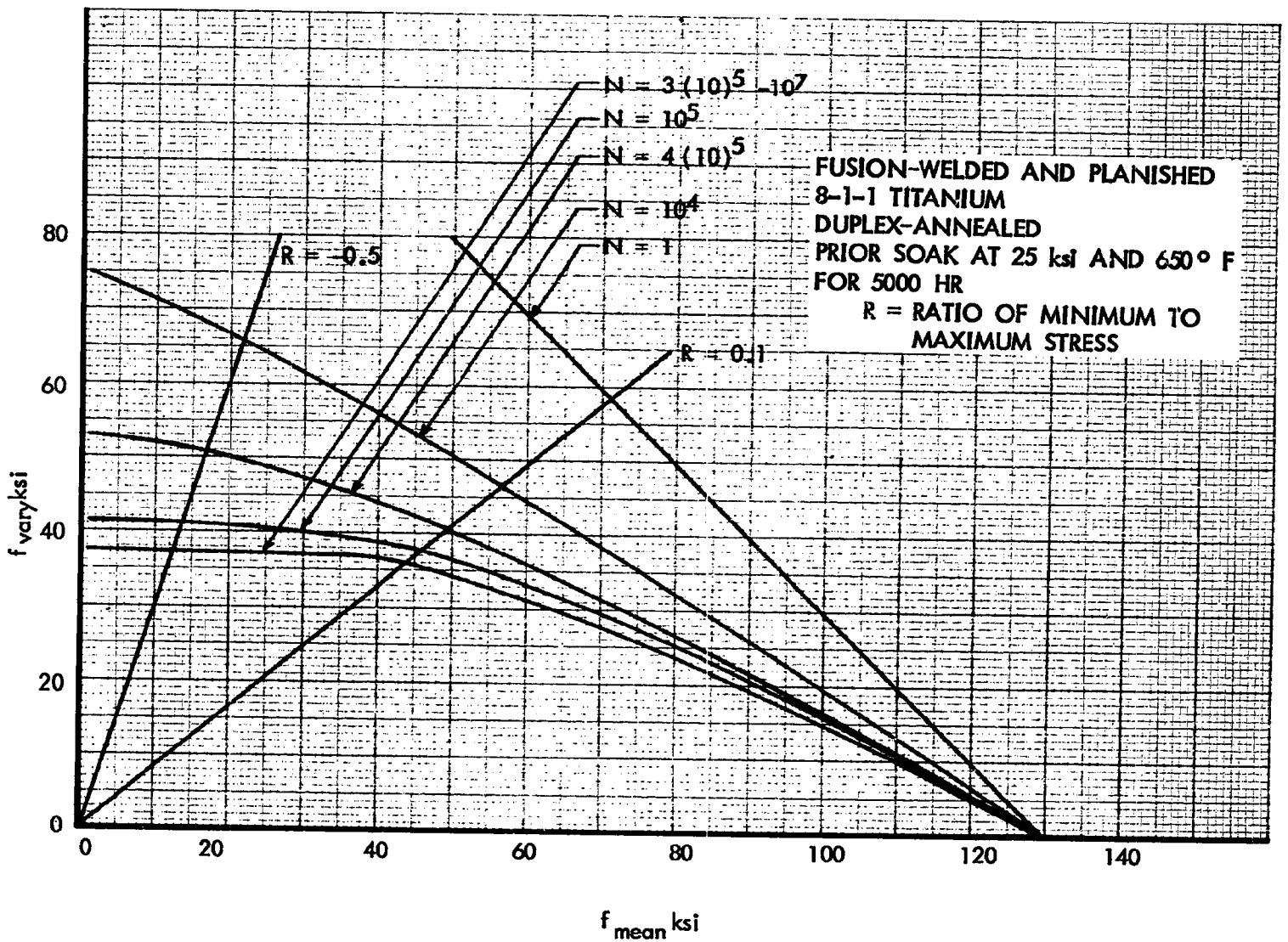



Figure 287. S-N Diagram at 400°F, Fusion-Welded 8-1-1 Titanium

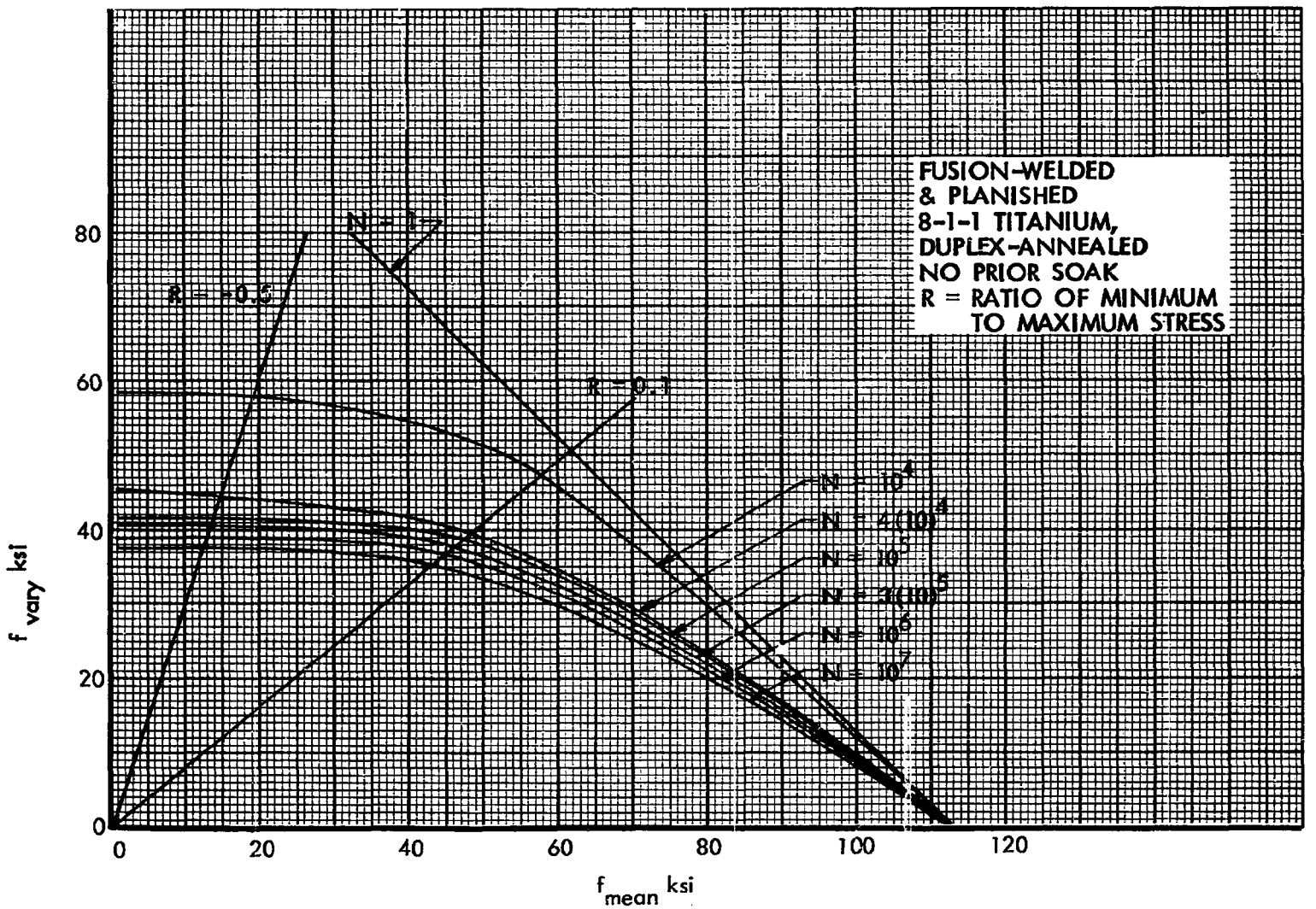



Figure 288. S-N Diagram at 650°F, Fusion-Welded 8-1-1 Titanium

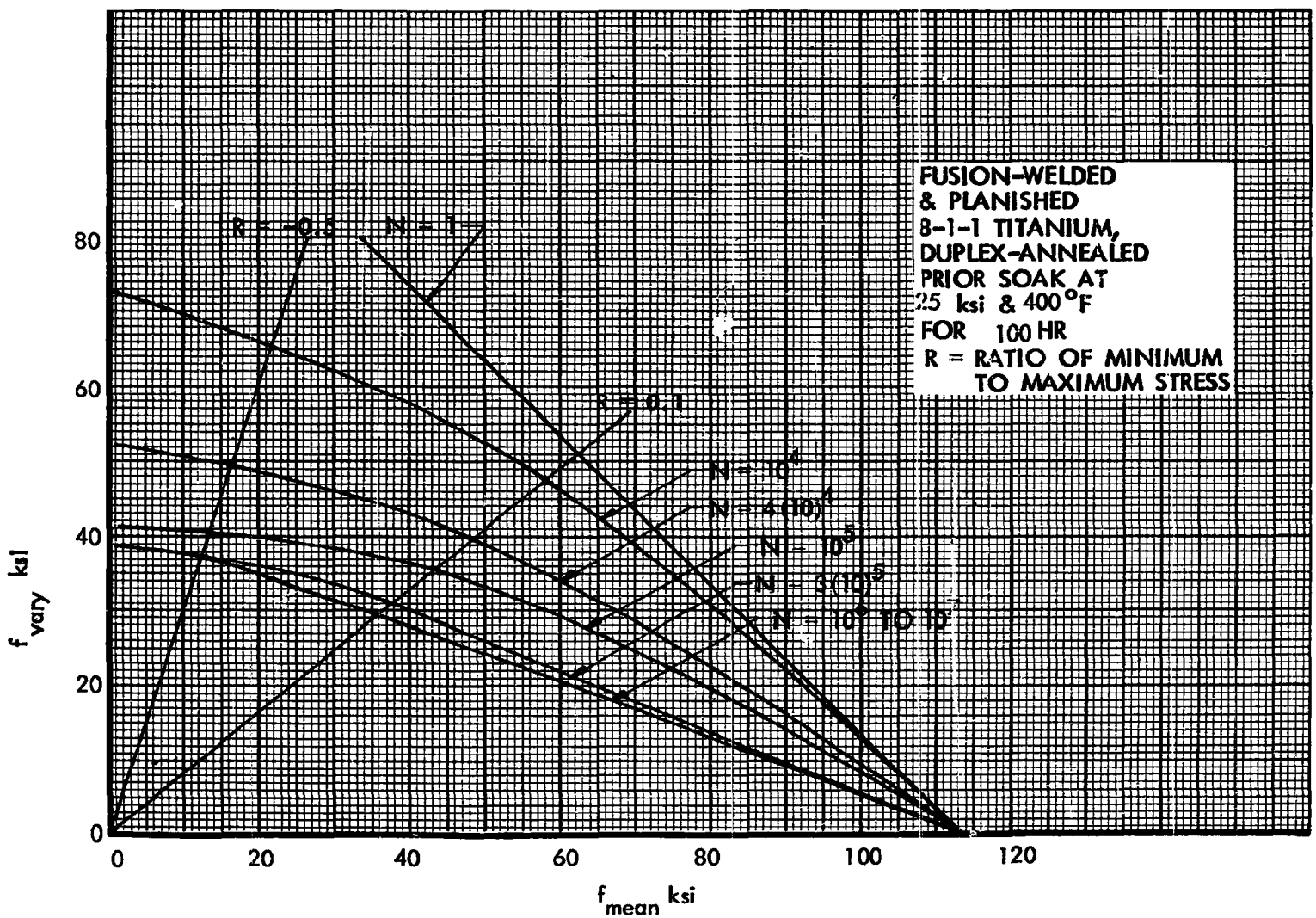



Figure 289. S-N Diagram at 650°F, Fusion-Welded 8-1-1 Titanium

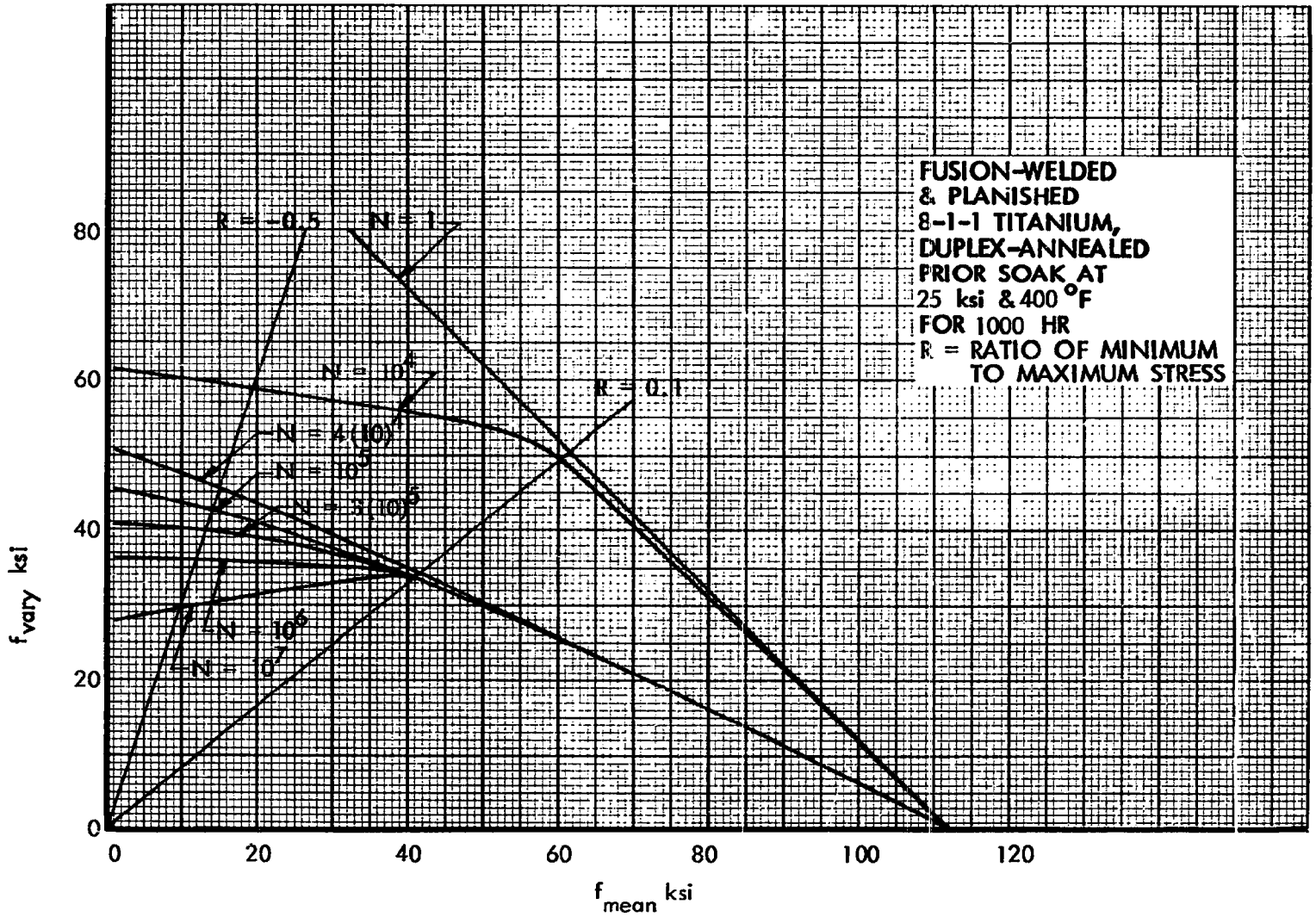



Figure 290. S-N Diagram at 650°F, Fusion-Welded 8-1-1 Titanium

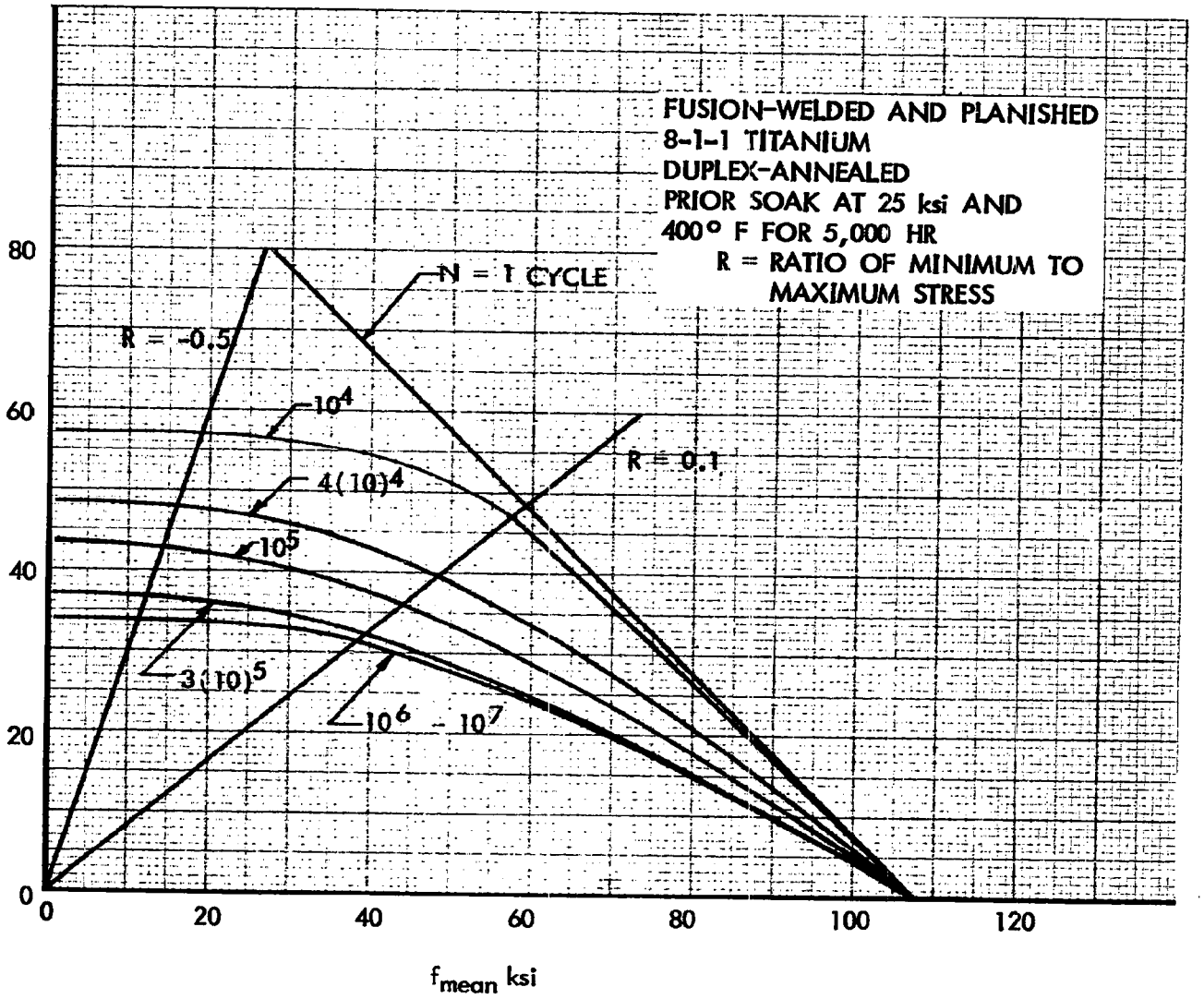



Figure 291. S-N Diagram at 650°F, Fusion-Welded 8-1-1 Titanium

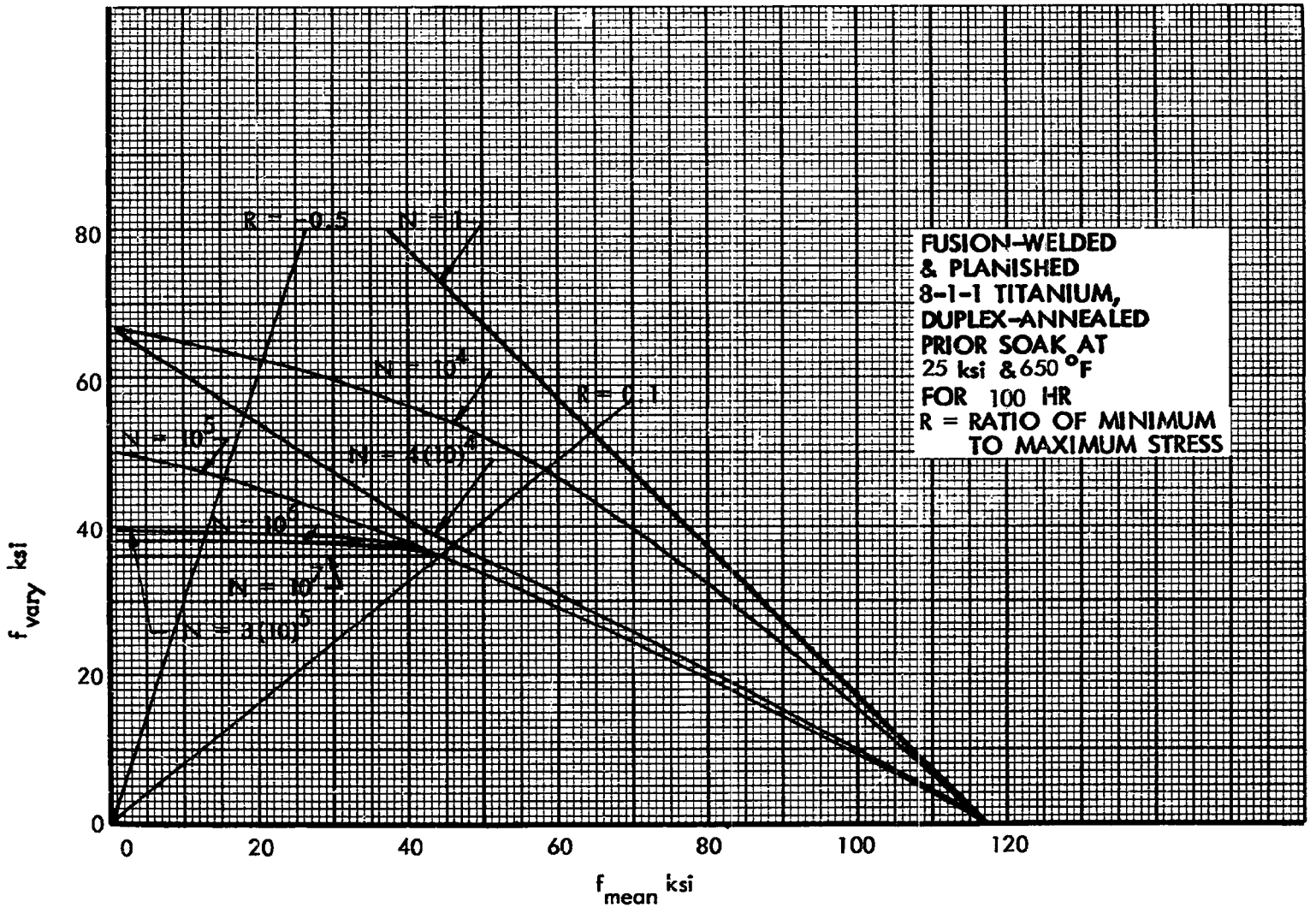



Figure 292. S-N Diagram at 650°F, Fusion-Welded 8-1-1 Titanium

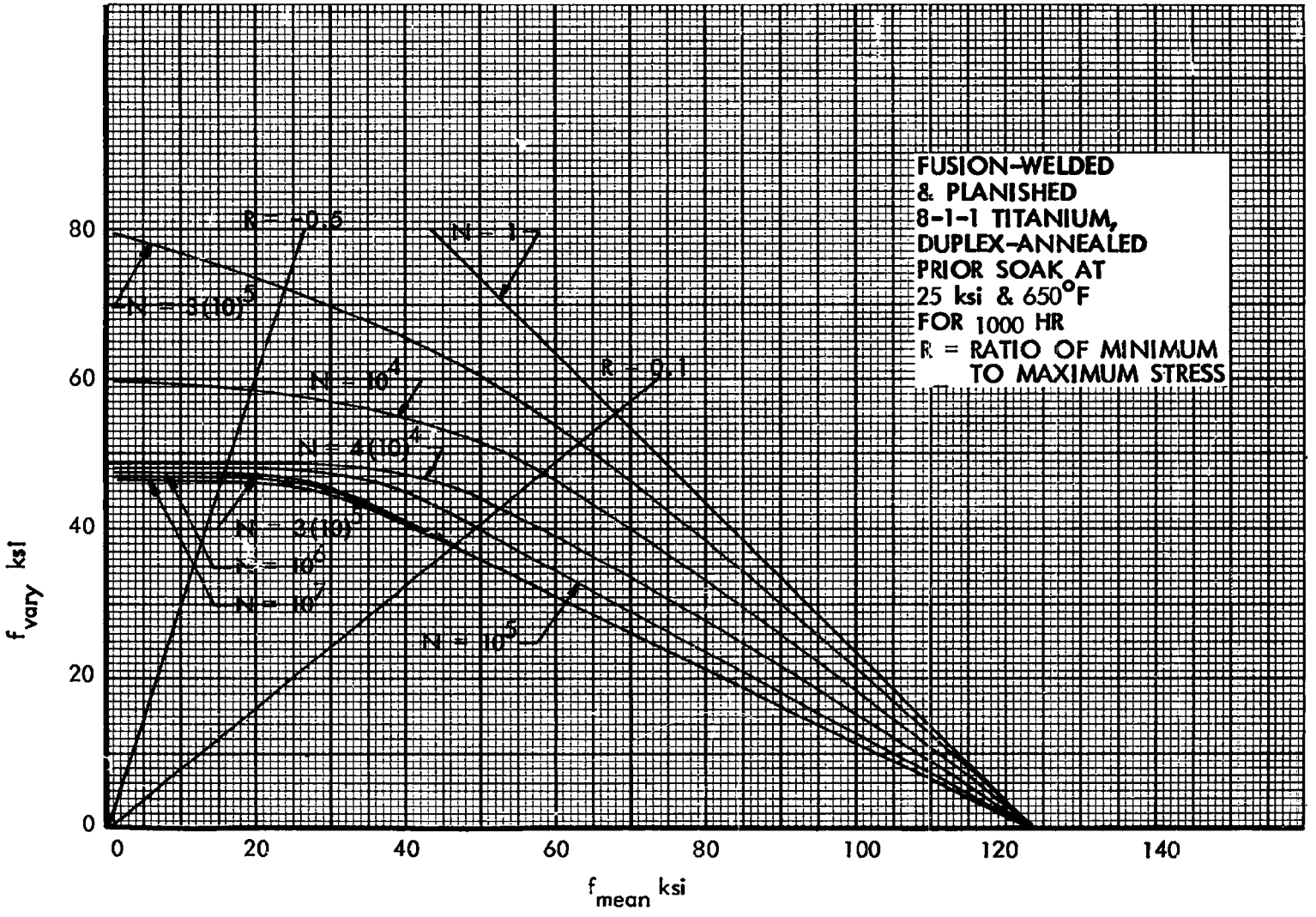



Figure 293. S-N Diagram at 650°F, Fusion-Welded 8-1-1 Titanium

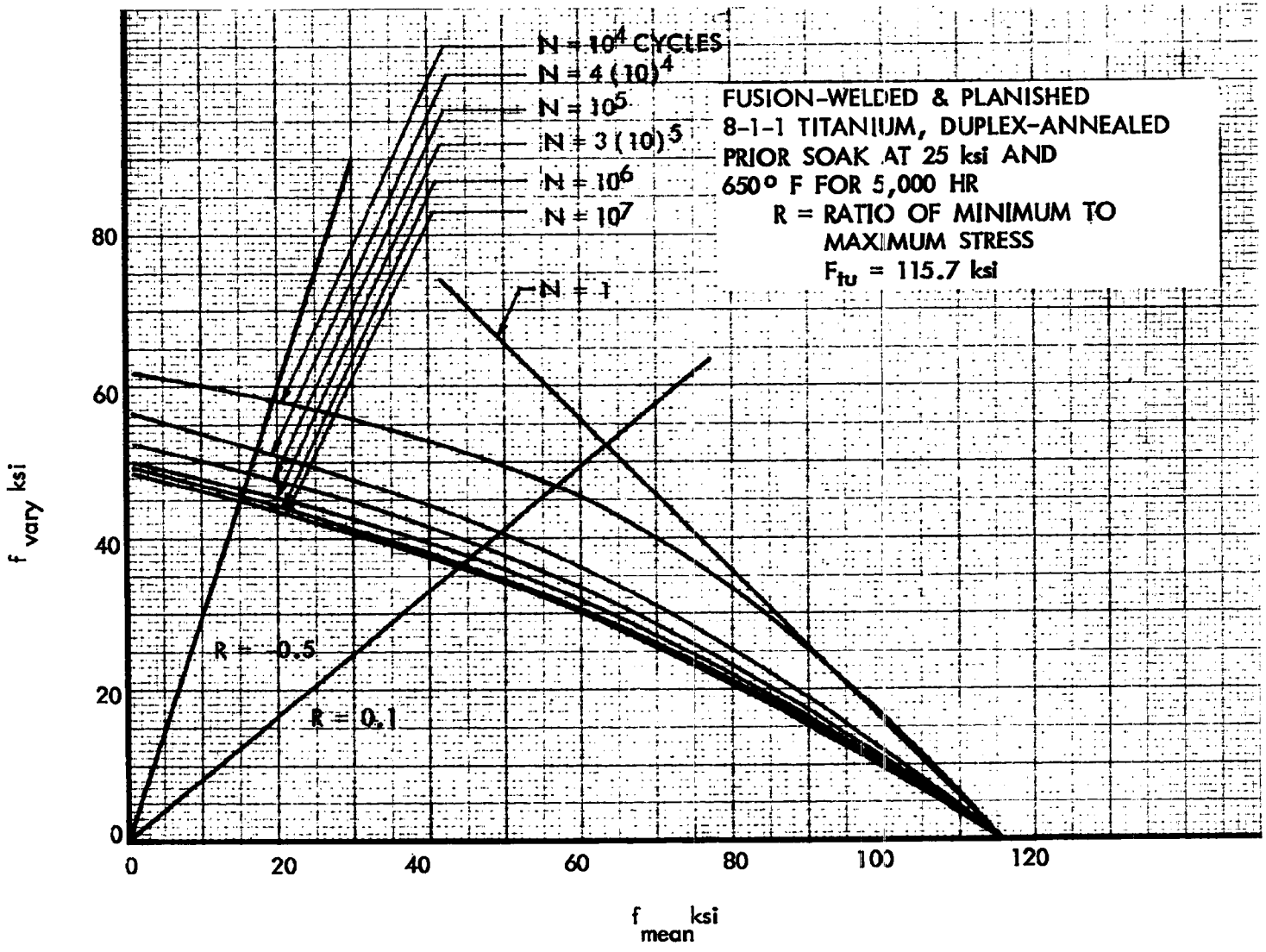



Figure 294. S-N Diagram at 650°F, Fusion-Welded 8-1-1 Titanium

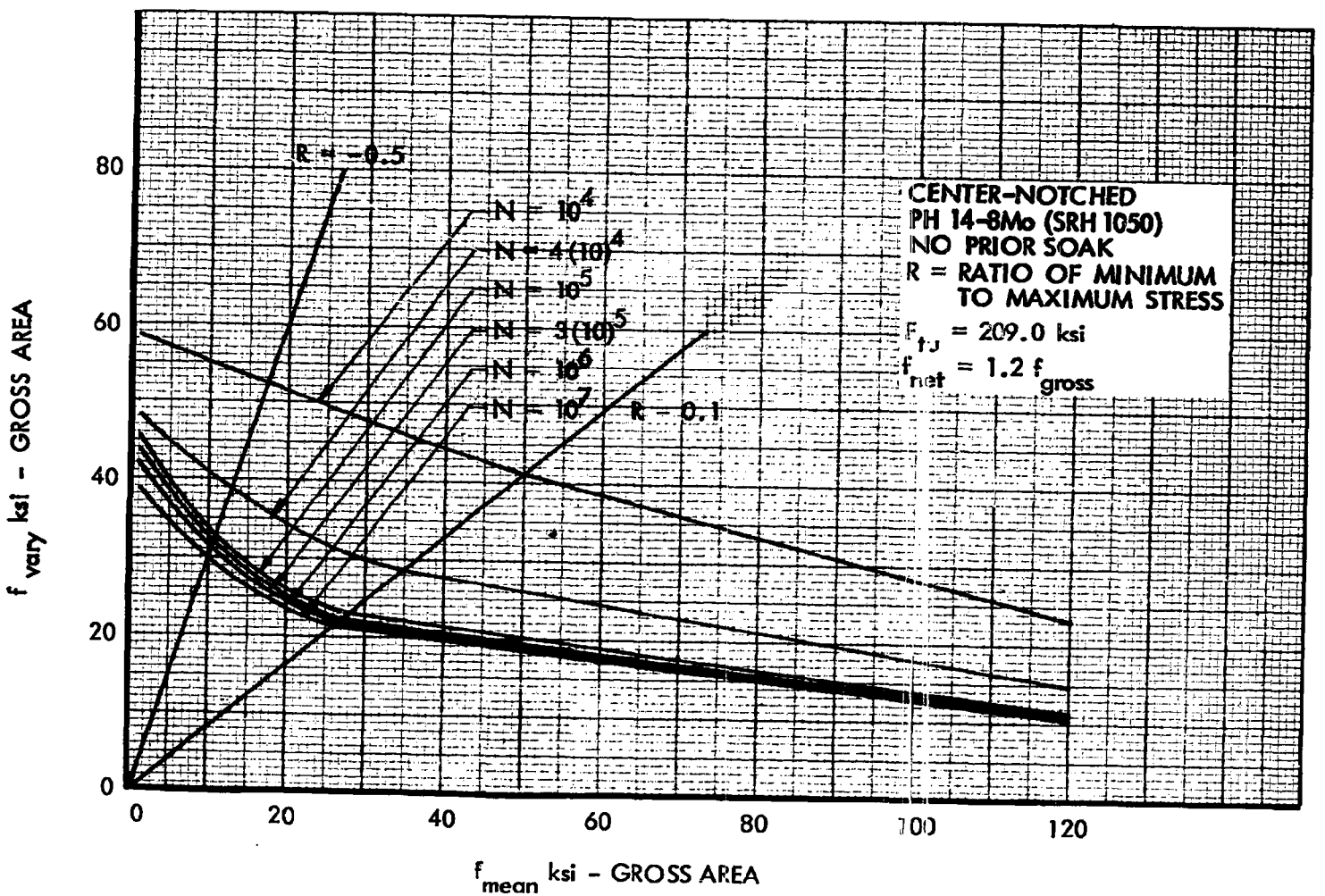



Figure 295. S-N Diagram at Room Temperature, Center-Notched PH14-8Mo

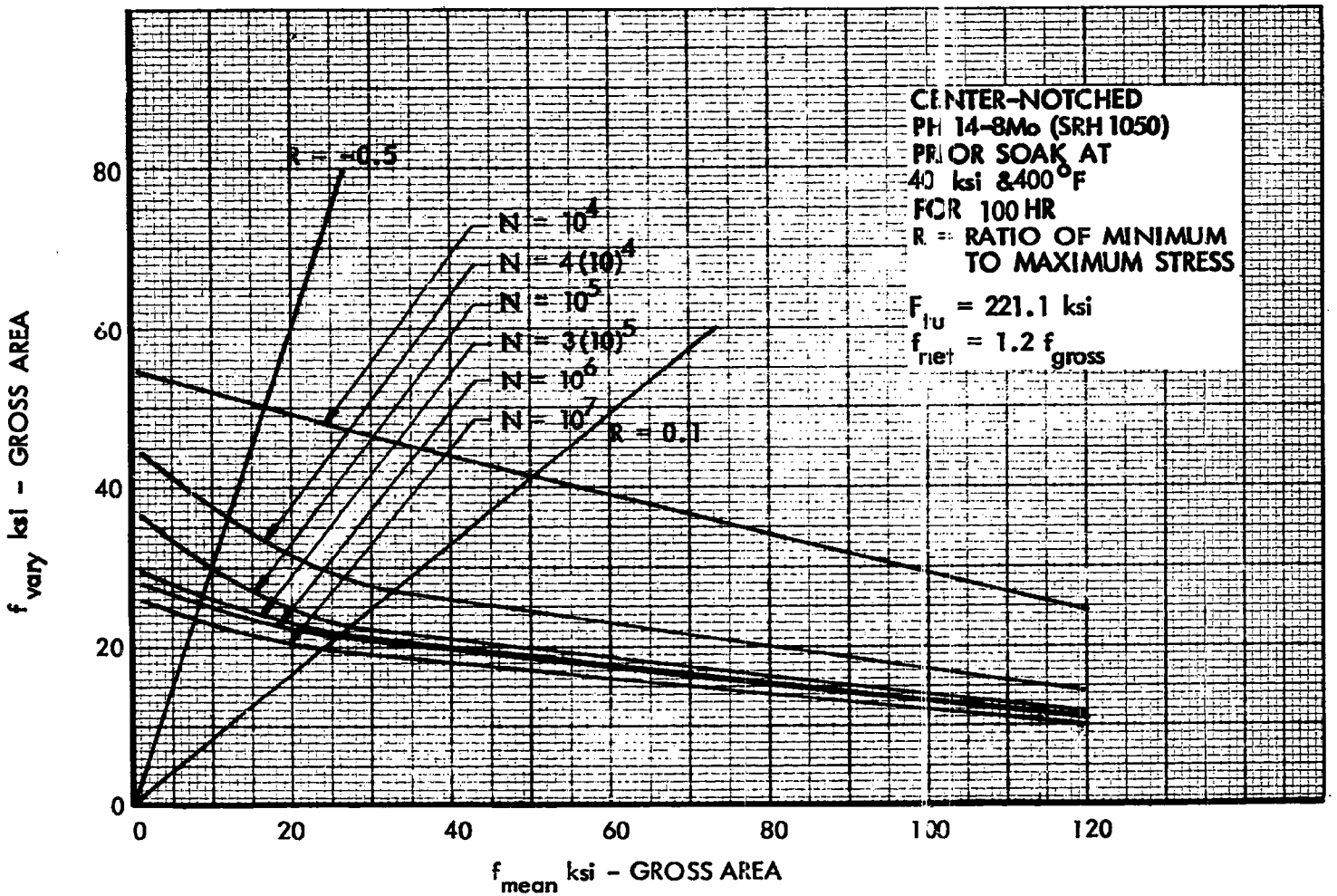



Figure 296. S-N Diagram at Room Temperature, Center-Notched PH14-8Mo

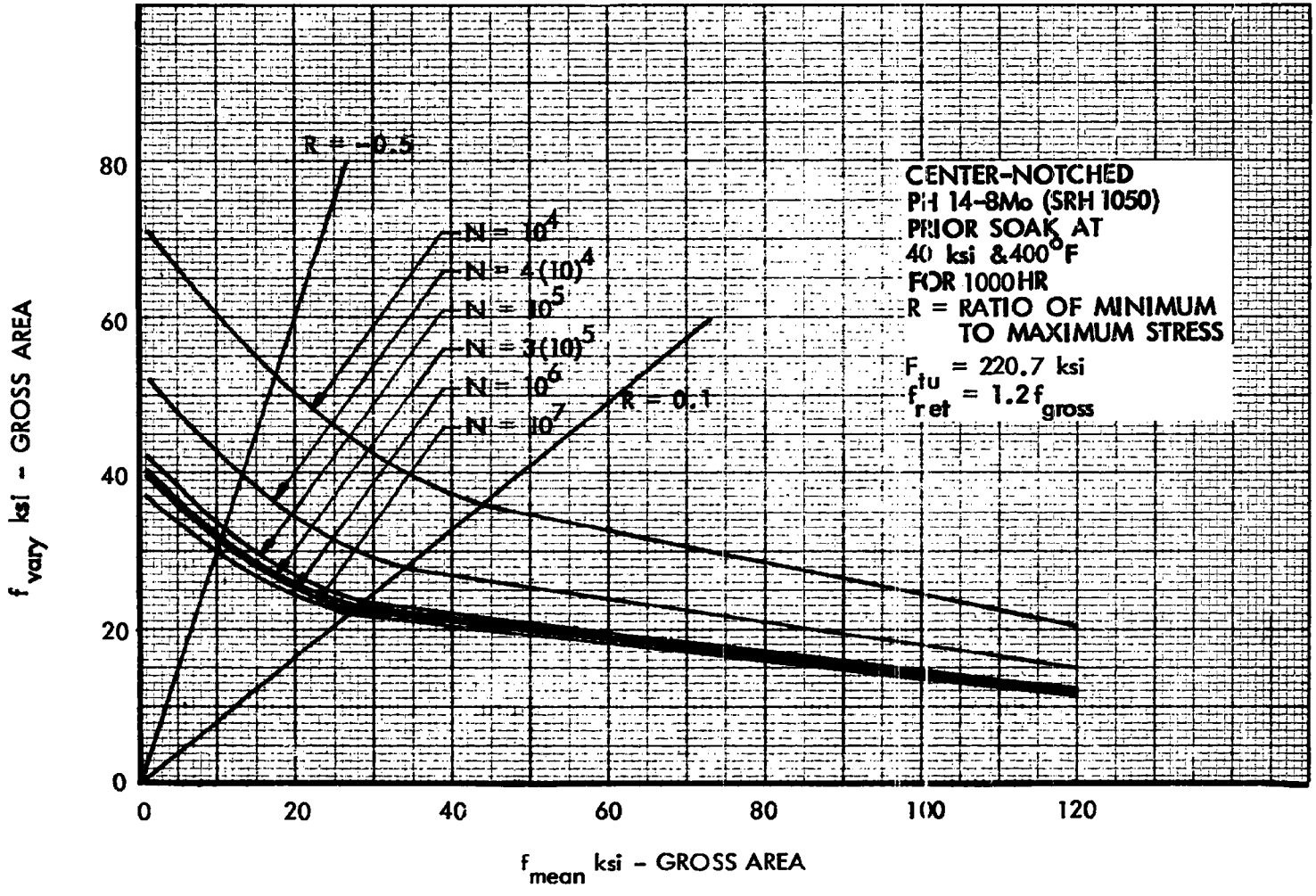



Figure 297. S-N Diagram at Room Temperature, Center-Notched PH14-8Mo

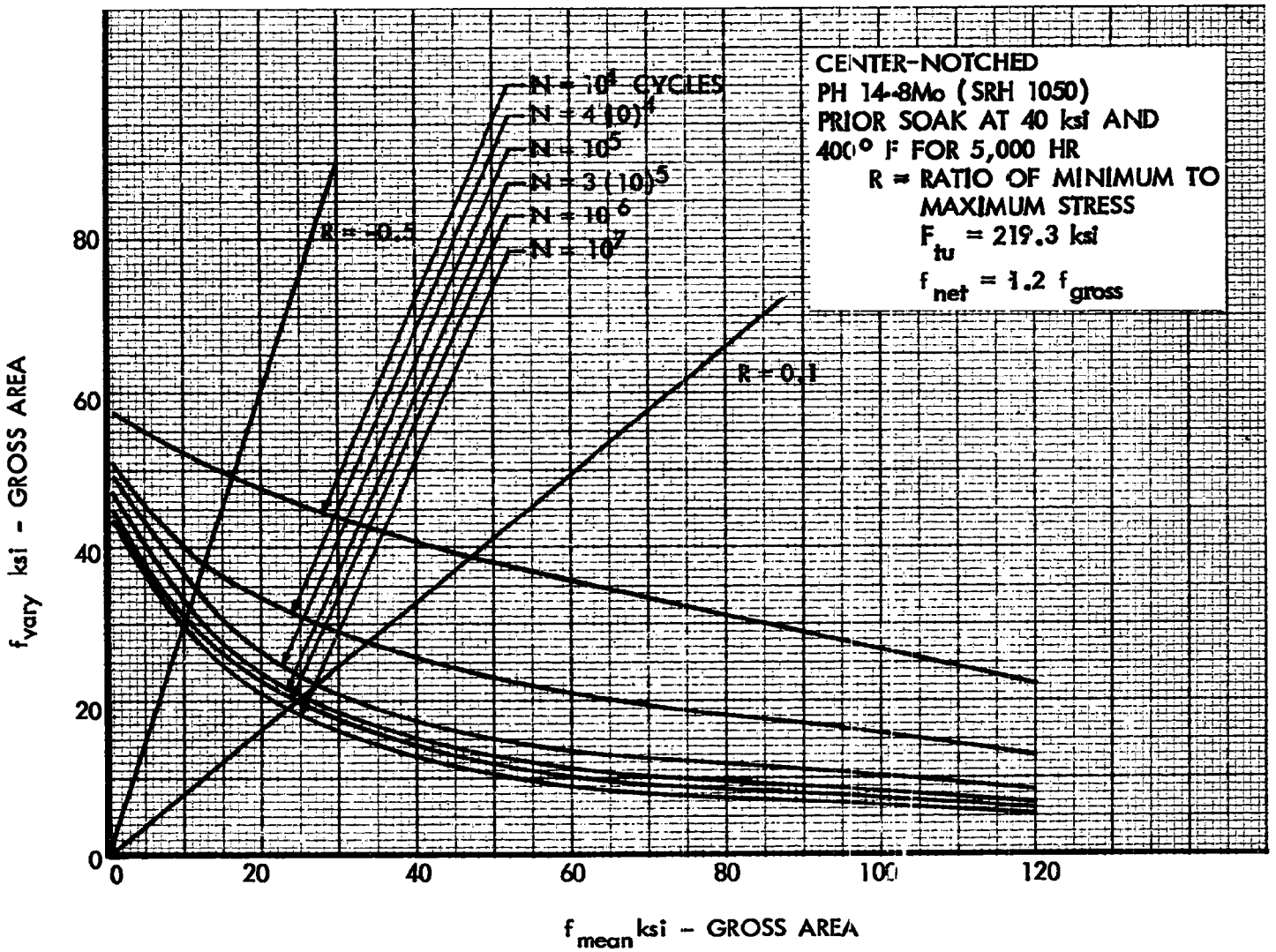



Figure 298. S-N Diagram at Room Temperature, Center-Notched PH14-8Mo

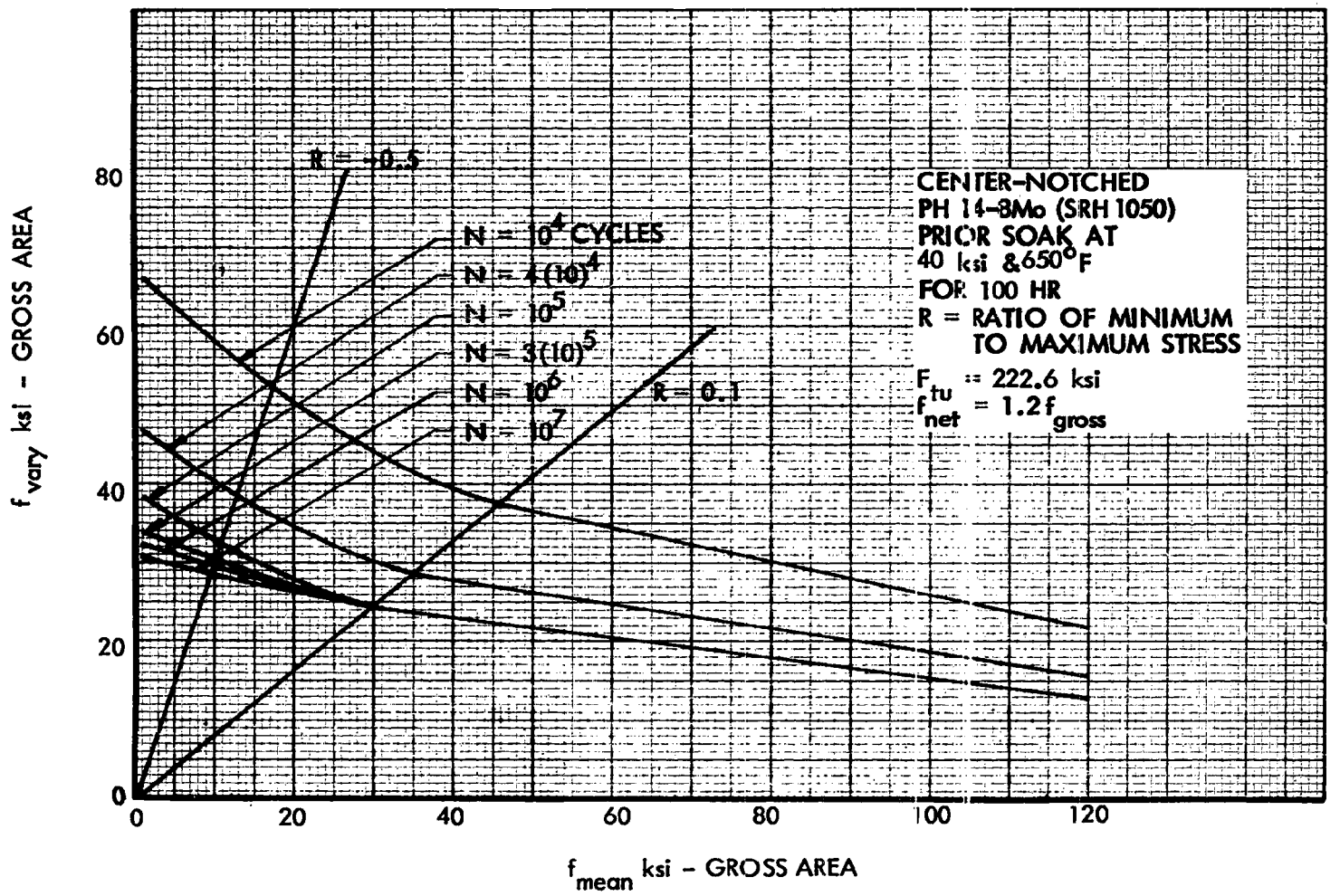



Figure 299. S-N Diagram at Room Temperature, Center-Notched PH14-8Mo

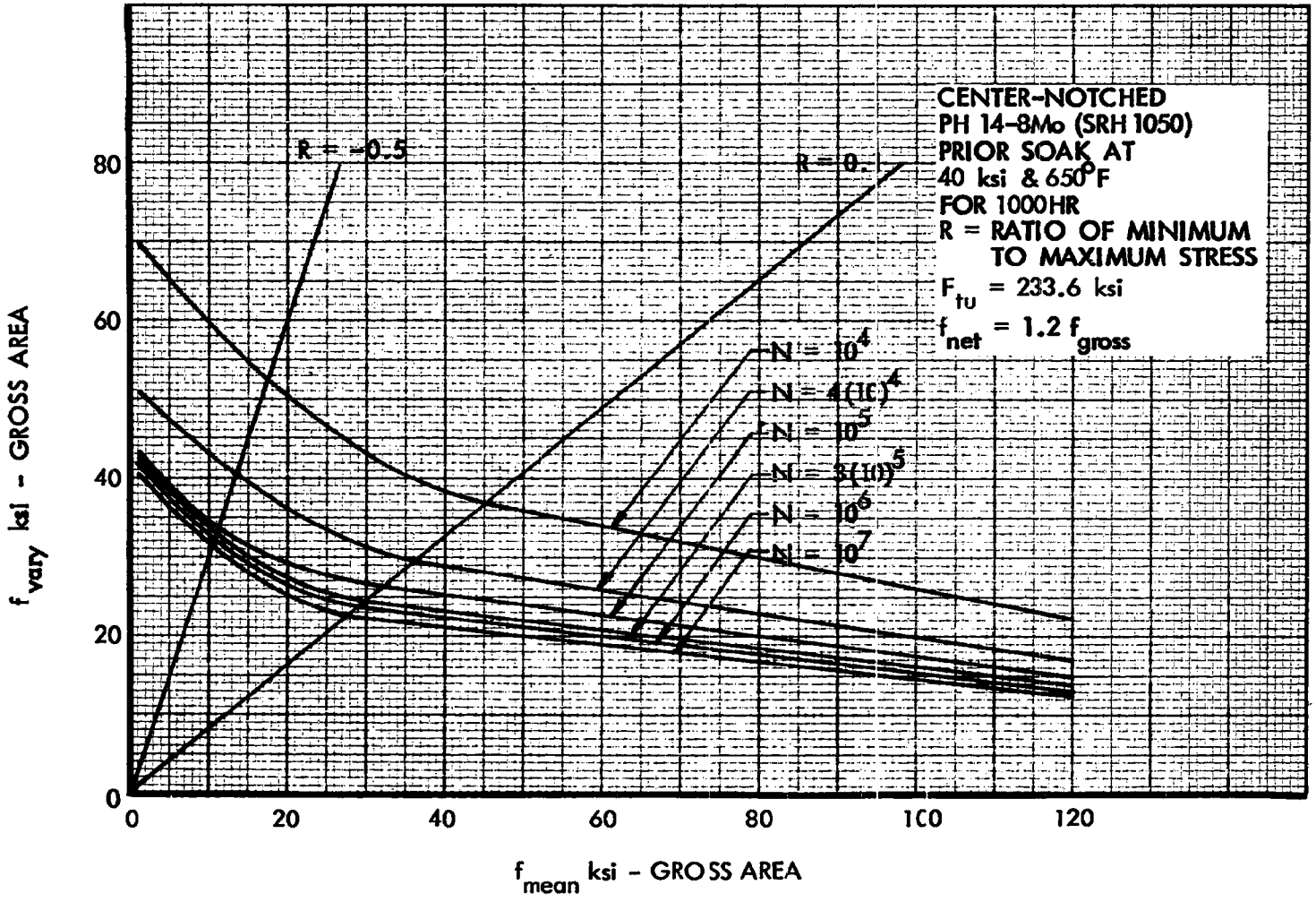



Figure 300. S-N Diagram at Room Temperature, Center-Notched PH14-8Mo

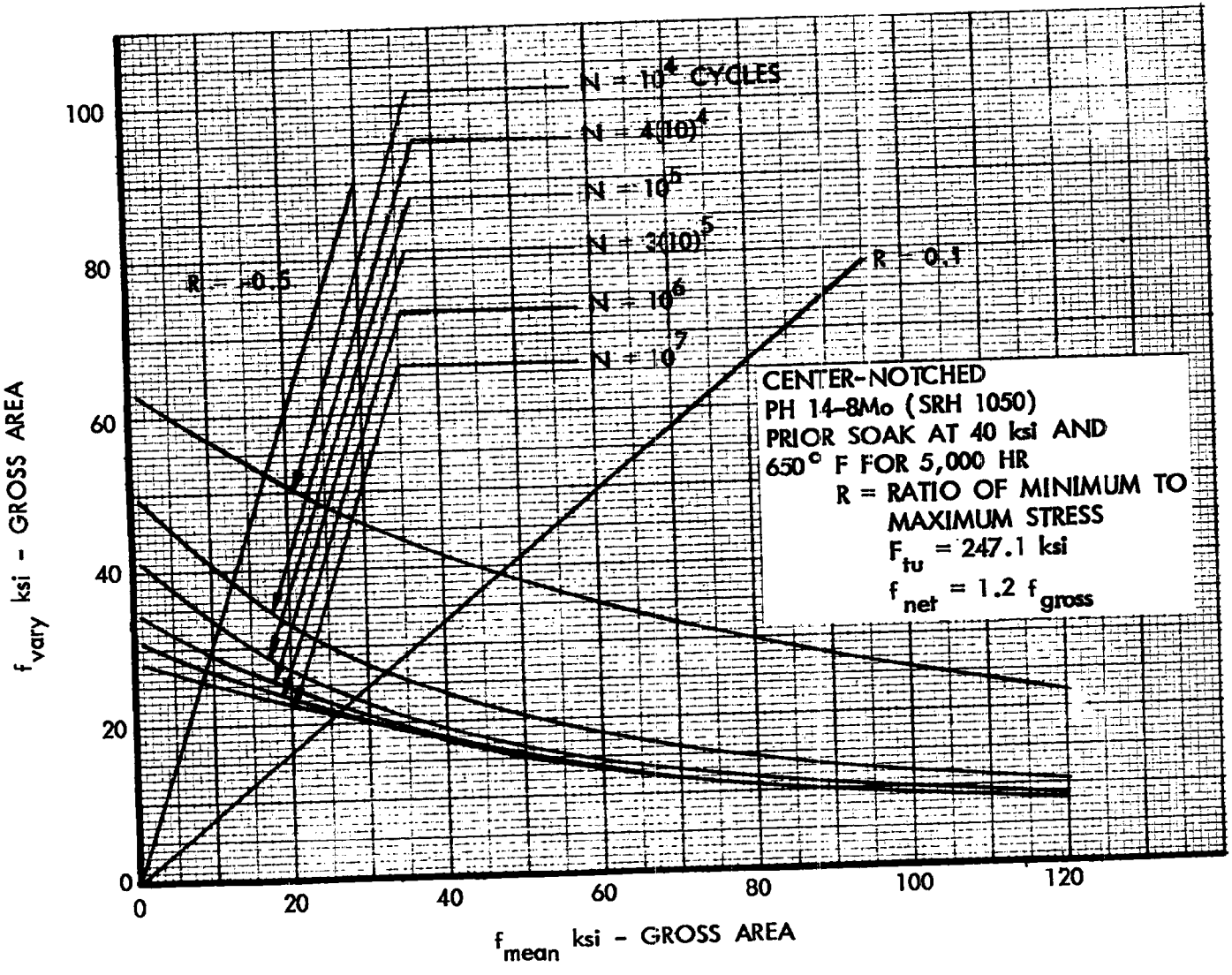



Figure 301. S-N Diagram at Room Temperature, Center-Notched PH14-8Mo

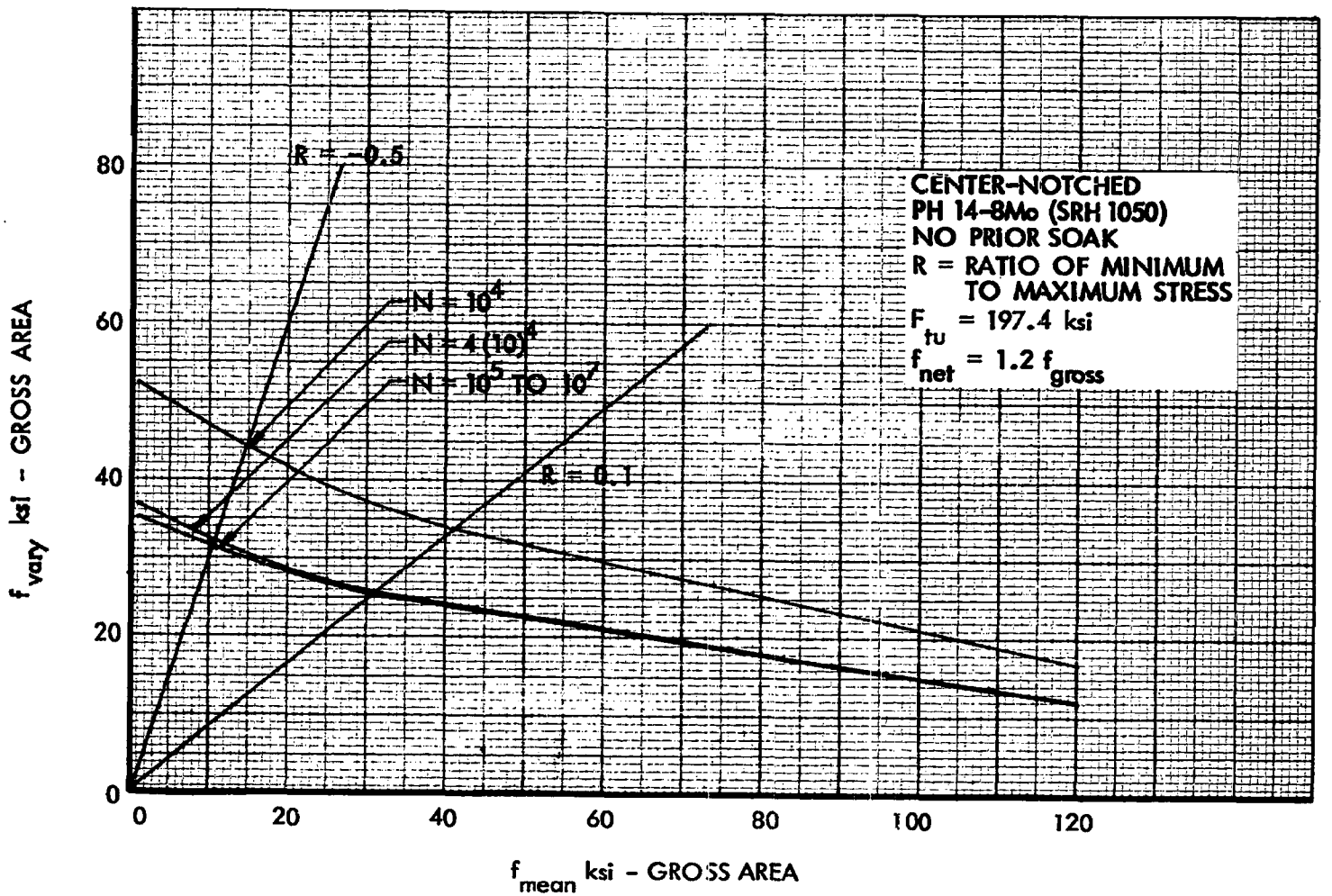



