| DRAWN | ERK | TITLE | DRAWING NUMBER |
|---|---|---|---|
| APPRV | KCB | SHEET-LOW CARBON STEEL HOT ROLLED, STRUCTURAL QUALITY | 48-00701 |
| DATE | 09/14/90 | FREIGHTLINER CORPORATION PORTLAND, OREGON | SHEET 1 OF 1 / CHG. LTR. K |
| CATIA ORIGINAL | | | |

SCOPE: THIS SPECIFICATION IDENTIFIES ASTM A570 STRUCTURAL SHEET STEEL.

APPLICATION: LOW TO MEDIUM STRENGTH APPLICATIONS WHERE MINIMUM MECHANICAL PROPERTIES ARE REQUIRED.

SPECIFICATION NUMBERS:

ASTM A570 GRADE-AS RECIEVED

| MINIMUM THICKNESS (IN) | WT LB/FT$^2$ | * GAGE NO. | * INCH EQUIV | FREIGHTLINER SPECIFICATION NUMBER 48-00701- | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 30 | 33 | 36 | 40 | 45 | 50 |
| .215 | 8.999 | 4 | .2242 | – | – | – | -404 | – | – |
| .185 | 7.749 | 6 | .1943 | – | – | – | -406 | – | – |
| .171 | 7.165 | 7 | .1793 | -107 | – | -307 | -407 | -507 | -607 |
| .156 | 6.540 | 8 | .1644 | – | – | – | -408 | – | – |
| .142 | 5.916 | 9 | .1495 | – | – | – | -409 | – | – |
| .127 | 5.290 | 10 | .1345 | – | – | -310 | -410 | – | – |
| .112 | 4.666 | 11 | .1196 | -111 | – | -311 | -411 | – | – |
| .097 | 4.040 | 12 | .1046 | – | – | – | -412 | – | -612 |
| .083 | 3.457 | 13 | .0897 | – | – | – | -413 | – | – |
| .068 | 2.832 | 14 | .0747 | -111 | – | – | -414 | – | – |
| .053 | 2.207 | 16 | .0598 | -116 | – | -316 | -416 | – | – |
| .043 | 1.791 | 18 | .0478 | – | – | – | -418 | – | – |
| – | – | 20 | .0359 | – | – | – | -420 | – | – |
| – | – | 24 | .0239 | – | – | – | -424 | – | – |

ASTM A570 GRADE-PICKLED AND OILED

| MINIMUM THICKNESS (IN) | WT LB/FT$^2$ | * GAGE NO. | * INCH EQUIV | FREIGHTLINER SPECIFICATION NUMBER 48-00701- | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 30 | 33 | 36 | 40 | 45 | 50 |
| .171 | 7.165 | 7 | .1793 | -157 | – | -357 | -457 | – | – |
| .127 | 5.290 | 10 | .1345 | – | – | – | – | – | – |
| .112 | 4.666 | 11 | .1196 | -161 | – | -361 | -461 | – | – |
| .097 | 4.040 | 12 | .1046 | – | – | – | -462 | – | – |
| .068 | 2.832 | 14 | .0747 | -164 | – | – | -464 | – | – |

*STATED FOR REFERENCE ONLY

SPECIFICATIONS:

1. MATERIAL TO BE SPECIFIED AND ORDERED AT MINIMUM THICKNESS.
2. THICKNESS CANNOT EXCEED STANDARD TOLERANCE FOR STATED REFERENCE GAGE.
3. CHEMICAL COMPOSITION SHALL MEET LIMITS FOR ASTM A570 STEEL.
4. MECHANICAL PROPERTIES:

| ASTM A570 GRADE | YIELD POINT KSI, MIN | TENSILE STRENGTH KSI, MIN | ELONGATION MIN % IN 2 INCHES | RATIO OF BEND DIA TO THICKNESS |
|---|---|---|---|---|
| 30 | 30 | 49 | 25 | 1 |
| 33 | 33 | 52 | 23 | 1-1/2 |
| 36 | 36 | 53 | 22 | 1-1/2 |
| 40 | 40 | 55 | 21 | 2 |
| 45 | 45 | 60 | 19 | 2-1/2 |
| 50 | 50 | 65 | 17 | 3 |

5. ALT. MATERIAL: 48-25177, MINIMUM GRADE 55.

| CHG | JOB NO | DATE | BY | REVISION |
|---|---|---|---|---|
| K | P01078-01 | 08/28/96 | FHC | REVISED AND REDRAWN IN CATIA. ADDED NOTE 5. |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| | | | |
|---|---|---|---|
| APPRV | KCB | SHEET STEEL, HIGH STRENGTH/LOW ALLOY, ENHANCED CORROSION RESISTANCE | 48-00702 |
| DATE | 08/06/90 | FREIGHTLINER CORPORATION PORTLAND, OREGON | SHEET 1 OF 1 |

SCOPE: THIS SPECIFICATION IDENTIFIES HIGH STRENGTH/LOW ALLOY HOT ROLLED STEEL SHEET, OR COLD ROLLED STEEL SHEET.

APPLICATION: WHERE HIGHER STRENGTH, LIGHTER WEIGHT PARTS WITH ENHANCED ATMOSPHERIC CORROSION RESISTANCE ARE DESIRED. USE COLD ROLL WHERE LESS SURFACE SCALE SCALE IS REQUIRED (SPOT WELDING).

SPECIFICATION NUMBERS:

| HOT ROLLED | | |
|---|---|---|
| GAGE NO. | INCH EQUIV | FREIGHTLINER SPECIFICATION NUMBER |
| 7 | .1793 | 48-00702-000 |
| 10 | .1345 | -002 |
| 11 | .1196 | -003 |
| 12 | .1046 | -004 |
| 14 | .0747 | -005 |
| 16 | .0598 | -006 |

| COLD ROLLED | | |
|---|---|---|
| GAGE NO. | INCH EQUIV | FREIGHTLINER SPECIFICATION NUMBER |
| 14 | .0747 | 48-00702-105 |
| 16 | .0598 | -106 |
| 18 | .0478 | - |

NOT FOR NEW DESIGN

SPECIFICATIONS:

1. MATERIAL SHALL CONFORM WITH APPLICABLE PROVISIONS OF ASTM A606 TYPE 2.
2. MECHANICAL PROPERTIES:

| | YIELD POINT KSI, MIN | TENSILE STRENGTH KSI, MIN | ELONGATION IN 2 INCHES % MIN | BEND DIA TO THICKNESS RATIO | | SHEET THICK |
|---|---|---|---|---|---|---|
| | | | | TRANSVERSE GRAIN DIRECTION | LONGITUDINAL GRAIN DIRECTION | |
| HOT ROLLED COILS OR COLD ROLLED COILS AND CUT LENGTHS | 45 | 65 | 22 | 2 | 1 | ≤.090 |
| HOT ROLLED CUT LENGTHS | 50 | 70 | | 3 | 1 | >.090 |

3. SHALL HAVE ENHANCED ATMOSPHERIC CORROSION RESISTANCE AT LEAST TWO TIMES THAT OF PLAIN CARBON STEEL.
4. SHIPMENTS FROM MILL TO INCLUDE LIGHT OILING TO MINIMIZE SURFACE RUSTING OF STEEL WHILE IN TRANSIT.
5. 48-00718, ASTM A607, IS AN ACCEPTABLE ALTERNATE MATERIAL.

K

| CHG | JOB/RLSE NO | DATE | BY | REVISION |
|---|---|---|---|---|
| K | PA2024-38 | 08/07/90 | ERK | REV & REDRAWN; ADD NOTE #5 &"NOT FOR NEW DESIGN" |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| ORIGINAL JOB NO. | TITLE | PART NO. |
|---|---|---|
| 5404B | SHEET, HIGH STRENGTH LOW ALLOY STEEL HOT ROLLED/COLD ROLLED ENHANCED CORROSION RESISTANCE | 48-00702 |
| LAST CHG LTR: H | | SHEET 2 OF 2 |

SPECIFICATION NUMBERS-PART STATUS

| FREIGHTLINER SPECIFICATION NUMBER | PART STATUS | REPLACED BY |
|---|---|---|
| 48-00702-200 | OBS | 48-00718-107 |
| 48-00702-201 | OBS | 48-00718-108 |
| 48-00702-202 | OBS | 48-00718-110 |
| 48-00702-203 | OBS | 48-00718-111 |
| 48-00702-204 | OBS | 48-00718-112 |
| 48-00702-205 | OBS | 48-00718-114 |
| 48-00702-206 | OBS | 48-00718-116 |
| 48-00702-207 | OBS | 48-00718-118 |
| 48-00702-300 | OBS | 48-00718-157 |
| 48-00702-301 | OBS | 48-00718-158 |
| 48-00702-302 | OBS | 48-00718-160 |
| 48-00702-303 | OBS | 48-00718-161 |
| 48-00702-304 | OBS | 48-00718-162 |
| 48-00702-305 | OBS | 48-00718-164 |
| 48-00702-306 | OBS | 48-00718-166 |
| 48-00702-307 | OBS | 48-00718-168 |

| CHANGE INFORMATION | DATE | BY | JOB NO. | LTR |
|---|---|---|---|---|
| | | | | |

| CHANGE INFORMATION | DATE | BY | JOB NO. | LTR |
|---|---|---|---|---|
| REVISED & REDRAWN | 10-31-83 | FEF | 5404B | H |

| COMPILED | FEF | DATE DRAWN | CADAM ORIGINAL | | MASTER NUMBER | |
|---|---|---|---|---|---|---|
| APPROVED | | 10-31-83 | | | 00001 | 000D1 |

| | | | |
|---|---|---|---|
| DRAWN | ERK | SHEET-STEEL, LOW CARBON COLD ROLLED, COMMERCIAL QUALITY | 48-00703 |
| APPRV | KCB | | |
| DATE | 09/17/90 | FREIGHTLINER CORPORATION PORTLAND, OREGON | SHEET 1 OF 1 |

SCOPE: THIS SPECIFICATION IDENTIFIES LOW CARBON COLD ROLLED STEEL SHEET OR STRIP.

APPLICATION: LOW COST COLD ROLLED STEEL WITH SMOOTH DEOXIDIZED SATIN FINISH. EXCELLENT BASE FOR PAINT.

SPECIFICATION NUMBERS:

| MINIMUM THICKNESS (IN) | WT LB/FT$^2$ | * GAGE NO. | * INCH EQUIV | | FREIGHTLINER SPECIFICATION NUMBERS |
|---|---|---|---|---|---|
| .172 | 7.193 | 7** | .1793 | | 48-00703-000 |
| .157 | 6.565 | 8** | .1644 | | -002 |
| .129 | 5.394 | 10 | .1345 | | -003 |
| .114 | 4.767 | 11 | .1196 | | -004 |
| .099 | 4.140 | 12 | .1046 | | |
| .085 | 3.554 | 13 | .0897 | | -005 |
| .070 | 2.927 | 14 | .0747 | | -006 |
| .055 | 2.300 | 16 | .0598 | | -007 |
| .044 | 1.840 | 18 | .0478 | | -008 |
| .038 | 1.589 | 19 | .0418 | | -009 |
| .033 | 1.380 | 20 | .0359 | | -010 |
| .027 | 1.129 | 22 | .0299 | | -011 |
| .021 | .878 | 24 | .0239 | | -013 |
| .016 | .669 | 26 | .0179 | | |
| .013 | .544 | 28 | .0149 | | |

* GAGE NO. AND INCH EQUIVALENT FOR REFERENCE ONLY.

** AVAILABLE IN SPECIAL MILL ORDER QUANITIES ONLY.

SPECIFICATIONS

1. MATERIAL TO BE SPECIFIED AND ORDERED AT MINIMUM THICKNESS.
2. THICKNESS CANNOT EXCEED STANDARD TOLERANCE FOR STATED REFERENCE GAGE.
3. CHEMICAL COMPOSITION SHALL MEET LIMITS FOR SAE 1008-1012 STEEL PER SAE STANDARD J403 APPLICABLE TO STRIP OR SHEET. MUST CONFORM TO PERTINENT PROVISIONS OF ASTM A366.
4. MECHANICAL PROPERTIES: (FOR REFERENCE ONLY AS ASTM A366 HAS NO MINIMUM PROPERTY REQUIREMENTS).

| ULTIMATE TENSILE STRENGTH KSI (TYP) | YEILD KSI (TYP) | ELONGATION % IN 2 INCHES (TYP) | ROCKWELL HARDNESS $R_B$ (TYP) | TEMPER DESIGNATION |
|---|---|---|---|---|
| 46 | 34 | 37 | 35-60 | SOFT COMMERCIAL QUALITY |

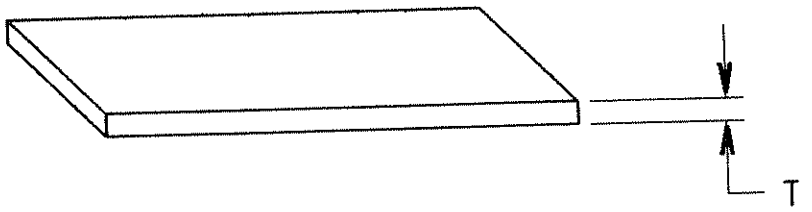
| CHG | JOB/RLSE NO | DATE | BY | REVISION |
|---|---|---|---|---|
| K | PA2024-44 | 09/17/90 | ERK | REVISED & REDRAWN; CHNGD TO MINIMUMS IPO NOMINALS |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| ORIGINAL JOB NO. | TITLE | PART NO. |
|---|---|---|
| 0334C | SHEET, ZINC COATED STEEL<br>COMMERCIAL QUALITY | 48-00704 |
| LAST CHG LTR E | | SHEET 1 OF 2 |

**SCOPE:** THIS SPECIFICATION DESCRIBES COMMERCIAL QUALITY SHEET STEEL THIS IS ZINC COATED (GALVANIZED) BY THE HOT DIP PROCESS.

**APPLICATION:** FOR USE IN FABRICATING PARTS WHICH MAY REQUIRE BENDING AND MODERATE FORMING AND WHICH REQUIRE ATMOSPHERIC CORROSION RESISTANCE AND A SURFACE THAT CAN BE PHOSPHATED AND PAINTED WITH GOOD ADHESION AND APPEARANCE.

**SKETCH**




**SPECIFICATION NUMBERS:**

| T | | | | FREIGHTLINER SPECIFICATION NUMBERS | |
|---|---|---|---|---|---|
| | | | | COATING DESIGNATION/ COATING WEIGHT | |
| GAGE NO. | INCH EQUIV | WT LB/FT$^2$ | | A60/ (5) 0.60 OZ/SQ FT | G90/ (4) 0.90 OZ/SQ FT |
| 8<br>10 | .1681<br>.1382 | 7.031<br>5.781 | | 48-00704-110<br>-100 | 48-00704-010<br>-000 |
| 11<br>12 | .1233<br>.1084 | 5.156<br>4.531 | | -101<br>-102 | -001<br>-002 |
| 14<br>16 | .0785<br>.0635 | 3.281<br>2.656 | | -103<br>-104 | -003<br>-004 |
| 18<br>20 | .0516<br>.0396 | 2.156<br>1.656 | | -105<br>-106 | -005<br>-006 |
| 22<br>24 | .0336<br>.0276 | 1.406<br>1.156 | | -107<br>-108 | -007<br>-008 |
| 26<br>28 | .0217<br>.0187 | .906<br>.781 | | -109<br>-111 | -009<br>-011 |

**SPECIFICATION NUMBERS:**

1. MATERIAL SHALL MEET PROVISIONS OF ASTM A526 FOR ZINC-COATED, COMMERCIAL QUALITY STEEL SHEET AND ASTM A525 FOR GENERAL REQUIREMENTS ZINC-COATED STEEL SHEET.
2. COATING WEIGHT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A525 FOR THE COATING DESIGNATION SHOWN WHEN MEASURED USING ASTM A90 METHOD.
3. COATING MATERIAL SHALL BE FREE FROM DEFECTS SUCH AS BLISTERS, UNCOATED SPOTS, AND CORROSION WHICH MAY BE DETRIMENTAL TO THE FUNCTION AND APPEARANCE OF THE FINISHED PART.

| CHANGE INFORMATION | | | | | | |
|---|---|---|---|---|---|---|
| TR | JOB NO. | BY | DATE | | | |
| D | 0334C | FEF | 11-04-83 | REVISED & REDRAWN | | |
| E | 3798C | BEL | 05-12-84 | ADDED -1XX SERIES | | |
| E | 3798C | BEL | 05-12-84 | ADDED COATING DESIGN. | | |

| CHANGE INFORMATION | | | | | | |
|---|---|---|---|---|---|---|
| TR | JOB NO. | BY | DATE | | | |
| | | | | | | |

| COMPILED | FEF | DATE DRAWN | CADAM ORIGINAL | UNIT OF MEASURE | MASTER NUMBER | |
|---|---|---|---|---|---|---|
| APPROVED | DJL | 11-04-83 | | LB | 00001 | 000D1 |

| ORIGINAL JOB NO. | TITLE | PART NO. |
|---|---|---|
| 0334C | SHEET, ZINC COATED STEEL<br>COMMERCIAL QUALITY | 48-00704 |
| LAST CHG LTR: E | | SHEET 2 OF 2 |

| CHANGE INFORMATION | DATE | BY | JOB NO. | TR |
|---|---|---|---|---|
| | | | | |

| CHANGE INFORMATION | DATE | BY | JOB NO. | TR |
|---|---|---|---|---|
| REVISED & REDRAWN | 11-04-83 | FEF | 0334C | D |
| REVISED NOTES 4 & 5 | 05-12-84 | BEL | 3798C | E |

SPECIFICATIONS (CONTINUED)

(4) THE G90 SHEET FINISH SHALL BE MINIMUM SPANGLE, EXTRA SMOOTH OR SKIN PASSED WITH A SMOOTH SATIN APPEARANCE FOR APPLICATION IN EXPOSED AUTOMOTIVE/TRUCK PAINTED PARTS. THE SURFACE SHALL HAVE NO CHEMICAL TREATMENT AND SHALL BE OILED. THIS MATERIAL MUST BE PHOSPHATIZED PRIOR TO PAINTING.

(5) THE A60 SHEET SHALL NOT BE SPANGLED AND SHALL HAVE A SMOOTH MATTE FINISH WITH NO CHEMICAL TREATMENT. THIS MATERIAL IS SUITABLE FOR PAINTING WITHOUT FURTHER TREATMENT EXCEPT FOR NORMAL CLEANING AS REQUIRED FOR PAINTING.

6. BASE MATERIAL SHALL CONFORM TO THE FOLLOWING CHEMICAL COMPOSITION:

| ELEMENT | % COMPOSITION |
|---|---|
| CARBON | 0.150 MAX |
| MANGANESE | 0.600 MAX |
| PHOSPHOROUS | 0.035 MAX |
| SULPHUR | 0.040 MAX |

7. MECHANICAL PROPERTIES ARE NOT PUBLISHED FOR COMMERCIAL QUALITY STEELS. THE FOLLOWING MECHANICAL PROPERTY TABLE IS FOR REFERENCE ONLY:

| YIELD POINT KSI (TYP) | TENSILE STRENGTH KSI (TYP) | ELONGATION IN 2 IN. % (TYP) | HARDNESS RANGE ($R_B$) |
|---|---|---|---|
| 34 | 46 | 35 | 35-60 |

| | | | | | MASTER NUMBER | |
|---|---|---|---|---|---|---|
| COMPILED | FEF | DATE DRAWN | CADAM ORIGINAL | | 00001 | 000D1 |
| APPROVED | DJL | 11-04-83 | | | | |

| DRAWN | ERK | TITLE | ITEM NUMBER |
|---|---|---|---|
| APPRV | KCB | SHEET-STEEL ALUMINIZED | 48-00705 |
| DATE | 05/24/89 | FREIGHTLINER CORPORATION PORTLAND, OREGON | SHEET 1 OF 1 |

SCOPE: THIS SPECIFICATION IDENTIFIES ALUMINIZED STEEL SHEET.

