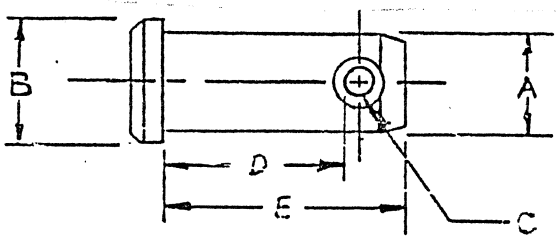
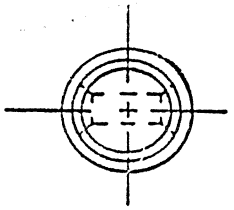
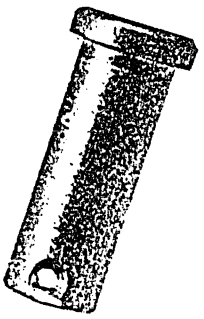
CLEVIS PINS

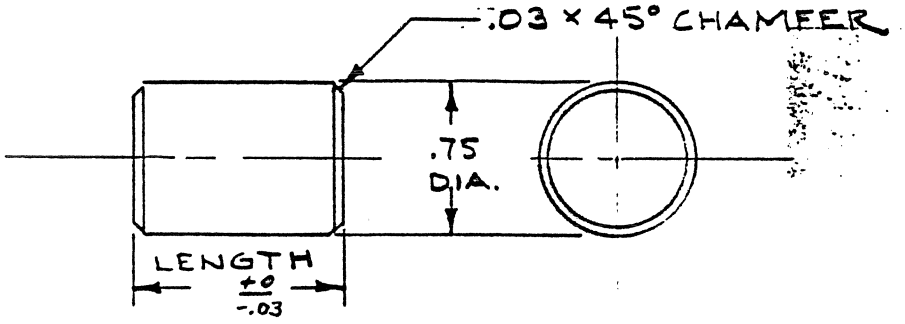






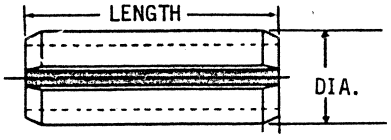
A NOM	B	C NOM	D REF	E	PART NUMBER
3/16	Ø.312	5/64	Ø.445	Ø.578	23-Ø9Ø41-ØØ3
1/4	Ø.375	5/64	Ø.633	Ø.766	23-Ø9Ø41-ØØ4
1/4	Ø.375	5/64	Ø.867	1.ØØØ	23-Ø9Ø41-Ø21
5/16	Ø.438	7/64	Ø.757	Ø.938	23-Ø9Ø41-ØØ5
5/16	Ø.438	7/64	1.Ø69	1.25Ø	23-Ø9Ø41-Ø22
3/8	Ø.5ØØ	7/64	Ø.883	1.Ø62	23-Ø9Ø41-ØØ6
3/8	Ø.5ØØ	7/64	1.321	1.5ØØ	23-Ø9Ø41-Ø18
3/8	Ø.5ØØ	7/64	1.188	1.375	23-Ø9Ø41-Ø19
3/8	Ø.5ØØ	7/64	1.562	1.75Ø	23-Ø9Ø41-Ø2Ø
3/8	Ø.5ØØ	7/64	2.937	3.125	23-Ø9Ø41-Ø23
7/16	Ø.562	7/64	1.ØØ8	1.188	23-Ø9Ø41-ØØ7
1/2	Ø.625	9/64	1.133	1.359	23-Ø9Ø41-ØØ8
5/8	Ø.812	9/64	1.383	1.6Ø9	23-Ø9Ø41-Ø1Ø
5/8	Ø.812	9/64	2.21Ø	2.5ØØ	23-Ø9Ø41-Ø24
3/4	Ø.938	11/64	1.633	1.9Ø6	23-Ø9Ø41-Ø12
7/8	1.Ø31	11/64	1.883	2.156	23-Ø9Ø41-Ø14
1	1.188	11/64	2.133	2.4Ø6	23-Ø9Ø41-Ø16