Figure 302. S-N Diagram at 400°F, Center-Notched PH14-8Mo

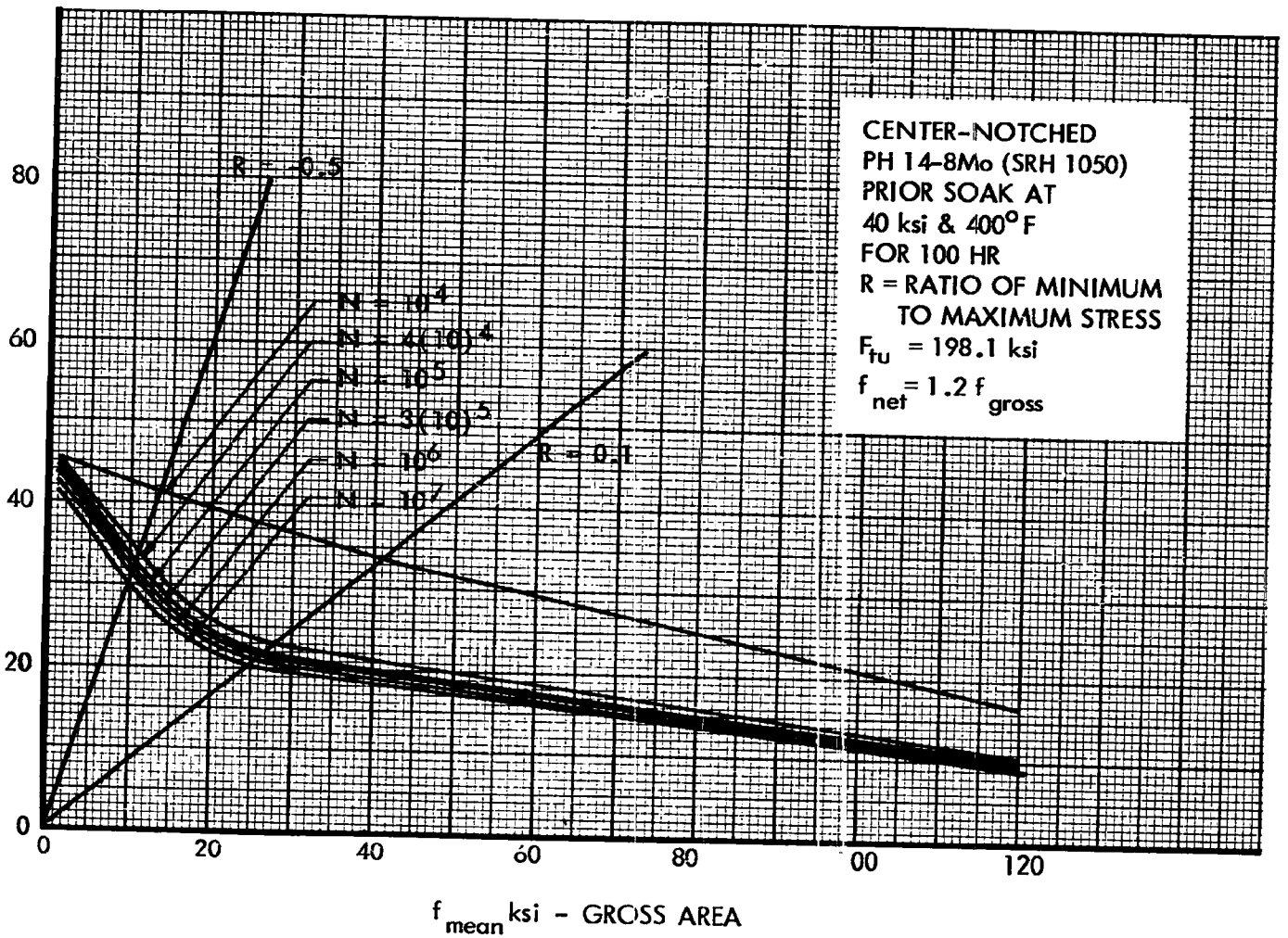



Figure 303. S-N Diagram at 400°F, Center-Notched PH14-8Mo

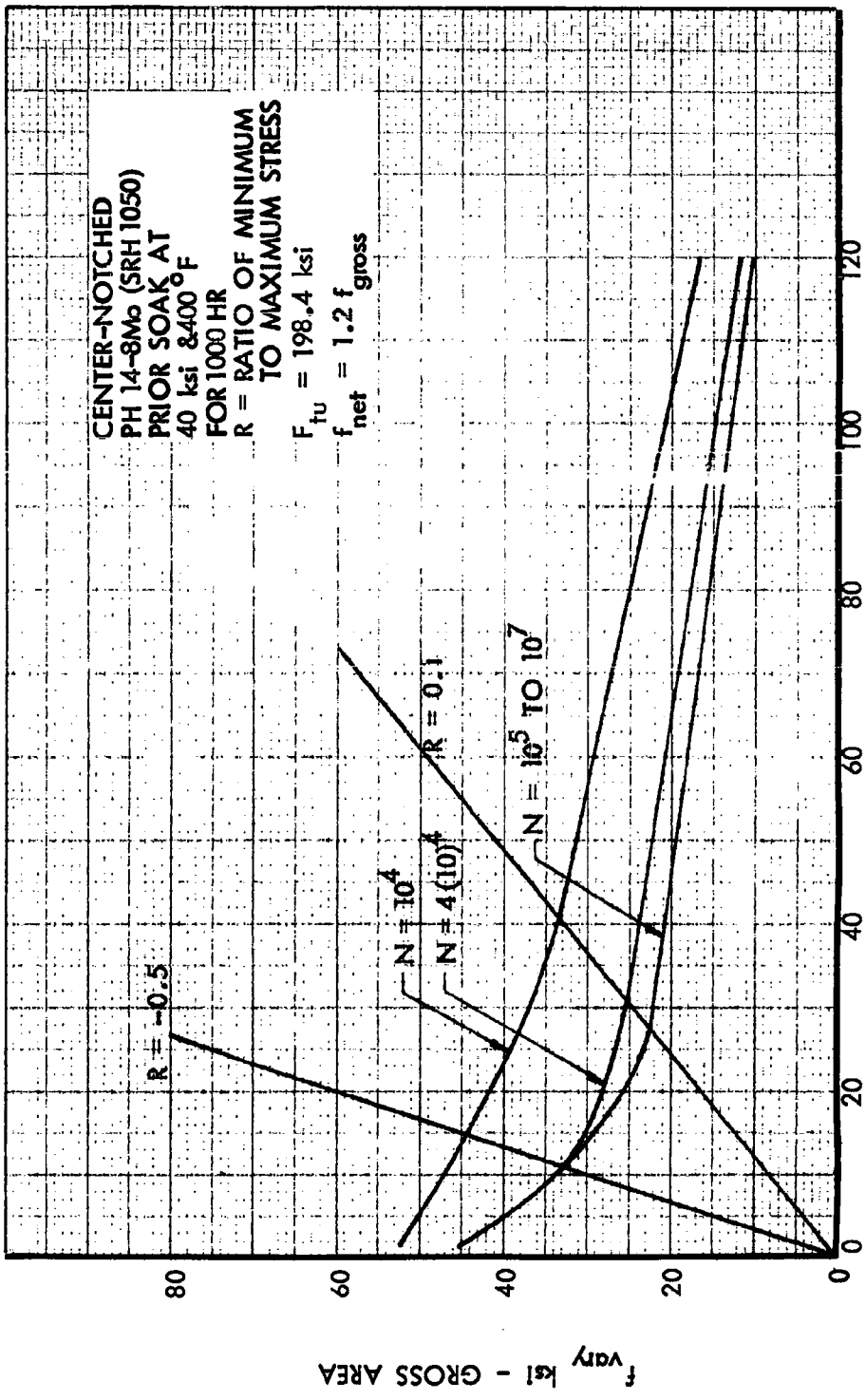



Figure 304. S-N Diagram at 400°F, Center-Notched PH14-8Mo

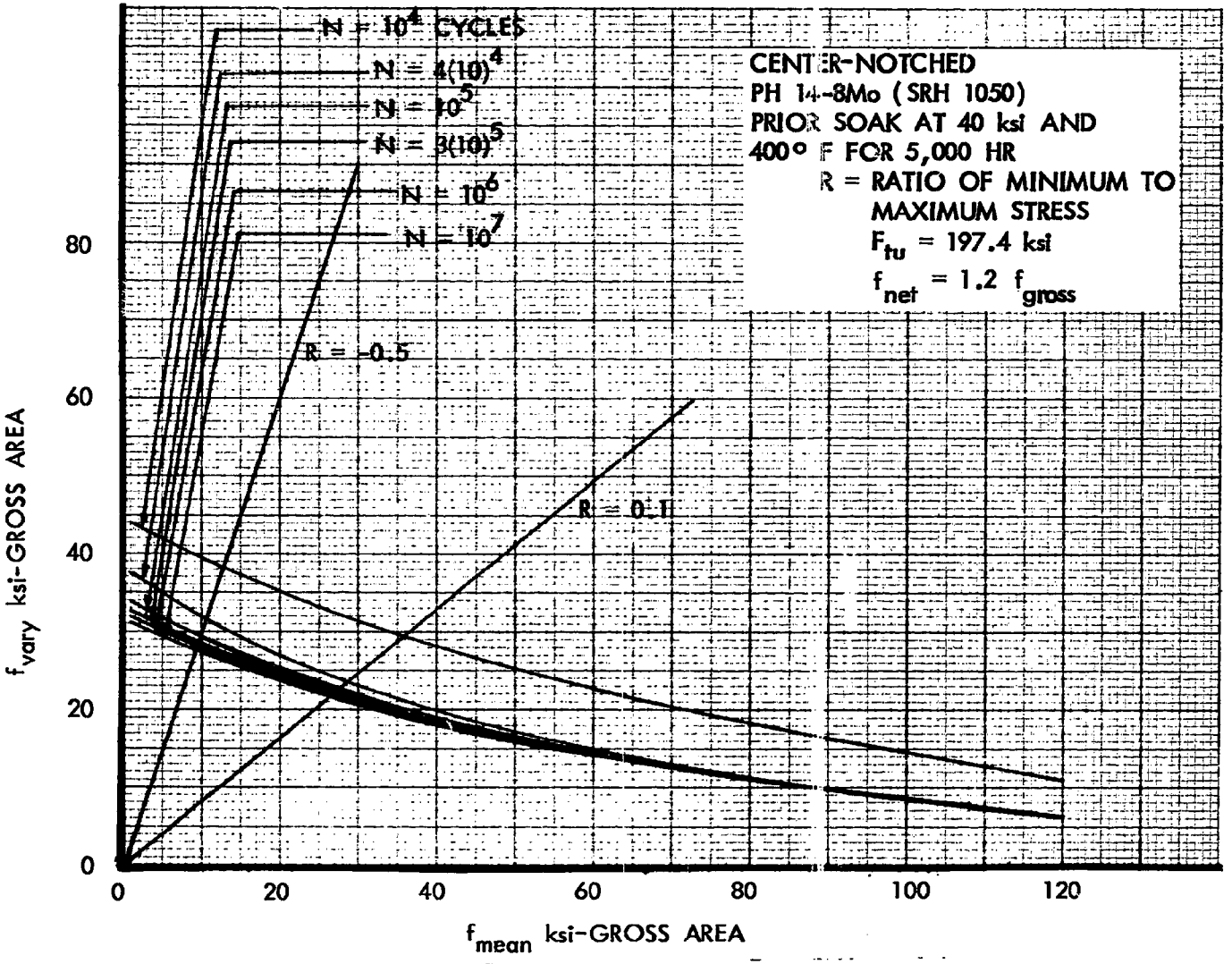



Figure 305. S-N Diagram at 400°F, Center-Notched PH14-8Mo

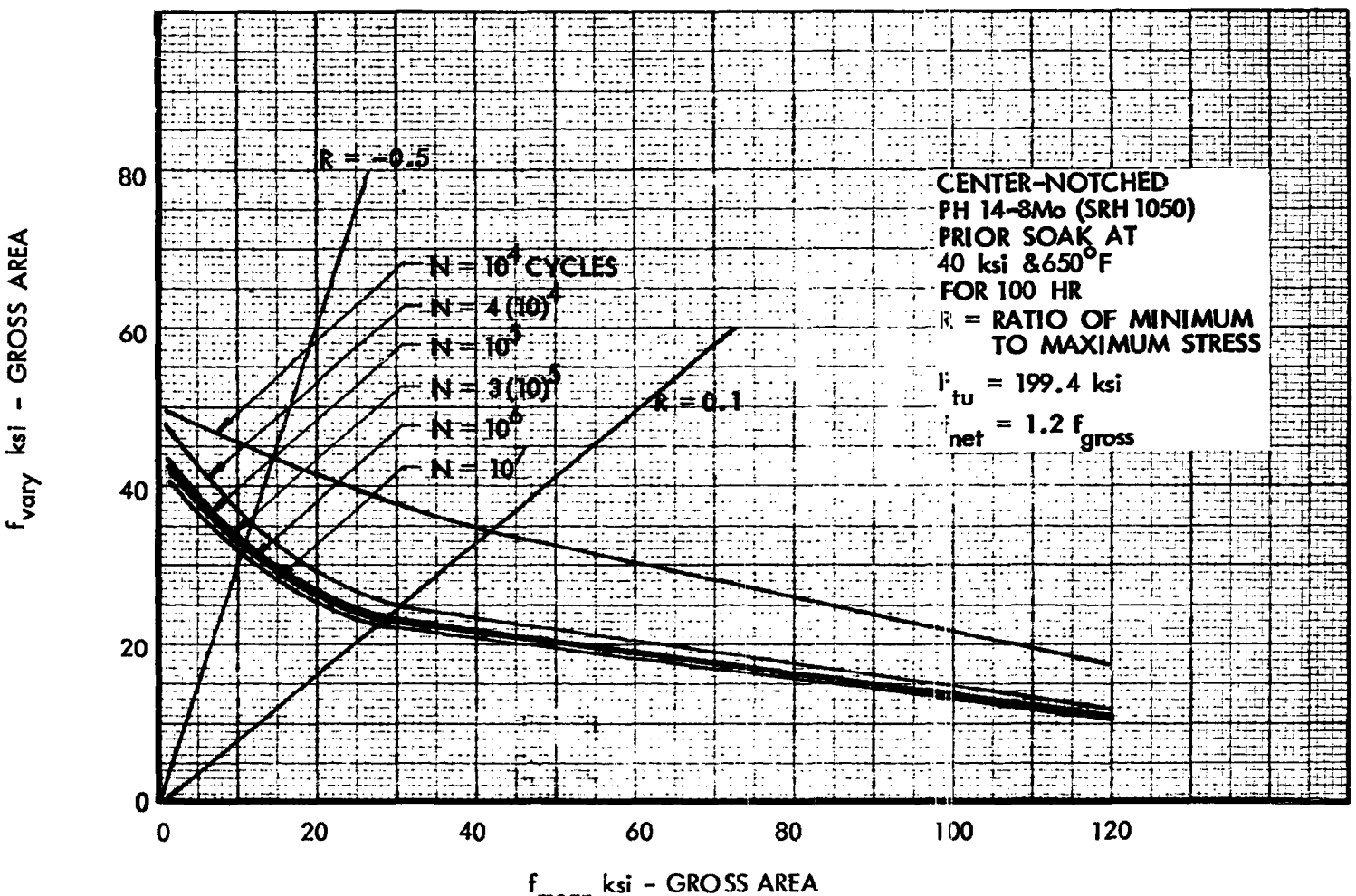



Figure 306. S-N Diagram at 400°F, Center-Notched PH14-8Mo

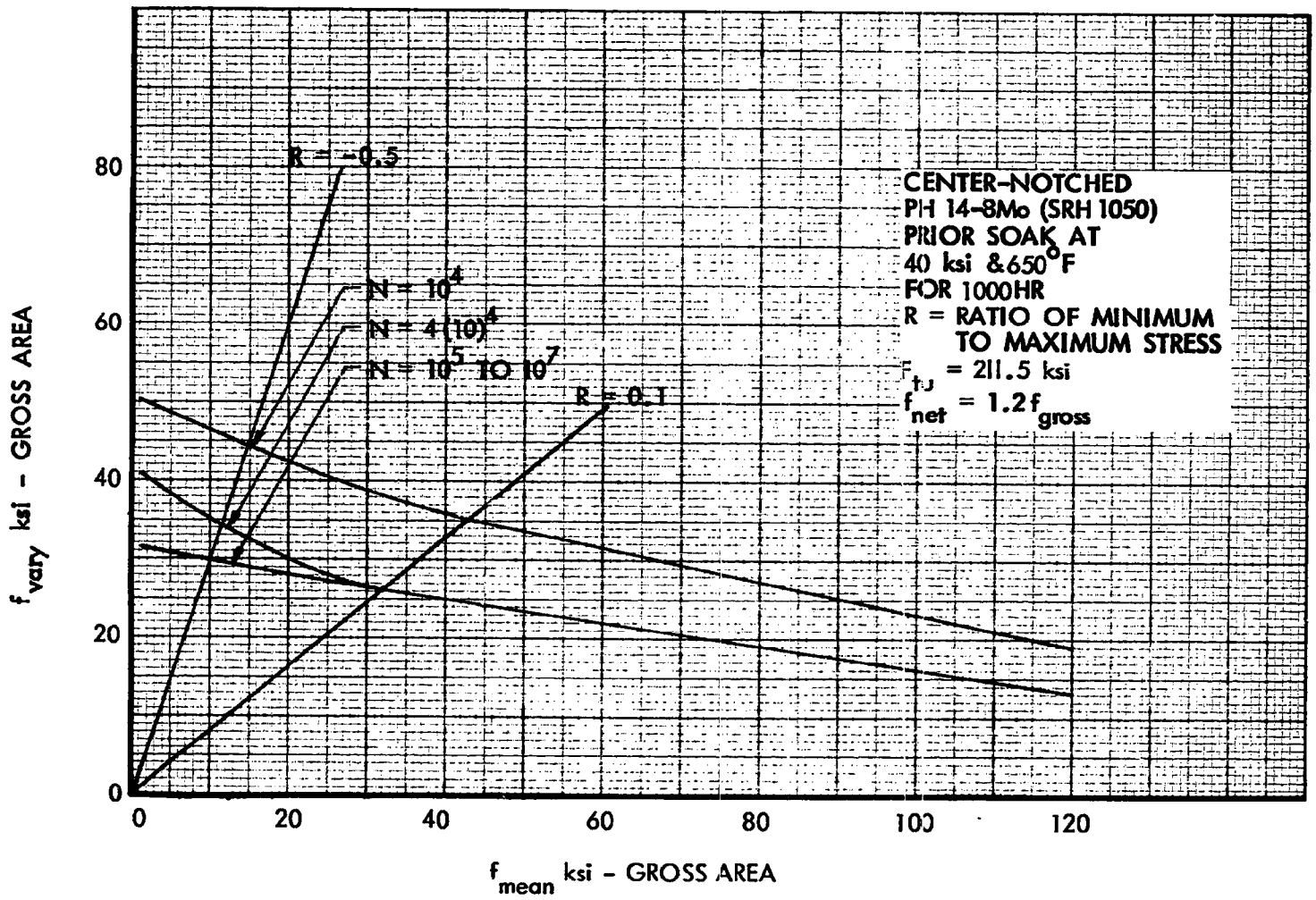



Figure 307. S-N Diagram at 400°F, Center-Notched PH14-8Mo

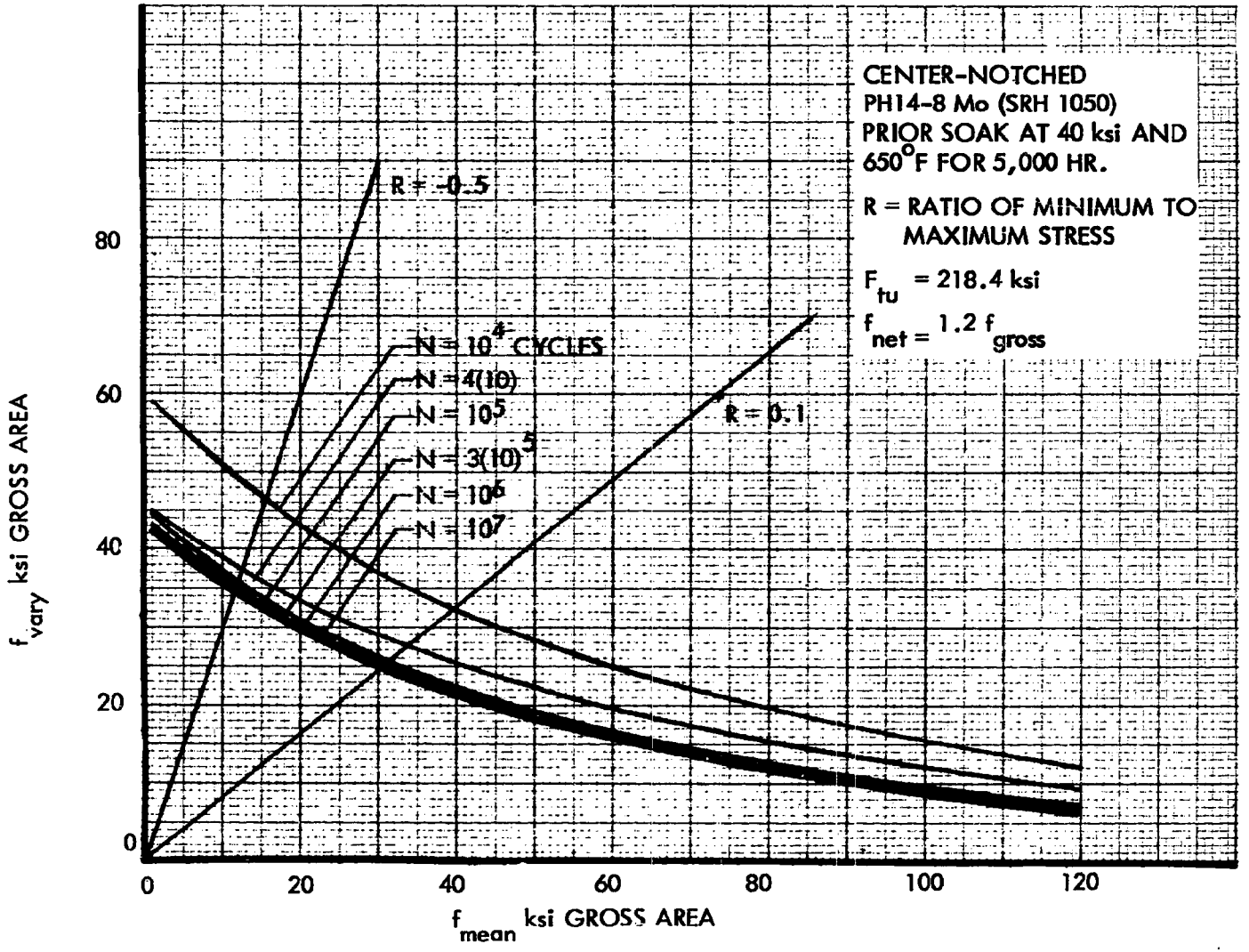



Figure 308. S-N Diagram at 400°F, Center-Notched PH14-8Mo

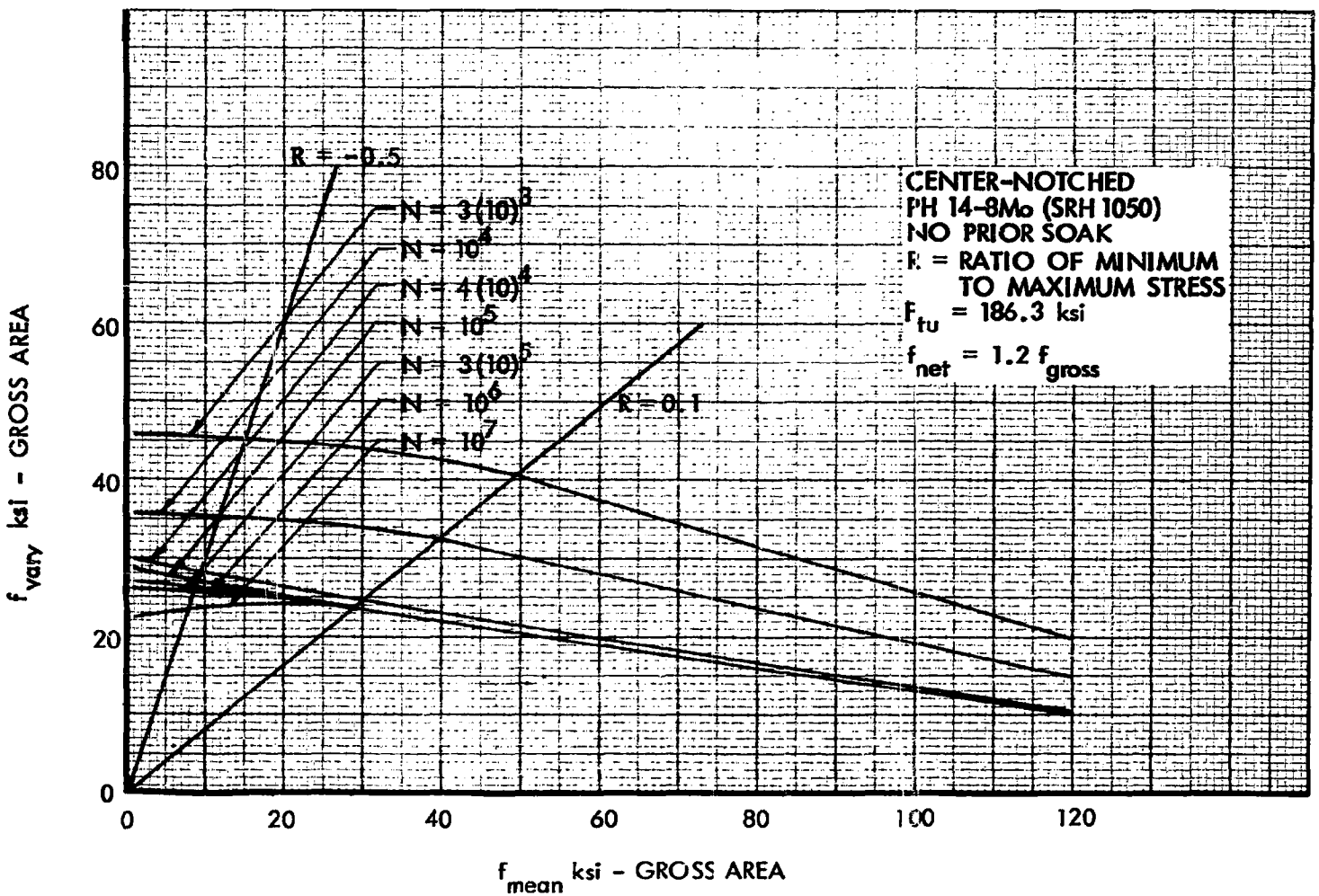



Figure 309. S-N Diagram at 650°F, Center-Notched PH14-8Mo

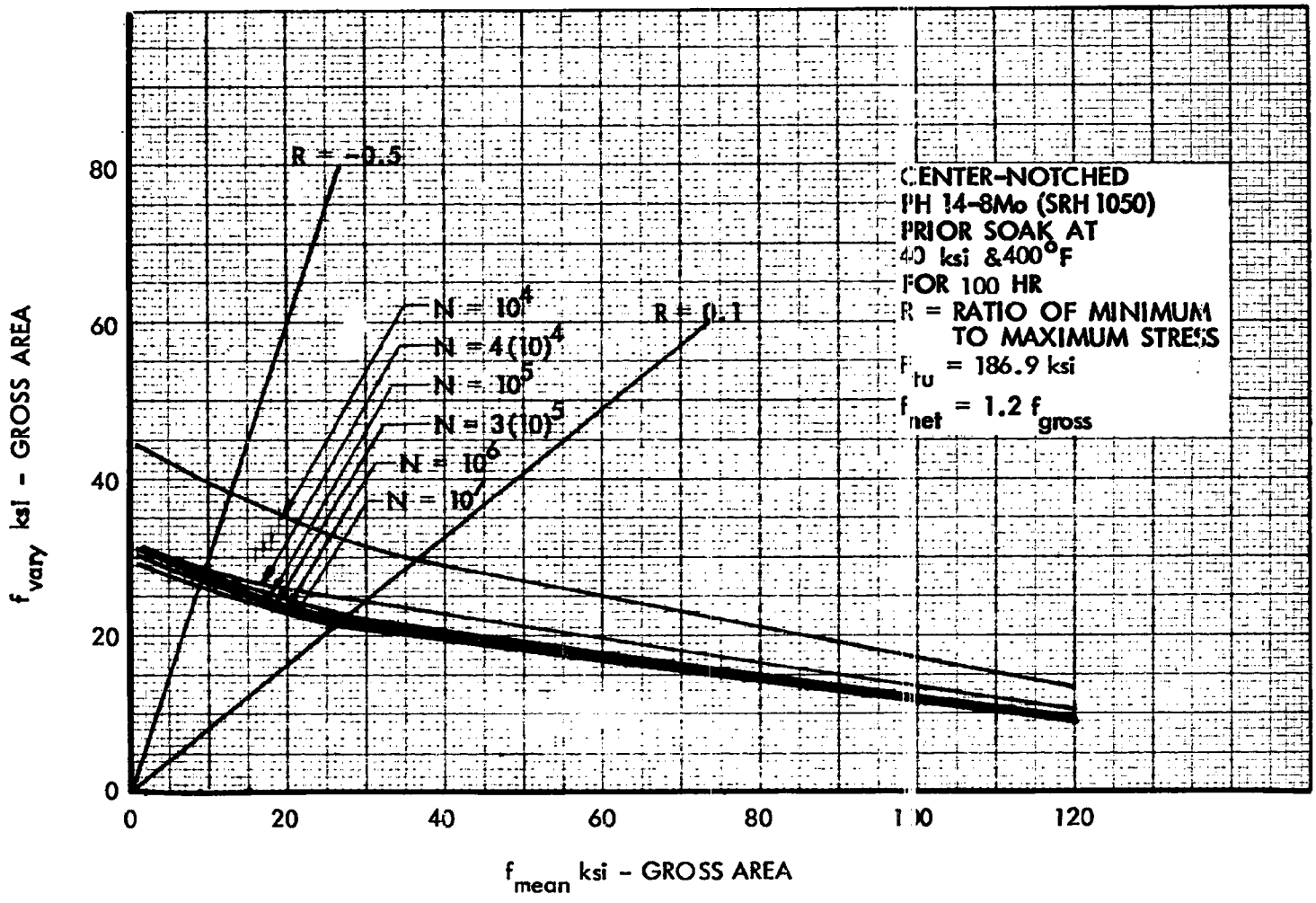



Figure 310. S-N Diagram at 650°F, Center-Notched PH14-8Mo

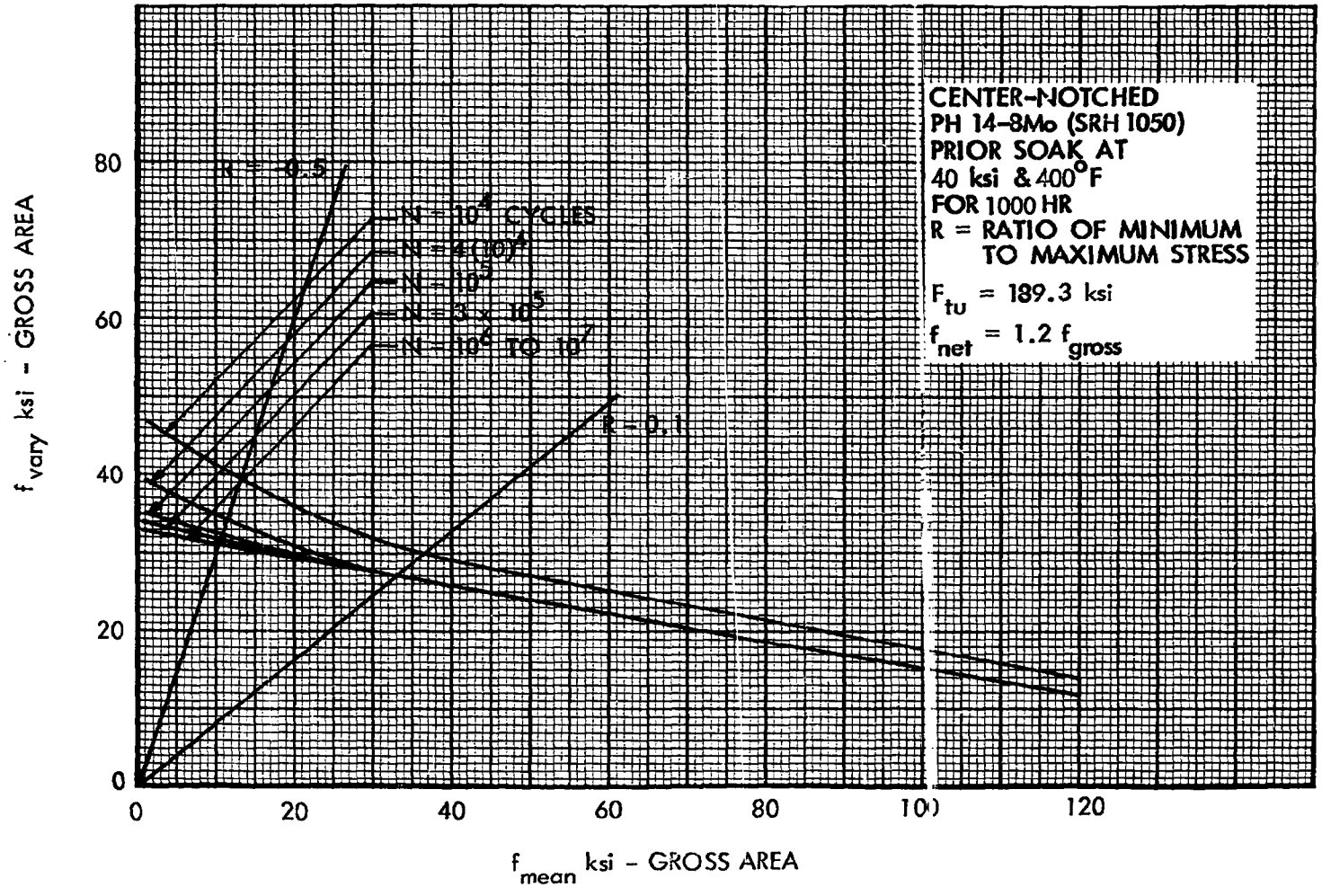



Figure 311. S-N Diagram at 650°F, Center-Notched PH14-8Mo

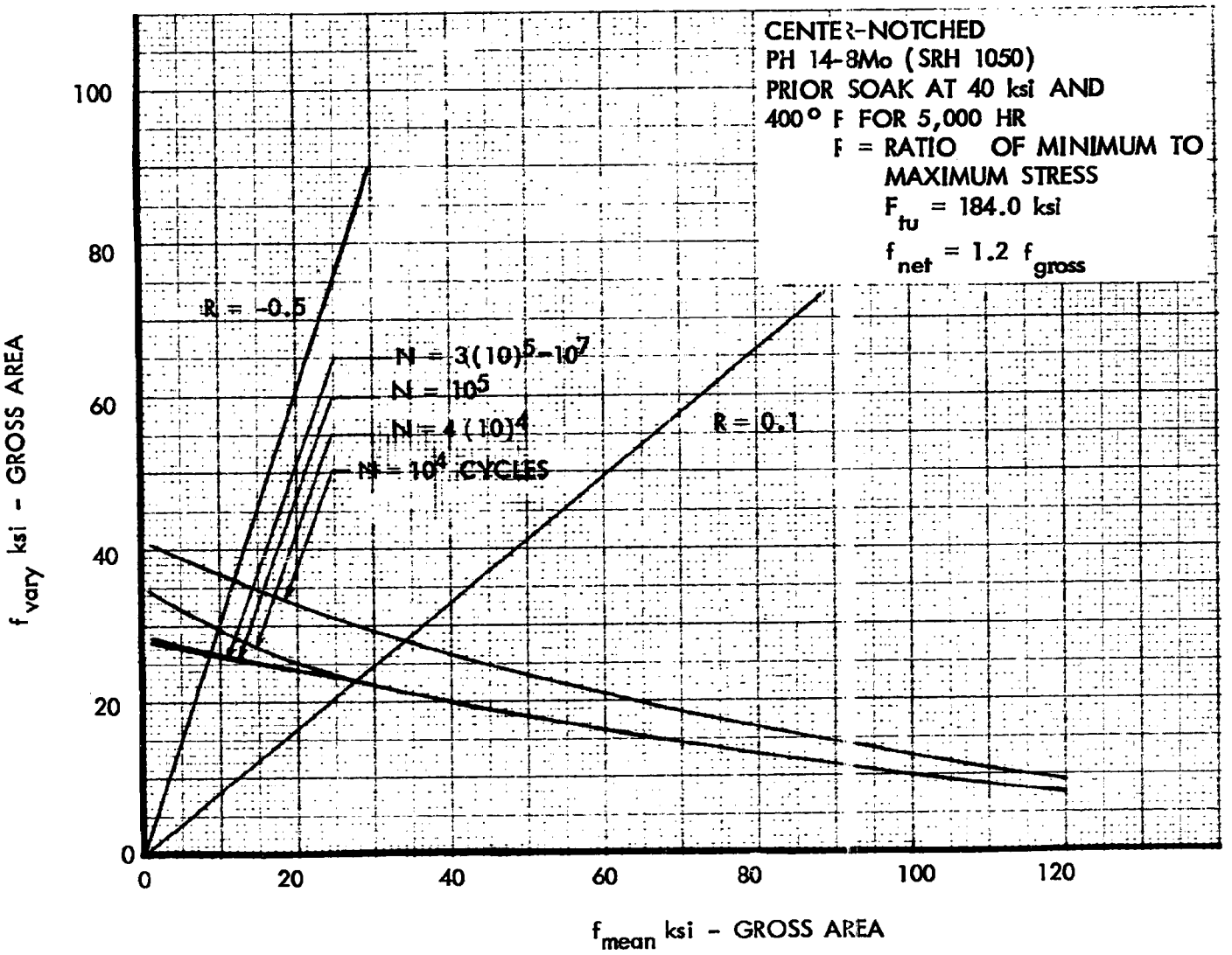



Figure 312. S-N Diagram at 650°F, Center-Notched PH14-8Mo

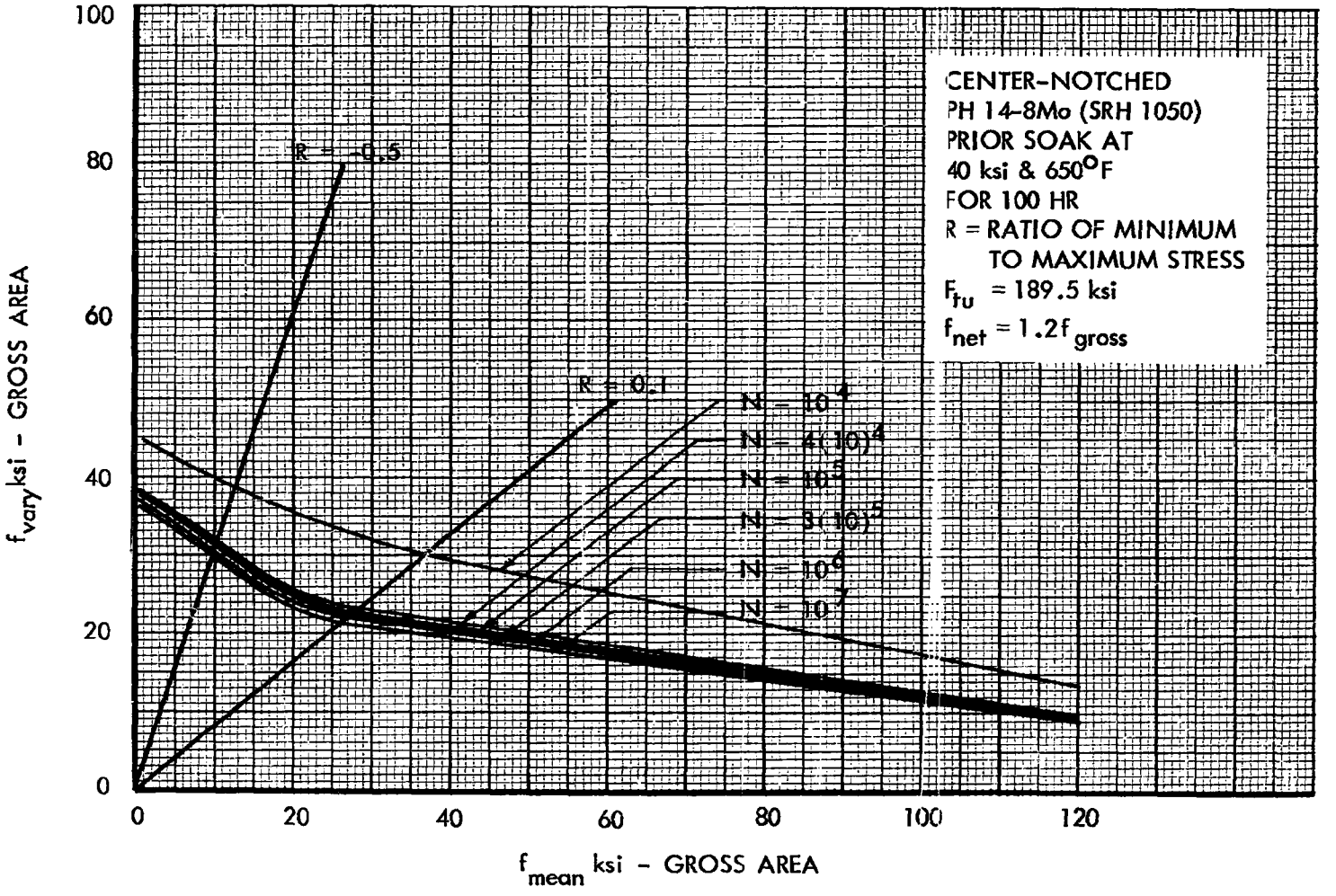



Figure 313. S-N Diagram at 650°F, Center-Notched PH14-8Mo

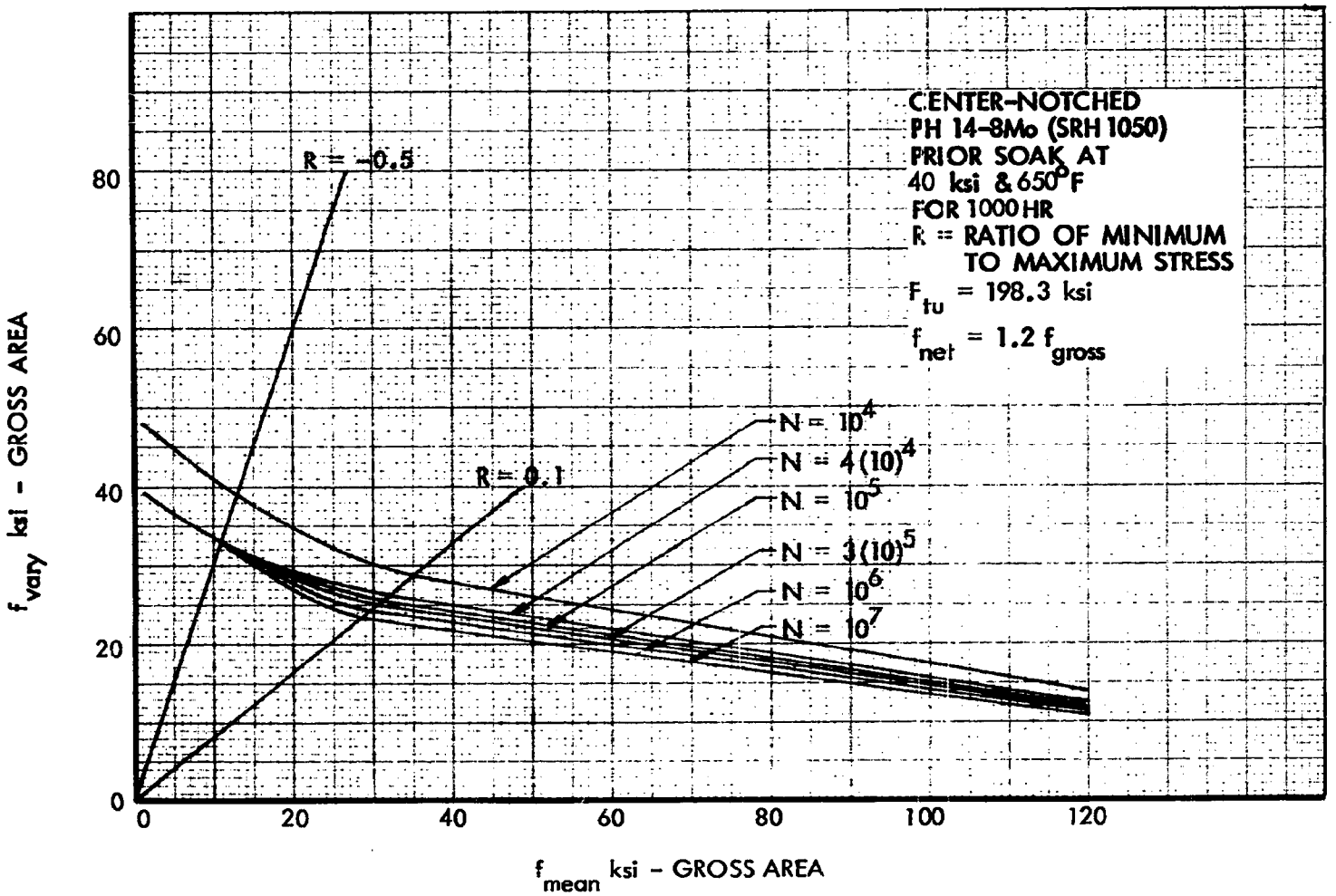



Figure 314. S-N Diagram at 650°F, Center-Notched PH14-8Mo

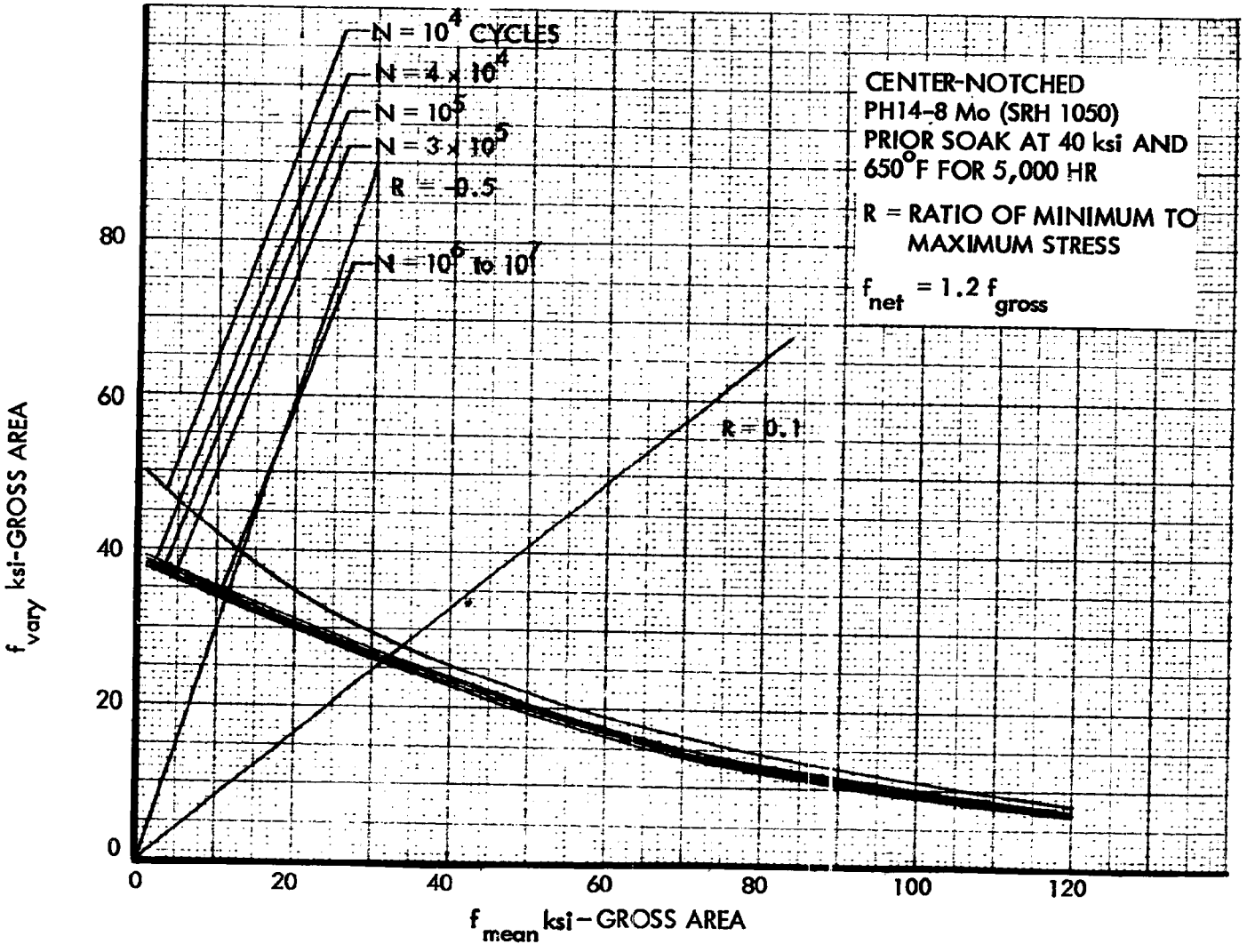



Figure 315. S-N Diagram at 650°F, Center Notched PH14-8Mo

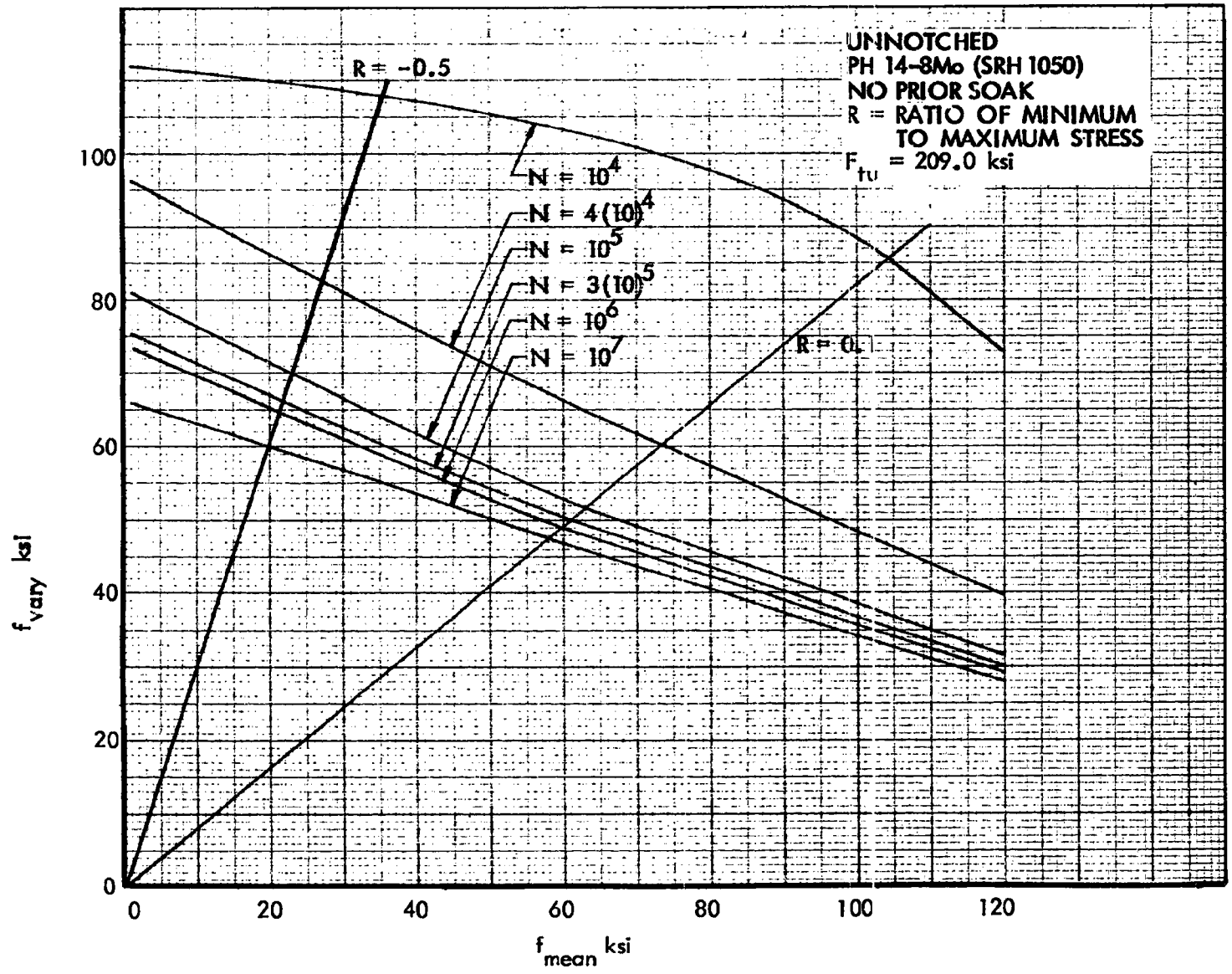



Figure 316. S-N Diagram at Room Temperature, Unnotched PH14-8Mo

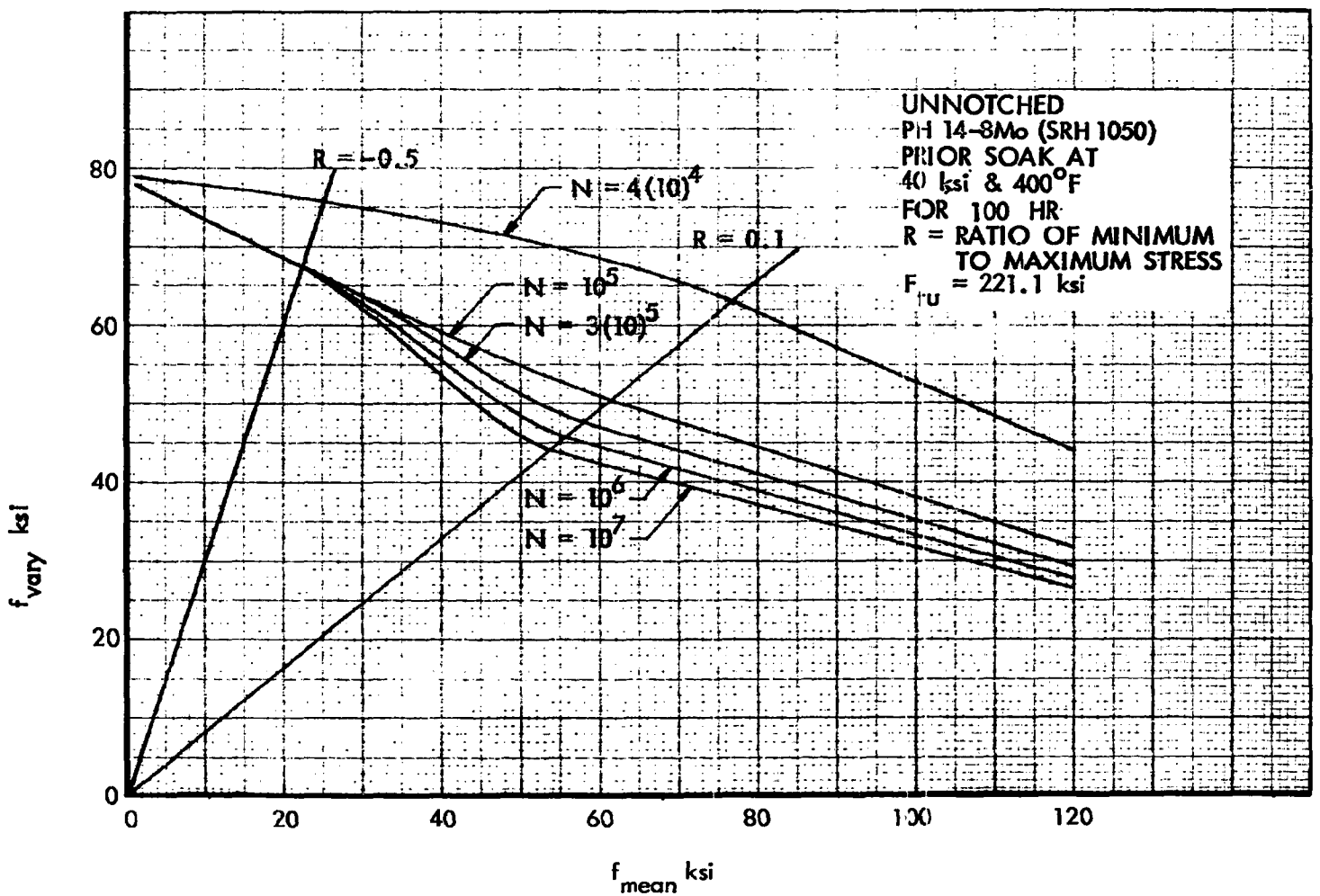



Figure 317. S-N Diagram at Room Tempercture, Unnotched PH14-8Mo

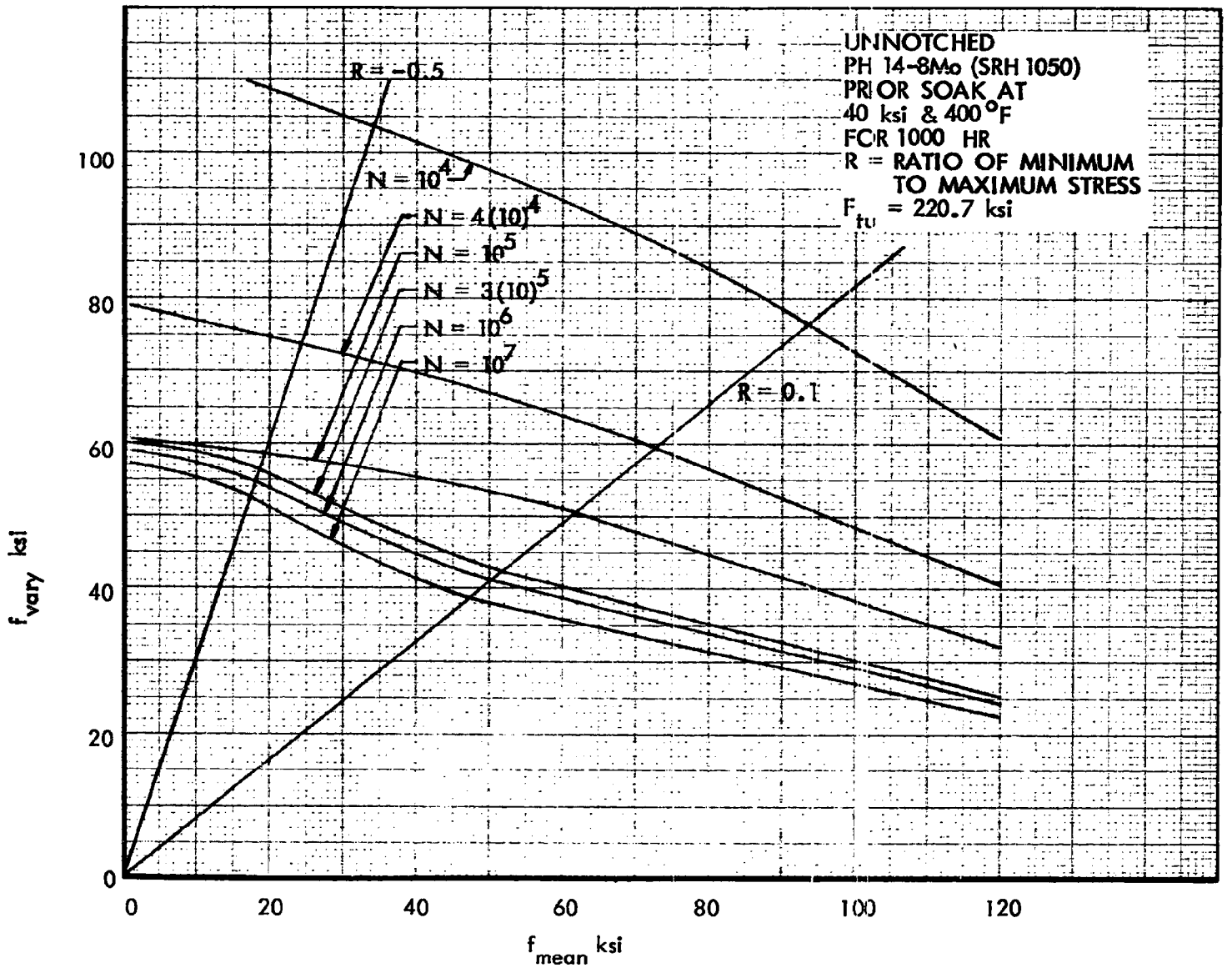



Figure 318. S-N Diagram at Room Temperature, Unnotched PH14-8Mo

