48-00801

Materials Specification

PRINT ISSUED	TITLE	PART NO.
3/13/71	HEX BAR, STEEL LOW CARBON, COLD DRAWN	48-00801
LAST CHG. LTR A		SHEET 1 OF 1

CHG	BY	DATE	WAS

CHG	BY	DATE	WAS
A	RLR	7-27-71	Added Notes 2&3

SCOPE

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

APPLICATION

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

SKETCH



SPECIFICATION NUMBERS

SIZE	FREIGHTLINER SPECIFICATION NUMBERS
1/4	48-00801-000
5/16	-001
3/8	-002
7/16	-003
1/2	-004
9/16	-005
5/8	-006
11/16	-007
3/4	-008
7/8	-009
1	-010
1-1/16	-011
1-1/8	-012
1-1/4	-013
1-5/16	-014
1-3/8	-015
1-1/2	-016
1-5/8	-017
1-3/4	-018
1-13/16	-019

SIZE	FREIGHTLINER SPECIFICATION NUMBERS
1-7/8	48-00801-020
2	-021
2-1/8	-022
2-1/4	-023
2-3/8	-024
2-1/2	-025
2-9/16	-026
2-5/8	-027
2-3/4	-028
3	-029
3-1/8	-030
3-1/4	-031
3-1/2	-032
3-3/4	-033
4	-034

SPECIFICATIONS

1. Bars herein described must meet applicable provisions of A.S.T.M. - A108
2. Material: A.I.S.I. 1018
3. Mechanical Properties:

TYPICAL PROPERTIES		
TENSILE ULT. K.S.I.	YIELD K.S.I.	ELONGATION % IN 2 INCHES
69	40	38

ns

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

Portland FREIGHTLINER CORPORATION Oregon 97208

48-00802

Materials Specification

PRINT ISSUED	TITLE	PART NO.
3/3/71	HEX BAR, STEEL MEDIUM CARBON, COLD DRAWN	48-00802
LAST CHG. LTR: A		SHEET 1 OF 1

SCOPE

This specification identifies cold drawn, medium carbon steel hex bars.

APPLICATION

Has advantages in strength over lower carbon steels. Important for shafting and similar uses. Good heat treatment response makes it useful for studs and special bolts.

SKETCH



SPECIFICATION NUMBERS

SIZE	FREIGHTLINER SPECIFICATION NUMBERS
1/2	48-00802-000
9/16	-001
5/8	-002
3/4	-003
7/8	-004
1	-005
1-1/8	-006
1-1/4	-007
1-5/16	-008
1-1/2	-009
1-5/8	-010
1-7/8	-011
2	-012
2-1/4	-013

SPECIFICATIONS

1. Material: A.I.S.I. - 1042
2. Mechanical Properties:

Typical Properties		
Tensile Ksi	Yield Ksi	Elongation % in 2 inches
102	89	16

CHG	BY	DATE	WAS

CHG	BY	DATE	WAS
A	RLR	6-25-71	Added Note 2

ns

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

Portland FREIGHTLINER CORPORATION Oregon 97208

48-00303

Materials Specification

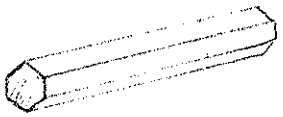
PRINT ISSUED	TITLE	PART NO.
9-1-71	HEX BAR, STEEL, FREE MACHINING SCREW STOCK	48-00803
LAST CHG. LTR		SHEET 1 OF 1

CHG	BY	DATE	WAS

SCOPE This specification identifies free machining steel hex bar screw stock.

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

SKETCH



SPECIFICATION NUMBERS

SIZE	FREIGHTLINER SPECIFICATION NUMBER
3/16	48-00803-000
1/4	-001
5/16	-002
3/8	-003
7/16	-004
1/2	-005
9/16	-006
5/8	-007
11/16	-008
3/4	-009
13/16	-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

SIZE	FREIGHTLINER SPECIFICATION NUMBER
1- 3/8	48-00803-019
1- 7/16	-020
1- 1/2	-021
1- 5/8	-022
1-11/16	-023
1- 3/4	-024
1-13/16	-025
1- 7/8	-026
2	-027
2- 1/4	-028
2- 3/8	-029
2- 1/2	-030
2- 5/8	-031
2- 3/4	-032
3	-033
3- 1/2	-034

SPECIFICATIONS

1. Typical industry designations: AISI 1213, B1113, or AISI 1215

2. Mechanical Properties:

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

ns	COMPILED	RLR	DATE DRAWN		UNIT OF MEASURE
	APPROVED		8-17-71		FT.

Portland FREIGHTLINER CORPORATION Oregon 97208

48-00804

Materials Specification

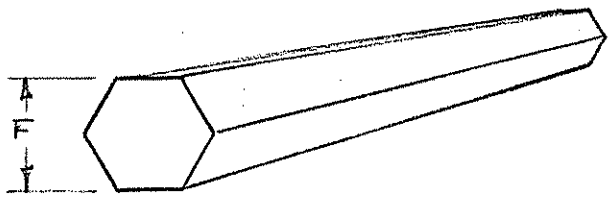
PRINT ISSUED	TITLE	PART NO.
10/13/71	HEXAGONS, STAINLESS FREE MACHINING	48-00804
LAST CHG. LTR. B		SHEET 1 OF 1

A

SCOPE This specification describes free machining hexagon stainless steel.

APPLICATION General use for machined parts such as corrosion resistant nuts, wrenchable fittings, etc.

SKETCH



SPECIFICATION NUMBERS

F SIZE INCHES	FREIGHTLINER SPECIFICATION NUMBER
5/16	48-00804-031
3/8	-038
7/16	-044
1/2	-050
9/16	-056
5/8	-062
11/16	-069
3/4	-075
7/8	-088
1	-100
1- 1/8	-112
1- 1/4	-125
1- 3/8	-138
1- 7/16	-144
1- 1/2	-150
1- 5/8	-162
1- 3/4	-175
2	-200

SPECIFICATIONS

1. Material: Annealed and Cold Drawn Free Machining Type 303 Stainless Steel per ASTM A582.
2. Ⓡ Alternate Material: Type 203 EZ. Stainless Steel.

CHG	BY	DATE	WAS

CHG	BY	DATE	WAS
A	HJR	8-24-72	Add Free Machining to Title: J#85940
A1			
B	SW	2-12-80	Added Note 2 80594

ns

		DATE DRAWN			UNIT OF MEASURE
COMPILED	HJR	10-1-71			FT.
APPROVED	[signature]				

Portland FREIGHTLINER CORPORATION Oregon 97208

B A

E-183

Materials Specification

PRINT ISSUED	TITLE	PART NO.
8/13/71	ROUND BAR, STEEL, LOW CARBON, HOT ROLLED	48-00826
LAST CHG LTR: A		SHEET 1 OF 2

SCOPE

This specification identifies hot rolled, low carbon, steel round bar.

APPLICATION

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

SKETCH



SPECIFICATION NUMBERS

SIZE	FREIGHTLINER SPECIFICATION NUMBERS
3/16	48-00826-000
1/4	-001
5/16	-002
3/8	-003
7/16	-004
1/2	-005
9/16	-006
5/8	-007
11/16	-008
3/4	-009
7/8	-010
15/16	-011
1	-012
1-1/16	-013
1-1/8	-014
1-3/16	-015
1-1/4	-016
1-5/16	-017
1-3/8	-018
1-1/2	-019

SIZE	FREIGHTLINER SPECIFICATION NUMBERS
1-5/8	48-00826-020
1-3/4	-021
1-7/8	-022
2	-023
2-1/8	-024
2-1/4	-025
2-3/8	-026
2-1/2	-027
2-5/8	-028
2-3/4	-029
2-7/8	-030
3	-031
3-1/8	-032
3-1/4	-033
3-3/8	-034
3-1/2	-035
3-5/8	-036
3-3/4	-037
4	-038
4-1/8	-039

SIZE	FREIGHTLINER SPECIFICATION NUMBERS
4-1/4	48-00826-040
4-3/8	-041
4-1/2	-042
4-5/8	-043
4-3/4	-044
5	-045

SPECIFICATIONS

1. Bar herein described shall conform to applicable provisions of A.S.T.M. - A576.
2. Typical industry designations: SAE 1020, AISI 1020

		DATE DRAWN			UNIT OF MEASURE
COMPILED	RLR	5-5-71			FT.
APPROVED	[signature]				

Portland FREIGHTLINER CORPORATION Oregon 97208

E-183

CHG	BY	DATE	WAS

CHG	BY	DATE	WAS
A	RLR	6-25-71	Added Note 2 & 3 and Sheet 2

48-00826

Materials Specification

PRINT ISSUED	TITLE	PART NO.
3/13/71	ROUND BAR, STEEL, LOW CARBON, HOT ROLLED	48-00826
LAST CHG LTR: A		SHEET 2 OF 2

SPECIFICATIONS (Cont'd)

3. Mechanical Properties:

Typical Properties		
Tensile Ult. Ksi	Yield Ksi	Elongation % in 2 inches
63	35	38

CHG	BY	DATE	WAS

CHG	BY	DATE	WAS
A	RLR	6-25-71	Added Note 2 & 3 and Sheet 2

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

Portland FREIGHTLINER CORPORATION Oregon 97208

A

E-183

48-00827

Materials Specification

PRINT ISSUED	TITLE	PART NO.
5/5/71	ROUND BAR, STEEL, MEDIUM CARBON, HOT ROLLED	48-00827
LAST CHG LTR: A		SHEET 1 OF 2

CHG	BY	DATE	WAS

CHG	BY	DATE	WAS
A	RLR	6-25-71	Added Notes 2 & 3 to Sht. 2

SCOPE

This specification identifies hot rolled, medium carbon steel round 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	FREIGHTLINER SPECIFICATION NUMBERS
3/8	48-00827-000
1/2	-001
5/8	-002
3/4	-003
7/8	-004
15/16	-005
1	-006
1-1/8	-007
1-1/4	-008
1-3/8	-009
1-1/2	-010
1-5/8	-011
1-3/4	-012
1-7/8	-013
2	-014
2-1/8	-015
2-1/4	-016
2-3/8	-017
2-1/2	-018
2-5/8	-019
2-3/4	-020
2-7/8	-021
3	-022

SIZE	FREIGHTLINER SPECIFICATION NUMBERS
3-1/8	48-00827-023
3-1/4	-024
3-3/8	-025
3-1/2	-026
3-5/8	-027
3-3/4	-028
3-7/8	-029
4	-030
4-1/8	-031
4-1/4	-032
4-3/8	-033
4-1/2	-034
4-5/8	-035
4-3/4	-036
5	-037
5-1/4	-038
5-1/2	-039
5-3/4	-040
6	-041
6-1/4	-042
6-1/2	-043
6-3/4	-044
7	-045

SIZE	FREIGHTLINER SPECIFICATION NUMBERS
7-1/4	48-00827-046
7-1/2	-047
7-3/4	-048
8	-049
8-1/4	-050
8-1/2	-051
8-3/4	-052
9	-053
9-1/4	-054
9-1/2	-055
9-3/4	-056
10	-057
10-1/8	-058
10-1/4	-059
10-1/2	-060
11	-061
11-1/4	-062
11-1/2	-063
12	-064
12-1/4	-065

SPECIFICATIONS

1. Bars herein described shall conform to applicable provisions of A.S.T.M. - A576.

ns

COMPILED	RLR	DATE DRAWN			UNIT OF MEASURE
APPROVED	[illegible]	5-5-71			FT.