DOWEL PIN



LENGTH	DASH NUMBER
1/2	23-9271 -050
5/8	-062
3/4	-075
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
2-3/4	-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

SPRING-LOK PINS



* MEETS MILITARY AND INDUSTRIAL STANDARDS: MS-35-67-9, ASA-B5, 20, NAVORD-OSTD 600
* 1074 STEEL
* HEAT TREATED
* CHAMFERED ENDS ALLOWS FOR EASY INSTALLATION

DIAMETER 1/32	
1/4	23-ØØ8Ø3-ØØ4
3/8	-ØØ6
1/2	-ØØ8
5/8	-Ø1Ø
3/4	-Ø12
1	-Ø16

DIAMETER 3/64	
1/4	23-ØØ8Ø4-ØØ4
3/8	-ØØ6
1/2	-ØØ8
5/8	-Ø1Ø
3/4	-Ø12
1	-Ø16

DIAMETER .Ø52	
1/4	23-ØØ8Ø5-ØØ4
3/8	-ØØ6
1/2	-ØØ8
5/8	-Ø1Ø
3/4	-Ø12
1	-Ø16

DIAMETER 1/16	
1/4	23-ØØ8Ø6-ØØ4
3/8	-ØØ6
1/2	-ØØ8
5/8	-Ø1Ø
3/4	-Ø12
1	-Ø16

DIAMETER 5/64	
1/4	23-ØØ8Ø8-ØØ4
3/8	-ØØ6
1/2	-ØØ8
5/8	-Ø1Ø
3/4	-Ø12
1	-Ø16

DIAMETER 3/32	
1/4	23-ØØ8Ø9-ØØ4
3/8	-ØØ6
7/16	-ØØ7
1/2	-ØØ8
9/16	-ØØ9
5/8	-Ø1Ø
3/4	-Ø12
1	-Ø16

DIAMETER 3/32 (CONT)	
1-1/4	23-ØØ8Ø9-Ø2Ø

DIAMETER 7/64	
1/4	23-ØØ811-ØØ4
3/8	-ØØ6
1/2	-ØØ8
5/8	-Ø1Ø
3/4	-Ø12
1	-Ø16

DIAMETER 1/8	
3/8	23-ØØ812-ØØ6
1/2	-ØØ8
5/8	-Ø1Ø
3/4	-Ø12
7/8	-Ø14
1	-Ø16
1-1/4	-Ø2Ø
1-1/2	-Ø24

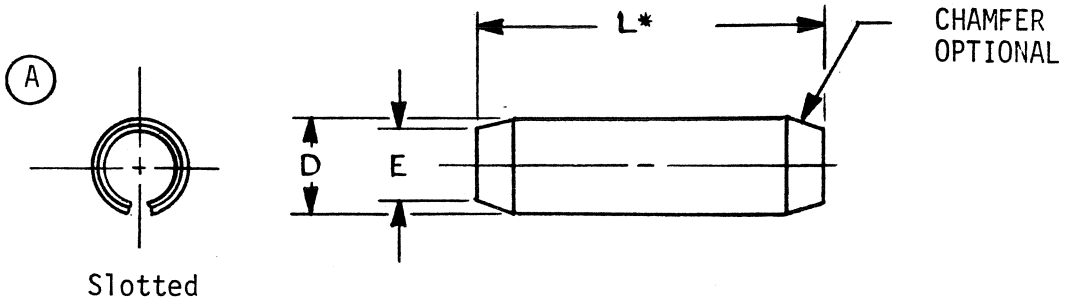
DIAMETER 9/64	
3/8	23-ØØ814-ØØ6
1/2	-ØØ8
5/8	-Ø1Ø
3/4	-Ø12
7/8	-Ø14
1	-Ø16
1-1/4	-Ø2Ø
1-1/2	-Ø24

