48-00926

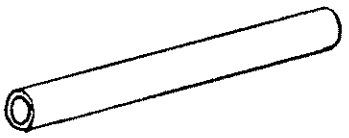
Materials Specification

ORIGINAL JOB NO.	TITLE	PART NO.
F0134	TUBING, STEEL D.O.M.	48-00926
LAST CHG LTR N		SHEET 1 OF 4

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

APPLICATION: Where good finish, close tolerance is required.

SKETCH:



SPECIFICATION NUMBERS:

O.D.	WALL GAUGE	FREIGHTLINER SPECIFICATION NUMBER
1/4	22 (.028)	48-00926-100
	21 (.032)	-101
	20 (.035)	-102
	18 (.049)	-103
	17 (.058)	-104
	16 (.065)	-105
5/16	22 (.028)	-106
	21 (.032)	-107
	20 (.035)	-108
	18 (.049)	-109
	17 (.058)	-110
	16 (.065)	-111
3/8	24 (.022)	-112
	22 (.028)	-113
	21 (.032)	-114
	20 (.035)	-000
	18 (.049)	-115
	17 (.058)	-001
	16 (.065)	-002
	14 (.083)	-116
13/32	16 (.065)	-117
7/16	22 (.028)	-118
	21 (.032)	-119
	20 (.035)	-120
	18 (.049)	-003
	17 (.058)	-121
	16 (.065)	-004
	14 (.083)	-005
	13 (.095)	-122

O.D.	WALL GAUGE	FREIGHTLINER SPECIFICATION NUMBER
1/2	21 (.032)	48-00926-006
	20 (.035)	-007
	18 (.049)	-123
	17 (.058)	-008
	16 (.065)	-009
	14 (.083)	-010
	13 (.095)	-124
	12 (.109)	-510
9/16	22 (.028)	-824
	20 (.035)	-125
	18 (.049)	-126
	16 (.065)	-127
	14 (.083)	-128
	13 (.095)	-129
5/8	20 (.035)	-011
	18 (.049)	-130
	17 (.058)	-131
	16 (.065)	-012
	14 (.083)	-132
	13 (.095)	-133
	12 (.109)	-237
11/16	18 (.049)	-134
	16 (.065)	-135
	14 (.083)	-136
	13 (.045)	-013
3/4	20 (.035)	-014
	18 (.049)	-015
	17 (.058)	-137
	16 (.065)	-016
	14 (.083)	-017

LTR	JOB NO.	BY	DATE	CHANGE INFORMATION
L	G0132	LD	4/27/83	Redrawn, Add Sht. 4
M	5321B	DJL	11/9/83	-510 Wall to .109
N	2861C	FEF	7/26/84	See Sheet 2

LTR	JOB NO.	BY	DATE	CHANGE INFORMATION

COMPILED	LD	DATE DRAWN		MASTER NO.		UNIT OF MEASURE
APPROVED	DES	4/27/83		00001	000D1	FT.

E-183A Litho in USA Portland FREIGHTLINER CORPORATION Oregon 97208

DRAWN	ERK	TITLE	ITEM NUMBER
APPRV	KCB	TUBE-STEEL, D.O.M. ELECTRIC RESISTANCE WELDED	48-00926
DATE	09/12/90	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 2

SCOPE: THIS SPECIFICATION IDENTIFIES DRAWN-OVER-MANDREL STEEL TUBING.

APPLICATION: WHERE GOOD FINISH, CLOSE TOLERANCE IS REQUIRED.

NOT FOR NEW RELEASES

REFER TO 48-00928

SPECIFICATION NUMBERS:

O.D.	WALL GAUGE	FREIGHTLINER SPECIFICATION NUMBER
5/16	22 (.028)	48-00926-106
3/8	20 (.035) 4 (.083)	48-00926-000 48-00926-116
7/16	18 (.049) 14 (.083)	48-00926-003 48-00926-005
1/2	21 (.032) 20 (.035) 17 (.058) 16 (.065)	48-00926-006 48-00926-007 48-00926-008 48-00926-009
9/16	14 (.083)	48-00926-128
5/8	16 (.065) 13 (.095) 12 (.109)	48-00926-012 48-00926-133 48-00926-237
3/4	20 (.035) 18 (.049) 16 (.065) 13 (.095) 12 (.109) 11 (.120)	48-00926-014 48-00926-015 48-00926-016 48-00926-138 48-00926-018 48-00926-019

O.D.	WALL GAUGE	FREIGHTLINER SPECIFICATION NUMBER
7/8	12 (.109) 11 (.120) 1/8 5/32	48-00926-022 48-00926-144 48-00926-145 48-00926-251
1	16 (.065) 12 (.109) 1/8 5/32 1/4	48-00926-024 48-00926-025 48-00926-151 48-00926-026 48-00926-070
1 1/16	1/8 7/32 1/4	48-00926-155 48-00926-256 48-00926-071
1 1/8	16 (.065) 5/32 5/16	48-00926-028 48-00926-160 48-00926-072
1-1/4	16 (.065) 11 (.120) 1/8 1/4 3/8	48-00926-165 48-00926-030 48-00926-169 48-00926-172 48-00926-238
1 5/16	1/8 10 (.134)	48-00926-175 48-00926-176

CHG	JOB/RLSE NO	DATE	BY	REVISION
S	PA2024-42	09/12/90	ERK	REVISED & REDRAWN; ADDED "NOT FOR NEW RELEASES"

Materials Specification

ORIGINAL JOB NO.	TITLE	PART NO.
F0134	TUBING, STEEL D.O.M.	48-00926
LAST CHG LTR: N		SHEET 2 OF 4

SPECIFICATION NUMBERS, Cont.

O.D.	WALL GAUGE	FREIGHTLINER SPECIFICATION NUMBER
3/4 (Cont.)	13 (.095)	48-00926-138
	12 (.109)	-018
	11 (.120)	-019
	1/8	-139
13/16	16 (.065)	-140
	1/8	-141
27/32	12 (.109)	-142
7/8	16 (.065)	-020
	14 (.083)	-021
	13 (.095)	-143
	12 (.109)	-022
	11 (.120)	-144
	1/8	-145
15/16	16 (.065)	-146
	1/8	-147
1.00	20 (.035)	-148
	18 (.049)	-023
	16 (.065)	-024
	14 (.083)	-149
	13 (.095)	-150
	12 (.104)	-025
	1/8	-151
	5/32	-026
	1/4	-070
1-1/16	16 (.065)	-152
	14 (.083)	-153
	12 (.109)	-154
	1/8	-155
	5/32	-156
	7/32	-256
1-1/8	20 (.035)	-027
	18 (.049)	-157
	16 (.065)	-028
	12 (.109)	-158
	10 (.134)	-159
1-1/8 (Cont.)	1/8	48-00926-029
	5/32	-160
1-3/16	18 (.049)	-161
	16 (.065)	-162
	14 (.083)	-163
	5/32	-164
1-1/4	16 (.065)	-165
	14 (.083)	-166
	13 (.095)	-167
	12 (.109)	-168
	11 (.120)	-030
	1/8	-169
	10 (.134)	-170
	5/32	-171
	1/4	-172
	3/8	-238
1-5/16	14 (.083)	-173
	13 (.095)	-174
	1/8	-175
	10 (.134)	-176
	5/32	-031
1-3/8	16 (.065)	-177
	13 (.095)	-178
	12 (.109)	-179
	1/8	-180
	10 (.134)	-181
	5/32	-032
1-7/16	13 (.095)	-182
	5/32	-183
	3/16	-184
1-15/32	5/32	-215
	7/32	-216