48-00827

Materials Specification

PRINT ISSUED	TITLE	PART NO.
8/13/71	ROUND BAR, STEEL, MEDIUM CARBON, HOT ROLLED	48-00827
LAST CHG LTR: A		SHEET 2 OF 2

SPECIFICATIONS (Cont'd)

2. Typical industry designations: SAE 1045, AISI 1045
3. Mechanical Properties:

Typical Properties		
Tensile Ult. Ksi	Yield Ksi	Elongation % in 2 inches
98	59	24

CHG	BY	DATE	WAS

CHG	BY	DATE	WAS
A	RLR	6-25-71	Added notes 2 & 3 and sheet 2

COMPILED	RLR	DATE DRAWN			UNIT OF MEASURE
APPROVED	[signature]	5-5-71			FT.

Portland FREIGHTLINER CORPORATION Oregon 97208

A

Materials Specification

PRINT ISSUED	TITLE	PART NO.
8/13/71	ROUND BAR, STEEL, HIGH CARBON, HOT ROLLED	48-00828
LAST CHG. LTR A		SHEET 1 OF 1

CHG	BY	DATE	WAS

SCOPE

This specification identifies hot rolled, high carbon steel round bar.

APPLICATION

High carbon spring steel, Can be heat treated to spring tempers.

SKETCH



SPECIFICATION NUMBERS

SIZE	FREIGHTLINER SPECIFICATION NUMBERS
3/8 1/2	48-00828-000 -001

CHG	BY	DATE	WAS
A	RLR	6-28-71	Added Note 2

SPECIFICATIONS

1. Material: A.I.S.I. 1095
2. Mechanical Properties:

Typical Properties		
Tensile Ult. Ksi	Yield Ksi	Elongation % in 2 inches
142	83	8

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

Portland FREIGHTLINER CORPORATION Oregon 97208

E-183

48-00829

Materials Specification

PRINT ISSUED	TITLE	PART NO.
8/13/71	ROUND BAR, STEEL LOW CARBON, COLD FINISHED	48-00829
LAST CHG LTR B		SHEET 1 OF 2

CHG	BY	DATE	WAS

CHG	BY	DATE	WAS
A	RLR	6-25-71	Added Notes 2 & 3 to Sht. 2
B	HJR	7-11-73	See Sht 2; J #A0502

SCOPE This specification identifies cold finished, low carbon steel round bars.

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

SKETCH



SPECIFICATION NUMBERS

SIZE	FREIGHTLINER SPECIFICATION NUMBERS
1/8	48-00829-000
5/32	-001
3/16	-002
1/4	-003
5/16	-004
11/32	-005
3/8	-006
13/32	-007
7/16	-008
1/2	-009
33/64	-010
9/16	-011
5/8	-012
11/16	-013
3/4	-014
13/16	-015
7/8	-016
15/16	-017
1	-018
1- 1/16	-019
1- 1/8	-020
1- 3/16	-021
1- 1/4	-022
1- 5/16	-023
1- 3/8	-024
1- 7/16	-025
1- 1/2	-026
1- 9/16	-027
1- 5/8	-028
1-11/16	-029
1- 3/4	-030
1-13/16	-031
1- 7/8	-032

SIZE	FREIGHTLINER SPECIFICATION NUMBERS
1-15/16	48-00829-033
2	-034
2- 1/16	-035
2- 1/8	-036
2- 3/16	-037
2- 1/4	-038
2- 5/16	-039
2- 3/8	-040
2- 7/16	-041
2- 1/2	-042
2- 9/16	-043
2- 5/8	-044
2-11/16	-045
2- 3/4	-046
2-13/16	-047
2- 7/8	-048
2-15/16	-049
3	-050
3- 1/16	-051
3- 1/8	-052
3- 3/16	-053
3- 1/4	-054
3- 3/8	-055
3- 7/16	-056
3- 1/2	-057
3- 9/16	-058
3- 5/8	-059
3-11/16	-060
3- 3/4	-061
3- 7/8	-062
3-15/16	-063
4	-064
4- 1/8	-065

SIZE	FREIGHTLINER SPECIFICATION NUMBERS
4- 3/16	48-00829-066
4- 1/4	-067
4- 3/8	-068
4- 7/16	-069
4- 1/2	-070
4- 9/16	-071
4- 5/8	-072
4-11/16	-073
4- 3/4	-074
4-15/16	-075
5	-076
5- 1/8	-077
5- 1/4	-078
5- 3/8	-079
5- 7/16	-080
5- 1/2	-081
5- 5/8	-082
5- 3/4	-083
5- 7/8	-084
5-15/16	-085
6	-086
6- 1/4	-087
6- 3/8	-088
6- 1/2	-089
6- 3/4	-090
7	-091
7- 1/2	-092
8	-093
9	-094
10	-095
12	-096

SPECIFICATIONS

1. Bars herein described must conform to ASTM A-108.

ns

COMPILED	RLR	DATE DRAWN			UNIT OF MEASURE
APPROVED		5-6-71			FT.

Portland FREIGHTLINER CORPORATION Oregon 97208

40-00829

Materials Specification

PRINT ISSUED	TITLE	PART NO
3/13/71	ROUND BAR, STEEL LOW CARBON, COLD FINISHED	48-00829
LAST CHG LTR: B		SHEET 2 OF 2

SPECIFICATIONS (Cont'd)

2. Typical industry designations: SAE 1018, AISI 1018
3. Mechanical Properties:

Typical Properties		
Tensile Ult. Ksi	Yield Ksi	Elongation % in 2 inches
64	54	15

CHG	BY	DATE	WAS

CHG	BY	DATE	WAS
A	RLR	6-25-71	Added Notes 2 & 3 and Sht 2.
B	HJR	7-11-73	U82; Y70; E20; J#A0502

COMPILED	RLR	DATE DRAWN			UNIT OF MEASURE
APPROVED		5-6-71			FT.

Portland FREIGHTLINER CORPORATION Oregon 97208

A

DRAWN	RDF	TITLE	ITEM NUMBER
APPRV	KCB	BAR-STEEL, ROUND MEDIUM CARBON, COLD FINISHED	48-00830
DATE	07/12/90	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 1

SCOPE: THIS SPECIFICATION IDENTIFIES COLD FINISHED, MEDIUM CARBON, ROUND STEEL BAR.

APPLICATION: 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.

SPECIFICATION NUMBERS:

SIZE	FREIGHTLINER SPECIFICATION NUMBER
3/16	48-00830-
1/4	-
5/16	-002
3/8	-003
7/16	-004
1/2	-005
9/16	-
5/8	-
11/16	-
3/4	-009
13/16	-
7/8	-012
15/16	-
1	-015
1-1/16	-
1-1/8	-018
1-3/16	-
1-1/4	-020
1-5/16	-

SIZE	FREIGHTLINER SPECIFICATION NUMBER
1-3/8	48-00830-
1-7/16	-
1-1/2	-025
1-9/16	-
1-5/8	-
1-11/16	-
1-3/4	-029
1-13/16	-
1-7/8	-
1-15/16	-
2	-033
2-1/8	-
2-3/16	-
2-1/4	-036
2-5/16	-
2-3/8	-
2-7/16	-
2-1/2	-
2-5/8	-
2-11/16	-

SIZE	FREIGHTLINER SPECIFICATION NUMBER
2-3/4	48-00830-
2-7/8	-
2-15/16	-
3	-
3-1/8	-
3-3/16	-
3-1/4	-
3-3/8	-
3-7/16	-
3-1/2	-
3-5/8	-
3-11/16	-
3-3/4	-
3-7/8	-
3-15/16	-
4	-
4-1/8	-
4-1/4	-
4-3/8	-
4-7/16	-

SPECIFICATIONS:

1. MATERIAL: COLD FINISHED, MEDIUM CARBON, ROUND, STEEL BAR, AISI 1045.
2. MATERIAL MUST CONFORM TO APPLICABLE PROVISIONS OF ASTM A108.
3. TYPICAL MECHANICAL PROPERTIES

TENSILE STRENGTH KSI	YIELD STRENGTH KSI	ELONGATION % IN 2 IN.
91	77	12

CHG	JOB/RLSE NO	DATE	BY	REVISION
D	PH0405-01	07/20/90	RDF	REVISED & REDRAWN, ADD -012,-018; RMVD -057, 31/32

48-00831

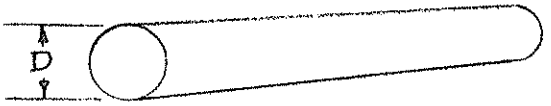
Materials Specification

PRINT ISSUED	TITLE	PART NO.
9/13/71	ROUNDS, LOW CARBON STEEL COLD FINISHED, CASE HARDENING AISI 1117	48-00831
LAST CHG LTR.		SHEET OF

SCOPE This specification describes cold finished case hardening, low carbon, high manganese, steel rounds.

APPLICATION General use; good machinability and excellent case hardening properties; withstands bending, broaching and most deforming without cracking.

SKETCH



SPECIFICATION NUMBERS

D DIAMETER (INCHES	FREIGHTLINER SPECIFICATION NUMBER
3/16	48-00831-019
1/4	-025
5/16	-031
11/32	-034
3/8	-038
13/32	-041
7/16	-044
1/2	-050
9/16	-056
5/8	-062
11/16	-069
3/4	-075
13/16	-081
7/8	-088
15/16	-094
1	-100
1- 1/16	-106
1- 1/8	-112
1- 3/16	-119
1- 1/4	-125
1- 5/16	-131
1- 3/8	-138
1- 7/16	-144

D DIAMETER (INCHES)	FREIGHTLINER SPECIFICATION NUMBER
1- 1/2	48-00831-150
1- 9/16	-156
1- 5/8	-162
1-11/16	-169
1- 3/4	-175
1-13/16	-181
1- 7/8	-188
1-15/16	-194
2	-200
2- 1/16	-206
2- 1/8	-212
2- 3/16	-219
2- 1/4	-225
2- 5/16	-231
2- 3/8	-238
2- 7/16	-244
2- 1/2	-250
2- 9/16	-256
2- 5/8	-262
2- 3/4	-275
2-13/16	-281
2- 7/8	-288
2-15/16	-294

D DIAMETER (INCHES)	FREIGHTLINER SPECIFICATION NUMBER
3	48-00831-300
3- 1/16	-306
3- 1/8	-312
3- 3/16	-319
3- 1/4	-325
3- 3/8	-338
3- 7/16	-344
3- 1/2	-350
3- 5/8	-362
3- 3/4	-375
3- 7/8	-388
4	-400
4- 1/8	-412
4- 1/4	-425
4- 1/2	-450
4- 3/4	-475
5	-500
5- 1/4	-525
5- 1/2	-550
5- 3/4	-575
6	-600

SPECIFICATIONS

1. Material (AISI 1117) must conform to pertinent provisions of ASTM A108.
2.

TENSILE PROPERTIES *		
AVERAGE TENSILE STRENGTH KSI	YIELD STRENGTH KSI	ELONGATION IN 2" %
86	75	20

*Based on 1" Dia. Specimen.

CHG	BY	DATE	WAS

CHG	BY	DATE	WAS

ns

COMPILED	HJR	DATE DRAWN			UNIT OF MEASURE
APPROVED		8-25-71			FT.