DIAMETER 5/32	
1/2	23-ØØ816-ØØ8
5/8	-Ø1Ø
3/4	-Ø12
7/8	-Ø14
1	-Ø16
1-1/4	-Ø2Ø
1-1/2	-Ø24

DIAMETER 3/16	
1/2	23-ØØ819-ØØ8
3/4	-Ø12
7/8	-Ø14
1	-Ø16
1-1/4	-Ø2Ø
1-1/2	-Ø24
1-3/4	-Ø28
2	-Ø32

Compiled	L. BRYANT	SPRING TYPE STRAIGHT PINS SLOTTED OR COILED SAE J496	23-803 THRU 23-850
Approved			
Issued	11-28-67		
Revised		Chg Ltr B **FREIGHTLINER CORPORATION** PORTLAND, OREGON	INDEX

CHG	BY	DATE	WAS
A	PRJ	1-10-79	END VIEW ADDED
B	LVD	10-3-79	REV'D d/e), f), g) & ADDED h)



Slotted

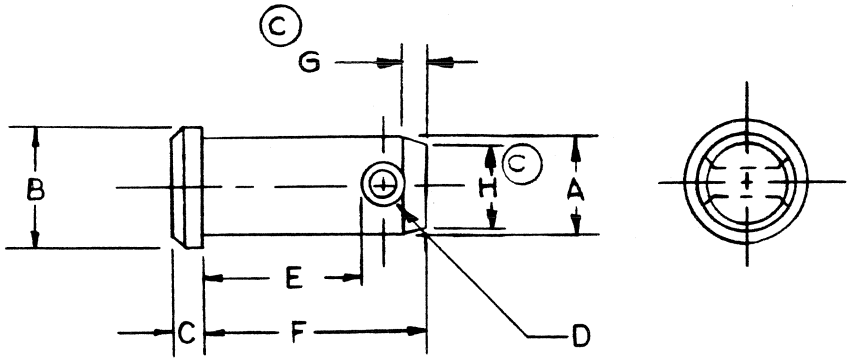
Any manufacturer's product meeting the minimum specifications of SAE J496 will be acceptable.

Part Number	D Nom. Dia.	E Series[a] A,B&C Max.	Double Shear Strength(lb)[c] Slotted Coiled (min.) A[a]	B[a]	C[a]	Recommended Hole Size Slotted A & B[a] Max	Min	Coiled A,B & C[a] Max	Min	L* Material[g] And Length in Sixteenths Min	Max
23-803-L	1/32	.029[b]	-	75	-	-	-	.032	.031	02[d]	10[d]
23-804-L	3/64	.045[b]	-	170	-	-	-	.048	.047	02[d]	10[d]
23-805-L	.052	.050[b]	-	230	-	-	-	.050	.052	02[d]	10[d]
23-806-L	1/16	.059	425	300	160	.065	.062	.065	.061	03[d]	16[e]
23-808-L	5/64	.075	650	480	260	.081	.078	.081	.077	03[d]	24[e]
23-809-L	3/32	.091	1000	690	370	.097	.094	.097	.093	04[d]	24[e]
23-811-L	7/64	.106	1410	940	510	.112	.109	.112	.108	06[d]	24[e]
23-812-L	1/8	.122	1840	1000	660	.129	.125	.129	.124	06[d]	32[e]
23-814-L	9/64	.136	2200	1550	830	.141	.140	.144	.139	06[d]	32[f]
23-816-L	5/32	.152	2880	1750	1040	.160	.156	.160	.155	07[d]	40[f]
23-819-L	3/16	.182	4140	2500	1500	.192	.187	.192	.185	08[d]	40[f]
23-822-L	7/32	.214	5640	3760	2000	.224	.219	.224	.217	08[d]	48[f]
23-825-L	1/4	.245	7360	4600	2660	.256	.250	.256	.248	08[d]	56[f]
23-831-L	5/16	.306	11500	7670	4160	.318	.312	.318	.308	11[d]	64[f]
23-838-L	3/8	.368	16580	11040	6000	.382	.375	.382	.368	11[d]	64[f]
23-844-L	7/16	.430	20000	15020	8160	.445	.437	.445	.429	15[d]	64[f]
23-850-L	1/2	.490	25800	19600	10640	.510	.500	.510	.490	18[e]	64[f]