APPLICATION: HIGH HEAT RESISTANT PARTS SUCH AS EXHAUST PARTS.

SPECIFICATION NUMBERS:

| MINIMUM THICKNESS (IN) | EST. WT. LB/FT$^2$ | REFERENCE ONLY | | | FREIGHTLINER SPECIFICATION NUMBER |
|---|---|---|---|---|---|
| | | GAGE | INCH EQUIV | | |
| .099 | 4.10 | 12 | .1084 | | 48-00705- |
| .071 | 2.93 | 14 | .0785 | | - |
| .058 | 2.39 | 16 | .0635 | | - |
| .047 | 1.92 | 18 | .0516 | | - |
| .036 | 1.47 | 20 | .0396 | | -003 |
| .030 | 1.22 | 22 | .0336 | | - |
| .024 | .97 | 24 | .0276 | | - |

SPECIFICATIONS:

1. MATERIAL TO BE SPECIFIED AND ORDERED AT MINIMUM THICKNESS.
2. THICKNESS CANNOT EXCEED STANDARD TOLERANCE FOR STATED REFERENCE GAGE.
3. SHEET SHALL MEET APPLICABLE PROVISIONS OF ASTM A 463.
4. COATING DESIGNATION: T1 40.
5. QUALITY DESIGNATION: COMMERCIAL.
6. MATERIAL IS MANUFACTURED TO CHEMICAL REQUIREMENTS AS SPECIFIED IN ASTM A 463.

| CHG | JOB/RLSE NO | DATE | BY | REVISION |
|---|---|---|---|---|
| B | PF0594-02 | 05/24/89 | ERK | DOCUMENTED |
| C | PA2024-44 | 09/18/90 | ERK | REVISED & REDRAWN; CHNGD TO MINIMUMS IPO NOMINALS |
| | | | | |
| | | | | |
| | | | | |

Materials Specification

| PRINT ISSUED | TITLE | PART NO. |
|---|---|---|
| 7/19/71 | SHEET, STEEL<br>TERNE COATED | 48-00706 |
| LAST CHG LTR A | | SHEET 1 OF 1 |

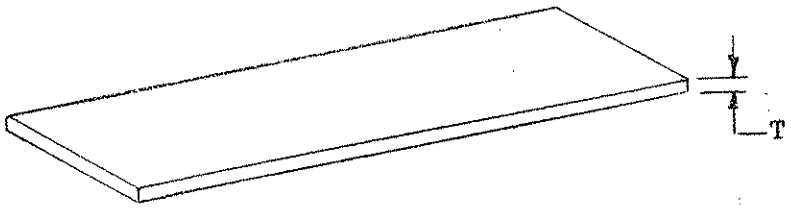
## SCOPE

This specification identifies terne coated steel sheet.

## APPLICATION

Where lead coated steel sheet is required

## SKETCH




## SPECIFICATION NUMBERS

| FREIGHTLINER SPECIFICATION NUMBER | GAUGE T |
|---|---|
| 48-00706-000 | 16 (.0598) |
| -001 | 18 (.0478) |
| -002 | 20 (.0359) |
| -003 | 22 (.0299) |

## SPECIFICATIONS

1. Sheet herein described shall meet applicable provisions of ASTM A308.

2. Mechanical Properties: Mechanical properties are not commonly published; instead chemical requirements of ASTM A308 shall apply. Sheets of commercial quality are suitable for moderate deformations, but do not have a high degree of uniformity of chemical composition or mechanical properties.

| CHG | BY | DATE | WAS |
|---|---|---|---|
| | | | |

| CHG | BY | DATE | WAS |
|---|---|---|---|
| A | RLR | 6-16-71 | Added Note 2 |

ns

| | | | | | |
|---|---|---|---|---|---|
| COMPILED | RWG | DATE DRAWN | | | UNIT OF MEASURE |
| APPROVED | | 4-15-71 | | | LB. |

Portland FREIGHTLINER CORPORATION Oregon 97208

| | | | | |
|---|---|---|---|---|
| DRAWN | RWG | TITLE | DRAWING NUMBER | |
| APPRV | RWG | PLATE-STEEL, STRUCTURAL HOT ROLLED, HIGH STRENGTH/LOW ALLOY | 48-00707 | |
| DATE | 04/15/71 | FREIGHTLINER CORPORATION PORTLAND, OREGON | SHEET 1 OF 1 | CHG. LTR. H |
| CATIA ORIGINAL | | | | |
| UNLESS OTHERWISE NOTED, DIMENSIONS ARE IN INCHES | | | | |

SCOPE This specification identifies a high strength/low alloy, hot rolled structural steel plate.

APPLICATION Where high strength and light weight are required.

SPECIFICATION NUMBERS

| SIZE T | FREIGHTLINER SPECIFICATION NUMBERS | |
|---|---|---|
| | AS RECIEVED | PICKLED & ROLLED |
| 3/16 | 48-00700-000 | 48-00700-500 |
| 1/4 | -001 | -501 |
| 5/16 | -002 | -502 |
| 3/8 | -003 | -503 |
| 1/2 | -004 | -504 |
| 5/8 | -005 | -505 |
| 3/4 | -006 | -506 |
| 1 | -007 | -507 |
| 1-1/4 | -008 | -508 |
| 1-1/2 | -009 | -509 |

SPECIFICATIONS

1. Plate herein described shall meet applicable provisions of ASTM A572 Grade 50.
2. Mechanical Properties:

| Minimum Mechanical Properties | | |
|---|---|---|
| Tensile Ult. ksi | Yield ksi | Elongation Per cent in 8 inches |
| 65 | 50 | 18-19* 16-18 |

*Varies with width.

3. ALT Material: 48-25177 .Minimum Grade 55 series.

| CHG | JOB NO | DATE | BY | REVISION |
|---|---|---|---|---|
| H | P01078-01 | 08/27/96 | FHC | REVISED AND REDRAWN IN CATIA. ADDED NOTE 3. |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

48-00708

Materials Specification

| PRINT ISSUED | TITLE | PART NO. |
|---|---|---|
| 9-1-71 | SHEET, STAINLESS STEEL ASTM A240 TYPE 430 COLD ROLLED | 48-00708 |
| LAST CHG. LTR. B | | SHEET 1 OF 1 |

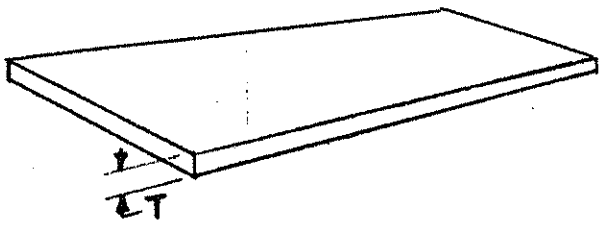
| CHG | BY | DATE | WAS |
|---|---|---|---|
| | | | |

| CHG | BY | DATE | WAS | JOB |
|---|---|---|---|---|
| A | TD | 8-16-79 | SEE M/F HIST | 76051 |
| B | MS | 9-5-79 | SEE M/F HIST | 76055 |

SCOPE This specification identifies straight chromium stainless steel sheet ASTM Type 430 , cold rolled.

APPLICATION Structural uses requiring high corrosion resistance.

SKETCH




SPECIFICATION NUMBERS

| GAUGE NUMBER | THICKNESS (INCHES) (TO STAINLESS SHEET GAUGE) | FREIGHTLINER SPECIFICATION NUMBER |
|---|---|---|
| 7 | ..... | 48-00708-007 |
| 8 | .1719 | -008 |
| 9 | .1562 | -009 |
| 10 | .1406 | -010 |
| 11 | .1250 | -011 |
| 12 | .1094 | -012 |
| 13 | .0938 | -013 |
| 14 | .0781 | -014 |
| 15 | .0703 | -015 |
| 16 | .0625 | -016 |
| 17 | .0563 | -017 |
| 18 | .0500 | -018 |
| 19 | .0438 | -019 |
| 20 | .0375 | -020 |
| 22 | .0313 | -023 |
| 24 | .0250 | -024 |
| 26 | .0188 | -026 |
| 28 | .0156 | -028 |
| 30 | .0125 | -030 |

SPECIFICATIONS

1. Material shall conform to pertinent provisions of ASTM A240 for chromium type 430 ( 16 - 18% chromium)
2. Finish shall be No. 2B, annealed, pickled and bright cold rolled.
3. Mechanical Properties:

| TENSILE STRENGTH MIN. PSI | YIELD STRENGTH MIN. PSI | ELONGATION 2 IN.% MIN | HARDNESS, MAX. BRIN. | HARDNESS, MAX. ROCK B |
|---|---|---|---|---|
| 65,000 | 30,000 | 22 | 183 (B) | 88 (B) |

(B)

| COMPILED | HJR | DATE DRAWN | | | UNIT OF MEASURE |
|---|---|---|---|---|---|
| APPROVED | [signature] | 8-24-71 | | | LB. |

ns

Portland FREIGHTLINER CORPORATION Oregon 97208

B A

E-183

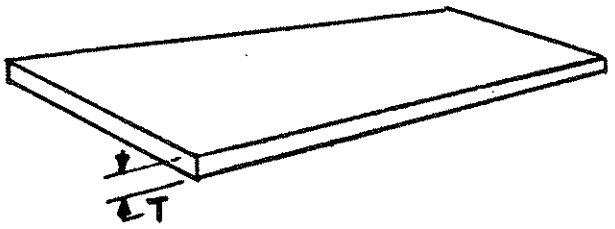
Materials Specification

| PRINT ISSUED | TITLE | PART NO. |
|---|---|---|
| 9-1-71 | SHEET, STAINLESS STEEL ASTM A240 TYPE 430 COLD ROLLED | 48-00708 |
| LAST CHG LTR D | | SHEET 1 OF 2 |

SCOPE This specification identifies straight chromium stainless steel sheet ASTM Type 430 , cold rolled.

APPLICATION Structural uses requiring high corrosion resistance.

SKETCH




SPECIFICATION NUMBERS

| GAUGE NUMBER | THICKNESS (INCHES) (TO STAINLESS SHEET GAUGE) | FREIGHTLINER SPECIFICATION NUMBER |
|---|---|---|
| | | 48-00708- |
| | | - |
| | | - |
| | | - |
| 10 | .135 | -011 |
| 11 | .120 | - |
| 12 | .105 | -013 |
| 13 | .090 | - |
| 14 | .075 | - |
| | | -016 |
| 16 | .060 | - |
| | | -018 |
| 18 | .048 | - |
| | | - |
| 20 | .036 | - |
| 22 | .029 | -024 |
| 24 | .024 | - |
| 26 | .018 | - |
| 28 | .015 | - |

SPECIFICATIONS

1. Material shall conform to pertinent provisions of ASTM A240 for chromium type 430 ( 16 - 18% chromium)
2. Finish shall be No. 2B, annealed, pickled and bright cold rolled.
3. Mechanical Properties:

| TENSILE STRENGTH MIN. PSI | YIELD STRENGTH MIN. PSI | ELONGATION 2 IN.% MIN | HARDNESS, MAX. BRIN. (B) | HARDNESS, MAX. ROCK B (B) |
|---|---|---|---|---|
| 65,000 | 30,000 | 22 | 183 | 88 |

| | | DATE DRAWN | | | UNIT OF MEASURE |
|---|---|---|---|---|---|
| COMPILED | HJR | 8-24-71 | | | LB. |
| APPROVED | | | | | |

Portland FREIGHTLINER CORPORATION Oregon 97208

C B A

| CHG | BY | DATE | WAS |
|---|---|---|---|
| A | TD | 8-6-79 | SEE M/F HIS. 76051 |
| B | MMS | 4-5-79 | SEE M/F HIST 76055 |
| C | GRH | 9-4-81 | ADD SHT. 2 C1118 |
| D | ERK | 12/05/88 | RMVD. INACTIVE P*A078-92 |

| CHG | BY | DATE | WAS |
|---|---|---|---|
| | | | |

48-00708

E-183

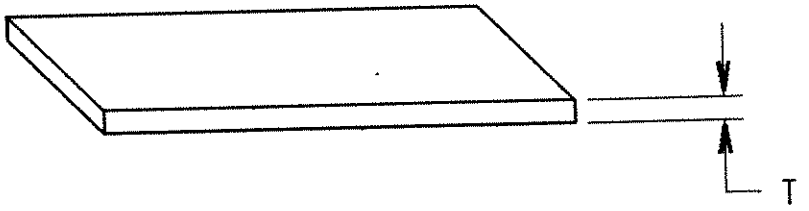
| ORIGINAL JOB NO. | TITLE | PART NO. |
|---|---|---|
| 5404B | SHEET, COLD ROLLED CARBON STEEL DEEP DRAWING, SPECIAL KILLED | 48-00709 |
| LAST CHG LTR: D | | SHEET 1 OF 1 |

| CHANGE INFORMATION | DATE | BY | JOB NO. |
|---|---|---|---|
| LTR | | | |

**SCOPE:** THIS SPECIFICATION DESCRIBES COLD ROLLED, CLASS 1, CARBON STEEL SHEETS IN COILS OR CUT LENGTHS FOR SEVERE FORMING OR DRAWING.

**APPLICATION:** WHERE SEVERE STRETCHING AND DRAWING IS INVOLVED AND/OR FREEDOM FROM FLUTING OR STRAIN AGING IS REQUIRED. FOR PARTS WHERE SURFACE APPEARANCE IS OF PRIMARY IMPORTANCE.

**SKETCH**




**SPECIFICATION NUMBERS:**

| T | | | | |
|---|---|---|---|---|
| GAGE NO. | INCH EQUIV | WT LB/FT$^2$ | | FREIGHTLINER SPECIFICATION NUMBERS |
| 7* | .1793 | 7.500 | | 48-00709-187 |
| 8 | .1644 | 6.875 | | -164 |
| 10 | .1345 | 5.625 | | -134 |
| 11 | .1196 | 5.000 | | -119 |
| 12 | .1046 | 4.375 | | -104 |
| 13 | .0897 | 3.750 | | -089 |
| 14 | .0747 | 3.125 | | -074 |
| 16 | .0598 | 2.500 | | -059 |
| 18 | .0478 | 2.000 | | -048 |
| 20 | .0359 | 1.500 | | -036 |

* USE IN LIEU OF 3/16 INCH THICKNESS.

| CHANGE INFORMATION | DATE | BY | JOB NO. |
|---|---|---|---|
| REVISED & REDRAWN | 10-28-83 | FEF | 5404B |
| LTR: D | | | |

**SPECIFICATIONS**

1. MATERIAL SHALL MEET PROVISIONS OF ASTM A619 AND A620.
2. CHEMICAL REQUIREMENTS (IN LIEU OF TENSILE PROPERTIES):

| ELEMENT | % COMPOSITION |
|---|---|
| CARBON, MAX | 0.10 |
| MANGANESE, MAX | 0.50 |
| PHOSPHOROUS, MAX | 0.025 |
| SULPHUR, MAX | 0.035 |

3. MECHANICAL PROPERTIES (FOR REFERENCE ONLY):

| YEILD POINT KSI (TYP) | TENSILE STRENGTH KSI (TYP) | ELONGATION IN 2 IN % (TYP) | HARDNESS RANGE $R_B$ (TYP) |
|---|---|---|---|
| 25 | 43 | 41 | 35-48 |

| COMPILED | FEF | DATE DRAWN | CADAM ORIGINAL | UNIT OF MEASURE | MASTER NUMBER | |
|---|---|---|---|---|---|---|
| APPROVED | DJL | 10-28-83 | | LB | 00001 | 000D1 |

| DRAWN | WDK | TITLE | DRAWING NUMBER | |
|---|---|---|---|---|
| APPRV | DAJ | SHEET-STAINLESS STEEL TYPE 304, COLD ROLLED | 48-00710 | |
| DATE | 05/12/98 | FREIGHTLINER CORPORATION PORTLAND, OREGON | SHEET 1 OF 1 | CHG. LTR. L |
| CATIA ORIGINAL | | | | |

SCOPE: THIS SPECIFICATION DEFINES TYPE 304 ROLLED STAINLESS STEEL SHEET.

APPLICATION: EXCELLENT CORROSION RESISTANCE TO MANY ORGANIC AND INORGANIC ACIDS AND SALTS. RESISTANT TO OXIDATION AND CAN BE READILY FABRICATED BY METHODS EMPLOYED WITH CARBON STEELS.

SPECIFICATION NUMBERS:

| GAGE NO. * | INCH EQUIV. * | FINISH | | |
|---|---|---|---|---|
| | | NO 4 (1) GENERAL PURPOSE | NO 8 (2) HIGH POLISH | NO 2 (3) BRIGHT ANNEALED |
| 7 | .187 | 48-00710-007 | 48-00710-107 | 48-00710- |
| 8 | .165 | - | - | - |
| 10 | .135 | -010 | - | -210 |
| 11 | .120 | -011 | -111 | -211 |
| 12 | .105 | -012 | - | -212 |
| 13 | .090 | -013 | - | -213 |
| 14 | .075 | -014 | -114 | -214 |
| 16 | .060 | -016 | -116 | -216 |
| 18 | .048 | -018 | - | - |
| 19 | .042 | -019 | - | - |
| 20 | .036 | -020 | -120 | -220 |
| 22 | .030 | -022 | - | - |
| 24 | .024 | - | - | -224 |
| 26 | .018 | -026 | - | - |
| 28 | .015 | - | - | - |
| 30 | .012 | -030 | - | - |

* GAGE NO. AND INCH EQUIVALENT FOR REFERENCE ONLY.

SPECIFICATIONS:

1. SHEET HEREIN DESCRIBED SHALL MEET APPLICABLE PROVISIONS OF ASTM A240
2. MINIMUM YEILD STRENGTH SHALL BE 40 KSI.
3. MECHANICAL PROPERTIES:

| MINIMUM PROPERTIES | | | MAXIMUM HARDNESS RB |
|---|---|---|---|
| TENSUILE ULT K.S.I. | YIELD K.S.I. | ELONGATION % IN 2 INCHES | |
| 75 | 40 | 40 | 88 |

(1) REFERENCE: 49-00020-004

(2) REFERENCE: 49-00020-008 POLISH ONE SIDE ONLY AND PROTECT WITH CLEAR PVC COATING.

(3) REFERENCE: 49-00020-002 PROTECT WITH CLEAR PVC COATING.

| CHG | JOB NO | DATE | BY | REVISION |
|---|---|---|---|---|
| L | P02785-01 | 05/12/98 | WDK | REVISED AND REDRAWN ON CATIA, ADDED -026 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

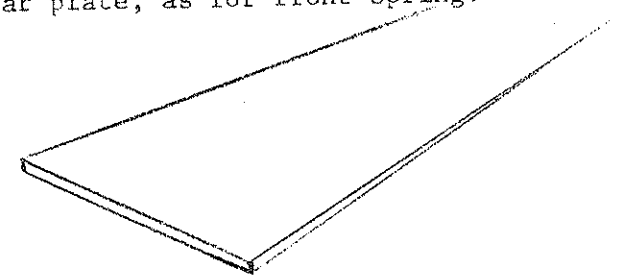
Materials Specification

| PRINT ISSUED | | TITLE | PART NO. |
|---|---|---|---|
| | | SHEET, STEEL<br>AISI 1050 | 48-00711 |
| LAST CHG LTR | | | SHEET 1 OF 1 |

SCOPE This specification describes cold rolled medium carbon steel sheet.