CHANGE INFORMATION	DATE	BY	JOB NO.	JR

CHANGE INFORMATION	DATE	BY	JOB NO.	JR
Redrawn, Add Sht. 4	4/27/83	LD	G0132	L
Added -238	11/9/83	DJL	5321B	M
Added -070	7/26/84	FEF	2861C	N

COMPILED	LD	DATE DRAWN		MASTER NO.		UNIT OF MEASURE
APPROVED	DES	4/27/83		00001	000D1	FT.

L

Materials Specification

ORIGINAL JOB NO.	TITLE	PART NO.
F0134	TUBING, STEEL D.O.M.	48-00926
LAST CHG LTR N		SHEET 3 OF 4

SPECIFICATION NUMBERS, Cont.

O.D.	WALL GAUGE	FREIGHTLINER SPECIFICATION NUMBER
1-1/2	18 (.049)	48-00926-185
	16 (.065)	-033
	14 (.083)	-186
	13 (.095)	-187
	12 (.109)	-188
	1/8	-189
	10 (.134)	-190
	5/32	-191
	3/16	-034
	1/4	-250
1-9/16	1/8	-192
	5/32	-193
	3/16	-194
1-5/8	16 (.065)	-035
	13 (.095)	-195
	12 (.109)	-196
	1/8	-036
	10 (.134)	-197
	5/32	-198
	3/16	-037
1-11/16	1/8	-038
	5/32	-199
	3/16	-200
1-3/4	16 (.065)	-201
	14 (.083)	-202
	13 (.095)	-203
	12 (.109)	-204
	1/8	-039
	10 (.134)	-205
	5/32	-206
	3/16	-207
	7/32	-208
1-13/16	7/32	-209

O.D.	WALL GAUGE	FREIGHTLINER SPECIFICATION NUMBER
1-7/8	16 (.065)	48-00926-210
	13 (.095)	-211
	1/8	-040
	5/32	-212
	3/16	-213
	7/32	-214
2	18 (.049)	-217
	16 (.065)	-041
	14 (.083)	-218
	13 (.095)	-219
	1/8	-220
	10 (.134)	-221
	5/32	-222
	3/16	-042
	7/32	-223
	1/4	-043
2-1/8	13 (.095)	-224
	1/8	-225
	5/32	-226
	3/16	-227
	7/32	-228
	1/4	-229
2-1/4	16 (.065)	-044
	14 (.083)	-230
	13 (.095)	-231
	1/8	-232
	10 (.134)	-233
	5/32	-234
	3/16	-235
	7/32	-236
	1/4	-045
2-3/8	1/8	-046
	3/16	-047
2-1/2	1/8	-048
	3/16	-049
	1/4	-050

LTR	JOB NO.	BY	DATE	CHANGE INFORMATION
L	G0132	LD	4/27/83	Redrawn, Add Sht. 4
M	5321B	DJL	11/9/83	See Shts. 1 and 2
N	2861C	FEF	7/26/84	See Sheet 2

LTR	JOB NO.	BY	DATE	CHANGE INFORMATION

COMPILED	LD	DATE DRAWN		MASTER NO.		UNIT OF MEASURE
APPROVED	DRS	4/27/83		00001	000D1	FT.

Material Specification

ORIGINAL JOB NO.	TITLE	PART NO.
F0134	TUBING, STEEL D.O.M.	48-00926
LAST CHG LTR N		SHEET 4 OF 4

SPECIFICATION NUMBERS, Cont.

O.D.	WALL GAUGE	FREIGHTLINER SPECIFICATION NUMBER
2-3/4	1/8 1/4	48-00926-275 -051
3	16 (.065) 1/4 5/16	-052 -053 -054
3-1/8	1/4	-055
3-1/2	5/32 1/4 9/32	-056 -057 -069
3-5/8	5/16	-058
3-3/4	13 (.095)	-311
4	16 (.065) 14 (.083) 13 (.095) 11 (.120) 3/16 1/4 5/16	-059 -401 -402 -060 -061 -062 -063

O.D.	WALL GAUGE	FREIGHTLINER SPECIFICATION NUMBER
4-1/2	11 (.120)	48-00926-064
5	5/32 1/4 1/2	-065 -066 -508
6	3/16 1/4	-067 -068

SPECIFICATIONS

1. Sheet herein described shall meet applicable provisions of ASTM A513-66.
2. Material: AISI 1020
3. Mechanical Properties:

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

LTR	JOB NO.	BY	DATE	CHANGE INFORMATION
L	G0132	LD	4/27/83	Redrawn, Add Sht. 4
M	5321B	DJL	11/9/83	See Shts. 1 and 2
N	2861C	FEF	7/26/84	See Sheet 2

LTR	JOB NO.	BY	DATE	CHANGE INFORMATION

				MASTER NO.		UNIT OF MEASURE
COMPILED	LD	DATE DRAWN		00001	000D1	FT.
APPROVED	DRS	4/27/83				

DRAWN	ERK	TITLE	ITEM NUMBER
APPRV	KCB	TUBING-STEEL ELECTRIC RESISTANCE WELDED	48-00927
DATE	06/09/89	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 3

SCOPE: THIS SPECIFICATION IDENTIFIES NORMALIZED ELECTRIC RESISTANCE WELDED STEEL TUBING.

APPLICATION: WHERE BETTER FINISH, CONCENTRICITY OR LOWER COST THAN COLD DRAWN SEAMLESS TUBING IS REQUIRED.