Portland FREIGHTLINER CORPORATION Oregon 97208

48-00832

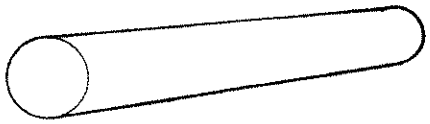
Materials Specification

PRINT ISSUED	TITLE	PART NO.
9/13/71	ROUND BAR, MEDIUM CARBON ALLOY STEEL (B) QUENCHED & TEMPERED	48-00832
LAST CHG. LTR B		SHEET 1 OF 1

SCOPE (B) This specification identifies AISI 4140, 4142, 4145, 4140H, 4142H and 4145H in the quenched & tempered condition.

APPLICATION Medium and large parts requiring a high degree of strength and toughness, but requiring only low hardenability.

SKETCH



SPECIFICATION NUMBERS

DIAMETER (INCHES)	FREIGHTLINER SPECIFICATION NUMBER
1/2	48-00832-050
5/8	-062
3/4	-075
13/16	-081
7/8	-088
1	-100
1-1/8	-112
1-1/4	-125
1-3/8	-138
1-1/2	-150
1-5/8	-162
1-3/4	-175
1-7/8	-188
2	-200
2-1/8	-212
2-1/4	-225
2-3/8	-238
2-1/2	-250
2-5/8	-262

DIAMETER (INCHES)	FREIGHTLINER SPECIFICATION NUMBER
2-3/4	48-00832-275
2-7/8	-288
3	-300
3-1/8	-312
3-1/4	-325
3-3/8	-338
3-1/2	-350
3-5/8	-362
3-3/4	-375
3-7/8	-388
4	-400
4-1/8	-412
4-1/4	-425
4-1/2	-450
4-3/4	-475
5	-500
5-1/4	-525
5-1/2	-550

DIAMETER (INCHES)	FREIGHTLINER SPECIFICATION NUMBER
5-3/4	48-00832-575
6	-600
6-1/4	-625
6-1/2	-650
6-3/4	-675
7	-700
7-1/4	-725
7-1/2	-750
7-3/4	-775
8	-800
8-1/8	-812
8-1/4	-825
8-1/2	-850
*8-3/4	-875
9	-900
*9-1/4	-925
9-1/2	-950
10	-999

* Special Order Only

SPECIFICATIONS

(B)

1. Material: Must meet ASTM A193, Grade B7.

2. Tensile Requirements:

	TENSILE STRENGTH KSI (MIN)	YIELD POINT KSI	ELONGATION IN 2" % (MIN)
2½ & Under	125	105	16
2½ - 4	115	95	16
Over 4 to 7	100	75	18

CHG	BY	DATE	WAS
A			

CHG	BY	DATE	WAS
A	HJR	4-27-72	Add -081; J #97010
B		9-2-80	Rev title, scope &
B			matl. Spec, 97271

COMPILED	HJR	DATE DRAWN			UNIT OF MEASURE
APPROVED		8-25-71			FT.

Portland FREIGHTLINER CORPORATION Oregon 97208

E-183

48-00833

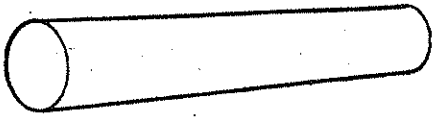
Materials Specification

PRINT ISSUED	TITLE	PART NO.
9/13/71	ROUNDS, COLD DRAWN STEEL SCREW STOCK AISI 12L14	48-00833
LAST CHG. LTR. C		SHEET 1 OF 1

SCOPE This specification describes cold drawn lead bearing low carbon steel screw stock.

APPLICATION Close tolerance machined parts requiring ductility, high impact values, transverse strength and effective carburizing qualities.

SKETCH



SPECIFICATION NUMBERS

DIAMETER (INCHES)	FREIGHTLINER SPECIFICATION NUMBER
1/8	48-00833-012
9/64	-014
5/32	-016
3/16	-019
13/64	-020
7/32	-022
1/4	-025
17/64	-027
9/32	-028
5/16	-031
21/64	-033
11/32	-034
23/64	-036
3/8	-037
25/64	-039
13/32	-041
27/64	-042
7/16	-044
29/64	-045
15/32	-047
31/64	-048
1/2	-050
33/64	-052
17/32	-053
9/16	-056
19/32	-059
39/64	48-00833-061
5/8	-062
41/64	-064
21/32	-066
11/16	-069
23/32	-072
3/4	-075
25/32	-078
13/16	-081
27/32	-084
7/8	-088
29/32	-091
15/16	-094
31/32	-097
1	-100
1- 1/32	-103
1- 1/16	-106
1- 1/8	-112
1- 3/16	-119
1- 1/4	-125
1- 5/16	-131
1- 3/8	-138
1- 7/16	-144
1- 1/2	-150
1- 9/16	-156
1- 5/8	-162
1-11/16	48-00833-169
1- 3/4	-175
1-13/16	-181
1- 7/8	-188
1-15/16	-194
2	-200
2- 1/16	-206
2- 1/8	-212
2- 3/16	-219
2- 1/4	-225
2- 3/8	-238
2- 1/2	-250
2- 5/8	-262
2-11/16	-269
2- 3/4	-275
2- 7/8	-288
3	-300
3- 1/8	-312
3- 3/16	-319
3- 1/4	-325
3- 3/8	-338
3- 1/2	-350
3- 3/4	-375
4	-400
4-1/4	-425
4-1/2	-450
4-3/4	-475
5	-500
5-1/4	-525
5-1/2	-550
6	-600
6-1/4	-625
8	-800

SPECIFICATIONS

1. Material (AISI 12L14) must conform to pertinent provisions of ASTM A108.
2. Tensile Properties:

TENSILE STRENGTH (AVERAGE) KSI	YIELD STRENGTH KSI	ELONGATION IN 2" (TYP)
79	71	16%

CHG	BY	DATE	WAS
A	HJR	1-14-72	Add -525; Job #84440
B	RG	6-1-77	Add -600; -625&-800
C	AR	4/9/80	Add -475

CHG	BY	DATE	WAS
			63357
			D2348

COMPILED	HJR	DATE DRAWN			UNIT OF MEASURE
APPROVED		8-26-71			FT.

Portland FREIGHTLINER CORPORATION Oregon 97208

E-183

A A C B A

48-00834

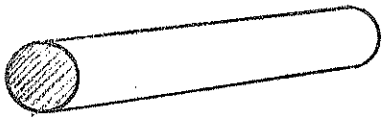
Materials Specification

PRINT ISSUED	TITLE	PART NO.
9-1-71	ROUND BAR, STEEL, FREE MACHINING SCREW STOCK	48-00834
LAST CHG. LTR. B		SHEET 1 OF 1

SCOPE This specification identifies free machining steel round bar screw stock.

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

SKETCH



SPECIFICATION NUMBERS

DIAMETER (INCHES)	FREIGHTLINER SPECIFICATION NUMBER
3/32	48-00834-000
1/8	-001
9/64	-002
5/32	-003
3/16	-004
13/64	-005
7/32	-006
1/4	-007
17/64	-008
9/32	-009
5/16	-010
21/64	-011
11/32	-012
23/64	-013
3/8	-014
25/64	-015
13/32	-016
27/64	-017
7/16	-018
29/64	-019
15/32	-020
31/64	-021
1/2	-022
33/64	-023
17/32	-024
9/16	-025
19/32	-026
39/64	-027

DIAMETER (INCHES)	FREIGHTLINER SPECIFICATION
5/8	48-00834-028
41/64	-029
21/32	-030
11/16	-031
23/32	-032
3/4	-033
25/32	-034
13/16	-035
27/32	-036
7/8	-037
29/32	-038
15/16	-039
31/32	-040
1	-041
1- 1/32	-042
1- 1/16	-043
1- 1/8	-044
1- 3/16	-045
1- 1/4	-046
1- 5/16	-047
1- 3/8	-048
1- 7/16	-049
1- 1/2	-050
1- 9/16	-051
1- 5/8	-052
1-11/16	-053
1- 3/4	-054
1-13/16	-055

DIAMETER (INCHES)	FREIGHTLINER SPECIFICATION NUMBER
1- 7/8	48-00834-056
1-15/16	-057
2	-058
2- 1/16	-059
2- 1/8	-060
2- 3/16	-061
2- 1/4	-062
2- 3/8	-063
2- 1/2	-064
2- 5/8	-065
2-11/16	-066
2- 3/4	-067
2- 7/8	-068
2-15/16	-069
3	-070
3- 1/8	-071
3- 3/16	-072
3- 1/4	-073
3- 3/8	-074
3- 1/2	-075
3- 3/4	-076
4	-077
4- 1/2	-078
5	-079
5- 1/2	-080
6	-600 B
4- 1/4	-425
8	-800

SPECIFICATIONS

1. Typical industry designations: AISI 1213, B1113, or AISI 1215.
2. Mechanical Properties:

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

COMPILED	RLR	DATE DRAWN			UNIT OF MEASURE
APPROVED		8-17-71			FT.

Portland FREIGHTLINER CORPORATION Oregon 97208

CHG	BY	DATE	WAS

CHG	BY	DATE	WAS
A	BJR	12-7-71	-022 = ½; Add -800, -425
B	DL	3-25-74	Add -600 J #A0593

A

B

ns

5 182

48-00835

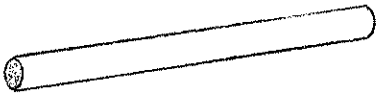
Materials Specification

PRINT ISSUED	TITLE	PART NO.
9-23-71	ROUNDS, STAINLESS STEEL TYPE 303	48-00835
LAST CHG LTR.		SHEET 1 OF 1

SCOPE This specification identifies Type 303 stainless steel wire and rounds.

APPLICATION Good machinability and corrosion resistance.

SKETCH



SPECIFICATION NUMBERS

D DIAMETER	FREIGHTLINER SPECIFICATION NUMBER
COLD DRAWN WIRE	
3/32	48-00835-000
1/8	-001
5/32	-002
3/16	-003
7/32	-004
1/4	-005
9/32	-006
5/16	-007
3/8	-008
7/16	-009
1/2	-010

D DIAMETER	FREIGHTLINER SPECIFICATION NUMBER
CENTERLESS GROUND	
7/16	48-00835-100
1/2	-101
9/16	-102
5/8	-103
11/16	-104
3/4	-105
13/16	-106
7/8	-107
15/16	-108
1	-109
1-1/16	-110
1-1/8	-111
1-3/16	-112

D DIAMETER	FREIGHTLINER SPECIFICATION NUMBER
CENTERLESS GROUND	
1-1/4	48-00835-113
1-5/16	-114
1-3/8	-115
1-7/16	-116
1-1/2	-117
1-9/16	-118
1-5/8	-119

SPECIFICATIONS

1. Rounds herein described shall meet applicable provisions of ASTM A582.

2. Mechanical Properties:

TYPICAL PROPERTIES		
TENSILE ULT. K.S.I.	YIELD K.S.I.	ELONGATION % IN 2 INCHES
75	30	40

CHG	BY	DATE	WAS

CHG	BY	DATE	WAS

COMPILED	RWC	DATE DRAWN			UNIT OF MEASURE
APPROVED		9-10-71			FT.