APPLICATION Wear plate, as for front spring.

SKETCH



SPECIFICATION NUMBERS

| GAUGE | | FREIGHTLINER SPECIFICATION NUMBER |
|---|---|---|
| 19 (.0418) | | 48-00711-019 |

SPECIFICATIONS

1. Material: AISI 1050 Steel annealed cold drawn.

2. Physical Properties:

| TENSILE STRENGTH k.s.i. (min.) | YIELD k.s.i. (min.) | ELONGATION IN 2" % | BRINELL HARDNESS |
|---|---|---|---|
| 100 | 84 | 10 | 197 |

| | | DATE DRAWN | | | UNIT OF MEASURE |
|---|---|---|---|---|---|
| COMPILED | HJR | 2-18-72 | | | LB. |
| APPROVED | Rollins | | | | |

Portland FREIGHTLINER CORPORATION Oregon 97208

M/F

WAS

| CHG | BY | DATE |
|---|---|---|
| | | |

WAS J #85000

| CHG | BY | DATE |
|---|---|---|
| — | — | — |

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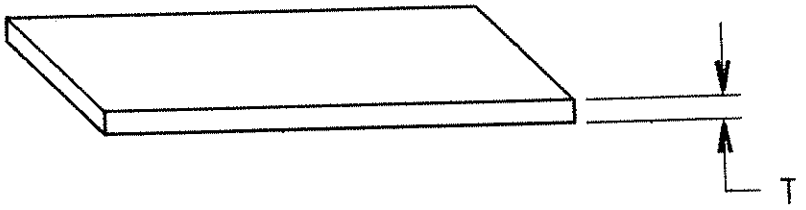
E-183

| ORIGINAL JOB NO. | TITLE | PART NO. |
|---|---|---|
| 5404B | SHEET, COLD ROLLED CARBON STEEL DRAWING QUALITY | 48-00712 |
| LAST CHG LTR: B | | SHEET 1 OF 1 |

**SCOPE:** THIS SPECIFICATION DESCRIBES A CLASS 2 COLD ROLLED CARBON STEEL SHEET IN COILS OR CUT LENGTHS FOR SEVERE STRETCHING OR DRAWING.

**APPLICATION:** BECAUSE AGING OF THIS MATERIAL INCREASES THE TENDENCY FOR THE STEEL TO FLUTE OR STRETCHER STRAIN IT SHOULD BE USED FOR NON-APPEARANCE ITEMS ONLY.

**SKETCH**




**SPECIFICATION NUMBERS:**

| T | | | | |
|---|---|---|---|---|
| GAGE NO. | INCH EQUIV | WT LB/FT$^2$ | | FREIGHTLINER SPECIFICATION NUMBERS |
| 7* | .1793 | 7.500 | | 48-00712-187 |
| 8 | .1644 | 6.875 | | -164 |
| 10 | .1345 | 5.625 | | -134 |
| 11 | .1196 | 5.000 | | -119 |
| 12 | .1046 | 4.375 | | -104 |
| 13 | .0897 | 3.750 | | -089 |
| 14 | .0747 | 3.125 | | -074 |
| 16 | .0598 | 2.500 | | -059 |
| 18 | .0478 | 2.000 | | -048 |
| 20 | .0359 | 1.500 | | -036 |

* USE IN LIEU OF 3/16 INCH THICKNESS.

**SPECIFICATIONS**

1. MATERIAL SHALL MEET PROVISIONS OF ASTM A619 CLASS 2. ALTERNATE MATERIAL IS 48-00709 (ASTM A620).

2. CHEMICAL REQUIREMENTS (IN LIEU OF TENSILE PROPERTIES):

| ELEMENT | % COMPOSITION |
|---|---|
| CARBON, MAX | 0.08 |
| MANGANESE | 0.25-0.45 |
| PHOSPHOROUS, MAX | 0.035 |
| SULPHUR, MAX | 0.040 |

3. MECHANICAL PROPERTIES (FOR REFERENCE ONLY):

| YEILD POINT KSI (TYP) | TENSILE STRENGTH KSI (TYP) | ELONGATION IN 2 IN, % (TYP) | HARDNESS RANGE ($R_B$) |
|---|---|---|---|
| 30 | 45 | 39 | 35-55 |

| COMPILED | FEF | DATE DRAWN | CADAM ORIGINAL | UNIT OF MEASURE | MASTER NUMBER | |
|---|---|---|---|---|---|---|
| APPROVED | DJL | 10-28-83 | | LB | 00001 | 000D1 |

PORTLAND FREIGHTLINER CORPORATION B OREGON 97208

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CHANGE INFORMATION

| LTR | JOB NO. | BY | DATE | |
|---|---|---|---|---|
| | | | | |
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| | | | | |

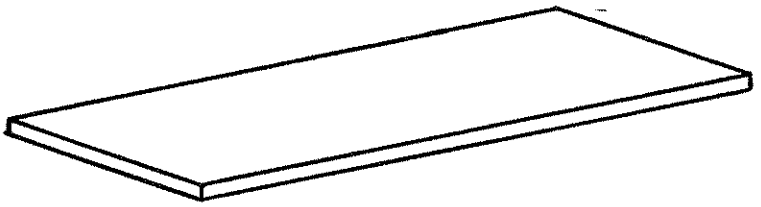
| LTR | JOB NO. | BY | DATE | CHANGE INFORMATION |
|---|---|---|---|---|
| B | 5404B | FEF | 10-28-83 | REVISED & REDRAWN |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| ORIGINAL JOB NO. | TITLE | PART NO. |
|---|---|---|
| C0821 | SHEET STEEL, HI-STRENGTH, LOW ALLOY HOT ROLLED | 48-00713 |
| LAST CHG LTR D | | SHEET 1 OF 1 |

SCOPE This specification describes hot rolled high strength, low alloy Columbium-Vanadium structural steel.

APPLICATION Riveted, bolted or welded structures.

SKETCH



SPECIFICATION NUMBERS

| THICKNESS (ga) | ALTERNATE THICKNESS INCH | PART STATUS | REPLACED BY | WEIGHT LB/FT$^2$ | FREIGHTLINER SPECIFICATION NUMBER |
|---|---|---|---|---|---|
| .179 (7 ga.) | 3/16(.1875) | OBS | 48-00702-200 | 7.50 | 48-00713-179 |
| .134 (10 ga.) | | OBS | 48-00702-202 | 5.625 | -134 |
| .120 (11 ga.) | | OBS | 48-00702-203 | 5.000 | -120 |
| .105 (12 ga.) | | OBS | 48-00702-204 | 4.375 | -105 |
| .075 (14 ga.) | | OBS | 48-00702-205 | 3.125 | -075 |
| .060 (16 ga.) | | OBS | 48-00702-206 | 2.500 | -060 |
| .048 (18 ga.) | | OBS | 48-00702-207 | 2.000 | -048 |
| .036 (20 ga.) | | NC | | 1.500 | -036 |
| .030 (22 ga.) | | NC | | 1.250 | -030 |
| .024 (24 ga.) | | NC | | 1.000 | -024 |

SPECIFICATIONS

1. Must meet pertinent provisions of ASTM A572-72 for Grade 45 steel, hot rolled.
2. Ref: INX 45 or equal.
3. Physical Properties:

| ASTM GRADE | YIELD POINT ksi,min. | TENSILE STRENGTH ksi,min. | ELONGATION IN 2" %, min. | WELDABILITY | FORMABILITY | HARDNESS $R_B$ |
|---|---|---|---|---|---|---|
| 45 | 45 | 60 | 22 | Excellent | Good | 66 Approx. |

| COMPILED | H.J.R. | DATE DRAWN | | | UNIT OF MEASURE |
|---|---|---|---|---|---|
| APPROVED | | 8/26/76 | | | SF |

CHANGE INFORMATION

| LTR | JOB NO. | BY | DATE | |
|---|---|---|---|---|
| | | | | |

CHANGE INFORMATION

| LTR | JOB NO. | BY | DATE | |
|---|---|---|---|---|
| D | 97586 | SW | 3.26.81 | REVISED & REDRAWN |

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Portland FREIGHTLINER CORPORATION Oregon 97208

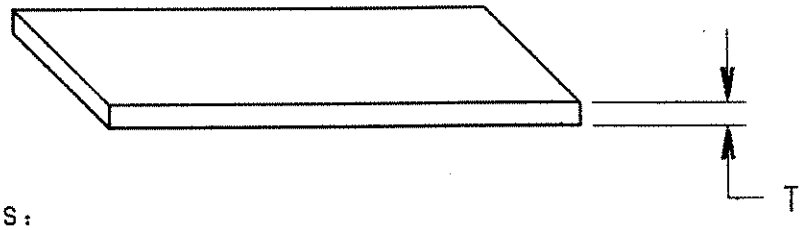
D

| ORIGINAL JOB NO. | TITLE | PART NO. |
|---|---|---|
| 5404B | SHEET, LOW CARBON STEEL, COLD ROLLED, STRUCTURAL GRADE | 48-00715 |
| LAST CHG LTR: A | | SHEET 1 OF 2 |

SCOPE: THIS SPECIFICATION DESCRIBES COLD ROLLED STRUCTURAL STEEL.

APPLICATION: RIVETED OR BOLTED STRUCTURES. (FUEL TANK BANDS REQUIRING CHROMING).

SKETCH




SPECIFICATION NUMBERS:

| T | | | | | FREIGHTLINER SPECIFICATION NUMBERS 48-00715 | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | STRUCTURAL QUALITY ASTM A611 GRADE | | | |
| GAGE NO. | INCH EQUIV | WT LB/FT$^2$ | | | A | B | C | D |
| 4 | .2242 | 9.375 | | | -104 | -204 | -304 | -004 |
| 5 | .2092 | 8.750 | | | -105 | -205 | -305 | -005 |
| 6* | .1943 | 8.125 | | | -106 | -206 | -306 | -006 |
| 7** | .1793 | 7.500 | | | -107 | -207 | -307 | -007 |
| 8 | .1644 | 6.875 | | | -108 | -208 | -308 | -008 |
| 9 | .1495 | 6.250 | | | -109 | -209 | -309 | -009 |
| 10 | .1345 | 5.625 | | | -110 | -210 | -310 | -010 |
| 11 | .1196 | 5.000 | | | -111 | -211 | -311 | -011 |
| 12 | .1046 | 4.375 | | | -112 | -212 | -312 | -012 |
| 13 | .0897 | 3.750 | | | -113 | -213 | -313 | -013 |
| 14 | .0747 | 3.125 | | | -114 | -214 | -314 | -014 |
| 15 | .0673 | 2.813 | | | -115 | -215 | -315 | -015 |
| 16 | .0598 | 2.500 | | | -116 | -216 | -316 | -016 |
| 17 | .0538 | 2.250 | | | -117 | -217 | -317 | -017 |
| 18 | .0478 | 2.000 | | | -118 | -218 | -318 | -018 |
| 19 | .0418 | 1.750 | | | -119 | -219 | -319 | -019 |
| 20 | .0359 | 1.500 | | | -120 | -220 | -320 | -020 |
| 21 | .0329 | 1.375 | | | -121 | -221 | -321 | -021 |
| 22 | .0299 | 1.250 | | | -122 | -222 | -322 | -022 |
| 23 | .0269 | 1.125 | | | -123 | -223 | -323 | -023 |
| 24 | .0239 | 1.000 | | | -124 | -224 | -324 | -024 |

* USE 7 GAGE (NOT 6) FOR 3/16 INCH MATERIAL THICKNESS.
** ALTERNATE THICKNESS FOR 7 GAGE IS 3/16 (.1875) INCH.

| LTR | JOB NO. | BY | DATE | CHANGE INFORMATION |
|---|---|---|---|---|
| A | 5404B | FEF | 10-25-83 | REVISED & REDRAWN |

| COMPILED | FEF | DATE DRAWN | CADAM ORIGINAL | UNIT OF MEASURE | MASTER NUMBER | |
|---|---|---|---|---|---|---|
| APPROVED | DJL | 10-25-83 | | LB | 00001 | 000D1 |

| ORIGINAL JOB NO. | TITLE | PART NO. |
|---|---|---|
| 5404B | SHEET, LOW CARBON STEEL, COLD ROLLED, STRUCTURAL GRADE | 48-00715 |
| LAST CHG LTR: A | | SHEET 2 OF 2 |

| CHANGE INFORMATION | DATE | BY | JOB NO. | LTR |
|---|---|---|---|---|
| | | | | |

| CHANGE INFORMATION | DATE | BY | JOB NO. | LTR |
|---|---|---|---|---|
| REVISED & REDRAWN | 10-25-83 | FEF | 5404B | A |

## SPECIFICATIONS

1. MUST MEET PERTINENT PROVISIONS OF ASTM A611 FOR COLD ROLLED CARBON STRUCTURAL STEEL.
2. MATERIAL TO HAVE EXCELLENT WELDABILITY AND GOOD FORMABILITY.
3. PHYSICAL PROPERTIES:

| ASTM A611 GRADE | YEILD POINT KSI, MIN | TENSILE STRENGTH KSI, MIN | ELONGATION IN 2 INCHES %, MIN | BEND TEST BEND DIA TO THICK RATIO |
|---|---|---|---|---|
| A | 25 | 42 | 26 | 0 |
| B | 30 | 45 | 24 | 1 |
| C | 33 | 48 | 22 | 1-1/2 |
| D | 40 | 52 | 20 | 2 |

| | | | | | MASTER NUMBER | |
|---|---|---|---|---|---|---|
| COMPILED | FEF | DATE DRAWN | CADAM ORIGINAL | | 00001 | 000D1 |
| APPROVED | DJL | 10-25-83 | | | | |

PORTLAND FREIGHTLINER CORPORATION A OREGON 97208

EAC-826

| ORIGINAL JOB NO. | TITLE | PART NO. |
|---|---|---|
| C1362 | STEEL, SHEET, AISI 4130 | 48-00716 |
| LAST CHG LTR | | SHEET 1 OF 1 |

CHANGE INFORMATION

| LTR | JOB NO. | BY | DATE | CHANGE INFORMATION |
|---|---|---|---|---|
| | | | | |

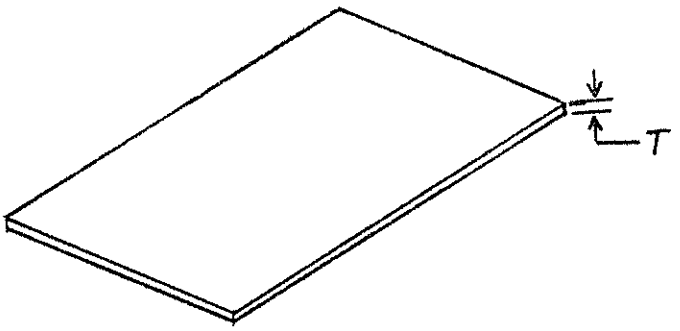
## SCOPE

This specification identifies AISI 4130 sheet steel.

## APPLICATION

High strength, high ductility parts such as sleeper restraint curtain connectors.

## SKETCH




## SPECIFICATION NUMBERS

| FREIGHTLINER SPECIFICATION NUMBER | GAUGE (T) |
|---|---|
| 48-00716-013 | 13(.0895) |

## SPECIFICATIONS

1) Material shall meet requirements for AISI 4130.
2) Material shall be purchased in normalized form and heat treated after forming to required mechanical properties.

CHANGE INFORMATION

| LTR | JOB NO. | BY | DATE | CHANGE INFORMATION |
|---|---|---|---|---|
| | | | | |

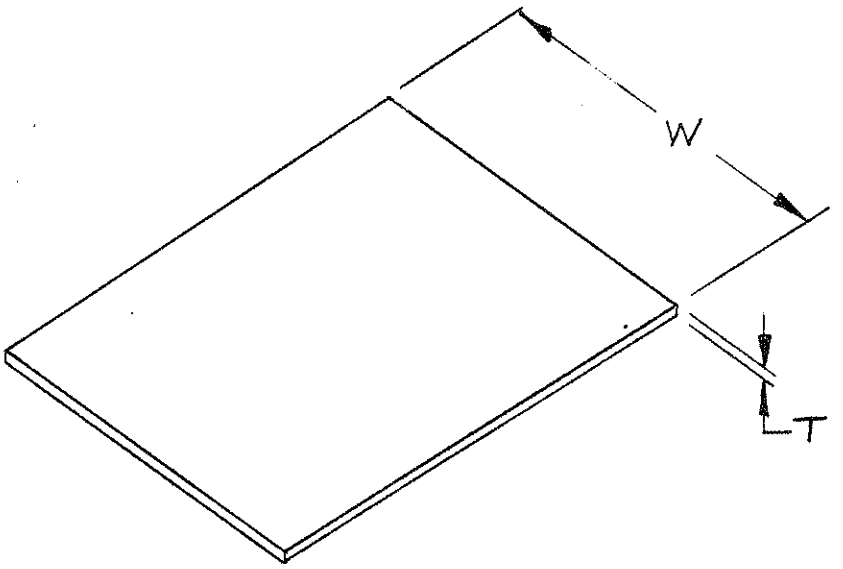
| | | | | | |
|---|---|---|---|---|---|
| COMPILED | CHB | DATE DRAWN | | | |
| APPROVED | NK | 9-19-78 | | | |

| ORIGINAL JOB NO. | TITLE | PART NO. |
|---|---|---|
| C1500 P | STEEL, COLD ROLLED | 48-00717 |
| LAST CHG LTR A | ELECTROLYTIC ZINC COATED | SHEET 1 OF 1 |

SCOPE This specification covers steel sheet in coils and cut lengths, zinc-coated by electrodeposition.

APPLICATION Where a protective or corrosion resistant finish is required.

SKETCH




SPECIFICATION NUMBERS

| T THICKNESS (IN.) | W WIDTH (IN.) | | FREIGHTLINER SPECIFICATION NUMBERS * |
|---|---|---|---|
| .030 | 0.60 | | 48-00717-306 |
| .030 | 5.50 | | 48-00717-388 |

* Dash Number: First digit is thickness in hundredths of an inch; final two digits express width in sixteenths of an inch.

SPECIFICATIONS

Steel herein described shall meet applicable provisions of ASTM A591 and ASTM 568 commercial quality coating class "C".

Max. Hardness Rockwell 30-T scale = 61. Aim for 54-60 approx.

| | | DATE DRAWN | | | |
|---|---|---|---|---|---|
| COMPILED | DHM | | | | |
| APPROVED | BCK | 8/20/79 | | | |

Portland FREIGHTLINER CORPORATION A Oregon 97208

E-359 5-79

CHANGE INFORMATION

| LTR | JOB NO. | BY | DATE | CHANGE INFORMATION |
|---|---|---|---|---|
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| | | | | |

CHANGE INFORMATION

| LTR | JOB NO. | BY | DATE | CHANGE INFORMATION |
|---|---|---|---|---|
| A | C1500P | DHM | 4-25-79 | .60, 5.50 WAS 5.12 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| DRAWN | ERK | TITLE | DRAWING NUMBER | |
|---|---|---|---|---|
| APPRV | KCB | SHEET-STEEL, HSLA HOT AND COLD ROLL | 48-00718 | |
| DATE | 06/09/89 | FREIGHTLINER CORPORATION PORTLAND, OREGON | SHEET 1 OF 1 | CHG. LTR. F |
| CATIA ORIGINAL | | | | |

SCOPE: THIS SPECIFICATION IDENTIFIES ASTM A607 HIGH STRENGTH, LOW ALLOY COLUMBIUM AND/OR VANADIUM STEEL.