SPECIFICATION NUMBERS:

O.D. (IN.)	WALL GAUGE (T)	FREIGHTLINER SPECIFICATION NUMBER
1/2	20(.035)	48-00927-001
	18(.049)	48-00927-100
	16(.065)	48-00927-002
5/8	20(.035)	48-00927-263
	18(.049)	49-00927-101
	16(.065)	48-00927-004
	14(.083)	48-00927-102
3/4	20(.035)	48-00927-005
	18(.049)	48-00927-006
	16(.065)	48-00927-007
	14(.083)	48-00927-192
7/8	20(.035)	48-00927-
	18(.049)	48-00927-
	16(.065)	48-00927-
	14(.083)	48-00927-
1	20(.035)	48-00927-033
	18(.049)	48-00927-
	16(.065)	48-00927-011
	14(.083)	48-00927-
	13(.095)	48-00927-107
	11(.120)	48-00927-012
1-1/8	18(.049)	48-00927-036
	16(.065)	48-00927-013
	11(.120)	48-00927-108
1-1/4	20(.035)	48-00927-
	18(.049)	48-00927-110
	16(.065)	48-00927-111
	14(.083)	48-00927-112
	13(.095)	48-00927-
	12(.109)	48-00927-
	11(.120)	48-00927-014
1-3/8	11(.120)	48-00927-015
1-1/2	20(.035)	48-00927-
	18(.049)	48-00927-
	16(.065)	48-00927-016
	14(.083)	48-00927-
	12(.109)	48-00927-
	11(.120)	48-00927-017
1-5/8	18(.049)	48-00927-119
	16(.065)	48-00927-018
	14(.083)	48-00927-120
1-3/4	20(.035)	48-00927-
	18(.049)	48-00927-122
	16(.065)	48-00927-123
	14(.083)	48-00927-
1-7/8	16(.065)	48-00927-
	14(.083)	48-00927-
	11(.120)	48-00927-208
2	20(.035)	48-00927-
	18(.049)	48-00927-
	16(.065)	48-00927-019
	14(.083)	48-00927-129
	13(.095)	48-00927-
	12(.109)	48-00927-131
	11(.120)	48-00927-020
	7(.180)	48-00927-
2-1/8	18(.049)	48-00927-
2-1/4	18(.049)	48-00927-
	16(.065)	48-00927-021
	11(.120)	48-00927-022
2-3/8	16(.065)	48-00927-
	14(.083)	48-00927-

CHG	JOB/RLSE NO	DATE	BY	REVISION
P	PA2006-55	06/09/89	ERK	REVISED AND REDRAWN, REMOVED INACTIVE
R	PK0456-01	10/17/95	DAJ	ADDED -192
S	P03494-01	09/06/97	PTF	ADDED -263
T	P00576-05	03/26/98	DAJ	ADDED -110

DRAWN	ERK	TITLE	ITEM NUMBER
APPRV	KCB	TUBING-STEEL ELECTRIC RESISTANCE WELDED	48-00927
DATE	06/09/89	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 2 OF 3

SPECIFICATION NUMBERS:

O.D. (IN.)	WALL GAUGE (T)	FREIGHTLINER SPECIFICATION NUMBER
2-1/2	18(.049)	48-00927-
	16(.065)	48-00927-141
	14(.083)	48-00927-142
	11(.120)	48-00927-143
	7(.180)	48-00927-
2-5/8	16(.065)	48-00927-262
	11(.120)	48-00927-
2-3/4	16(.065)	48-00927-146
	11(.120)	48-00927-
2-7/8	16(.065)	48-00927-
3	18(.049)	48-00927-
	16(.065)	48-00927-023
	14(.083)	48-00927-
	11(.120)	48-00927-
	7(.180)	48-00927-
3-1/8	16(.065)	48-00927-
3-1/4	16(.065)	48-00927-
	11(.120)	48-00927-154
3-1/2	16(.065)	48-00927-155
	14(.083)	48-00927-
	11(.120)	48-00927-157
	7(.180)	48-00927-
	4(.238)	48-00927-
3-3/4	16(.065)	48-00927-
4	16(.065)	48-00927-026
	14(.083)	48-00927-161
	13(.095)	48-00927-
	12(.109)	48-00927-163
	11(.120)	48-00927-027
	10(.134)	48-00927-
	7(.180)	48-00927-165
	3/16(.188)	48-00927-166
	1/4(.250)	48-00927-
4-1/4	16(.065)	48-00927-169
	11(.120)	48-00927-028
4-1/2	16(.065)	48-00927-170
	11(.120)	48-00927-
	4(.238)	48-00927-
4-3/4	11(.120)	48-00927-
5	16(.065)	48-00927-030
	14(.083)	48-00927-173 (1)
	11(.120)	48-00927-174
	7(.180)	48-00927-
	4(.238)	48-00927-
5-1/2	16(.065)	48-00927-177
	11(.120)	48-00927-031
5-3/4	11(.120)	48-00927-
6	16(.065)	48-00927-032
	12(.109)	48-00927-
	11(.120)	48-00927-181
	7(.180)	48-00927-
	4(.238)	48-00927-183
7	16(.065)	48-00927-035
	14(.083)	48-00927-184
8	16(.065)	48-00927-189
	14(.083)	48-00927-190
	12(.109)	48-00927-191
10	12(.109)	48-00927-

CHG	JOB/RLSE NO	DATE	BY	REVISION
P	PA2006-55	06/09/89	ERK	SEE SHEET #1
R	PK0456-01	10/17/95	DAJ	ADDED -192, SEE SHEET 1
S	P03494-01	09/06/97	PTF	ADDED -263, SEE SHEET 1
T	P00576-05	03/26/98	DAJ	ADDED -110, SEE SHEET 1

DRAWN	ERK	TITLE	ITEM NUMBER
APPRV	KCB	TUBING-STEEL ELECTRIC RESISTANCE WELDED	48-00927
DATE	06/09/89	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 3 OF 3

SPECIFICATIONS:

1. TUBING HEREIN DESCRIBED SHALL MEET APPLICABLE PROVISIONS OF ASTM A513.
2. MECHANICAL PROPERTIES:

PROPERTY	TUBING	
		(1) -173 ONLY
MATERIAL	SAE 1010	(2)
CONDITION	NORMALIZED	AS WELDED
ULTIMATE TENSILE STRENGTH KSI	40 (MIN)	45 (MIN)
YIELD STRENGTH, KSI	25 (MIN)	32 (MIN)
ELONGATION, % IN 2 INCHES	30 (MIN)	15 (MIN)
HARDNESS, ROCKWELL B	65 (MAX)	55 (MIN)
FORMABILITY	EXCELLENT	--
MACHINABILITY (SAE 1212=100)	80	--
WELDABILITY	GOOD	--
HEAT TREATABILITY	NO	--

(1) THIS TUBING IS USEABLE FOR ENGINE EXHAUST PIPE.

(2) SAE 1008-1010 ALUMINUM KILLED STEEL.

CHG	JOB/RLSE NO	DATE	BY	REVISION
P	PA2006-55	06/09/89	ERK	SEE SHEET #1
R	PK0456-01	10/17/95	DAJ	ADDED -192, SEE SHEET 1
S	P03494-01	09/06/97	PTF	ADDED -263, SEE SHEET 1
T	P00576-05	03/26/98	DAJ	ADDED -110, SEE SHEET 1

DRAWN	ERK	TITLE	DRAWING NUMBER	
APPRV	KCB	TUBE - STEEL DOM, ERW	48-00928	
DATE	11/13/89	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 3	CHG. LTR. AK
CATIA ORIGINAL				

SCOPE: THIS SPECIFICATION DESCRIBES ELECTRIC RESISTANCE WELDED, DRAWN OVER MANDREL, CARBON STEEL TUBING.