a) Series designation applies to stock thickness, A being heaviest.
b) Series B coiled.
c) Applies to pins made from SAE 1070 to 1095 steel and SAE 51410 or AISI 420 corrosion resistant steel. SAE 30302 stainless steel has a minimum shear strength equal to 85% of values shown for coiled pins.
(B)
d) L to be in sixteenths of an inch.
e) Lengths from 1/8 thru 1 are available in increments of 1/16.
f) Lengths from 1 thru 2 are available in increments of 1/8.
g) Lengths from 2 thru 4 are available in increments of 1/4
h) 0=SAE 1070 to 1095 steel, 1=AISI 420 corrosion resistant steel, and 2=SAE 30302 stainless steel.

23-9025

PRINT ISSUED	TITLE	PART NO.
	PIN CLEVIS (SPECIAL) 1/2" INCH O.D.	23-9025
LAST CHG. LTR. C		SHEET OF



FL PART NO	NOM SIZE	A		B	C	D	E	F
		MAX	MIN			DIA	REF	
-000	.500	.496	.491	.62	.16	9/64	1.21	1.44
-001	.500	.496	.491	.62	.16	9/64	.87	1.10

Ⓒ

FL PART NO	G +.026 -.000	H +.010 -.000
-000	.063	.430
-001	.063	.430

CHG	BY	DATE	WAS

CHG	BY	DATE	WAS
B	KJA	9-18-68	B Size Drawing
C	BT	7-17-84	ADD G & H DIM 2098C

(1) MATERIAL: SAE 1010 or SAE 1111 Steel, Plain Finish

COMPILED	K.J.A	DATE DRAWN	MASTER NO.		MATERIAL	NEXT ASSY. NO.
APPROVED	K.J.A	9-18-68	02080	00001	(1)	GENERAL USE PART

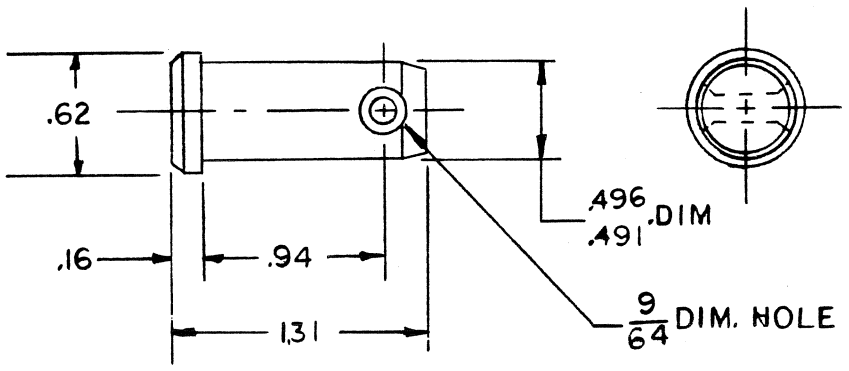
Portland FREIGHTLINER CORPORATION Oregon 97208