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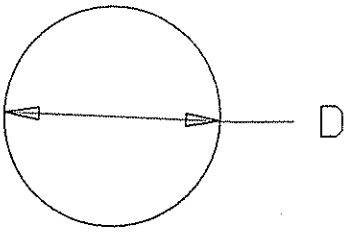
Portland FREIGHTLINER CORPORATION Oregon 97208

ADRIENNE CHILBERG

DRAWN	DAJ	TITLE	PART NUMBER	
APPRV	DAJ	BAR, STAINLESS STEEL, ROUNDS TYPE 416	48-00836	
DATE	08/08/97	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 1	CHG. LTR. C
CATIA ORIGINAL				

SCOPE: This specification identifies Type 416 stainless steel wire and rounds.

APPLICATION: Good machinability and fair resistance to mild forms of corrosion.



D DIAMETER	FREIGHTLINER SPECIFICATION NUMBER
COLD DRAWN	
5/16	48-00836-004
1/2	48-00836-008
1-1/8	48-00836-110

C

ENGINEERING NOTES:

1. Rounds herein described shall meet applicable provisions of ASTM A581 for cold drawn wire and A582 for centerless ground bar.
2. Mechanical Properties:

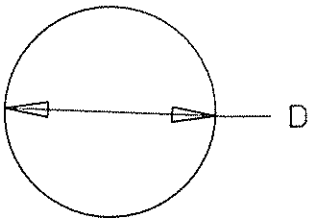
TYPICAL PROPERTIES		
TENSIL ULT. K.S.I.	YIELD K.S.I.	ELONGATION % IN 2 INCHES
90	50	15

CHG	JOB NO	DATE	BY	REVISION
C	P01813-24	08/08/97	DAJ	REVISED AND REDRAWN IN CATIA. ADDED -008.

DRAWN	DAJ	TITLE BAR, STAINLESS STEEL, ROUNDS TYPE 416	DRAWING NUMBER 48-00836
APPRV	DAJ		
DATE	08/08/97	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 1 / CHG. LTR. D
CATIA ORIGINAL			

SCOPE: This specification identifies Type 416 stainless steel wire and rounds.

APPLICATION: Good machinability and fair resistance to mild forms of corrosion.



D DIAMETER	FREIGHTLINER SPECIFICATION NUMBER
COLD DRAWN	
5/16	48-00836-004
1/2	48-00836-008
1-1/8	48-00836-110
1-5/16	48-00836-113

C

D

ENGINEERING NOTES:

1. Rounds herein described shall meet applicable provisions of ASTM A581 for cold drawn wire and A582 for centerless ground bar.

2. Mechanical Properties:

TYPICAL PROPERTIES		
TENSIL ULT. K.S.I.	YIELD K.S.I.	ELONGATION % IN 2 INCHES
90	50	15

CHG	JOB NO	DATE	BY	REVISION
C	P01813-24	08/08/97	DAJ	REVISED AND REDRAWN IN CATIA. ADDED -008.
D	P10068-02	10/27/99	LFB	ADDED -113.

48-00837

Materials Specification

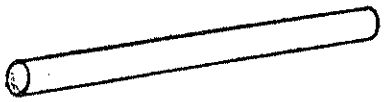
PRINT ISSUED	TITLE	PART NO.
9-23-71	ROUND BAR, STEEL, THREADED FASTENER STOCK	48-00837
LAST CHG. LTR. G		SHEET 1 OF 1

CHG	BY	DATE	WAS
D	SK	10-16-78	Added 3, 4, 5 #71086 B1026
E	DK	11/30/78	Add -132
F	GM	3/15/79	Add .706, -113 B1026
G	TJT	5-18-83	REVISED MATL PROPER. 09681

SCOPE This specification identifies steel round bar for threaded fasteners.

APPLICATION Suspension u-bolts, etc.

SKETCH



SPECIFICATION NUMBERS

SIZE	FREIGHTLINER SPECIFICATION NUMBER*
1/4	48-00837-004
3/8	-006
7/16	-007
1/2	-008
5/8	-010
3/4	-012
.825 +.000 -.004	-132
7/8	-014
.706 +.000 -.004	-113

*Dash number indicates diameter in 1/16ths of an inch.

CHG	BY	DATE	WAS
A	HJR	7-19-72	Add -004, -006, -008, -014 J #98990
B	DL	2-28-75	Add -007 A0734
C	DL	10-7-77	Add -010 A0873

SPECIFICATIONS

1. Material Properties:

A.	Minimum tensile strength, p.s.i.	C1050 Preferred for easier machining	C1552 Alternate, more difficult to machine
B.	Hardness, (ref. only)	140,000 min. 31	150,000 min. 32-38
C.	Yield Strength p.s.i.	126,000 typ.	130,000 min.
D.	Elongation in 2" (typ.)	10.5% typ.	10% min.
E.	Reduction of Area (typ.)	29% typ.	35% min.

COMPILED	RWG	DATE DRAWN			UNIT OF MEASURE
APPROVED		9-13-71			FT.

Portland FREIGHTLINER CORPORATION Oregon 97208

ns

GFD

48-00838

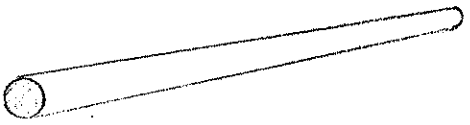
Materials Specification

PRINT ISSUED	TITLE	PART NO.
	ROD, DRILL CARBON STEEL	48-00838
LAST CHG. LTR.		SHEET 1 OF 1

SCOPE This specification describes carbon steel rounds held to close tolerances of diameter, straightness and smooth finish.

APPLICATION Dowels, alignment pins, shafts, etc.

SKETCH



SPECIFICATION NUMBERS

SIZE IN INCHES	DECIMAL		FREIGHTLINER SPECIFICATION NUMBER
1/16	.0625		48-00838-006
5/64	.0781		-008
3/32	.0938		-009
7/64	.1094		-010
32	.1160		-911
31	.1200		-912
1/8	.1250		-012
29	.1360		-913
9/64	.1406		-014
23	.1540		-915
5/32	.1562		-016
11/64	.1719		-017
3/16	.1875		-019
13/64	.2031		-020
7/32	.2188		-021
2	.2210		-922
15/64	.2344		-023
1/4	.2500		-025
17/64	.2656		-026
9/32	.2812		-028
19/64	.2969		-030
5/16	.3125		-031
21/64	.3281		-033
11/32	.3438		-034
23/64	.3594		-036
3/8	.3750		-038
25/64	.3906		-039
13/32	.4062		-040
27/64	.4219		-042
7/16	.4375		-044
29/64	.4531		-045
15/32	.4688		-047

SIZE IN INCHES	DECIMAL		FREIGHTLINER SPECIFICATION NUMBER
31/64	.4844		48-00838-048
1/2	.5000		-050
33/64	.5156		-052
17/32	.5312		-053
9/16	.5625		-056
19/32	.5938		-059
5/8	.6250		-062
41/64	.6406		-064
21/32	.6562		-066
11/16	.6875		-069
23/32	.7188		-072
3/4	.7500		-075
25/32	.7812		-078
13/16	.8125		-081
27/32	.8438		-084
7/8	.8750		-088
29/32	.9062		-090
15/16	.9375		-094
31/32	.9688		-097
1	1.0000		-100
1- 1/16	1.0625		-106
1- 1/8	1.125		-112
1- 3/16	1.188		-119
1- 1/4	1.250		-125
1- 5/16	1.312		-131
1- 3/8	1.388		-139
1- 7/16	1.438		-144
1- 1/2	1.500		-150
1- 5/8	1.625		-162
1- 3/4	1.750		-175
2	2.000		-200

*Number drill sizes.

SPECIFICATIONS

1. Material: AISI-SAE WI-1.00 C.
2. Finish: Smooth, straight, free of surface decarburization.

CHG	BY	DATE	WAS

CHG	BY	DATE	WAS
—	—	—	J# 84800

ns

COMPILED	HJR	DATE DRAWN			UNIT OF MEASURE
APPROVED	Rollins	10-1-71			FT.

Portland FREIGHTLINER CORPORATION Oregon 97208

48-00839

Materials Specification

PRINT ISSUED		TITLE	PART NO.
		ROUND, STEEL, CASE HARDENING 8620 COLD FINISHED	48-00839
LAST CHG. LTR	A		SHEET 1 OF 1

CHG	BY	DATE	WAS

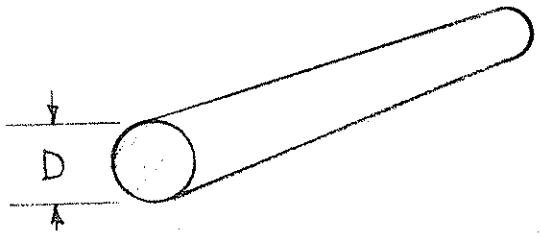
A

CHG	BY	DATE	WAS
—	—	—	Job #84790
A	HJR	3-6-72	J #89560: Add -225

SCOPE This specification identifies AISI 8620 cold finished case hardening low carbon alloy round steel.

APPLICATION Radius rod pins, etc., requiring case hardening with minimum distortion and growth.

SKETCH



SPECIFICATION NUMBERS

	D DIAMETER		FREIGHTLINER SPECIFICATION NUMBERS *
	1-5/16		48-00839-131
	2-1/4		-225

* Dash Number = Diameter in 1/100's inches.
Example: 48-00839-131 = 1.31" diameter.

SPECIFICATIONS

1. Material: AISI 8620, Cold Finished

2. Mechanical Properties:

TYPICAL MINIMUM PROPERTIES		
TENSILE ULTIMATE k.s.i.	YIELD k.s.i.	ELONGATION % IN 2 INCHES
102	85	22

ns

		DATE DRAWN			UNIT OF MEASURE
COMPILED	HJR	1-26-72			FT.
APPROVED	Rollins				

Portland FREIGHTLINER CORPORATION Oregon 97208

48-00840

Materials Specification

PRINT ISSUED		TITLE	PART NO.
		SHAFTING ROUNDS GROUND & POLISHED 1141 STEEL	48-00840
LAST CHG. LTR.	A		SHEET 1 OF 1

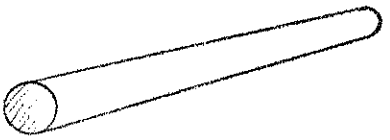
CHG	BY	DATE	WAS

CHG	BY	DATE	WAS
~	~	~	Job No. 84170
A	HJR	6-16-72	Add -062; J #70020

SCOPE This specification identifies ground and polished steel round bar commonly known as shafting rounds.

APPLICATION Use where extreme size accuracy, straightness, and concentricity is required to minimize wear as in high speed shafting applications.

SKETCH



SPECIFICATION NUMBERS

SIZE	FREIGHTLINER SPECIFICATION NUMBER
7/8	48-00840--000
1	-001
1-1/8	-002
1-3/16	-003
1-1/4	-004
1-5/16	-005
1-3/8	-006
1-7/16	-007
1-1/2	-008
5/8	-062

SPECIFICATION

1. Bar herein described shall conform to applicable provisions of ASTM A 108.
2. Material: A.I.S.I. C1141
3. Mechanical Properties:

TYPICAL PROPERTIES		
TENSILE ULT. k.s.i.	YIELD k.s.i.	ELONGATION % IN 2 Inches
112	95	16%

ns

COMPILED	RLR	DATE DRAWN			UNIT OF MEASURE
APPROVED	Rollins	12-30-71			FT.