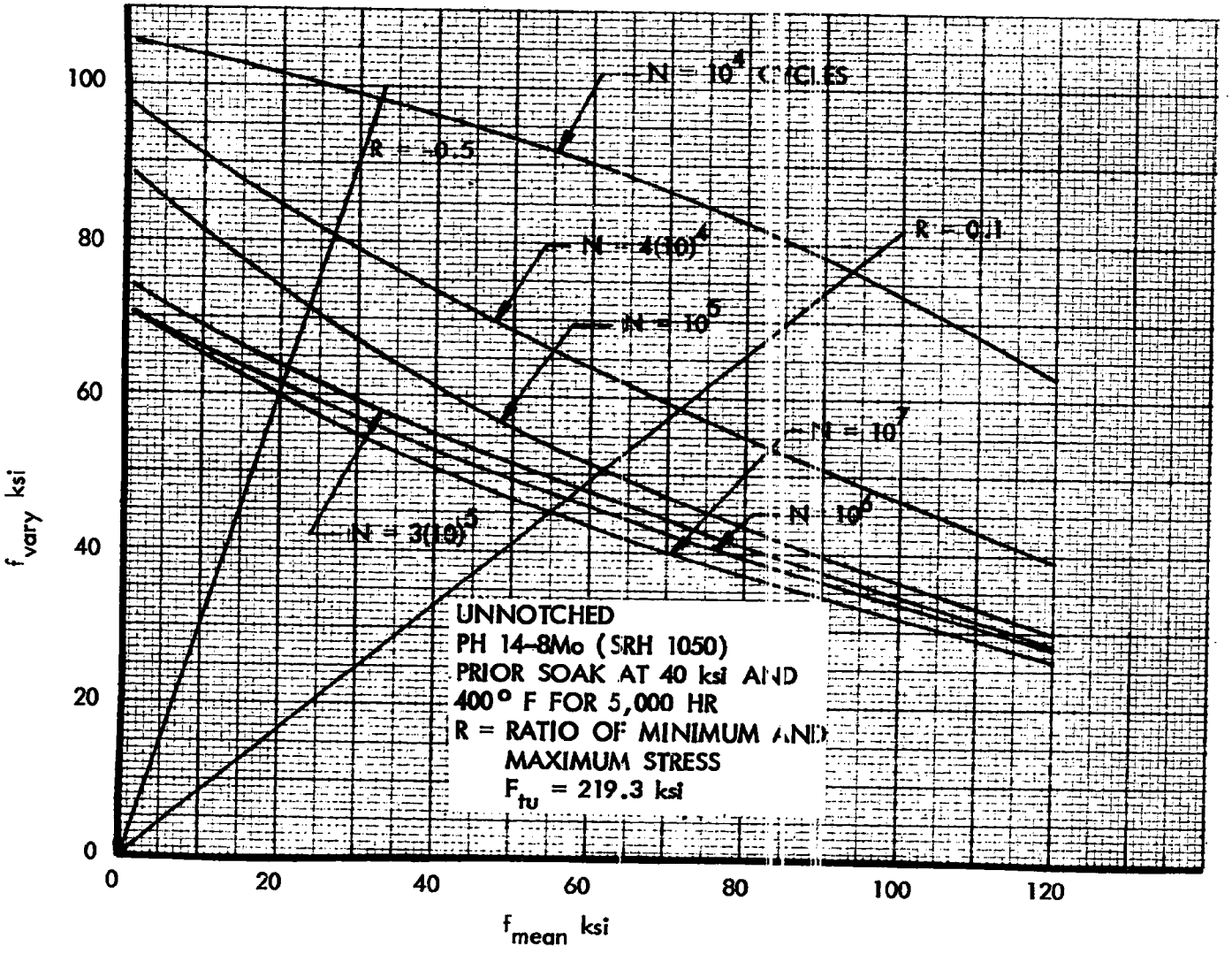



Figure 319. S-N Diagram at Room Temperature, Unnotched PH14-8Mo

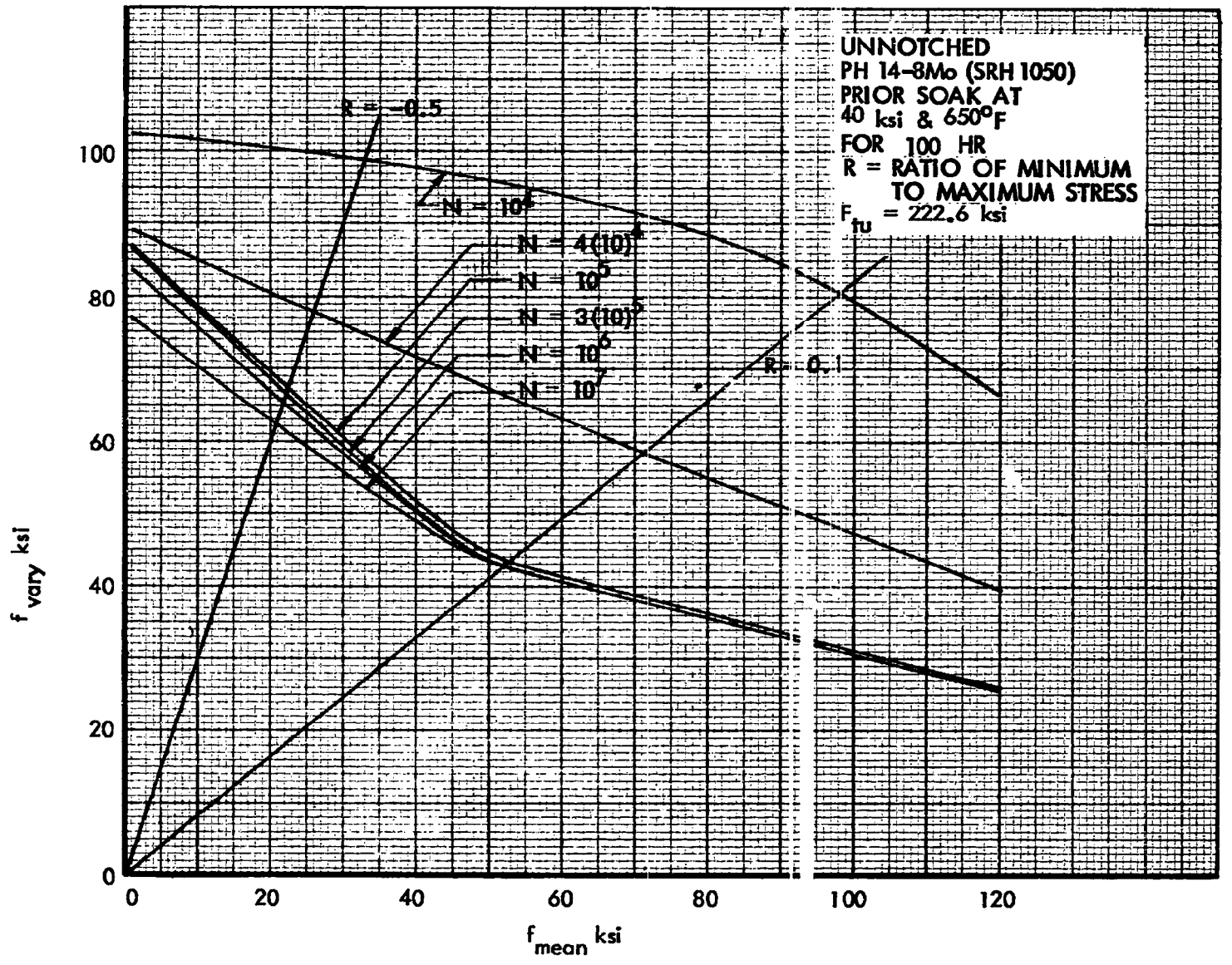



Figure 320. S-N Diagram at Room Temperature, Unnotched PH14-8Mo

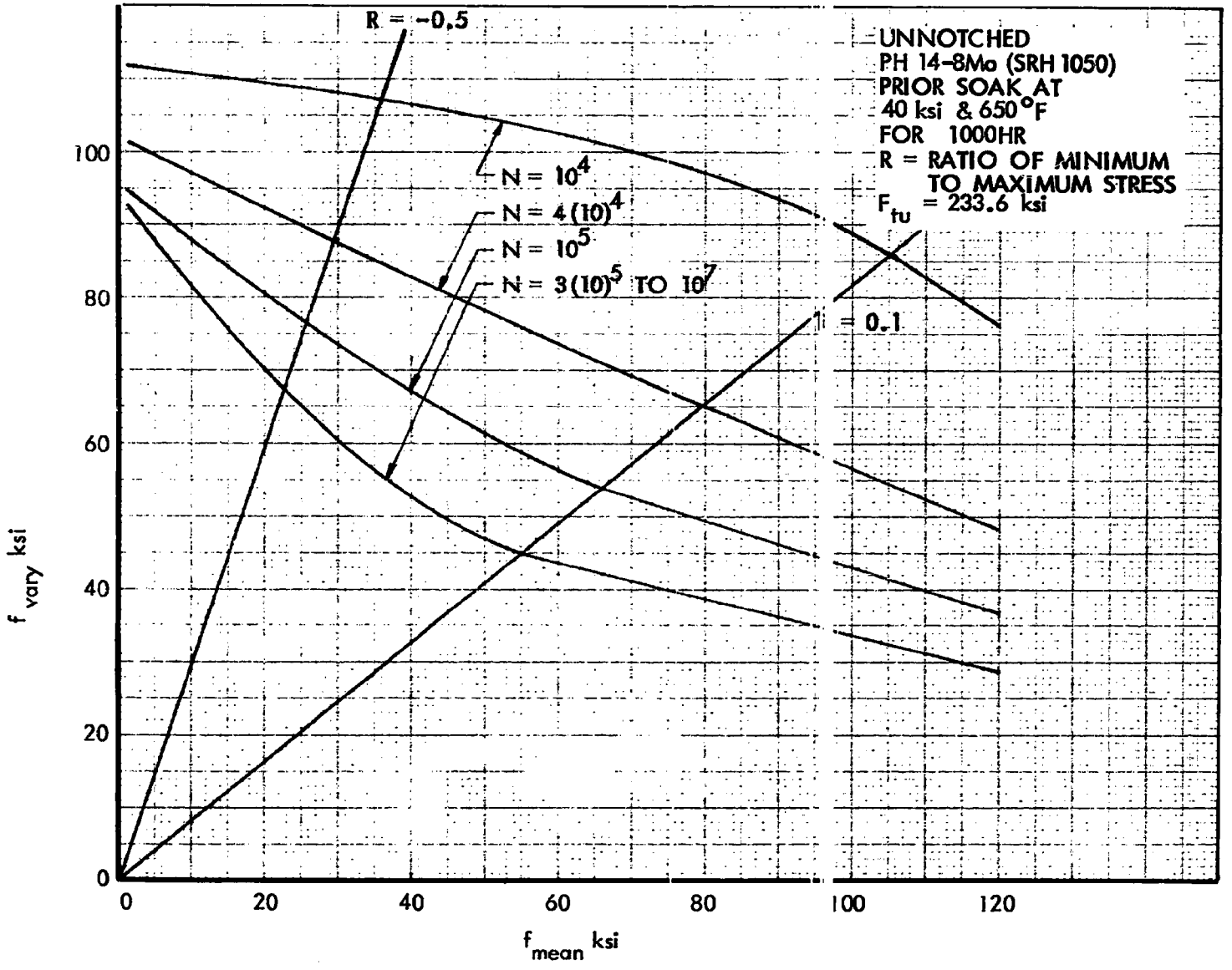



Figure 321. S-N Diagram at Room Temperature, Unnotched PH14-8Mo

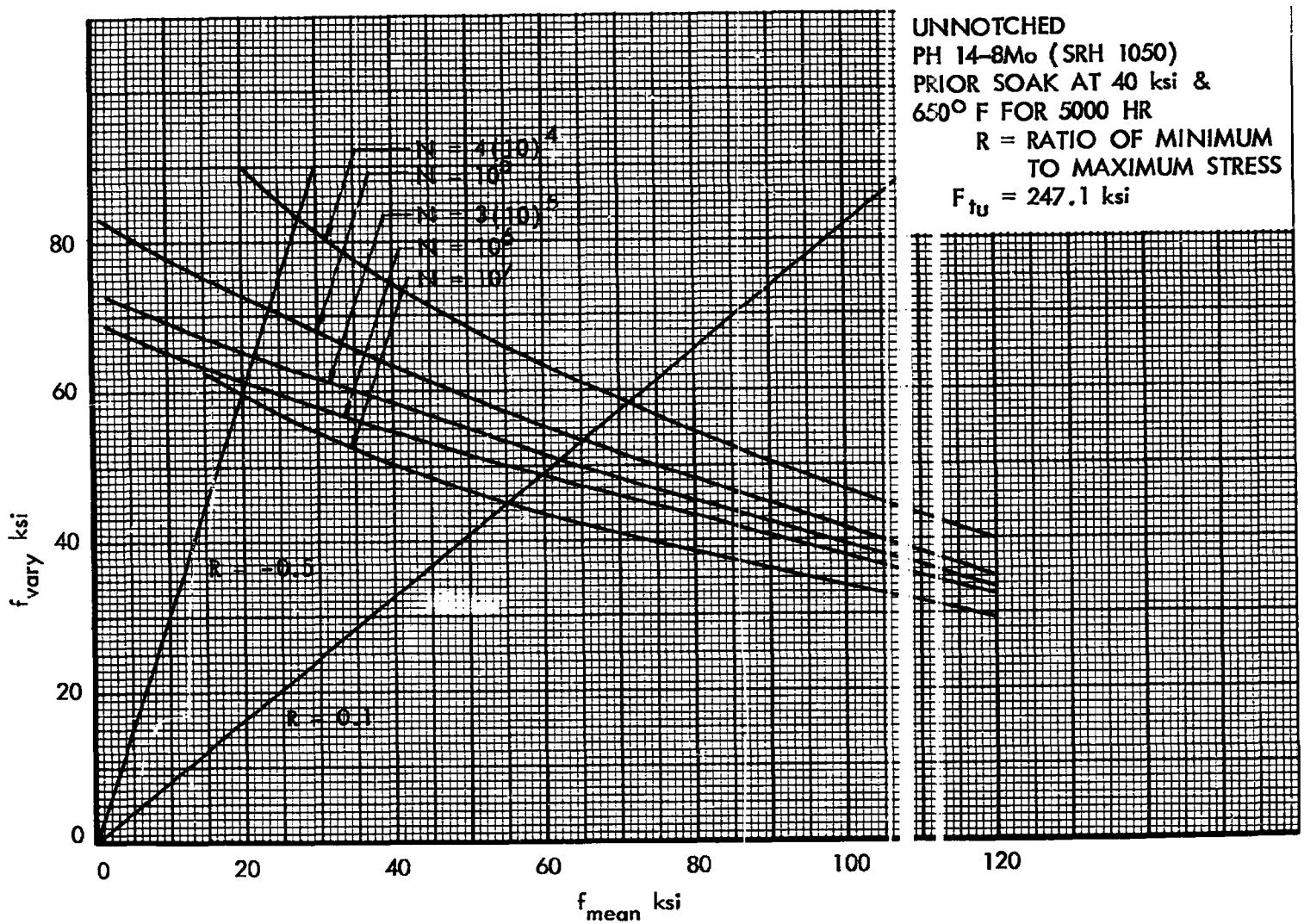



Figure 322. S-N Diagram at Room Temperature Unnotched PH14-8Mo

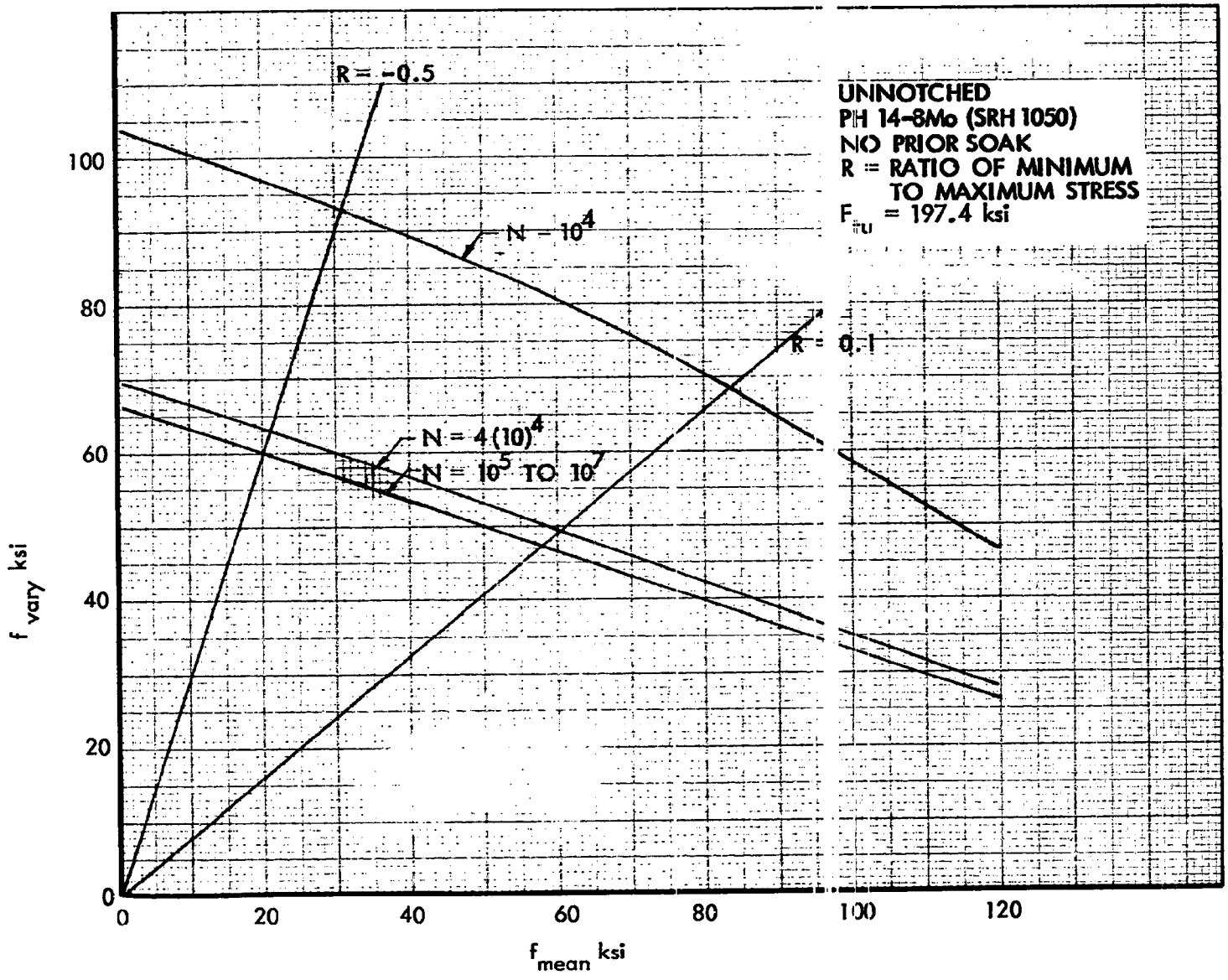



Figure 323. S-N Diagram at 400°F, Unnotched PH14-8Mo

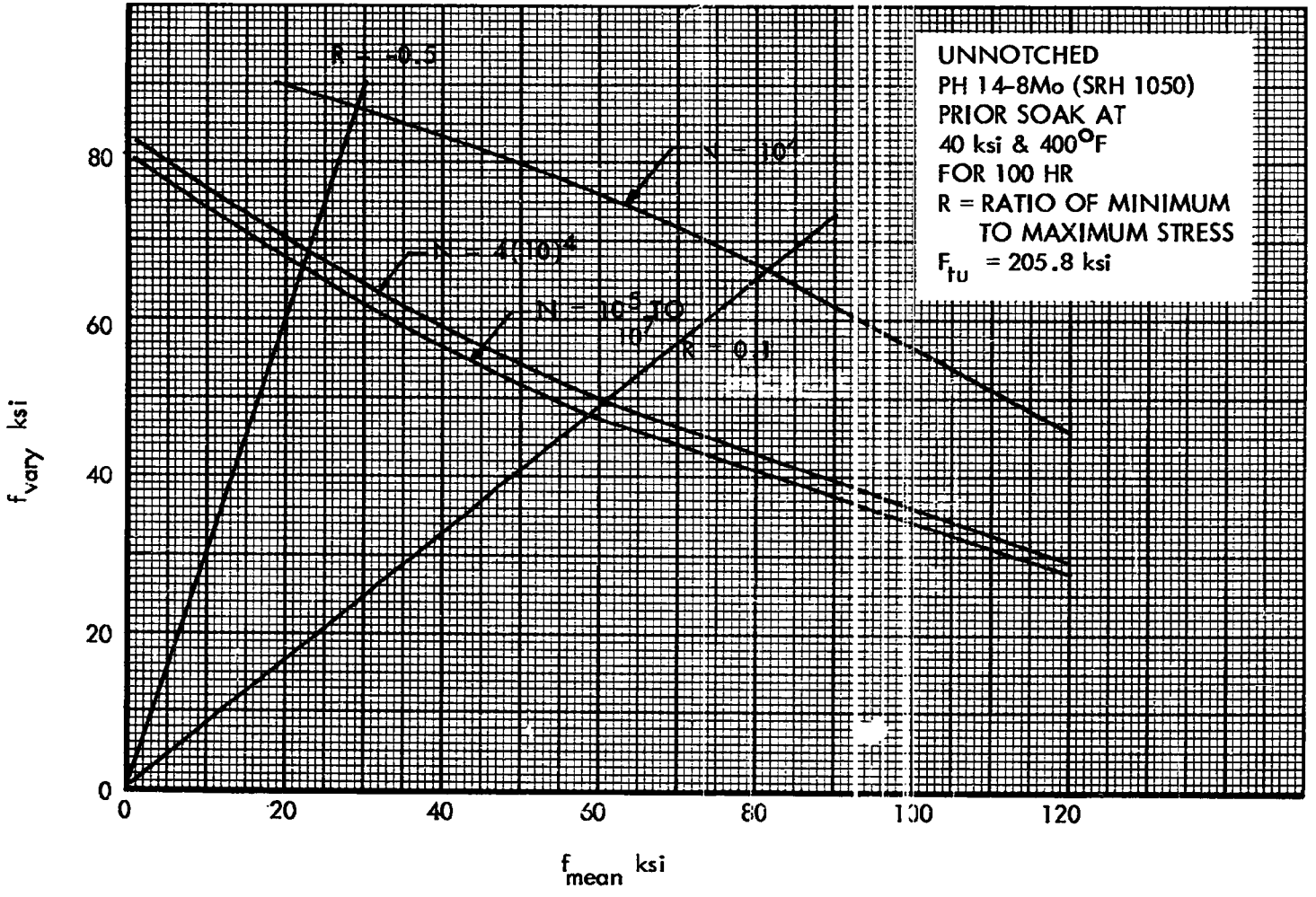



Figure 324. S-N Diagram at 400°F, Unnotched PH14-8Mo

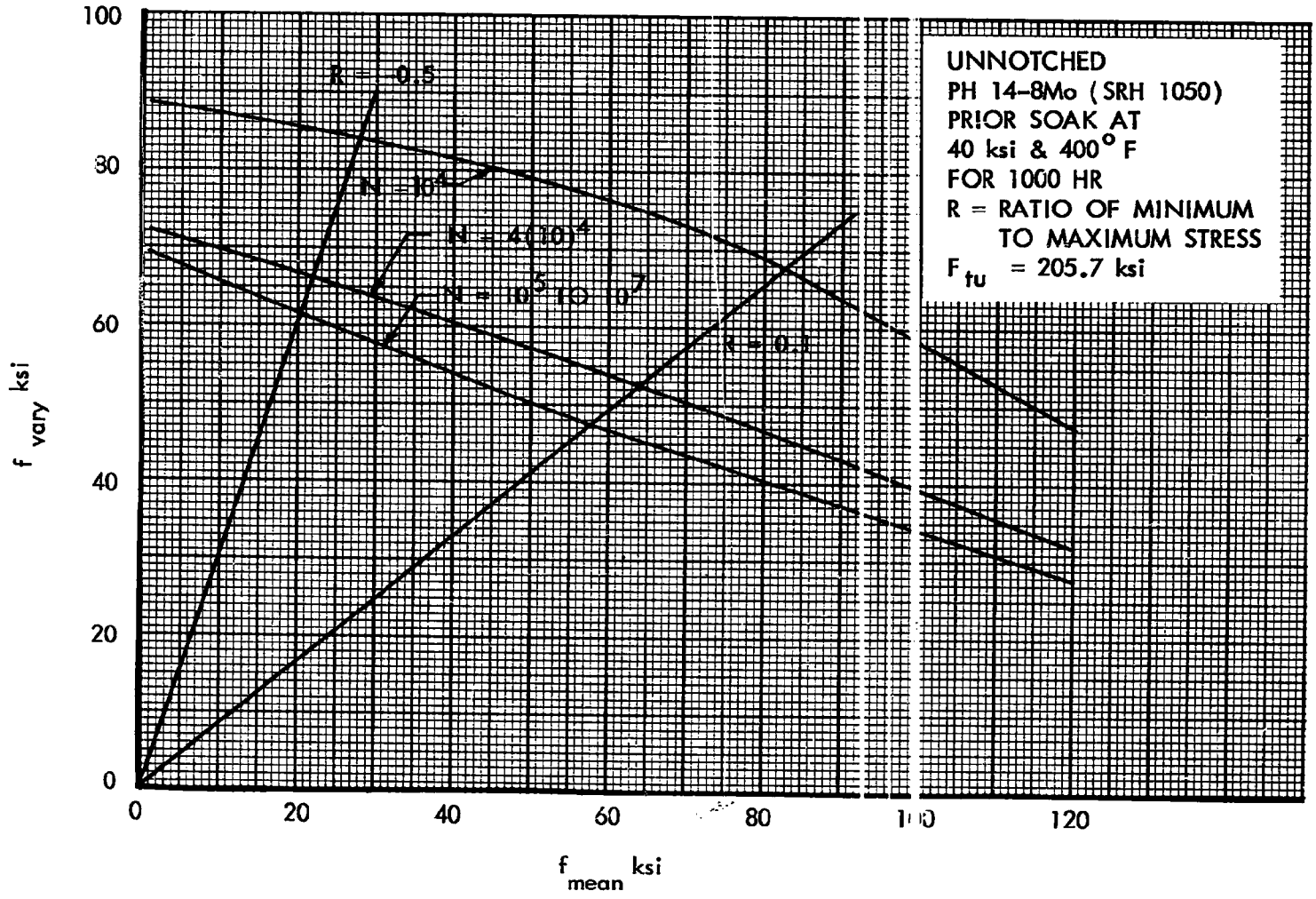



Figure 325. S-N Diagram at 400°F, Unnotched PH14-8Mo

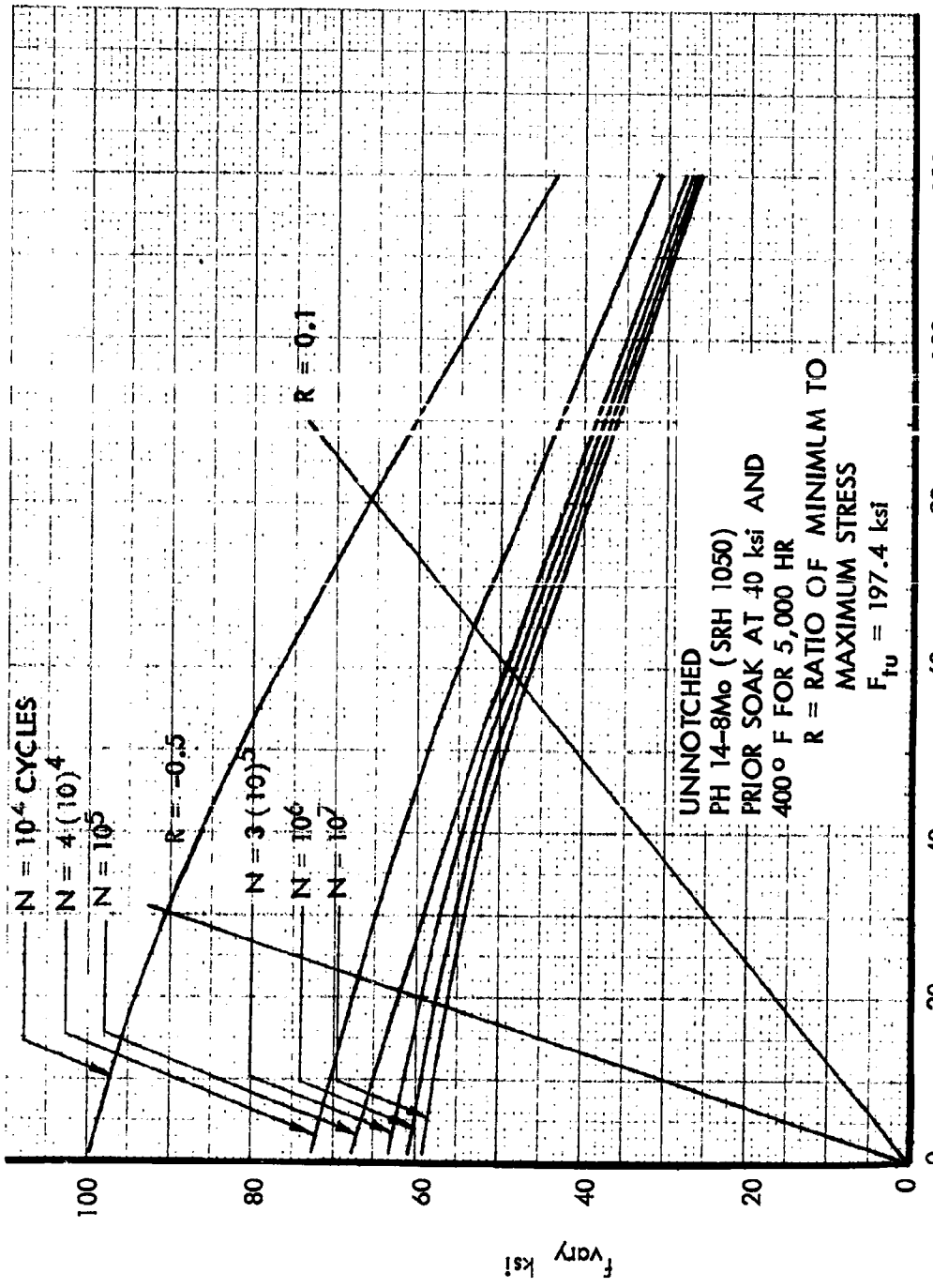



Figure 326. S-N Diagram at 400°F, Unnotched PH14-8Mo

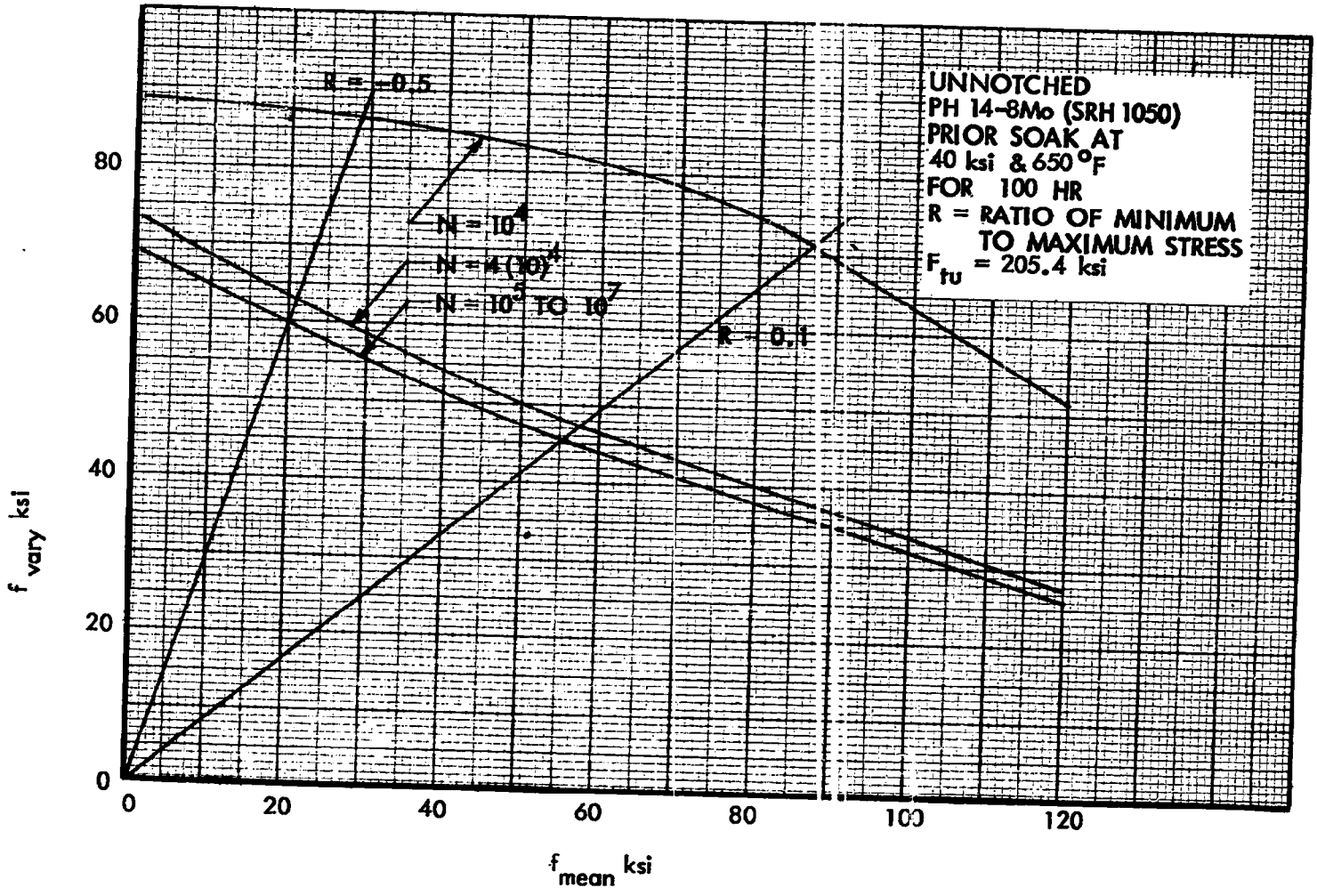



Figure 327. S-N Diagram at 400°F, Unnotched PH14-8Mo

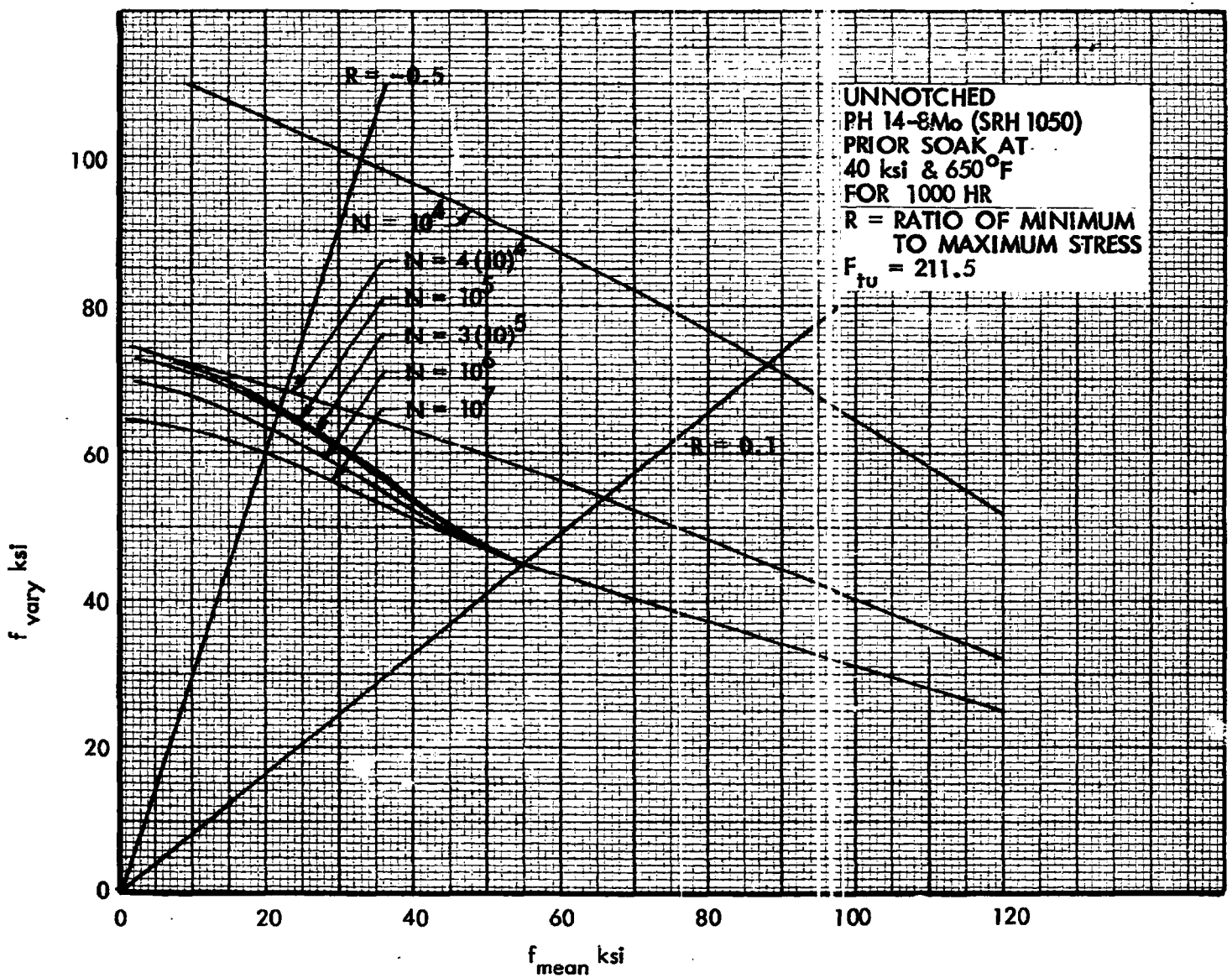



Figure 328. S-N Diagram at 400°F, Unnotched PH14-8Mo

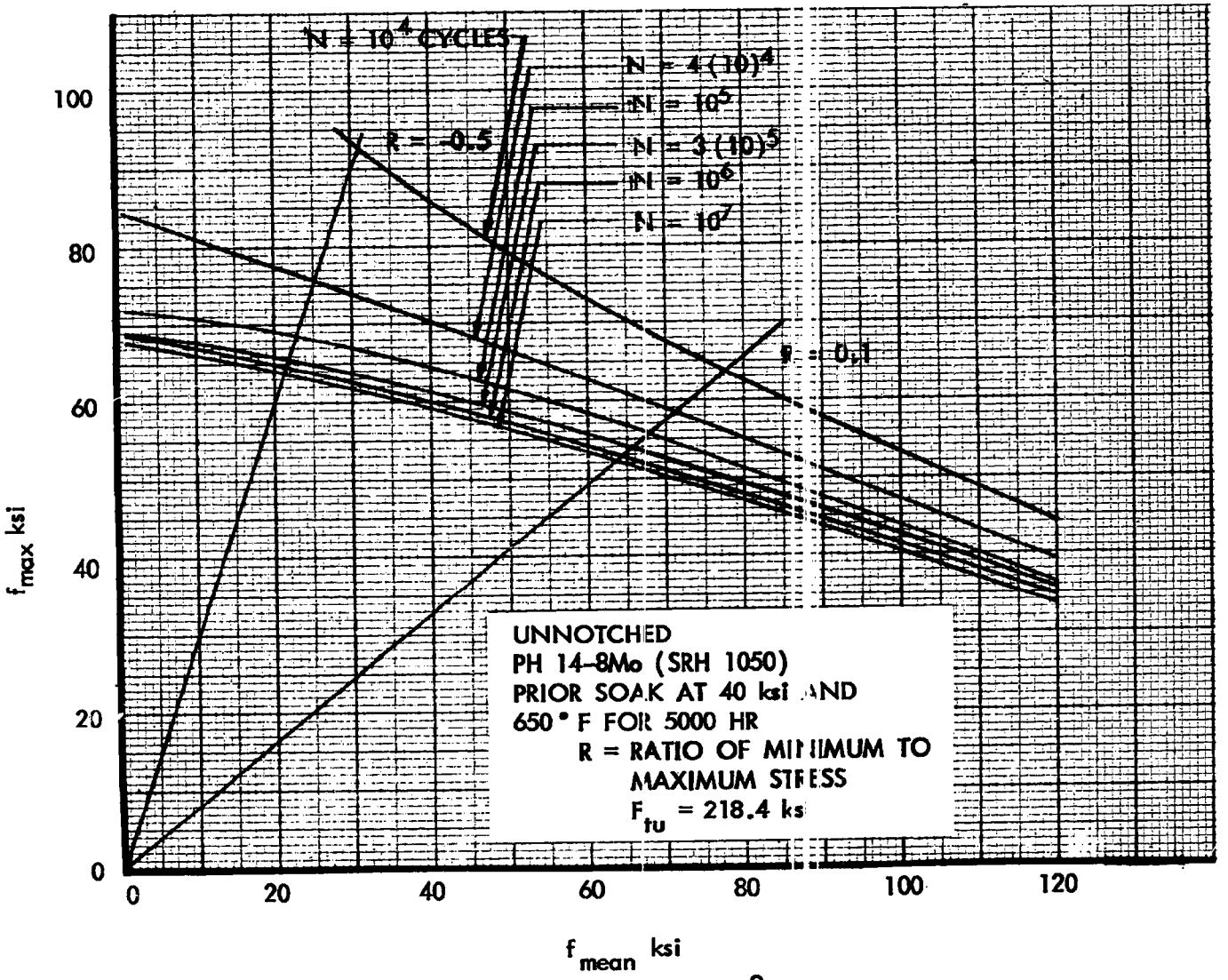



Figure 329. S-N Diagram at 400°F, Unnotched PH14-8Mo

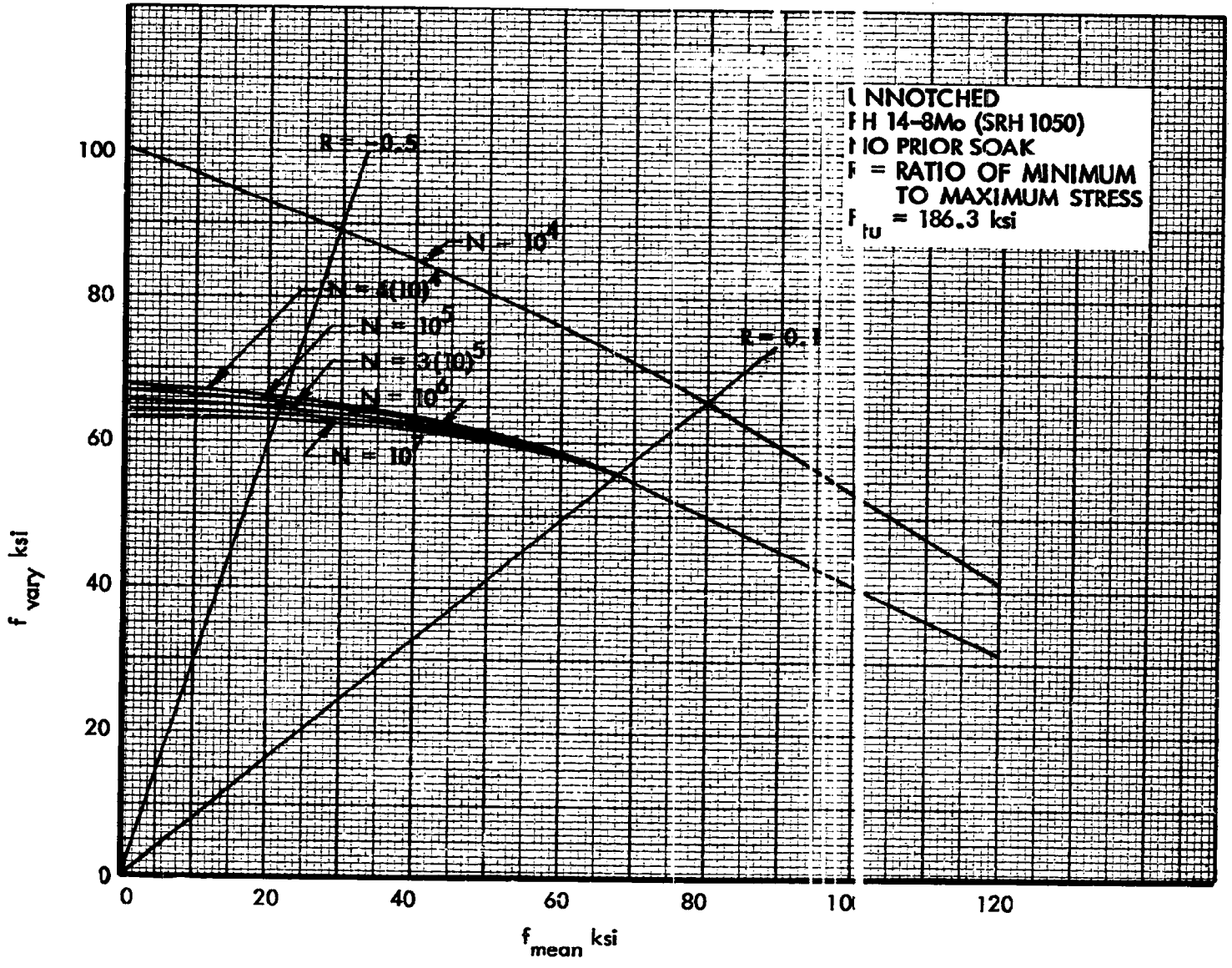



Figure 330. S-N Diagram at 650°F, Unnotched PH14-8Mo

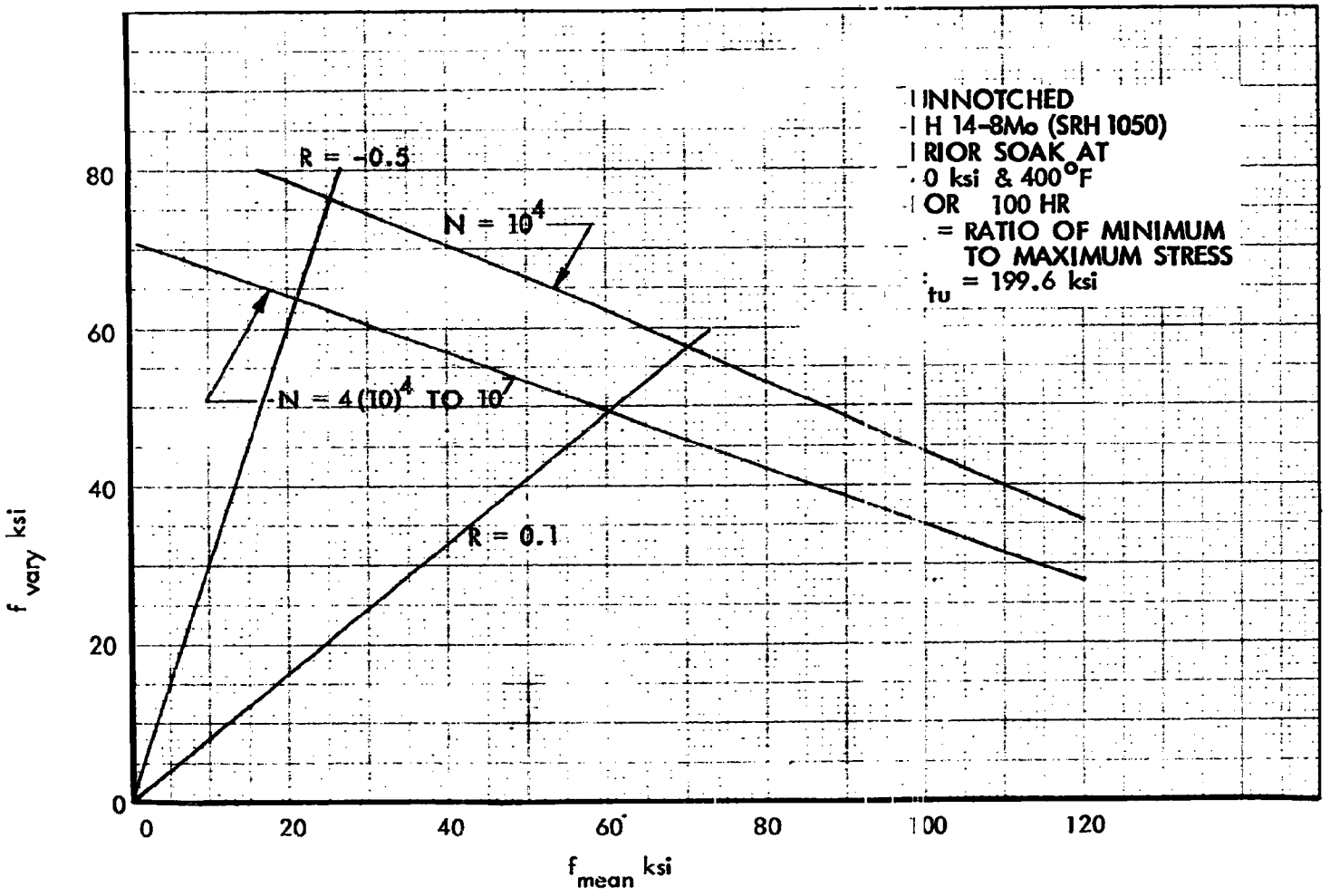



Figure 331. S-N Diagram at 650°F, Unnotched PH14-8Mo

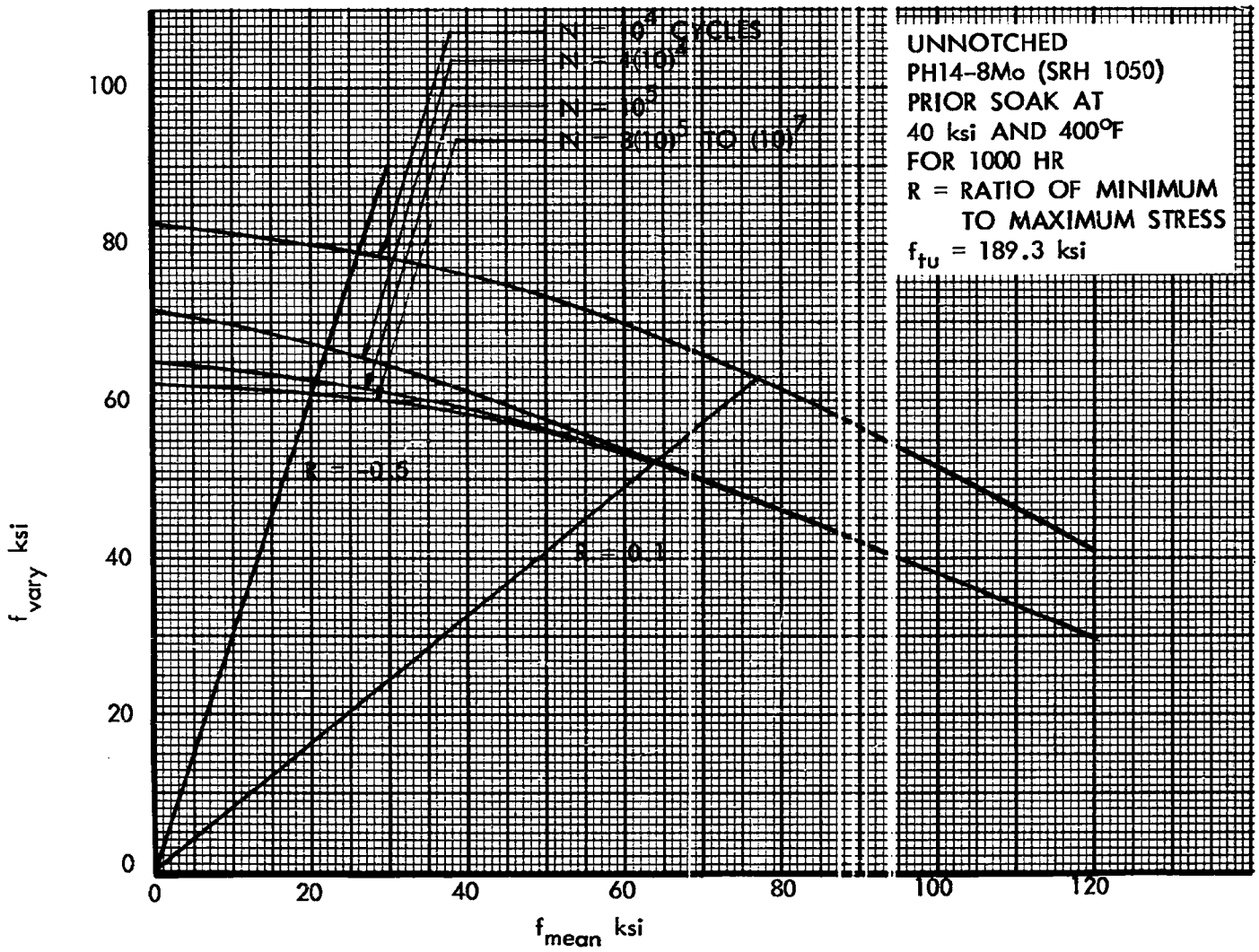



Figure 332. S-N Diagram at 650°F, Unnotched PH14-8Mo

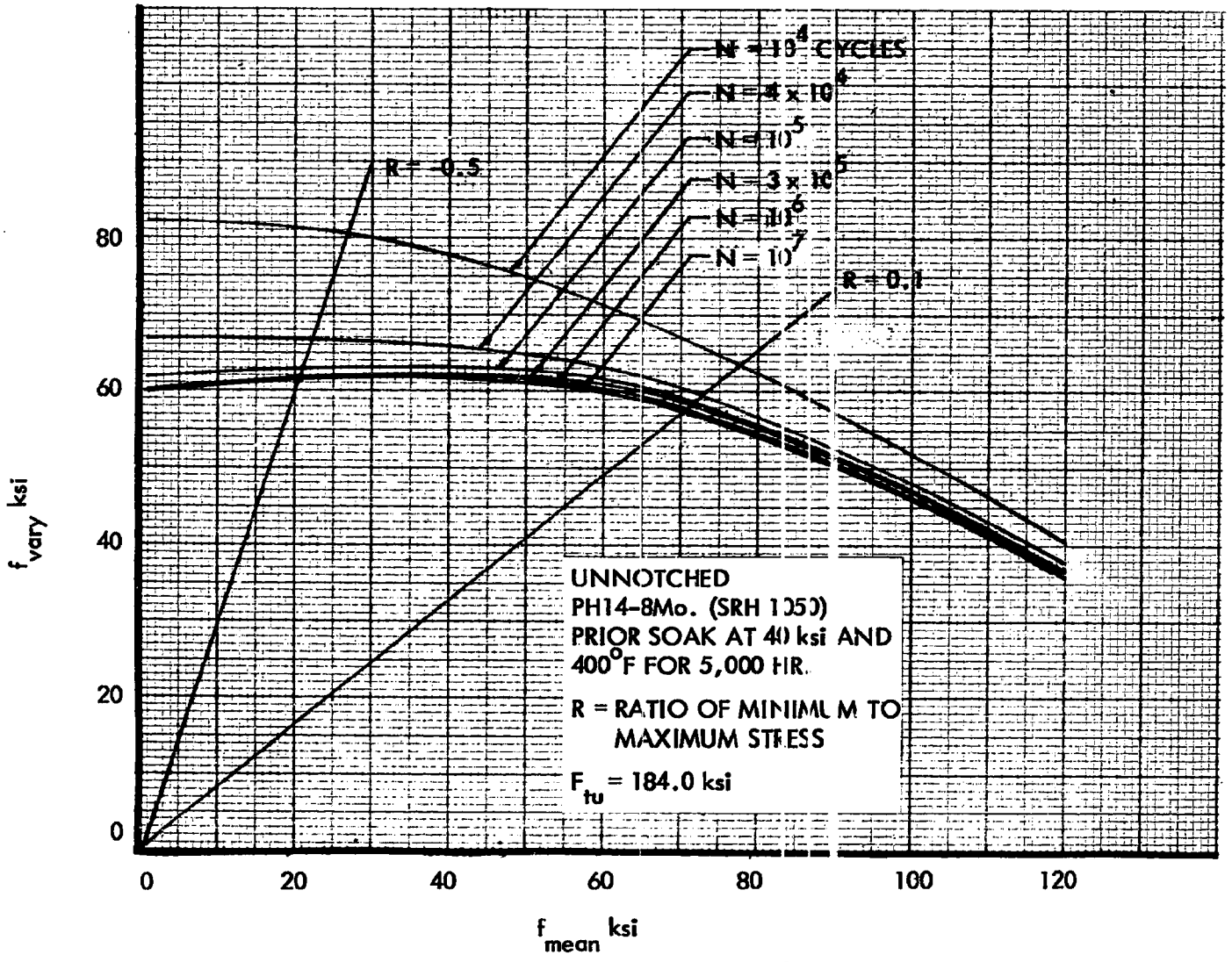



Figure 333. S-N Diagram at 650°F, Unnotched PH14-8Mo

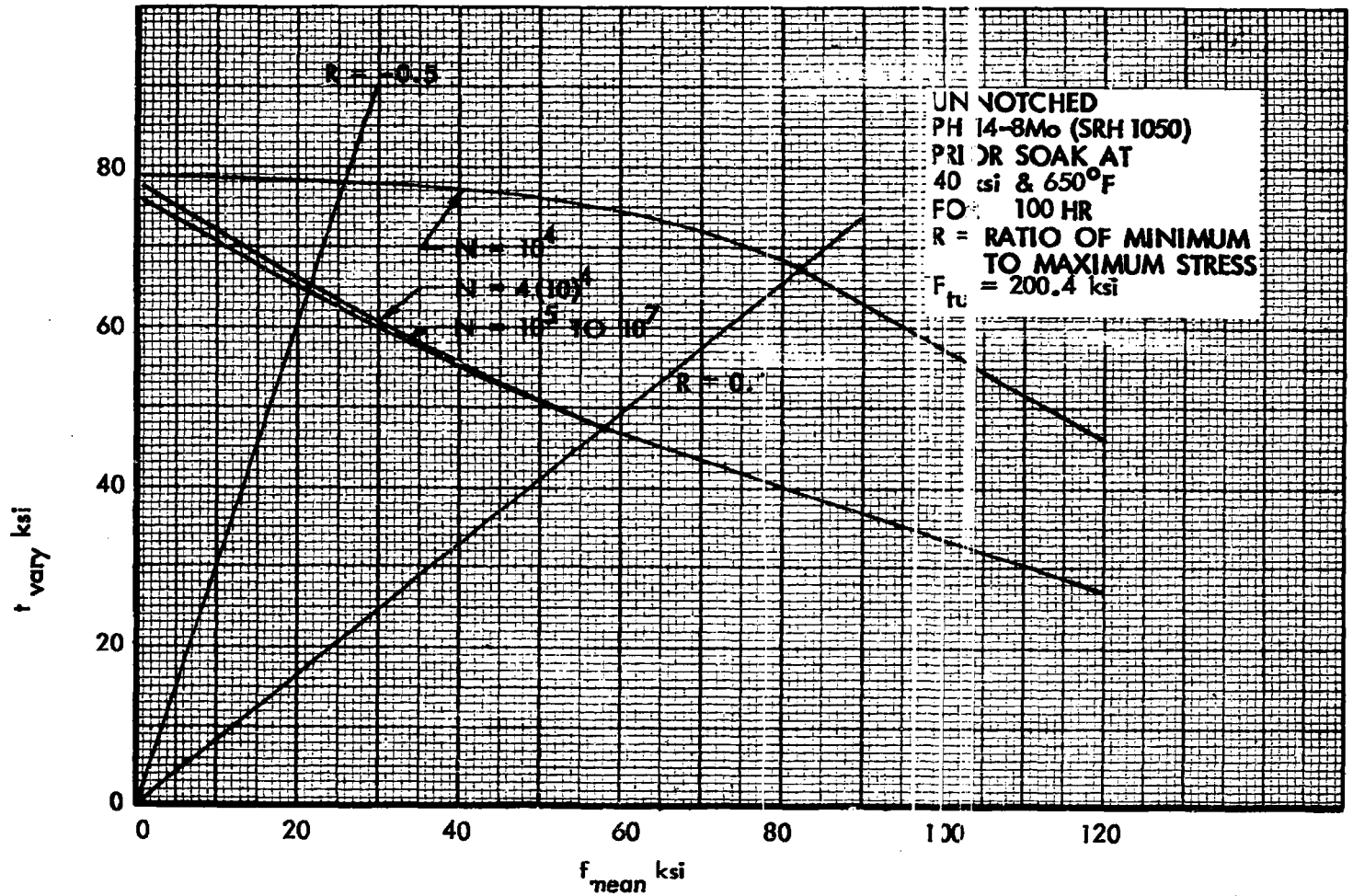



Figure 334. S-N Diagram at 650°F, Unnotched PH14-8Mo

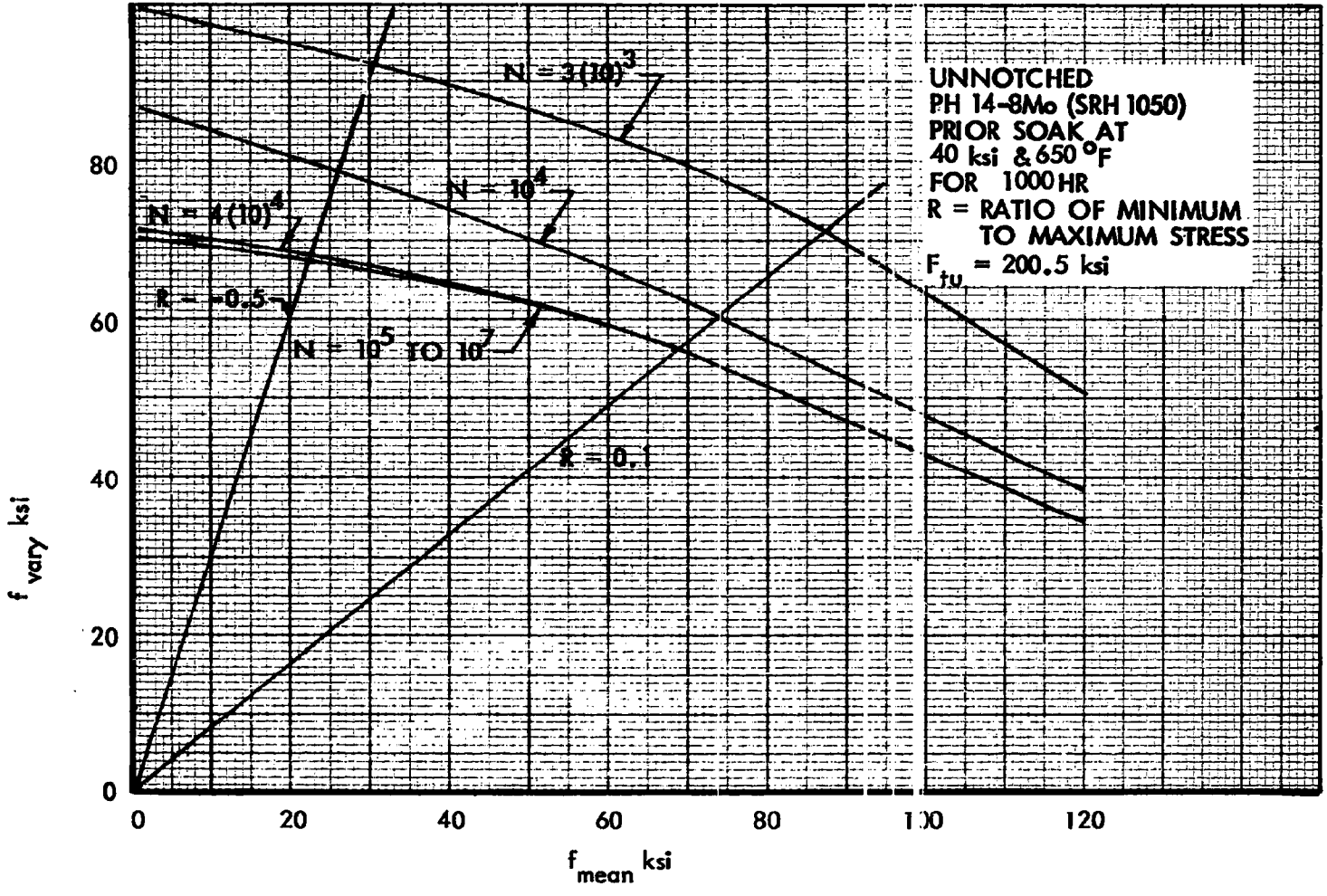



Figure 335. S-N Diagram at 650°F, Unnotched PH14-8Mo