APPLICATION: GENERAL STRUCTURAL USE, INCLUDING MODERATE BENDING AND WELDING.

O.D.	WALL	WALL DEC	I.D.	FREIGHTLINER SPECIFICATION NUMBER
5/16	22	.028	.257	48-00928-404
3/8	20	.035	.305	-309
	18	.049	.277	-004
	17	.058	.259	-005
	16	.065	.245	-
7/16	18	.049	.340	-011
	16	.065	.307	-013
	14	.083	.272	-014
1/2	17	.058	.384	-019
	16	.065	.370	-020
	14	.083	.334	-
	13	.095	.310	.023
	12	.109	.282	-
	11	.120	.260	-025
17/32	16	.065	.401	-
	14	.083	.365	-
9/16	16	.065	.432	-031
	14	.083	.396	-032
5/8	18	.049	.527	-036
	17	.058	.509	-037
	16	.065	.495	-038
	14	.083	.459	-
	12	.109	.407	-041
	11	.120	.385	-042
	10	.134	.357	-043
	5/32	.156	.312	-044
11/16	14	.083	.521	-
	12	.109	.469	-049
3/4	20	.035	.680	-310
	18	.049	.652	-311
	17	.058	.634	-
	16	.065	.620	-055

O.D.	WALL	WALL DEC	I.D.	FREIGHTLINER SPECIFICATION NUMBER
3/4	14	.083	.584	48-00928-056
	13	.095	.560	-
	12	.109	.532	-058
	11	.120	.510	-059
	10	.134	.482	-060
	5/32	.156	.437	-061
	3/16	.188	.375	-
13/16	16	.065	.682	-
	14	.083	.647	-066
.840	.147	.147	.546	-071
.860	.060	.060	.740	-074
7/8	16	.065	.745	-077
	14	.083	.709	-
	12	.109	.657	-080
	11	.120	.635	-081
	1/8	.125	.625	-312
	10	.134	.607	-
	5/32	.156	.562	-084
	3/16	.188	.500	-
	7/32	.219	.437	-087
15/16	14	.083	.772	-
1	16	.065	.870	-101
	14	.083	.834	-
	12	.109	.782	-
	11	.120	.760	-105
	1/8	.125	.750	-106
	10	.134	.732	-
	5/32	.156	.687	-108
	11/64	.172	.656	-109
	7	.180	.640	-110
	3/16	.188	.625	-111
	7/32	.219	.562	-112

AD

AG

CHG	JOB NO	DATE	BY	REVISION
AF	P2A367-14	02/12/97	DAJ	ADDED -986, SEE SHT 3
AG	P01813-02	05/13/97	PTS	ADDED -038
AH	P07886-01	03/14/99	DAJ	ADDED -147, SEE SHT 2
AJ	P07654-02	06/14/99	CGD	ADDED -987, SEE SHT 3
AK	P04981-04	10/05/99	MST	ADDED -407, SEE SHT 2

DRAWN	ERK	TITLE	DRAWING NUMBER	
APPRV	KCB	TUBE - STEEL DOM. ERW	48-00928	
DATE	11/13/89	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 2 OF 3	CHG. LTR. AK
CATIA ORIGINAL				

	O.D.	WALL	WALL DEC	I.D.	FREIGHTLINER SPECIFICATION NUMBER
	1	1/4	.250	.500	48-00928-113
		9/32	.281	.438	-402
	1.017	.196	.196	.625	-114
	1 1/16	11	.120	.822	-119
		10	.134	.795	-
		1/4	.250	.562	-984
	1 1/8	16	.065	.995	-123
		12	.109	.907	-
		11	.120	.885	-126
		10	.134	.857	-127
		5/32	.156	.812	-
		.180	.180	.765	-131
		3/16	.188	.750	-
		7/32	.219	.688	-133
		1/4	.250	.625	-134
		5/16	.313	.500	-318
	1 3/16	16	.065	1.058	-401
AE	1 1/4	16	.065	1.120	-985
		13	.095	1.060	-
		12	.109	1.032	-138
		1/8	.125	1.000	-320
		10	.134	.982	-
		3/16	.188	.875	-142
		7/32	.219	.813	-143
AH		1/4	.250	.750	-147
		9/32	.281	.687	-148
	1 5/16	14	.083	1.147	-
		1/8	.125	1.063	-331
		10	.134	1.044	-152
		9/32	.281	.750	-
		5/16	.313	.688	-159
	1 3/8	10	.134	1.107	-
		3/16	.188	1.000	-169
		1/4	.250	.875	-
		9/32	.281	.813	-172
AC	1 7/16	3/16	.188	1.062	-
	1 1/2	16	.065	1.370	-406
AK		14	.083	1.334	-407
		12	.109	1.282	-

	O.D.	WALL	WALL DEC	I.D.	FREIGHTLINER SPECIFICATION NUMBER
	1 1/2	11	.120	1.260	48-00928-180
		5/32	.156	1.187	-182
		3/16	.188	1.125	-184
		7/32	.219	1.062	-185
		1/4	.060	1.000	
		9/32	.281	.938	-187
		5/16	.313	.875	-188
	1 9/16	10	.134	1.295	-
		3/16	.188	1.187	-194
		1/4	.250	1.062	-
	1 5/8	5/32	.156	1.312	-
		3/16	.188	1.250	-200
		7/32	.219	1.187	-201
		1/4	.250	1.125	-
		5/16	.313	1.000	-205
		3/8	.375	.875	-332
	1.63	.380	.380	.865	-207
	1 3/4	13	.095	1.560	-212
		12	.109	1.532	-
		11	.120	1.510	-214
		10	.134	1.482	-
		1/4	.250	1.250	-220
		5/16	.313	1.125	-
		11/32	.344	1.064	-223
	1 13/16	1/8	.125	1.563	-
		3/16	.188	1.438	-225
	1 7/8	11	.120	1.635	-
		1/8	.125	1.625	-330
		10	.134	1.607	-227
		3/16	.188	1.500	-
		1/4	.250	1.375	-232
		5/16	.313	1.250	-
	2	14	.083	1.834	-323
		12	.109	1.782	-
		1/8	.125	1.750	-324
		10	.134	1.732	-
		3/16	.188	1.625	-247
		1/4	.250	1.500	-250
		3/8	.375	1.250	-255

CHG	JOB NO	DATE	BY	REVISION
AF	P2A367-14	02/12/97	DAJ	ADDED -986. SEE SHT 3
AG	P01813-02	05/13/97	PTS	SEE SHEET #1
AH	P07886-01	03/14/99	DAJ	ADDED -147
AJ	P07654-02	06/14/99	CGD	ADDED -987. SEE SHT 3
AK	P04981-04	10/05/99	MST	ADDED -407. SEE SHT 2

DRAWN	ERK	TITLE	DRAWING NUMBER	
APPRV	KCB	TUBE - STEEL DOM, ERW	48-00928	
DATE	11/13/89	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 3 OF 3	CHG. LTR. AK
CATIA ORIGINAL				