APPLICATION: USE FOR HIGHER STRENGTH, AND/OR LIGHTER WEIGHT PARTS, AS DESIRED. THIS STEEL MAY BE BENT, MODERATELY FORMED, OR WELDED.

SPECIFICATION NUMBERS:

| MINIMUM THICKNESS (IN) | WT LB/FT$^2$ | GAGE NO.* | INCH EQUIV* | FREIGHTLINER SPECIFICATION NUMBERS 48-00718 | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | HOT ROLLED GRADE | | | COLD ROLLED GRADE | |
| | | | | 45 | 50 | 55 | 50 | 55 |
| .171 | 7.50 | 7 | .1793 | -007 | -107 | | | |
| .127 | 5.63 | 10 | .1345 | | -110 | -210 | | |
| .112 | 5.00 | 11 | .1196 | -011 | -111 | -211 | | -261 |
| .097 | 4.38 | 12 | .1046 | | -112 | -212 | -162 | |
| .068 | 3.13 | 14 | .0747 | | -114 | | -164 | |
| .053 | 2.50 | 16 | .0598 | | -116 | | -166 | |

* GAGE NO. AND INCH EQUIVALENT FOR REFERENCE ONLY.

SPECIFICATIONS:

1. MATERIAL TO BE SPECIFIED AND ORDERED AT MINIMUM THICKNESS, PICKLED & OILED.
2. THICKNESS CANNOT EXCEED STANDARD TOLERANCE FOR STATED REFERENCE GAGE.
3. CHEMICAL COMPOSITION SHALL MEET LIMITS FOR ASTM A607.
4. USE COLD ROLLED MATERIAL WHEN LESS SURFACE SCALE IS NEEDED, AS IN SPOT WELDING
5. WELDING TECHNIQUES SHOULD BE SPECIFIED FOR THESE MATERIALS, I.E. MINIMUM PREHEAT OR INTERPASS TEMPERATURE AND ELECTRODE TYPE, IF WELD STRENGTH IS CRITICAL.
6. MECHANICAL PROPERTIES:

| ASTM A607 GRADE | YIELD POINT KSI, MIN | TENSILE STRENGTH KSI, MIN | ELONGATION IN 2 IN %, MIN | | SUGGESTED INSIDE MINIMUM RADII |
|---|---|---|---|---|---|
| | | | HOT ROLLED | COLD ROLLED | |
| 45 | 45 | 60 | 25 | 22 | 1-1/2 |
| 50 | 50 | 65 | 22 | 20 | 2 |
| 55 | 55 | 70 | 20 | 18 | 2 |

7. ALT. MATERIAL: 48-25177, MINIMUM GRADE 55 SERIES.

| CHG | JOB NO | DATE | BY | REVISION |
|---|---|---|---|---|
| F | P01078-01 | 08/28/96 | FHC | REVISED AND REDRAWN IN CATIA. ADDED NOTE 7. |
| | | | | |
| | | | | |
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ORIENNE CHILDERS

| DRAWN | DAJ | TITLE | DRAWING NUMBER | |
|---|---|---|---|---|
| APPRV | DAJ | SHEET - STEEL, ZINC COATED DRAWING QUALITY, SPECIAL KILLED | 48-00719 | |
| DATE | 08/25/97 | FREIGHTLINER CORPORATION PORTLAND, OREGON | SHEET 1 OF 2 | CHG. LTR. B |
| CATIA ORIGINAL | | | | |

SCOPE: THIS SPECIFICATION DEFINES A DRAWING QUALITY SPECIAL KILLED STEEL SHEET ZINC-COATED (GALVANIZED) BY THE HOT DIP PROCESS.

APPLICATION: FOR USE IN FABRICATING PARTS WHERE DRAWING AND FORMING IS PARTICULARLY SEVERE AND WHICH REQUIRE ATMOSPHERIC CORROSION RESISTANCE AND A SURFACE THAT CAN BE PHOSPHATED AND PAINTED WITH GOOD ADHESION AND APPEARANCE.

| | | REFERENCE ONLY | | FREIGHTLINER SPECIFICATION | |
|---|---|---|---|---|---|
| MINIMUM THICKNESS (IN) | WEIGHT LB/FT$^2$ | GAGE NO. | INCH EQUIV. | MINIMUM SPANGLE | MINIMUM SPANGLE EXTRA SMOOTH |
| .159 | 6.65 | 8 | .1681 | 48-00719-008 | 48-00719-108 |
| .129 | 5.40 | 10 | .1382 | 48-00719-010 | 48-00719-110 |
| .114 | 4.77 | 11 | .1233 | 48-00719-011 | 48-00719-111 |
| .099 | 4.14 | 12 | .1084 | 48-00719-012 | 48-00719-112 |
| .071 | 2.97 | 14 | .0785 | 48-00719-014 | 48-00719-114 |
| .058 | 2.43 | 16 | .0635 | 48-00719-016 | 48-00719-116 |
| .047 | 1.96 | 18 | .0516 | 48-00719-018 | 48-00719-118 |
| .036 | 1.51 | 20 | .0396 | 48-00719-020 | 48-00719-120 |
| .030 | 1.26 | 22 | .0336 | 48-00719-022 | 48-00719-122 |
| .024 | 1.01 | 24 | .0276 | 48-00719-024 | 48-00719-124 |
| .019 | .79 | 26 | .0217 | 48-00719-026 | 48-00719-126 |
| .016 | .67 | 28 | .0187 | 48-00719-028 | 48-00719-128 |

SPECIFICATIONS:

1. MATERIAL TO BE SPECIFIED AND ORDERED AT MINIMUM THICKNESS.

2. MATERIAL SHALL MEET PROVISIONS OF ASTM A642 FOR ZINC-COATED (GALVANIZED) STEEL SHEET OF DRAWING QUALITY, SPECIAL KILLED AND ASTM A525 FOR GENERAL REQUIREMENTS ZINC-COATED STEEL SHEET.

| CHG | JOB NO | DATE | BY | REVISION |
|---|---|---|---|---|
| B | P03388-01 | 08/25/97 | DAJ | REVISED & REDRAWN ON CATIA. NOTE 3, G60 WAS G90. |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

ORIENNE CHIEDENG

| DRAWN | DAJ | TITLE | DRAWING NUMBER | |
|---|---|---|---|---|
| APPRV | DAJ | SHEET - STEEL, ZINC COATED DRAWING QUALITY, SPECIAL KILLED | 48-00719 | |
| DATE | 08/25/97 | FREIGHTLINER CORPORATION PORTLAND, OREGON | SHEET 2 OF 2 | CHG. LTR. B |
| CATIA ORIGINAL | | | | |

SPECIFICATIONS:

3. COATING WEIGHT SHALL CONFORM TO G60 W/ 32 MINIMUM SPOT PER EACH SIDE REQUIREMENTS OF ASTM A525 WHEN MEASURED USING ASTM A90 METHOD.

4. FINISH:
   * MINIMUM SPANGLE IS FOR AUTOMOTIVE PAINTED PARTS THAT DO NOT REQUIRE A HIGH APPEARANCE FINISH.
   * MINIMUM SPANGLE, EXTRA SMOOTH OR SKIN PASSED SHALL BE FREE FROM SPANGLE WITH A SMOOTH SKIN SATIN APPEARANCE FOR AUTOMOTIVE PAINTED PARTS REQUIRING A HIGH LEVEL FINISH.

5. THICKNESS CANNOT EXCEED STANDARD TOLERANCE FOR STATED REFERENCE GAGE.

6. SURFACE SHALL HAVE NO CHEMICAL TREATMENT AND SHALL BE OILED AND FREE FROM CORROSION.

7. BASE MATERIAL SHALL CONFORM TO THE FOLLOWING CHEMICAL COMPOSITION:

| ELEMENT | % COMPOSITION BY WEIGHT |
|---|---|
| CARBON | .100 MAX |
| MANGANESE | .500 MAX |
| PHOSPHOROUS | .025 MAX |
| SULFUR | .035 MAX |

8. TEST SPECIMENS OF COATED METAL SHALL BE CAPABLE OF BEING BENT THROUGH 180 DEGREES IN ANY DIRECTION WITHOUT FLAKING OF THE COATING ON THE OUTSIDE OF THE BEND EXCEPT WITHIN 6.4 MM (.250 INCH) OF THE EDGE OF THE BEND SPECIMEN.

9. COATED MATERIAL SHALL BE FREE FROM DEFECTS SUCH AS BLISTERS AND UNCOATED SPOTS WHICH MAY BE DETRIMENTAL TO THE FABRICATION AND/OR FUNCTION OF THE FINISHED PART.

10. MECHANICAL PROPERTIES ARE NOT PUBLISHED FOR DRAWING QUALITY ZINC-COATED STEELS. THE FOLLOWING MECHANICAL PROPERTY TABLE IS FOR REFERENCE ONLY:

| YIELD POINT KSI (MIN) | TENSILE STRENGTH KSI (MIN) | ELONGATION IN 2 IN, % (TYP) | HARDNESS RANGE ($R_B$) |
|---|---|---|---|
| 25 | 43 | 41 | 35-48 |

| CHG | JOB NO | DATE | BY | REVISION |
|---|---|---|---|---|
| B | P03388-01 | 08/25/97 | DAJ | REVISED & REDRAWN ON CATIA. G60 IN NOTE 3 WAS G90. |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

ORIENNE CHILDING

| DRAWN | PDM | TITLE | DRAWING NUMBER |
|---|---|---|---|
| APPRV | DAJ | SHEET-STEEL, HSLA HOT ROLLED -IMPROVED FORMABILITY | 48-00722 |
| DATE | 09/15/97 | FREIGHTLINER CORPORATION PORTLAND, OREGON | SHEET 1 OF 3 / CHG. LTR. D |
| CATIA ORIGINAL | | | |

SCOPE: THIS SPECIFICATION DEFINES THE REQUIREMENTS FOR HIGH STRENGTH / LOW ALLOY STEEL SHEETS WITH IMPROVED FORMABILITY. THE STEEL IS KILLED, MADE TO A FINE GRAIN PRACTICE AND INCLUDES MICROALLOYING ELEMENTS SUCH AS COLUMBIUM, TITANIUM, VANADIUM, ZIRCONIUM, ETC.

APPLICATION: USE FOR HIGHER STRENGTH, LIGHTER WEIGHT PARTS AS DESIRED. THESE STEELS EXHIBIT THE HIGHEST FORMABILITY OF THE HIGH STRENGTH / LOW ALLOY FAMILY OF STEELS. THESE STEELS ALSO POSSESS EXCELLENT TOUGHNESS AND WELDABILITY.

SPECIFICATION NUMBERS:

| | | REFERENCE ONLY | | FREIGHTLINER SPECIFICATION | |
|---|---|---|---|---|---|
| MINIMUM THICKNESS (IN) | WEIGHT LB/FT$^2$ | GAGE NO. * | INCH EQUIV. * | ASTM A715 GRADE 50 | ASTM A715 GRADE 80 |
| .215 | 9.38 | 4 | .2243 | 48-00722-504 | 48-00722- |
| .171 | 7.50 | 7 | .1793 | -507 | -807 |
| .156 | 6.88 | 8 | .1644 | -508 | -808 |
| .142 | 6.25 | 9 | .1495 | -509 | -809 |
| .127 | 5.63 | 10 | .1345 | -510 | -810 |
| .112 | 5.00 | 11 | .1196 | -511 | -811 |
| .097 | 4.38 | 12 | .1046 | -512 | (7)-812 |
| .068 | 3.13 | 14 | .0747 | -514 | -814 |
| .053 | 2.50 | 16 | .0598 | -516 | -816 |

* GAGE NO. AND INCH EQUIVALENT FOR REFERENCE ONLY.

SPECIFICATIONS:

1. MATERIAL TO BE SPECIFIED AND ORDERED AT MINIMUM THICKNESS, PICKLED AND OILED.

2. THICKNESS CANNOT EXCEED STANDARD TOLERANCE FOR STATED REFERENCE GAGE.

| CHG | JOB NO | DATE | BY | REVISION |
|---|---|---|---|---|
| A | PA2024-44 | 09/19/90 | ERK | REV & RDRWN, RMVD INACTIVE MT'LS, MINS IPO NOMINALS |
| B | P6191F-01 | 03/03/92 | ERK | REVISED SPECIFICATIONS |
| C | PH0563-04 | 05/10/94 | ERK | ADDED -504 |
| D | P01210-06 | 09/15/97 | PDM | RDRWN IN CATIA. ADDED NOTE 7 & SHT 3 |
| | | | | |

| DRAWN | PDM | TITLE | DRAWING NUMBER | |
|---|---|---|---|---|
| APPRV | DAJ | SHEET-STEEL, HSLA HOT ROLLED-IMPROVED FORMABILITY | 48-00722 | |
| DATE | 09/15/97 | FREIGHTLINER CORPORATION PORTLAND, OREGON | SHEET 2 OF 3 | CHG. LTR. D |
| CATIA ORIGINAL | | | | |

SPECIFICATIONS:

3. SHEET HEREIN DESCRIBED SHALL MEET OR EXCEED CHEMICAL, PHYSICAL, AND DIMENSIONAL REQUIREMENTS OF ASTM A715.

4. CHEMICAL COMPOSITION:
THE CHOICE OF ALLOYS SHALL BE AS NECESSARY TO PRODUCE THE REQUIRED MECHANICAL PROPERTIES WITH CONSIDERATION OF THE OTHER ELEMENTS AND THEIR EFFECT ON GOOD WELDABILITY AND GOOD LOW TEMPERATURE FORMING PROPERTIES. CHOICE OF THE CHEMICAL COMPOSITION SHALL BE WITHIN THE LIMITS OF TYPES 1 THRU 9 AS SPECIFIED IN TABLE 1 OF ASTM A715.

5. MINIMUM MECHANICAL PROPERTIES:

| GRADE | TENSILE STRENGTH (KSI) | YIELD STRENGTH (KSI) | ELONGATION (% IN 2 IN) | |
|---|---|---|---|---|
| | | | <.097" THICK | ≥.097" THICK |
| 50 | 60 | 50 | 22 | 24 |
| 80 | 90 | 80 | 16 | 18 |

6. RECOMMENDED BENDING PRACTICE:
THE RECOMMENDED FABRICATING PRACTICE FOR COLD FORMING THESE STEELS IS TO AVOID BENDS THAT ARE MORE SEVERE THAN THOSE SHOWN IN THE TABLE BELOW:

MINIMUM INSIDE RADIUS OF 90° COLD BENDS

| GRADE | AXIS OF BEND IN RELATION TO GRAIN FLOW ** | "T" THICKNESS | |
|---|---|---|---|
| | | UP TO .180 IN | .181 TO .250 IN |
| 50 | PARALLEL | 1.0 T | 1.5 T |
| | PERPENDICULAR | 0.5 T | 1.0 T |
| 80 | PARALLEL | 1.5 T | 2.0 T |
| | PERPENDICULAR | 1.0 T | 1.5 T |

** SEE SHEET 3

| CHG | JOB NO | DATE | BY | REVISION |
|---|---|---|---|---|
| A | PA2024-44 | 09/19/90 | ERK | REVISED & REDRAWN; SEE SHEET 1 |
| B | P6191F-01 | 03/03/92 | ERK | SEE SHEET 1 |
| C | PH0563-04 | 05/10/94 | ERK | SEE SHEET 1 |
| D | P01210-06 | 09/15/97 | PDM | SEE SHEET 1 |
| | | | | |

| DRAWN | PDM | TITLE | DRAWING NUMBER |
|---|---|---|---|
| APPRV | DAJ | SHEET-STEEL, HSLA HOT ROLLED-IMPROVED FORMABILITY | 48-00722 |
| DATE | 09/15/97 | FREIGHTLINER CORPORATION PORTLAND, OREGON | SHEET 3 OF 3 / CHG. LTR. D |
| CATIA ORIGINAL | | | |

SPECIFICATIONS:

6. CONTINUED
   ** TO TAKE ADVANTAGE OF THE SMALLER RADII ALLOWED FOR BENDING ACROSS THE GRAIN FLOW. IT IS NECESSARY TO INDICATE GRAIN FLOW DIRECTION ON THE DRAWING. WITHOUT SUCH ACTION IT IS ADVISABLE TO USE THE RADII FOR BENDING PARALLEL TO THE GRAIN FLOW.

(7.) MATERIAL TO BE SPECIFIED AND ORDERED AT MINIMUM THICKNESS, AS RECEIVED.

| CHG | JOB NO | DATE | BY | REVISION |
|---|---|---|---|---|
| A | PA2024-44 | 09/19/90 | ERK | REVISED & REDRAWN; SEE SHT 1 |
| B | P6191F-01 | 03/03/92 | ERK | SEE SHT 1 |
| C | PH0563-04 | 05/10/94 | ERK | SEE SHT 1 |
| D | P01210-06 | 09/15/97 | PDM | SEE SHT 1 |
| | | | | |

ORIENNE CHILBERG

| DRAWN | DAJ | TITLE | PART NUMBER | |
|---|---|---|---|---|
| APPRV | DAJ | BAR-FLAT, SST<br>TYPE 304, ANNEALED AND PICKLED | 48-00723 | |
| DATE | 08/25/97 | FREIGHTLINER CORPORATION<br>PORTLAND, OREGON | SHEET<br>1 OF 1 | CHG. LTR.<br>D |
| CATIA ORIGINAL | | | | |

SCOPE: THIS SPECIFICATION IDENTIFIES ANNEALED AND PICKLED TYPE 304 STAINLESS STEEL, FLAT BAR.

APPLICATION: EXCELLENT CORROSION RESISTANCE TO MANY ORGANIC AND INORGANIC ACIDS AND SALTS. RESISTANCE TO OXIDATION AND CAN BE READILY FABRICATED BY METHODS EMPLOYED WITH CARBON STEELS.

| THICKNESS INCH | WIDTH INCH | FREIGHTLINER SPECIFICATION NO. |
|---|---|---|
| 1/8 | 1/2 | 48-00723-001 |
| | 3/4 | 48-00723-002 |
| | 1 | 48-00723-003 |
| 3/8 | 3 | 48-00723-004 |
| 1/4 | 1 | 48-00723-005 |
| 1/2 | 1 1/4 | 48-00723-006 |

ENGINEERING NOTES:

1. MATERIAL - BAR HEREIN DESCRIBED SHALL MEET APPLICABLE PROVISIONS OF ASTM A276.

2. MECHANICAL PROPERTIES:

| MINIMUM PROPERTIES | | |
|---|---|---|
| TENSIL ULT. K.S.I. | YIELD K.S.I. | ELONGATION % IN 2 INCHES |
| 75 | 30 | 40 |

| CHG | JOB NO | DATE | BY | REVISION |
|---|---|---|---|---|
| D | PC4104-01 | 08/25/97 | DAJ | REVISED AND REDRAWN ON CATIA. ADDED -006. |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| DRAWN | ERK | TITLE | ITEM NUMBER |
|---|---|---|---|
| APPRV | KCB | BAR-STEEL, FLAT, LOW CARBON STRUCTURAL QUALITY, HOT ROLLED | 48-00725 |
| DATE | 06/27/89 | FREIGHTLINER CORPORATION PORTLAND, OREGON | SHEET 1 OF 4 |

SCOPE: THIS SPECIFICATION IDENTIFIES LOW CARBON STEEL FLAT BARS OF STRUCTURAL QUALITY.