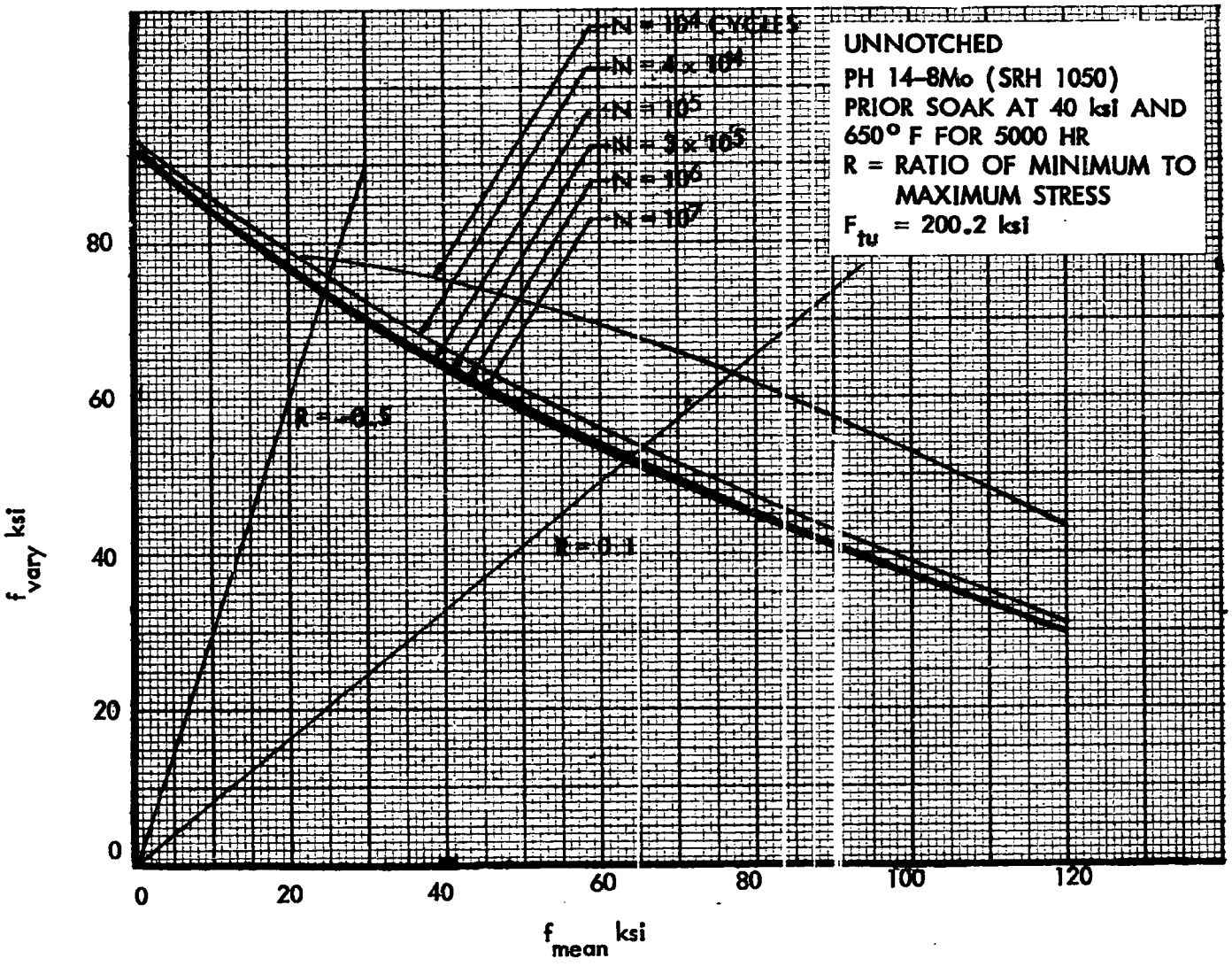



Figure 336. S-N Diagram at 650°F, Unnotched PH14-8Mo

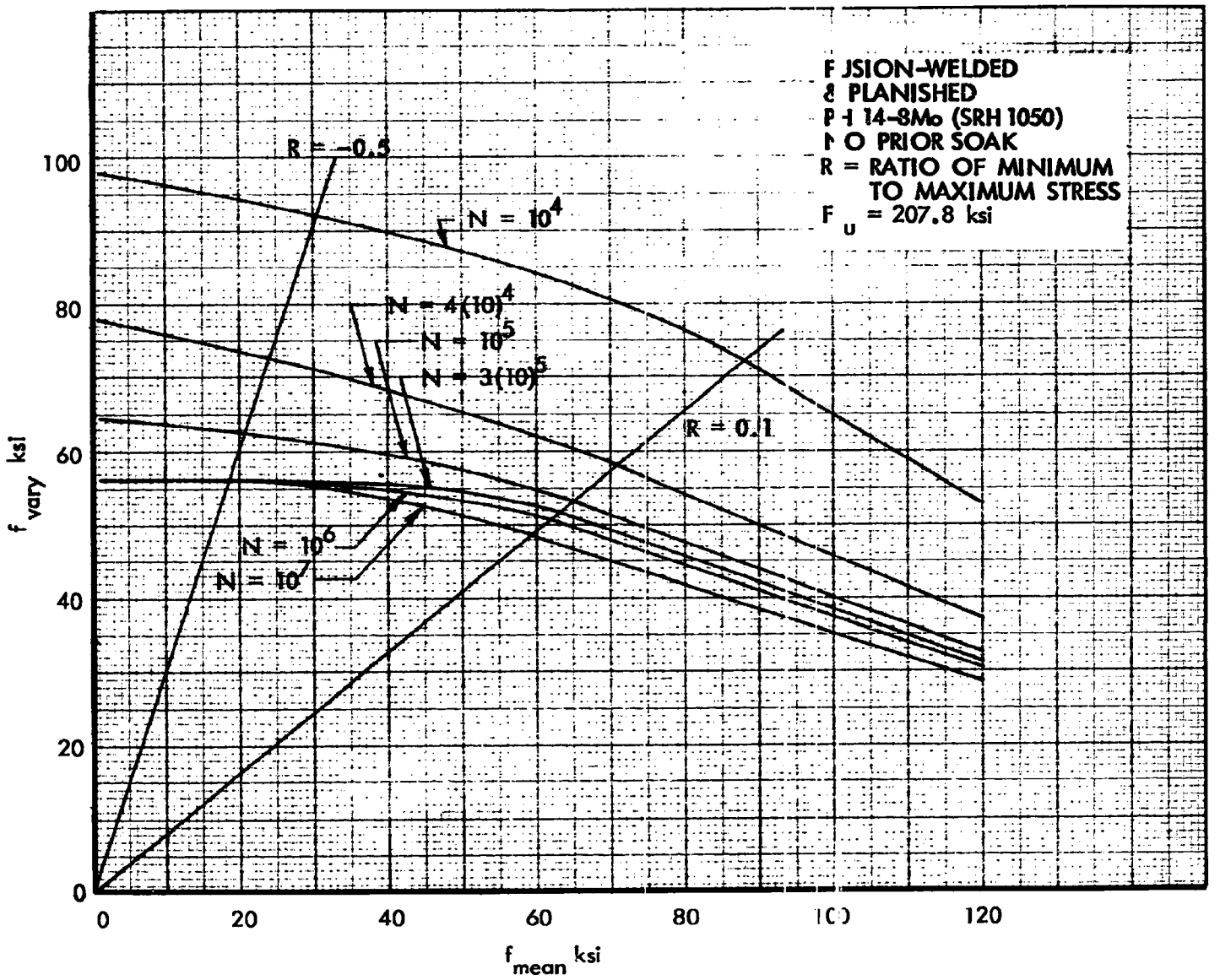



Figure 337. S-N Diagram at Room Temperature, Fusion-Welded PH14-8Mo

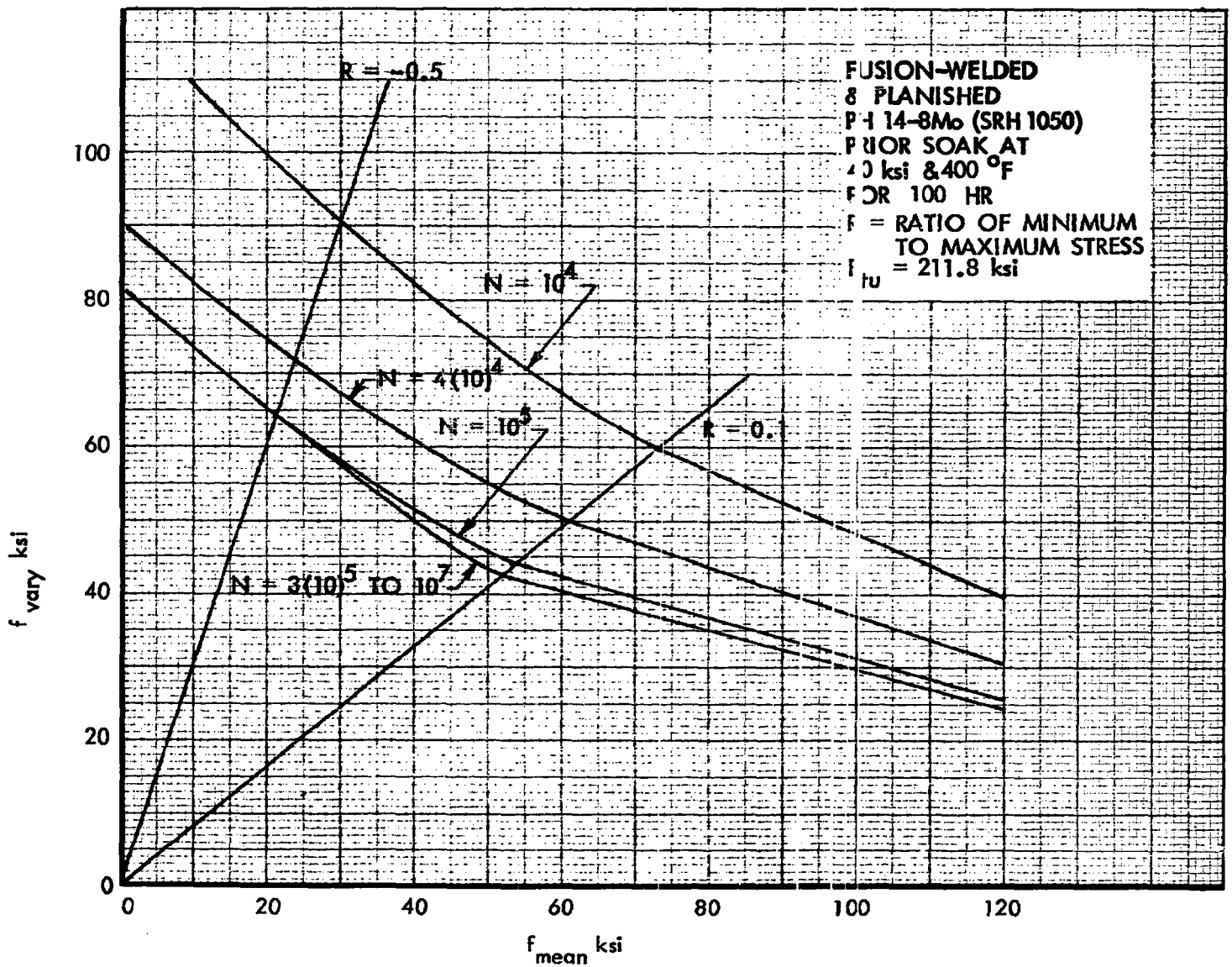



Figure 338. S-N Diagram at Room Temperature, Fusion-Welded PH14-8Mo

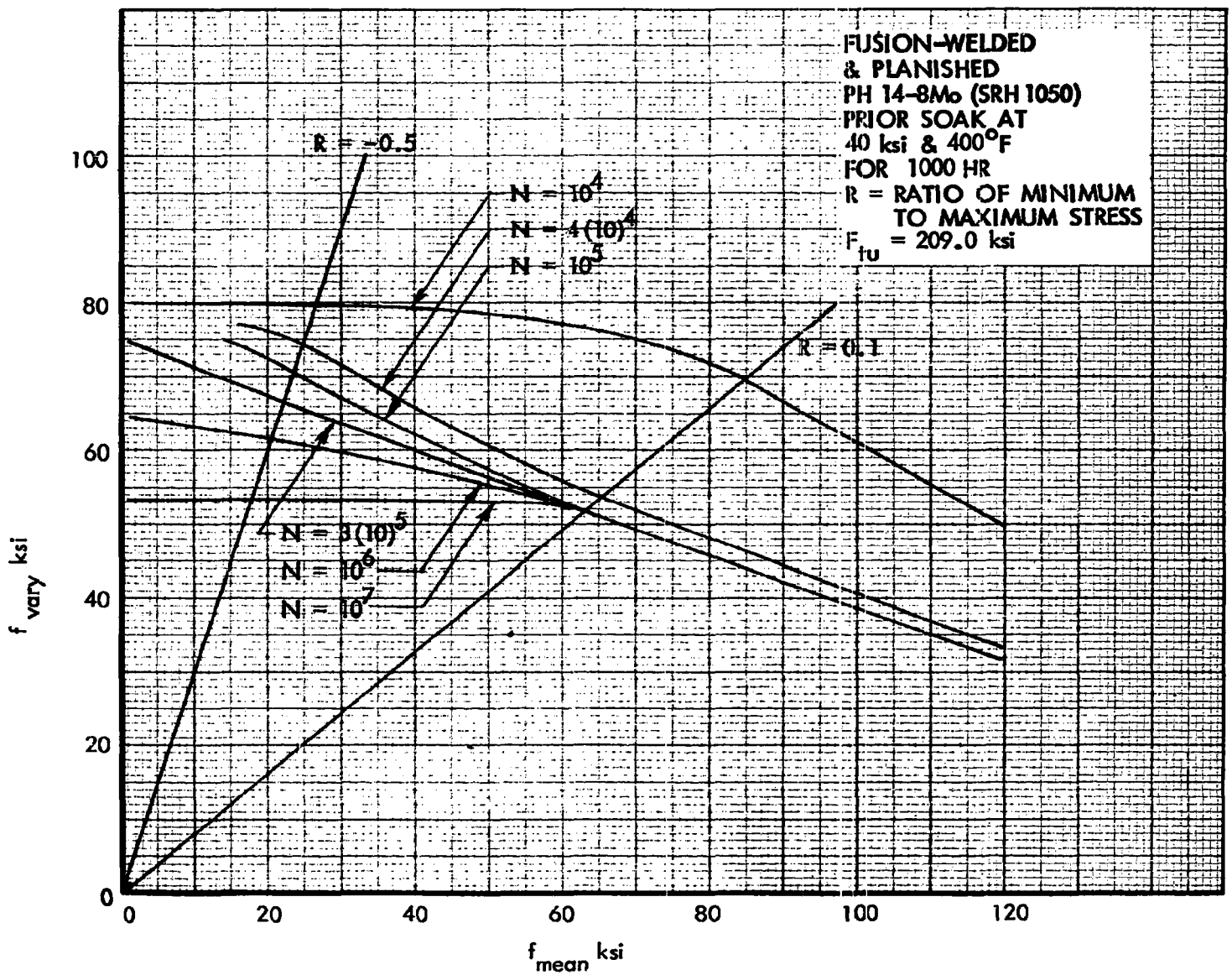



Figure 339. S-N Diagram at Room Temperature, Fusion-Welded PH14-8Mo

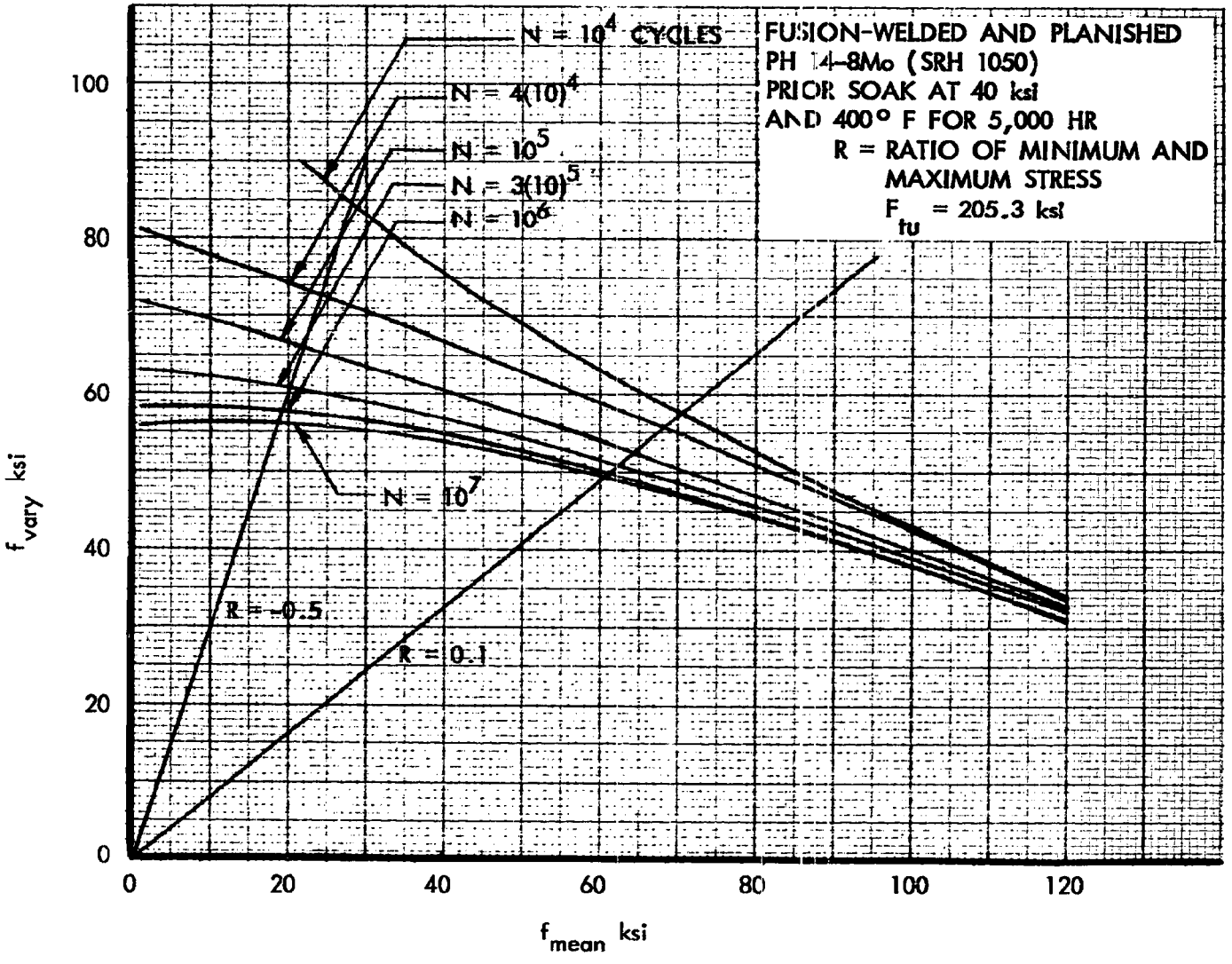



Figure 340. S-N Diagram at Room Temperature, Fusion-Welded PH14-8Mo

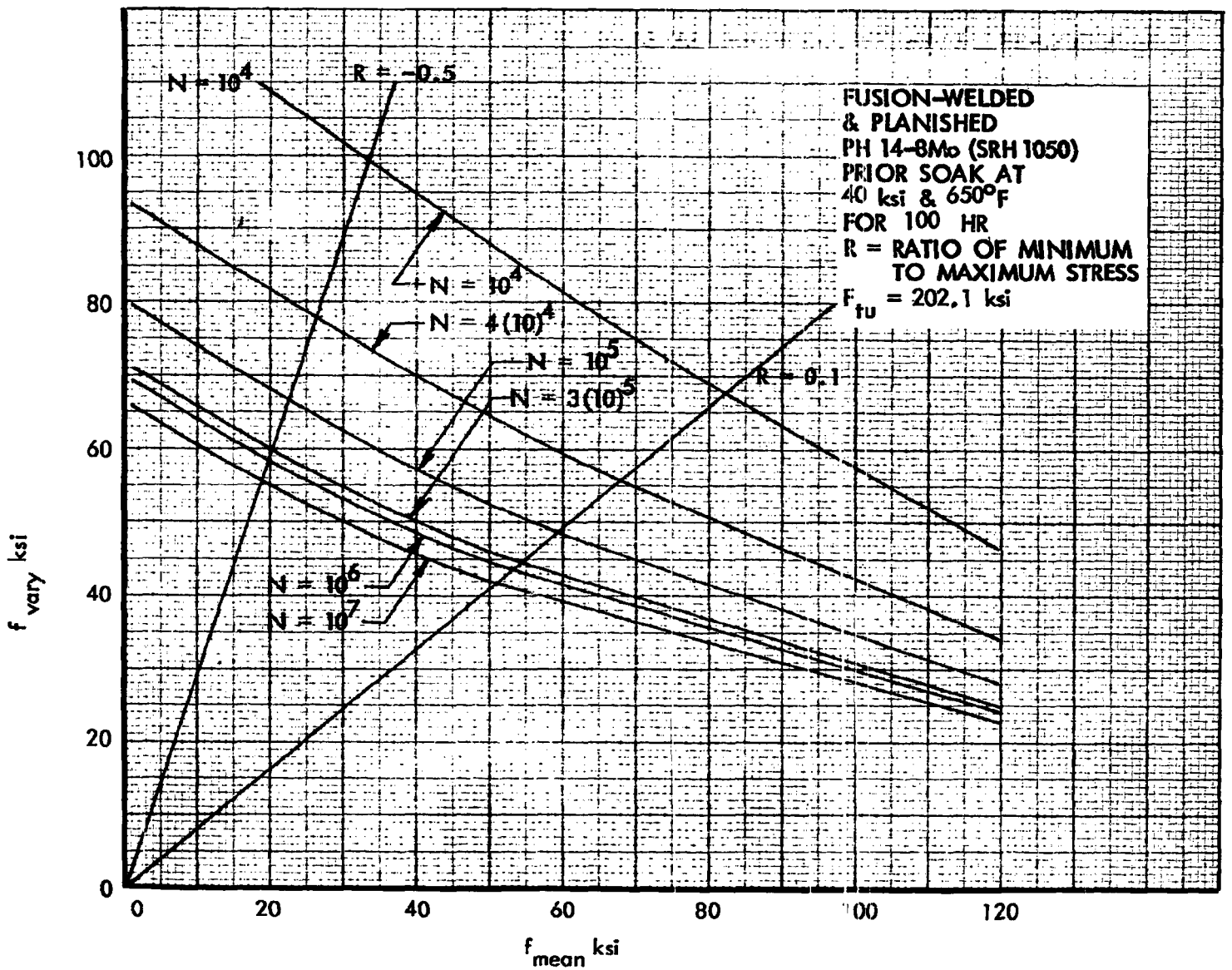



Figure 341. S-N Diagram at Room Temperature, Fusion-Welded PH14-8Mo

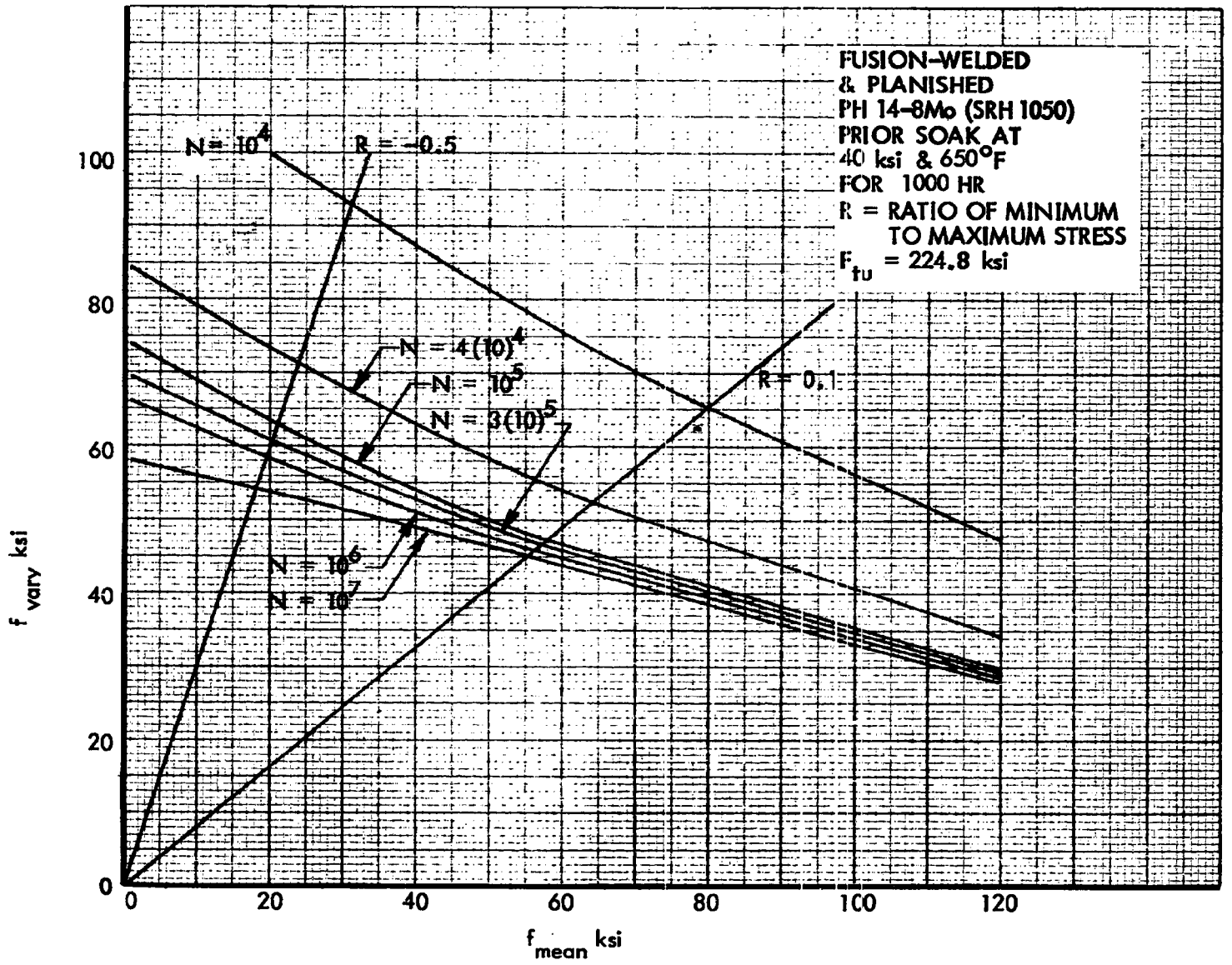



Figure 342. S-N Diagram at Room Temperature, Fusion-Welded PH14-8Mo

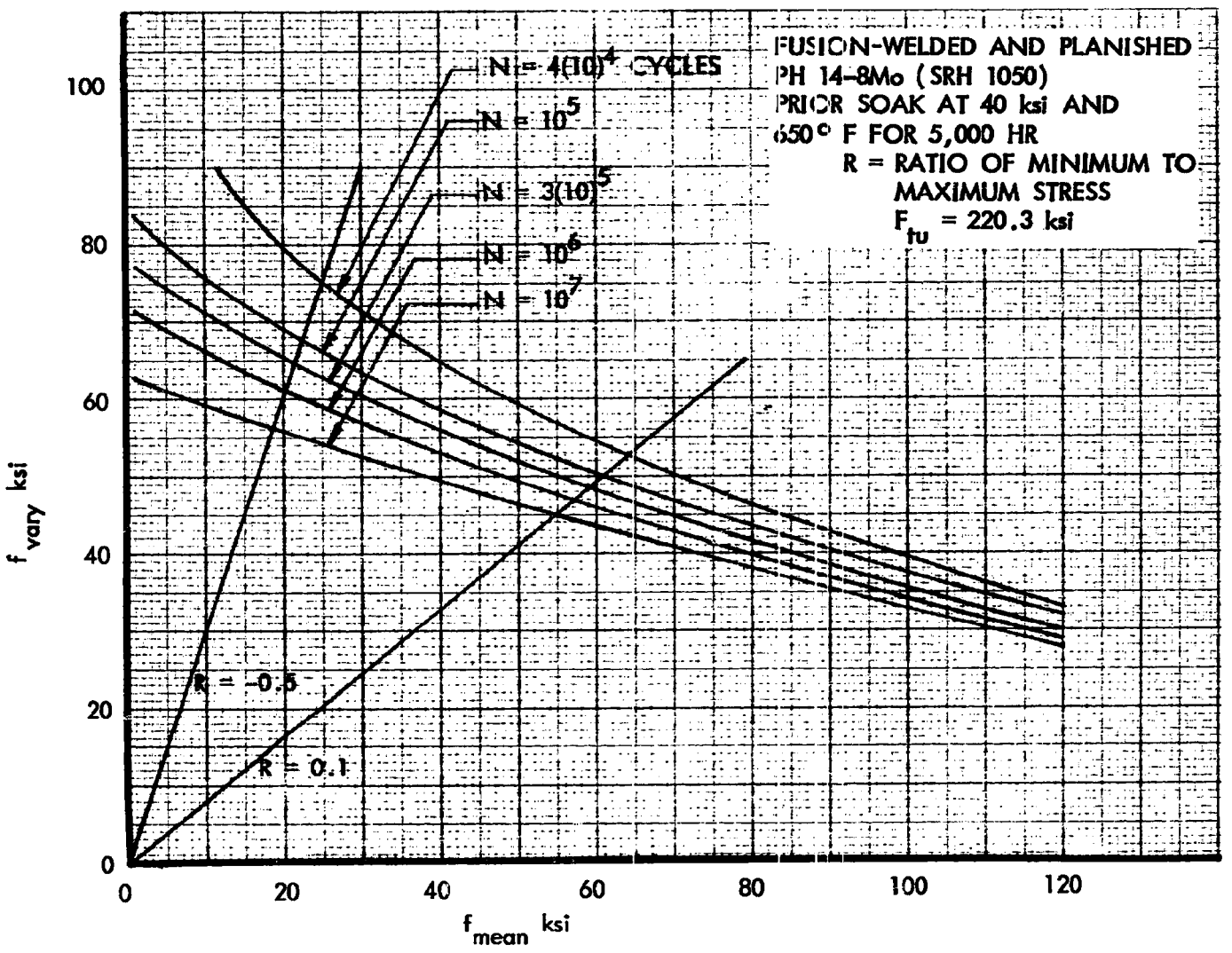



Figure 343. S-N Diagram at Room Temperature, Fusion-Welded PH14-8Mo

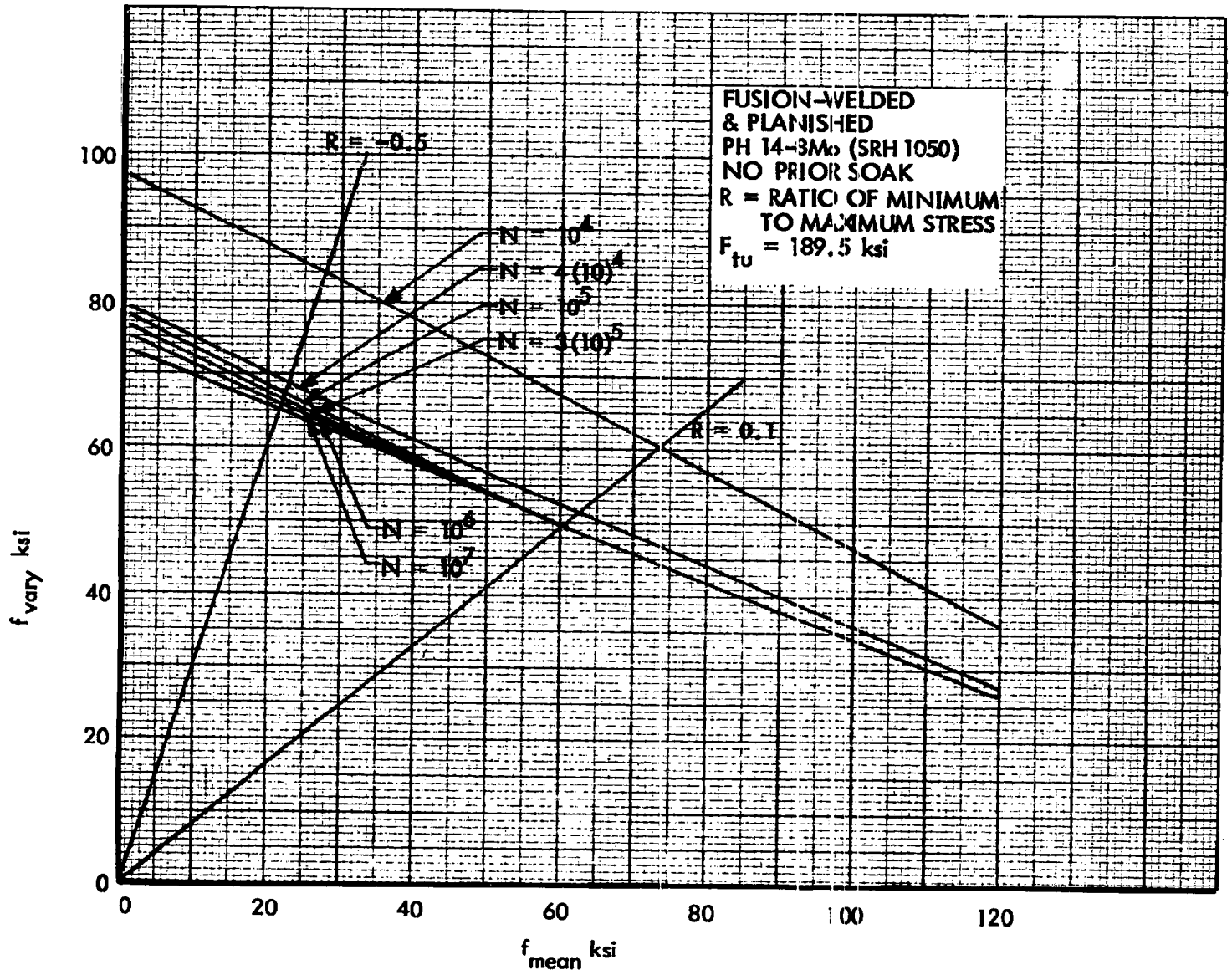



Figure 344. S-N Diagram at 400°F, Fusion-Welded PH14-8Mo

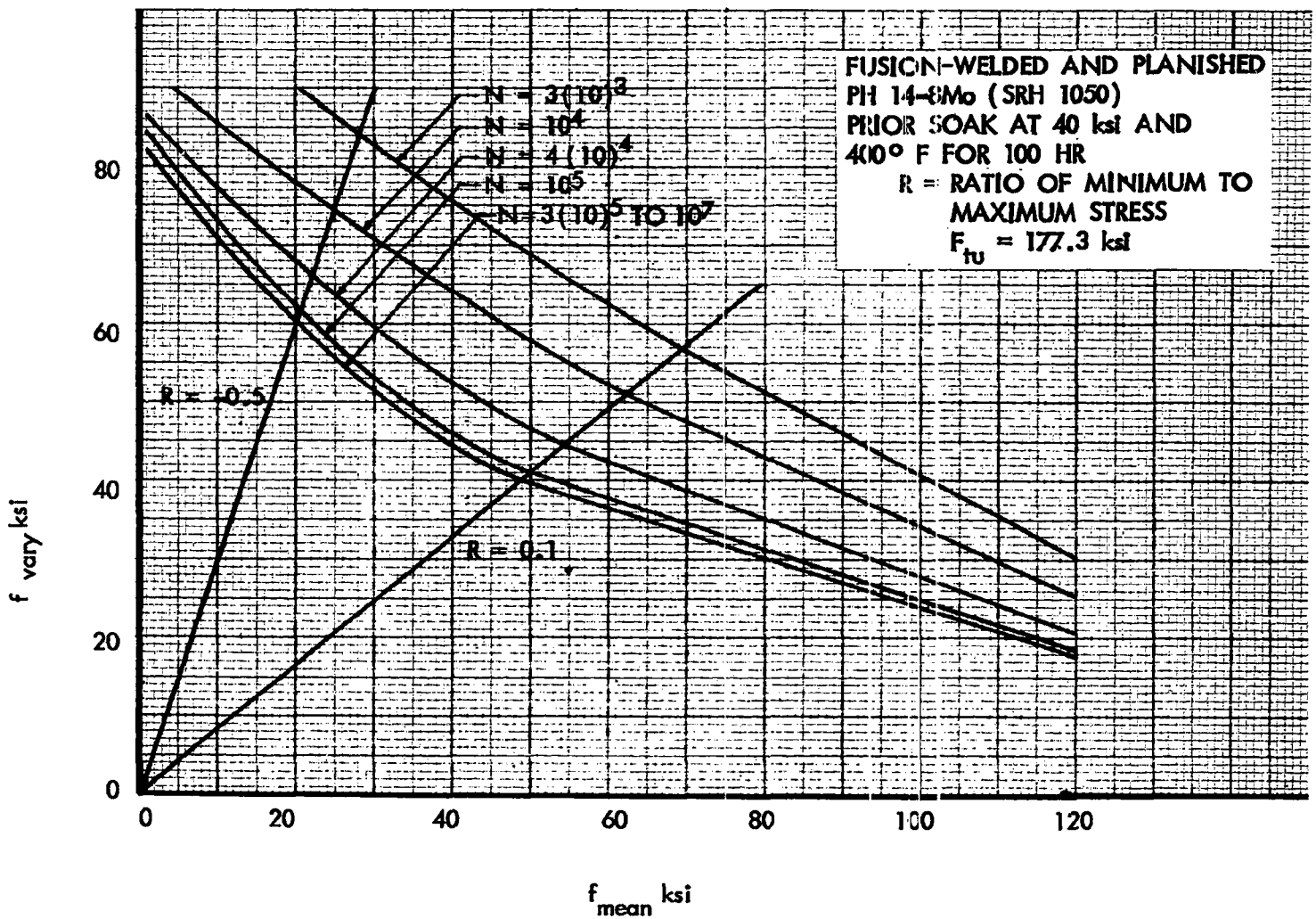



Figure 345. S-N Diagram at 400°F, Fusion-Welded PH14-8Mo

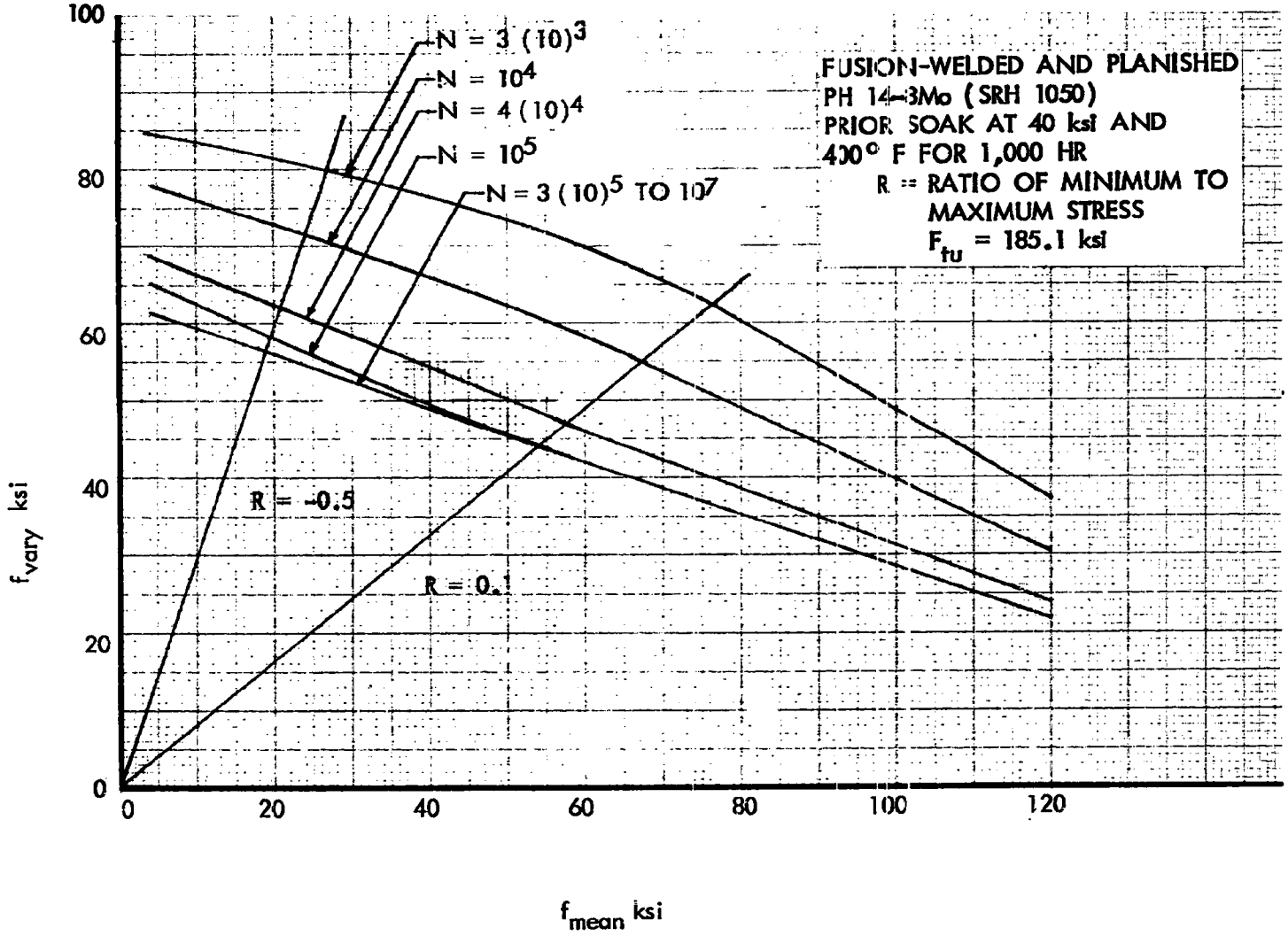



Figure 346. S-N Diagram at 400°F, Fusion-Welded PH14-8Mo

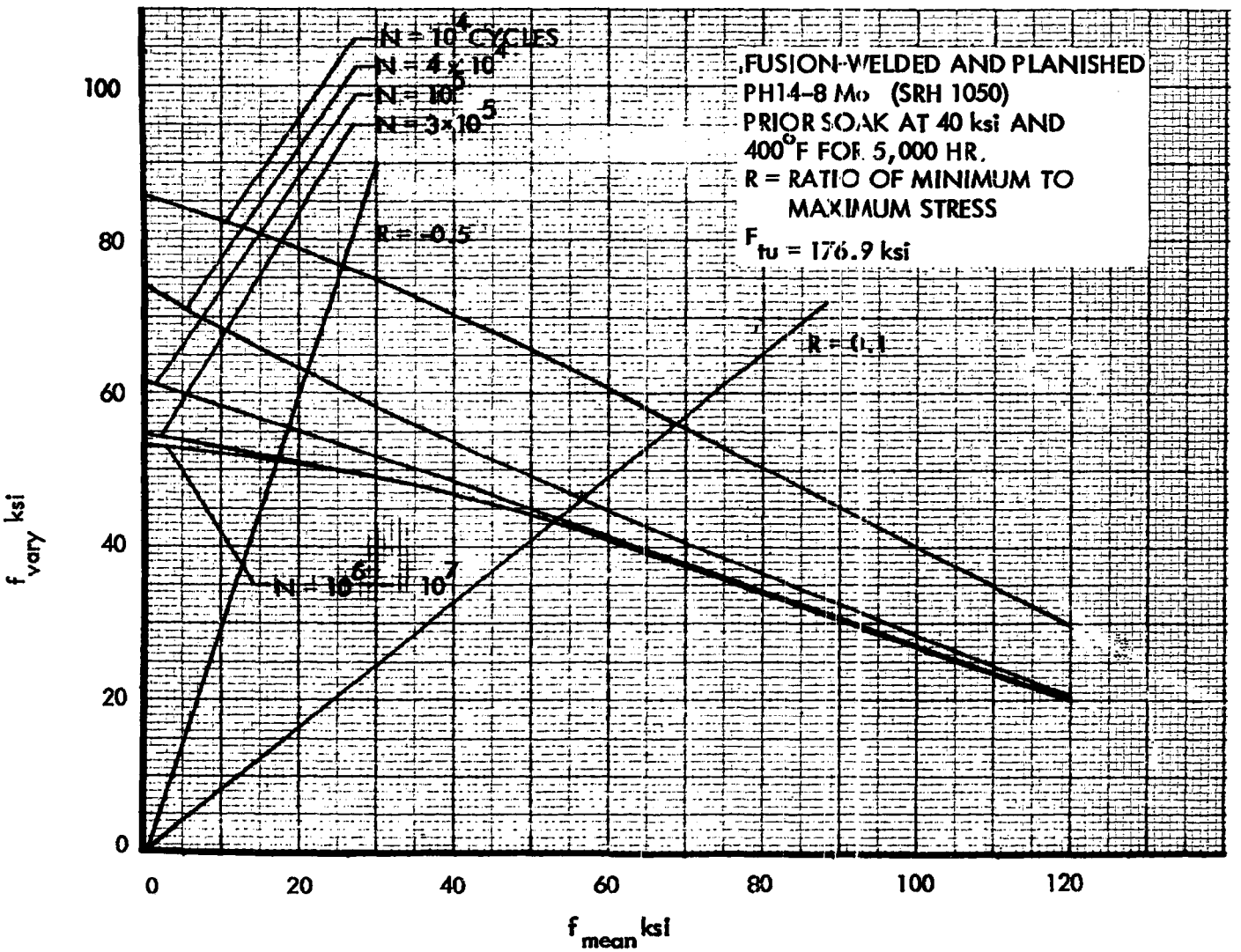



Figure 347. S-N Diagram at 400°F, Fusion-Welded PH14-8Mo

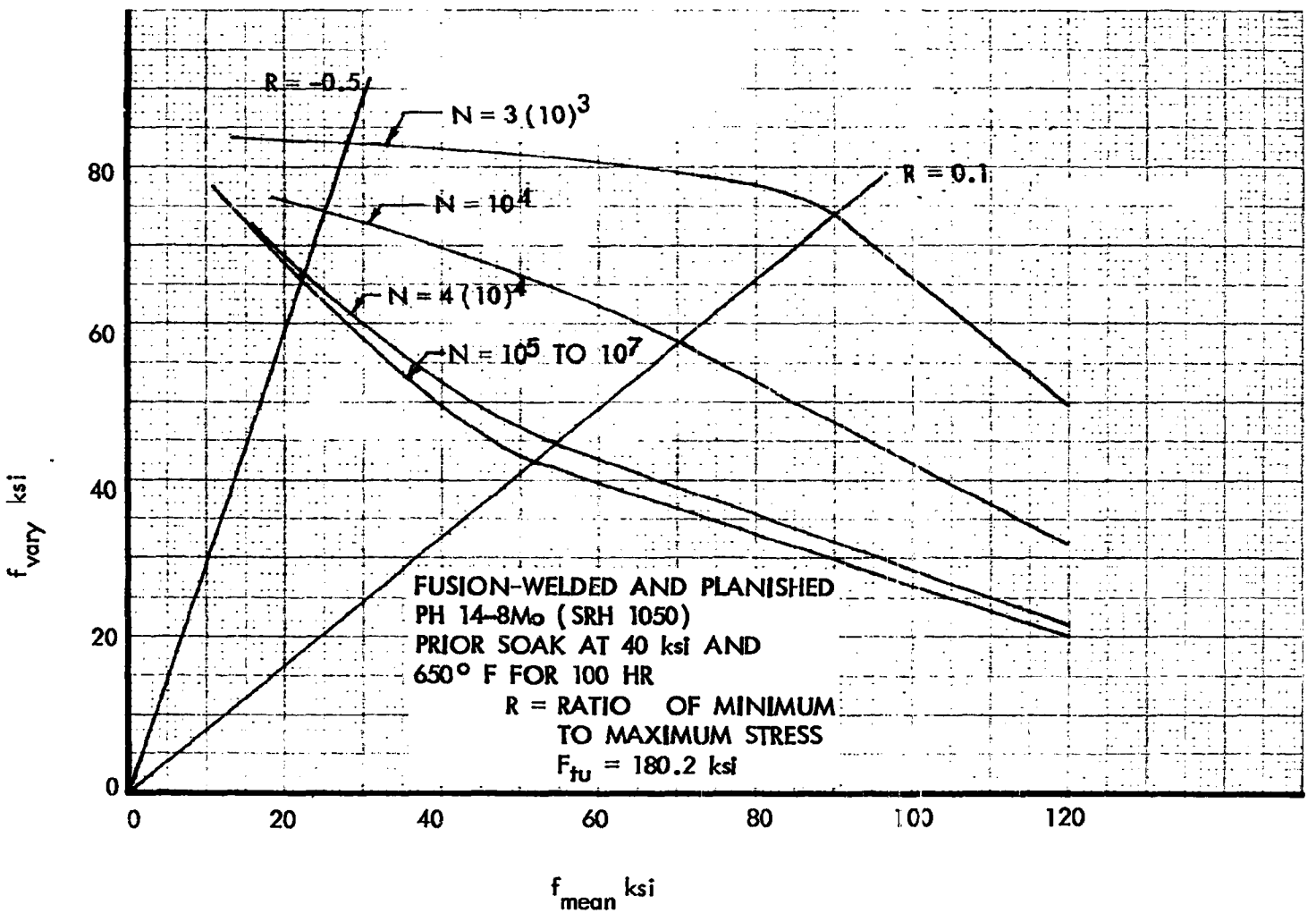



Figure 348. S-N Diagram at 400°F, Fusion-Welded PH14-8Mo

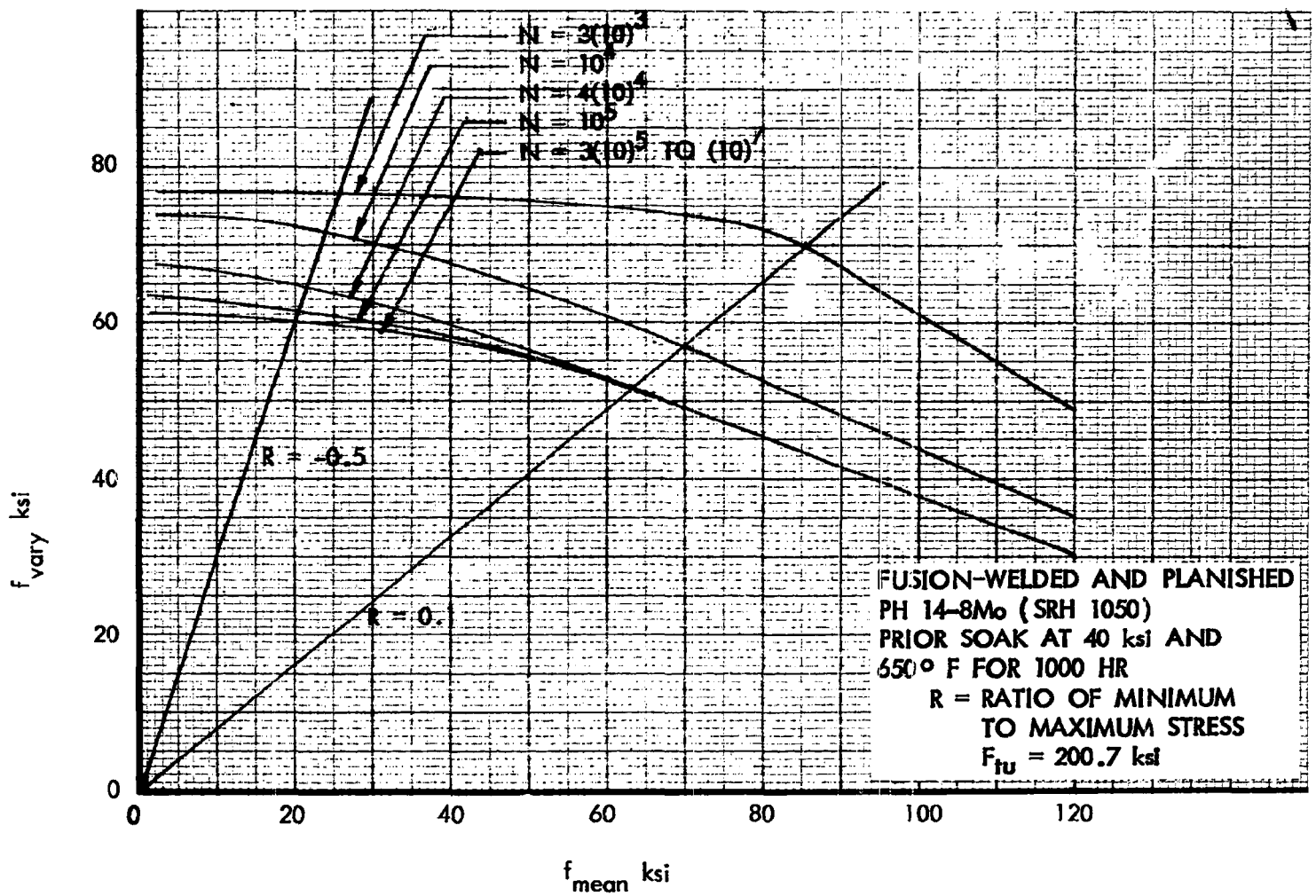



Figure 349. S-N Diagram at 400°F, Fusion-Welded PH14-8Mo

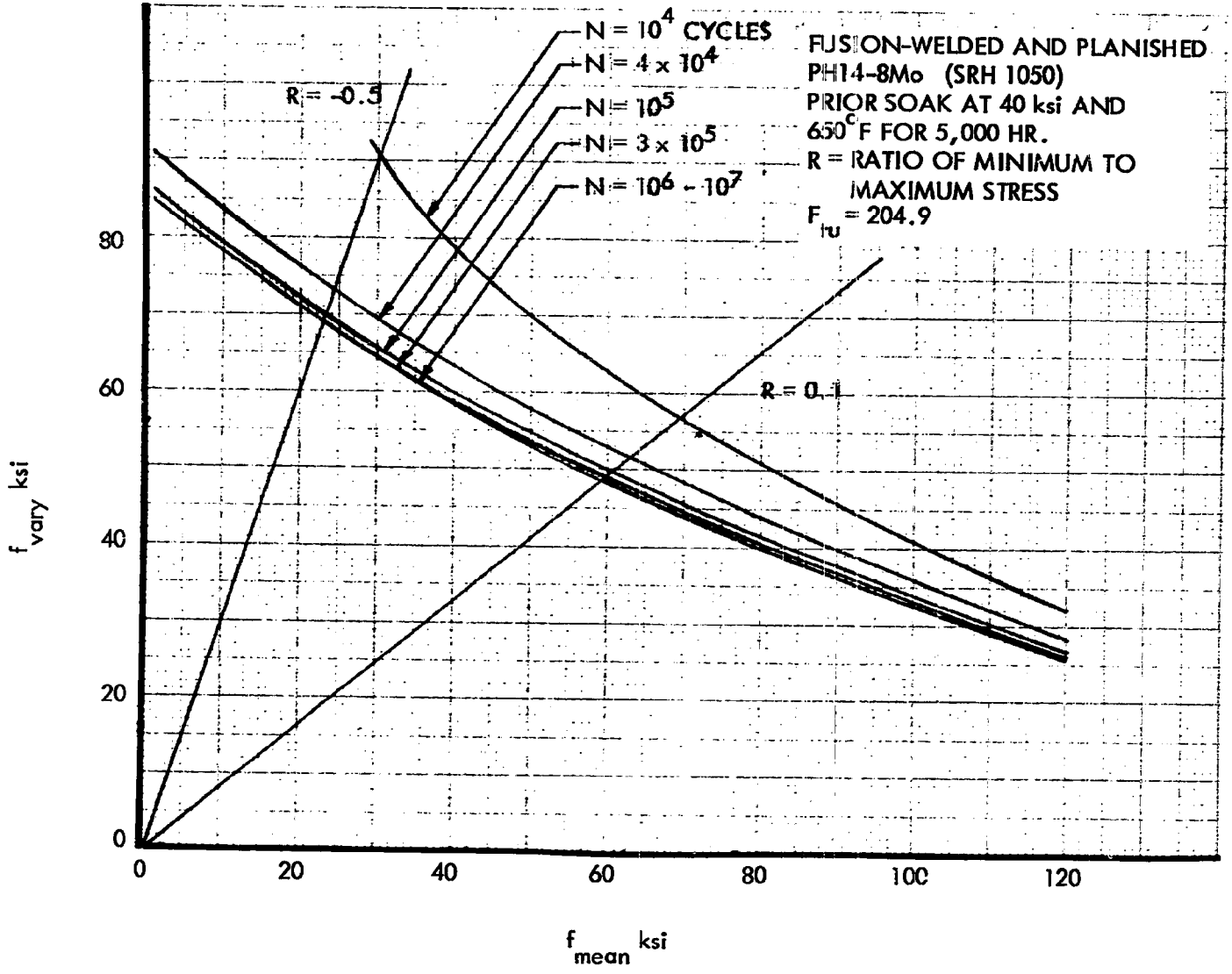



Figure 350. S-N Diagram at 400°F, Fusion-Welded PH14-8Mo

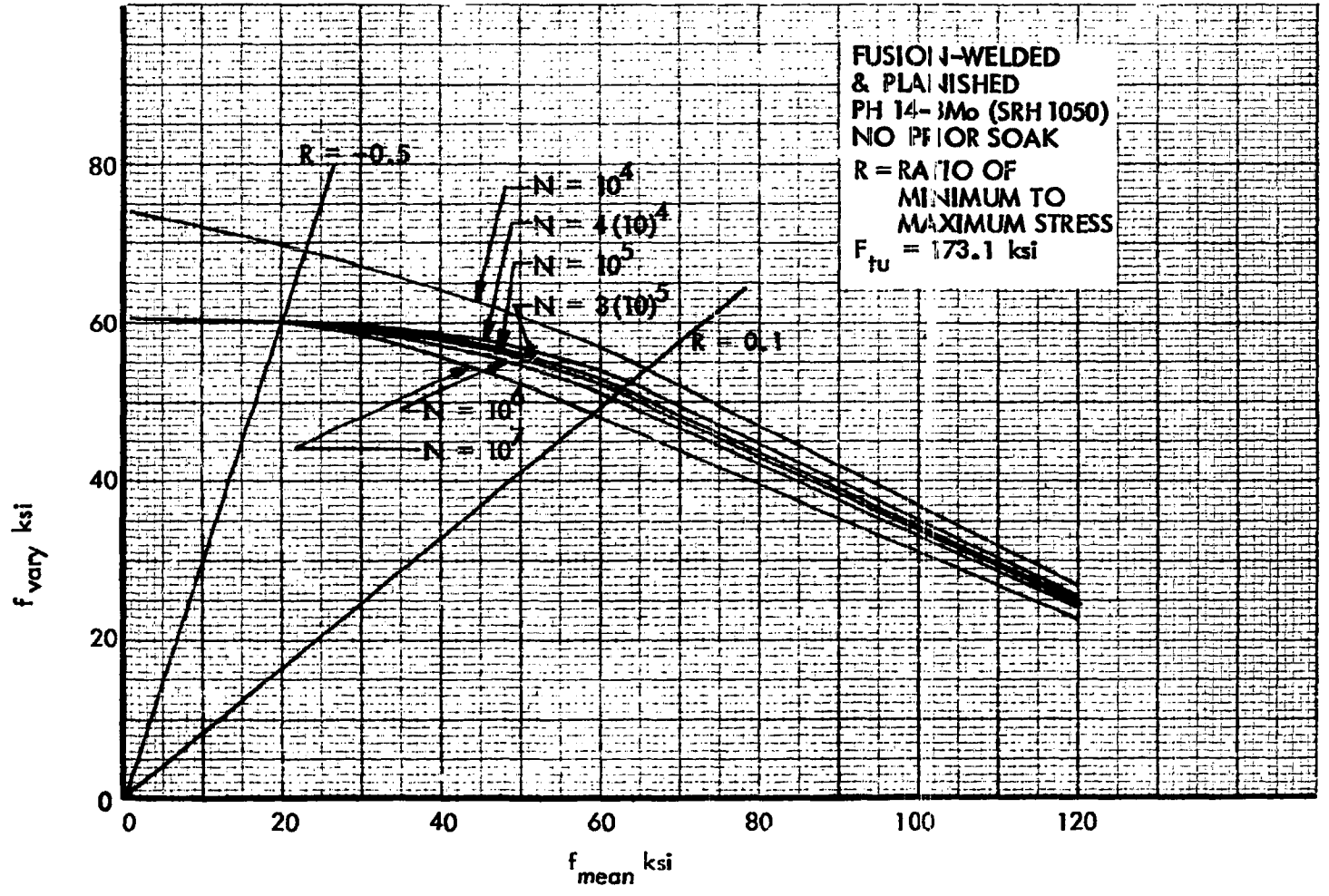



Figure 351. S-N Diagram at 650°F, Fusion-Welded PH14-8Mo