O.D.	WALL	WALL DEC	I.D.	FREIGHTLINER SPECIFICATION NUMBER
2 1/8	13	.095	1.935	48-00928-400
	1/8	.125	1.875	-325
	3/16	.188	1.750	-259
	1/4	.250	1.625	-
2 1/4	14	.083	2.167	-326
	1/8	.125	2.000	-965
	3/16	.188	1.875	-
	1/4	.250	1.750	-269
	5/16	.313	1.625	-
2.260	5/16	.313	1.634	-983
2.280	5/16	.313	1.654	-907
AF 2 3/8	11	.120	2.135	-986
	1/8	.125	2.125	-313
	5/32	.156	2.062	-276
	3/16	.188	2.000	-
	1/4	.250	1.875	-
	3/8	.375	1.625	-982

O.D.	WALL	WALL DEC	I.D.	FREIGHTLINER SPECIFICATION NUMBER
2 1/2	1/8	.125	2.250	48-00928-314
	3/16	.188	2.125	—
	7/32	.219	2.062	-286
	1/4	.250	2.000	-
2 5/8	3/16	.188	2.249	-
2 3/4	1/4	.188	2.250	-
	3/8	.375	2.000	-
3	16	.065	2.870	-315
	1/4	.250	2.500	-307
	3/8	.375	2.250	—
	5/8	.625	1.750	-333
3 1/8	5/16	.313	2.499	-403
3 1/4	1/8	.125	3.000	-308
3 1/2	9/32	.281	2.938	-316
3 3/4	13	.095	3.560	-328
4	13	.095	3.810	-329
	7/16	.438	3.125	-987 AJ
	1/2	.500	3.000	-334
7	1/2	.500	6.000	-405

SPECIFICATIONS:

1. TUBING SHALL CONFORM TO APPLICABLE REQUIREMENTS OF ASTM A513TYPE 5.
   ≤ 10 GAUGE (.134) WALL, SAE 1020 STEEL

TENSILE STRENGTH KSI	YIELD STRENGTH KSI	% ELONGATION IN 2 INCHES	HARDNESS RB
70 (MIN)	60 (MIN)	5 (MIN)	80 (MIN)

   > 10 GAUGE (.134) WALL, SAE 1026 STEEL

TENSILE STRENGTH KSI	YIELD STRENGTH KSI	% ELONGATION IN 2 INCHES	HARDNESS RB
80 (MIN)	70 (MIN)	5 (MIN)	85 (MIN)

CHG	JOB NO	DATE	BY	REVISION
AF	P2A367-14	02/12/97	DAJ	ADDED -986
AG	P01813-02	05/13/97	PTS	SEE SHEET #1
AH	P07886-01	03/14/99	DAJ	ADDED -147, SEE SHT 2
AJ	P07654-02	06/14/99	CGD	ADDED -987
AK	P04981-04	10/05/99	MST	ADDED -407, SEE SHT 2

48-00929

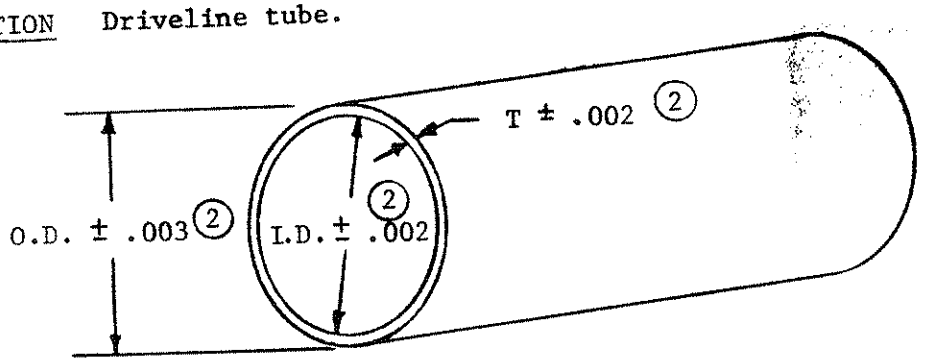
Materials Specification

PRINT ISSUED	TITLE	PART NO.
9-23-71	TUBING, STEEL, WELDED COLD DRAWN (DRIVELINE)	48-00929
LAST CHG. LTR. C		SHEET 1 OF 1

SCOPE This specification identifies cold drawn welded steel tubing.

APPLICATION Driveline tube.

SKETCH



SPECIFICATION NUMBERS

O.D.	I.D.	WALL THICKNESS	MAXIMUM ACCEPTABLE TOLERANCES (2) O.D. & I.D.	MAXIMUM ACCEPTABLE TOLERANCES (2) WALL	FREIGHTLINER SPECIFICATION NUMBER
3.00	2.732	.134	±.0045	±.003	48-00929-001
3.50	3.124	.188	±.005	±.003	-002
3.50	3.187	.156	±.005	±.003	-003
3.50	3.232	.134	±.005	±.003	-004
3.50	3.310	.095	±.005	±.003	-005
4.00	3.732	.134	±.0055	±.005	-006
4.50	4.232	.134	±.006	±.006	-007
4.092	3.732	.180	±.0055	±.005	-008

SPECIFICATIONS

1. Material: SAE 1017, 1020 or 1026
2. Mechanical Properties

TENSILE ULT. K.S.I.	YIELD K.S.I.	ELONGATION % IN 2 INCHES
75 - 85	65-75	9 - 12

   a) Yield strength to ultimate strength ratio must equal 77% - 88%.
   b) Figures shown in the above table indicate the desirable strength. Minimum acceptable are: Ultimate 70 k.s.i., Yield 60 k.s.i.

3. Tube run-out, -0.010 T.I.R. per foot.
4. Heat treat - Hardness 84/95 R_b.

ENGINEERING NOTES

1. The tensile properties and dimensional tolerances must be tested and checked by Freightliner Inspection Dept. and approved by Engineering before use. Frequency of testing and number of samples is to be the Quality Control Dept's prerogative. Said testing is to be of sufficient scope as to encompass all mill lots of material furnished. Material is to be tested per ASTM E8-61T, with test bar sample for tubing (Fig. 13-1).

(2) Dimensions shown indicate desirable tolerances. Maximum acceptable tolerances are shown in the above table.