Portland FREIGHTLINER CORPORATION Oregon 97208

48-00842

Materials Specification

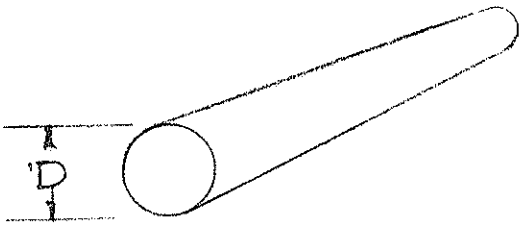
PRINT ISSUED		TITLE	PART NO.
		ROUND BAR, MEDIUM CARBON HI MN., COLD DRAWN STL	48-00842
LAST CHG. LTR.			SHEET 1 OF 1

WAS	DATE	BY	CHG

SCOPE This specification describes a medium carbon, high manganese, free machining steel, severely cold worked.

APPLICATION U-bolts and other machined, highly stressed parts.

SKETCH



SPECIFICATION NUMBERS

D DIAMETER BASIC	TOLERANCES INCHES	FREIGHTLINER SPECIFICATION NUMBERS *
1/4		48-00842-004
5/16		-005
3/8	-.004 to	-006
7/16	-.006	-007
1/2		-008
9/16		-009
5/8		-010
11/16		-011
3/4		-012

*Dash number = diameter in 1/16's inches.

SPECIFICATIONS

1. Material: Med. carbon, high manganese (conforms to QQ-S-637) (Ref. Ryerson "Stress Proof" or equivalent).

2. Physical Properties:

TENSILE STRENGTH k.s.i.	YIELD STRENGTH k.s.i.	ELONGATION IN 2" % (min)
125	100	10

WAS	DATE	BY	CHG
J #89270	—	—	—

		DATE DRAWN			UNIT OF MEASURE
COMPILED	HJR	2-24-72			FT.
APPROVED	Rollins				

n.s

Portland FREIGHTLINER CORPORATION Oregon 97208

48-00843

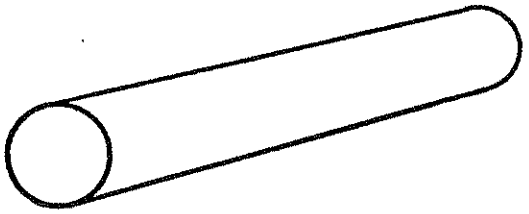
Materials Specification

PRINT ISSUED		TITLE	PART NO.
		ROUND, MED. CARBON LEADED STEEL AISI 11L41	48-00843
LAST CHG LTR	B		SHEET 1 OF 1

SCOPE This specification identifies medium carbon, direct hardening, leaded, round, cold drawn steel rod.

APPLICATION Screw machine parts of moderate strength.

SKETCH



SPECIFICATION NUMBERS

D DIAMETER (INCHES)	FREIGHTLINER SPECIFICATION NUMBER
5/16	48-00843-
3/8	-
7/16	-
1/2	-
9/16	-
5/8	-
11/16	-
3/4	-
13/16	-
7/8	-088
15/16	-094
1	-
1- 1/16	-
1- 1/8	-
1- 1/4	-125
1- 5/16	-
1- 3/8	-
1- 7/16	-
1- 1/2	-150
1- 9/16	-
1- 5/8	48-00843-
1- 3/4	-
1- 7/8	-
2	-
2- 1/4	-
2- 3/8	-
2- 1/2	-250
	-
	-
2- 3/4	-
3	-
3- 1/8	-
3- 1/4	-
3- 1/2	-
3- 3/4	-
4	-

SPECIFICATIONS

1. Material: AISI 11L41 cold finished steel to conform to ASTM A108.

2. Physical Properties:

TENSILE STRENGTH k.s.i., approx.	YIELD STRENGTH k.s.i., min.	ELONGATION in 2 in. %
112	95	14

		DATE DRAWN			UNIT OF MEASURE
COMPILED	HJR	6-16-72			IN.
APPROVED	Rollins				

Portland FREIGHTLINER CORPORATION Oregon 97208 A

CHG	BY	DATE	WAS

CHG	BY	DATE	WAS
—	—	—	J #70020
A	AR	4/11/80	Added Dash Nos. D2348
B	ERK	12/08/88	Rmvd Inactive #s P*A078-95

JOB

ns

E-183

48-00844

Materials Specification

PRINT ISSUED	TITLE	PART NO.
	SHAFTING ROUNDS TURNED, GROUND & POLISHED 1025 STEEL	48-00844
LAST CHG LTR		SHEET 1 OF 1

WAS | DATE | BY | CHG

SCOPE This specification identifies mild steel shafting turned ground and polished to accurate size, straightness and concentricity.

APPLICATION High speed shafting, capable of unsymmetrical machining with minimum distortion due to absence of cold drawing strains.

SKETCH

SPECIFICATION NUMBERS

DIAMETER NOMINAL (INCHES)	DIAMETER TOLERANCE (INCHES)		FREIGHTLINER SPECIFICATION NUMBERS *
1- 1/8	±.001		48-00844-112
1- 3/16			-119
1- 1/4			-125
1- 3/8			-138
1- 7/16			-144
1- 1/2			-150
1- 5/8	±.0015		-162
1-11/16			-169
1- 3/4			-175
1- 7/8			-188
1-15/16			-194
2			-200
2- 3/16			-219
2- 1/4			-225
2- 7/16			-244
2- 1/2	±.002		-250
2-11/16			-269
2- 3/4			-275
2-15/16			-294
3			-300

*Dash number is nominal diameter in hundredths of an inch.

WAS J #70020 | DATE — | BY — | CHG —

SPECIFICATIONS

1. Material: SAE 1025 or AISI 1025 Steel.
2. Finish: Turned, ground and polished.
3. Physical Properties:

TENSILE STRENGTH k.s.i. (APPROX.)	YIELD STRENGTH k.s.i. (MIN)
67	45

ns

COMPILED	HJR	DATE DRAWN			UNIT OF MEASURE
APPROVED	Rollins	6-19-72			FT.

Portland FREIGHTLINER CORPORATION Oregon 97208

E-183

48-00845

CHG	BY	DATE	WAS

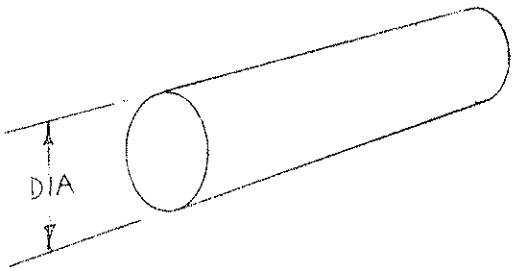
CHG	BY	DATE	WAS
—	—	—	J#A0549

PRINT ISSUED	TITLE	PART NO.
	ROUND, HIGH STRENGTH MEDIUM CARBON STEEL	48-00845
LAST CHG. LTR.		SHEET 1 OF 1

SCOPE This specification identifies prehardened steel rod for cold forming.

APPLICATION Suspension U-bolts, etc; suitable for even severe cold heading and cold forming.

SKETCH



SPECIFICATION NUMBERS

DIAMETER		MANUFACTURER'S DESIGNATION		FREIGHTLINER SPECIFICATION NUMBER
		LSS		
1/4 3/8 ±.004		"Colform" 1541 (A) (Add size when ordering)		48-00845-025 -038
1/2 5/8 3/4 ±.005 7/8				-050 -062 -075 -088

SPECIFICATIONS

1. Chemical Composition:

C	Mn	P	S	Si	OTHER	Fe
0.40-0.45	1.30-1.65	.040 max.	.050 max.	.015-.030	Each & Total .015 max.	Remainder

2. Mechanical Properties:

Ult. Tensile k.s.i.	Yield Strength k.s.i.	Proof Strength k.s.i.	Elong % in 2"	Hardness R_c	Weld-ability	Form-ability	Machin-ability	H.T.
(Min.) 150	(Min.) 130	120	—	32**	—	Excel-lent	Good	Not Req'd

3. Finish: Smooth and free of surface defects; light oil coated unless otherwise specified.

** If hardness and tensile strength do not agree, tensile strength shall govern.

COMPILED	MJR	DATE DRAWN			UNIT OF MEASURE
APPROVED		12-12-73			FT.

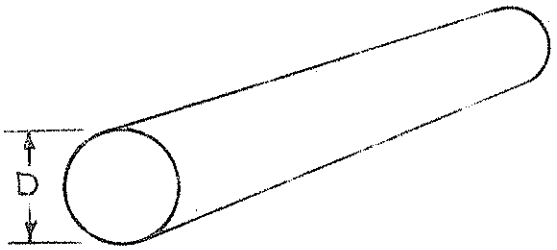
Portland FREIGHTLINER CORPORATION Oregon 97208

48-00847

(new)

PRINT ISSUED	TITLE	PART NO.
	ROUND, ACCURACY STOCK STEEL LOW CARBON	48-00847
LAST CHG. LTR. —		SHEET 1 OF 1

SKETCH



PART NUMBERS

D DIAMETER EXACT ± .0005		FREIGHTLINER PART NUMBER
1/8		48-00847-012
3/16		-019
1/4		-025
5/16		-031
3/8		-038
7/16		-044
1/2		-050
9/16		-056
5/8		-062
3/4		-075
7/8		-088
1		-100
1-1/8		-112
1-1/4		-125
1-1/2		-150

ENGINEERING NOTES

1. Material: AISI 1215 Steel
2. Finish: Drawn, Ground & Polished; Conforms To ASTM A108.
3. Estimated Minimum Mechanical Properties (Based On 3/4" To 1-1/2" Round Bars): 78,000 psi, Ultimate Tensile Strength; 60,000 psi, Yield Strength.

CHG	BY	DATE	WAS

CHG	BY	DATE	WAS
—	—	—	J#A0616

COMPILED	HJR	DATE DRAWN			UNIT OF MEASURE
APPROVED		5-7-74			FT.

Portland FREIGHTLINER CORPORATION Oregon 97208

DRAWN	DAJ	TITLE BAR-STEEL, ROUND "FATIQUE-PROOF"*	DRAWING NUMBER 48-00849
APPRV	DAJ		
DATE	06/23/98	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 1 / CHG. LTR. E
CATIA ORIGINAL			

SCOPE: THIS SPECIFICATION IDENTIFIES ROUND STEEL BAR WITH HIGH STRENGTH, MACHINABILITY, UNIFORMITY AND DIMENSIONAL STABILITY. TRADENAME "FATIQUE-PROOF"*

APPLICATION: FOR HIGHER STRENGTH PARTS SUCH AS SHAFTS, ARBORS, GEARS, BOLTS, STUDS, ETC.

SIZE	FREIGHTLINER SPECIFICATION NUMBER
3/8	48-00849-006
1/2	48-00849-008
5/8	48-00849-010
7/8	48-00849-014
1 1/2	48-00849-108

E

ENGINEERING NOTES:

1. BAR SHALL CONFORM TO CHEMICAL REQUIREMENTS OF "FATIQUE-PROOF"
2. MATERIAL: QQ-S-637
3. MECHANICAL PROPERTIES:

MIN. PROPERTIES			
TENSIL ULT. K.S.I.	YIELD K.S.I.	ELONGATION % IN 2 INCHES	HARDNESS
140	125	5/15	30RC

CHG	JOB NO	DATE	BY	REVISION
E	P2D253-45	06/23/98	DAJ	REVISED AND REDRAWN IN CATIA, ADDED -008.

Materials Specification

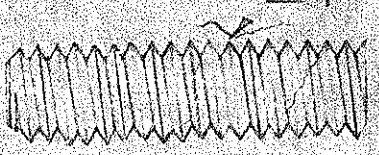
PRINT ISSUED	TITLE	PART NO
9-13-71	ROD, THREADED GRADE B, LOW CARBON STEEL	48-00851
LAST CHG LTR		SHEET 1 OF 1

CHG	BY	DATE	WAS

SCOPE This specification identifies threaded steel rod, Grade B.