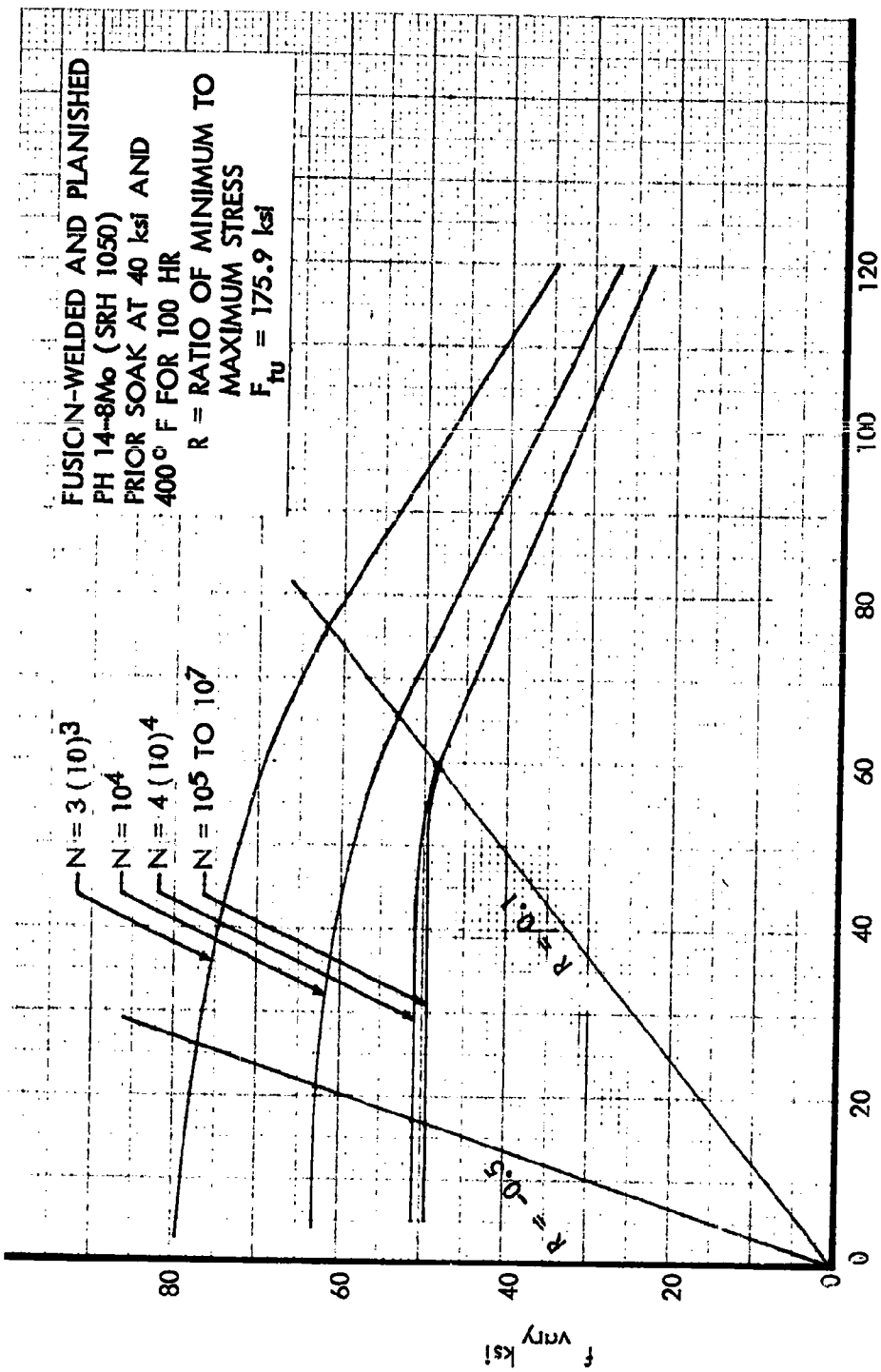



Figure 352. S-N Diagram at 650°F, Fusion-Welded PH14-8Mo

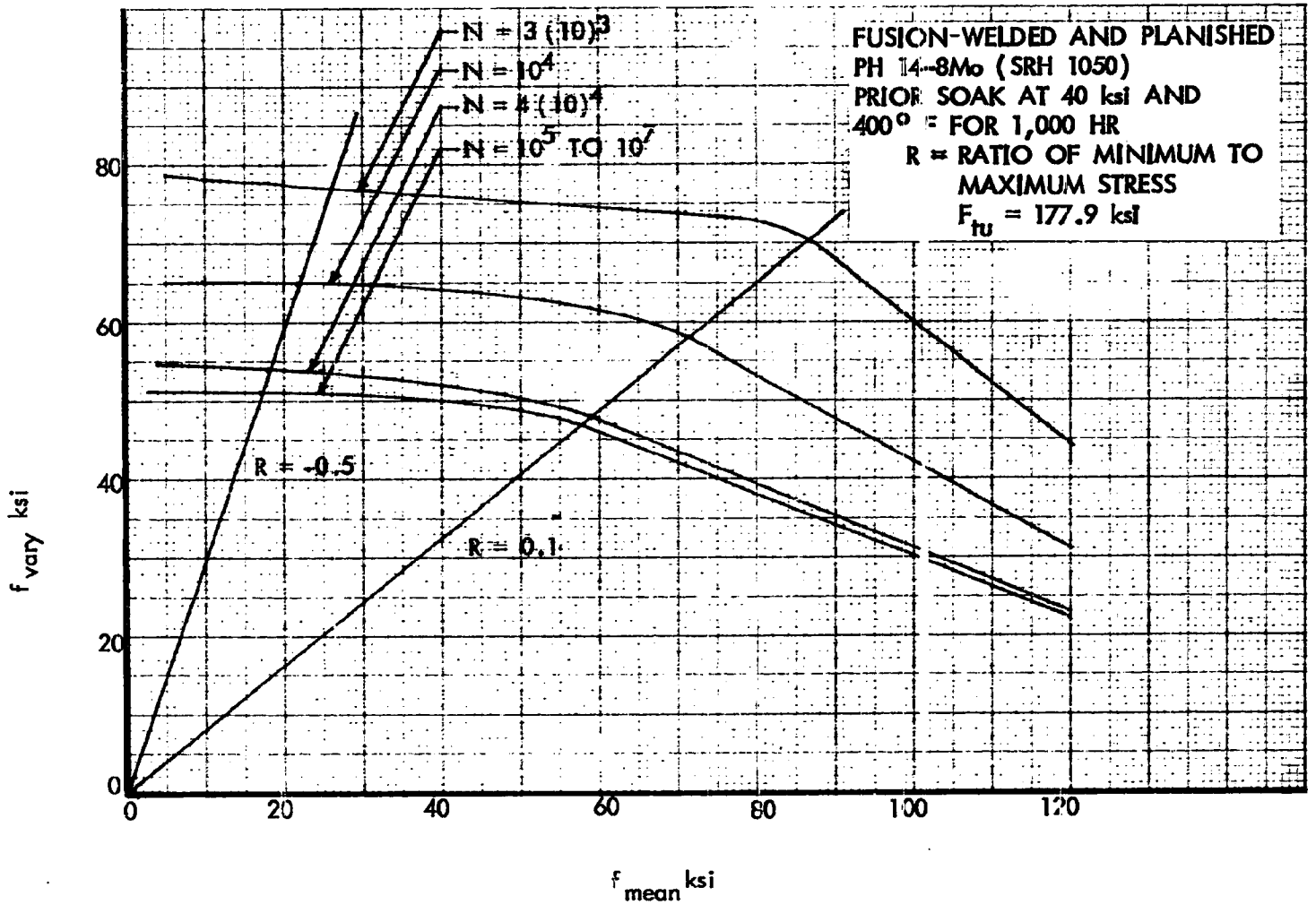



Figure 353. S-N Diagram at 650°F, Fusion-Welded PH14-8Mo

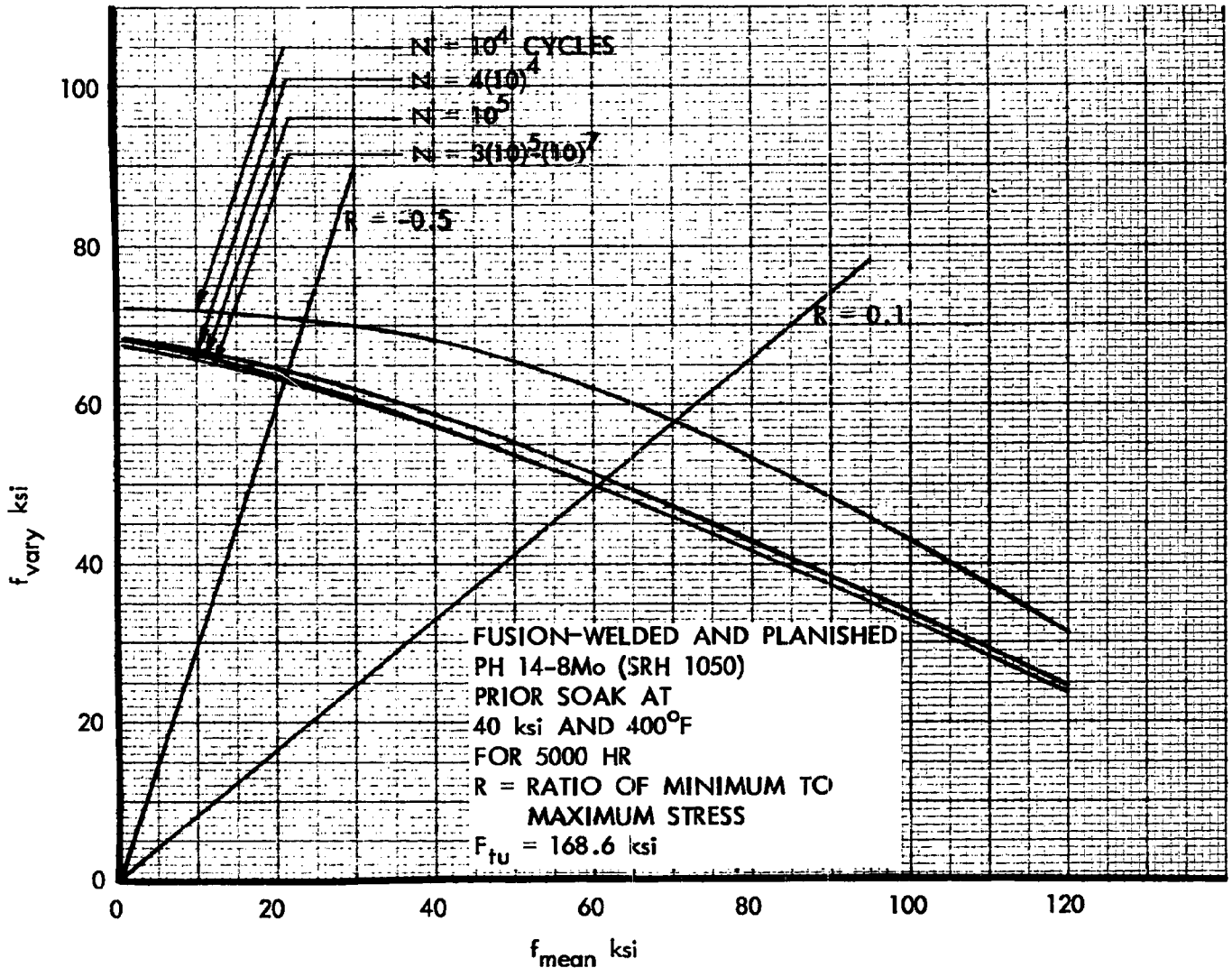



Figure 354. S-N Diagram at 650°F, Fusion-Welded PH14-8Mo

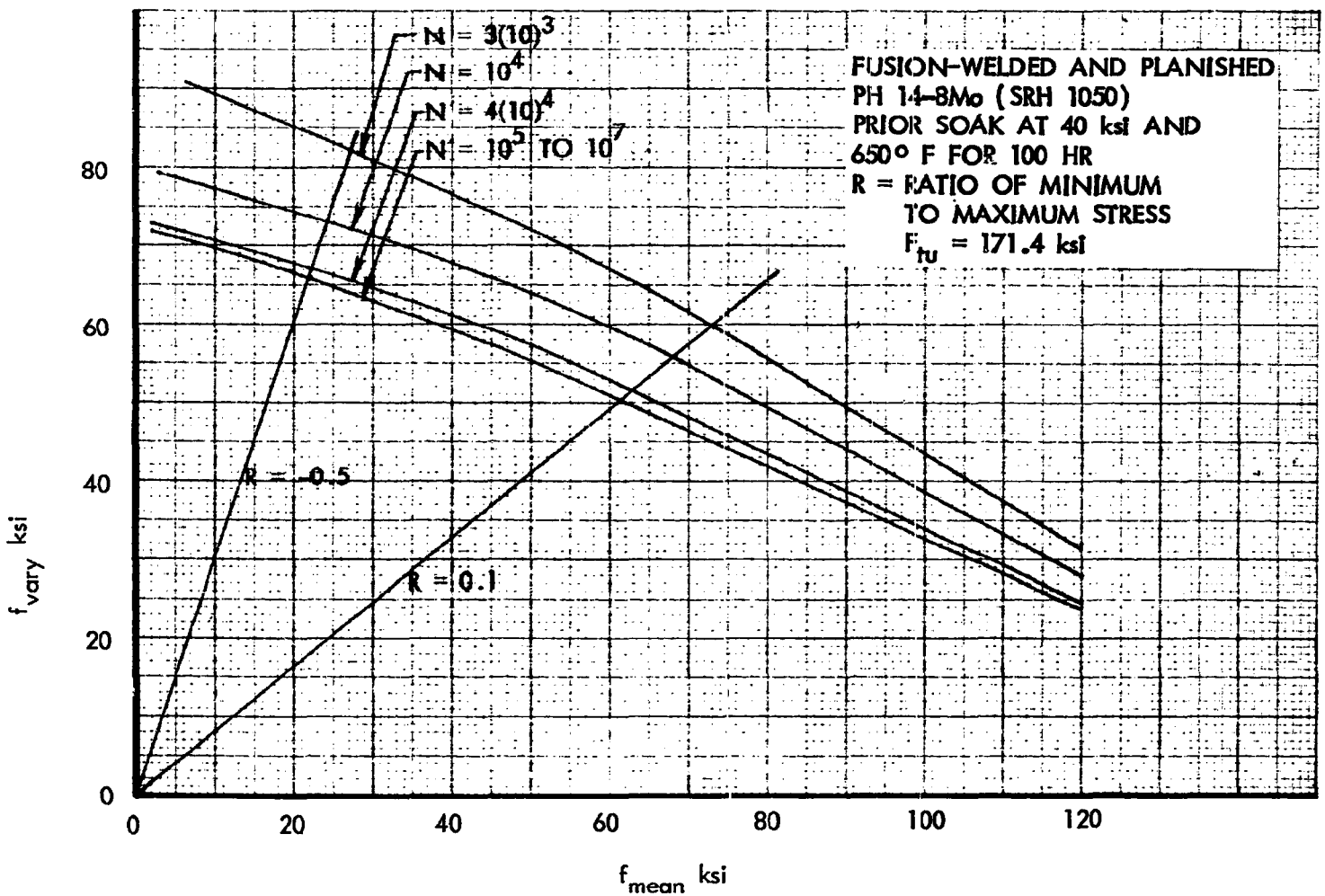



Figure 355. S-N Diagram at 650°F, Fusion-Welded PH14-8Mo

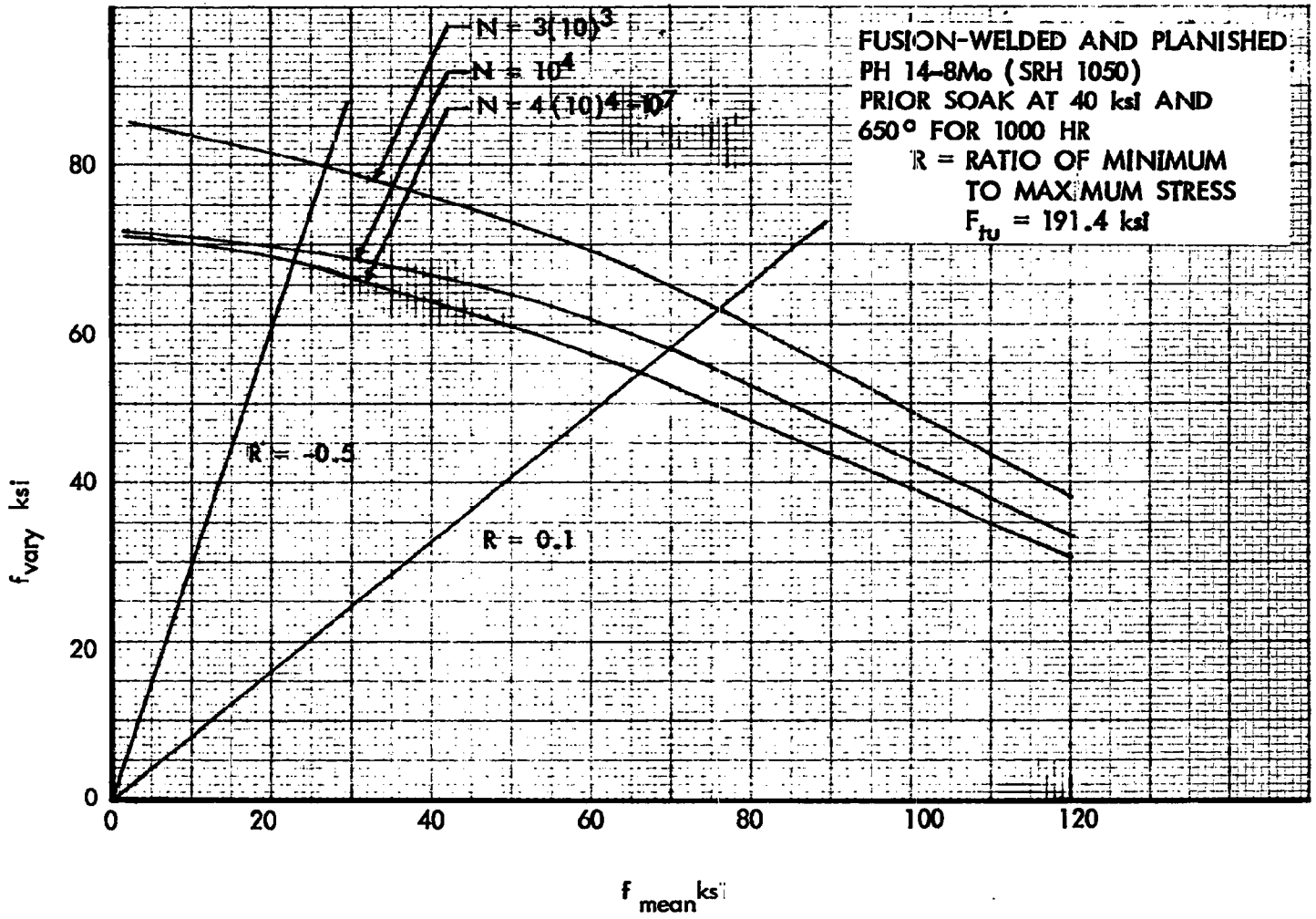



Figure 356. S-N Diagram at 650°F, Fusion-Welded PH14-8Mo

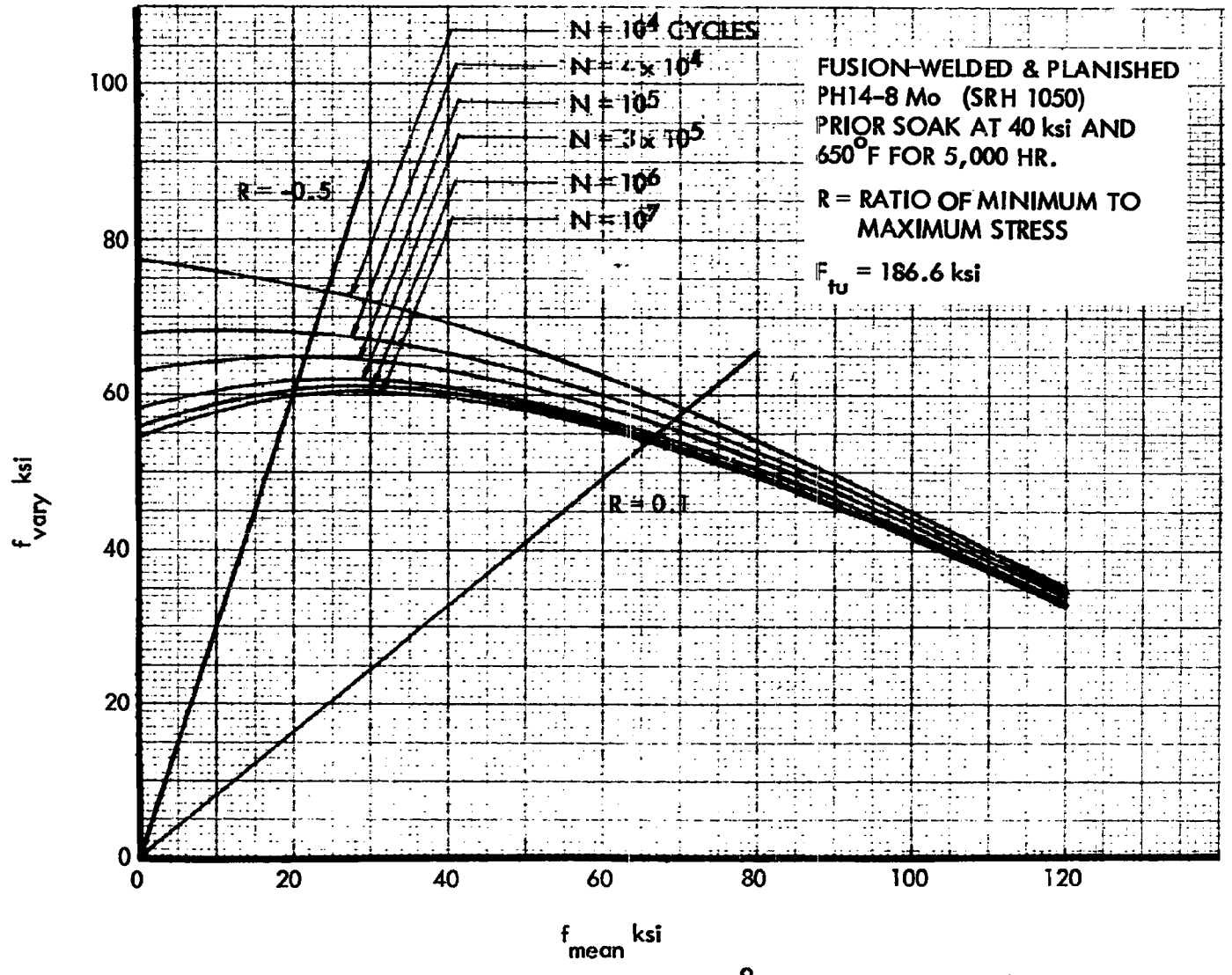



Figure 357. S-N Diagram at 650°F, Fusion-Welded PH14-8Mo

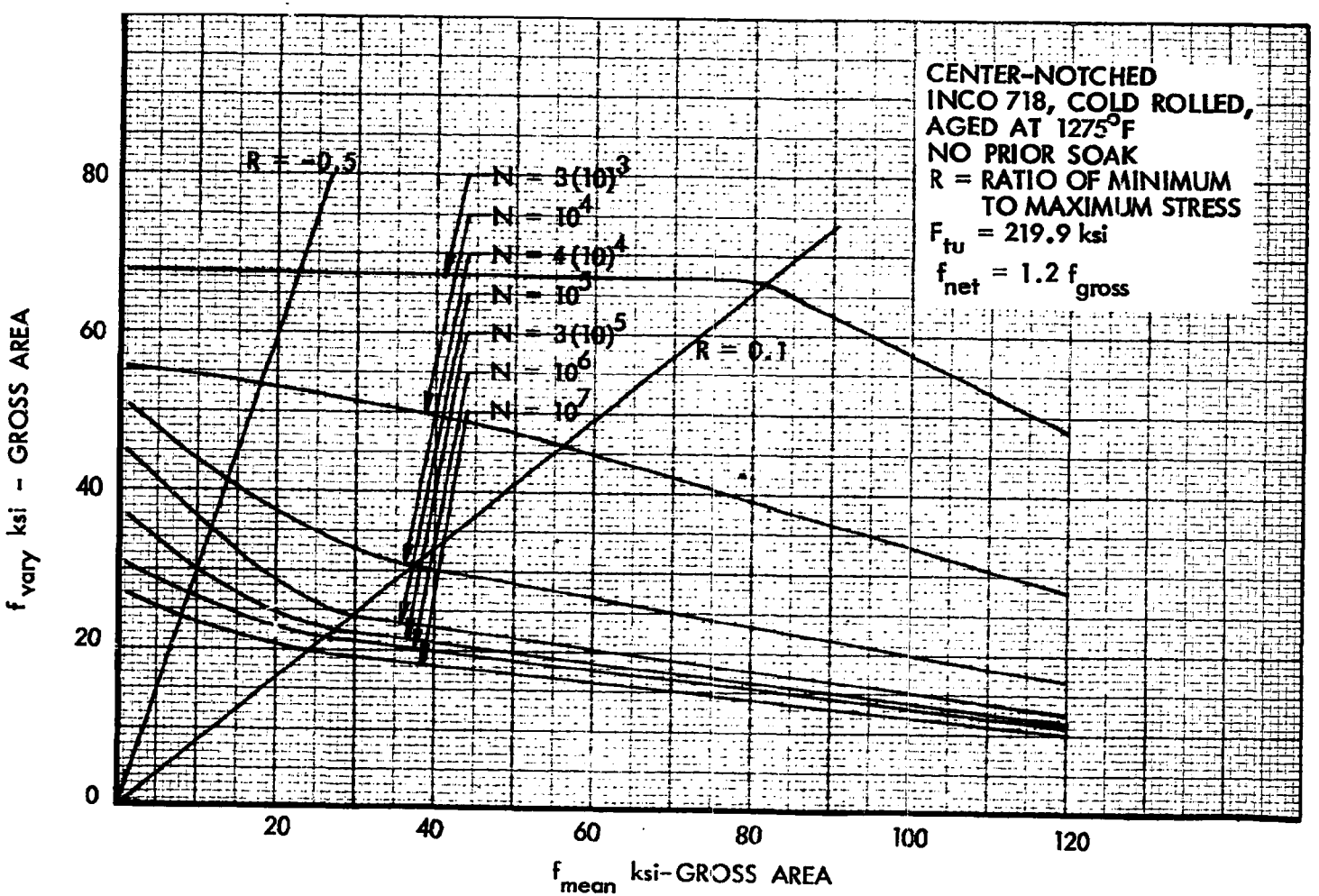



Figure 358. S-N Diagram at Room Temperature, Center-Notched INCO 718

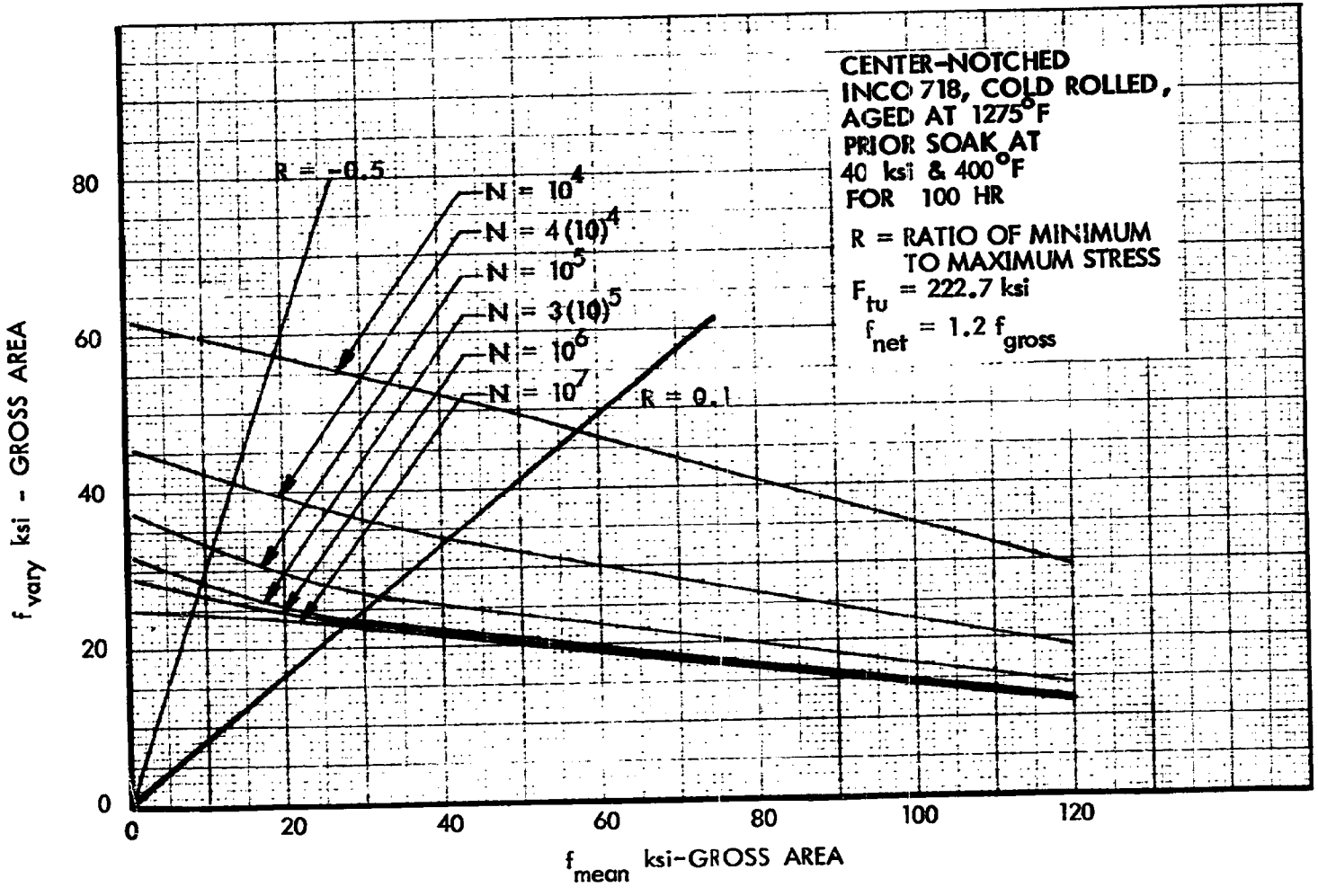



Figure 359. S-N Diagram at Room Temperature, Center-Notched INCO 718

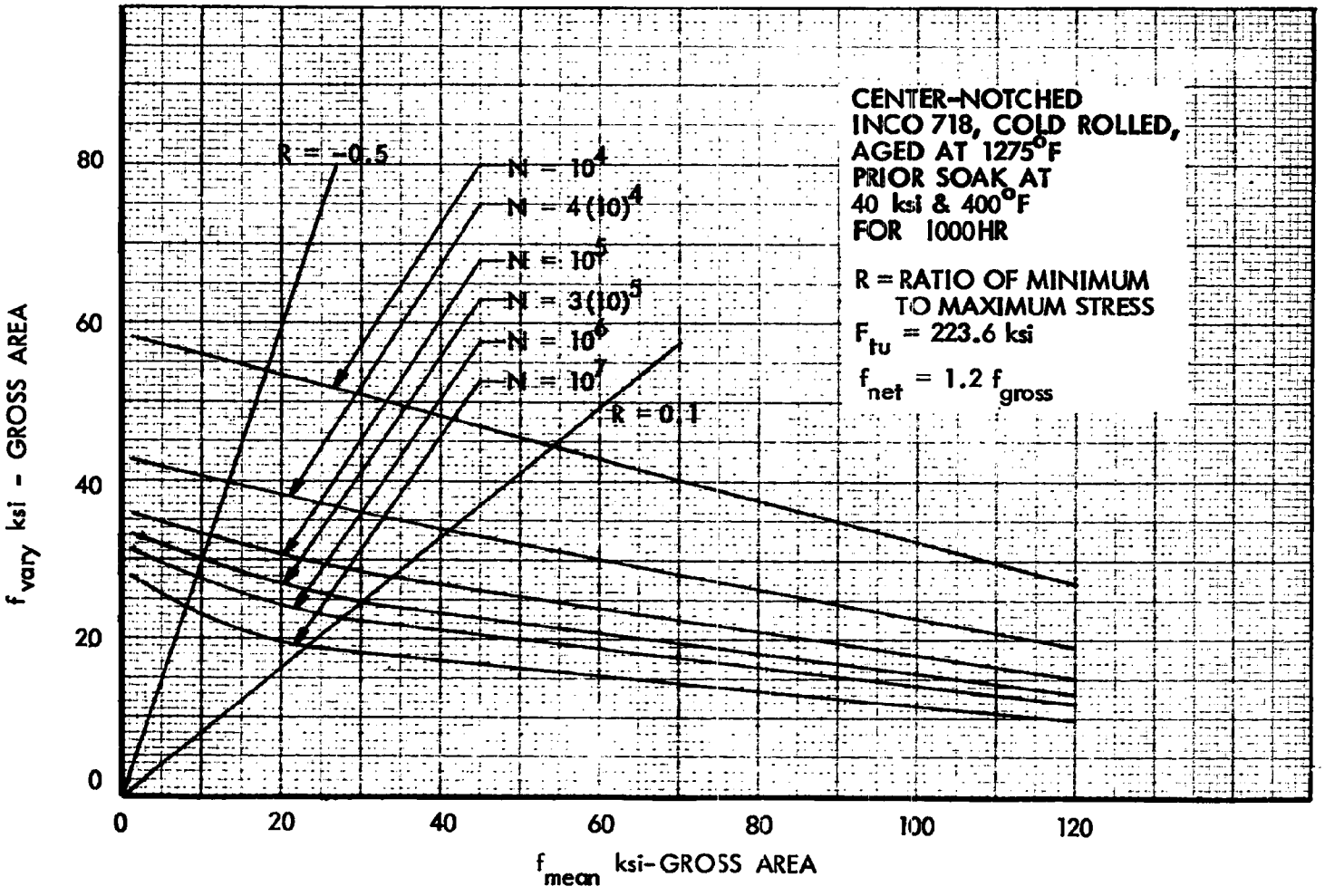



Figure 360. S-N Diagram at Room Temperature, Center-Notched INCO 718

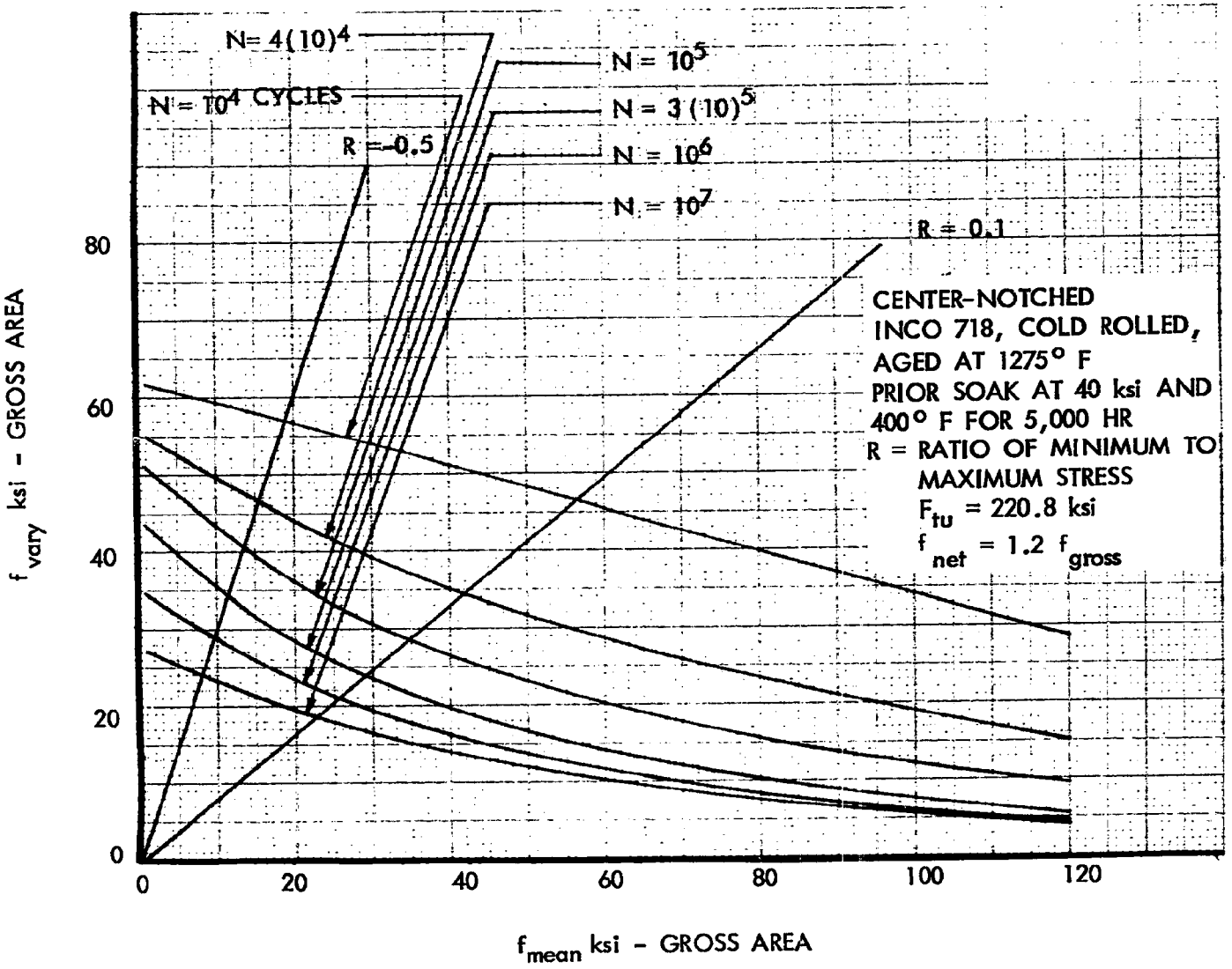



Figure 361. S-N Diagram at Room Temperature, Center-Notched INCO 718

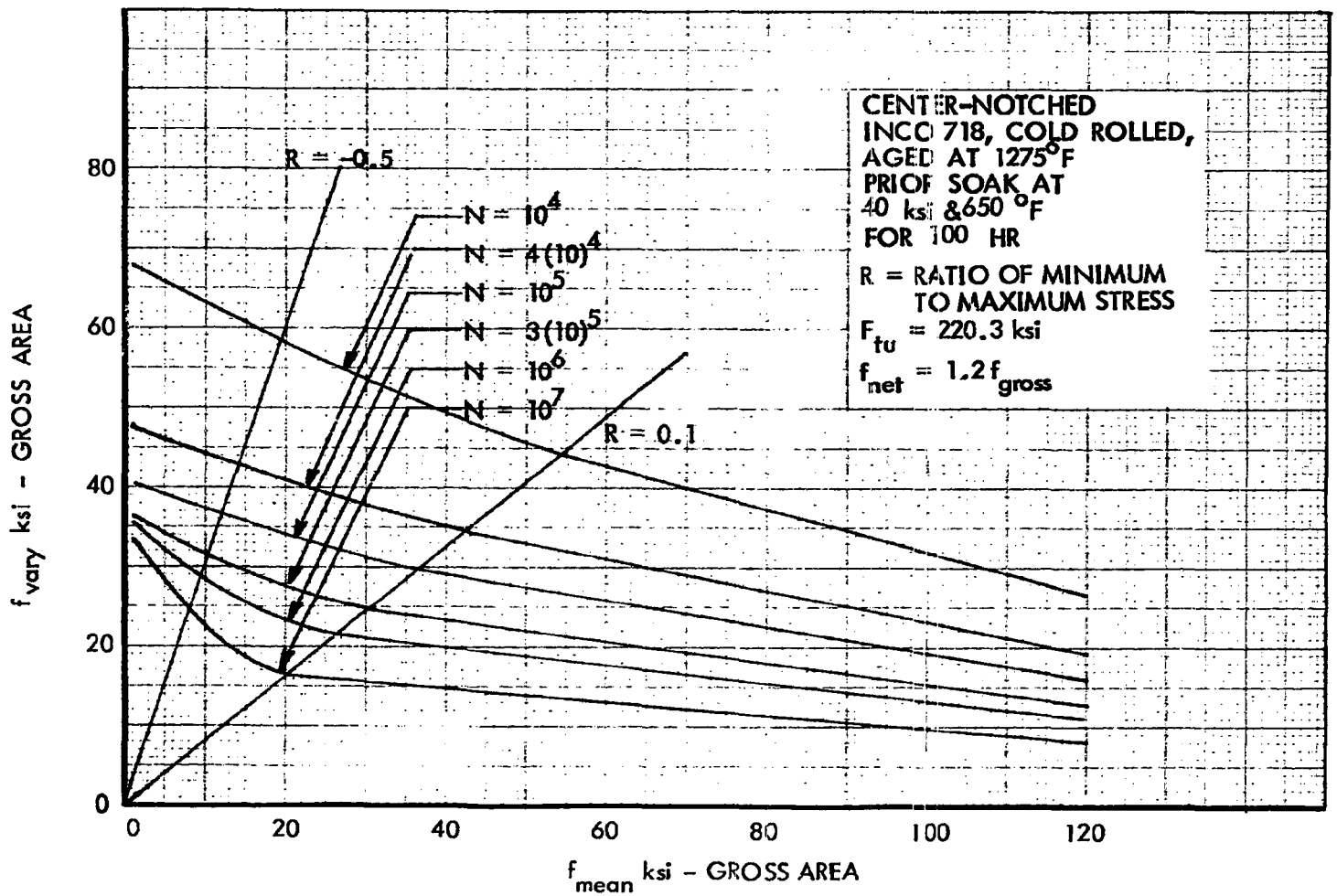



Figure 362. S-N Diagram at Room Temperature, Center-Notched INCO 718

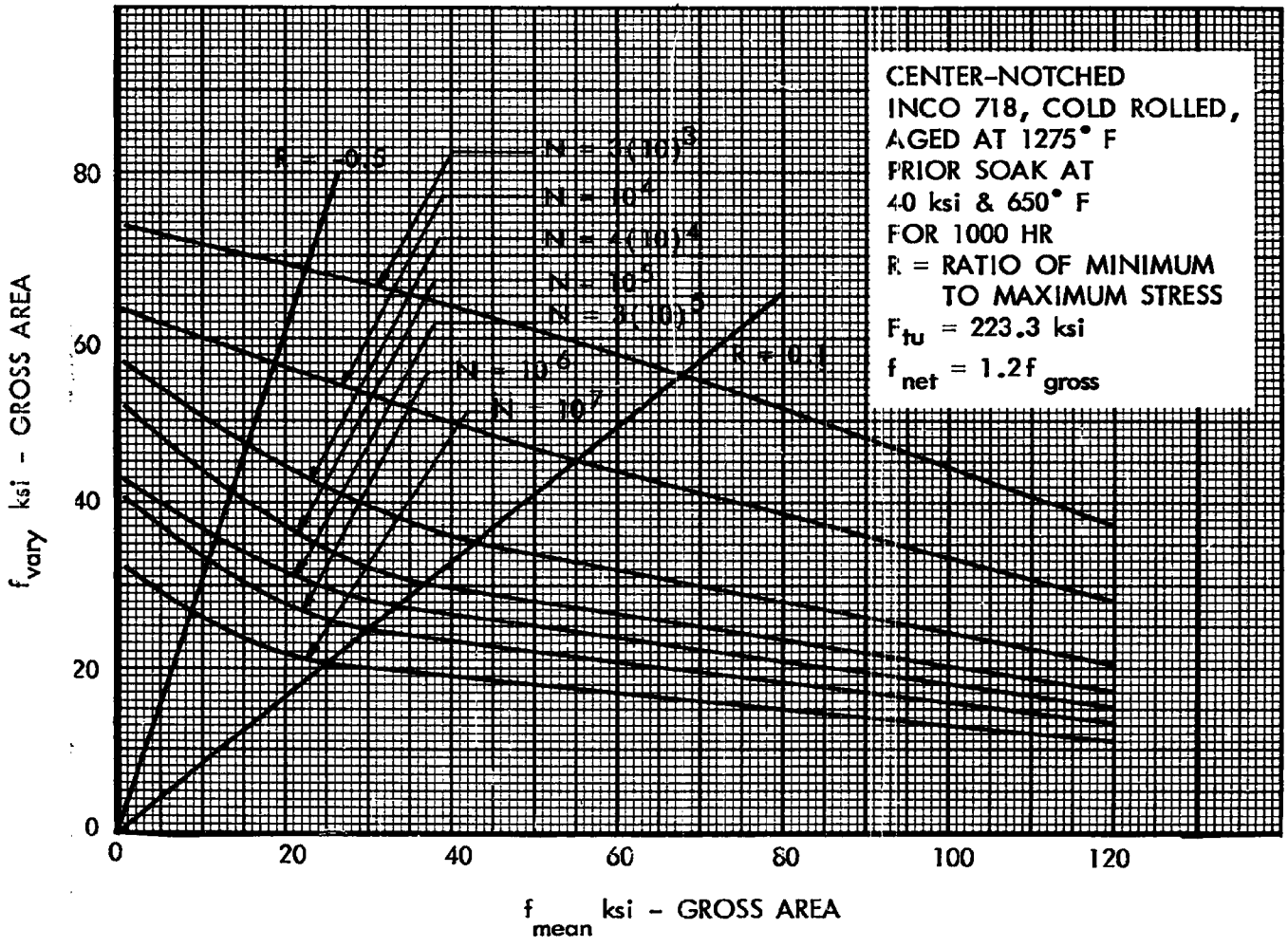



Figure 363. S-N Diagram at Room Temperature, Center-Notched INCO 718

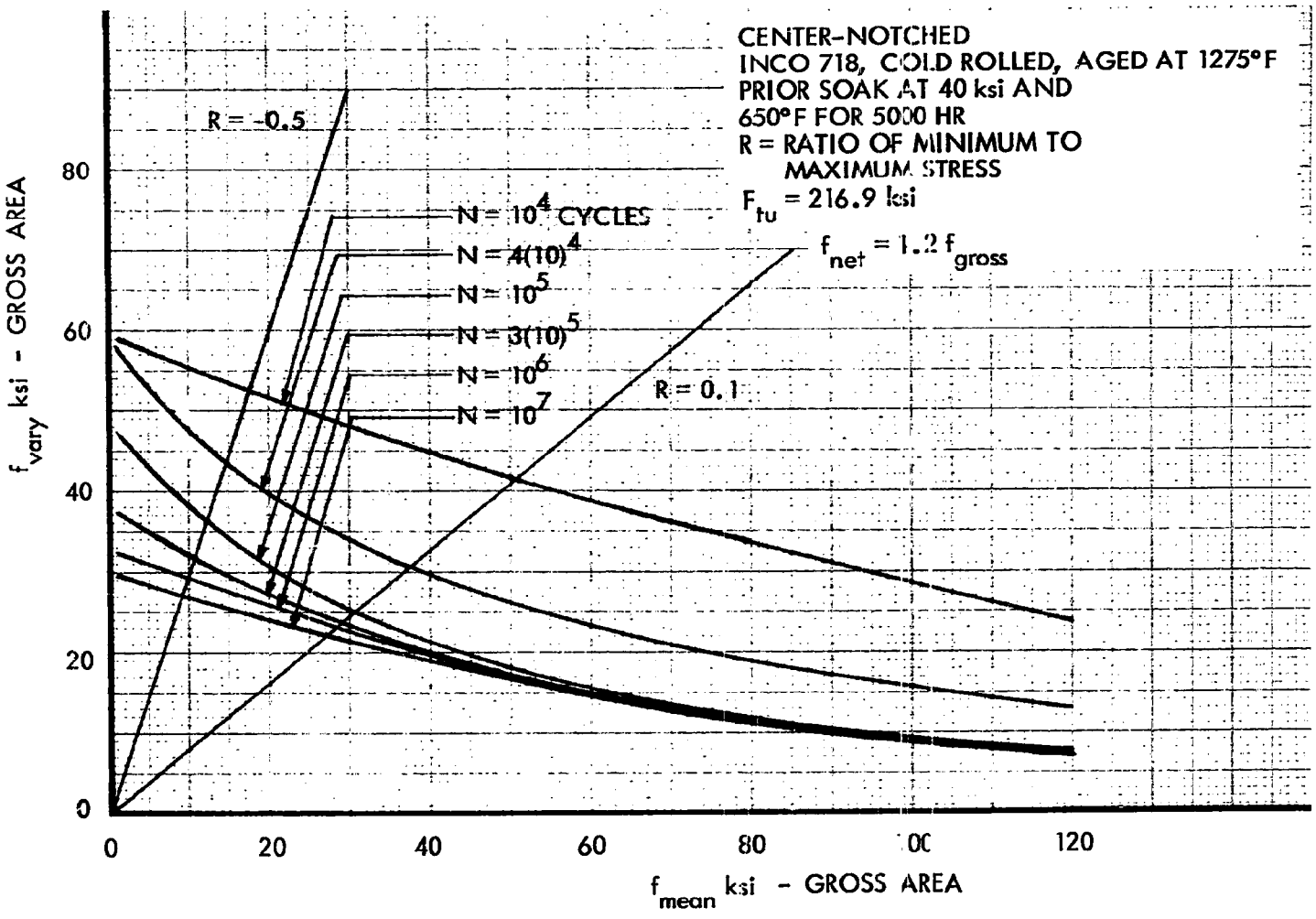



Figure 364. S-N Diagram at Room Temperature, Center-Notched INCO 718

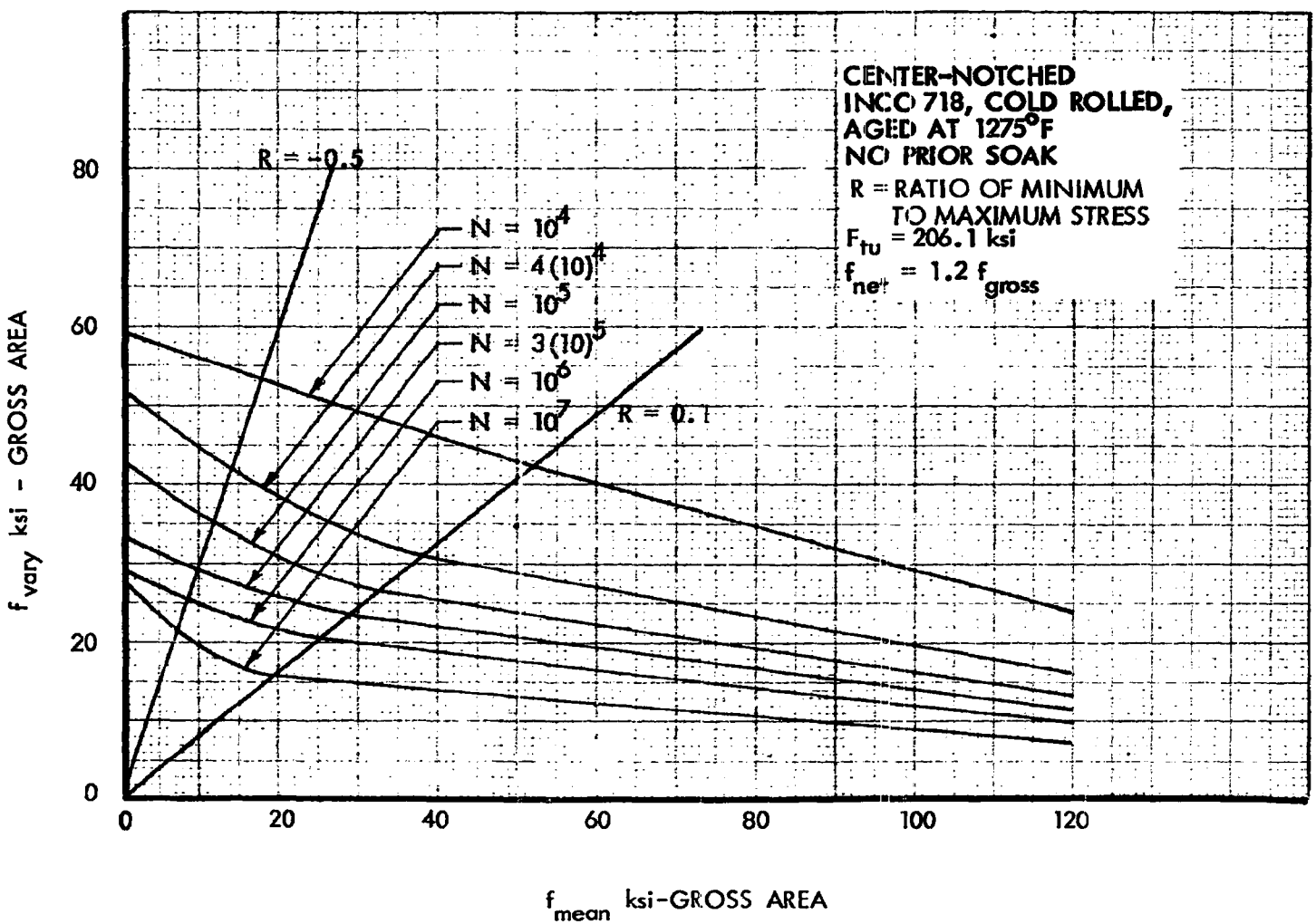



Figure 365. S-N Diagram at 400°F, Center-Notched INCO 718

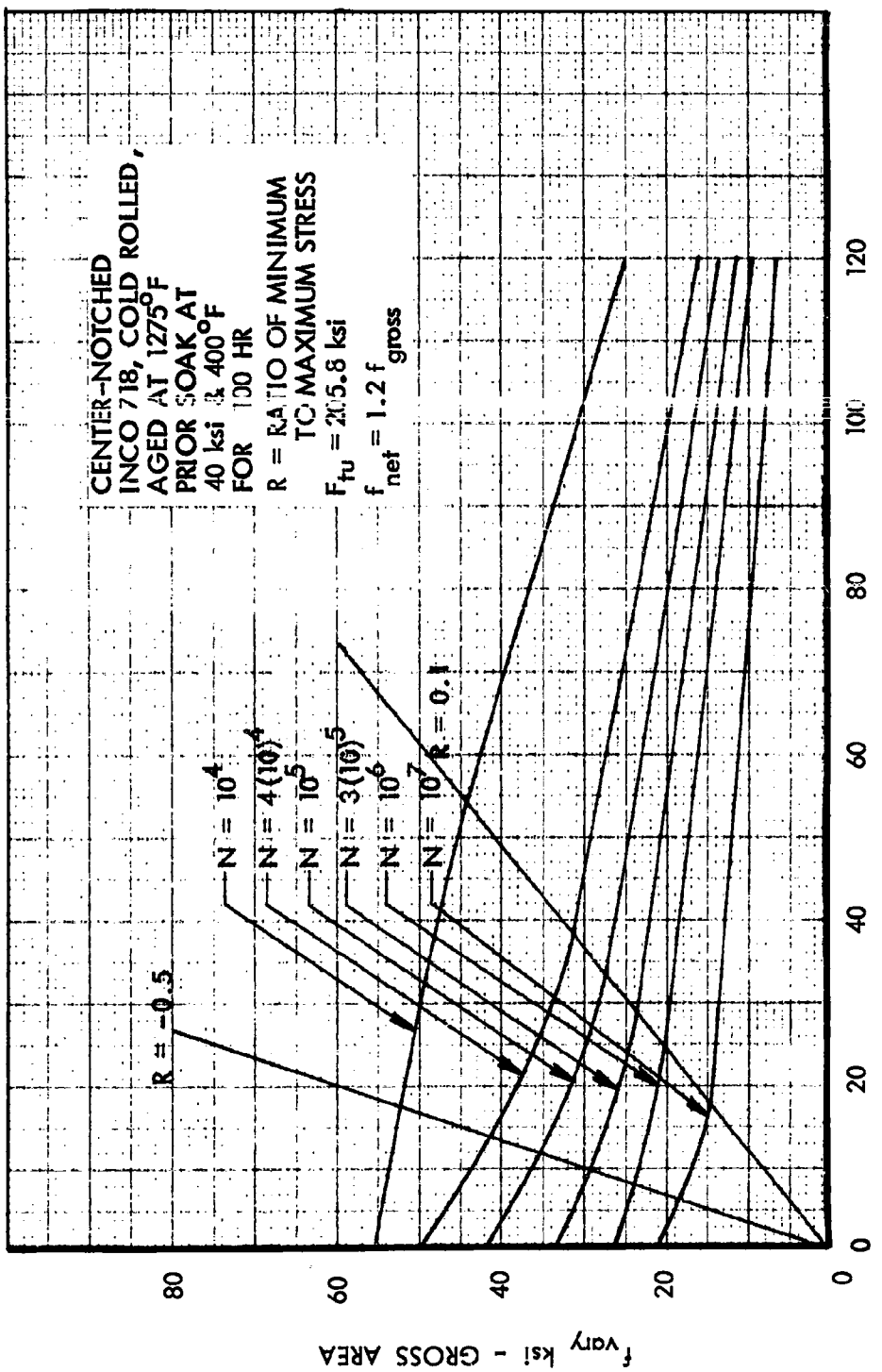



Figure 366. S-N Diagram at 400°F, Center-Notched INCO 718

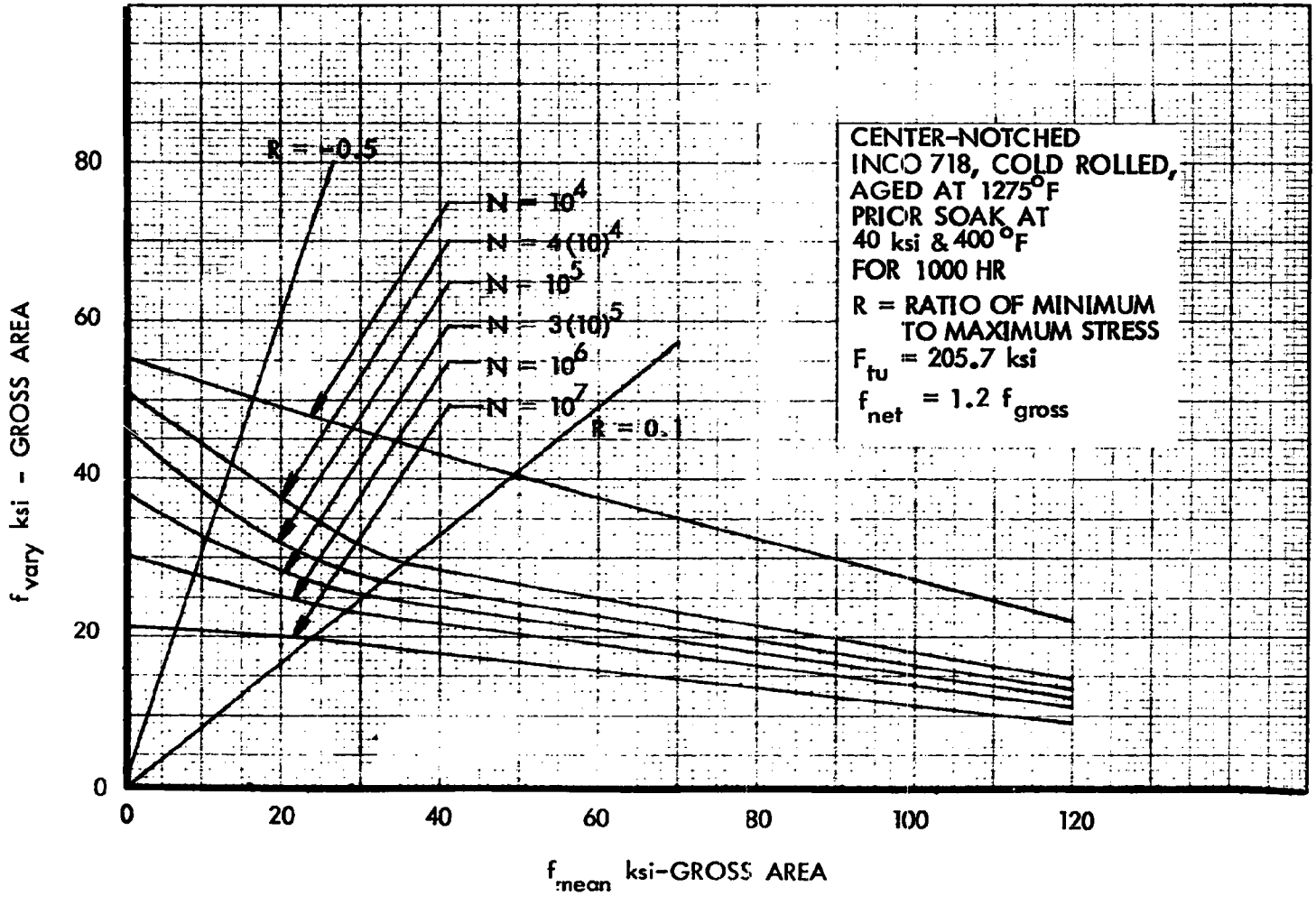



Figure 367. S-N Diagram at 400°F, Center-Notched INCO 718