23-9030

PRINT ISSUED	TITLE	PART NO.
	PIN CLEVIS SPECIAL	23-9030
LAST CHG. LTR. B		SHEET OF

CHG	BY	DATE	WAS

CHG	BY	DATE	WAS
B	KJA	9-18-68	B Size Drawing



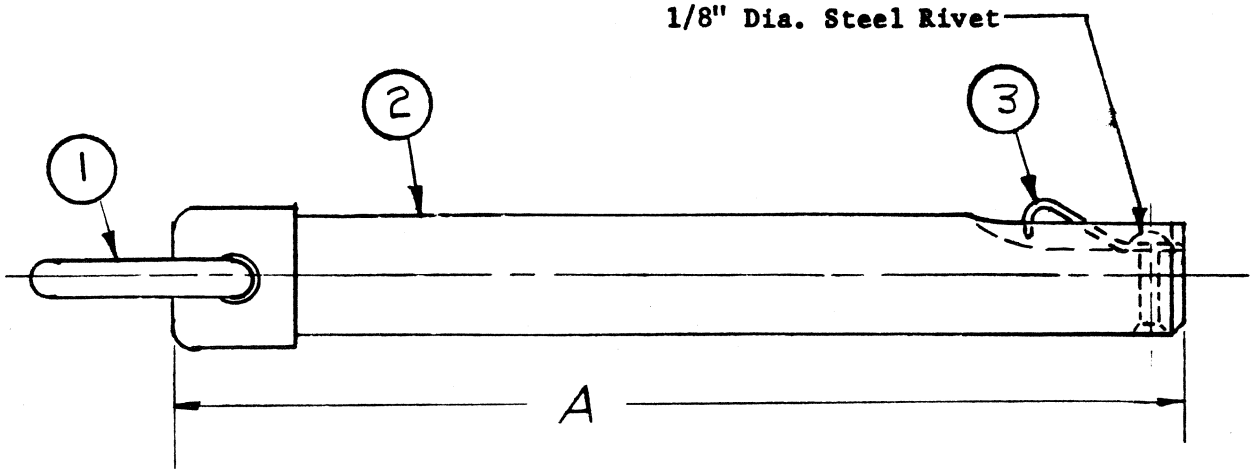
(1) MATERIAL: SAE 1010 or SAE 1111 Steel, Plain Finish.

COMPILED	K.J.A.	DATE DRAWN		MATERIAL	NEXT ASSY. NO.
APPROVED	K.J.A	9-18-68		(1)	A11-9189 A12-9451

Portland FREIGHTLINER CORPORATION Oregon 97208

A23-9036

PRINT ISSUED	TITLE	PART NO.
1-23-69	PIN ASSEMBLY SELF LOCKING	A23-9036
LAST CHG. LTR. B		SHEET OF



DASH NUMBER	A
-000	5.25
-001	4.50

CHG	BY	DATE	WAS

CHG	BY	DATE	WAS
B	PRJ	12-23-68	B Size Drawing

① [illegible]

ITEM	QTY	PART NUMBER	NAME OF PART
3	1	23-9038	Spring
2	1	23-9198	Pin
1	1	23-9039	Ring

COMPILED	PRJ	DATE DRAWN		MATERIAL	NEXT ASSY. NO.
APPROVED	K.J.A.	12-23-68		①	VEHICLE

Portland FREIGHTLINER CORPORATION Oregon 97208

CHG	BY	DATE	WAS
E	RJR	12-17-71	-023 Added
F	GEH	11-13-78	-024 " C1124
G	KMM	10-22-81	0.312 WAS 0.312 (MS24665)
H	DL	9-7-82	ADD NOTE 2 (MS24665)
J	DL	10-11-82	X2

CHG	BY	DATE	WAS
A	PRJ	12-27-68	-017 Added
B	RJR	6-1-71	-018 Added; Format Rev'd
C	RJR	8-27-71	-019, -020 added.
D	RJR	9-23-71	-021, -022 added.