APPLICATION All thread studs.

SKETCH



SPECIFICATION NUMBERS

T THREAD (CLASS 2A)	FREIGHTLINER SPECIFICATION NUMBERS
1/4 -20	48-00851-025
5/16-18	-031
3/8 -16	-038
7/16-14	-044
1/2 -13	-050
9/16-12	-056
5/8 -11	-062
3/4 -10	-075
7/8 - 9	-088
1 - 8	-100

SPECIFICATIONS

1. Material: Free machining steel rod per ASTM A307 for B Grade externally threaded fasteners.
2. Tensile Properties: Tensile Strength 100,000 p.s.i.
3. Protective Coating: The normal oils and waxes of the thread producing process will be considered adequate corrosion protection for the thread unless otherwise specified.

COPY ONLY
ORIGINAL BEING REVISED
CHECKED OUT BY W. Richards
DATE 6-16-72

CHG	BY	DATE	WAS

ns

COMPILED	HJR	DATE DRAWN			UNIT OF MEASURE
APPROVED		8-25-71			FT.

Portland FREIGHTLINER CORPORATION Oregon 97208

E-183

48-00841

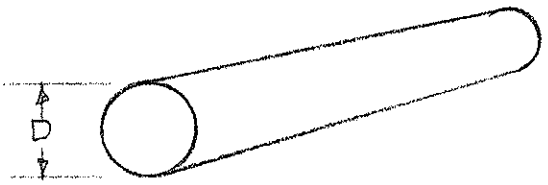
Materials Specification

PRINT ISSUED		TITLE	PART NO.
		ROUND BAR, STEEL, HOT ROLLED AISI 1040	48-00841
LAST CHG. LTR	A		SHEET 1 OF 1

SCOPE This specification describes hot rolled rounds of AISI 1040 carbon steel.

APPLICATION General structural use; especially, equalizer cross shaft, arched typed.

SKETCH



SPECIFICATION NUMBERS

D DIAMETER		FREIGHTLINER SPECIFICATION NUMBERS
3/4		48-00841-075
13/16		-081
2-1/8		-212

SPECIFICATIONS

1. Material: AISI 1040 Hot Rolled Steel
2. Physical Properties, Typical:

ULTIMATE TENSILE KIPS	YIELD KIPS	ELONGATION % IN 2 INCHES
76	42	18

CHG	BY	DATE	WAS
A	HJR	7-28-72	J #84690 Add -075, -081: J#60120

CHG	BY	DATE	WAS

ns

COMPILED	HJR	DATE DRAWN			UNIT OF MEASURE
APPROVED	Rollins	2-17-72			FT.

Portland FREIGHTLINER CORPORATION Oregon 97208

ORIGINAL JOB NO.	TITLE	PART NO.
65440	COLD DRAWN STRESS RELIEVED STEEL ROUNDS (FATIGUE - PROOF)	48-00849
LAST CHG LTR B		SHEET 1 OF 1

LTR	JOB NO.	BY	DATE	CHANGE INFORMATION
A				
B				

LTR	JOB NO.	BY	DATE	CHANGE INFORMATION
A	75364	LD	2-8-79	ADDED NOTE
B	D2233	AWR	12/17/79	Added Dash No.

SCOPE: This specification identifies medium carbon, high manganese, resulferized steel rounds.

APPLICATION: For higher strength parts such as shafts, arbors, gears, bolts, studs, etc.
Not suitable for use in suspension U-bolts.

SKETCH:



SPECIFICATION NUMBERS

SIZE	FREIGHTLINER SPECIFICATION NUMBER
1/4	48-00849-004
5/16	-005
3/8	-006
7/16	-007
1/2	-008
5/8	-010
3/4	-012
7/8	-014
1	-016
1 1/8	-102
1 1/4	-104
1 3/8	-106
1 1/2	-108
1 5/8	-110
1 3/4	-112
1 7/8	-114

SPECIFICATION

1. Bar herein described shall conform to applicable provisions of ASTM A 108. (Chemistry)

2. Material: QQ-S-637

3. Mechanical Properties:

TYPICAL PROPERTIES		
TENSILE ULT. k.s.i.	YIELD k.s.i.	ELONGATION % In 2 Inches
140	125	10%

4. Hardness RC-30

COMPILED	BE	DATE DRAWN			
APPROVED	RW	12-12-77			

48-00850

ORIGINAL JOB NO.	TITLE	PART NO.
B1129	ROUND BAR 1141 STEEL	48-00850
LAST CHG LTR		SHEET 1 OF 1

SCOPE This specification identifies medium carbon steel round bar.

APPLICATION Use where low carbon steel is of insufficient strength as in trailer chain attachment.

SKETCH



SPECIFICATION NUMBERS

SIZE	FREIGHTLINER SPECIFICATION NUMBER
3/4	48-000850-075

SPECIFICATION

1. Bar herein described shall conform to applicable provisions of ASTM A 108.
2. Material A.I.S.I. A1141.
3. Mechanical Properties:

TYPICAL PROPERTIES		
TENSILL ULT. k.s.i.	YIELD k.s.i.	ELONGATION % IN 2 Inches
99	61	16

COMPILED	GJM	DATE DRAWN			UNIT OF MEASURE
APPROVED	GEBo	4/18/79			FT.

CHANGE INFORMATION

LTR	JOB NO.	BY	DATE	CHANGE INFORMATION

CHANGE INFORMATION

LTR	JOB NO.	BY	DATE	CHANGE INFORMATION

M/F

48-00852

Materials Specification

PRINT ISSUED	TITLE	PART NO.
10/26/71	HALF ROUND, STEEL	48-00852
LAST CHG. LTR. B		SHEET 1 OF 1

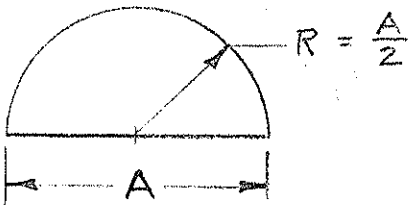
CHG	BY	DATE	WAS

A

SCOPE This specification describes half round low carbon steel bar.

APPLICATION General use starting material for machined parts.

SKETCH



SPECIFICATION NUMBERS

A SIZE INCHES	R (REF.)		FREIGHTLINER SPECIFICATION NUMBER *
0.50	0.25		48-00852-050
0.62	0.31		-062
0.75	0.38		-075
0.88	0.44		-088
1.00	0.50		-100
2.00	1.00		-200
3.00	1.50		-300
4.00	2.00		-400

*Dash number is size in hundredths of an inch.

B

CHG	BY	DATE	WAS
A	HJR	7-12-73	Add -050,-062,-075,-088 -100 & -200; J #A0505
B	HJR	9-10-73	Add -400; J #A0527

SPECIFICATIONS

1. Material: Low carbon steel. Hot rolled M1020 or equivalent.

ns

COMPILED	HJR	DATE DRAWN			UNIT OF MEASURE
APPROVED	Rwf	10-5-71			FT.

Portland FREIGHTLINER CORPORATION Oregon 97208

E-183

48-00853

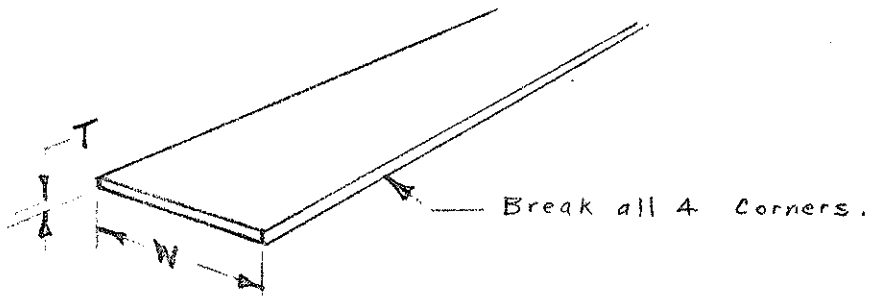
Materials Specification

PRINT ISSUED	TITLE	PART NO.
	STRIP, STEEL HEAVY DUTY STRAPPING	48-00853
LAST CHG. LTR.		SHEET 1 OF 1

SCOPE This specification identifies heavy-duty strapping steel.

APPLICATION Spring clip, as for owner-book holder in cab.

SKETCH



SPECIFICATION NUMBERS

T THICKNESS	W WIDTH		FREIGHTLINER SPECIFICATION NUMBER
.050	1.25		48-00853-125

SPECIFICATIONS

1. Material: Industrial Heavy-Duty Strapping Steel
2. Finish: Black Paint

COMPILED	HJR	DATE DRAWN			UNIT OF MEASURE
APPROVED	Rollins	11-20-72			FT.

Portland FREIGHTLINER CORPORATION Oregon 97208

WAS				
CHG				
BY				
DATE				

WAS	J #2370			
CHG	-			
BY	-			
DATE	-			

ns

E-183

48-00854

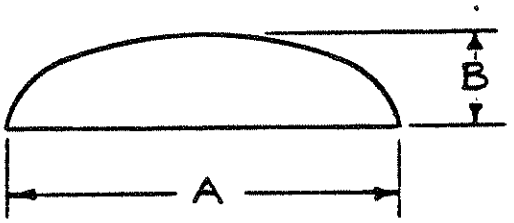
Materials Specification

PRINT ISSUED	TITLE	PART NO
	HALF OVAL, STEEL	48-00854
LAST CHG LTR —		SHEET 1 OF 1

SCOPE This specification identifies a hot rolled mild steel shape.

APPLICATION General structural use and stock for special shaped parts.

SKETCH



SPECIFICATION NUMBERS

A	B		WEIGHT LB/FT	FREIGHTLINER SPECIFICATION NUMBER
2.00	.50		2.38	48-00854-850

SPECIFICATIONS

1. MATERIAL: M1020 Low Carbon Hot Rolled Steel
2. FINISH: Plain

JOB NO	WAS	DATE	BY	CHG

JOB NO A0762	WAS —	DATE —	BY —	CHG —

kh

COMPILED	HJR	DATE DRAWN			UNIT OF MEASURE
APPROVED		7-14-75			FT.

Portland FREIGHTLINER CORPORATION Oregon 97208

E-183

DRAWN	DAJ	TITLE	DRAWING NUMBER	
APPRV	DAJ	BAR-STEEL, ROUND HIGH STRENGTH, MEDIUM CARBON	48-00862	
DATE	10/27/98	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 1	CHG. LTR. -
CATIA ORIGINAL				

SCOPE: THIS SPECIFICATION IDENTIFIES QUENCHED AND TEMPERED AISI 1541 ROUND BAR STOCK, SUITABLE FOR APPLICATIONS REQUIRING HIGH STRENGTH, TOUGHNESS AND FORMABILITY.

APPLICATION: SUSPENSION U-BOLTS, ETC.