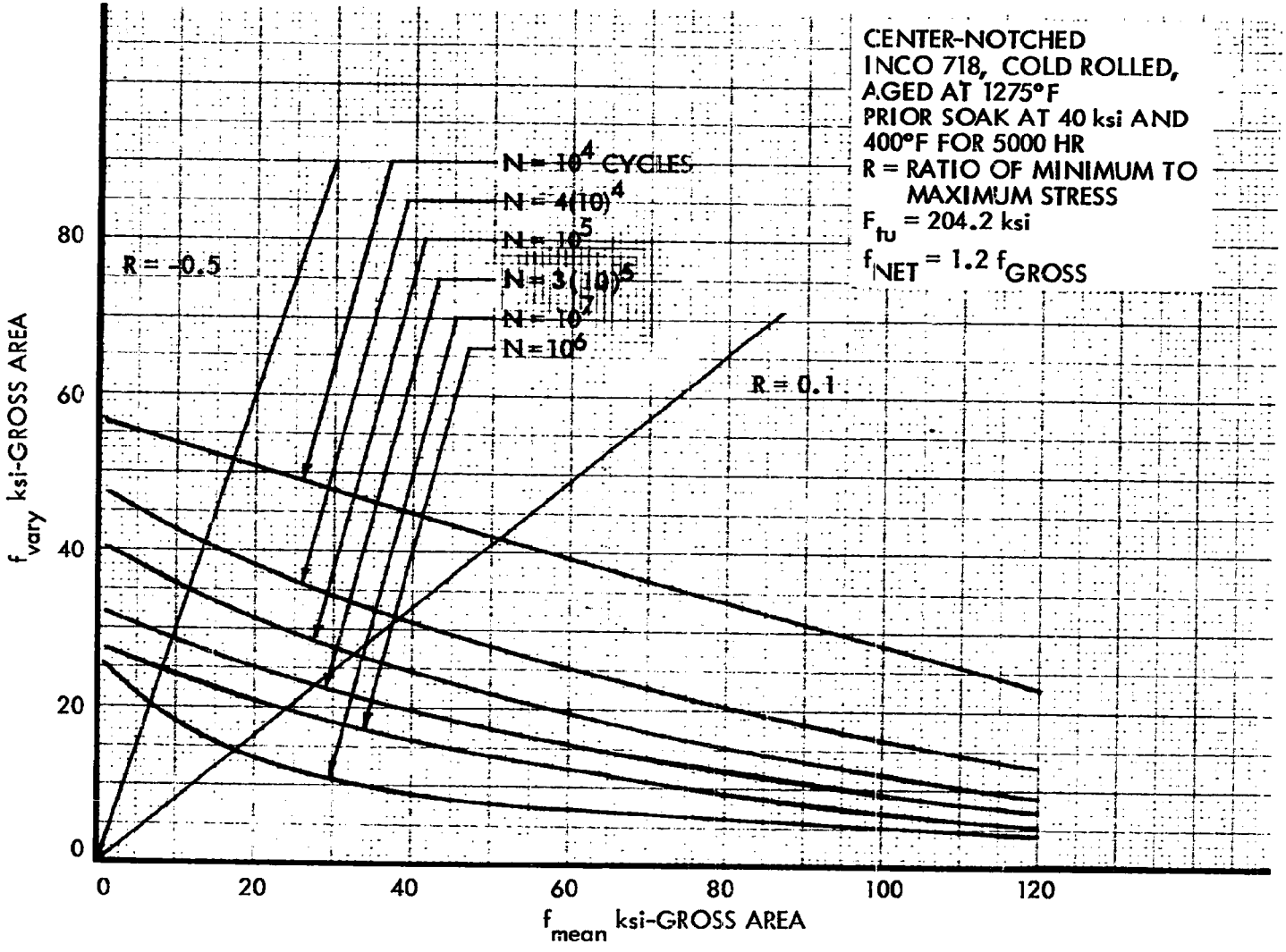



Figure 368. S-N Diagram at 400°F, Center-Notched INCO 718

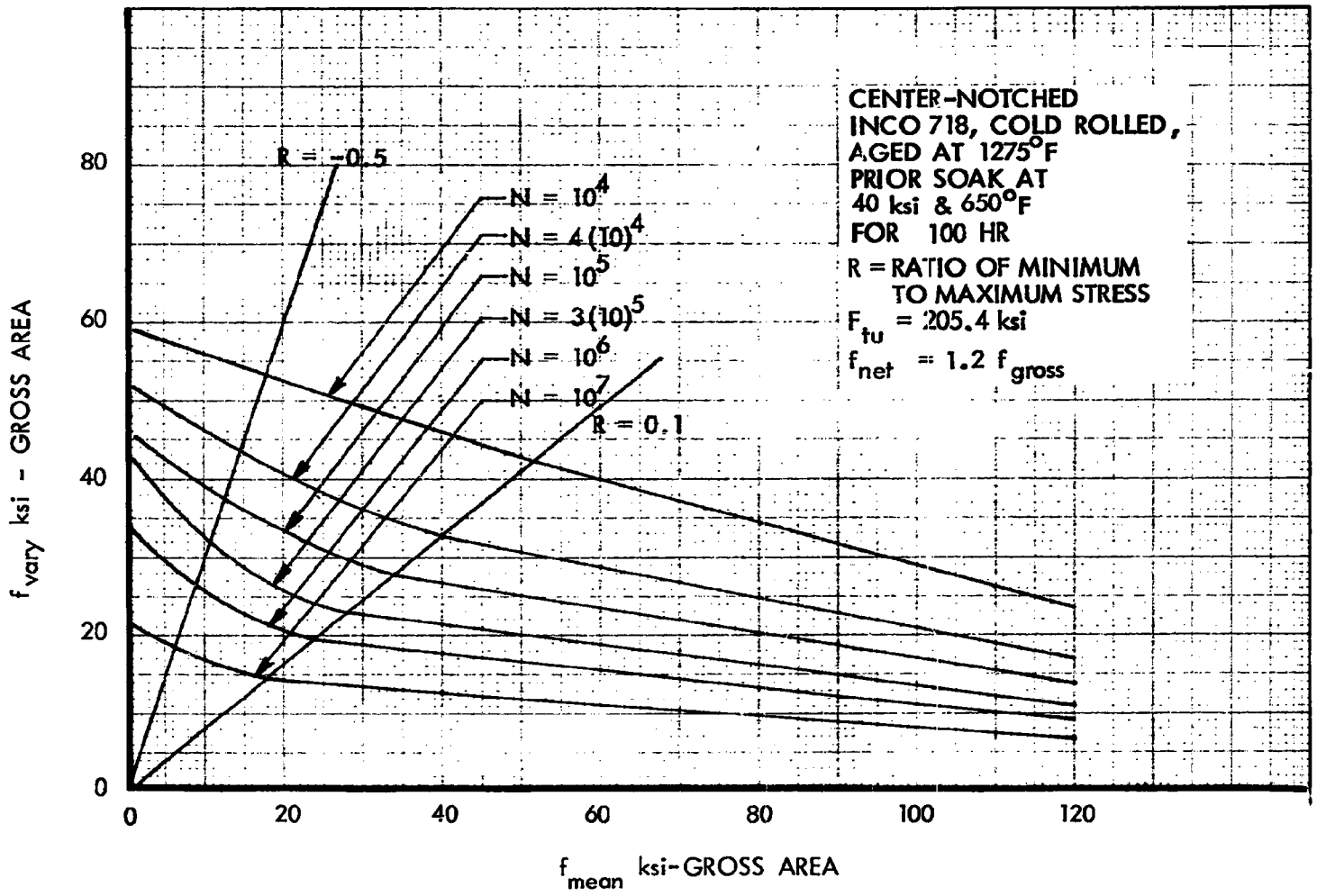



Figure 369. S-N Diagram at 400°F, Center-Notched INCO 718

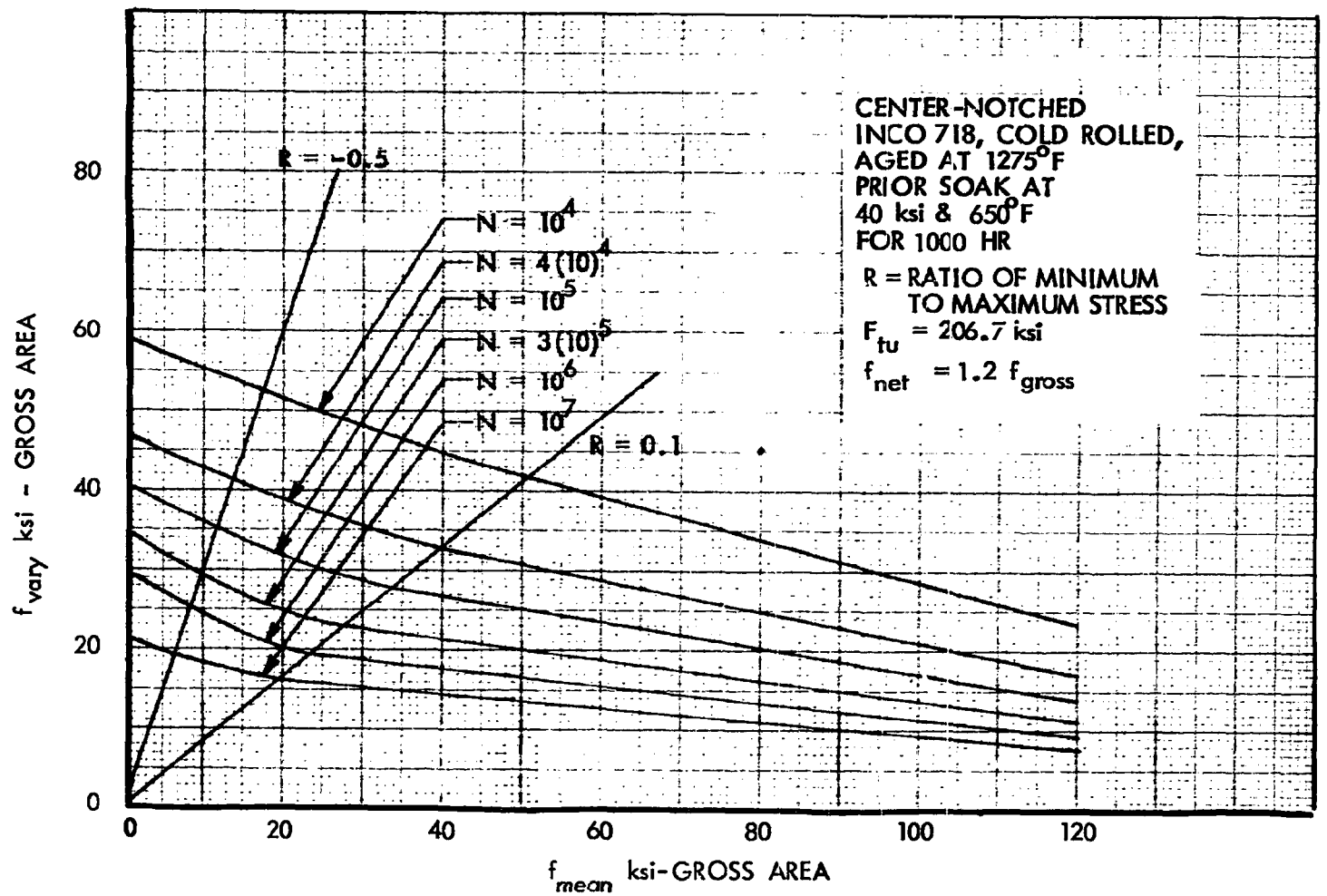



Figure 370. S-N Diagram at 400°F, Center-Notched INCO 718

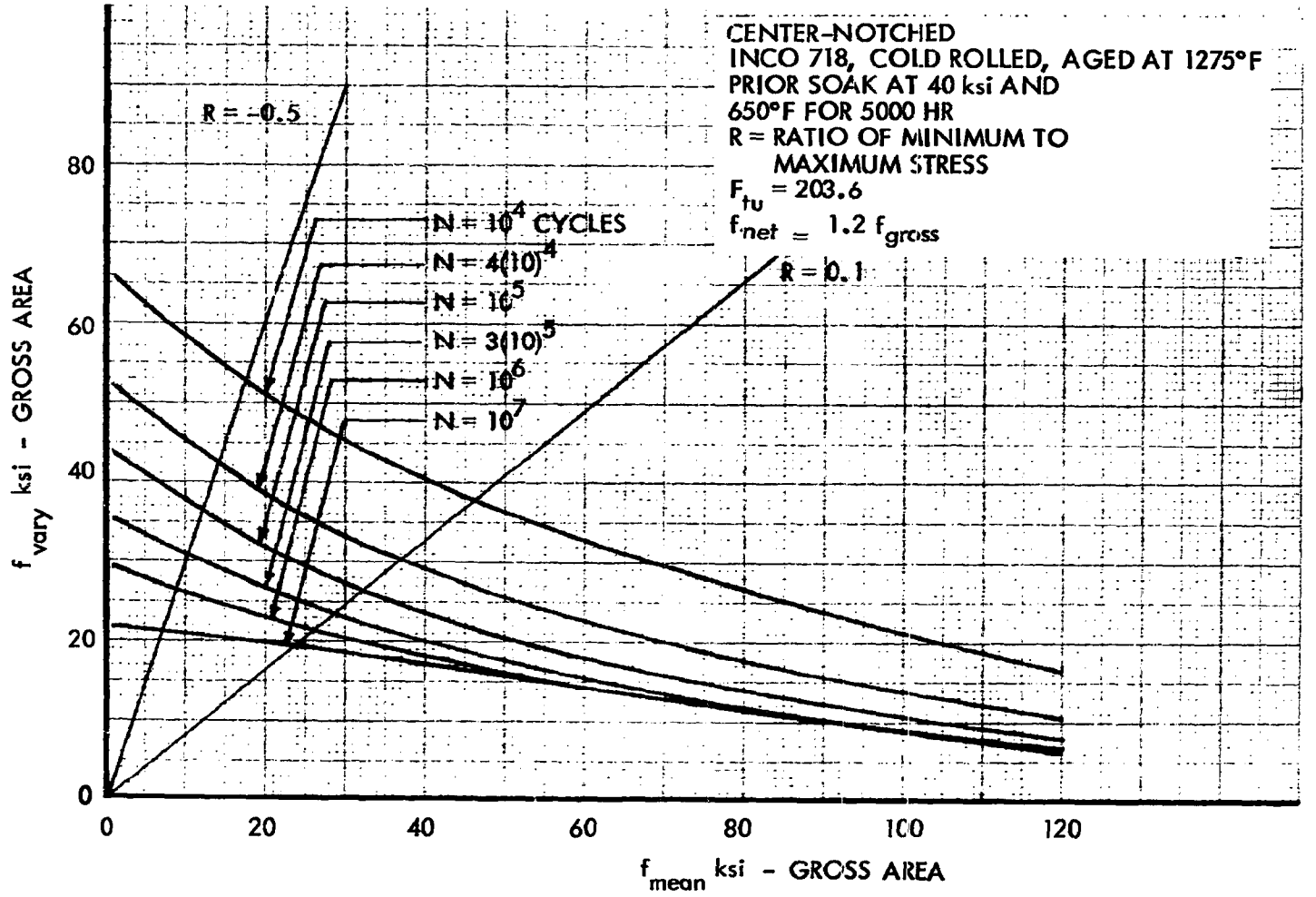



Figure 371. S-N Diagram at 400°F, Center Notched INCO 718

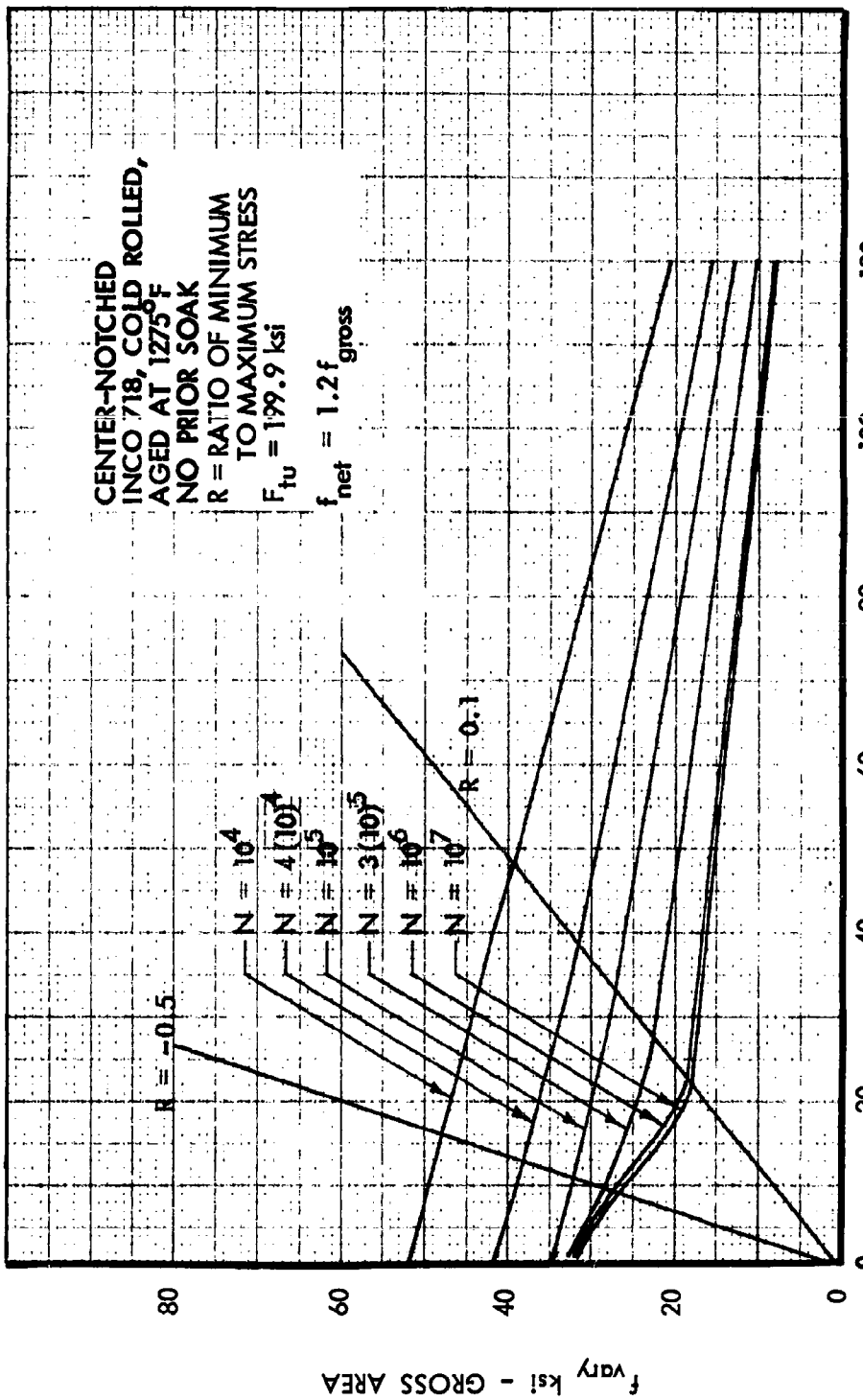



Figure 372. S-N Diagram at 650°F, Center-Notched INCO 718

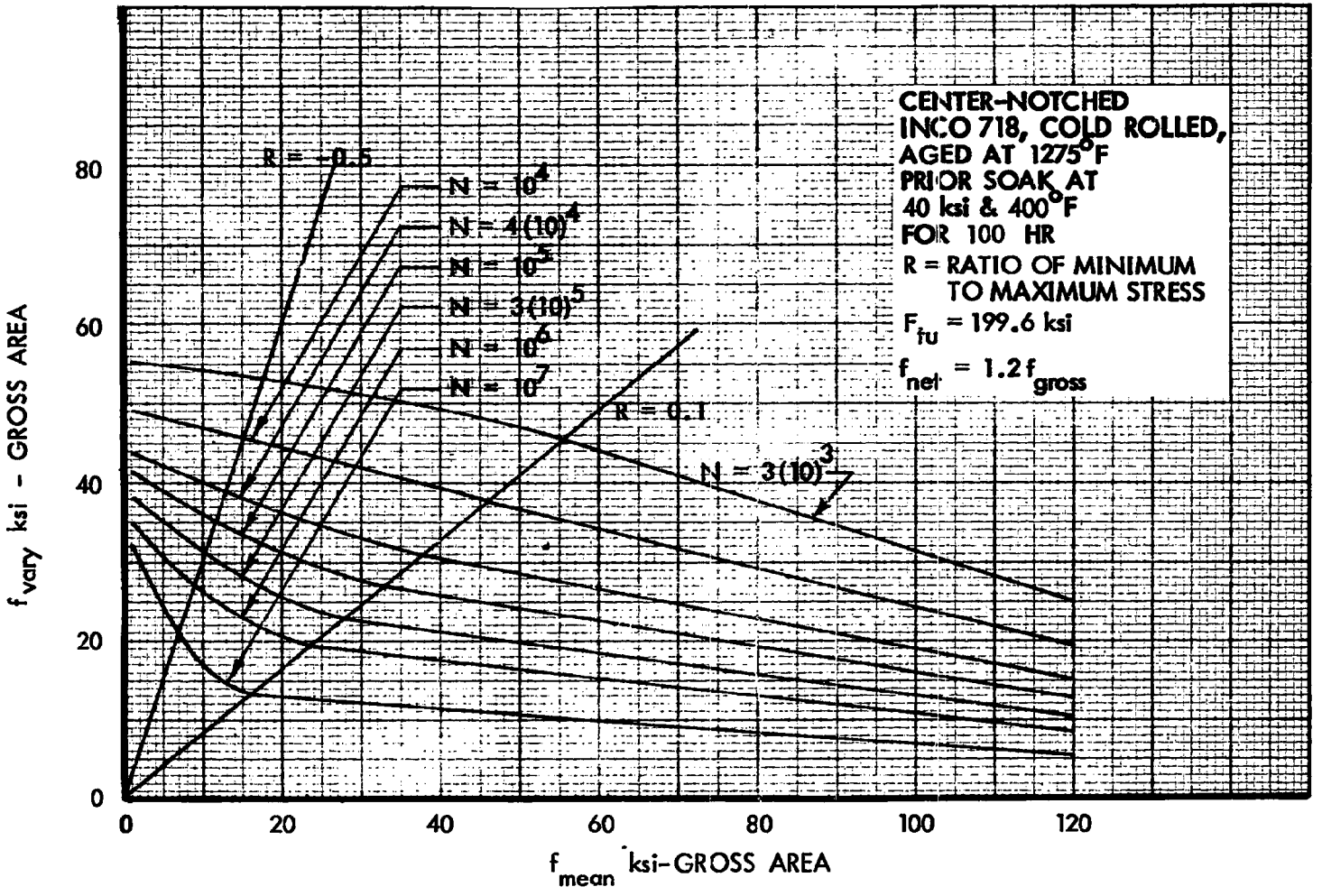



Figure 373. S-N Diagram at 650°F, Center-Notched INCO 718

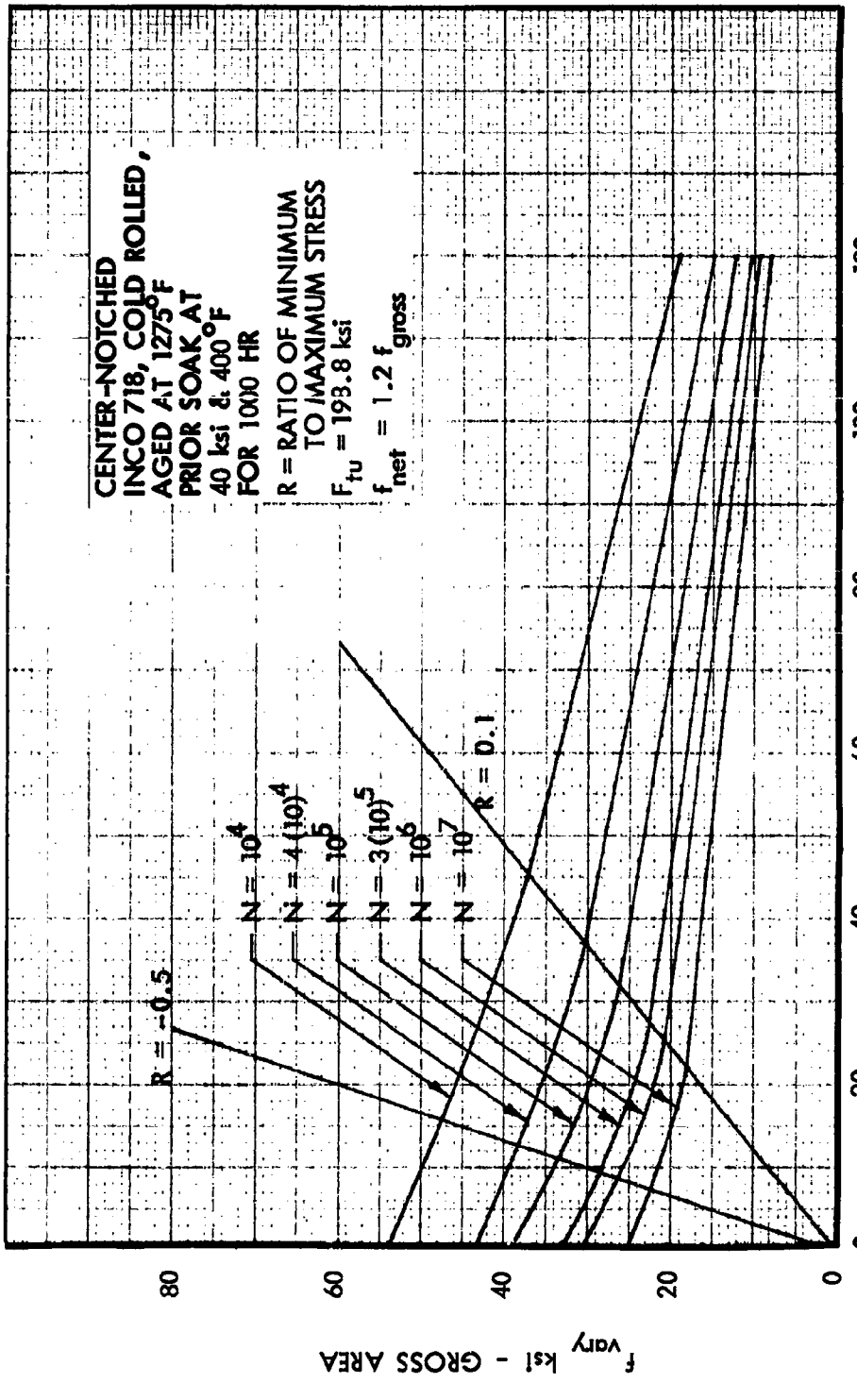



Figure 374. S-N Diagram at 650°F, Center-Notched INCO 718

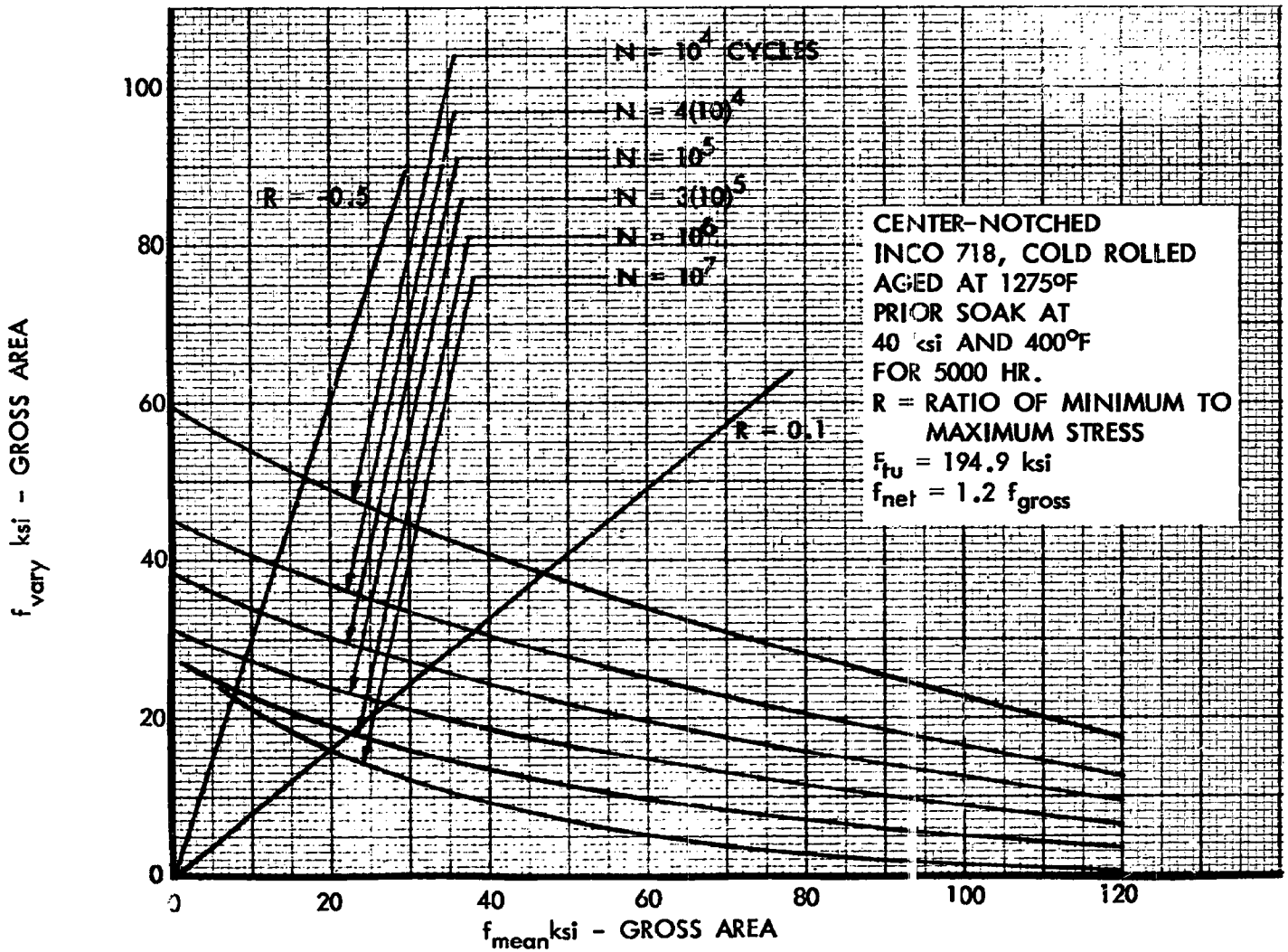



Figure 375. S-N Diagram at 650°F, Center-Notched INCO 718

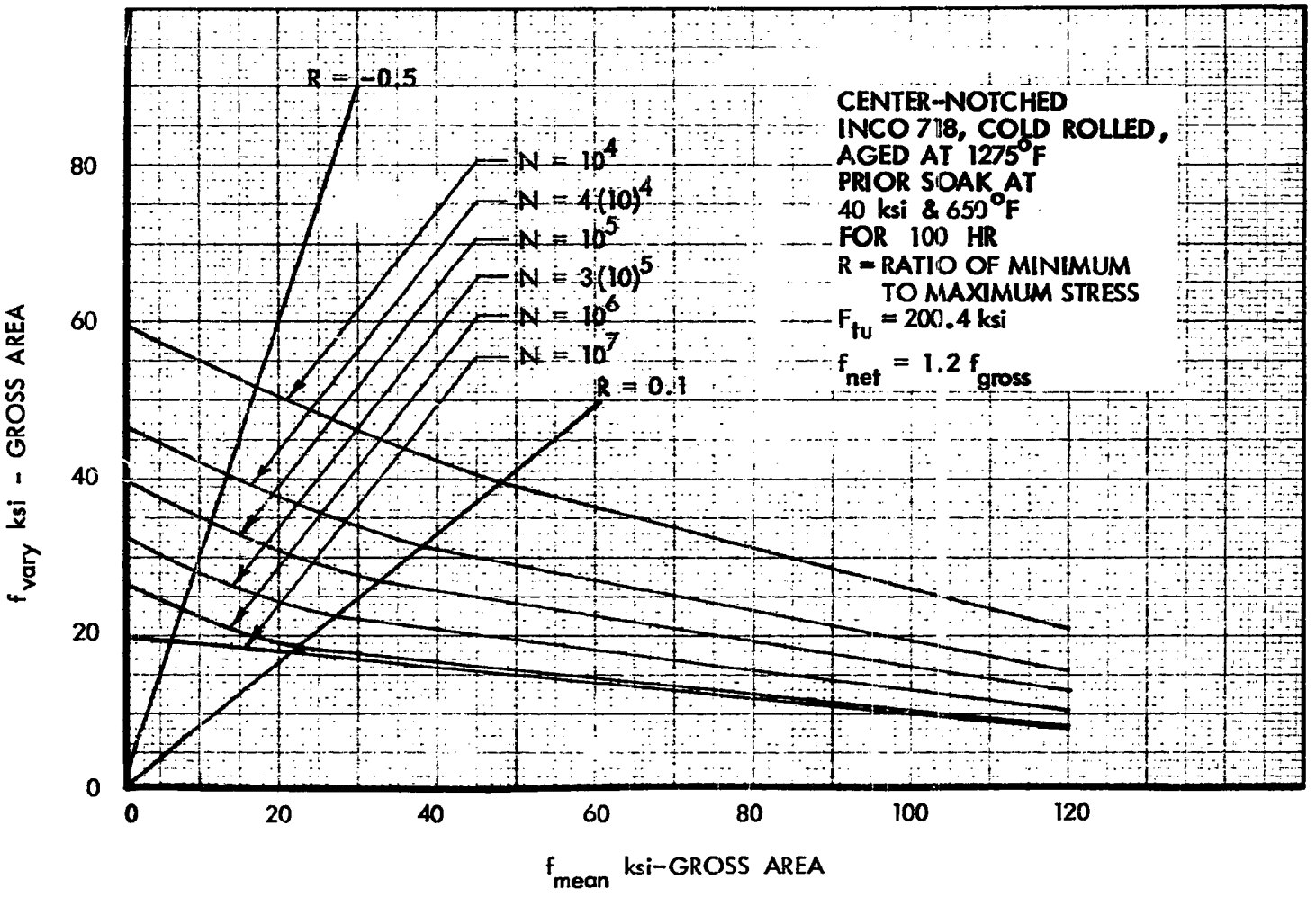



Figure 376. S-N Diagram at 650°F, Center-Notched INCO 718

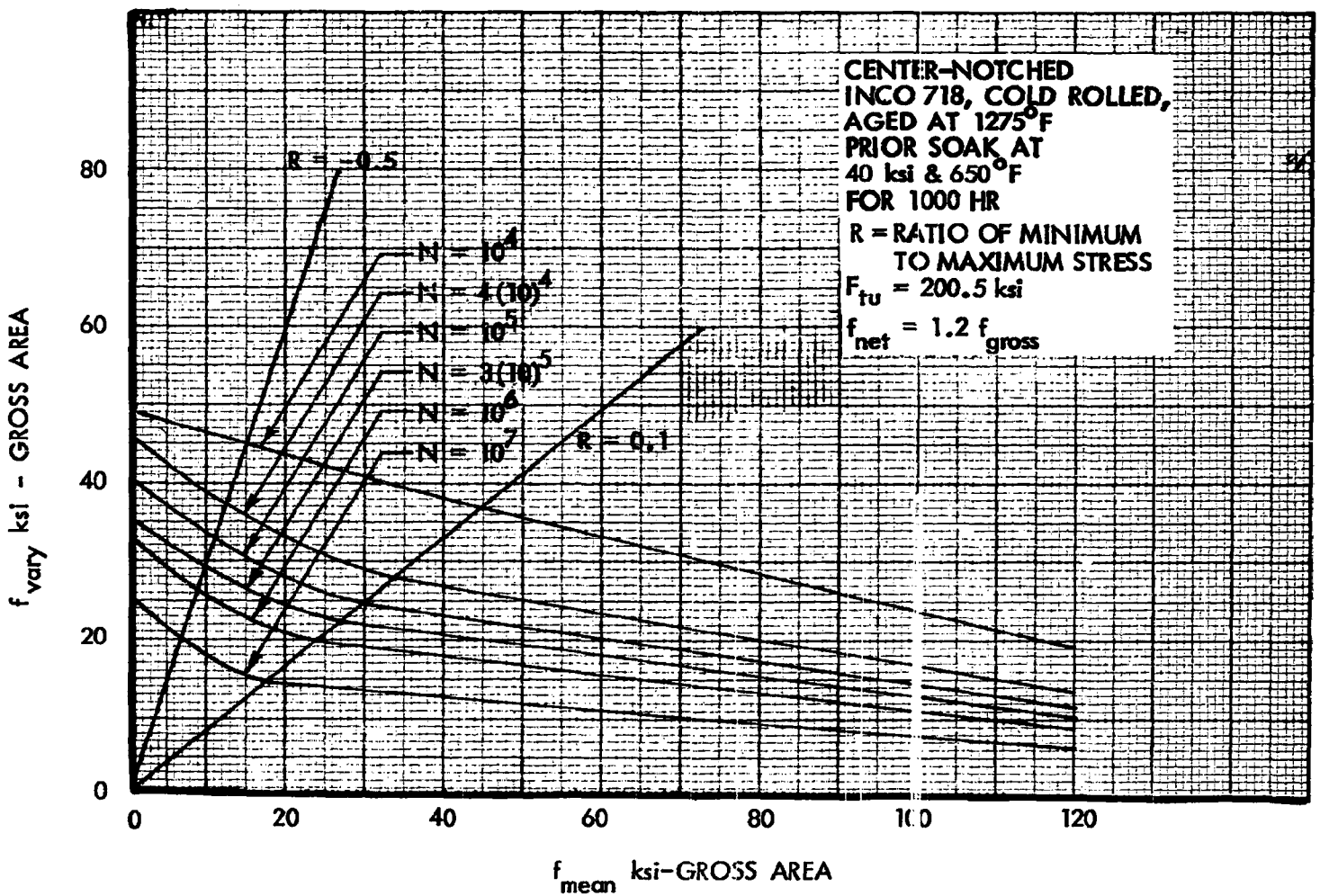



Figure 377. S-N Diagram at 650°F, Center-Notched INCO 718

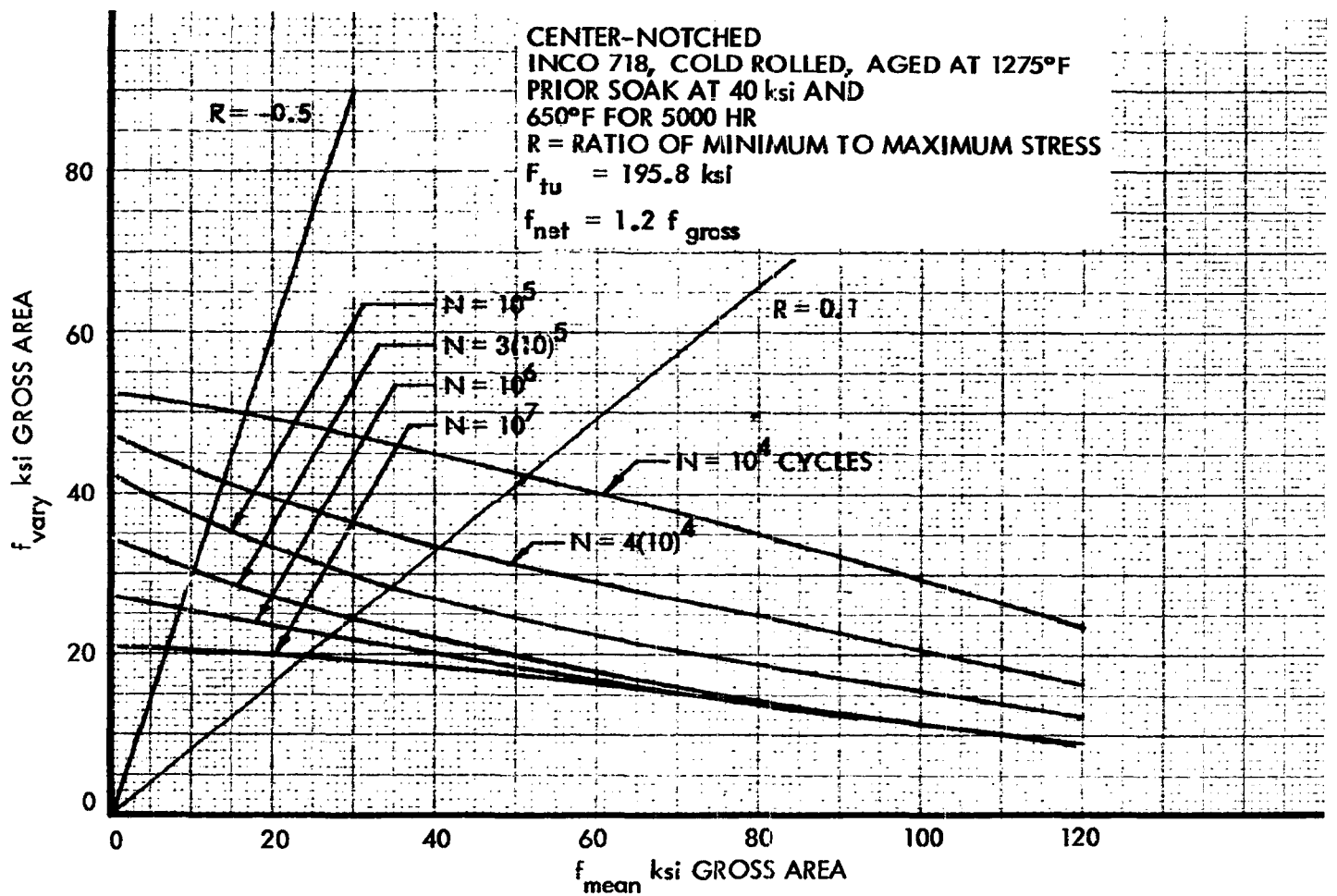



Figure 378. S-N Diagram at 650°F, Center-Notched INCO 718

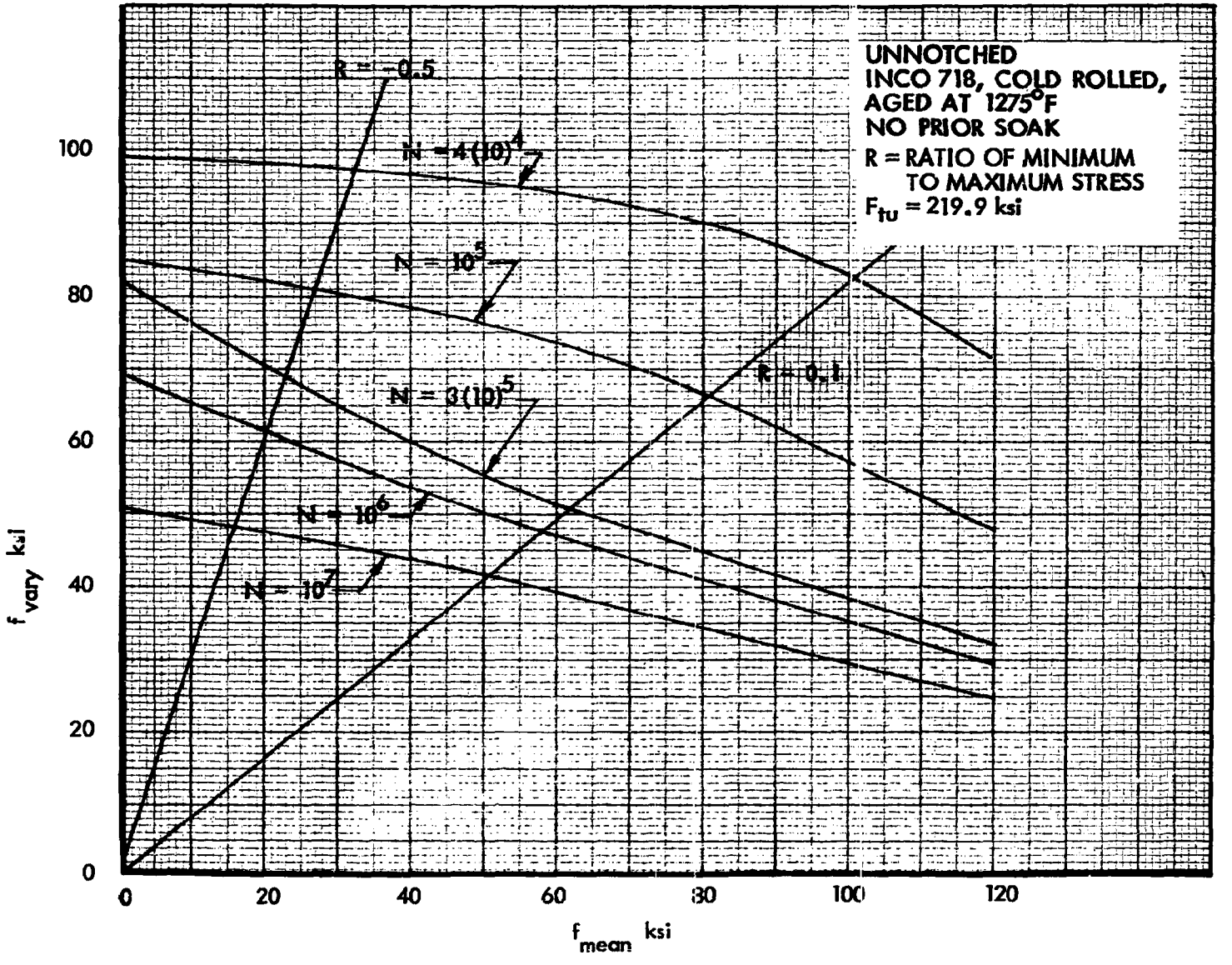



Figure 379. S-N Diagram at Room Temperature, Unnotched INCO 718

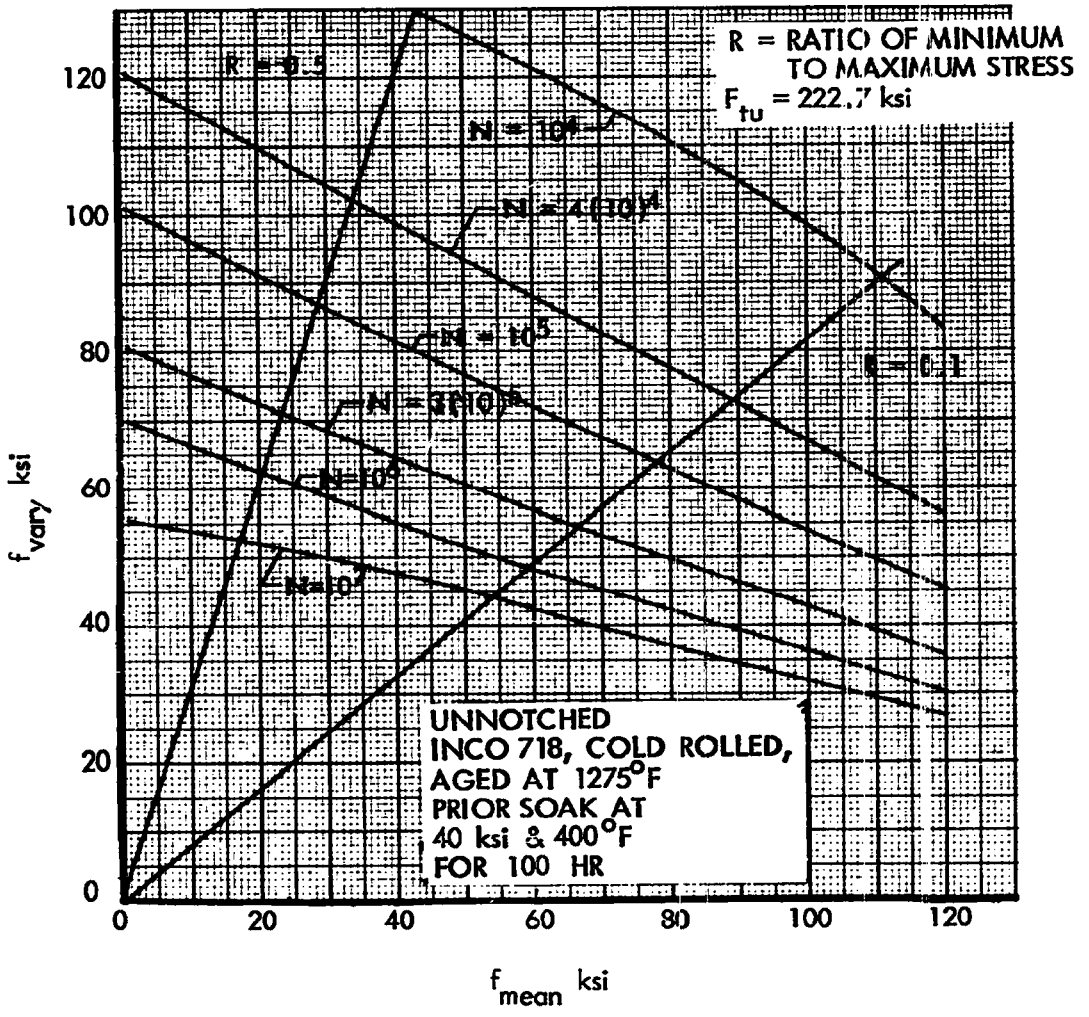
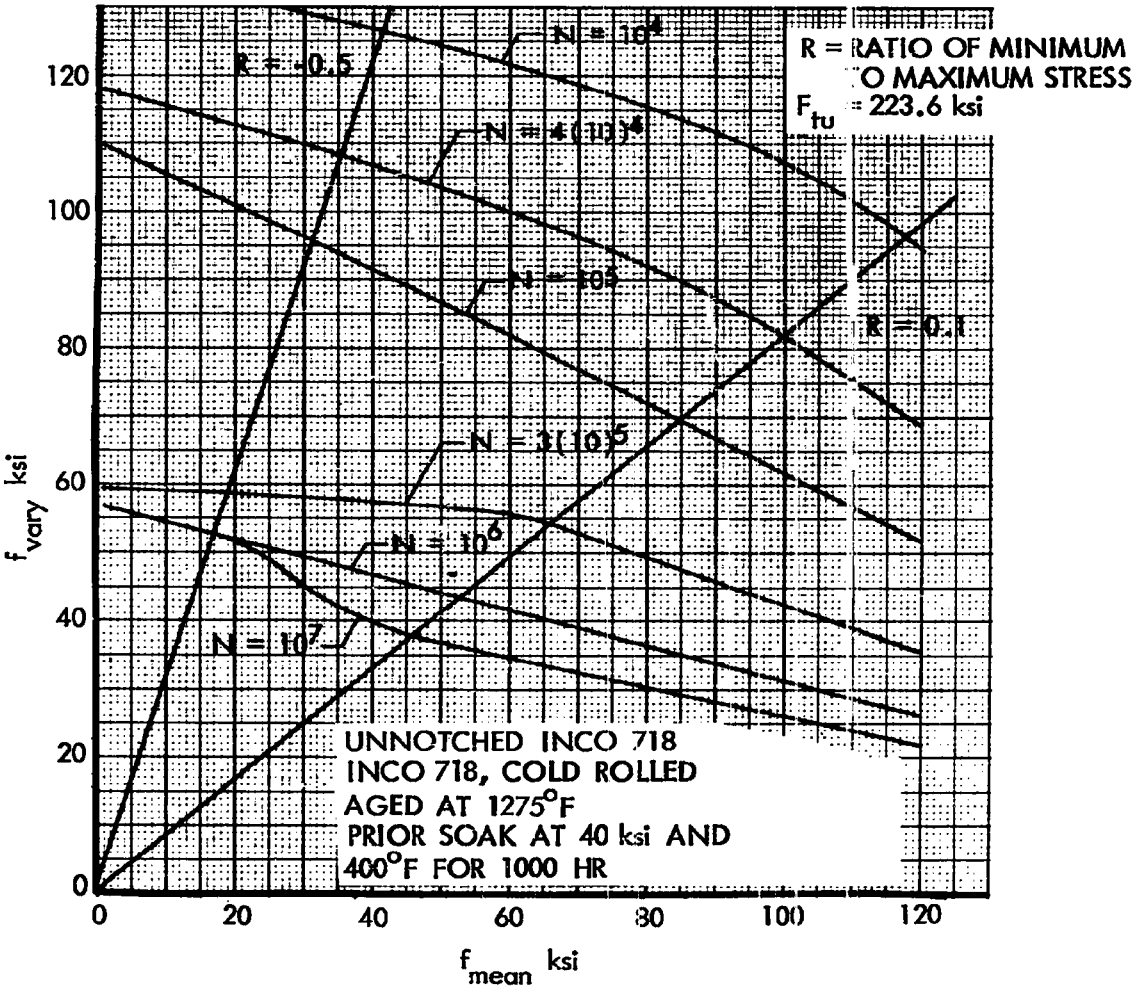



Figure 380. S-N Diagram at Room Temperature, Unnotched INCO 718


R = RATIO OF MINIMUM
TO MAXIMUM STRESS
$F_{tu}$ = 223.6 ksi
R = -0.5
R = 0.1
N = $10^4$
N = $4(10)^4$
N = $10^5$
N = $3(10)^5$
N = $10^6$
N = $10^7$
UNNOTCHED INCO 718
INCO 718, COLD ROLLED
AGED AT 1275°F
PRIOR SOAK AT 40 ksi AND
400°F FOR 1000 HR
$f_{vary}$ ksi
$f_{mean}$ ksi
0
20
40
60
80
100
120