CHG	BY	DATE	WAS

CHG	BY	DATE	WAS
A	BL	9/14/77	Add -7 Job No B0874
B	JP	5/16/78	Add - 8 Job No B1016
C	TD	2/28/79	Add 1026 75371

					UNIT OF MEASURE
COMPILED	RWG	DATE DRAWN			INCH
APPROVED		9-15-71			

FREIGHTLINER CORPORATION

Portland Oregon 97208

C B A

E-183

48-00930

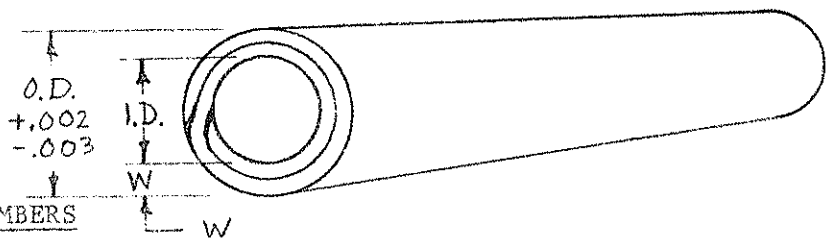
Materials Specification

PRINT ISSUED	TITLE	PART NO.
9/29/71	TUBING, DOUBLE WALL (BUNDYWELD) STEEL	48-00930
LAST CHG. LTR.		SHEET 1 OF 2

SCOPE This specification describes annealed double-wall tubing of carbon steel.

APPLICATION Dipstick guide tube.

SKETCH



SPECIFICATION NUMBERS

O.D. (INCHES)	W WALL (INCHES)	I.D. THEOR. (INCHES)	BEND* RADIUS (INCHES) MIN.		FREIGHTLINER SPECIFICATION NUMBER **
1/8	.020	.085	1/2		48-00930-121
	.028	.069	3/8		-122
3/16	.020	.1475	3/4		-191
	.028	.1315	3/4		-192
1/4	.028	.194	1-1/8		-251
	.032	.186	1		-252
	.035	.180	—		-253
	.042	.166	—		-254
	.049	.152	—		-255
	.060	.130	—		-256
5/16	.020	.272	1-1/2		-311
	.028	.2565	1-3/8		-312
	.032	.2485	1-5/16		-313
	.035	.2425	—		-314
	.042	.2285	—		-315
	.049	.2145	—		-316
	.060	.1925	—		-317
3/8	.020	.335	—		-381
	.028	.319	2-5/8		-382
	.032	.311	2-1/2		-383
	.035	.305	—		-384
	.042	.291	2-1/2		-385
	.049	.277	2-1/2		-386
	.060	.255	—		-387
7/16	.032	.3735	3		-441
	.035	.3675			-442
1/2	.028	.444	3-1/2		-501
	.035	.430			-502
	.049	.402			-503
5/8	.035	.555	5		-621
	.049	.527			-622

* Radii shown are measured to tube centerline. They are for hand made bends 90° or more; mechanical bending can reduce these values substantially.

**Dash No: O.D. in 1/100 inch — -XXX — Wall Thickness Code

CHG	BY	DATE	WAS

CHG	BY	DATE	WAS

ns

COMPILED	HJR	DATE DRAWN			UNIT OF MEASURE
APPROVED	BRM	9-22-71			FT.

Portland FREIGHTLINER CORPORATION Oregon 97208

48-00930

Materials Specification

PRINT ISSUED	TITLE	PART NO.
9/29/71	TUBING, DOUBLE WALL (BUNDYWELD) STEEL	48-00930
LAST CHG. LTR.		SHEET 2 OF 2

SPECIFICATIONS

1. Material: Steel, fully annealed.

2. Construction: Double-wall copper-brazed steel tube.

CHG	BY	DATE	WAS

CHG	BY	DATE	WAS

ns

		DATE DRAWN			UNIT OF MEASURE
COMPILED	HJR	9-22-71			FT.
APPROVED	BRA/				

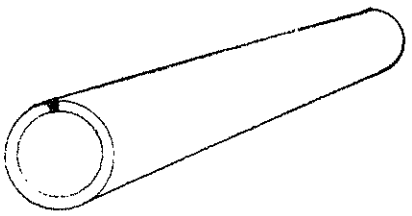
Portland FREIGHTLINER CORPORATION Oregon 97208

ORIGINAL JOB NO.	TITLE	PART NO.
C1304	TUBING, STEEL, COLD DRAWN BUTT WELDED	48-00931
LAST CHG LTR		SHEET 1 OF 1

SCOPE: This specification identifies cold drawn butt welded low carbon steel tubing.

APPLICATION: General structural use, including moderate bending and welding. Where lower cost than mandrel drawn is required.

SKETCH:



SPECIFICATION NUMBERS:

OD	WALL GAUGE	FREIGHTLINER SPECIFICATION NUMBER
3/4	16 (.065)	48-00931-055

SPECIFICATIONS:

1. Tubing herein described shall meet applicable provisions of ASTM A512.
2. Material: SAE 1018
3. Typical Mechanical Properties:

Ultimate Tensile Strength	70 ksi
Yield Strength	60 ksi
Elongation in 2"	20%
Hardness, BHN	145
Rb (Ref.)	80
Machinability (B1112=100)	50
Weldability	Good

COMPILED	Larson	DATE DRAWN			UNIT OF MEASURE
APPROVED	NLK	7-21-78			FT

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

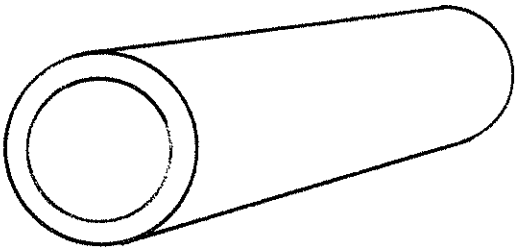
CHANGE INFORMATION | DATE | BY | JOB NO. | LTR

ORIGINAL JOB NO.	TITLE	PART NO.
0092A	TUBING STEEL DRAWN OVER MANDREL	48-00932
LAST CHG LTR A		SHEET 1 OF 1

SCOPE: This spec describes drawn over mandrel high strength steel tubing.

APPLICATION: Where good finish, close tolerance, and high strength is required.

SKETCH:



SPEC NUMBERS:

OD	ID		FREIGHTLINER PART NUMBER
.750	.511 ± .003		48-00932-000

SPECIFICATIONS: (A)

A 1. MATERIAL: AISI 4130 Steel

2. MINIMUM MECHANICAL PROPERTIES:

TENSILE ULT. KSI	YIELD KSI	ELONGATION % IN 2 INCHES
85	75	5

COMPILED	CHB DW	DATE DRAWN			
APPROVED	DRS	6/29/81			

LTR	JOB NO.	BY	DATE	CHANGE INFORMATION

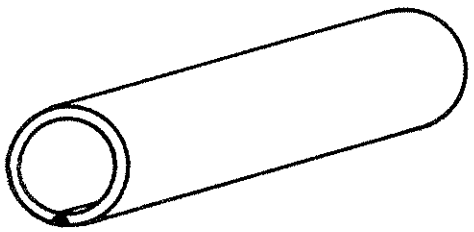
LTR	JOB NO.	BY	DATE	CHANGE INFORMATION
A	0092A	CHB	7/21/81	From 1026 to 4130

ORIGINAL JOB NO.	TITLE	PART NO.
G0132	TUBING, STEEL, ELECTRIC RESISTANCE WELDED	48-00933
LAST CHG LTR		SHEET 1 OF 1

SCOPE: This specification identifies high strength electric resistance welded steel tubing.