APPLICATION: A GENERAL PURPOSE STEEL SUITABLE FOR MILD FORMING, MACHINING, AND WELDING.

SPECIFICATION NUMBERS:

| SIZE | | WEIGHT PER FT IN LBS. | FREIGHTLINER SPECIFICATION NUMBERS 48-00725 | |
|---|---|---|---|---|
| THICK. | WIDTH | | AS RCVD | P & O |
| 1/4 | 3/8 | .319 | - | - |
| | 1/2 | .425 | - | - |
| | 5/8 | .531 | -002 | - |
| | 3/4 | .638 | -003 | -503 |
| | 7/8 | .744 | - | - |
| | 1 | .850 | -005 | -505 |
| | 1 1/8 | .956 | - | - |
| | 1 1/4 | 1.06 | -007 | -507 |
| | 1 3/8 | 1.17 | - | - |
| | 1 1/2 | 1.28 | -009 | -509 |
| | 1 5/8 | 1.38 | - | - |
| | 1 3/4 | 1.49 | - | -511 |
| | 2 | 1.70 | -012 | -512 |
| | 2 1/4 | 1.91 | - | -513 |
| | 2 1/2 | 2.13 | - | -514 |
| | 2 3/4 | 2.34 | - | - |
| | 3 | 2.55 | - | -516 |
| | 3 1/4 | 2.76 | - | - |
| | 3 1/2 | 2.98 | - | - |
| | 3 3/4 | 3.19 | - | - |
| | 4 | 3.40 | - | -520 |
| | 4 1/4 | 3.61 | - | - |
| | 4 1/2 | 3.83 | - | - |
| | 5 | 4.25 | - | - |
| | 8 | 6.80 | -027 | -527 |
| 5/16 | 1/2 | .531 | - | -528 |
| | 5/8 | .664 | - | - |

| SIZE | | WEIGHT PER FT IN LBS. | FREIGHTLINER SPECIFICATION NUMBERS 48-00725 | |
|---|---|---|---|---|
| THICK. | WIDTH | | AS RCVD | P & O |
| 5/16 | 3/4 | .797 | - | - |
| | 7/8 | .930 | - | - |
| | 1 | 1.06 | - | - |
| | 1 1/8 | 1.20 | - | - |
| | 1 1/4 | 1.33 | - | - |
| | 1 3/8 | 1.46 | - | - |
| | 1 1/2 | 1.59 | - | - |
| | 1 3/4 | 1.86 | - | - |
| | 2 | 2.13 | -038 | -538 |
| | 2 1/4 | 2.39 | - | -539 |
| | 2 1/2 | 2.66 | - | - |
| | 2 3/4 | 2.92 | - | - |
| | 3 | 3.19 | - | - |
| | 3 1/4 | 3.45 | - | - |
| | 3 1/2 | 3.72 | -044 | - |
| | 4 | 4.25 | - | - |
| | 4 1/2 | 4.78 | - | - |
| | 5 | 5.31 | - | - |
| 3/8 | 1/2 | .638 | - | - |
| | 5/8 | .797 | - | - |
| | 3/4 | .956 | - | - |
| | 7/8 | 1.12 | - | - |
| | 1 | 1.28 | - | -556 |
| | 1 1/8 | 1.43 | - | - |
| | 1 1/4 | 1.59 | -058 | -558 |
| | 1 3/8 | 1.75 | - | - |

| CHG | JOB/RLSE NO | DATE | BY | REVISION |
|---|---|---|---|---|
| E | P9601H-02 | 12/01/92 | ERK | SEE SHEET #2 |
| F | P5786D-01 | 12/04/92 | ERK | ADDED -514 AND -597 ON SHEET #2 |
| G | P2A130-21 | 06/01/94 | ERK | SEE SHEET #2 |
| H | R00282-04 | 11/15/96 | DAJ | SEE SHEET #2 |
| J | P05193-01 | 05/19/98 | DAJ | SEE SHEET #3 |

| DRAWN | ERK | TITLE | ITEM NUMBER |
|---|---|---|---|
| APPRV | KCB | BAR-STEEL, FLAT, LOW CARBON STRUCTURAL QUALITY, HOT ROLLED | 48-00725 |
| DATE | 06/27/89 | FREIGHTLINER CORPORATION PORTLAND, OREGON | SHEET 2 OF 4 |

SPECIFICATION NUMBERS:

| SIZE | | WEIGHT PER FT IN LBS. | FREIGHTLINER SPECIFICATION NUMBERS 48-00725 | |
|---|---|---|---|---|
| THICK. | WIDTH | | AS RCVD | P & O |
| 3/8 | 1 1/2 | 1.91 | -060 | -560 |
| | 1 5/8 | 2.07 | -061 | - |
| | 1 3/4 | 2.23 | - | - |
| | 2 | 2.55 | - | -563 |
| | 2 1/4 | 2.87 | - | -564 |
| | 2 1/2 | 3.19 | - | - |
| | 2 3/4 | 3.51 | - | - |
| | 3 | 3.83 | - | -567 |
| | 3 1/4 | 4.14 | - | - |
| | 3 1/2 | 4.46 | - | - |
| | 4 | 5.10 | - | -570 |
| | 4 1/2 | 5.74 | -071 | - |
| | 5 | 6.38 | - | - |
| 7/16 | 1 | 1.49 | - | - |
| | 1 1/2 | 2.23 | - | - |
| | 2 | 2.98 | - | - |
| | 2 1/2 | 3.72 | - | - |
| | 3 | 4.46 | - | - |
| | 5 | 7.44 | - | - |
| 1/2 | 5/8 | 1.06 | - | - |
| | 3/4 | 1.28 | - | - |
| | 7/8 | 1.49 | - | -585 |
| | 1 | 1.70 | -086 | - |
| | 1 1/8 | 1.91 | - | - |
| | 1 1/4 | 2.13 | -088 | -588 |
| | 1 3/8 | 2.34 | - | - |
| | 1 1/2 | 2.55 | - | -590 |
| | 1 5/8 | 2.76 | - | - |
| | 1 3/4 | 2.98 | - | - |
| | 2 | 3.40 | - | -593 |

| SIZE | | WEIGHT PER FT IN LBS. | FREIGHTLINER SPECIFICATION NUMBERS 48-00725 | |
|---|---|---|---|---|
| THICK. | WIDTH | | AS RCVD | P & O |
| 1/2 | 2 1/4 | 3.83 | - | - |
| | 2 1/2 | 4.25 | - | - |
| | 2 3/4 | 4.68 | - | -596 |
| | 3 | 5.10 | - | -597 |
| | 3 1/4 | 5.53 | - | - |
| | 3 1/2 | 5.95 | - | - |
| | 3 3/4 | 6.38 | - | - |
| | 4 | 6.80 | - | - |
| | 4 1/2 | 7.65 | - | - |
| | 5 | 8.50 | - | - |
| 5/8 | 3/4 | 1.59 | - | - |
| | 7/8 | 1.86 | - | - |
| | 1 | 2.13 | - | -610 |
| | 1 1/8 | 2.39 | - | - |
| | 1 1/4 | 2.66 | -112 | - |
| | 1 3/8 | 2.92 | - | - |
| | 1 1/2 | 3.19 | - | - |
| | 1 5/8 | 3.45 | - | - |
| | 1 3/4 | 3.72 | - | - |
| | 2 | 4.25 | - | - |
| | 2 1/4 | 4.78 | - | - |
| | 2 1/2 | 5.31 | - | - |
| | 2 3/4 | 5.84 | - | - |
| | 3 | 6.38 | - | -621 |
| | 3 1/4 | 6.91 | - | - |
| | 3 1/2 | 7.44 | -123 | - |
| | 4 | 8.50 | - | - |
| | 4 1/2 | 9.56 | - | - |
| | 5 | 10.63 | - | - |

| CHG | JOB/RLSE NO | DATE | BY | REVISION |
|---|---|---|---|---|
| E | P9601H-02 | 12/01/92 | ERK | ADDED -570 |
| F | P5786D-01 | 12/04/92 | ERK | ADDED -597 AND -514 ON SHEET #1 |
| G | P2A130-21 | 06/01/94 | ERK | ADDED -596 |
| H | R00282-04 | 11/15/96 | DAJ | ADDED -567 |
| J | P05193-01 | 05/19/98 | DAJ | SEE SHEET #3. |

| DRAWN | ERK | TITLE | ITEM NUMBER |
|---|---|---|---|
| APPRV | KCB | BAR-STEEL, FLAT, LOW CARBON STRUCTURAL QUALITY, HOT ROLLED | 48-00725 |
| DATE | 06/27/89 | FREIGHTLINER CORPORATION PORTLAND, OREGON | SHEET 3 OF 4 |

SPECIFICATION NUMBERS:

| SIZE | | WEIGHT PER FT IN LBS. | FREIGHTLINER SPECIFICATION NUMBERS 48-00725 | |
|---|---|---|---|---|
| THICK. | WIDTH | | AS RCVD | P & O |
| 3/4 | 7/8 | 2.23 | - | - |
| | 1 | 2.55 | - | -632 |
| | 1 1/8 | 2.87 | - | -633 |
| | 1 1/4 | 3.19 | - | - |
| | 1 1/2 | 3.83 | - | -635 |
| | 1 5/8 | 4.14 | - | - |
| | 1 3/4 | 4.46 | - | - |
| | 2 | 5.10 | - | -638 |
| | 2 1/4 | 5.74 | - | - |
| | 2 1/2 | 6.38 | - | - |
| | 2 3/4 | 7.01 | - | - |
| | 3 | 7.65 | - | -642 |
| | 3 1/4 | 8.29 | - | -643 |
| | 3 1/2 | 8.93 | -144 | - |
| | 4 | 10.20 | - | - |
| | 4 1/2 | 11.48 | - | - |
| | 5 | 12.75 | - | - |
| 7/8 | 1 | 2.98 | - | - |
| | 1 1/4 | 3.72 | - | - |
| | 1 3/8 | 4.09 | - | - |
| | 1 1/2 | 4.46 | -155 | - |
| | 1 3/4 | 5.21 | - | - |
| | 2 | 5.95 | - | - |
| | 2 1/4 | 6.69 | - | - |
| | 2 1/2 | 7.44 | - | - |
| | 3 | 8.93 | - | - |
| | 3 1/2 | 10.41 | - | - |
| | 4 | 11.90 | - | - |
| | 5 | 14.88 | - | - |
| 1 | 1 1/4 | 4.25 | - | - |
| | 1 1/2 | 5.10 | - | - |
| | 1 3/4 | 5.95 | - | - |
| | 2 | 6.80 | - | - |
| | 2 1/4 | 7.65 | - | - |
| | 2 1/2 | 8.50 | - | - |
| | 2 3/4 | 9.35 | - | - |
| | 3 | 10.20 | - | - |
| | 3 1/4 | 11.05 | - | - |
| | 3 1/2 | 11.90 | - | - |
| | 4 | 13.60 | - | -678 |
| | 4 1/2 | 15.30 | - | - |
| | 5 | 17.00 | - | - |
| 1 1/8 | 2 | 7.65 | - | - |
| | 2 1/2 | 10.52 | - | - |
| | 3 | 11.48 | - | - |
| | 4 | 15.30 | - | - |
| | 5 | 19.13 | - | - |
| 1 1/4 | 1 1/2 | 6.38 | - | - |
| | 1 3/4 | 7.44 | - | -692 |
| | 2 | 8.50 | - | - |
| | 2 1/4 | 9.56 | - | - |
| | 2 1/2 | 10.63 | - | - |
| | 2 3/4 | 11.69 | - | - |
| | 3 | 12.75 | - | - |
| | 3 1/4 | 13.81 | - | - |
| | 3 1/2 | 14.88 | - | - |
| | 4 | 17.00 | - | - |
| | 4 1/2 | 19.13 | - | - |
| | 5 | 21.25 | - | - |

| CHG | JOB/RLSE NO | DATE | BY | REVISION |
|---|---|---|---|---|
| E | P9601H-02 | 12/01/92 | ERK | SEE SHEET #2 |
| F | P5786D-01 | 12/04/92 | ERK | SEE SHEET #1 AND #2 |
| G | P2A130-21 | 06/01/94 | ERK | SEE SHEET #2 |
| H | R00282-04 | 11/15/96 | DAJ | SEE SHEET #2 |
| J | P05193-01 | 05/19/98 | DAJ | SEE SHEET #3. |

| DRAWN | ERK | TITLE | ITEM NUMBER |
|---|---|---|---|
| APPRV | KCB | BAR-STEEL, FLAT, LOW CARBON STRUCTURAL QUALITY, HOT ROLLED | 48-00725 |
| DATE | 06/27/89 | FREIGHTLINER CORPORATION PORTLAND, OREGON | SHEET 4 OF 4 |

## SPECIFICATION NUMBERS:

| SIZE | | WEIGHT PER FT IN LBS. | FREIGHTLINER SPECIFICATION NUMBERS 48-00725 | |
|---|---|---|---|---|
| THICK. | WIDTH | | AS RCVD | P & O |
| 1 1/2 | 1 3/4 | 8.93 | - | - |
| | 2 | 10.20 | - | - |
| | 2 1/4 | 11.48 | - | - |
| | 2 1/2 | 12.75 | - | - |
| | 2 3/4 | 14.03 | - | - |
| | 3 | 15.30 | - | - |
| | 3 1/2 | 17.85 | - | - |
| | 4 | 20.40 | - | - |
| | 4 1/2 | 22.95 | - | - |
| | 5 | 25.50 | - | - |

## SPECIFICATIONS:

1. BARS SHALL CONFORM TO APPLICABLE PROVISIONS OF ASTM A36.

2. MINIMUM MECHANICAL PROPERTIES:

| TENSILE STRENGTH KSI | YIELD STRENGTH KSI | ELONGATION % IN 2" |
|---|---|---|
| 58-80 | 36 | 23 |

| CHG | JOB/RLSE NO | DATE | BY | REVISION |
|---|---|---|---|---|
| E | P9601H-02 | 12/01/92 | ERK | SEE SHEET #2 |
| F | P5786D-01 | 12/04/92 | ERK | SEE SHEET #1 AND #2 |
| G | P2A130-21 | 06/01/94 | ERK | SEE SHEET #2 |
| H | R00282-04 | 11/15/96 | DAJ | SEE SHEET #2 |
| J | P05193-01 | 05/19/98 | DAJ | SEE SHEET #3 |

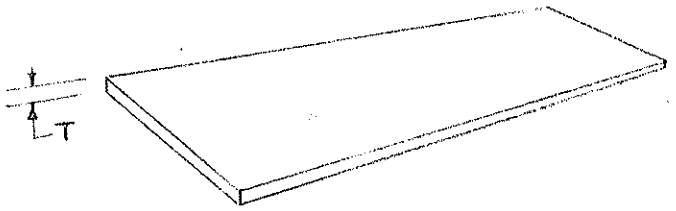
Materials Specification

| PRINT ISSUED | TITLE | PART NO. |
|---|---|---|
| 8-14-72 | PLATE, CARBON STEEL<br>FIREBOX QUALITY | 48-00726 |
| LAST CHG. LTR. A | | SHEET 1 OF 1 |

**SCOPE** This specification identifies carbon steel plate of firebox quality.

**APPLICATION** For general structural use where excellent formability and weldability are required.

**SKETCH**




**SPECIFICATION NUMBERS**

| T THICKNESS (INCHES) | FREIGHTLINER SPEC. NUMBER - 48-00726-* QUALITY GRADE ② A | B | C |
|---|---|---|---|
| 3/16 | -103 | -203 | -303 |
| 1/4 | -104 | -204 | -304 |
| 5/16 | -105 | -205 | -305 |
| 3/8 | -106 | -206 | -306 |
| 7/16 | -107 | -207 | -307 |
| 1/2 | -108 | -208 | -308 |
| 9/16 | -109 | -209 | -309 |
| 5/8 | -110 | -210 | -310 |
| 3/4 | -112 | -212 | -312 |
| 7/8 | -114 | -214 | -314 |
| 1 | -116 | -216 | -316 |
| 1-1/8 | -118 | -218 | -318 |
| 1-1/4 | -120 | -220 | -320 |
| 1-3/8 | -122 | -222 | -322 |
| 1-1/2 | -124 | -224 | -324 |
| 1-3/4 | -128 | -228 | -328 |
| 2 | -132 | -232 | -332 |

**SPECIFICATIONS**

1. This material must meet provisions of ASTM A285.
② Tensile Requirements:

| QUALITY | TENSILE STRENGTH KSI | YIELD STRENGTH KSI (MIN) | ELONGATION IN 8" % | ELONGATION IN 2" % | DASH SERIES * |
|---|---|---|---|---|---|
| GRADE A | 45-55 | 24 | 27 | 30 | 1XX |
| B | 50-60 | 27 | 25 | 28 | 2XX |
| C | 55-65 | 30 | 23 | 27 | 3XX |

| CHG | BY | DATE | WAS |
|---|---|---|---|
| A | | | |

| CHG | BY | DATE | WAS |
|---|---|---|---|
| A | RHR | 8-14-72 | Added -103,-203,-303; Job #21940 |

| | | DATE DRAWN | | | UNIT OF MEASURE |
|---|---|---|---|---|---|
| COMPILED | HJR | 8-18-71 | | | LB. |
| APPROVED | | | | | |

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Portland FREIGHTLINER CORPORATION Oregon 97208

Materials Specification

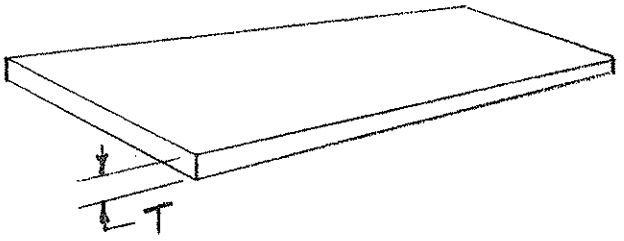
| PRINT ISSUED | TITLE | PART NO. |
|---|---|---|
| 9-13-71 | PLATE, QUENCHED & TEMPERED<br>HIGH YIELD STRENGTH ALLOY STEEL | 48-00727 |
| LAST CHG LTR | | SHEET 1 OF 1 |

| WAS | DATE | BY | CHG |
|---|---|---|---|
| | | | |

**SCOPE** This specification describes high-yield-strength, quenched and tempered alloy steel plate of structural quality, suitable for welding.

**APPLICATION** For heavy duty structural purposes where welding technique can be suitably controlled.

**SKETCH**




**SPECIFICATION NUMBERS**

| T THICKNESS (INCHES) | | FREIGHTLINER SPECIFICATION NUMBERS * |
|---|---|---|
| 3/16 | | 48-00727-003 |
| 1/4 | | -004 |
| 5/16 | | -005 |
| 3/8 | | -006 |
| 1/2 | | -008 |
| 5/8 | | -010 |
| 3/4 | | -012 |
| 1 | | -016 |
| 1-1/4 | | -020 |
| 1-1/2 | | -024 |

*Dash number is thickness in 1/16's of an inch.