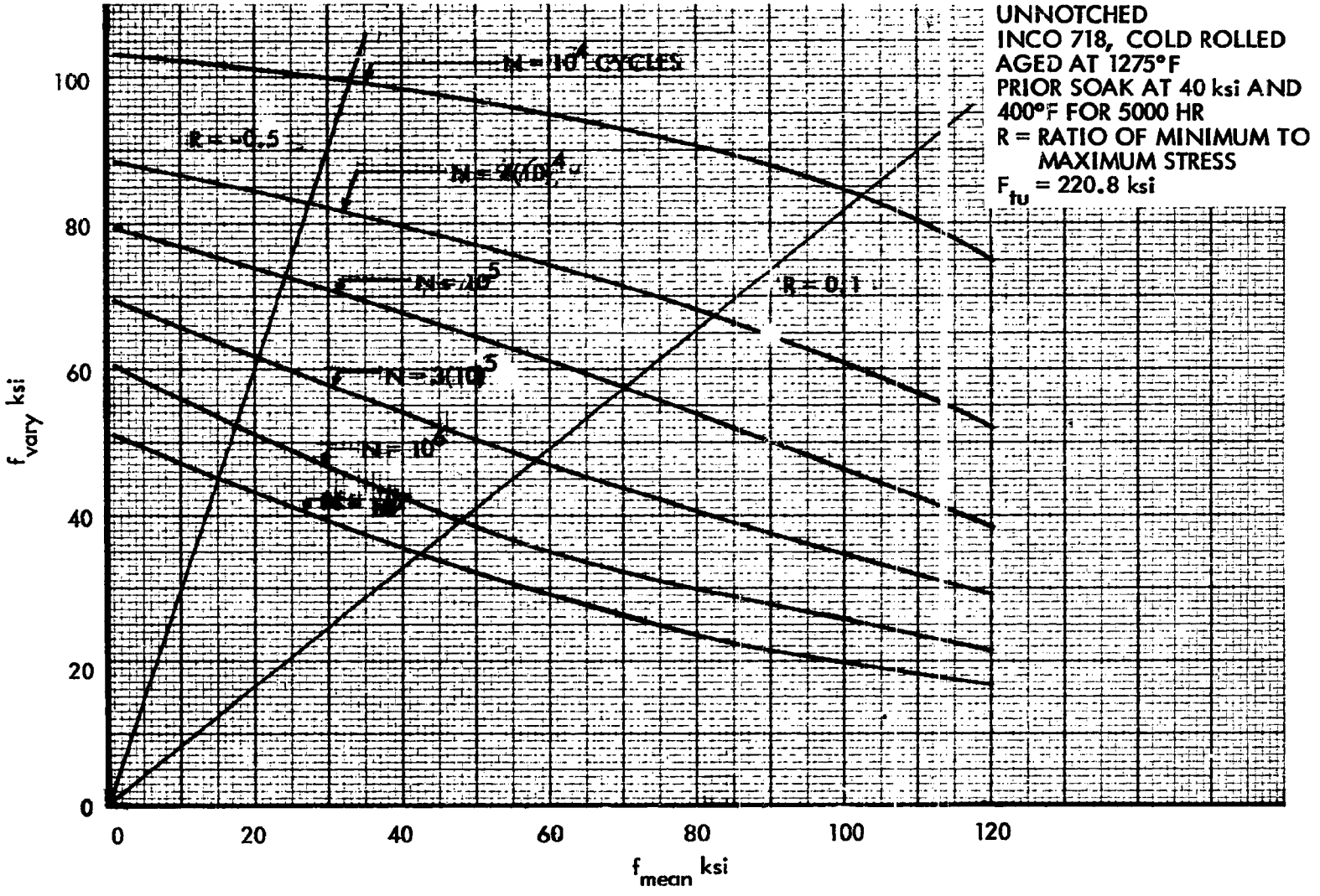



Figure 382. S-N Diagram at Room Temperature, Unnotched INCO 718

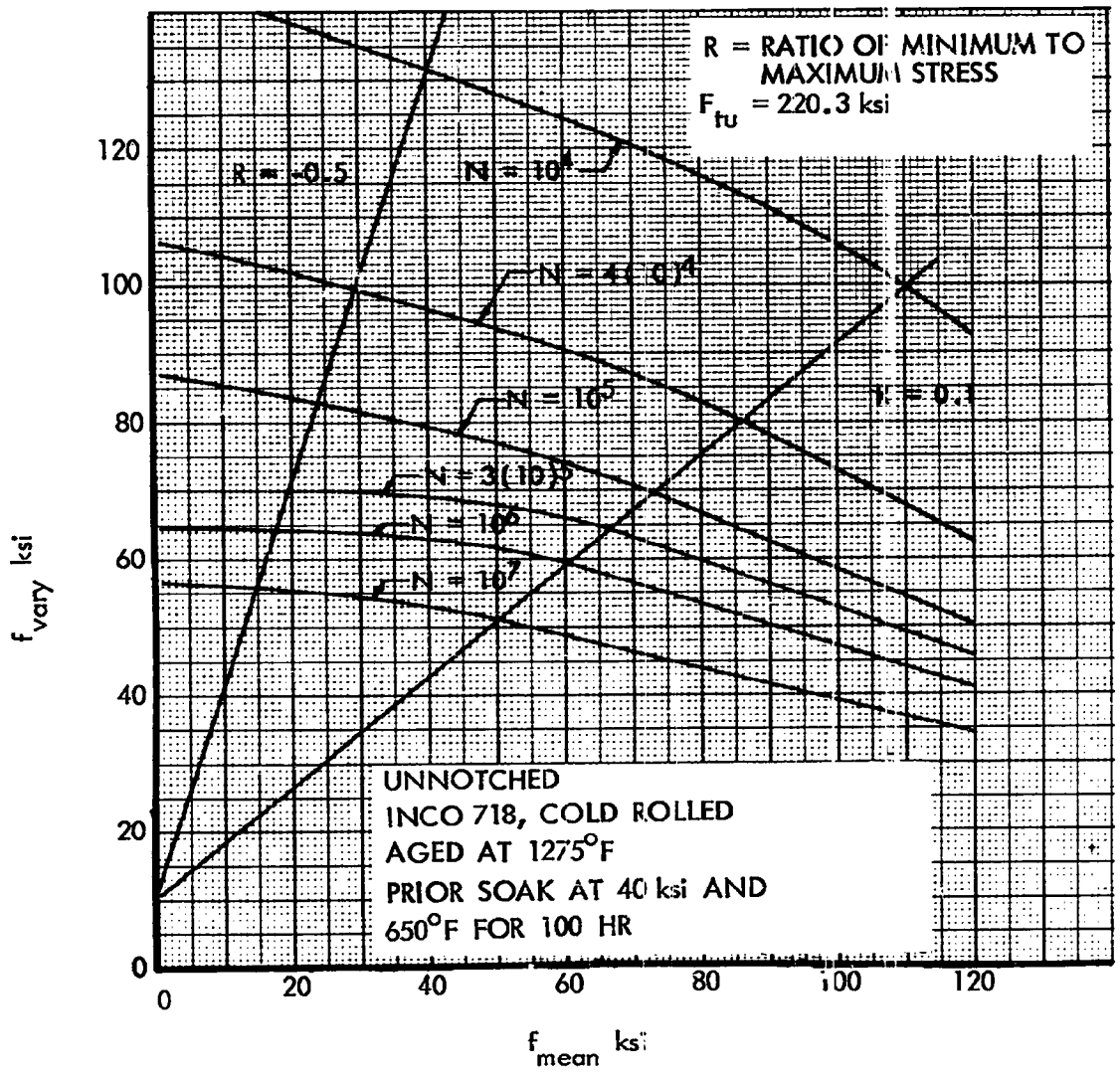



Figure 383. S-N Diagram at Room Temperature, Unnotched INCO 718

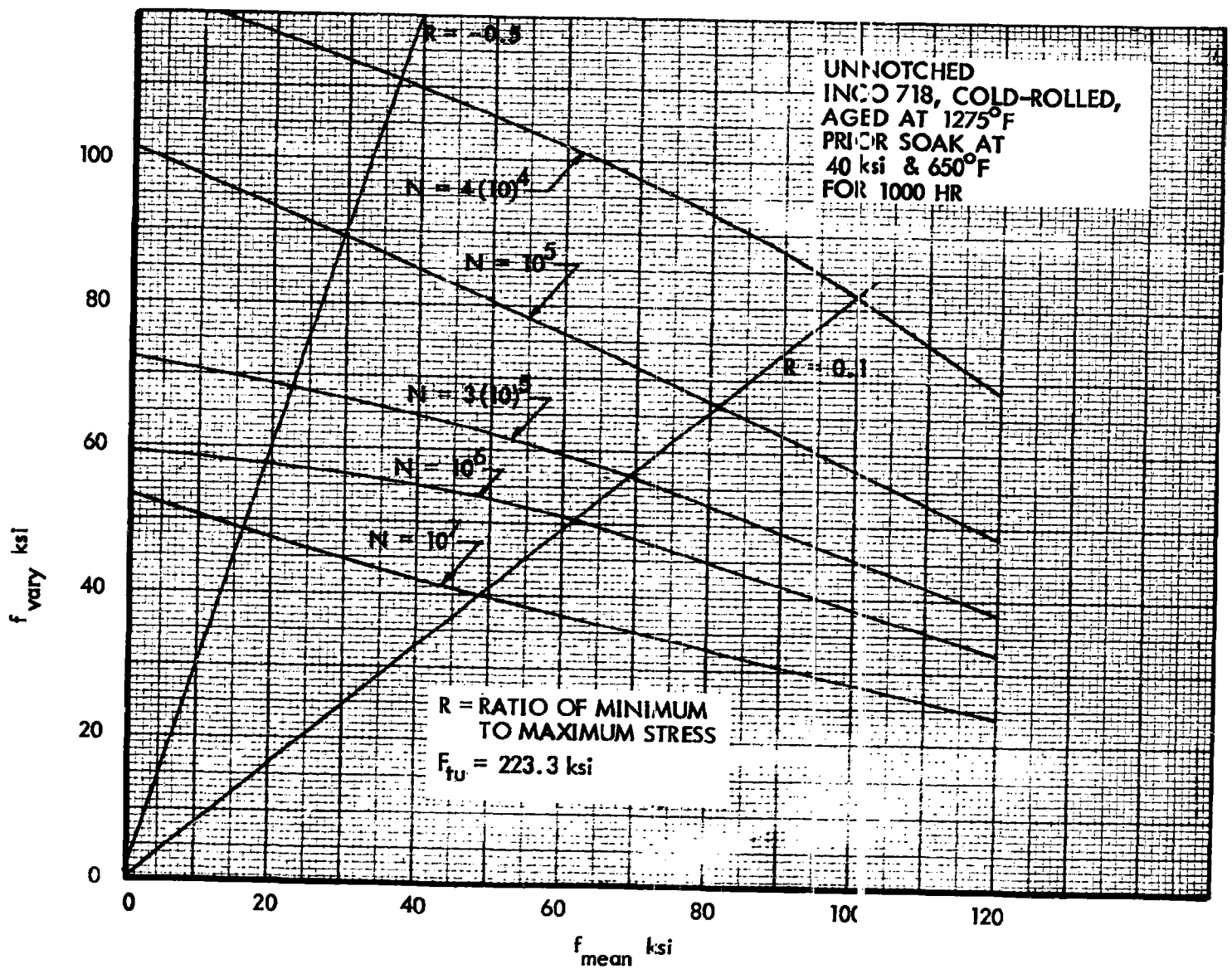



Figure 384. S-N Diagram at Room Temperature, Unnotched INCO 718

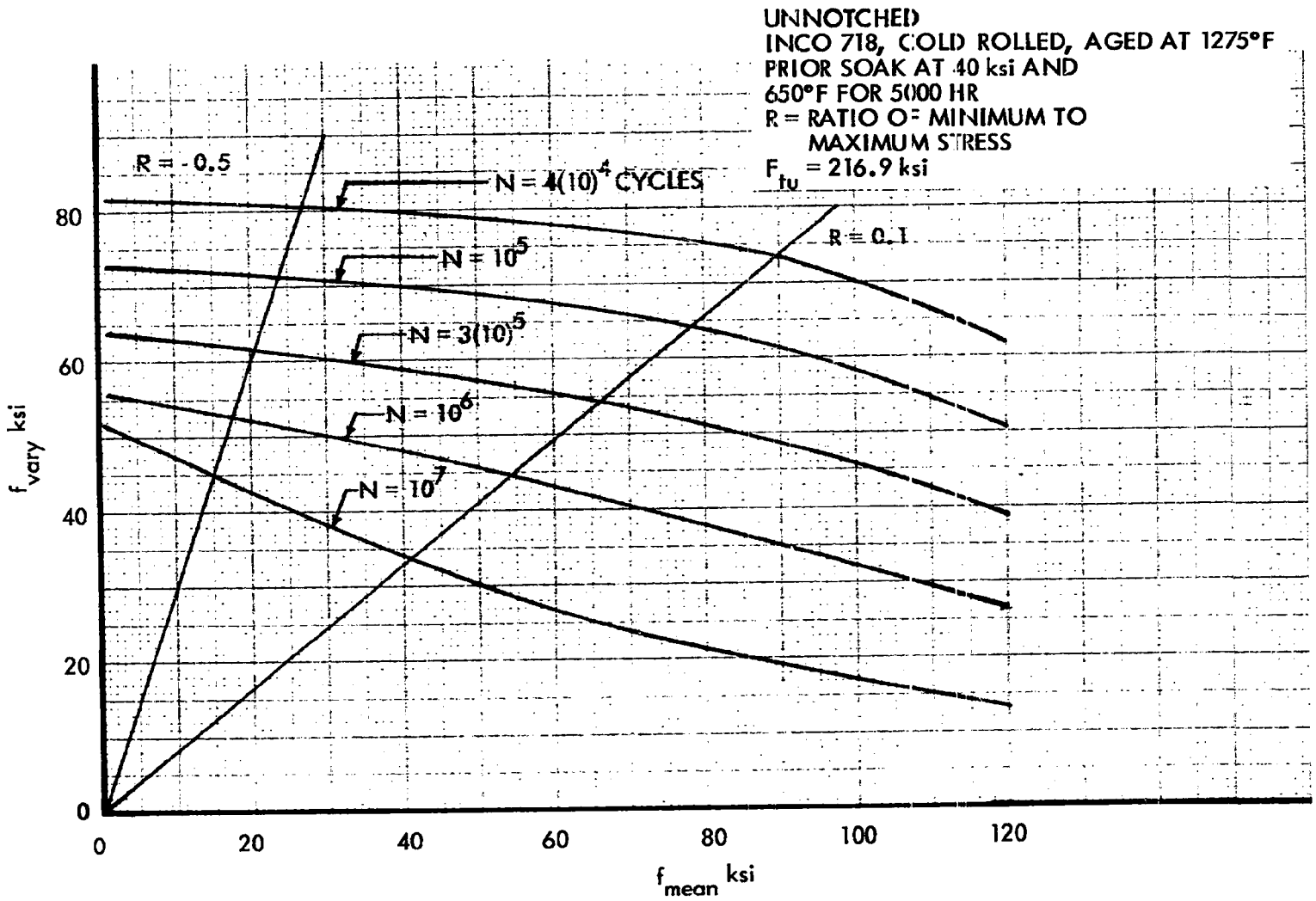



Figure 385. S-N Diagram at Room Temperature, Unnotched INCO 718

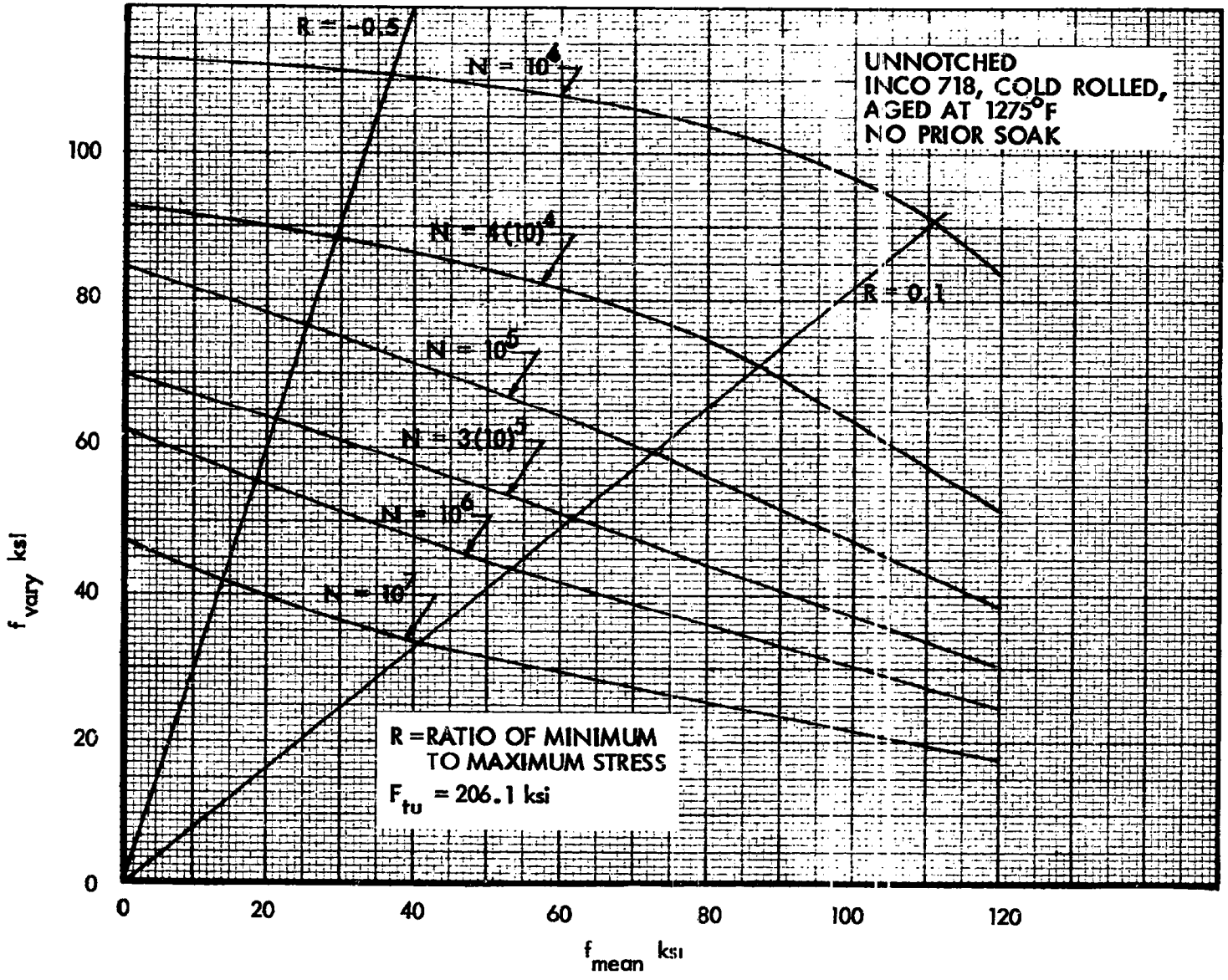



Figure 386. S-N Diagram at 400°F, Unnotched INCO 718

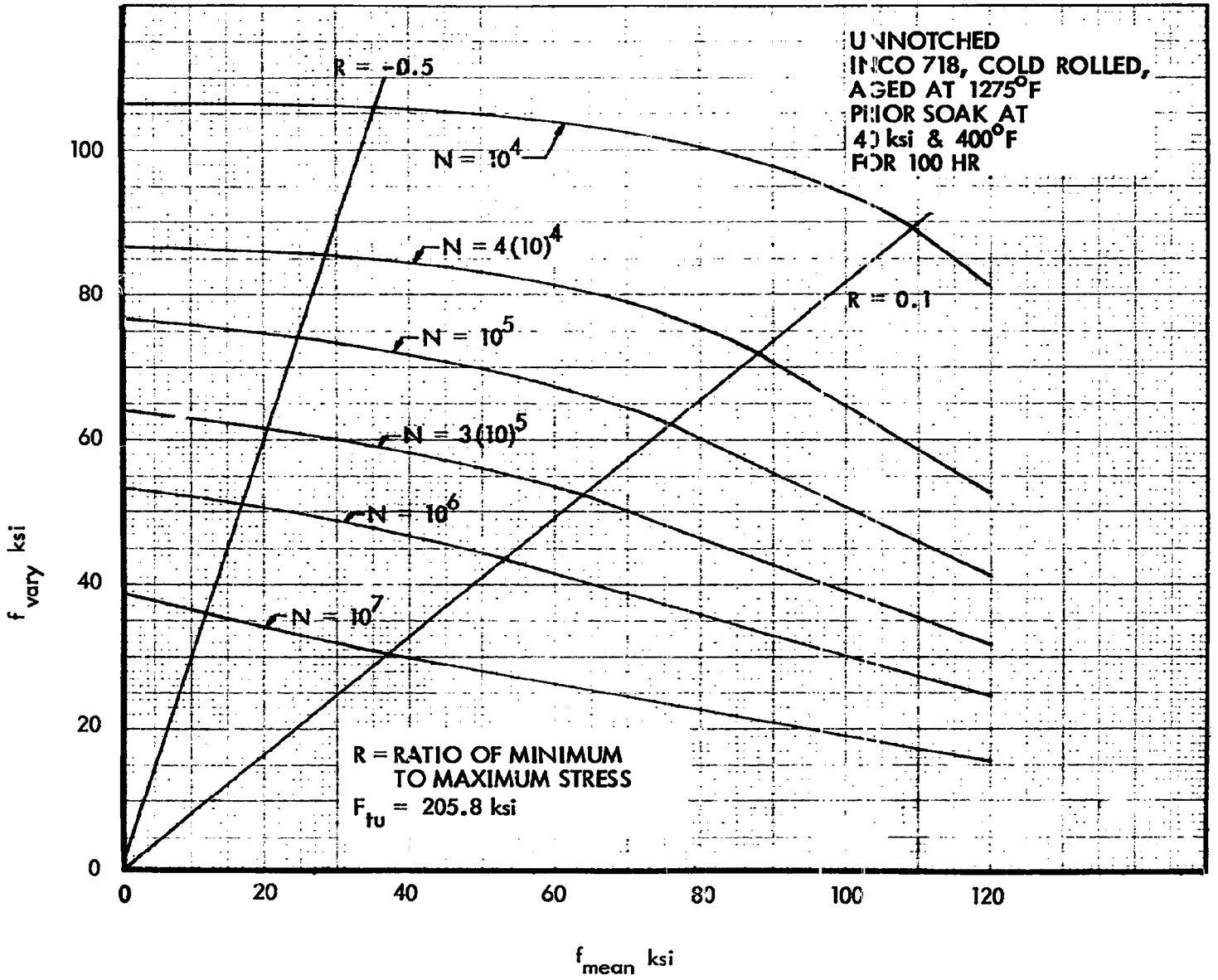



Figure 387. S-N Diagram at 400°F, Unnotched INCO 718

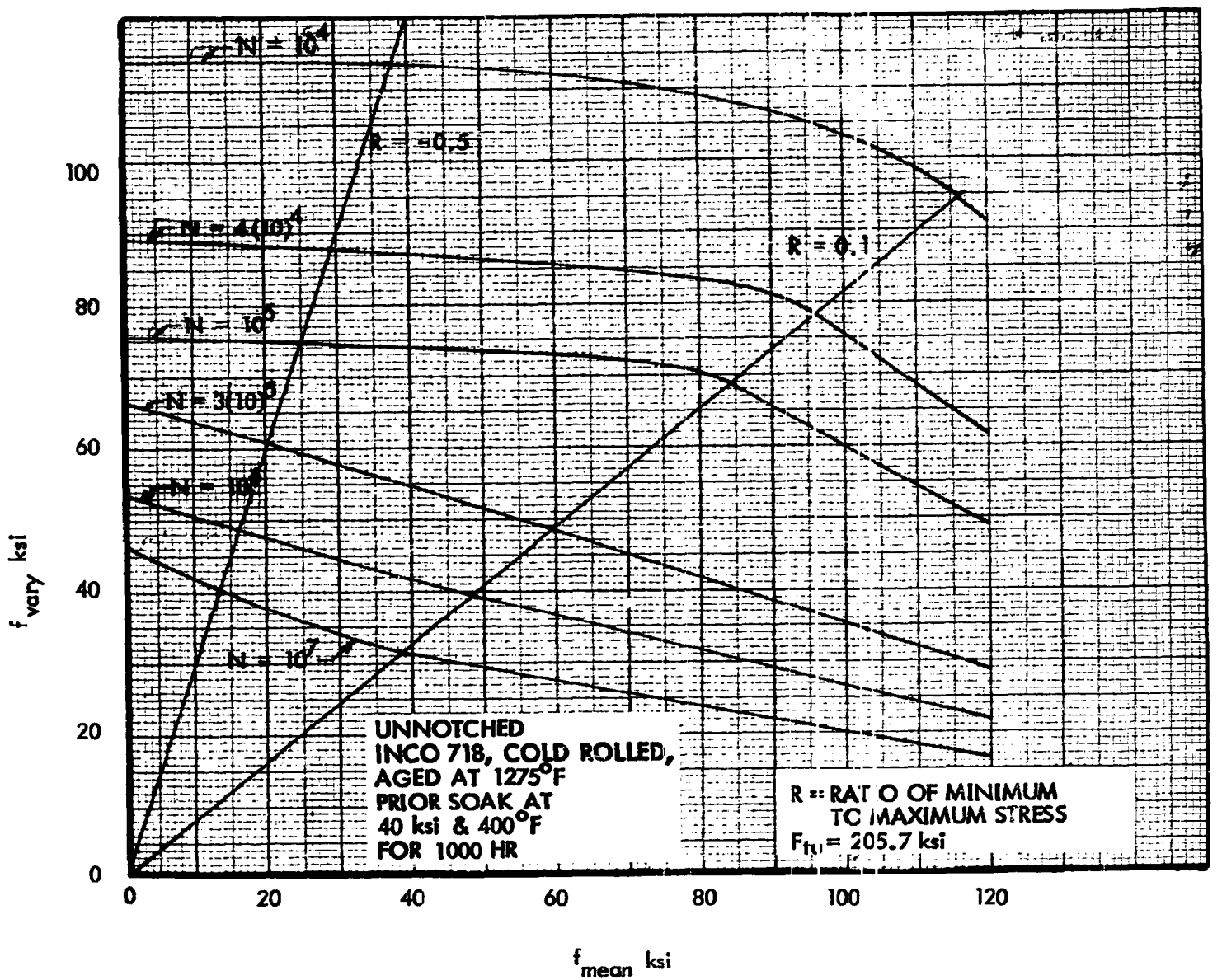



Figure 388. S-N Diagram at 400°F, Unnotched INCO 718

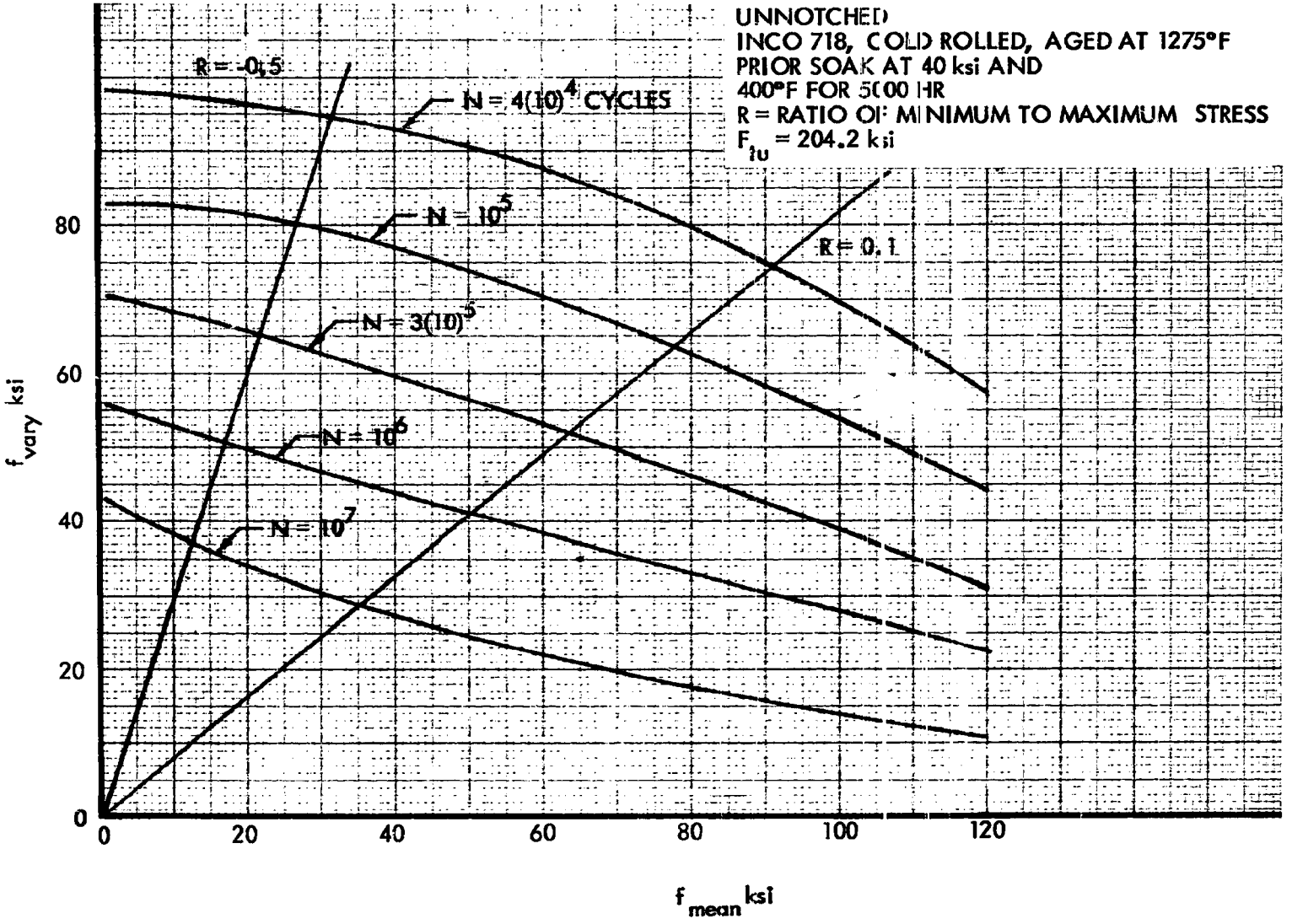



Figure 389. S-N Diagram at 400°F, Unnotched INCO 718

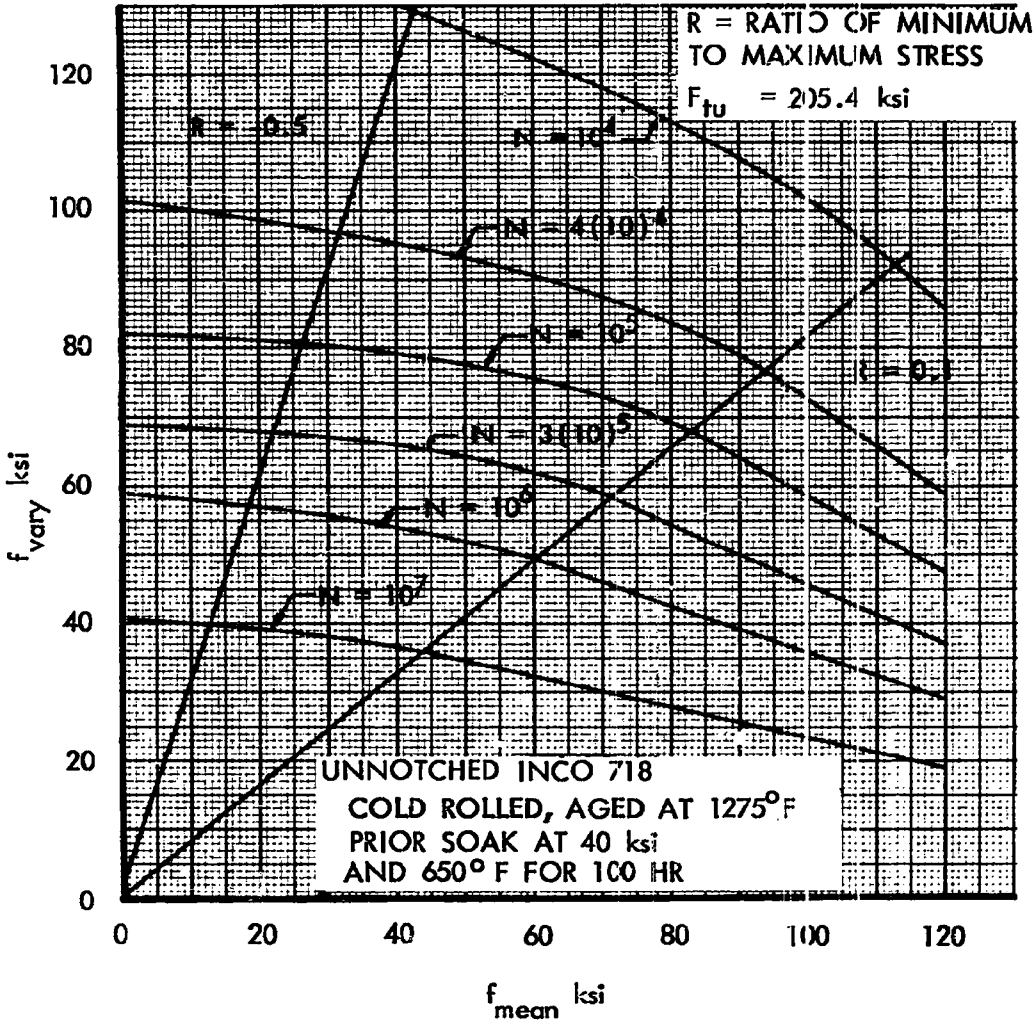



Figure 390. S-N Diagram at 400°F, Unnotched INCO 718

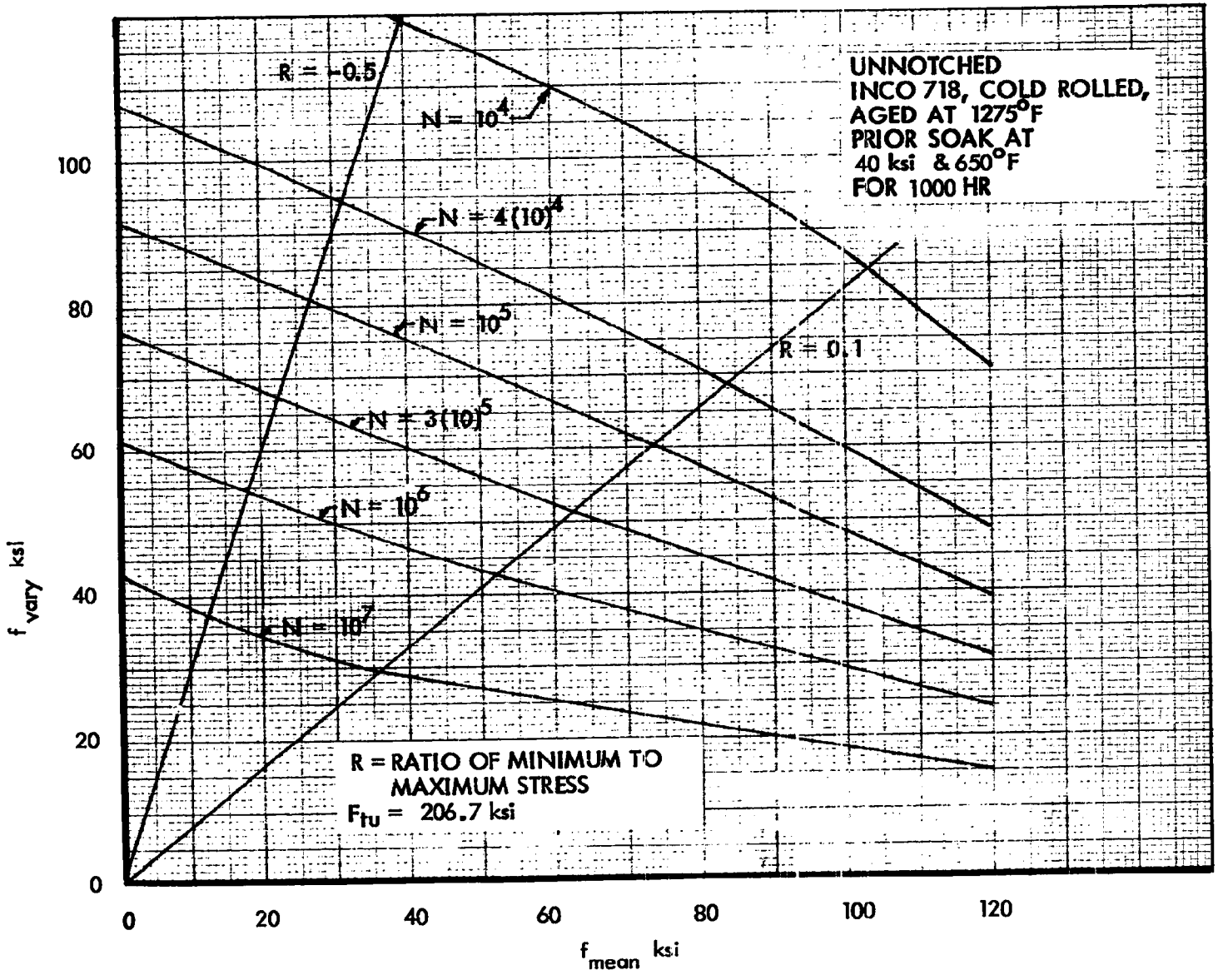



Figure 391. S-N Diagram at 400°F, Unnotched INCO 718

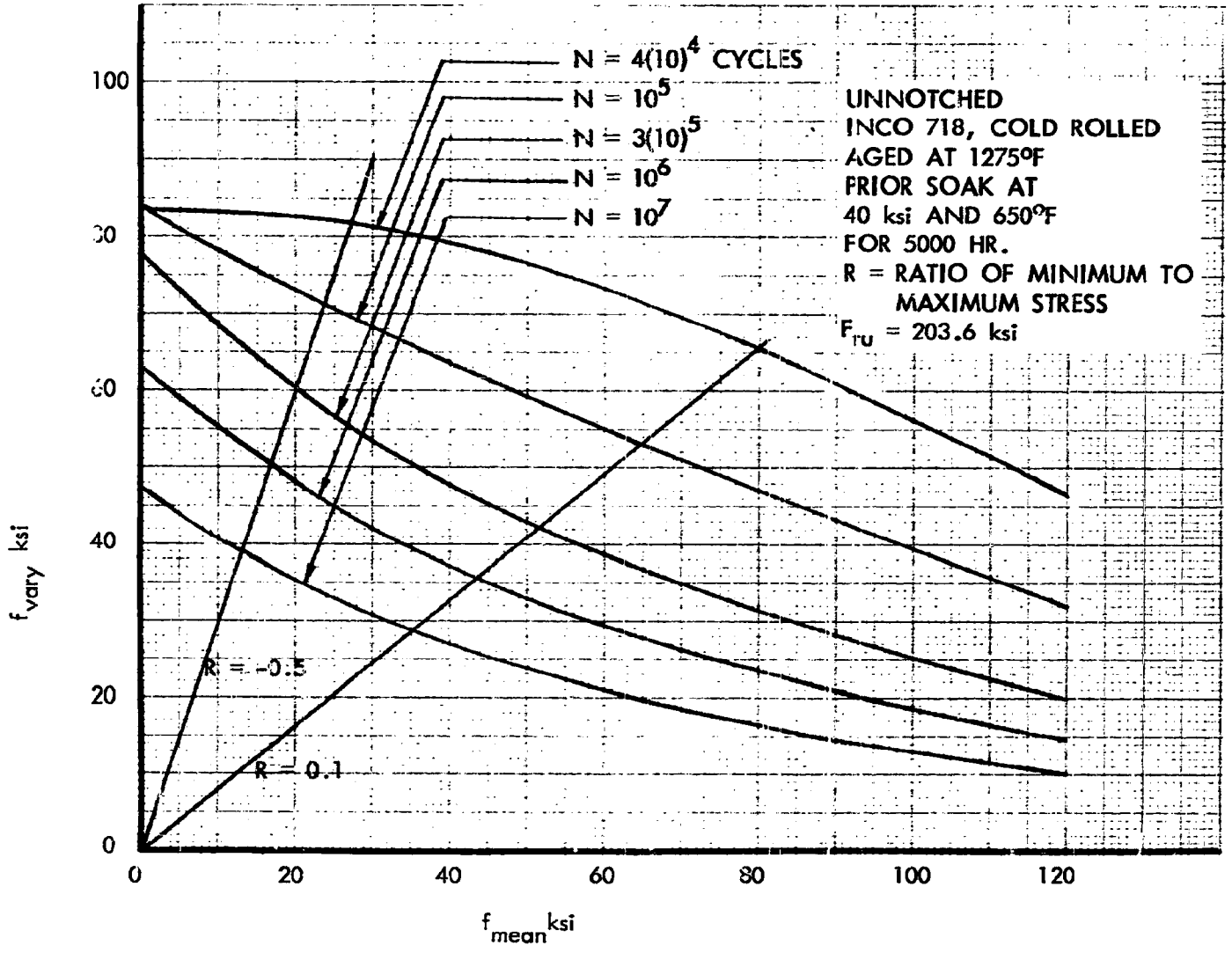



Figure 392. S-N Diagram at 400°F, Unnotched INCO 718

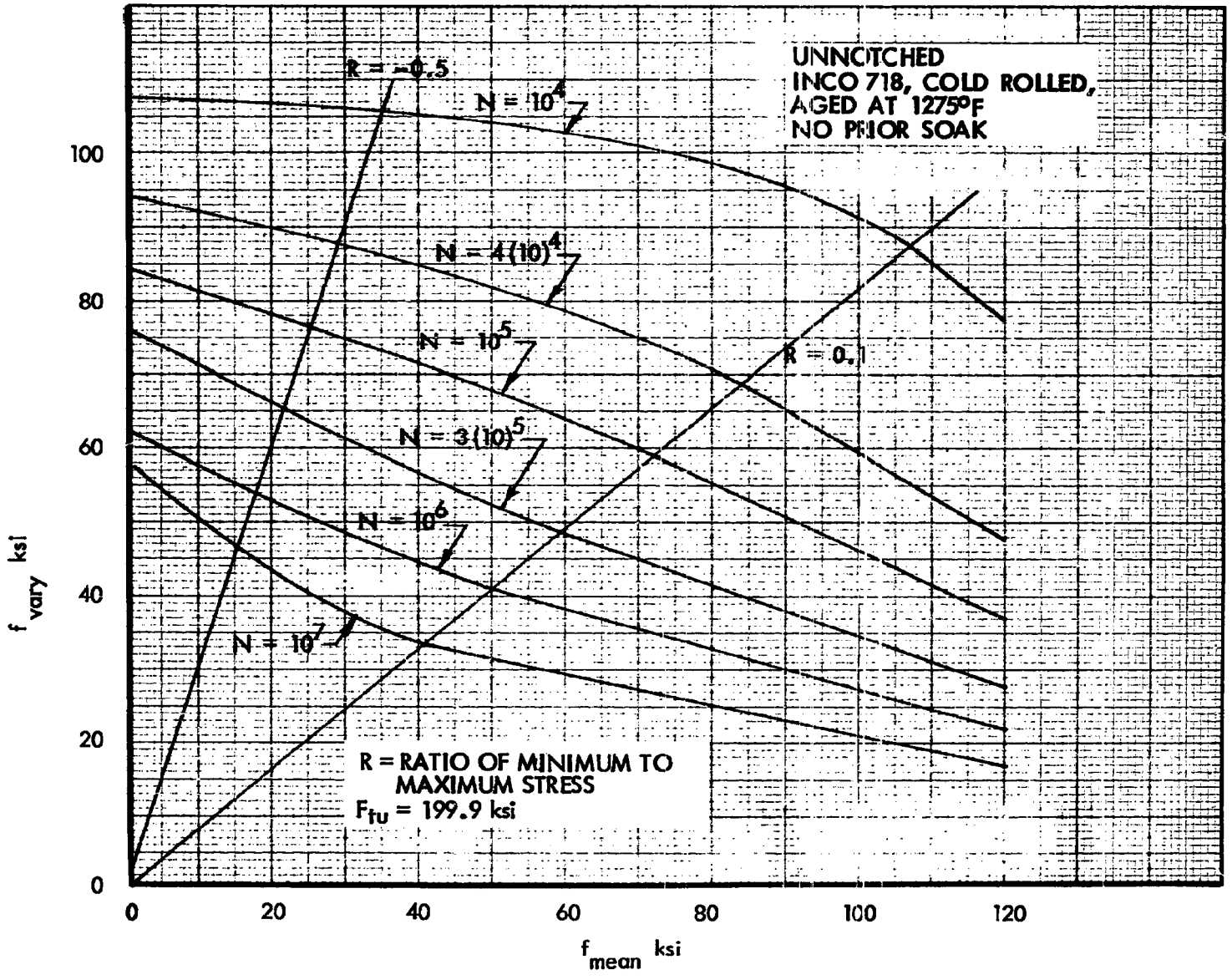



Figure 393. S-N Diagram at 650°F, Unnotched INCO 718

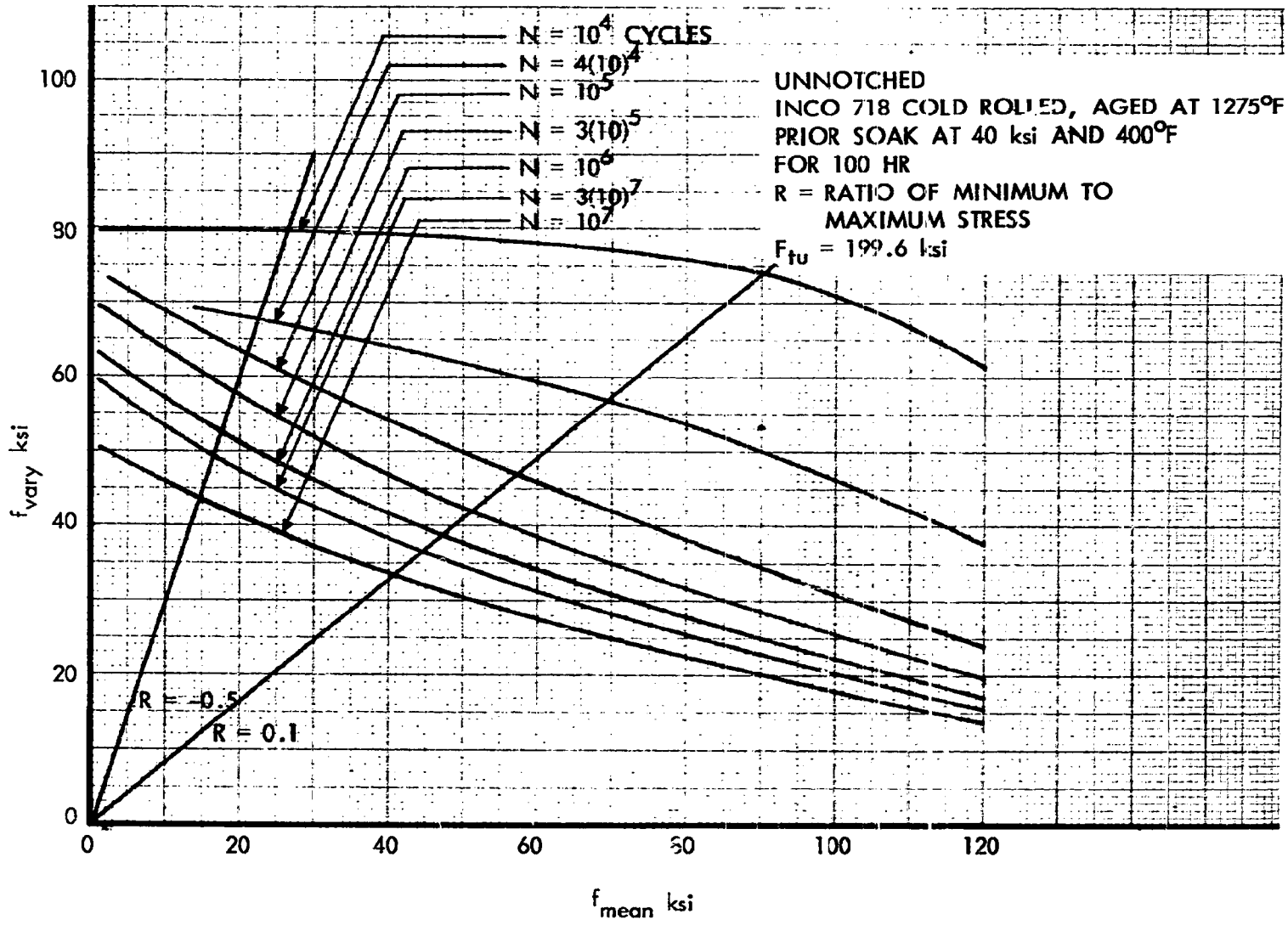



Figure 394. S-N Diagram at 650°F, Unnotched INCO 718

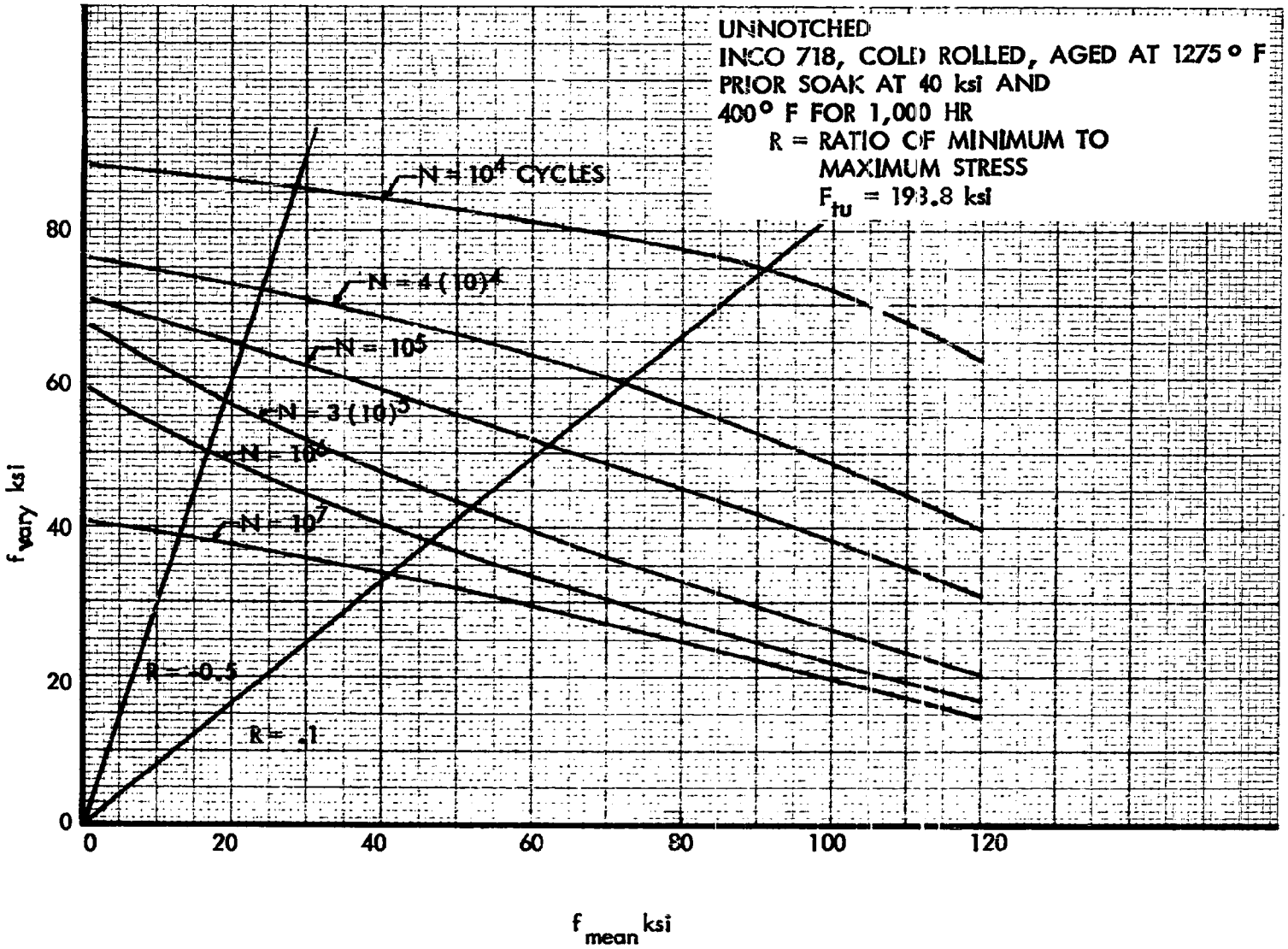



Figure 395. S-N Diagram at 650°F, Unnotched INCO 718

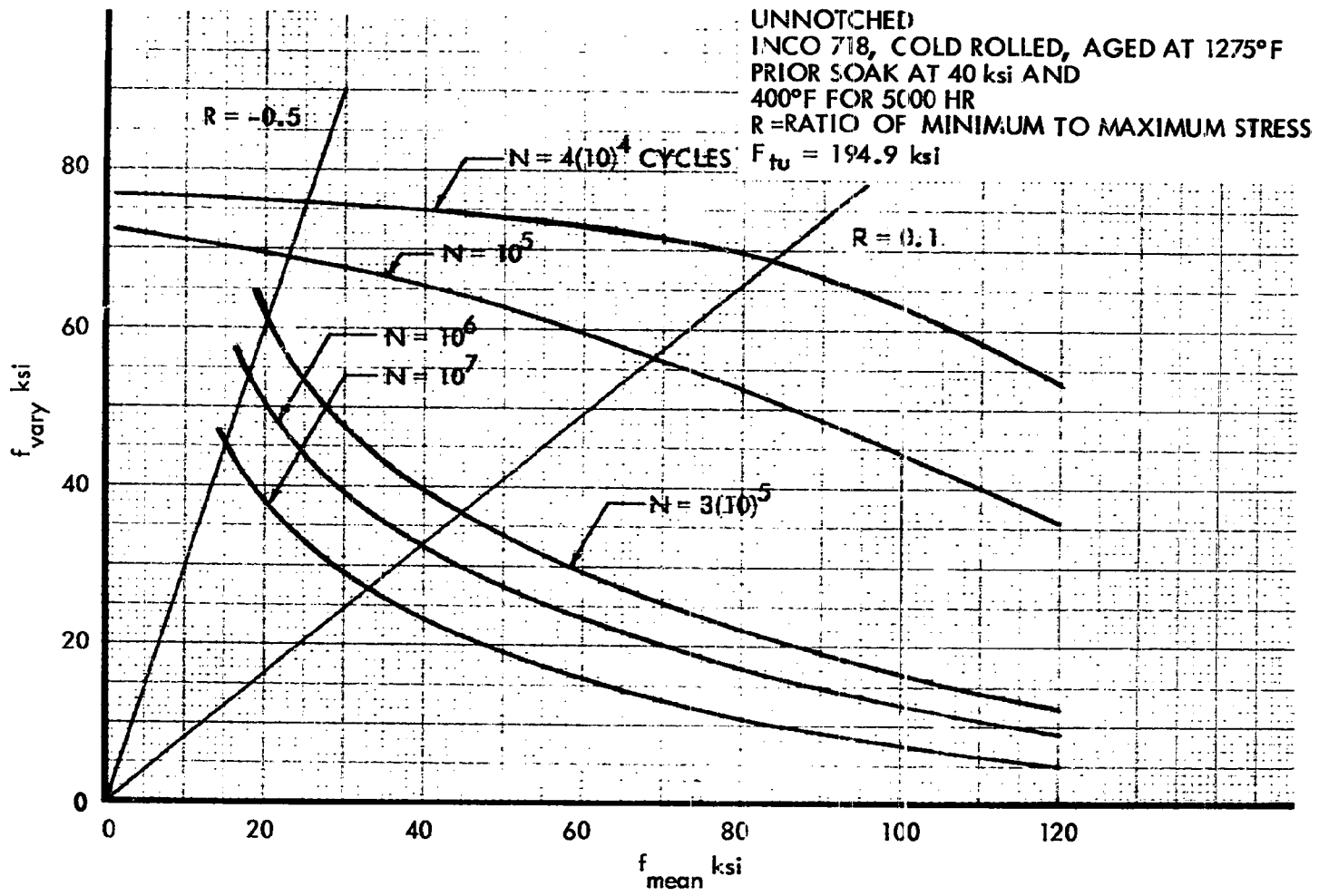



Figure 396. S-N Diagram at 650°F, Unnotched INCO 718

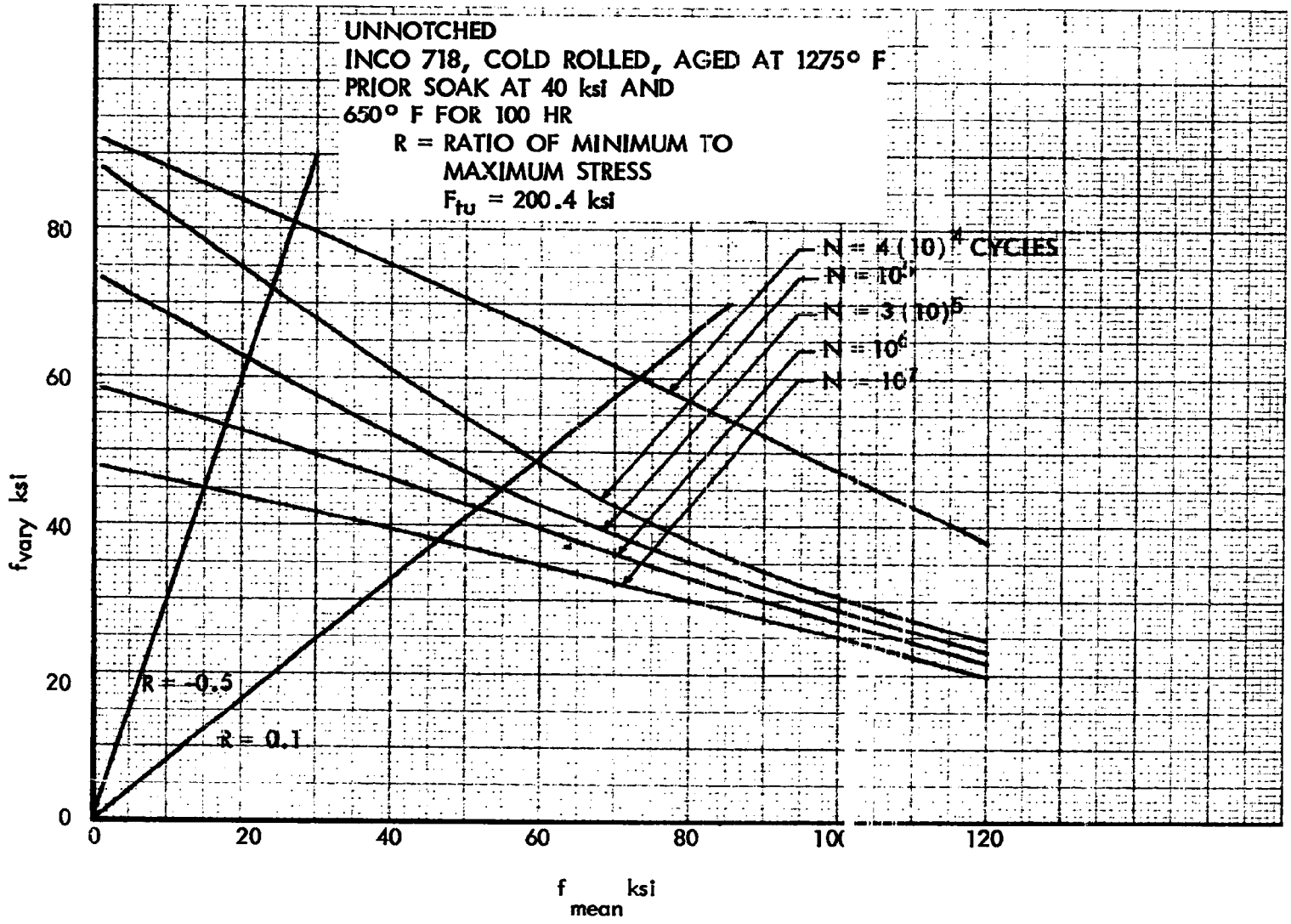



Figure 397. S-N Diagram at 650°F, Unnotched INCO 718

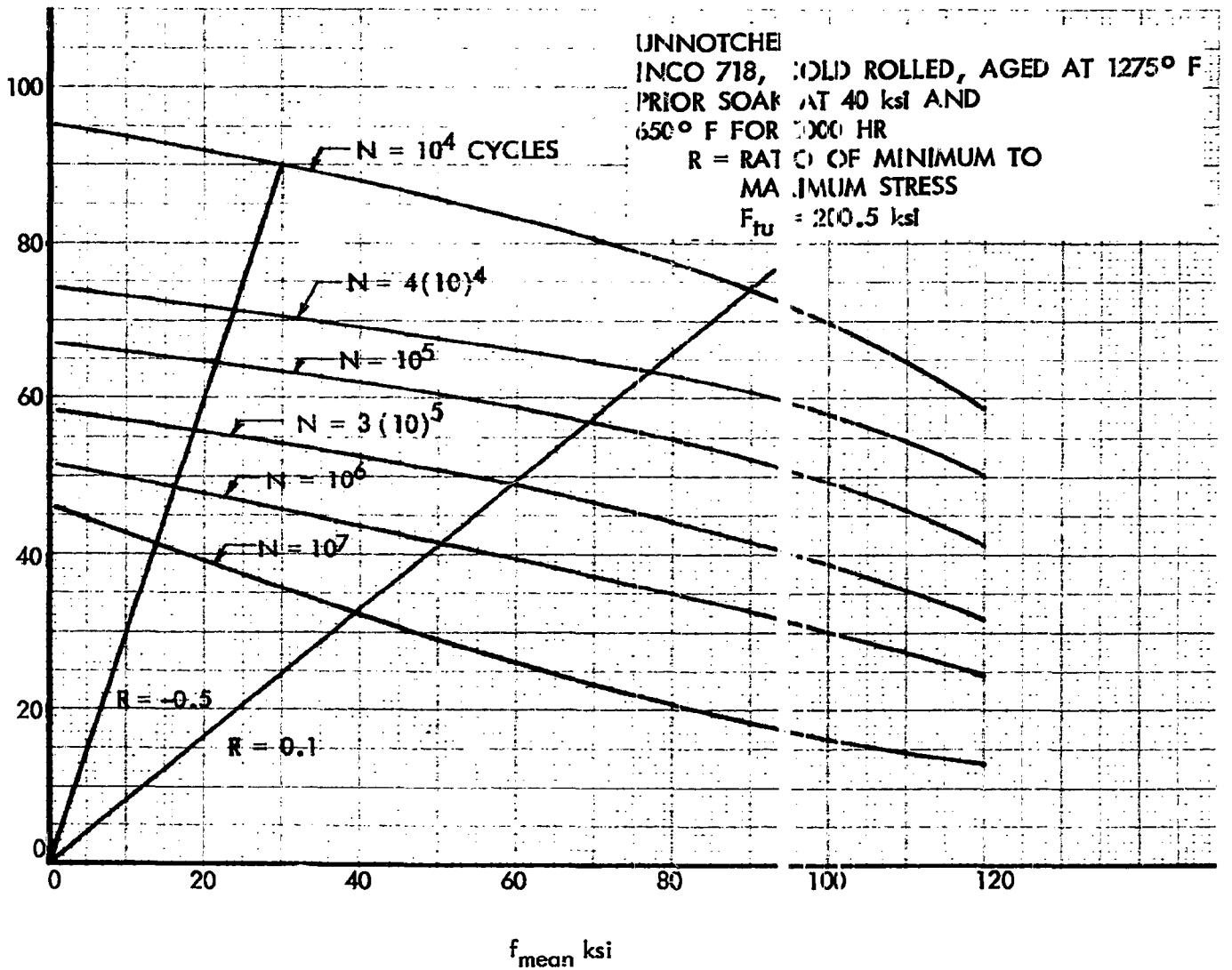



Figure 398. S-N Diagram at 650°F, U notched INCO 718

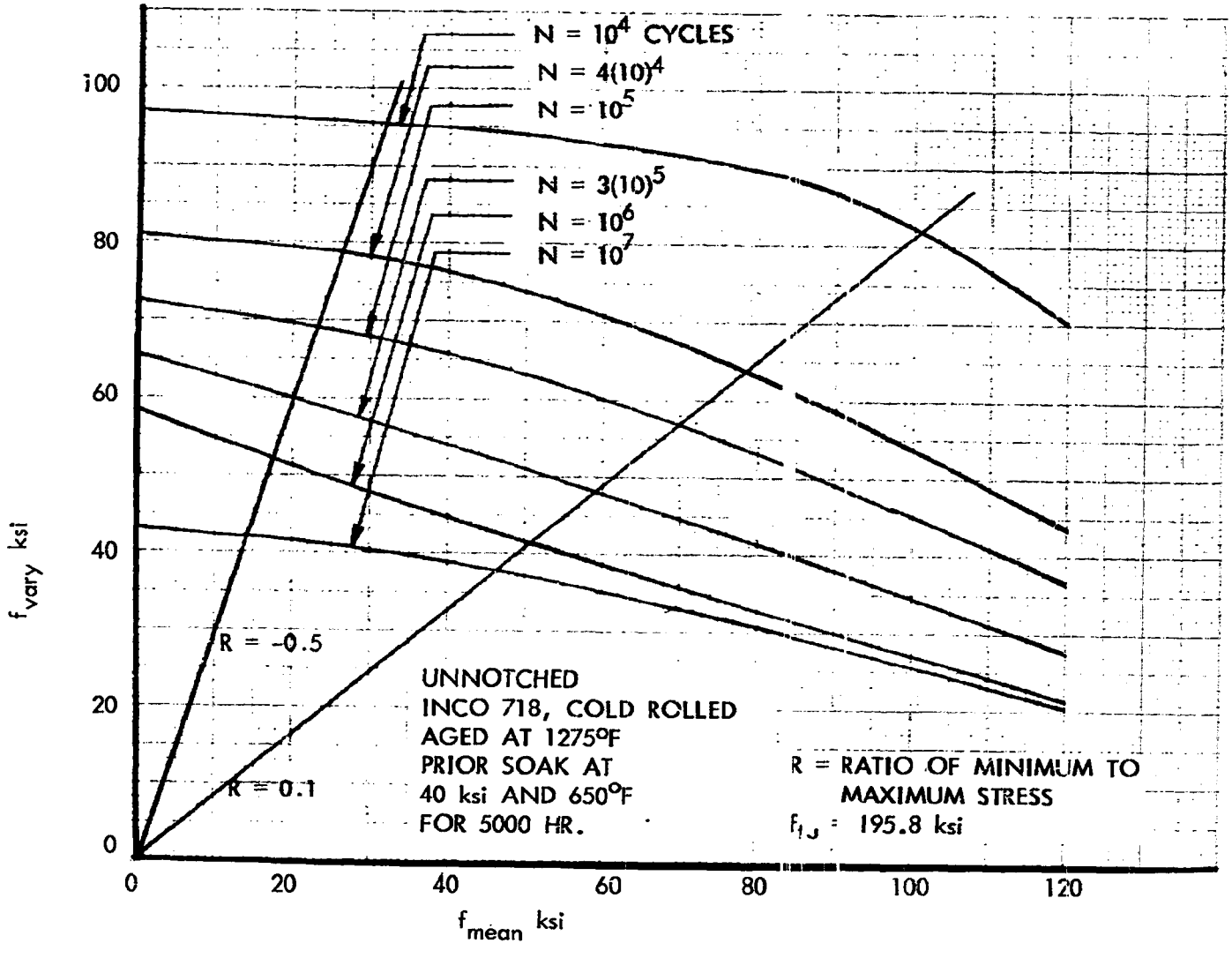



Figure 399. S-N Diagram at 650°F, Unnotched INCO 718

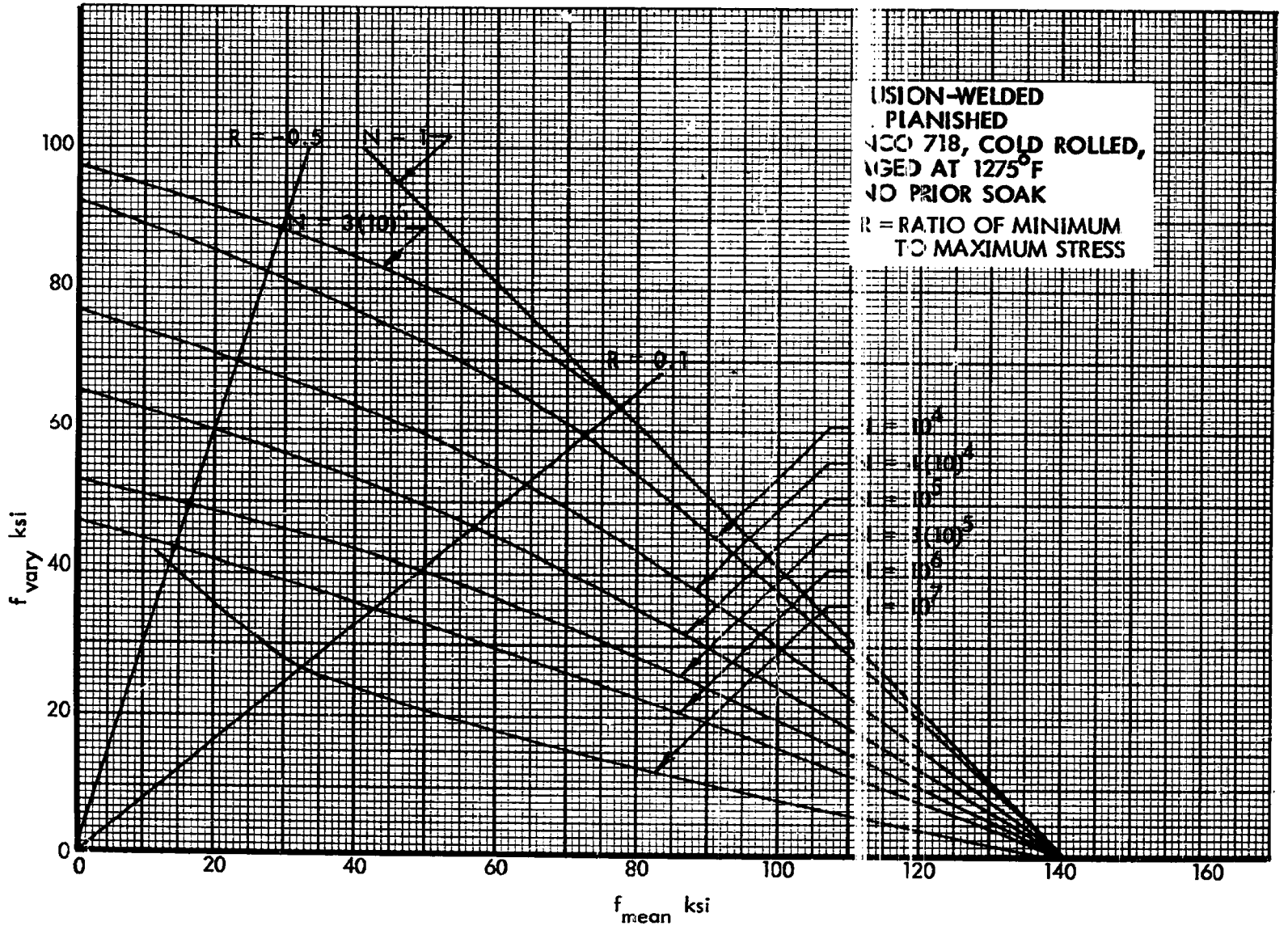



Figure 400. S-N Diagram at Room Temperature, Fu cn-Welded INCO 718

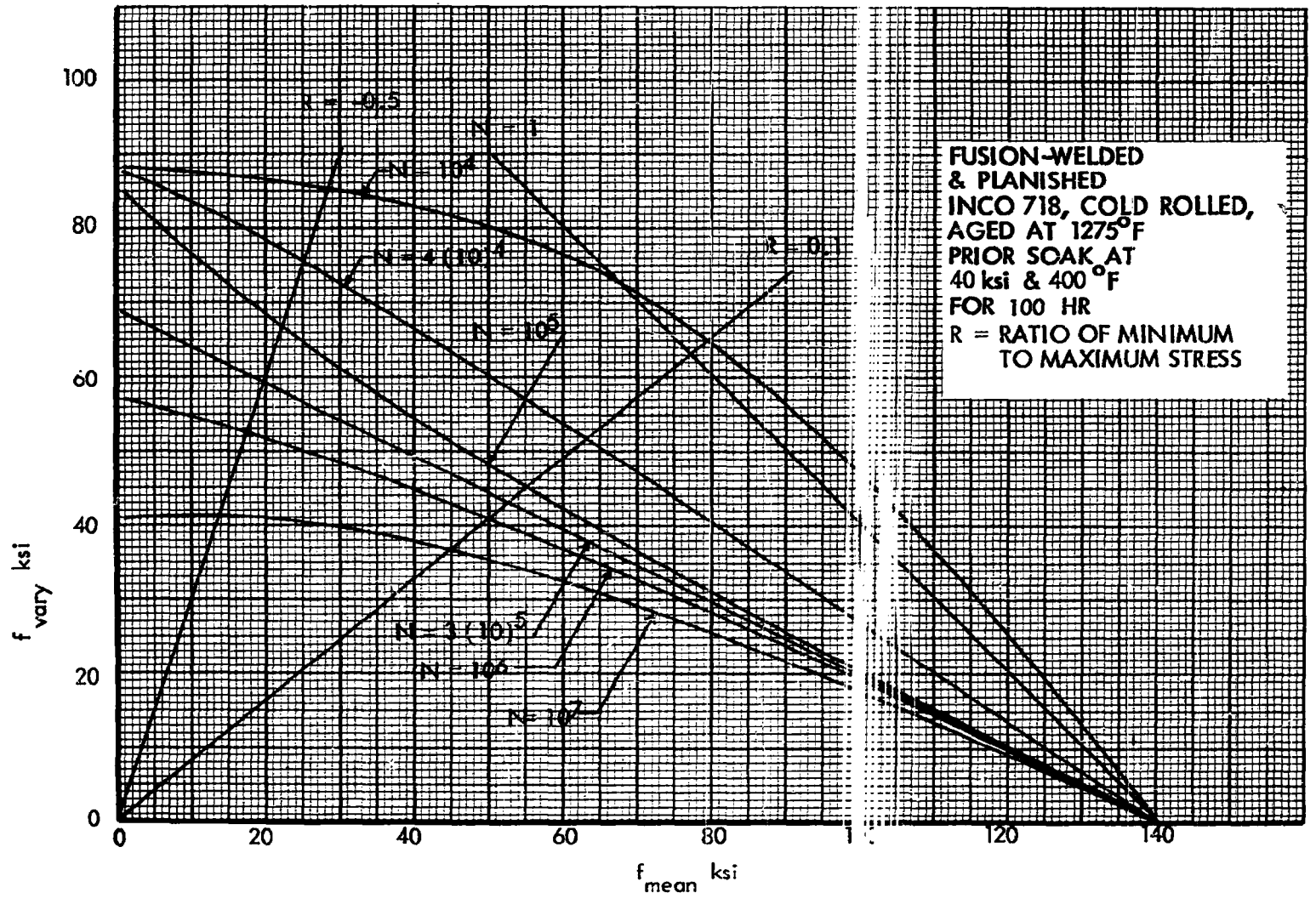



Figure 401. S-N Diagram at Room Temperature, Fusion-Welded INCO 718