APPLICATION: Where higher strength tubing with good formability and finish is required.

SKETCH:



SPECIFICATION NUMBER:

O.D.	WALL GAUGE	FREIGHTLINER SPECIFICATION NUMBER
1.250	.065	48-00933-000 (1)

(1) Tubing herein described shall meet applicable provisions of ASTM A513.

MECHANICAL PROPERTIES:

(1) MATERIAL: SAE 1010
2. TEMPER CONDITION: As welded
3. ULTIMATE TENSILE STRENGTH: 45 ksi (min.)/55 ksi (avg.)
4. YIELD STRENGTH: 32 ksi (min.)/40 ksi (avg.)
5. ELONGATION: % in 2" - 15 (min.)/20 (avg.)
6. HARDNESS: RB55 (min.)/RB60 (avg.)
7. FORMABILITY: Good
8. WELDABILITY: Good

PRE-RELEASE PRINT

COMPILED	CRC	DATE DRAWN		MATERIAL	UNIT OF MEASURE
APPROVED	TO	8/15/83		(1)	IN.

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

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

48-00976

Materials Specification

PRINT ISSUED	TITLE	PART NO.
9-23-71	TUBE, STEEL SQUARE, STRUCTURAL	48-00976
LAST CHG. LTR: B		SHEET 1 OF 1

CHG	BY	DATE	WAS

CHG	BY	DATE	WAS
A	RLR	6-28-71	Added Note 2
B	RWG	9-10-71	Added -014 & -015

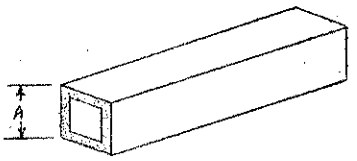
SCOPE

This specification identifies structural square steel tube.

APPLICATION

Can be subjected to most of the usual fabricating operations.

SKETCH



SPECIFICATION NUMBERS

A	WALL THICKNESS	FREIGHTLINER SPECIFICATION NUMBERS
2	1/8	48-00976-000
	3/16	-001
2-1/2	3/16	-002
		-003
3	3/16	-004
	1/4	-005
3-1/2	5/32	-006
	3/16	-007
	1/4	-008
4	3/16	-009
	1/4	-010
	5/16	-011
	3/8	-012
	1/2	-013
B 2	1/4	-014
B 1-1/2	3/16	-015

SPECIFICATIONS

1. Tube herein described shall meet applicable provisions of ASTM A501.
2. Mechanical Properties:

Typical Properties		
Tensile Ult. Ksi	Yield Ksi	Elongation % in 2 inches
58	36	24

COMPILED	RWG	DATE DRAWN			UNIT OF MEASURE
APPROVED		5-11-71			FT.

ns

Portland FREIGHTLINER CORPORATION Oregon 97208

B

E-183

48-00977

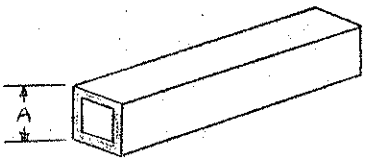
Materials Specification

PRINT ISSUED	TITLE	PART NO.
8/13/71	TUBE, STEEL, SQUARE LIGHT STRUCTURAL	48-00977
LAST CHG. LTR. A		SHEET 1 OF 1

SCOPE This specification identifies light structural square steel tube.

APPLICATION Where ready forming, bending, swaging, or good finish is required.

SKETCH



SPECIFICATION NUMBERS

A	WALL GAUGE	FREIGHTLINER SPECIFICATION NUMBERS
1/2	18 (.049)	48-00977-000
	16 (.060)	-001
5/8	18 (.049)	-002
	16 (.060)	-003
3/4	20 (.035)	-004
	18 (.049)	-005
	16 (.060)	-006
	11 (.120)	-007
7/8	18 (.049)	-008
	16 (.060)	-009
1	20 (.035)	-010
	18 (.049)	-011
	16 (.060)	-012
	14 (.083)	-013
	12 (.109)	-014
	11 (.120)	-015
1-1/4	18 (.049)	-016
	16 (.060)	-017
	14 (.083)	-018
	11 (.120)	-019

A	WALL GAUGE	FREIGHTLINER SPECIFICATION NUMBERS
1-1/2	18 (.049)	48-00977-020
	16 (.060)	-021
	14 (.083)	-022
	11 (.120)	-023
	7 (.180)	-024
1-3/4	16 (.060)	-025
	14 (.083)	-026
	11 (.120)	-027
2	16 (.060)	-028
	14 (.083)	-029
	13 (.095)	-030
	11 (.120)	-031
2-1/2	14 (.083)	-032
	11 (.120)	-033
3	16 (.060)	-034
	14 (.083)	-035
	11 (.120)	-036
3-1/2	11 (.120)	-037
	5 (.220)	-038
4	11 (.120	-039

SPECIFICATIONS

1. Material: AISI 1020 Steel

Typical Properties		
Tensile Ult. Ksi	Yield Ksi	Elongation % in 2 inches
52	38	12

CHG	BY	DATE	WAS

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

ns

COMPILED	RWG	DATE DRAWN			UNIT OF MEASURE
APPROVED	[illegible]	5-12-71			FT.

Portland FREIGHTLINER CORPORATION Oregon 97208

DRAWN	ERK	TITLE TUBE-STEEL, SQUARE MECHANICAL	ITEM NUMBER 48-00977
APPRV	KCB		
DATE	06/02/88	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 1

SCOPE THIS SPECIFICATION IDENTIFIES MECHANICAL SQUARE STEEL TUBE.

APPLICATION WHERE READY FORMING, BENDING, SWAGING, OR GOOD FINISH IS REQ.

SPECIFICATION NUMBERS

NOMINAL SIZE	WALL GAUGE	FREIGHTLINER SPECIFICATION NUMBER
1/2	18 (.049)	48-00977-
	16 (.065)	-
5/8	18 (.049)	-
	16 (.065)	-
3/4	20 (.035)	-
	18 (.049)	-
	16 (.065)	-
	11 (.120)	-
7/8	18 (.049)	-
	16 (.065)	-
1	20 (.035)	-
	18 (.049)	-
	16 (.065)	-012
	14 (.083)	-013
	12 (.109)	-014
	11 (.120)	-015
1-1/4	18 (.049)	-
	16 (.065)	-
	14 (.083)	-
	11 (.120)	-019

NOMINAL SIZE	WALL GAUGE	FREIGHTLINER SPECIFICATION NUMBER
1-1/2	18 (.049)	48-00977-
	16 (.065)	-021
	14 (.083)	-
	11 (.120)	-023
	7 (.180)	-024
1-3/4	16 (.065)	-
	14 (.083)	-
	11 (.120)	-
	7 (.180)	-040
2	16 (.065)	-
	14 (.083)	-
	13 (.095)	-
	11 (.120)	-031
2-1/2	14 (.083)	-032
	11 (.120)	-033
3	16 (.065)	-
	14 (.083)	-
	11 (.120)	-036
3-1/2	11 (.120)	-
	5 (.220)	-
4	11 (.120)	-

TOLERANCES ARE CONTAINED IN ASTM A 513 AND THE WSTI HANDBOOK.