**SPECIFICATIONS**

1. Must meet ASTM Standard Specification A514-68.
2. Tensile and Hardness Requirements:

| TENSILE STRENGTH KSI | YIELD STRENGTH (MIN) KSI | ELONGATION IN 2" MIN. % | BRINELL HARDNESS NUMBER |
|---|---|---|---|
| 115 -135 | 100 | 18 | 235 to 293 |

| WAS | DATE | BY | CHG |
|---|---|---|---|
| | | | |

ns

| COMPILED | HJR | DATE DRAWN | | | UNIT OF MEASURE |
|---|---|---|---|---|---|
| APPROVED | | 8-24-71 | | | LB. |

Portland FREIGHTLINER CORPORATION Oregon 97208

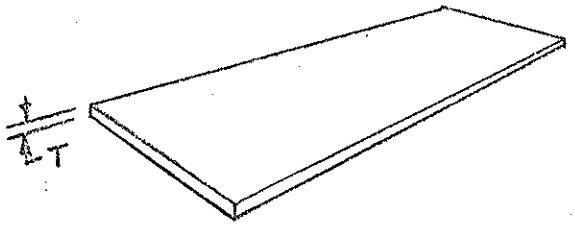
| PRINT ISSUED | | TITLE | PART NO. |
|---|---|---|---|
| | | PLATE, STEEL<br>5160 | 48-00728 |
| LAST CHG. LTR. | A | | SHEET 1 OF 1 |

| WAS | | | | | |
|---|---|---|---|---|---|
| CHG | BY | DATE | | | |
| A | HJR | 7-3-74 | Add -219: J#A0638 | | |
| — | — | — | J#A0534 | | |

SCOPE This specification identifies medium carbon chromium steel plate or strip.

APPLICATION Leaf springs, wear plates, etc.

SKETCH




SPECIFICATION NUMBERS

| T THICKNESS | | | FREIGHTLINER SPECIFICATION NUMBER |
|---|---|---|---|
| NOM. | DECIMAL | | |
| A 7/32 | .219 | | 48-00728-219 |
| ¼ | .250 | | -250 |

SPECIFICATIONS

1. Composition shall conform to pertinent provisions of SAE STD J404 for 5160 steel.
2. Design data:

| CONDITION | MACHINABILITY COLD DRAWN 1212= 100% | FORMABILITY | HARDNESS $R_B$ (REF.) | WELDABILITY | HEAT TREATMENT |
|---|---|---|---|---|---|
| Spheroidized, Annealed & Cold Drawn | 55 | Fair | 89.0-96.4 (179-217 Brinell) | No | From 1475-1550°F quench in oil to desired hardness |

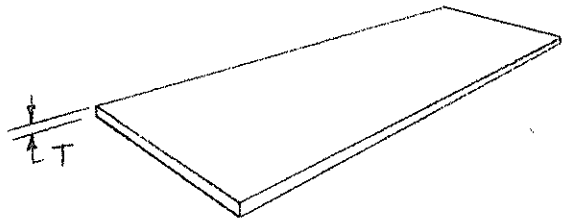
| COMPILED | HJR | DATE DRAWN | | | UNIT OF MEASURE |
|---|---|---|---|---|---|
| APPROVED | Rollins | 10-9-73 | | | LB. |

| PRINT ISSUED | | TITLE | PART NO. |
|---|---|---|---|
| | | PLATE, STEEL<br>6150 | 48-00729 |
| LAST CHG. LTR. | — | | SHEET 1 OF 1 |

SCOPE This specification identifies medium carbon chrome-vanadium steel plate or strip.

APPLICATION Leaf springs, wear plates, etc.

SKETCH




SPECIFICATION NUMBERS

| T THICKNESS | | | FREIGHTLINER SPECIFICATION NUMBER |
|---|---|---|---|
| NOM. | DECIMAL | | |
| ¼ | .250 | | 48-00729-250 |

SPECIFICATIONS

1. Composition shall conform to pertinent provisions of SAE J404 for 6150 steel.
2. Design data:

| CONDITION | MACHINABILITY COLD DRAWN 1212= 100% | FORMABILITY | HARDNESS $R_B$ (REF.) | WELDABILITY | HEAT TREATMENT |
|---|---|---|---|---|---|
| Annealed & Cold Drawn | 55 | Fair | 87.9-98.2 (183-241 Brinell) | Not Recommended | From 1550-1625°F quench in oil to desired hardness |

| COMPILED | HJR | DATE DRAWN | | | UNIT OF MEASURE |
|---|---|---|---|---|---|
| APPROVED | R. Bins | 10-9-73 | | | LB. |

Portland FREIGHTLINER CORPORATION Oregon 97208

WAS

| CHG | BY | DATE |
|---|---|---|
| | | |

WAS J#A0534

| CHG | BY | DATE |
|---|---|---|
| — | — | — |

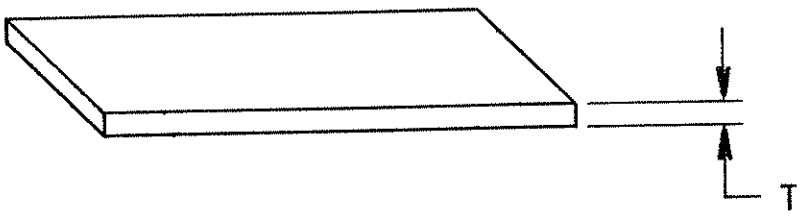
MATERIAL SPECIFICATION

| ORIGINAL JOB NO. | TITLE | PART NO. |
|---|---|---|
| 2854C | SHEET STEEL, LOW CARBON, ALUMINUM KILLED, HOT ROLLED, CONTAINING COLUMBIUM OR VANADIUM | 48-00732 |
| LAST CHG LTR | | SHEET 1 OF 1 |

SCOPE: THIS SPECIFICATION IDENTIFIES HOT ROLLED, LOW CARBON, ALUMINUM KILLED STEEL SHEET CONTAINING COLUMBIUM OR VANDIUM IN CUT LENGTHS OR COILS.

APPLICATION: FOR APPLICATIONS WHICH REQUIRE EXCELLENT FORMABILITY AND SUPERIOR SURFACE QUALITY SUCH AS BUMBERS.

SKETCH:




SPECIFICATION NUMBERS:

| T | | | | FREIGHTLINER SPECIFICATION NUMBER 48-00732 |
|---|---|---|---|---|
| GAGE NO. | INCH EQUIV | WT LB/FT$^2$ | | PICKLED AND OILED |
| 11 | .1196 | 5.000 | | -011 |

SPECIFICATIONS:

1. THE SHEET DESCRIBED HEREIN IS IDENTIFIED AS AN AISI 35XK AND MUST MEET THE REQUIREMENTS OF THAT DESIGNATION.

2. MECHANICAL PROPERTIES:

| YIELD POINT MIN PSI | TENSILE STRENGTH MIN PSI | ELONGATION % IN 2 INCHES, MIN |
|---|---|---|
| 35,000 | 47,000 | 30 |

CHANGE INFORMATION | LTR | JOB NO. | BY | DATE

CHANGE INFORMATION | TR | JOB NO. | BY | DATE

| COMPILED | FEF | DATE DRAWN | CADAM ORIGINAL | UNIT OF MEASURE | MASTER NUMBER | |
|---|---|---|---|---|---|---|
| APPROVED | | 06-12-84 | | LB | 00001 | 000D1 |

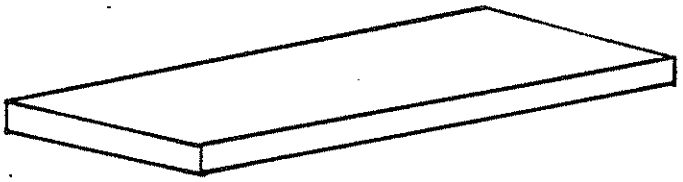
PORTLAND FREIGHTLINER CORPORATION M/F OREGON 97208

EAC-826

| ORIGINAL JOB NO. | TITLE | PART NO. |
|---|---|---|
| 8803D | STRIP STEEL<br>PRE-TEMPERED AISI 1050 | 48-00744 |
| LAST CHG LTR | | SHEET 1 OF 1 |

SCOPE: The specification identifies pretempered AISI 1050 steel strip,

APPLICATION: For components requiring increased wear resistance and high strength.



SPECIFICATION NUMBERS:

| THICKNESS | | | WT. LBS/FT. | | FREIGHTLINER SPECIFICATION NUMBER |
|---|---|---|---|---|---|
| GAUGE | INCH | WIDTH | | | |
| 19 | .0418 | 6-1/2 | .945 | | 48-00744-000 |

REQUIREMENTS:

1. Material
2. Chemical Composition

| Element | % |
|---|---|
| Carbon | 0.47 - 0.56 |
| Manganese | 0.60 - 0.90 |
| Phosphorus | 0.025 max |
| Sulfur | 0.035 max |
| Silicon | 0.15 - 0.30 |

3. Mechanical Properties

| Typical | | | Required |
|---|---|---|---|
| Ult.Tens. Str. KSI | Fld.Str. KSI | Elong. in 2" % | Hardness RC |
| 120 | 95 | 14 | 33 - 38 |

4. Finish

The strip shall possess a dark tight oxide film varying in color from gray to black.

5. Edge

A number 5 edge (burr free) is required.

7

| COMPILED | Osborne | DATE DRAWN | | | Unit of Measure |
|---|---|---|---|---|---|
| APPROVED | TJW | 03/03/87 | | | Ft. |



4-21-87

Materials Specification

| PRINT ISSUED | TITLE | PART NO |
|---|---|---|
| 9-22-71 | FLAT BAR, STEEL<br>LOW CARBON, HOT ROLLED | 48-00751 |
| LAST CHG LTR: C | | SHEET 1 OF 3 |

| CHG | BY | DATE | WAS |
|---|---|---|---|
| | | | |

| CHG | BY | DATE | WAS |
|---|---|---|---|
| A | RLR | 6-23-71 | Added Notes 2 & 3 |
| B | RWG | 9-10-71 | Added -316 |
| C | TTR | 8-4-80 | HEX TO FLAT /B1310 |

(C) SCOPE This specification identifies hot rolled, low carbon steel flat bar.

APPLICATION A general purpose steel suitable for mild forming, machining, and heat treating.

SKETCH



SPECIFICATION NUMBERS

| SIZE THICK. | SIZE WIDTH | FREIGHTLINER SPECIFICATION NUMBERS |
|---|---|---|
| 1/S | 3/8 | 48-00751-000 |
| | 1/2 | -001 |
| | 5/8 | -002 |
| | 3/4 | -003 |
| | 7/8 | -004 |
| | 1 | -005 |
| | 1-1/8 | -006 |
| | 1-1/4 | -007 |
| | 1-3/8 | -008 |
| | 1-1/2 | -009 |
| | 1-3/4 | -010 |
| | 2 | -011 |
| | 2-1/4 | -012 |
| | 2-1/2 | -013 |
| | 2-3/4 | -014 |
| | 2-3/4 | -015 |
| | 3 | -016 |
| | 3-1/4 | -017 |
| | 3-1/2 | -018 |
| | 4 | -019 |
| | 4-1/2 | -020 |
| | 5 | -021 |
| | 5-1/2 | -022 |
| | 6 | -023 |
| | 7 | -024 |
| | 8 | -025 |
| | 9 | -026 |
| | 10 | -027 |
| | 11 | -028 |
| | 12 | -029 |
| 3/16 | 3/8 | -030 |
| | 1/2 | -031 |
| | 5/8 | -032 |
| | 3/4 | -033 |

| SIZE THICK. | SIZE WIDTH | FREIGHTLINER SPECIFICATION NUMBERS |
|---|---|---|
| 3/16 | 7/8 | 48-00751-034 |
| | 1 | -035 |
| | 1-1/8 | -036 |
| | 1-1/4 | -037 |
| | 1-3/8 | -038 |
| | 1-1/2 | -039 |
| | 1-3/4 | -040 |
| | 2 | -041 |
| | 2-1/4 | -042 |
| | 2-1/2 | -043 |
| | 2-3/4 | -044 |
| | 3 | -045 |
| | 3-1/4 | -046 |
| | 3-1/2 | -047 |
| | 4 | -048 |
| | 4-1/2 | -049 |
| | 5 | -050 |
| | 5-1/2 | -051 |
| | 6 | -052 |
| | 7 | -053 |
| | 8 | -054 |
| | 9 | -055 |
| | 10 | -056 |
| | 12 | -057 |
| 1/4 | 3/8 | -058 |
| | 1/2 | -059 |
| | 5/8 | -060 |
| | 3/4 | -061 |
| | 7/8 | -062 |
| | 1 | -063 |
| | 1-1/8 | -064 |
| | 1-1/4 | -065 |
| | 1-3/8 | -066 |
| | 1-1/2 | -067 |

| SIZE THICK. | SIZE WIDTH | FREIGHTLINER SPECIFICATION NUMBERS |
|---|---|---|
| 1/4 | 1-5/8 | 48-00751-068 |
| | 1-3/4 | -069 |
| | 2 | -070 |
| | 2-1/4 | -071 |
| | 2-1/2 | -072 |
| | 2-3/4 | -073 |
| | 3 | -074 |
| | 3-1/4 | -075 |
| | 3-1/2 | -076 |
| | 3-3/4 | -077 |
| | 4 | -078 |
| | 4-1/4 | -079 |
| | 4-1/2 | -080 |
| | 5 | -081 |
| | 5-1/2 | -082 |
| | 6 | -083 |
| | 7 | -084 |
| | 8 | -085 |
| 5/16 | 1/2 | -086 |
| | 5/8 | -087 |
| | 3/4 | -088 |
| | 7/8 | -089 |
| | 1 | -090 |
| | 1-1/8 | -091 |
| | 1-1/4 | -092 |
| | 1-3/8 | -093 |
| | 1-1/2 | -094 |
| | 1-3/4 | -095 |
| | 2 | -096 |
| | 2-1/4 | -097 |
| | 2-1/2 | -098 |
| | 2-3/4 | -099 |
| | 3 | -100 |
| | 3-1/4 | -101 |

Continued....

| COMPILED | RLR | DATE DRAWN | | | UNIT OF MEASURE |
|---|---|---|---|---|---|
| APPROVED | | 4-29-71 | | | FT. |

Portland FREIGHTLINER CORPORATION Oregon 97208

E-183

Materials Specification

| PRINT ISSUED | TITLE | PART NO. |
|---|---|---|
| 9-23-71 | FLAT BAR, STEEL<br>LOW CARBON, HOT ROLLED | 48-00751 |
| LAST CHG LTR: C | | SHEET 2 OF 3 |

SPECIFICATION NUMBERS (Cont'd)

| SIZE THICK. | SIZE WIDTH | FREIGHTLINER SPECIFICATION NUMBERS |
|---|---|---|
| 5/16 | 3-1/2 | 48-00751-102 |
| | 4 | -103 |
| | 4-1/2 | -104 |
| | 5 | -105 |
| | 5-1/2 | -106 |
| | 6 | -107 |
| | 7 | -108 |
| | 8 | -109 |
| 3/8 | 1/2 | -110 |
| | 5/8 | -111 |
| | 3/4 | -112 |
| | 7/8 | -113 |
| | 1 | -114 |
| | 1-1/8 | -115 |
| | 1-1/4 | -116 |
| | 1-3/8 | -117 |
| | 1-1/2 | -118 |
| | 1-5/8 | -119 |
| | 1-3/4 | -120 |
| | 2 | -121 |
| | 2-1/4 | -122 |
| | 2-1/2 | -123 |
| | 2-3/4 | -124 |
| | 3 | -125 |
| | 3-1/4 | -126 |
| | 3-1/2 | -127 |
| | 4 | -128 |
| | 4-1/2 | -129 |
| | 5 | -130 |
| | 5-1/2 | -131 |
| | 6 | -132 |
| | 7 | -133 |
| | 8 | -134 |
| 7/16 | 3/4 | -135 |
| | 1 | -136 |
| | 1-1/2 | -137 |
| | 2 | -138 |
| | 2-1/2 | -139 |
| | 3 | -140 |
| | 4-1/2 | -141 |
| | 5 | -142 |

| SIZE THICK. | SIZE WIDTH | FREIGHTLINER SPECIFICATION NUMBERS |
|---|---|---|
| 1/2 | 5/8 | 48-00751-143 |
| | 3/4 | -144 |
| | 7/8 | -145 |
| | 1 | -146 |
| | 1-1/8 | -147 |
| | 1-1/4 | -148 |
| | 1-3/8 | -149 |
| | 1-1/2 | -150 |
| | 1-5/8 | -151 |
| | 1-3/4 | -152 |
| | 2 | -153 |
| | 2-1/4 | -154 |
| | 2-1/2 | -155 |
| | 2-3/4 | -156 |
| | 3 | -157 |
| | 3-1/4 | -158 |
| | 3-1/2 | -159 |
| | 3-3/4 | -160 |
| | 4 | -161 |
| | 4-1/2 | -162 |
| | 5 | -163 |
| | 5-1/2 | -164 |
| | 6 | -165 |
| | 7 | -166 |
| | 8 | -167 |
| 5/8 | 3/4 | -168 |
| | 7/8 | -169 |
| | 1 | -170 |
| | 1-1/8 | -171 |
| | 1-1/4 | -172 |
| | 1-3/8 | -173 |
| | 1-1/2 | -174 |
| | 1-5/8 | -175 |
| | 1-3/4 | -176 |
| | 2 | -177 |
| | 2-1/4 | -178 |
| | 2-1/2 | -179 |
| | 2-3/4 | -180 |
| | 3 | -181 |
| | 3-1/4 | -182 |
| | 3-1/2 | -183 |

| SIZE THICK. | SIZE WIDTH | FREIGHTLINER SPECIFICATION NUMBERS |
|---|---|---|
| 5/8 | 4 | 48-00751-184 |
| | 4-1/2 | -185 |
| | 5 | -186 |
| | 5-1/2 | -187 |
| | 6 | -188 |
| | 7 | -189 |
| | 8 | -190 |
| 3/4 | 7/8 | -191 |
| | 1 | -192 |
| | 1-1/8 | -193 |
| | 1-1/4 | -194 |
| | 1-1/2 | -195 |
| | 1-5/8 | -196 |
| | 1-3/4 | -197 |
| | 2 | -198 |
| | 2-1/4 | -199 |
| | 2-1/2 | -200 |
| | 2-3/4 | -201 |
| | 3 | -202 |
| | 3-1/4 | -203 |
| | 3-1/2 | -204 |
| | 4 | -205 |
| | 4-1/2 | -206 |
| | 5 | -207 |
| | 5-1/2 | -208 |
| | 6 | -209 |
| | 7 | -210 |
| | 8 | -211 |
| 7/8 | 1 | -212 |
| | 1-1/4 | -213 |
| | 1-3/8 | -214 |
| | 1-1/2 | -215 |
| | 1-3/4 | -216 |
| | 2 | -217 |
| | 2-1/4 | -218 |
| | 2-1/2 | -219 |
| | 3 | -220 |
| | 3-1/2 | -221 |
| | 4 | -222 |
| | 5 | -223 |
| | 5-1/2 | -224 |

Continued....

| CHG | DATE | BY | WAS |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

| CHG | BY | DATE | WAS |
|---|---|---|---|
| A | RLR | 6-23-71 | Added Notes 2 & 3 |
| B | RWC | 9-10-71 | Added -316 |
| C | TTR | 8-4-80 | SEE SHT 1 /B/3/0 |

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| COMPILED | RLR | DATE DRAWN | | | UNIT OF MEASURE |
|---|---|---|---|---|---|
| APPROVED | [illegible] | 4-29-71 | | | |