X2

PRINT RECORD

REV TO

REV LTR J

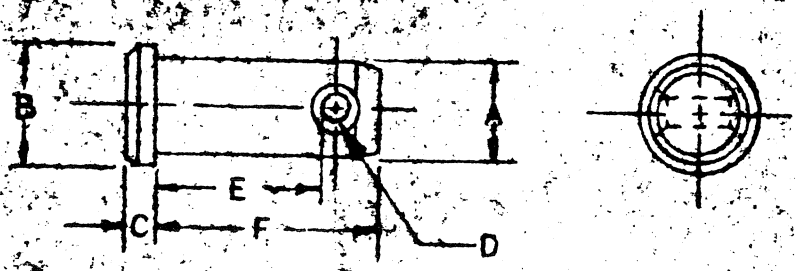
TITLE

PIN - CLEVIS
METRIC SAE J493 STANDARDS

PART NO. 23-9041

SHEET 1 OF 1

SKETCH



PART NUMBERS

	NOM SIZE	A MAX	A MIN	B	C	D MIN	D MAX	E REF	F	FRTLNR PART NO. 23-9041
	5/16	0.311	0.306	0.438	0.094	0.104	0.119	0.757	0.938	-009
	3/8	0.373	0.368	0.500	0.125	0.104	0.119	0.883	1.062	-008
	7/16	0.436	0.431	0.562	0.156	0.104	0.119	1.008	1.188	-007
	1/2	0.496	0.491	0.625	0.156	0.136	0.151	1.133	1.359	-008
	5/8	0.621	0.616	0.812	0.203	0.136	0.151	1.383	1.609	-010
	3/4	0.746	0.741	0.938	0.250	0.167	0.182	1.633	1.906	-012
	7/8	0.871	0.866	1.031	0.312	0.167	0.182	1.883	2.156	-014
	1	0.996	0.991	1.188	0.344	0.167	0.182	2.133	2.406	-016
	5/8	0.643	0.638	0.812	0.203	0.136	0.151	1.324	1.750	-017
	3/8	0.373	0.368	0.500	0.125	0.104	0.119	1.321	1.500	-018
	3/8	0.373	0.368	0.500	0.125	0.104	0.119	1.188	1.375	-019
	3/8	0.373	0.368	0.500	0.125	0.104	0.119	1.562	1.750	-020
	1/4	0.248	0.243	0.375	0.094	0.073	0.088	0.867	1.000	-021
	5/16	0.311	0.306	0.438	0.094	0.104	0.119	1.069	1.250	-022
	3/8	0.373	0.368	0.500	0.125	0.104	0.119	1.937	2.125	-023
	5/8	0.643	0.638	0.812	0.203	0.140	0.171	2.21	2.50	-024