DIAMETER	FREIGHTLINER SPECIFICATION NUMBER
.825	48-00862-082

ENGINEERING NOTES:

1. MATERIAL SHALL MEET REQUIREMENT FOR AISI 1541.
2. FINISH: SMOOTH AND FREE OF SURFACE DEFECTS; LIGHT OIL COATED UNLESS OTHERWISE SPECIFIED.
3. MECHANICAL PROPERTIES:

MIN. PROPERTIES			
TENSIL ULT. K.S.I.	YIELD K.S.I.	ELONGATION % IN 2 INCHES	HARDNESS RC
150	130	12	33-39

4. IF HARDNESS AND TENSILE STRENGTH DO NOT AGREE, TENSILE STRENGTH SHALL GOVERN.

CHG	JOB NO	DATE	BY	REVISION
-	B64889-08	10/27/98	DAJ	INITIAL LOAD

DRAWN	DAJ	TITLE	DRAWING NUMBER
APPRV	DAJ	TUBING-STEEL, SEAMLESS COLD DRAWN	48-00876
DATE	05/05/98	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 3 / CHG. LTR. AB
CATIA ORIGINAL			

SCOPE: THIS SPECIFICATION IDENTIFIES COLD DRAWN SEAMLESS STEEL TUBING.

APPLICATION: FOR GENERAL TUBING APPLICATIONS.

O.D.	WALL GAUGE	FREIGHTLINER SPECIFICATION NUMBER
3/8	20 (.035)	48-00876-090
1/2	21 (.032)	48-00876-100
	20 (.035)	48-00876-101
	17 (.058)	48-00876-102
	16 (.065)	48-00876-000
	14 (.083)	48-00876-103
	12 (.109)	48-00876-001
	11 (.120)	48-00876-002
5/8	16 (.065)	48-00876-003
	12 (.109)	48-00876-004
	11 (.120)	48-00876-005
	.188	48-00876-091
11/16	13 (.095)	48-00876-104
3/4	18 (.049)	48-00876-105
	16 (.065)	48-00876-006
	12 (.109)	48-00876-007
	11 (.120)	48-00876-106
	10 (.134)	48-00876-008
	5/32	48-00876-009
	3/16	48-00876-010
7/8	16 (.065)	48-00876-107
	14 (.083)	48-00876-012
	5/32	48-00876-013
	3/16	48-00876-014
	7/32	48-00876-015
	1/4	48-00876-084
1	18 (.049)	48-00876-108
	12 (.109)	48-00876-109
	11 (.120)	48-00876-110
	5/32	48-00876-016
	3/16	48-00876-017
	7/32	48-00876-018
	1/4	48-00876-019
	9/32	48-00876-020

O.D.	WALL GAUGE	FREIGHTLINER SPECIFICATION NUMBER
1	5/16	48-00876-021
1-1/16	11 (.120)	48-00876-112
1-1/8	17 (.058)	48-00876-113
	16 (.065)	48-00876-022
	7/32	48-00876-024
	9/32	48-00876-125
	5/16	48-00876-025
1-1/4	11 (.120)	48-00876-114
	3/16	48-00876-126
	3/8	48-00876-170
1-5/16	5/32	48-00876-026
	3/8	48-00876-127
1-3/8	13 (.095)	48-00876-115
	3/8	48-00876-130
1-1/2	16 (.065)	48-00876-037
	11 (.120)	48-00876-029
	3/16	48-00876-030
	1/4	48-00876-031
	9/32	48-00876-128
	3/8	48-00876-032
	7/16	48-00876-033
1-9/16	3/8	48-00876-152
1-5/8	16 (.065)	48-00876-116
	10 (.134)	48-00876-117
	1/4	48-00876-035
	5/16	48-00876-036
	7/16	48-00876-160
1-3/4	1/8	48-00876-118
	1/4	48-00876-038
	5/16	48-00876-174
	3/8	48-00876-039
	7/16	48-00876-176
	1/2	48-00876-040

CHG	JOB NO	DATE	BY	REVISION
AA	P2D253-13	05/05/98	DAJ	REVISED AND REDRAWN IN CATIA. ADDED -084 AND -706.
AB	P05833-07	07/30/98	MKS	ADDED -021.

DRAWN	DAJ	TITLE	DRAWING NUMBER
APPRV	DAJ	TUBING-STEEL, SEAMLESS COLD DRAWN	48-00876
DATE	05/05/98	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 2 OF 3 / CHG. LTR. AB
CATIA ORIGINAL			

O.D.	WALL GAUGE	FREIGHTLINER SPECIFICATION NUMBER
1-7/8	1/8	48-00876-120
	3/8	48-00876-041
	7/16	48-00876-144
2	16 (.065)	48-00876-121
	3/16	48-00876-042
	1/4	48-00876-043
	5/16	48-00876-044
	3/8	48-00876-045
	7/16	48-00876-046
	1/2	48-00876-047
	9/16	48-00876-048
2-1/4	1/8	48-00876-131
	7/16	48-00876-132
	3/8	48-00876-129
2-3/8	3/16	48-00876-052
2-1/2	3/16	48-00876-053
	1/4	48-00876-054
	3/8	48-00876-055
	1/2	48-00876-056
	9/16	48-00876-057
	5/8	48-00876-256
	3/4	48-00876-257
2-3/4	5/8	48-00876-286
3	11 (.120)	48-00876-061
3-1/8	1/4	48-00876-065
3-1/4	5/8	48-00876-066
3-1/2	7/16	48-00876-369
	5/8	48-00876-071
	1	48-00876-072
4	3/16	48-00876-076
	1/4	48-00876-077
	5/8	48-00876-080
	3/4	48-00876-081
4-1/4	3/8	48-00876-083
4-1/2	7/8	48-00876-458
5	5/8	48-00876-134
5-1/2	1/2	48-00876-555
	5/8	48-00876-556
5-3/4	1/2	48-00876-089

O.D.	WALL GAUGE	FREIGHTLINER SPECIFICATION NUMBER
6	5/8	48-00876-606
6-1/2	1	48-00876-655
7	1/2	48-00876-705
	5/8	48-00876-706

CHG	JOB NO	DATE	BY	REVISION
AA	P2D253-13	05/05/98	DAJ	REVISED AND REDRAWN IN CATIA, SEE SHT 1.
AB	P05833-07	07/30/98	MKS	ADDED -021.

DRAWN	DAJ	TITLE	DRAWING NUMBER	
APPRV	DAJ	TUBING-STEEL, SEAMLESS COLD DRAWN	48-00876	
DATE	05/05/98			
CATIA ORIGINAL		FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 3 OF 3	CHG. LTR. AB

SPECIFICATIONS:

1. TUBING SHALL CONFORM TO APPLICABLE PROVISIONS OF ASTM A519
2. MATERIAL: SAE 1018/1026
3. MECHANICAL PROPERTIES: (TYPICAL)

TENSILE STRENGTH KSI	YIELD STRENGTH KSI	% ELONGATION IN 2 INCHES
80	70	10

CHG	JOB NO	DATE	BY	REVISION
AA	P2D253-13	05/05/98	DAJ	REVISED AND REDRAWN IN CATIA, SEE SHT 1 AND 2.
AB	P05833-07	07/30/98	MKS	ADDED -021.

DRAWN	DAJ	TITLE	DRAWING NUMBER	
APPRV	DAJ	TUBING-STEEL, SEAMLESS COLD DRAWN	48-00876	
DATE	05/05/98	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 3	CHG. LTR. AA
CATIA ORIGINAL				

SCOPE: THIS SPECIFICATION IDENTIFIES COLD DRAWN SEAMLESS STEEL TUBING.

APPLICATION: FOR GENERAL TUBING APPLICATIONS.

O.D.	WALL GAUGE	FREIGHTLINER SPECIFICATION NUMBER
3/8	20 (.035)	48-00876-090
1/2	21 (.032)	48-00876-100
	20 (.035)	48-00876-101
	17 (.058)	48-00876-102
	16 (.065)	48-00876-000
	14 (.083)	48-00876-103
	12 (.109)	48-00876-001
	11 (.120)	48-00876-002
5/8	16 (.065)	48-00876-003
	12 (.109)	48-00876-004
	11 (.120)	48-00876-005
	.188	48-00876-091
11/16	13 (.095)	48-00876-104
3/4	18 (.049)	48-00876-105
	16 (.065)	48-00876-006
	12 (.109)	48-00876-007
	11 (.120)	48-00876-106
	10 (.134)	48-00876-008
	5/32	48-00876-009
	3/16	48-00876-010
7/8	16 (.065)	48-00876-107
	14 (.083)	48-00876-012
	5/32	48-00876-013
	3/16	48-00876-014
	7/32	48-00876-015
	1/4	48-00876-084
1	18 (.049)	48-00876-108
	12 (.109)	48-00876-109
	11 (.120)	48-00876-110
	5/32	48-00876-016
	3/16	48-00876-017
	7/32	48-00876-018
	1/4	48-00876-019

O.D.	WALL GAUGE	FREIGHTLINER SPECIFICATION NUMBER
1	9/32	48-00876-020
1-1/16	11 (.120)	48-00876-112
1-1/8	17 (.058)	48-00876-113
	16 (.065)	48-00876-022
	7/32	48-00876-024
	9/32	48-00876-125
	5/16	48-00876-025
1-1/4	11 (.120)	48-00876-114
	3/16	48-00876-126
	3/8	48-00876-170
1-5/16	5/32	48-00876-026
	3/8	48-00876-127
1-3/8	13 (.095)	48-00876-115
	3/8	48-00876-130
1-1/2	16 (.065)	48-00876-037
	11 (.120)	48-00876-029
	3/16	48-00876-030
	1/4	48-00876-031
	9/32	48-00876-128
	3/8	48-00876-032
	7/16	48-00876-033
1-9/16	3/8	48-00876-152
1-5/8	16 (.065)	48-00876-116
	10 (.134)	48-00876-117
	1/4	48-00876-035
	5/16	48-00876-036
	7/16	48-00876-160
1-3/4	1/8	48-00876-118
	1/4	48-00876-038
	5/16	48-00876-174
	3/8	48-00876-039
	7/16	48-00876-176
	1/2	48-00876-040

CHG	JOB NO	DATE	BY	REVISION
AA	P2D253-13	05/05/98	DAJ	REVISED AND REDRAWN IN CATIA, ADDED -084 AND -706.

AA

DRAWN	DAJ	TITLE	DRAWING NUMBER	
APPRV	DAJ	TUBING-STEEL, SEAMLESS COLD DRAWN	48-00876	
DATE	05/05/98	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 2 OF 3	CHG. LTR. AA
CATIA ORIGINAL				

O.D.	WALL GAUGE	FREIGHTLINER SPECIFICATION NUMBER
1-7/8	1/8	48-00876-120
	3/8	48-00876-041
	7/16	48-00876-144
2	16 (.065)	48-00876-121
	3/16	48-00876-042
	1/4	48-00876-043
	5/16	48-00876-044
	3/8	48-00876-045
	7/16	48-00876-046
	1/2	48-00876-047
	9/16	48-00876-048
2-1/4	1/8	48-00876-131
	7/16	48-00876-132
	3/8	48-00876-129
2-3/8	3/16	48-00876-052
2-1/2	3/16	48-00876-053
	1/4	48-00876-054
	3/8	48-00876-055
	1/2	48-00876-056
	9/16	48-00876-057
	5/8	48-00876-256
	3/4	48-00876-257
2-3/4	5/8	48-00876-286
3	11 (.120)	48-00876-061
3-1/8	1/4	48-00876-065
3-1/4	5/8	48-00876-066
3-1/2	7/16	48-00876-369
	5/8	48-00876-071
	1	48-00876-072
4	3/16	48-00876-076
	1/4	48-00876-077
	5/8	48-00876-080
	3/4	48-00876-081
4-1/4	3/8	48-00876-083
4-1/2	7/8	48-00876-458
5	5/8	48-00876-134
5-1/2	1/2	48-00876-555
	5/8	48-00876-556
5-3/4	1/2	48-00876-089

O.D.	WALL GAUGE	FREIGHTLINER SPECIFICATION NUMBER
6	5/8	48-00876-606
6-1/2	1	48-00876-655
7	1/2	48-00876-705
	5/8	48-00876-706

AA

CHG	JOB NO	DATE	BY	REVISION
AA	P2D253-13	05/05/98	DAJ	REVISED AND REDRAWN IN CATIA. SEE SHT 1.