Portland FREIGHTLINER CORPORATION Oregon 97208

B C

F-183

Materials Specification

| PRINT ISSUED | TITLE | PART NO. |
|---|---|---|
| 9-23-71 | FLAT BAR, STEEL<br>LOW CARBON, HOT ROLLED | 48-00751 |
| LAST CHG LTR C | | SHEET 3 OF 3 |

SPECIFICATION NUMBERS (Cont'd)

| SIZE THICK. | SIZE WIDTH | FREIGHTLINER SPECIFICATION NUMBERS |
|---|---|---|
| 7/8 | 6 | 48-00751-225 |
| | 7 | -226 |
| | 8 | -227 |
| 1 | 1-1/4 | -228 |
| | 1-1/2 | -229 |
| | 1-3/4 | -230 |
| | 2 | -231 |
| | 2-1/4 | -232 |
| | 2-1/2 | -233 |
| | 2-3/4 | -234 |
| | 3 | -235 |
| | 3-1/4 | -236 |
| | 3-1/2 | -237 |
| | 4 | -238 |
| | 4-1/2 | -239 |
| | 5 | -240 |
| | 5-1/2 | -241 |
| | 6 | -242 |
| | 7 | -243 |
| | 8 | -244 |
| 1-1/8 | 2 | -245 |
| | 2-1/2 | -246 |
| | 3 | -247 |
| | 3-1/2 | -248 |
| | 4 | -249 |
| | 5 | -250 |
| | 6 | -251 |
| 1-1/4 | 1-1/2 | -252 |
| | 1-3/4 | -253 |
| | 2 | -254 |
| | 2-1/4 | -255 |
| | 2-1/2 | -256 |

| SIZE THICK. | SIZE WIDTH | FREIGHTLINER SPECIFICATION NUMBERS |
|---|---|---|
| 1-1/4 | 2-3/4 | 48-00751-257 |
| | 3 | -258 |
| | 3-1/4 | -259 |
| | 3-1/2 | -260 |
| | 4 | -261 |
| | 4-1/2 | -262 |
| | 5 | -263 |
| | 5-1/2 | -264 |
| | 6 | -265 |
| | 7 | -266 |
| | 8 | -267 |
| 1-1/2 | 1-3/4 | -268 |
| | 2 | -269 |
| | 2-1/4 | -270 |
| | 2-1/2 | -271 |
| | 2-3/4 | -272 |
| | 3 | -273 |
| | 3-1/2 | -274 |
| | 4 | -275 |
| | 4-1/2 | -276 |
| | 5 | -277 |
| | 5-1/2 | -278 |
| | 6 | -279 |
| | 7 | -280 |
| | 8 | -281 |
| 1-3/4 | 2 | -282 |
| | 2-1/2 | -283 |
| | 2-3/4 | -284 |
| | 3 | -285 |
| | 3-1/2 | -286 |
| | 4 | -287 |
| | 4-1/2 | -288 |

| SIZE THICK. | SIZE WIDTH | FREIGHTLINER SPECIFICATION NUMBERS |
|---|---|---|
| 1-3/4 | 5 | 48-00751-289 |
| | 5-1/2 | -290 |
| | 6 | -291 |
| 2 | 2-1/4 | -292 |
| | 2-1/2 | -293 |
| | 3 | -294 |
| | 3-1/2 | -295 |
| | 4 | -296 |
| | 4-1/2 | -297 |
| | 5 | -298 |
| | 6 | -299 |
| | 7 | -300 |
| | 8 | -301 |
| 2-1/4 | 3 | -302 |
| | 4 | -303 |
| 2-1/2 | 3 | -304 |
| | 3-1/2 | -305 |
| | 4 | -306 |
| | 4-1/2 | -307 |
| | 5 | -308 |
| | 6 | -309 |
| 3 | 4 | -310 |
| | 4-1/2 | -311 |
| | 5 | -312 |
| | 6 | -313 |
| | 4 | -314 |
| | 6 | -315 |
| 1-1/8 | 4-1/2 | -316 |

SPECIFICATIONS

1. Bars herein described shall conform to applicable provisions of ASTM A576.
2. Typical industry designations: SAE 1020, AISI 1020
3. Mechanical Properties:

| Typical Properties | | |
|---|---|---|
| Tensile Ult. ksi | Yield ksi | Elongation % in 2 inches |
| 63 | 35 | 38 |

| CHG | BY | DATE | |
|---|---|---|---|
| | | | WAS |
| | | | |
| | | | |
| | | | |
| | | | |

| CHG | BY | DATE | |
|---|---|---|---|
| A | RLR | 6-23-71 | Added Notes 2 & 3 |
| B | RWG | 9-10-71 | Added -316 |
| C | TTR | 8-4-80 | SEE SHT 1 / 8/3/10 |

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| | | DATE DRAWN | | | UNIT OF MEASURE |
|---|---|---|---|---|---|
| COMPILED | RLR | 4-29-71 | | | FT. |
| APPROVED | | | | | |

Portland FREIGHTLINER CORPORATION Oregon 97208

48-00752

Materials Specification

| PRINT ISSUED | TITLE | PART NO |
|---|---|---|
| 7/19/71 | FLAT BAR, STEEL<br>MEDIUM CARBON, HOT ROLLED | 48-00752 |
| LAST CHG LTR: A | | SHEET 1 OF 1 |

| CHG | BY | DATE | WAS |
|---|---|---|---|
| | | | |

| CHG | BY | DATE | WAS |
|---|---|---|---|
| A | RLR | 6-24-71 | Added Notes 2 & 3 |

**SCOPE** This specification identifies hot rolled, midium carbon, steel flat bar.

**APPLICATION** Medium carbon steel is used when greater strength and hardness is desired. Can be hammer forged and responds to heat treatment. Typical uses include gears, shafts, axles, bolts, and studs.

**SKETCH**



**SPECIFICATION NUMBERS**

| SIZE THICK. | SIZE WIDTH | FREIGHTLINER SPECIFICATION NUMBERS |
|---|---|---|
| 1/4 | 1 | 48-00752-000 |
| | 1-1/4 | -001 |
| | 1-1/2 | -002 |
| | 2 | -003 |
| | 2-1/2 | -004 |
| | 3 | -005 |
| | 4 | -006 |
| | 5 | -007 |
| | 6 | -008 |
| 5/16 | 1-1/2 | -009 |
| | 3 | -010 |
| 3/8 | 1-1/4 | -011 |
| | 1-1/2 | -012 |
| | 2 | -013 |
| | 2-1/2 | -014 |
| | 3 | -015 |
| | 3-1/2 | -016 |
| | 4 | -017 |
| | 5 | -018 |
| | 6 | -019 |
| 1/2 | 1 | -020 |
| | 1-1/2 | -021 |
| | 2 | -022 |
| | 2-1/2 | -023 |
| | 3 | -024 |
| 1/2 | 3-1/2 | 48-00752-025 |
| | 4 | -026 |
| | 5 | -027 |
| | 6 | -028 |
| 5/8 | 1-1/2 | -029 |
| | 2 | -030 |
| | 2-1/2 | -031 |
| | 3 | -032 |
| | 4 | -033 |
| | 5 | -034 |
| | 6 | -035 |
| 3/4 | 1-1/2 | -036 |
| | 2 | -037 |
| | 2-1/2 | -038 |
| | 3 | -039 |
| | 4 | -040 |
| | 5 | -041 |
| | 6 | -042 |
| 7/8 | 2 | -043 |
| | 3 | -044 |
| | 4 | -045 |
| 1 | 2 | -046 |
| | 2-1/2 | -047 |
| | 3 | -048 |
| | 4 | -049 |
| 1 | 5 | 48-00752-050 |
| | 6 | -051 |
| 1-1/4 | 2 | -052 |
| | 2-1/2 | -053 |
| | 3 | -054 |
| | 4 | -055 |
| | 5 | -056 |
| | 6 | -057 |
| 1-1/2 | 2 | -058 |
| | 2-1/2 | -059 |
| | 3 | -060 |
| | 4 | -061 |
| | 5 | -062 |
| | 6 | -063 |
| 2 | 2-1/2 | -064 |
| | 3 | -065 |
| | 3-1/2 | -066 |
| | 4 | -067 |
| | 5 | -068 |
| | 6 | -069 |

**SPECIFICATIONS**

1. Bars herein described shall meet applicable provisions of ASTM A576.
2. Typical industry designations: SAE 1044, 1045, AISI 1044, 1045
3. Mechanical properties:

| TYPICAL PROPERTIES | | |
|---|---|---|
| Tensile Ult. ksi | Yield ksi | Elongation Per cent in 2 inches |
| 90-98 | 59 | 24-26 |

| | | | | | |
|---|---|---|---|---|---|
| COMPILED | RLR | DATE DRAWN | | | UNIT OF MEASURE |
| APPROVED | Rad | 4-30-71 | | | FT. |

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48-00753

Materials Specification

| PRINT ISSUED | TITLE | PART NO |
|---|---|---|
| 7/19/71 | FLAT BAR, STEEL<br>HIGH CARBON, HOT ROLLED | 48-00753 |
| LAST CHG LTR: A | | SHEET 1 OF 1 |

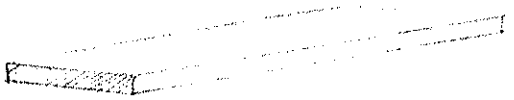
| CHG | BY | DATE | WAS |
|---|---|---|---|
| | | | |

| CHG | BY | DATE | WAS |
|---|---|---|---|
| A | RLR | 6-24-71 | Added note 2 |

**SCOPE** This specification identifies hot rolled, high carbon, steel flat bar.

**APPLICATION** High carbon spring steel can be heat-treated to spring tempers.

**SKETCH**



**SPECIFICATION NUMBERS**

| SIZE | | FREIGHTLINER SPECIFICATION NUMBERS |
|---|---|---|
| THICK. | WIDTH | |
| 1/4 | 1-3/4 | 48-00753-000 |
| | 2 | -001 |
| | 2-1/2 | -002 |
| | 3 | -003 |
| 3/8 | 1-1/2 | -004 |
| | 2-1/2 | -005 |
| | 3 | -006 |
| | 4 | -007 |
| 1/2 | 1-1/2 | -008 |
| | 2 | -009 |
| | 2-1/2 | -010 |
| | 3 | -011 |
| | 6 | -012 |
| 5/8 | 3 | -013 |

**SPECIFICATIONS**

1. Material: A.I.S.I. - 1095

2. Mechanical Properties:

| TYPICAL PROPERTIES | | |
|---|---|---|
| Tensile Ult. ksi | Yield ksi | Elongation Per cent in 2 inches |
| 142 | 83 | 8 |

| COMPILED | RLR | DATE DRAWN | | | UNIT OF MEASURE |
|---|---|---|---|---|---|
| APPROVED | | 4-30-71 | | | FT. |

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Portland FREIGHTLINER CORPORATION Oregon 97208

E-183

Materials Specification

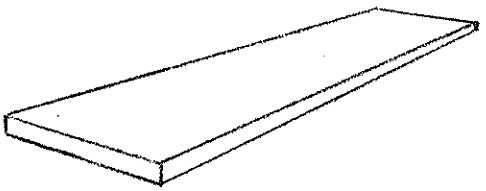
| PRINT ISSUED | | TITLE | PART NO. |
|---|---|---|---|
| | | RECTANGULAR BAR, STEEL, ALLOY 5160 | 48-00754 |
| LAST CHG. LTR | | | SHEET 1 OF 1 |

| CHG | BY | DATE | WAS |
|---|---|---|---|
| | | | |

SCOPE This specification identifies 5160 alloy steel rectangular bar.

APPLICATION Exhaust elbow springs.

SKETCH



SPECIFICATION NUMBERS

| THICKNESS | WIDTH | FREIGHTLINER SPECIFICATION NUMBER |
|---|---|---|
| 1/4 | 1-3/4 | 48-00754-010 |
| 1/2 | 3-1/2 | 48-00754-020 |

| CHG | BY | DATE | WAS |
|---|---|---|---|
| | | | |

SPECIFICATIONS

1. Material: A.I.S.I. 5160 Alloy Steel

| | | DATE DRAWN | | | Unit of Measure |
|---|---|---|---|---|---|
| COMPILED | RLR | 12-7-71 | | | Ft. |
| APPROVED | Rollins | | | | |

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Portland FREIGHTLINER CORPORATION Oregon 97208

| DRAWN | DAJ | TITLE | DRAWING NUMBER |
|---|---|---|---|
| APPRV | DAJ | BAR-STEEL, FLAT<br>LOW CARBON, HOT ROLLED | 48-00756 |
| DATE | 11/18/98 | FREIGHTLINER CORPORATION<br>PORTLAND, OREGON | SHEET 1 OF 2 / CHG. LTR. M |
| CATIA ORIGINAL | | | |

SCOPE: THIS SPECIFICATION IDENTIFIES COLD ROLLED, LOW CARBON STEEL FLAT BAR.

APPLICATION: A GENERAL PURPOSE STEEL SUITABLE FOR MILD FORMING, MACHINING, AND CARBURIZING.

SPECIFICATION NUMBERS:

| SIZE | | FREIGHTLINER SPECIFICATION NUMBER |
|---|---|---|
| THICK | WIDTH | |
| 1/8 | 3/8 | 48-00756-000 |
| | 7/16 | -318 |
| | 1/2 | - |
| | 5/8 | -002 |
| | 3/4 | - |
| | 7/8 | - |
| | 1 | -005 |
| | 1 1/8 | -006 |
| | 1 1/4 | -007 |
| | 1 3/8 | -008 |
| | 1 1/2 | - |
| | 1 3/4 | - |
| | 2 | -011 |
| | 2 1/4 | - |
| | 2 1/2 | -013 |
| | 2 3/4 | -015 |
| | 3 1/2 | -018 |
| | 4 | - |
| | 4 1/2 | -020 |
| 3/16 | 3/8 | -030 |
| | 1/2 | -031 |
| | 5/8 | -032 |
| | 3/4 | - |
| | 7/8 | -034 |
| | 1 | -035 |
| | 1 1/4 | - |
| | 1 1/2 | -039 |
| | 1 3/4 | - |
| | 2 | -041 |
| | 2 1/2 | - |
| | 3 | - |
| | 3 1/2 | - |
| | 4 | - |

| SIZE | | FREIGHTLINER SPECIFICATION NUMBER |
|---|---|---|
| THICK | WIDTH | |
| 1/4 | 3/8 | 48-00756- |
| | 1/2 | - |
| | 3/4 | -061 |
| | 7/8 | -062 |
| | 1 | -063 |
| | 1 1/4 | - |
| | 1 1/2 | -067 |
| | 1 3/4 | -069 |
| | 2 | -070 |
| | 2 1/4 | - |
| | 2 1/2 | -072 |
| | 3 | -074 |
| | 3 1/2 | -076 |
| | 4 | -078 |
| 5/16 | 1/2 | - |
| | 3/4 | -088 |
| | 7/8 | - |
| | 1 | -090 |
| | 1 1/2 | - |
| | 2 | - |
| | 3 | - |
| | 4 | - |
| 3/8 | 1/2 | -110 |
| | 5/8 | -111 |
| | 3/4 | -112 |
| | 7/8 | - |
| | 1 | -114 |
| | 1 1/4 | -116 |
| | 1 1/2 | - |
| | 2 | -121 |
| | 2 3/4 | -124 |
| | 3 | -125 |
| | 4 | - |

| SIZE | | FREIGHTLINER SPECIFICATION NUMBER |
|---|---|---|
| THICK | WIDTH | |
| 7/16 | 3/4 | 48-00756- |
| | 1 | - |
| | 1 1/2 | - |
| | 2 | -138 |
| | 3 | - |
| | 4 | - |
| 1/2 | 5/8 | - |
| | 3/4 | -144 |
| | 7/8 | - |
| | 1 | -146 |
| | 1 1/4 | - |
| | 1 1/2 | -150 |
| | 2 | - |
| | 2 1/4 | - |
| | 2 1/2 | - |
| | 1 1/2 | - |
| | 1 3/4 | - |
| | 2 | - |
| | 2 1/4 | -154 |
| | 2 1/2 | -155 |
| | 3 | - |
| | 3 1/2 | -159 |
| | 4 | -161 |
| | 5 | -163 |
| 5/8 | 3/4 | -168 |
| | 7/8 | - |
| | 1 | -170 |
| | 1 1/4 | - |
| | 1 1/2 | - |
| | 2 | - |
| | 3 | - |
| | 4 | - |

| CHG | JOB NO | DATE | BY | REVISION |
|---|---|---|---|---|
| M | PH0702-62 | 11/18/98 | DAJ | REDRAWN ON CATIA, SEE SHEET 2 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| DRAWN | DAJ | TITLE | DRAWING NUMBER | |
|---|---|---|---|---|
| APPRV | DAJ | BAR-STEEL, FLAT<br>COLD ROLLED LOW CARBON | 48-00756 | |
| DATE | 11/18/98 | FREIGHTLINER CORPORATION<br>PORTLAND, OREGON | SHEET<br>2 OF 2 | CHG. LTR.<br>M |
| CATIA ORIGINAL | | | | |

SPECIFICATION NUMBERS:

| SIZE | | FREIGHTLINER SPECIFICATION NUMBER |
|---|---|---|
| THICK | WIDTH | |
| 3/4 | 1 | 48-00756- |
| | 1 1/8 | -193 |
| | 1 1/4 | - |
| | 1 1/2 | -195 |
| | 1 3/4 | - |
| | 2 | -198 |
| | 2 1/2 | -200 |
| | 3 | - |
| | 3 1/4 | -203 |
| | 4 | -205 |
| | 5 | -207 |
| | 6 | - |
| 7/8 | 1 | - |
| | 1 1/4 | - |
| | 1 3/8 | -214 |
| | 1 1/2 | - |

| SIZE | | FREIGHTLINER SPECIFICATION NUMBER |
|---|---|---|
| THICK | WIDTH | |
| 7/8 | 2 | 48-00756- |
| | 2 1/2 | - |
| | 3 | - |
| | 4 | -222 |
| 1 | 1 1/4 | -228 |
| | 1 3/8 | -317 |
| | 1 1/2 | -229 |
| | 1 3/4 | - |
| | 2 | -231 |
| | 2 1/2 | - |
| | 2 1/4 | - |
| | 2 1/2 | -233 |
| | 3 | -235 |
| | 3 1/2 | -237 |
| | 4 | - |

| SIZE | | FREIGHTLINER SPECIFICATION NUMBER |
|---|---|---|
| THICK | WIDTH | |
| 1 1/8 | 2 | 48-00756- |
| | 3 | - |
| | 4 | - |
| 1 1/4 | 1 1/2 | - |
| | 1 3/4 | -253 |
| | 2 | -254 |
| | 3 | - |
| | 4 | - |
| 1 1/2 | 2 | -269 |
| | 3 | - |
| 2 | 3 | - |
| | 4 | - |
| 2 1/2 | 3 | -304 |
| | 4 | - |
| 3 | 4 | -310 |
| | 5 | - |

SPECIFICATIONS:

1. MASTERIAL HEREIN DESCRIBED SHALL CONFORM TO APPLICABLE PROVISIONS OF ASTM A 108 GRADE 1018.

2. ESTIMATED MINIMUM MECHANICAL PROPERTIES:

| TENSILE STRENGTH (KSI) | YIELD STRENGTH (KSI) | ELONGATION (% IN 2 INCHES) |
|---|---|---|
| 64 | 54 | 15 |

| CHG | JOB NO | DATE | BY | REVISION |
|---|---|---|---|---|
| M | PH0702-62 | 11/18/98 | DAJ | REDRAWN ON CATIA; ADDED -235 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

48-00757

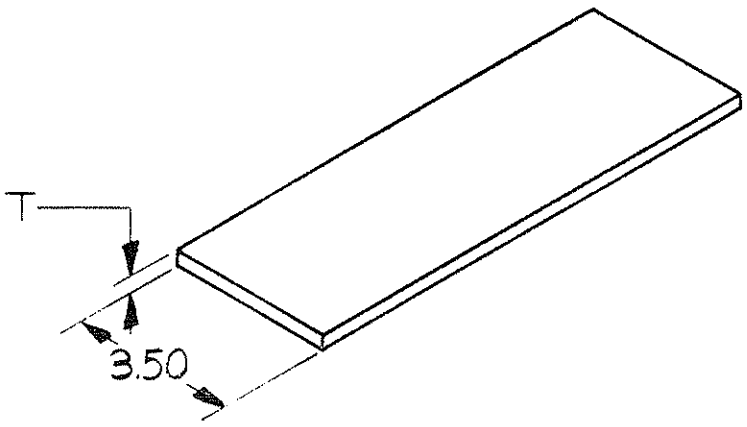
| ORIGINAL JOB NO. | TITLE | PART NO. |
|---|---|---|
| B1310 | STEEL, SPRING LEAF, 3.5" WIDE, 5160 ALLOY | 48-00757 |
| LAST CHG LTR | | SHEET 1 OF 1 |

| LTR | JOB NO. | BY | DATE | CHANGE INFORMATION |
|---|---|---|---|---|
| | | | | |

SCOPE: This specification identifies 5160 alloy steel spring stock, 3.5" wide.