2 HEAT TREAT: UNHARDENED

(1) MATERIAL; SAE 1010 or SAE 1111 Steel, Plain Finish

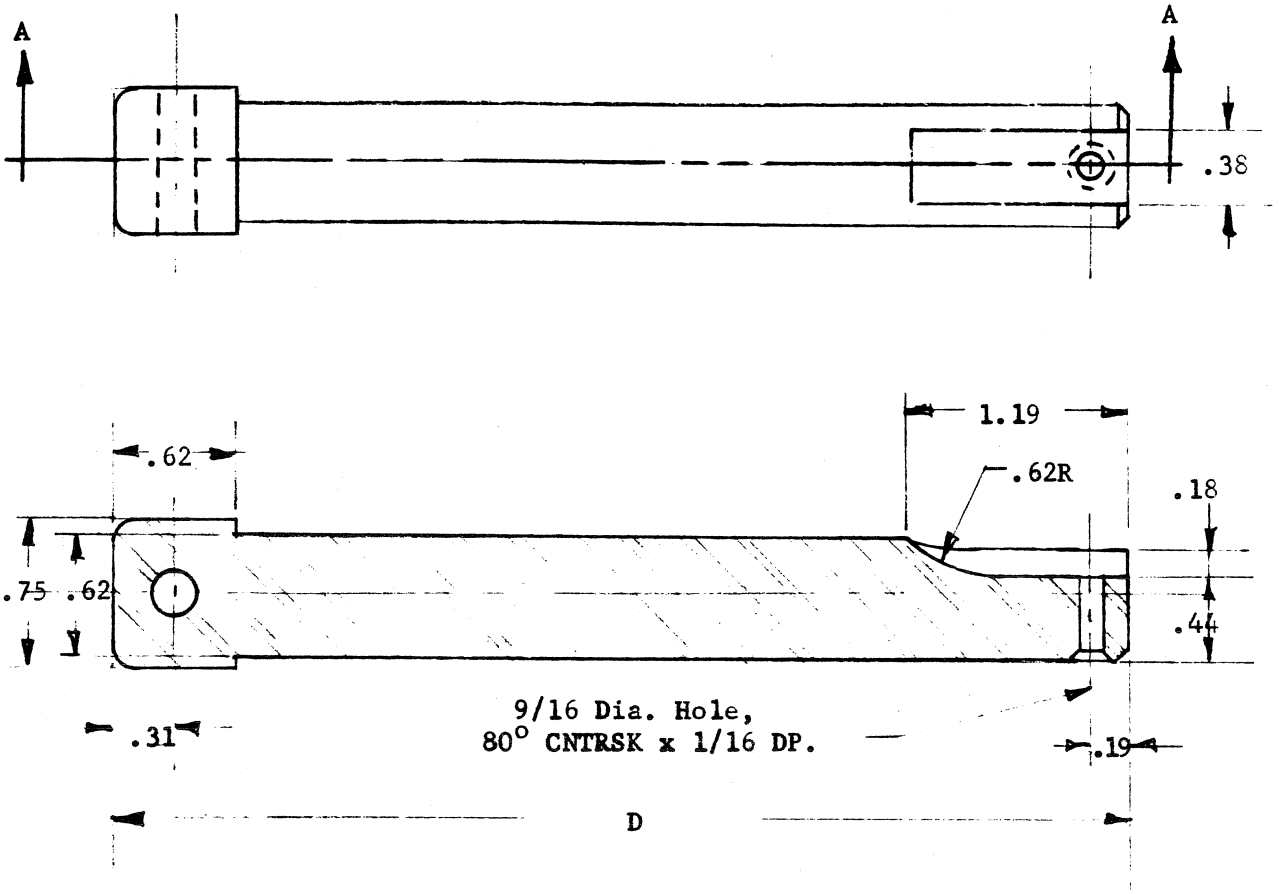
COMPILED	K.J.A	DATE DRAWN		MATERIAL	
APPROVED	K.J.A	9-18-68		(1)	

X2

REPLACED BY 23-1142

Portland FREIGHTLINER CORPORATION Oregon 97208

PRINT ISSUED	TITLE	PART NO.
1-23-69	PIN, SELF-LOCKING	23-9198
LAST CHG. LTR.		SHEET OF



SECTION A-A

DASH NUMBER	D
-001	5.25
-002	4.50

(1.) 3/4 Dia x Dim D. Steel - SAE 1010 - 1020

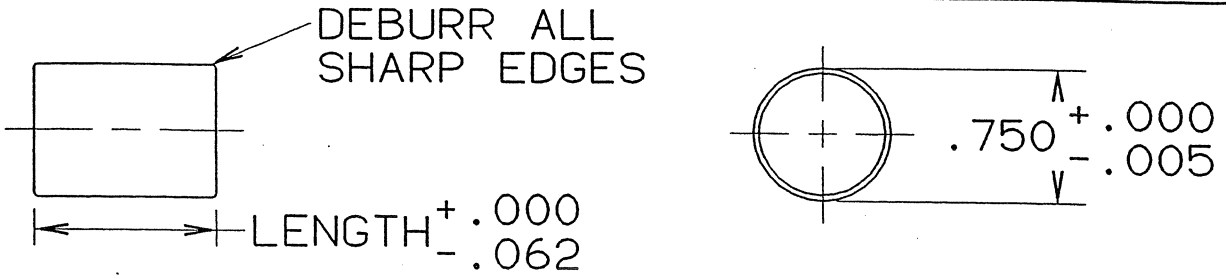
COMPILED	PRJ	DATE DRAWN		MATERIAL	NEXT ASSY. NO.
APPROVED	R.J.a.	12-23-68		(1)	A23-9036