DRAWN	DAJ	TITLE TUBING-STEEL, SEAMLESS COLD DRAWN	DRAWING NUMBER 48-00876
APPRV	DAJ		
DATE	05/05/98	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 3 OF 3 / CHG. LTR. AA
CATIA ORIGINAL			

SPECIFICATIONS:

1. TUBING SHALL CONFORM TO APPLICABLE PROVISIONS OF ASTM A519
2. MATERIAL: SAE 1018/1026
3. MECHANICAL PROPERTIES: (TYPICAL)

TENSILE STRENGTH KSI	YIELD STRENGTH KSI	% ELONGATION IN 2 INCHES
80	70	10

CHG	JOB NO	DATE	BY	REVISION
AA	P2D253-13	05/05/98	DAJ	REVISED AND REDRAWN IN CATIA, SEE SHT 1 AND 2.

48-00877

Materials Specification

PRINT ISSUED	TITLE	PART NO.
9-23-71	TUBING, STEEL, SEAMLESS COLD DRAWN, ANNEALED	48-00877
LAST CHG. LTR.		SHEET 1 OF 1

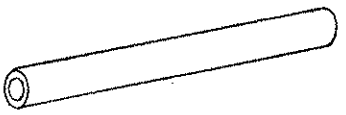
CHG	BY	DATE	WAS

CHG	BY	DATE	WAS

SCOPE This specification identifies annealed cold drawn seamless steel tubing.

APPLICATION Where ease in forming is required.

SKETCH



SPECIFICATION, NUMBERS

O.D.	WALL GAUGE	FREIGHTLINER SPECIFICATION NUMBER
7/16	16 (.065)	48-00877-001
	13 (.095)	-002
1/2	11 (.120)	-003
17/32	14 (.083)	-004
5/8	14 (.083)	-005
	1/4	-006
11/16	13 (.095)	-007
3/4	17 (.058)	-008
7/8	16 (.065)	-009
15/16	16 (.065)	-010
1	3/16	-011
1- 1/16	16 (.065)	-012
1- 1/4	3/16	-013
1- 7/16	16 (.065)	-014
1-11/16	16 (.065)	-015
2	5/32	-016
2- 1/8	18 (.049)	-017
3	16 (.065)	-018

SPECIFICATIONS

1. Typical Industry Specification: AISI 1010

2. Mechanical Properties:

TYPICAL PROPERTIES		
TENSILE ULT. K.S.I.	YIELD K.S.I.	ELONGATION % IN 2 INCHES
60,000	45,000	10

COMPILED	RWG	DATE DRAWN			UNIT OF MEASURE
APPROVED	[signature]	9-14-71			FT.

ns

Portland FREIGHTLINER CORPORATION Oregon 97208

DRAWN	B T	TITLE TUBING-STEEL ALUMINIZED, ROUND	DRAWING NUMBER 48-00878
APPRV	F F		
DATE	10/19/87	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 2 / CHG. LTR. N
CATIA ORIGINAL			

Scope: This specification identifies electric-resistance welded metallic coated (aluminized) carbon steel mechanical tubing per ASTM A787 Type I AWAC.

Application: Use for exhaust systems and water systems.

O.D.	WALL GAUGE	FREIGHTLINER SPECIFICATION NUMBER
.500	16 (.065)	48-00878-007
1.000	16 (.065)	-004
1.250	16 (.065)	-005
1.750	16 (.065)	-017
2.000	16 (.065)	-016
2.250	16 (.065)	-019
2.500	16 (.065)	-006
2.750	16 (.065)	-013
3.000	16 (.065)	-000
3.500	18 (.049)	-015
3.500	16 (.065)	-003
4.000	16 (.065)	-001
4.000	14 (.083)	-011
4.500	16 (.065)	-020
5.000	16 (.065)	-002
5.000	14 (.083)	-012
6.000	16 (.065)	-018

CHG	JOB NO	DATE	BY	REVISION
M	P01865-04	05/21/97	DAJ	REVISED AND REDRAWN IN CATIA, ADDED -019.
N	F39091-08	11/18/98	DAJ	ADDED -020.

DRAWN	B T	TITLE	DRAWING NUMBER	
APPRV	F F	TUBING-STEEL ALUMINIZED, ROUND	48-00878	
DATE	10/19/87	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 2 OF 2	CHG. LTR. N
CATIA ORIGINAL				

SPECIFICATIONS:

1. Tubing herein described shall meet applicable provisions of ASTM A787 Type I AWAC with tubes 1.000" O.D. and larger having welding flash controlled to .010", maximum.
2. The Aluminum-coated steel sheet shall meet the provisions for the T1 25 (.250 oz/sq.ft) coating designation defined in ASTM A463.
3. Base metal chemical requirements:
   The sheet steel shall conform to the following chemical composition;

Element	Composition (%) Drawing Quality Drawing Quality Special Killed
Carbon, max	0.10
Manganese, max	0.50
Phosphorous, max	0.025
Sulfur, max	0.035

4. Finish:
   The coated tube shall be free from injurious defects such as blisters and uncoated spots which may be detrimental to the fabrication and/or function of the part.
5. The outside diameter weld-heat-affected area shall be remetallized with the aluminum coating.
6. Corrosion Resistance:
   A) The appearance of six or more rust spots per square foot of significant surface area which are visible to the unaided eye at normal reading distance, or any rust spot originating from an area larger than 1.5mm (1/16") in diameter after exposure to a 5% salt spray fog for 48 hours, in accordance with ASTM B117, will be considered unsatisfactory and sufficient cause for rejection. The weld area of the tube must meet the same salt spray requirement as above.
   Additional requirements for exhaust pipe applications;
   B) Tubing shall not exhibit any discoloration, blistering, or loss of the coating after exposure to temperature of 426°C (800°F) ±3°C (5°F) for one hours. Following the heat cycle, these samples shall also meet the salt spray requirements as in 6 A) above.
7. T1-40 is an acceptable alternate coating.
8. Commercial quality steel is an acceptable alternate material for applications that require no forming.
9. Material not meeting the above requirements is subject to rejection.

CHG	JOB NO	DATE	BY	REVISION
M	P01865-04	10/30/96	DAJ	REVISED AND REDRAWN IN CATIA, ADDED -019 ON SHT 1.
N	F39091-08	11/18/98	DAJ	ADDED -020, SEE SHT 1.

48-00879

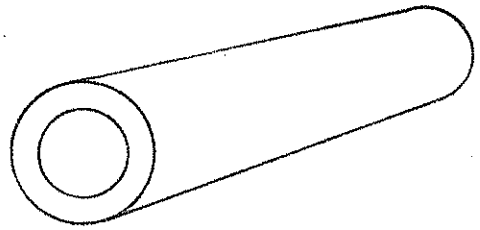
Materials Specification

PRINT ISSUED	TITLE	PART NO.
	TUBE, FREE-MACHINING STEEL C1118	48-00879
LAST CHG. LTR.		SHEET 1 OF 1

SCOPE This specification identifies cold finished C1118 free machining steel tubing of seamless or welded construction.

APPLICATION General use parts requiring moderate to large amounts of machining, e.g., bushings for alternator mount.

SKETCH



SPECIFICATION NUMBERS

O.D. NOM.	I.D. NOM.	WALL (REF.)		FREIGHTLINER SPECIFICATION NUMBERS
.562	.438	.062		48-00879-001
.750	.500	.125		-002
.750	.438	.156		-003

SPECIFICATIONS

1. Material: Cold finished AISI 1118 Steel.

CHG	BY	DATE	WAS

CHG	BY	DATE	WAS
—	—	—	J #99590

ns

COMPILED	HJR	DATE DRAWN			UNIT OF MEASURE
APPROVED	Rollins	7-21-72			FT.

Portland FREIGHTLINER CORPORATION Oregon 97208

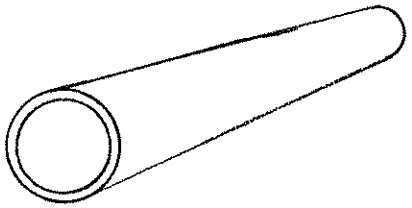
E-183

ORIGINAL JOB NO.	TITLE	PART NO.
D2460	TUBING, STEEL HYDRAULIC	48-00883
LAST CHG LTR		SHEET 1 OF 1

SCOPE: This specification identifies welded, drawn-over-mandrel steel tubing.

APPLICATION: Where severe bending or expansion are required.

SKETCH:



SPECIFICATION NUMBERS:

O.D.	WALL	I.D. (REF.)		FREIGHTLINER SPECIFICATION NUMBER
1.250	0.065	1.120		48-00883-125

SPECIFICATIONS:

1. MATERIAL: SAE 1010 Steel
2. This tubing conforms to SAE J525B specifications

CHANGE INFORMATION	DATE	BY	JOB NO.	LTR

CHANGE INFORMATION	DATE	BY	JOB NO.	LTR

COMPILED	TAL	DATE DRAWN			UNIT OF MEASURE
APPROVED	TD	11/16/81			FT.

M/F

MATERIAL SPECIFICATION

48-00885

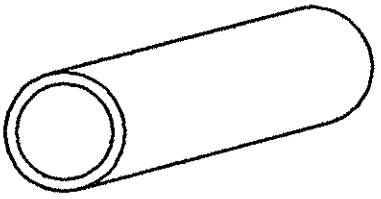
ORIGINAL JOB NO.	TITLE	PART NO.
2863C	TUBING, CARBON STEEL COLD WORKED SEAMLESS	48-00885
LAST CHG LTR		SHEET 1 OF 1

LTR	JOB NO.	BY	DATE	CHANGE INFORMATION

SCOPE: THIS SPECIFICATION IDENTIFIES COLD WORKED SEAMLESS MECHANICAL TUBING.

APPLICATION: WHERE GOOD FINISH CLOSE TOLERANCE IS REQUIRED.

SKETCH:



SPECIFICATION NUMBERS:

O.D.	I.D.	WALL		FREIGHTLINER SPECIFICATION NUMBER
2.500 $^{+.008}_{-.000}$	1.000 $^{+.000}_{-.008}$	.750 ±.094		48-00885-000

SPECIFICATIONS:

1. ASTM A519 GRADE 1026 SEAMLESS MECHANICAL TUBING COLD WORKED.
2. CHEMICAL REQUIREMENTS:

ELEMENT	COMPOSITION LIMITS, %
CARBON	0.22-0.28
MANGANESE	0.60-0.90
PHOSPHORUS, MAX.	0.040
SULFUR, MAX.	0.050

3. TYPICAL MECHANICAL PROPERTIES: (FOR REF ONLY).

YIELD	TENSILE	ELONGATION	ROCKWELL HARDNESS B SCALE
65 KSI	75 KSI	5%	80

LTR	JOB NO.	BY	DATE	CHANGE INFORMATION

COMPILED	FEF	DATE DRAWN	CADAM ORIGINAL	UNIT OF MEASURE	MASTER NUMBER	
APPROVED		07-25-84		FT	00001	000D1