APPLICATION: Suspension Spring Leaves.

SKETCH:




SPECIFICATION NUMBERS:

| THICKNESS | FREIGHTLINER SPECIFICATION NUMBER |
|---|---|
| .250 | 48-00757-250 |
| .256 | -256 |
| .323 | -323 |
| .360 | -360 |
| .401 | -401 |
| .447 | -447 |
| .500 | -500 |

| LTR | JOB NO. | BY | DATE | CHANGE INFORMATION |
|---|---|---|---|---|
| | | | | |

SPECIFICATIONS:

1. MATERIAL: AISI 5160 Alloy Steel (as received)

| | | DATE DRAWN | | | |
|---|---|---|---|---|---|
| COMPILED | TTR | | | | |
| APPROVED | D. Wilhelm | 7/15/80 | | | |



M/F

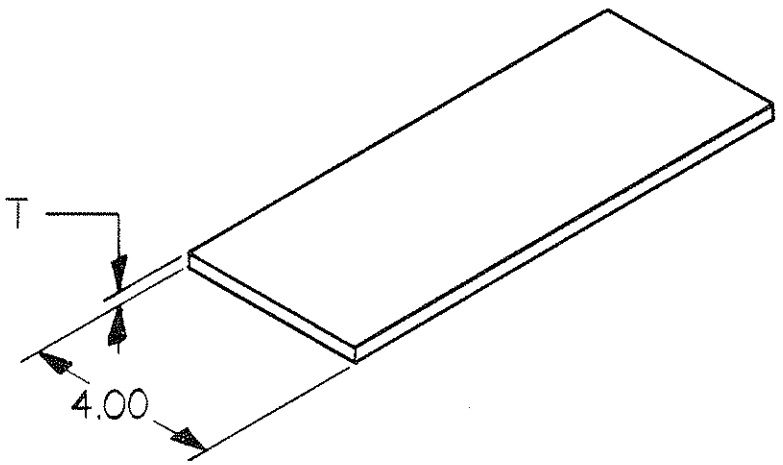
48-00758

| ORIGINAL JOB NO. | TITLE | PART NO. |
|---|---|---|
| B1310 | STEEL, SPRING LEAF, 4.0" WIDE, 5160 ALLOY | 48-00758 |
| LAST CHG LTR | | SHEET 1 OF 1 |

SCOPE: This specification identifies 5160 alloy steel spring stock, 4" wide.

APPLICATION: Suspension Spring Leaves.

SKETCH:




SPECIFICATION NUMBERS:

| THICKNESS | FREIGHTLINER SPECIFICATION NUMBER |
|---|---|
| .323 | 48-00758-323 |
| .360 | -360 |
| .401 | -401 |
| .447 | -447 |
| .499 | -499 |
| .500 | -500 |
| .558 | -558 |
| .625 | -625 |
| .750 | -750 |

SPECIFICATIONS:

1. MATERIAL: AISI 5160 Alloy Steel (as received)

| | | DATE DRAWN | | | |
|---|---|---|---|---|---|
| COMPILED | TTR | 7/15/80 | | | |
| APPROVED | | | | | |

CHANGE INFORMATION

| LTR | JOB NO. | BY | DATE | CHANGE INFORMATION |
|---|---|---|---|---|
| | | | | |

CHANGE INFORMATION

| TR | JOB NO. | BY | DATE | CHANGE INFORMATION |
|---|---|---|---|---|
| | | | | |

48-00759

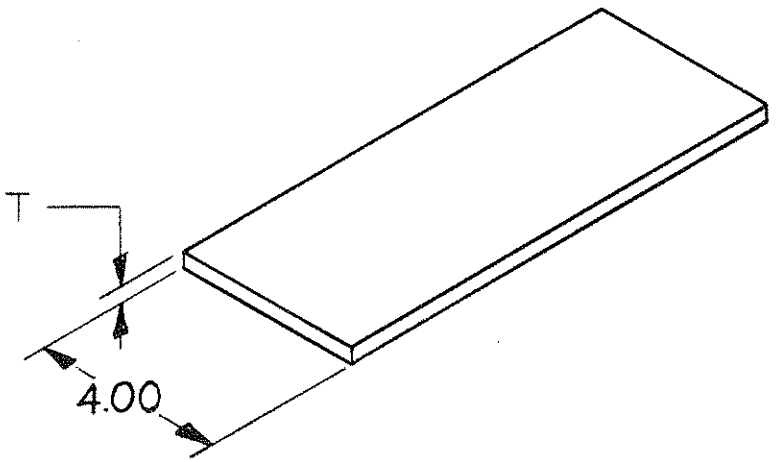
| ORIGINAL JOB NO. | TITLE | PART NO. |
|---|---|---|
| B1310 | STEEL, SPRING LEAF, 4.0" WIDE, 6150 ALLOY | 48-00759 |
| LAST CHG LTR | | SHEET 1 OF 1 |

| CHANGE INFORMATION | DATE | BY | JOB NO. | LTR |
|---|---|---|---|---|
| | | | | |

SCOPE: This specification identifies 6150 alloy steel spring stock, 4" wide.

APPLICATION: Suspension Spring Leaves.

SKETCH:




SPECIFICATION NUMBERS:

| THICKNESS | FREIGHTLINER SPECIFICATION NUMBER |
|---|---|
| .360 | 48-00759-360 |
| .401 | -401 |
| .447 | -447 |
| .558 | -558 |
| .625 | -625 |

SPECIFICATIONS:

1. MATERIAL: AISI 6150 Alloy Steel (as received)

| CHANGE INFORMATION | DATE | BY | JOB NO. | LTR |
|---|---|---|---|---|
| | | | | |

| | | | | | |
|---|---|---|---|---|---|
| COMPILED | TTR PJN | DATE DRAWN | | | |
| APPROVED | D. Wilke | 7/15/80 | | | |

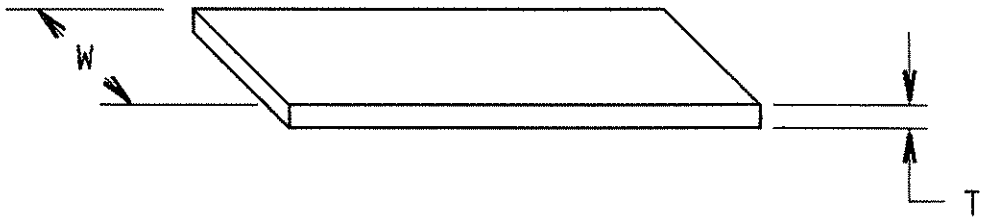
MATERIAL SPECIFICATION

| ORIGINAL JOB NO. | TITLE | PART NO. |
|---|---|---|
| 2855C | FLAT BAR, STEEL, HOT ROLLED HIGH STRENGTH/LOW ALLOY | 48-00760 |
| LAST CHG LTR | | SHEET \| OF \| |

SCOPE: THIS SPECIFICATION IDENTIFIES HIGH STRENGTH/LOW ALLOY, HOT ROLLED STRUCTURAL STEEL BAR.

APPLICATION: FOR RIVETED, BOLTED OR WELDED CONSTRUCTION WHERE HIGH STRENGTH IS REQUIRED.
SUITABLE WELDING PRACTICE SHALL BE BASED ON STEEL USED AND INTENDED SERVICE.

SKETCH:




SPECIFICATION NUMBERS:

| (T) THICKNESS | (W) WIDTH | FREIGHTLINER SPECIFICATION NUMBERS |
|---|---|---|
| 5/8 | 3.000 | 48-00760-001 |

SPECIFICATIONS:

1. BAR HEREIN DESCRIBED SHALL MEET APPLICABLE PROVISIONS OF ASTM A572, GRADE 50.

2. MECHANICAL PROPERTIES:

| | |
|---|---|
| YIELD STRENGTH | 50,000 PSI MINIMUM |
| TENSILE STRENGTH | 65,000 PSI MINIMUM |
| ELONGATION IN 2 INCHES | 21% MINIMUM |

| COMPILED | FEF | DATE DRAWN | CADAM ORIGINAL | UNIT OF MEASURE | MASTER NUMBER | |
|---|---|---|---|---|---|---|
| APPROVED | | 05-22-84 | | FT | 00001 | 000D1 |

48-00776

Materials Specification

| PRINT ISSUED | TITLE | PART NO. |
|---|---|---|
| 8/13/71 | SQUARE BAR, STEEL, LOW CARBON, HOT ROLLED | 48-00776 |
| LAST CHG LTR: A | | SHEET 1 OF 1 |

| CHG | BY | DATE | WAS |
|---|---|---|---|
| | | | |

| CHG | BY | DATE | WAS |
|---|---|---|---|
| A | RLR | 7-27-71 | Added Note 2 |

## SCOPE

This specification identifies hot rolled, low carbon steel square bar,

## APPLICATION

A general purpose steel suitable for mild forming, machining, and heat treating.

## SKETCH



## SPECIFICATION NUMBERS

| SIZE | FREIGHTLINER SPECIFICATION NUMBERS |
|---|---|
| 1/4 | 48-00776-000 |
| 3/8 | -001 |
| 7/16 | -002 |
| 1/2 | -003 |
| 9/16 | -004 |
| 5/8 | -005 |
| 3/4 | -006 |
| 7/8 | -007 |
| 1 | -008 |
| 1-1/8 | -009 |
| 1-1/4 | -010 |
| 1-3/8 | -011 |
| 1-1/2 | -012 |
| 1-5/8 | -013 |
| 1-3/4 | -014 |

| SIZE | FREIGHTLINER SPECIFICATION NUMBERS |
|---|---|
| 1-7/8 | 48-00776-015 |
| 2 | -016 |
| 2-1/4 | -017 |
| 2-1/2 | -018 |
| 2-3/4 | -019 |
| 3 | -020 |
| 3-1/4 | -021 |
| 3-1/2 | -022 |
| 3-3/4 | -023 |
| 4 | -024 |
| 4-1/2 | -025 |
| 5 | -026 |
| 6 | -027 |
| 7 | -028 |
| 8 | -029 |

## SPECIFICATIONS

1. Material: A.I.S.I. 1020
2. Mechanical Properties:

| TYPICAL PROPERTIES | | |
|---|---|---|
| TENSILE ULT. K.S.I. | YIELD K.S.I. | ELONGATION % IN 2 INCHES |
| 63 | 35 | 38 |

| COMPILED | RLR | DATE DRAWN | | | UNIT OF MEASURE |
|---|---|---|---|---|---|
| APPROVED | | 5-4-71 | | | FT. |

Portland FREIGHTLINER CORPORATION Oregon 97208

48-00777

Materials Specification

| PRINT ISSUED | TITLE | PART NO. |
|---|---|---|
| 5/19/71 | SQUARE BAR, STEEL, LOW CARBON, COLD DRAWN | 48-00777 |
| LAST CHG LTR A | | SHEET 1 OF 1 |

| CHG | BY | DATE | WAS |
|---|---|---|---|
| | | | |

| CHG | BY | DATE | WAS |
|---|---|---|---|
| A | RLR | 6-23-71 | Added Note 2 |

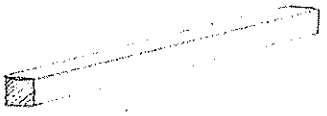
## SCOPE

This specification identifies cold drawn, low carbon steel square bar.

## APPLICATION

Has good case hardening properties, fair machinability, and is excellent for cold bending and forming operations. Readily brazed and welded.

## SKETCH



## SPECIFICATION NUMBERS

| SIZE | FREIGHTLINER SPECIFICATION NUMBERS |
|---|---|
| 1/8 | 48-00777-000 |
| 3/16 | -001 |
| 1/4 | -002 |
| 5/16 | -003 |
| 3/8 | -004 |
| 7/16 | -005 |
| 1/2 | -006 |
| 9/16 | -007 |
| 5/8 | -008 |
| 11/16 | -009 |
| 3/4 | -010 |
| 7/8 | -011 |
| 15/16 | -012 |
| 1 | -013 |
| 1-1/16 | -014 |
| 1-1/8 | -015 |
| 1-3/16 | -016 |
| 1-1/4 | -017 |
| 1-5/16 | -018 |
| 1-3/8 | -019 |
| 1-7/16 | -020 |

| SIZE | FREIGHTLINER SPECIFICATION NUMBERS |
|---|---|
| 1-1/2 | 48-00777-021 |
| 1-5/8 | -022 |
| 1-3/4 | -023 |
| 1-7/8 | -024 |
| 2 | -025 |
| 2-1/8 | -026 |
| 2-1/4 | -027 |
| 2-3/8 | -028 |
| 2-1/2 | -029 |
| 2-5/8 | -030 |
| 2-3/4 | -031 |
| 3 | -032 |
| 3-1/4 | -033 |
| 3-1/2 | -034 |
| 3-3/4 | -035 |
| 4 | -036 |
| 4-1/2 | -037 |
| 5 | -038 |
| 5-1/2 | -039 |
| 6 | -040 |

## SPECIFICATIONS

1. Material: A.I.S.I. 1018

2. Mechanical Properties:

| Typical Properties | | |
|---|---|---|
| Tensile Ult. Ksi | Yield Ksi | Elongation % in 2 inches |
| 69 | 40 | 38 |

ns

| COMPILED | RLR | DATE DRAWN | | | UNIT OF MEASURE |
|---|---|---|---|---|---|
| APPROVED | | 5-4-71 | | | FT. |

Portland FREIGHTLINER CORPORATION Oregon 97208

E-183

48-00778

Materials Specification

| PRINT ISSUED | TITLE | PART NO. |
|---|---|---|
| 8/13/71 | SQUARE BAR, STEEL, MEDIUM CARBON, COLD DRAWN | 48-00778 |
| LAST CHG LTR A | | SHEET OF |

## SCOPE

This specification identifies cold drawn, medium carbon steel square bar.

## APPLICATION

Medium carbon steel is used when greater strength and hardness is desired. Can be hammer forged and responds to heat treatment.

## SKETCH



## SPECIFICATION NUMBERS

| SIZE | FREIGHTLINER SPECIFICATION NUMBERS |
|---|---|
| 1/2 | 48-00778-000 |
| 5/8 | -001 |
| 3/4 | -002 |
| 7/8 | -003 |
| 1 | -004 |
| 1-1/8 | -005 |
| 1-1/4 | -006 |
| 1-1/2 | -007 |
| 2 | -008 |

## SPECIFICATIONS

1. Material: A.I.S.I. 1042

2. Mechanical Properties:

| Typical Properties | | |
|---|---|---|
| Tensile Ult. Ksi | Yield Ksi | Elongation % in 2 inches |
| 102 | 89 | 16 |

| CHG | BY | DATE | WAS |
|---|---|---|---|
| | | | |

| CHG | BY | DATE | WAS |
|---|---|---|---|
| A | RLR | 6-23-71 | Added Note 2 |

ns

| COMPILED | RLR | DATE DRAWN | | | UNIT OF MEASURE |
|---|---|---|---|---|---|
| APPROVED | Grd | 5-4-71 | | | FT. |

48-00779

| ORIGINAL JOB NO. | TITLE | PART NO. |
|---|---|---|
| B1182 | SQUARE BAR, STEEL, FREE MACHINING SCREW STOCK | 48-00779 |
| LAST CHG LTR C | | SHEET 1 OF 1 |

| LTR | JOB NO. | BY | DATE | CHANGE INFORMATION |
|---|---|---|---|---|
| | | | | |

| LTR | JOB NO. | BY | DATE | CHANGE INFORMATION |
|---|---|---|---|---|
| A | 7735 B | RDF | 4-12-83 | ADDED C12L14 |
| B | 6290D | FHF | 8-7-86 | REV. NOTE 1&2, ADD #3 |
| C | P*A078-57 | ERK | 09/20/88 | DWG. UPDATED |

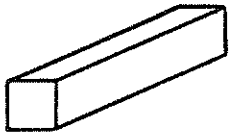
**SCOPE** This specification identifies free machining steel square bar screw stock.

**APPLICATION** Fast cutting steel used as standard screw machine stock. Machined finish is smooth and bright.

12L14

BAR. SH, SQ, ~~SQ SHK~~

**SKETCH**



**SPECIFICATION NUMBERS**

| SIZE | FREIGHTLINER SPECIFICATION NUMBER |
|---|---|
| 3/16 | 48-00779- |
| 1/4 | - |
| 5/16 | - |
| 3/8 | - |
| 7/16 | - |
| 1/2 | - |
| 9/16 | - |
| 5/8 | - |
| 11/16 | - |
| 3/4 | -009 NON-P |
| 13/16 | - |
| 7/8 | - |
| 15/16 | - |
| 1 | - |
| 1- 1/16 | - |
| 1- 1/8 | - |
| | - |
| 1- 1/4 | -017 |
| | - |

| SIZE | FREIGHTLINER SPECIFICATION NUMBER |
|---|---|
| 1- 3/8 | 48-00779- |
| | - |
| 1- 1/2 | - |
| 1- 5/8 | - |
| | - |
| 1- 3/4 | - |
| | - |
| | - |
| 2 | - |

6,7,8

**SPECIFICATIONS**

1. Bars herein described shall conform to applicable provisions of ASTM A108 Grade 12L14 or 1215.
2. Typical industry designations: SAE 12L14, AISI 12L14, SAE 1215 or AISI 1215.
3. Mechanical Properties:

| TYPICAL PROPERTIES | | |
|---|---|---|
| TENSILE ULT. KSI | YIELD KSI | ELONGATION % IN 2 INCHES |
| 76 - 83.5 | 68-72 | 14 - 18 |

| | | | | | | |
|---|---|---|---|---|---|---|
| COMPILED | FSB | DATE DRAWN | | | | UNIT OF MEASURE |
| APPROVED | | | | | | |