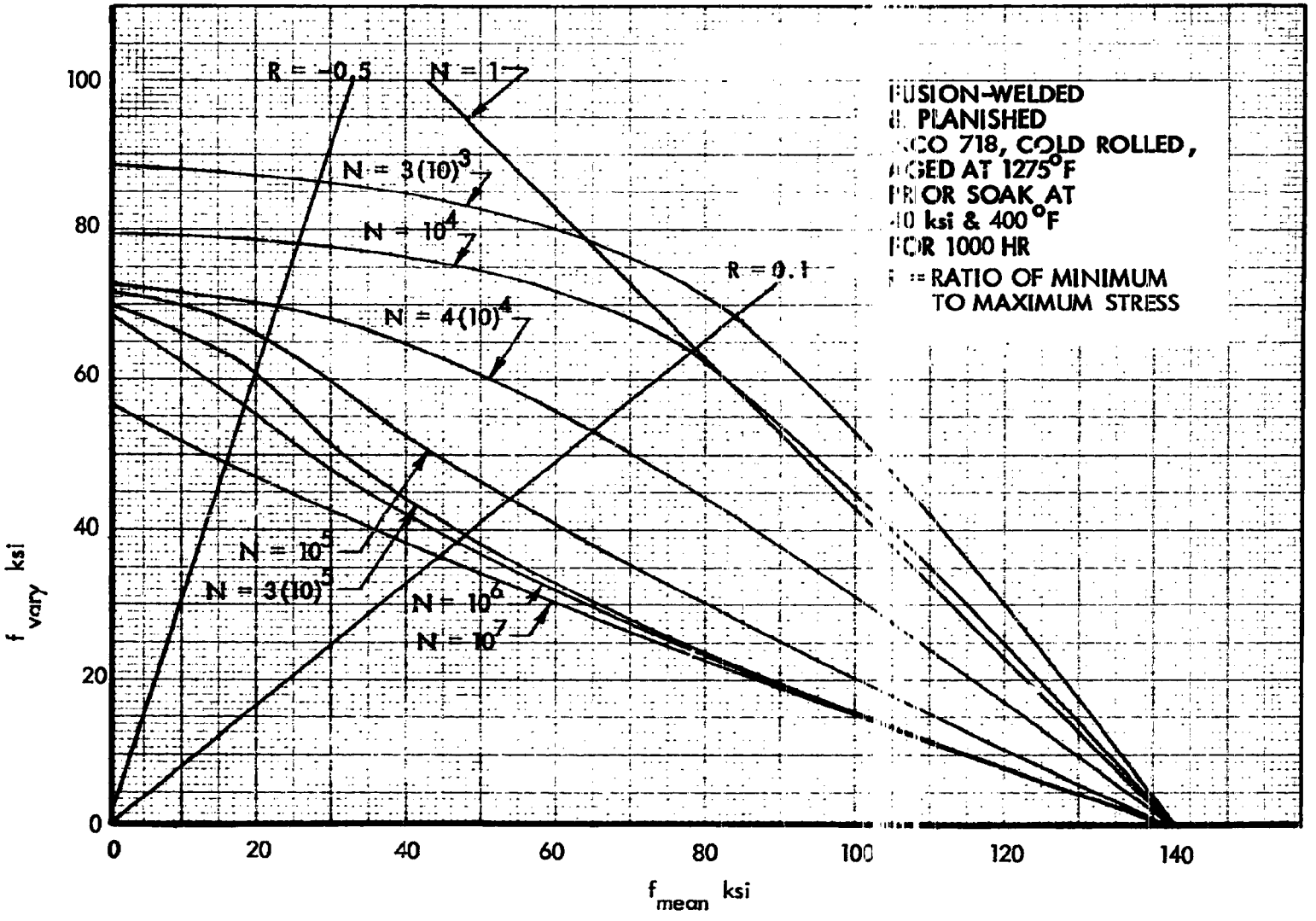



Figure 402. S-N Diagram at Room Temperature, Fusion-Welded INCO 718

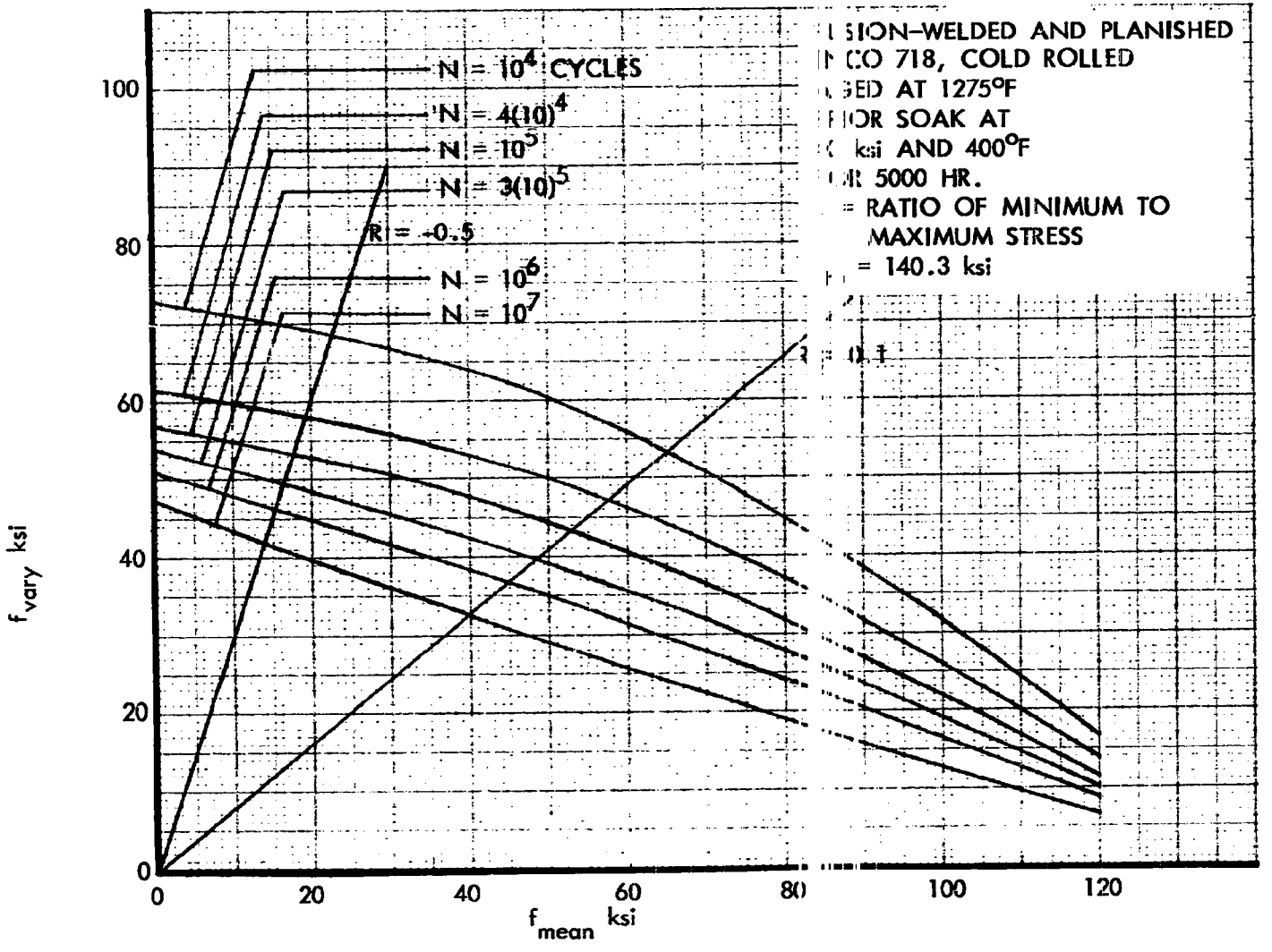



Figure 403. S-N Diagram at Room Temperature, Fusion-Welded INCO 718

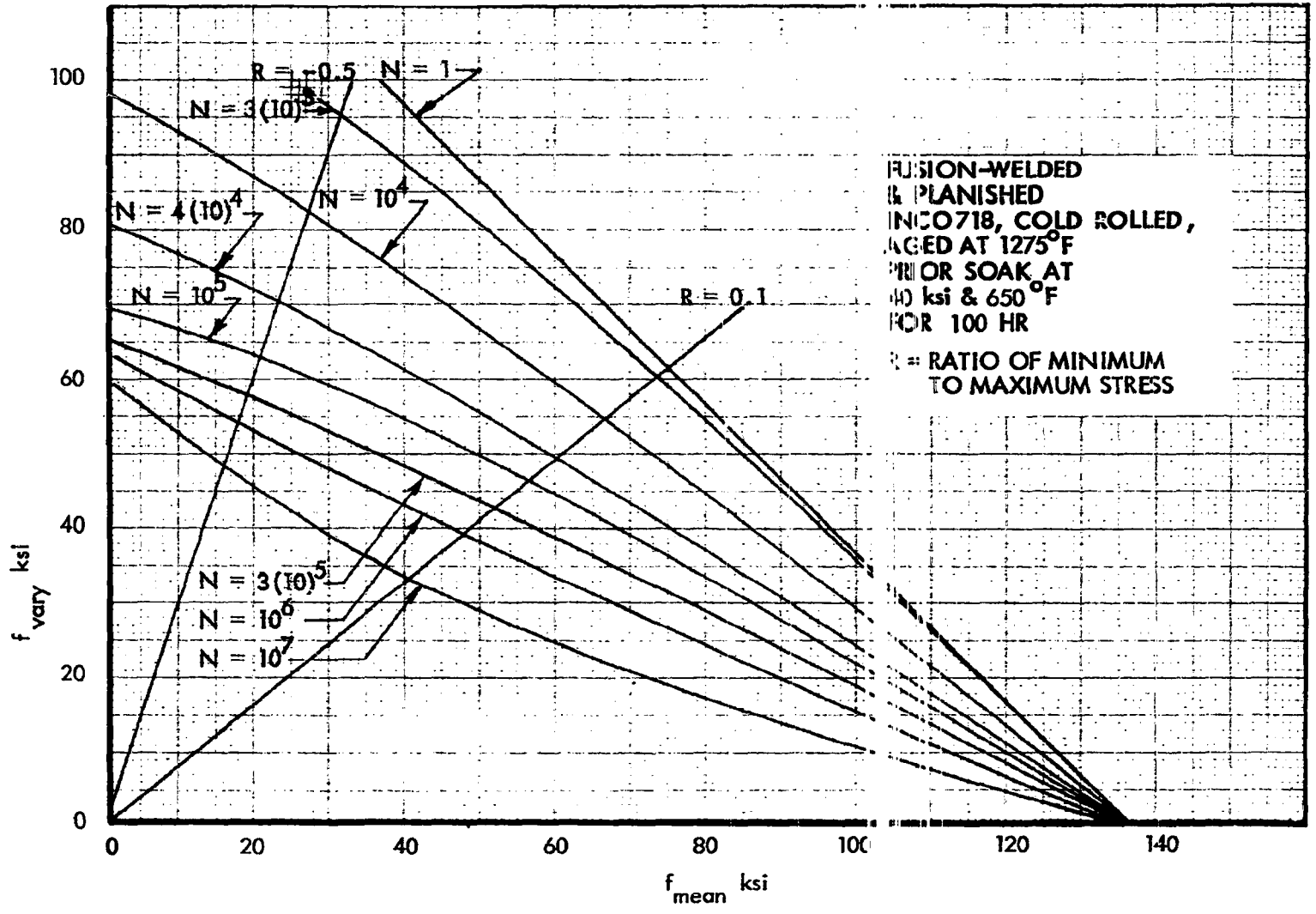



Figure 404. S-N Diagram at Room Temperature, Fusion-Welded INCO 718

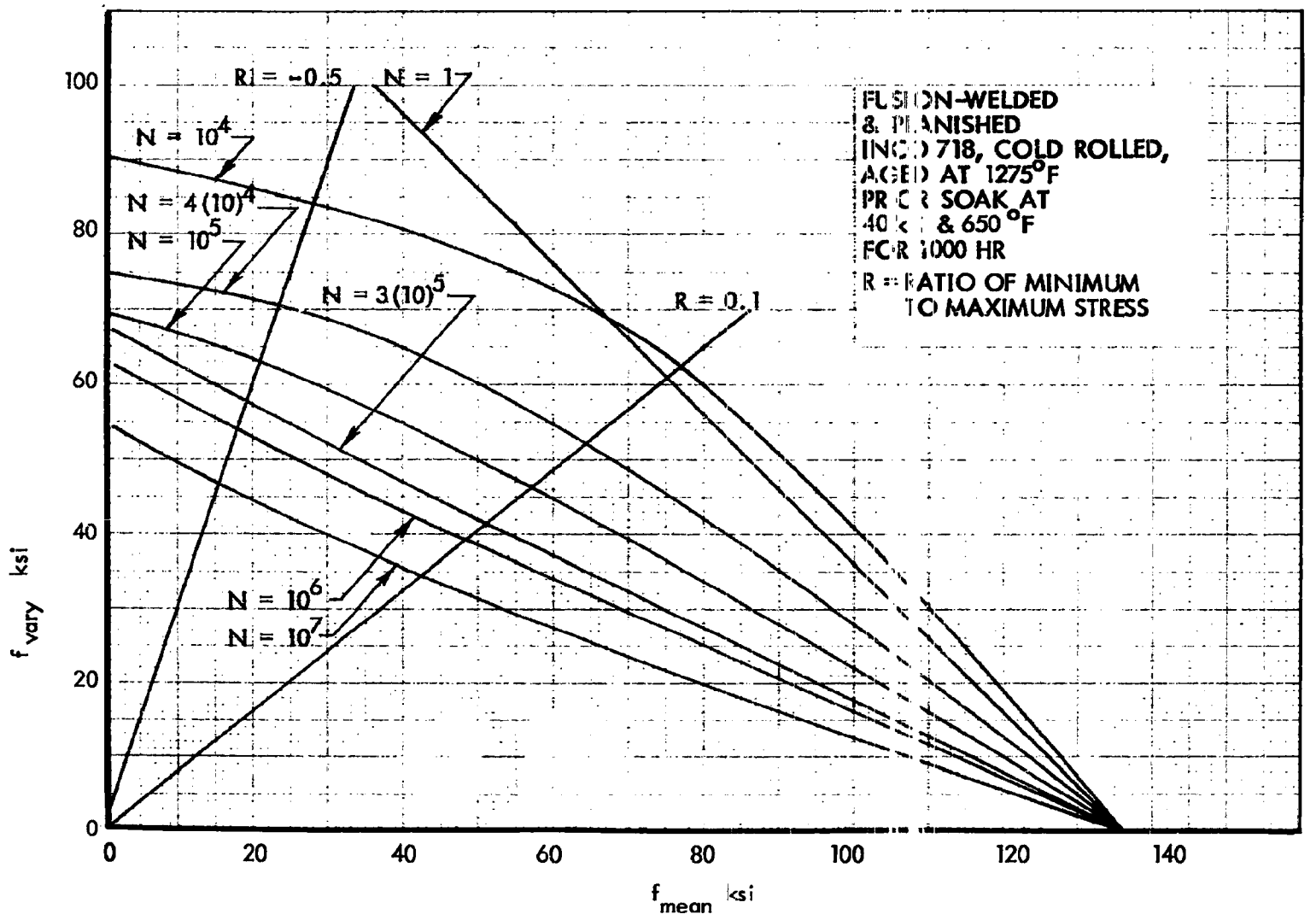



Figure 405. S-N Diagram at Room Temperature, Fusion-Welded INCO 718

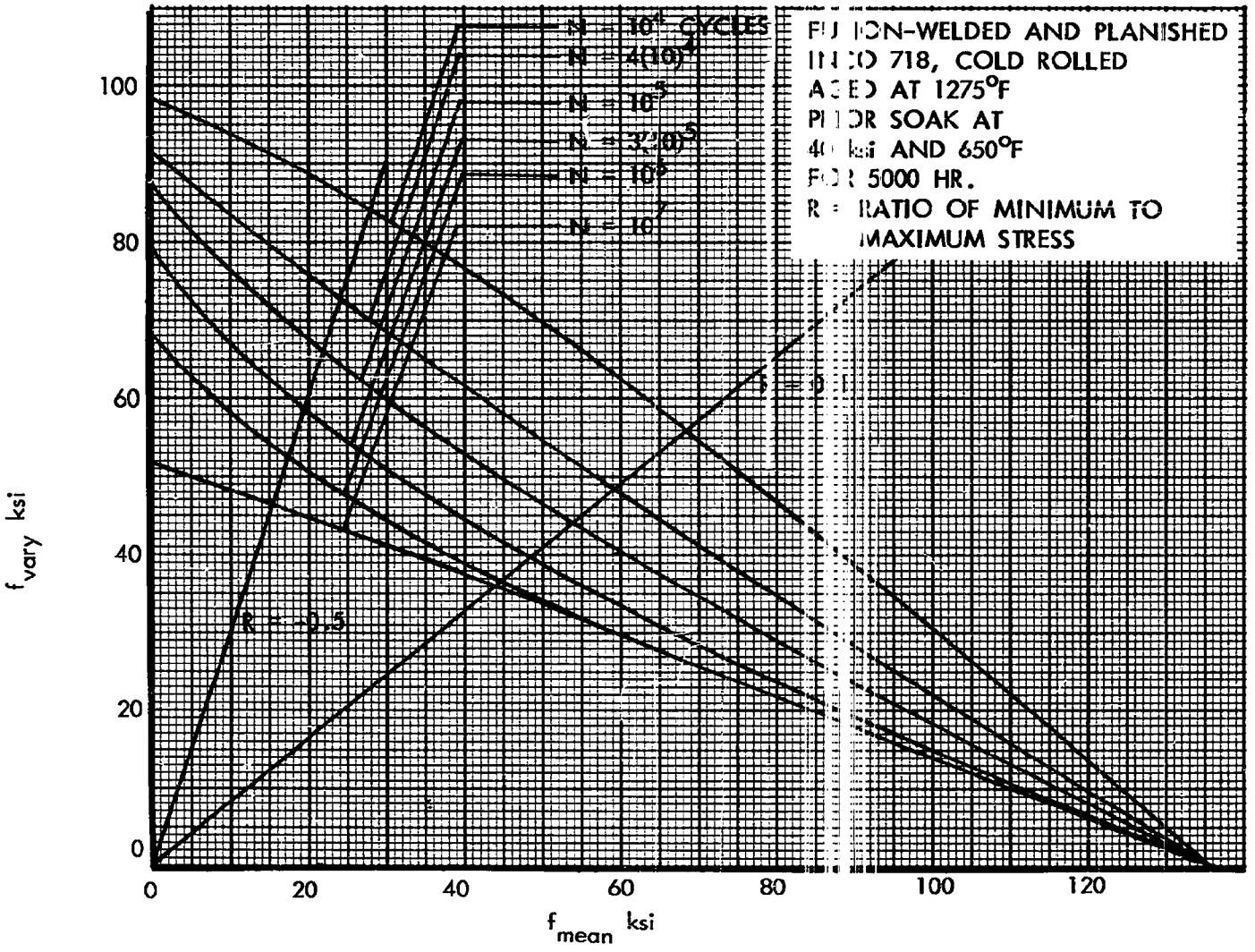



Figure 406.- S-N Diagram at Room Temperature, Fusion-Welded INCO 718

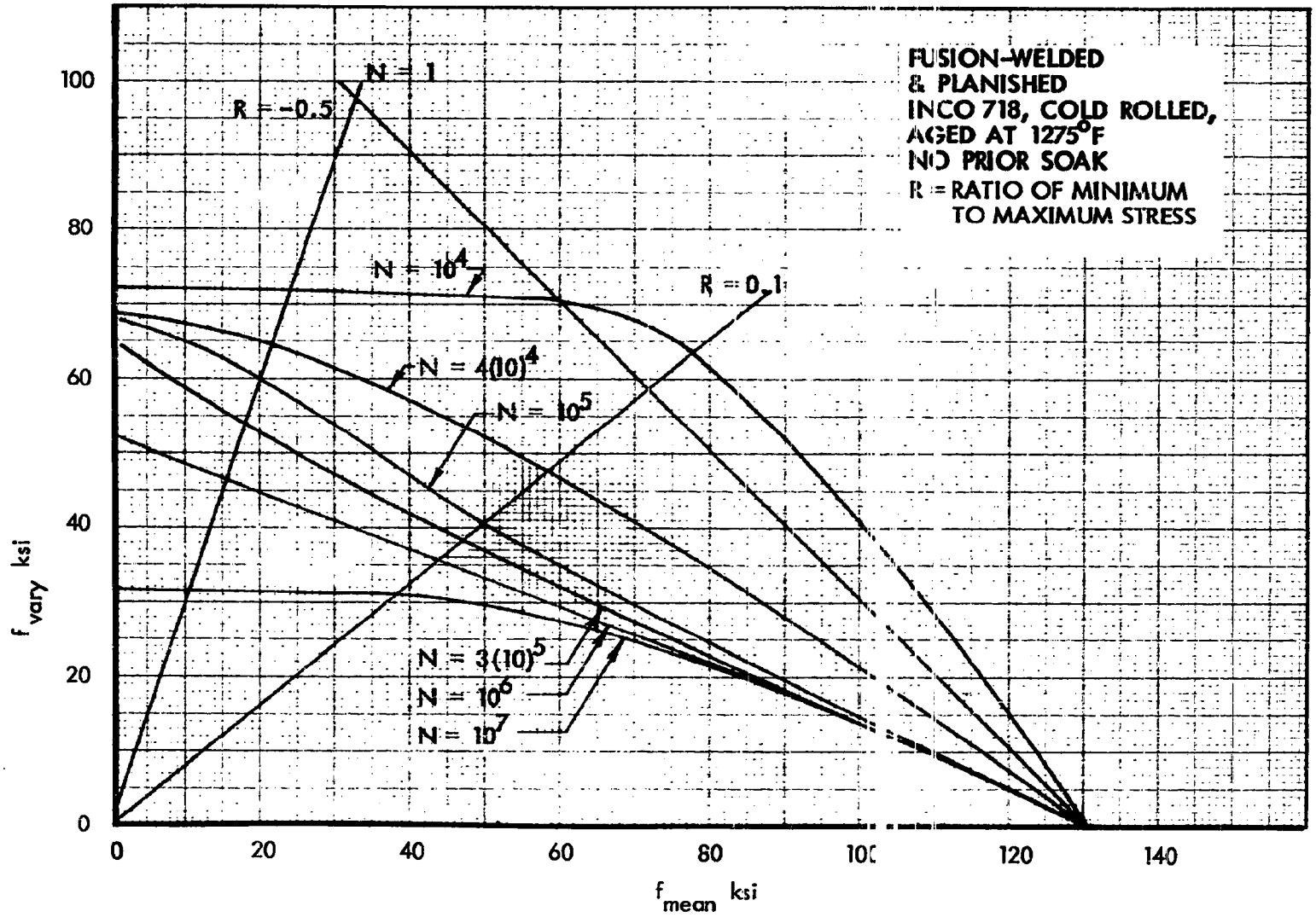



Figure 407. S-N Diagram at 400°F, Fusion Welded INCO 718

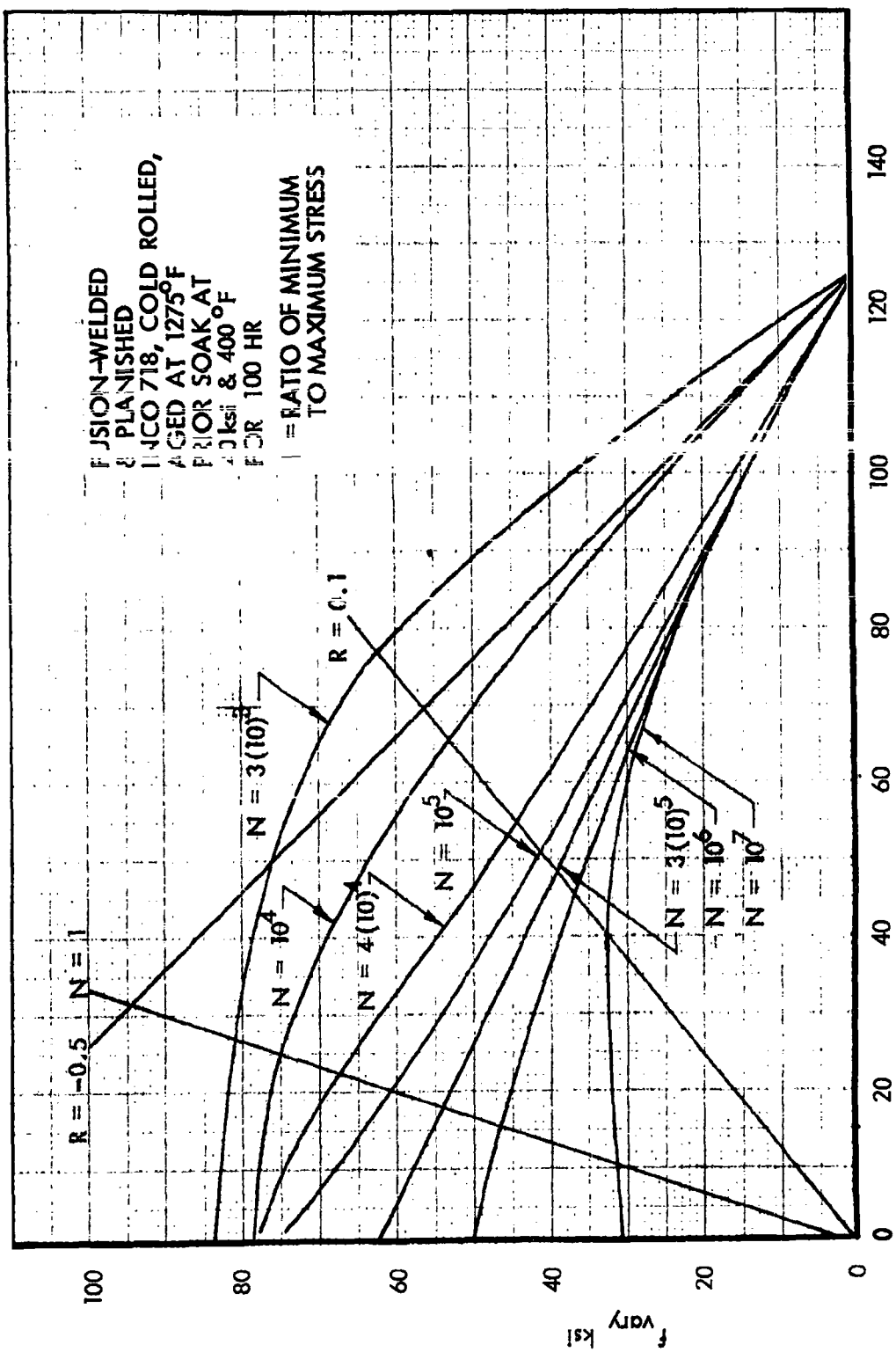



Figure 408. S-N Diagram at 400°F, Fusion-Welded INCO 718

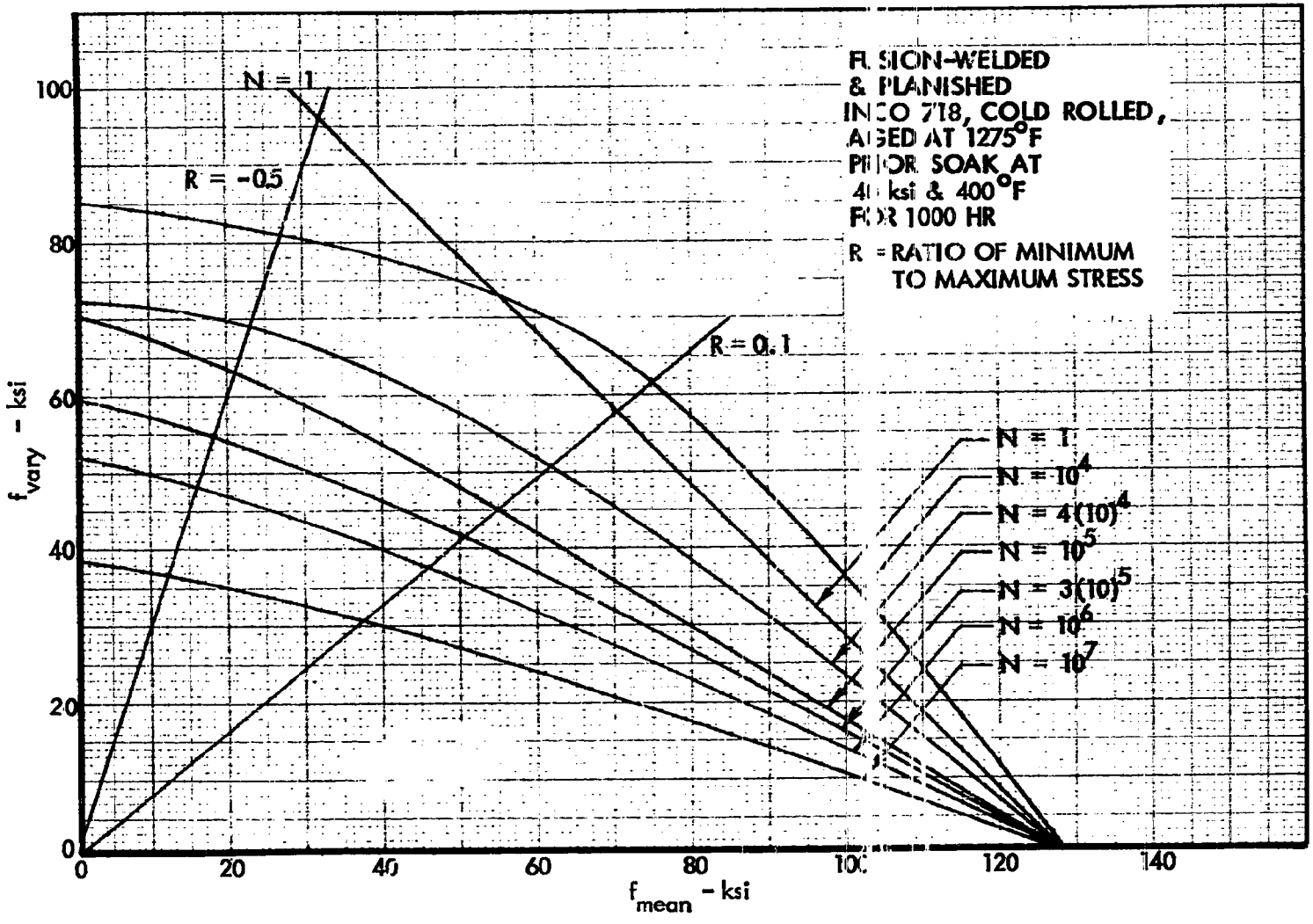



Figure 409. S-N Diagram at 400°F, Fusion Welded INCO 718

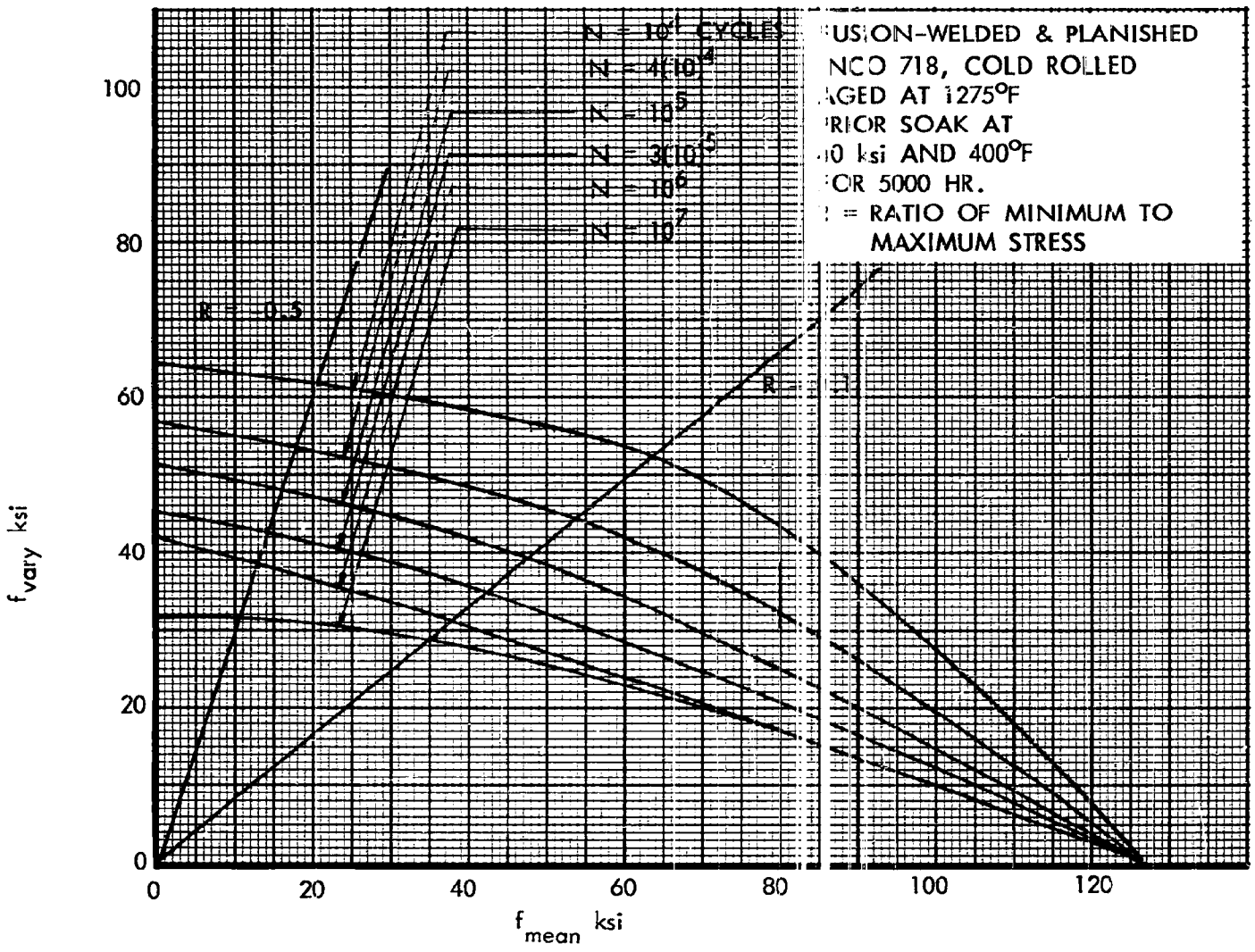



Figure 410. S-N Diagram at 400°F . usion-Welded INCO 718

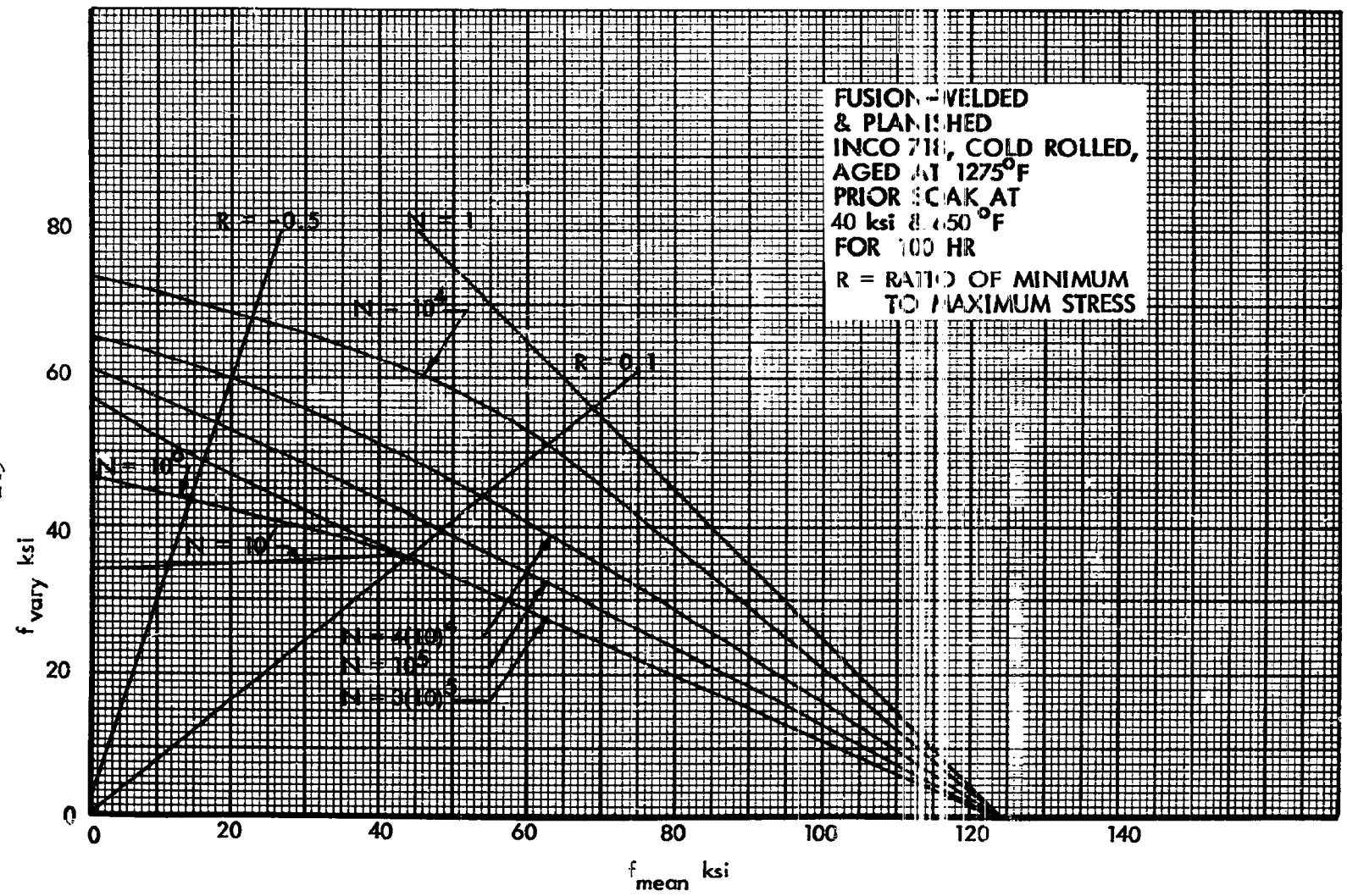



Figure 411. S-N Diagram at 400°F, Fusion-Welded INCO 718

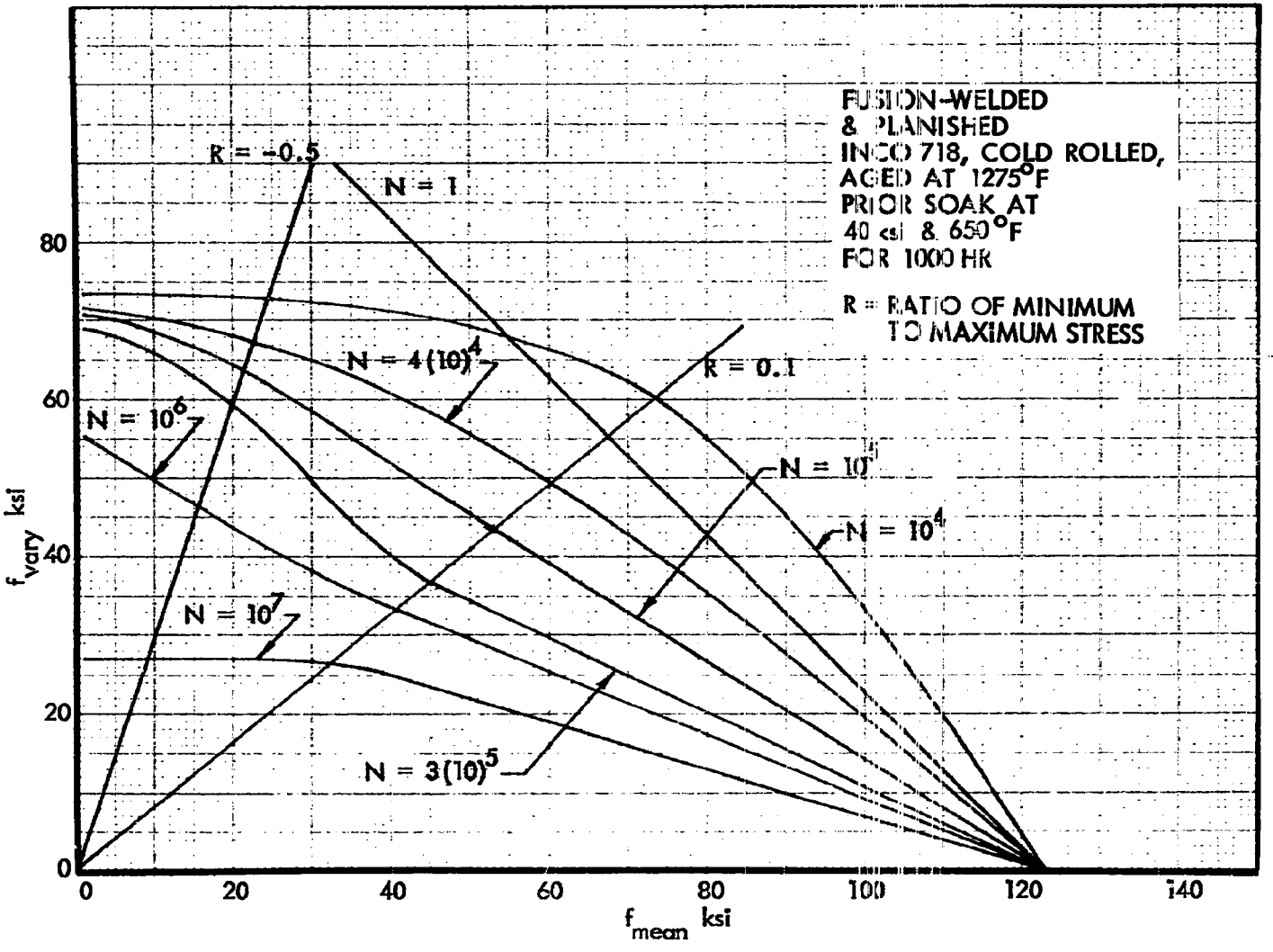



Figure 412. S-N Diagram at 400°F, Fusion-Welded INCO 718

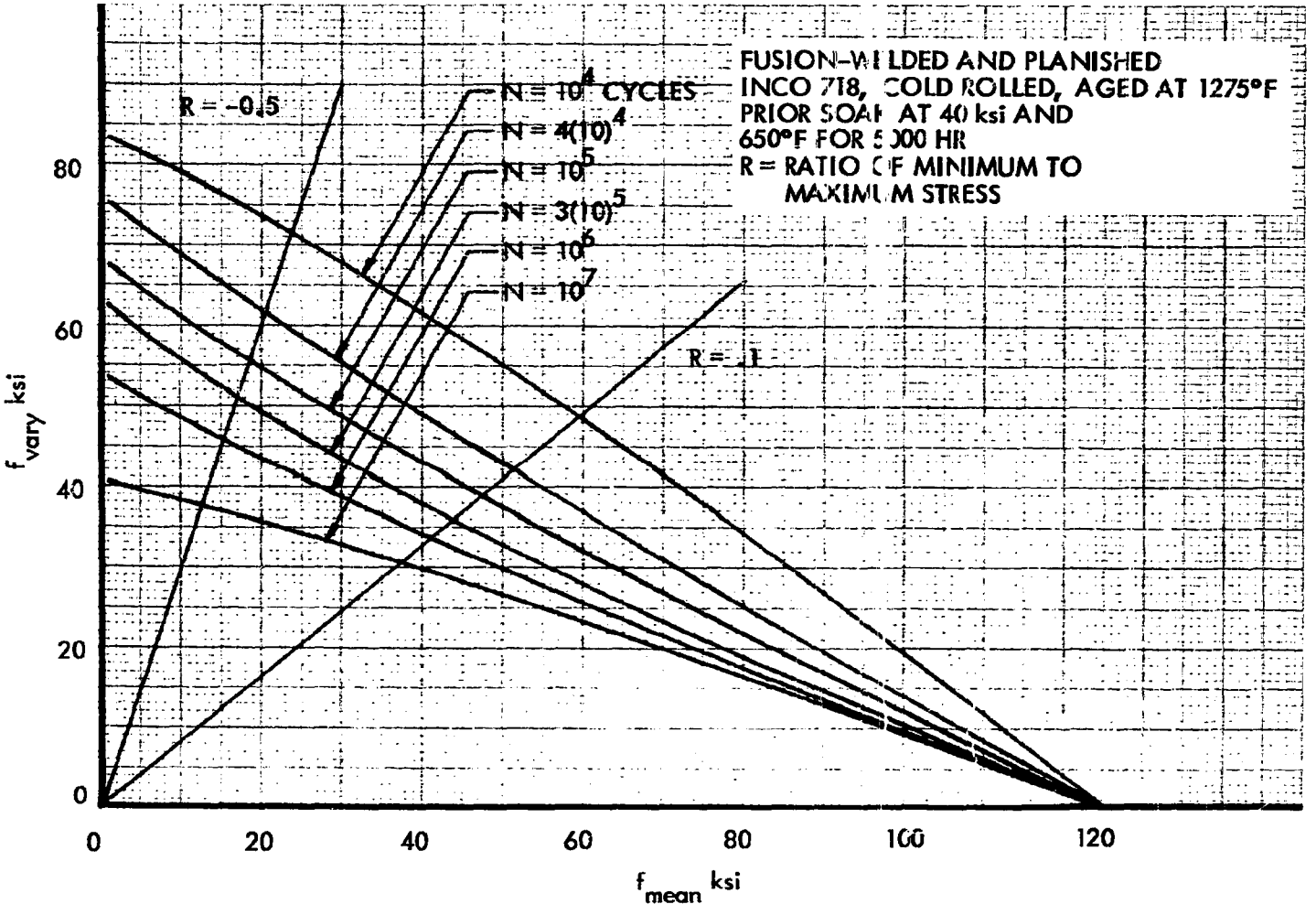



Figure 413. S-N Diagram at 400°F, Fusion-Welded INCO 718

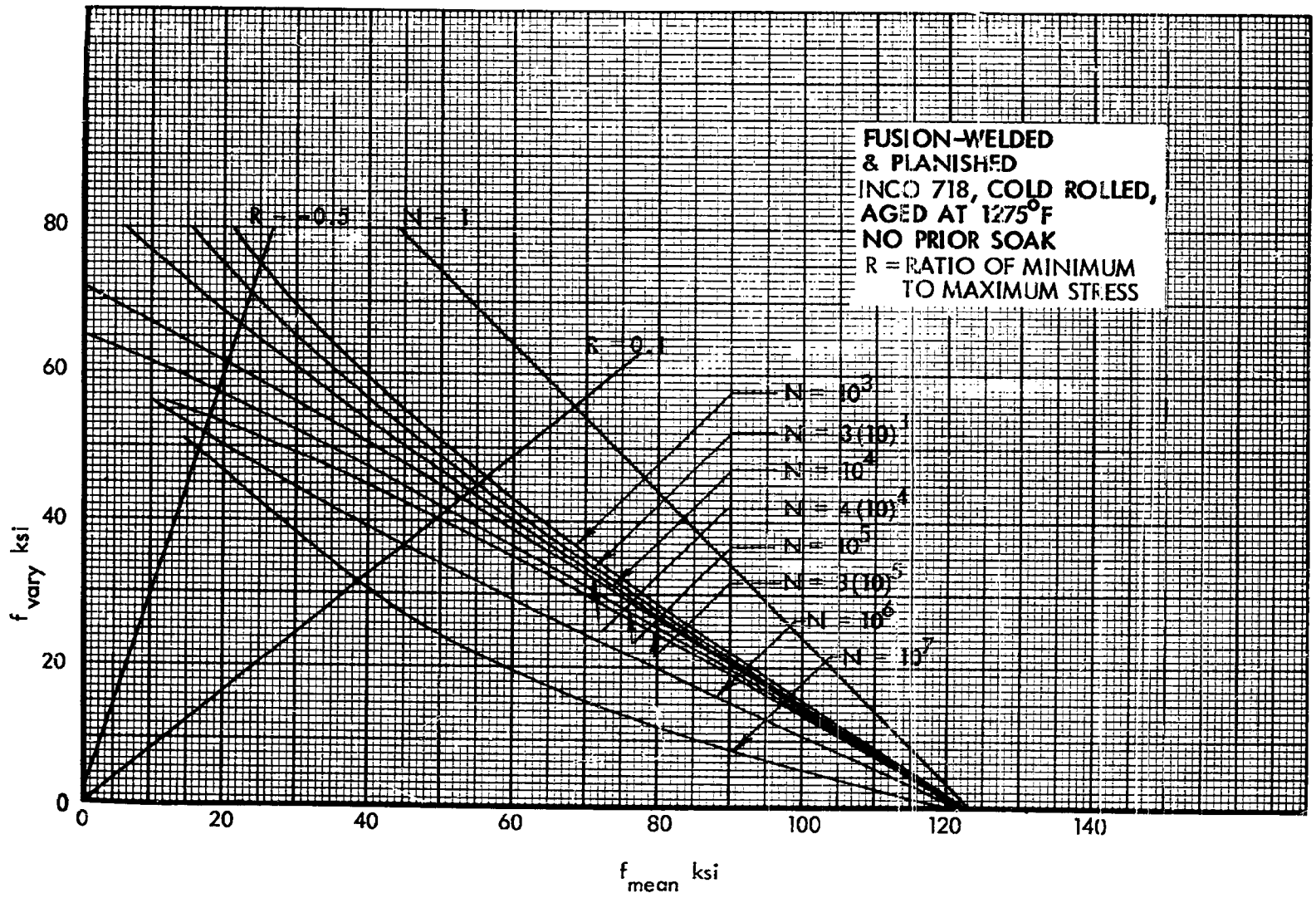



Figure 414. S-N Diagram at 650°F, Fusion-Welded INCO 718

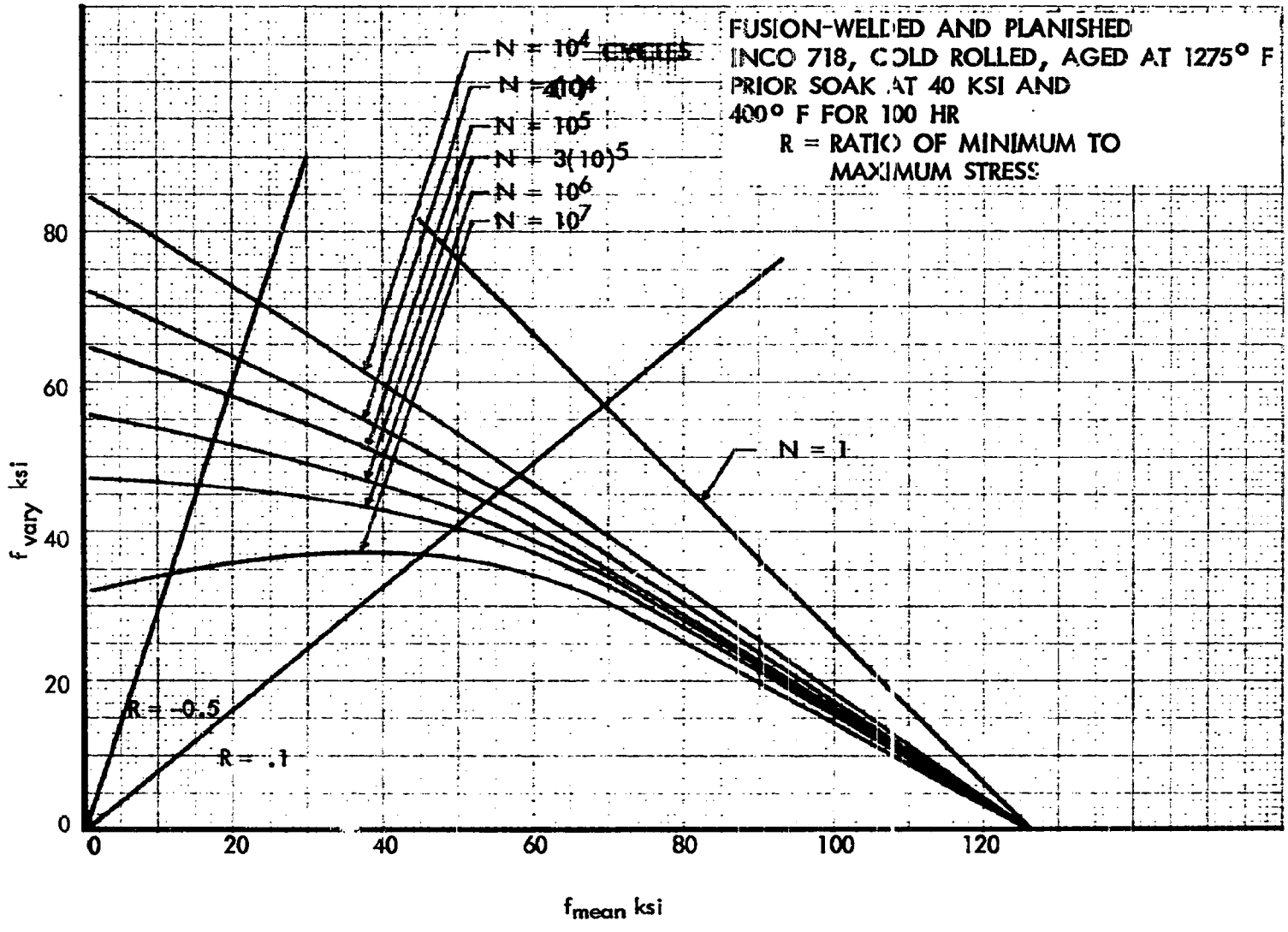



Figure 415. S-N Diagram at 650°F, Fusion-Welded INCO 718

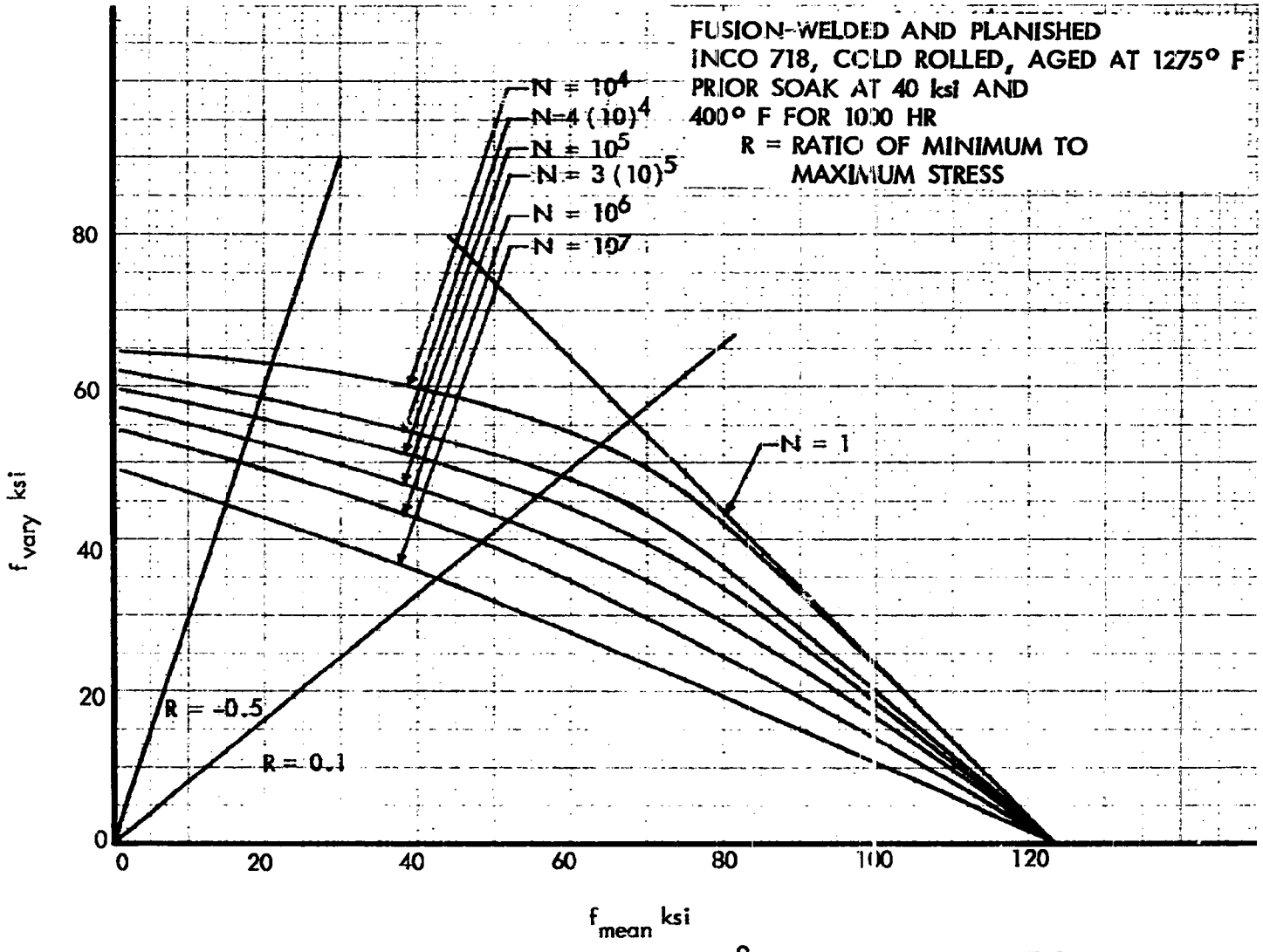



Figure 416. S-N Diagram at 650°F, Fusion-Welded INCO 718

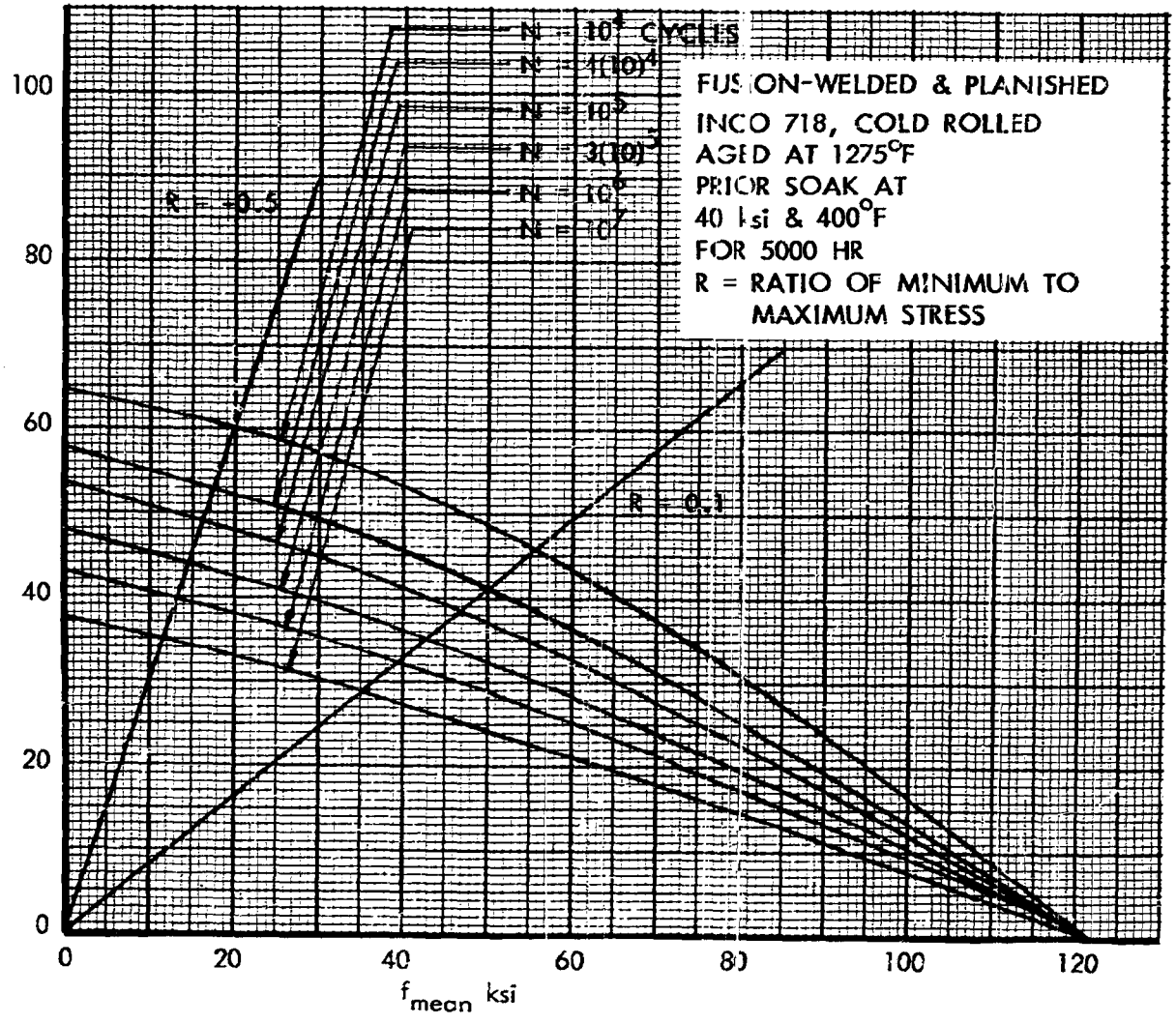



Figure 417. S-N Diagram at 650°F, Fusion-Welded INCO 718

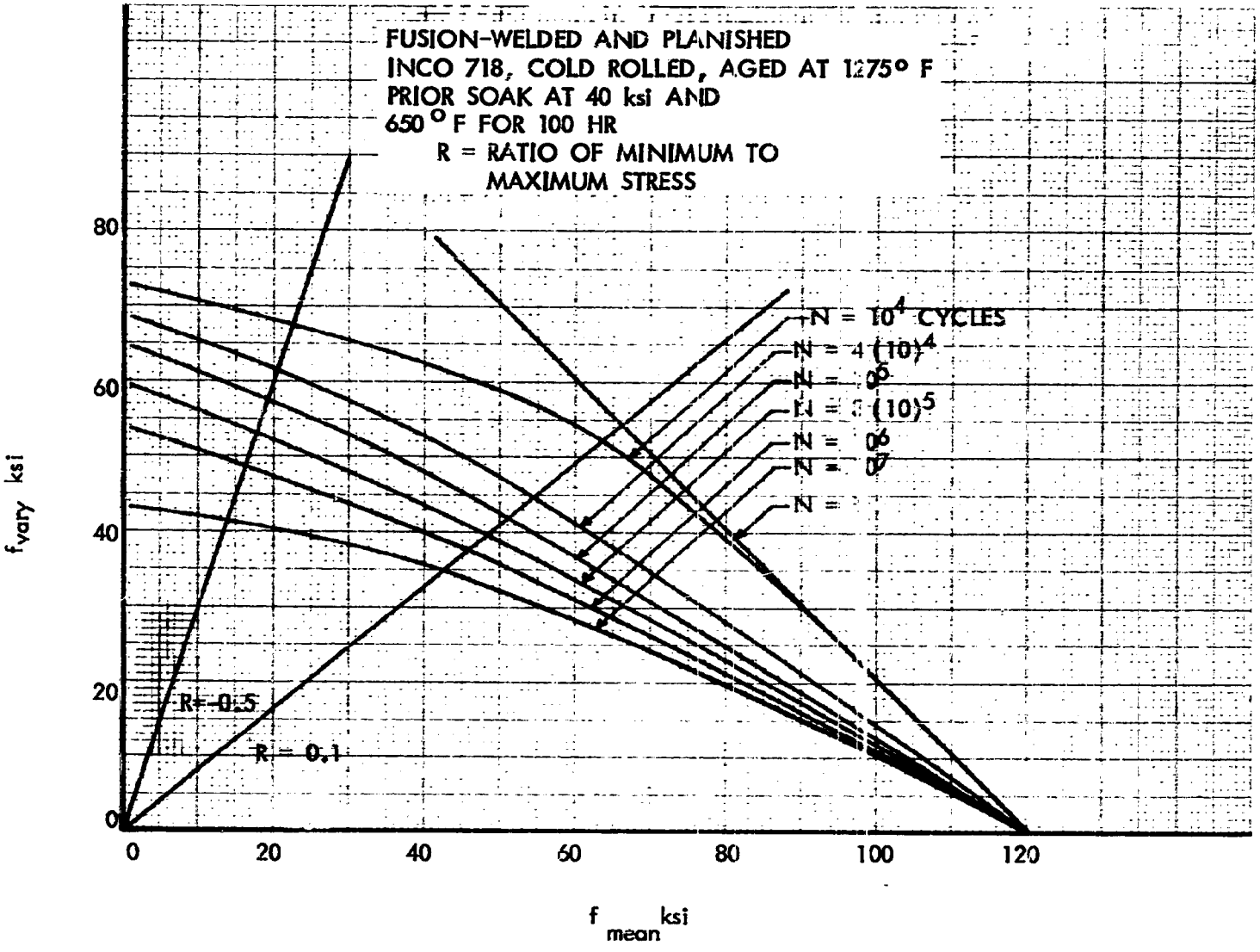



Figure 418. S-N Diagram at 650°F, Fusion-Welded INCO 718

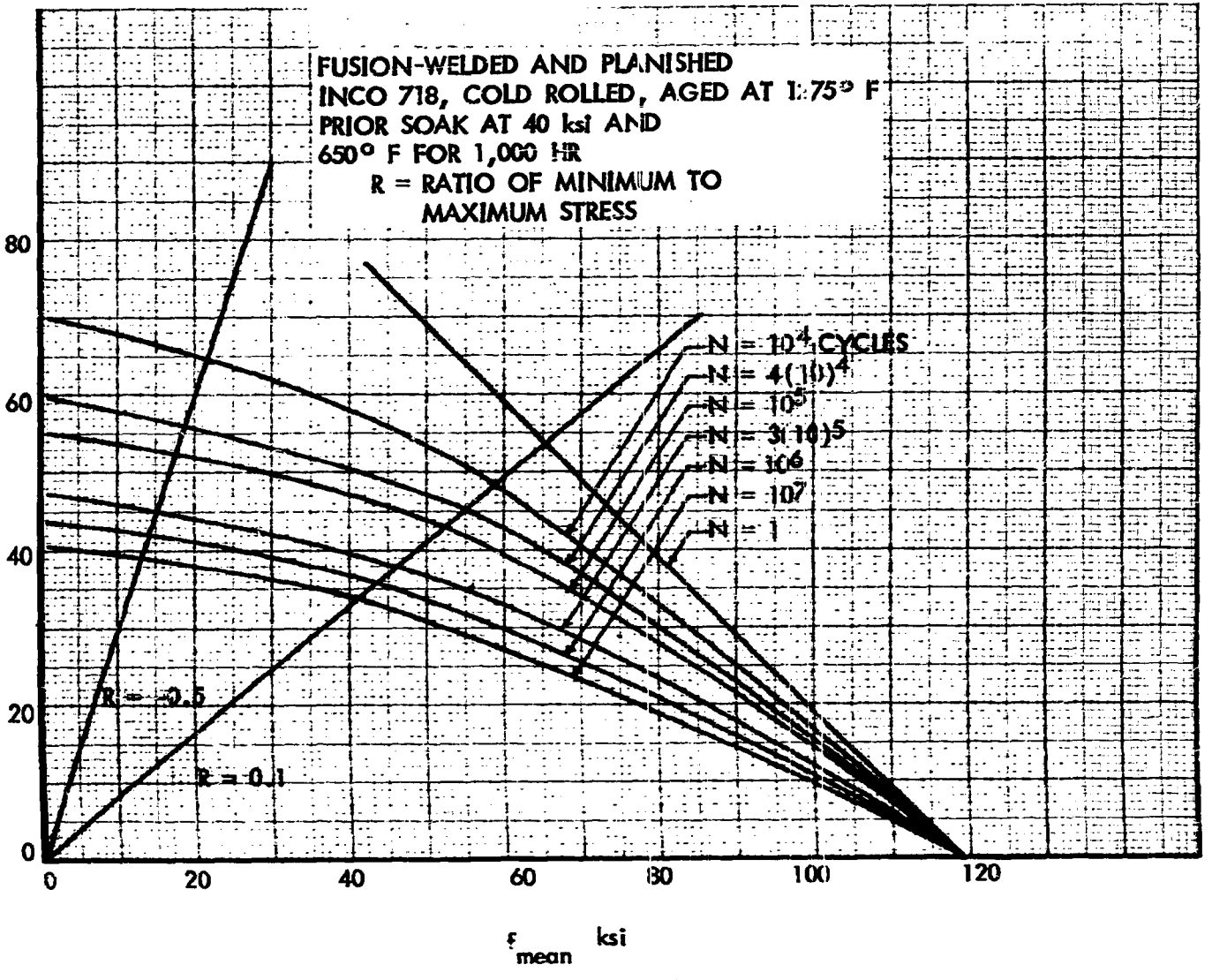



Figure 419. S-N Diagram at 650°F, Fusion-Welded INCO 718

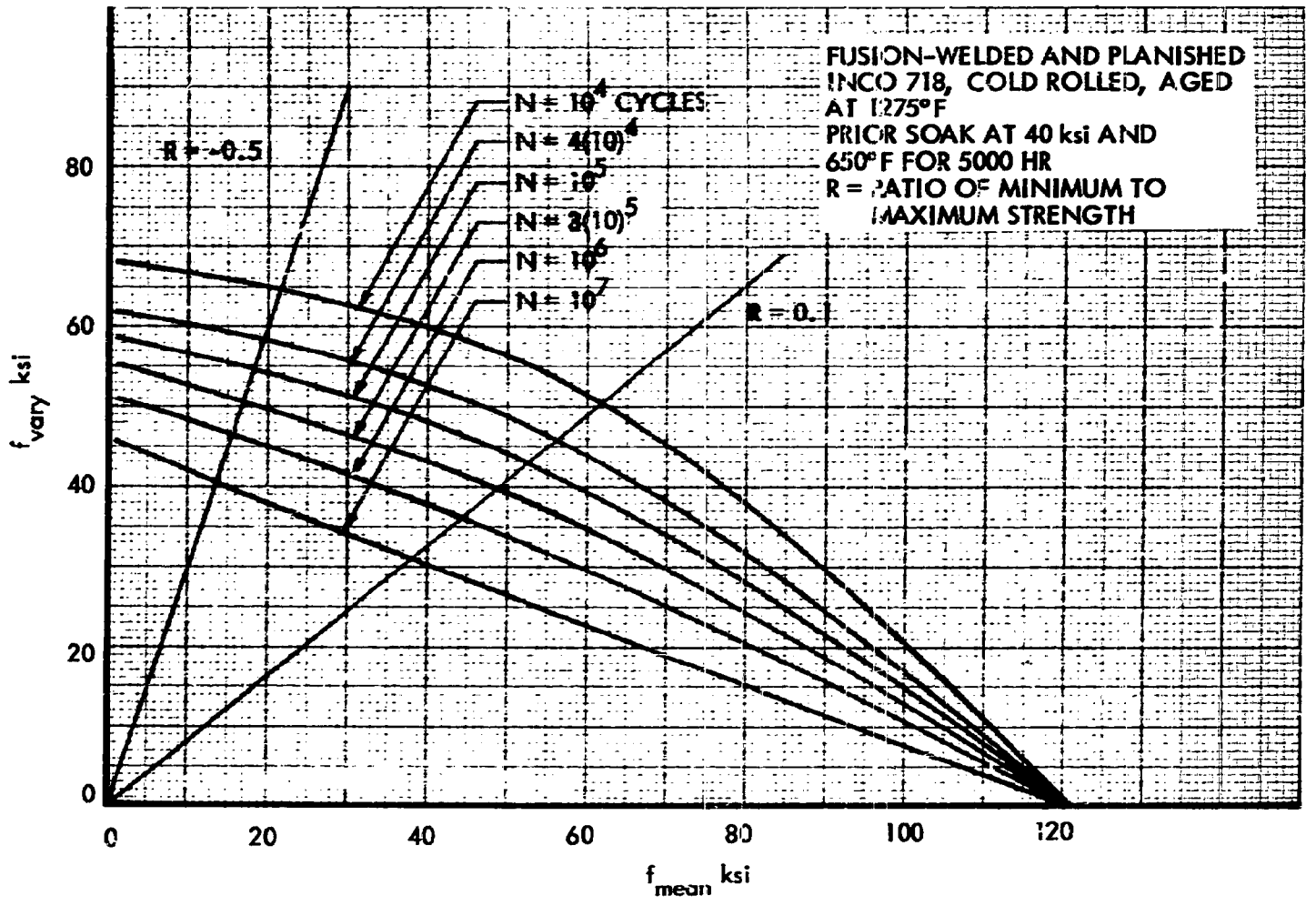



Figure 420. S-N Diagram at 650°F, Fusion-Welded INCO 718