SPECIFICATIONS

1. MATERIAL: AISI 1010 STEEL.
2. TUBING SHALL MEET APPLICABLE PROVISIONS OF ASTM A513.
3. MECHANICAL PROPERTIES: MINIMUM.

TENSILE (ULTIMATE) Kst	YIELD Kst	ELONGATION % IN 2 INCHES
45	32	15

CHG	JOB/RLSE NO	DATE	BY	REVISION
E	P*A078-23	06/02/88	ERK	REDRAWN AND REVISED
F	337314-48	07/21/88	ERK	ADDED -032

48-00978

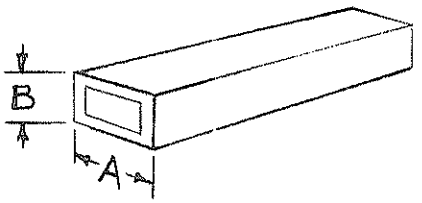
Materials Specification

PRINT ISSUED	TITLE	PART NO.
8/13/71	TUBE, STEEL, RECTANGULAR STRUCTURAL	48-00978
LAST CHG. LTR. C		SHEET 1 OF 1

SCOPE This specification identifies structural rectangular steel tube.

APPLICATION Can be subjected to most of the usual fabricating operations.

SKETCH



SPECIFICATION NUMBERS

A"	B"	WALL THICKNESS	FREIGHTLINER SPECIFICATION NUMBER
3	2	3/16	48-00978-000
		1/4	-001
4	2	3/16	-002
		1/4	-003
4	3	5/32	-004
		3/16	-005
		1/4	-006
5	2	3/16	-007
		1/4	-008
5	3	3/16	-009
		1/4	-010
		5/16	-011
		3/8	-012
		1/2	-013
6	2	3/16	-014
		1/4	-015
6	3	3/16	-016
		1/4	-017
		5/16	-018
		3/8	-019
		1/2	-020
6	4	3/16	-023
		1/4	-024

A"	B"	WALL THICKNESS	FREIGHTLINER SPECIFICATION NUMBER
8	4	1/4	48-00978-084
		3/8	-086

SPECIFICATIONS

1. Tube herein described shall meet applicable provisions of ASTM A501.
2. Mechanical Properties:

Typical Properties		
Tensile Ult Ksi	Yield Ksi	Elongation % in 2 inches
58	36	24

CHG	BY	DATE	WAS
A	RLR	6-28-71	Added Note 2
B	HJR	4-13-72	Add -023,-024; J#85420
C	HJR	4-16-74	Add -086; J#A0606

CHG	BY	DATE	WAS

ns

COMPILED	RWG	DATE DRAWN			UNIT OF MEASURE
APPROVED	[signature]	5-13-71			FT.

Portland FREIGHTLINER CORPORATION Oregon 97208

M/F B

DRAWN	ERK	TITLE	ITEM NUMBER
APPRV	KCB	TUBE-STEEL, RECTANGULAR STRUCTURAL	48-00978
DATE	01/17/90	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 1

SCOPE:

THIS SPECIFICATION IDENTIFIES STRUCTURAL RECTANGULAR STEEL TUBE.

APPLICATION:

CAN BE SUBJECTED TO MOST OF THE USUAL FABRICATION OPERATIONS.

SPECIFICATION NUMBERS:

NOMINAL SIZE (IN)	WALL THICKNESS (IN)	FREIGHTLINER SPECIFICATION NUMBER
3 X 2	.188 .250	48-00978-000 -001
4 X 2	.188 .250	- -003
4 X 3	.188 .250	-005 -006
5 X 2	.188 .250	-007 -008
5 X 3	.188 .250 .375	-009 - -012
6 X 3	.188 .250	- -017
6 X 4	.188 .250	-023 -
8 X 3	.250	-072

SPECIFICATIONS:

1. TUBE SHALL MEET APPLICABLE PROVISIONS OF ASTM A 500 GRADE B.
2. MINIMUM MECHANICAL PROPERTIES:

TENSILE (ULTIMATE) KSI	YIELD KSI	ELONGATION % IN 2 INCHES
58	46	23

CHG	JOB/RLSE NO	DATE	BY	REVISION
F	PF0634-04	01/17/90	ERK	REVISED & REDRAWN, ADDED -008
G	PA2024-38	08/07/90	ERK	CORRECTED ERROR IN SPECIFICATION NUMBER

DRAWN	RWG	TITLE	DRAWING NUMBER	
APPRV	RWG	TUBE-RECTANGULAR STEEL	48-00979	
DATE	05/13/71	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 1	CHG. LTR. G
CATIA ORIGINAL				

Scope: This specification identifies light structural rectangular steel tube.

Application: For use where ready forming, bending, swaging, or good finish are required.

HEIGHT	WIDTH	WALL THICKNESS	FREIGHTLINER SPECIFICATION NUMBER
2	1	14 (.083)	48-00979-002
2	1-1/2	11 (.120)	48-00979-004
3	1-1/2	7 (.180)	48-00979-014
1-1/2	1	.063 (.063)	48-00979-021
3	1	.125	48-00979-022
1-1/4	2	.083	48-00979-023
1	2-1/2	.125	48-00979-024

F

G

Engineering Notes:

1. Material: AISI 1010 steel.
2. Tubing shall meet applicable provisions of ASTM A513.
3. Mechanical Properties:

Minimum Properties		
Tensile Ultimate (Ksi)	Yield (Ksi)	Elongation % in 2 inches
45	32	15

CHG	JOB NO	DATE	BY	REVISION
E	P01813-02	05/15/97	DAJ	REVISED AND REDRAWN IN CATIA, ADDED -021.
F	P2D253-13	03/30/98	DAJ	ADDED -022 AND -023
G	P2D253-46	06/29/98	DAJ	ADDED -024

DRAWN	DAJ	TITLE	DRAWING NUMBER	
APPRV	DAJ	TUBE-STEEL RECTANGULAR, STRUCTURAL	48-00980	
DATE	06/30/98	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 1	CHG. LTR. B
CATIA ORIGINAL				

Scope: This specification identifies structural rectangular steel tube.

Application: Can be subjected to most of the usual fabricating operations.

HEIGHT	WIDTH	WALL THICKNESS	FREIGHTLINER SPECIFICATION NUMBER
1	2	.188	48-00980-016

Engineering Notes:

1. Tubing herein described shall meet applicable provisions of ASTM A512.

2. Mechanical Properties:

Typical Properties		
Tensile Ultimate (Ksi)	Yield (Ksi)	Elongation % in 2 inches
55	40	20

CHG	JOB NO	DATE	BY	REVISION
B	P02128-11	06/30/98	DAJ	REDRAWN IN CATIA