Portland FREIGHTLINER CORPORATION Oregon 97208

CHG	BY	DATE	WAS

CHG	BY	DATE	WAS

DRAWN	RDF	TITLE	ITEM NUMBER
APPRV	PCK	PIN, DOWEL	23-09271
DATE	09-20-88	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 1



PART NUMBERS

LENGTH	PART NUMBER	LENGTH	PART NUMBER
.75	23-09271-075	2.62	23-09271-262
.88	-088	2.75	-275
1.00	-100	2.88	-288
1.12	-112	3.00	-300
1.25	-125	3.12	-312
1.38	-138	3.31	-331
1.50	-150	3.38	-338
1.62	-162	3.50	-350
1.75	-175	3.62	-362
1.88	-188	3.88	-388
2.00	-200	4.00	-400
2.12	-212	4.25	-425
2.25	-225		
2.38	-238		
2.50	-250		

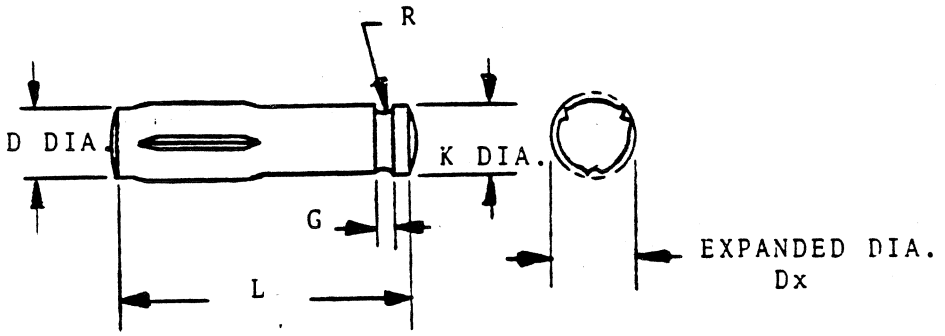
1. MATERIAL: 48-00829-014
   BAR, COLD FINISHED

2. THE THREE DIGIT PART NUMBER EXPRESSES THE LENGTH IN 1/100THS OF AN INCH. EXAMPLE: 23-09271-175 CALLS OUT A DOWEL PIN 1.75 INCHES LONG.

CHG	JOB/RLSE NO	DATE	BY	REVISION
B	P*A078-61	09-21-88	RDF	REVISED & REDRAWN ON CADAM,
C	P4518F-01	06/22/89	PCK	REVISED MATERIAL AND DIA TOLERANCE
D	P4506D-05	11/02/90	PCK	CHNG'D LNGTH TOL +.000/-.030 TO +.000/-.062 & CHAMFER TO "DEBURR ALL SHARP EDGES"
E	A18456-02	08-25-98	WKS	ADDED -312, -338 & -362

ORIGINAL JOB NO.	TITLE	PART NO.
CO 910	Pin, Grooved Type G	23-11189
LAST CHG LTR B		SHEET 1 OF 1

Sketch



Part Numbers

"D" DIA. +.000 -.002	"K" DIA. ±.005	L ±.010	Dx ±.002	R (REF)	G (REF)	Manufacturers Number	Freightliner Part Number
.1250	.083	.625	.134	.031	.063	DVL/6125-625	23-11189-062 A

Engineering Notes

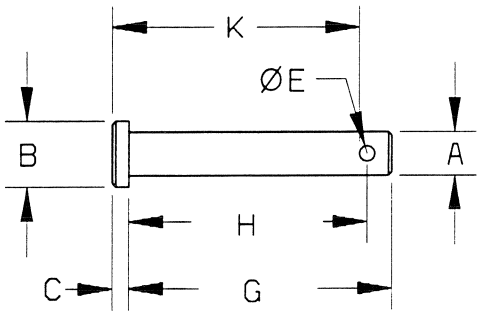
1. Material: Low carbon steel; SAE 1213.
2. Finish: Zinc plated

COMPILED	BK	DATE DRAWN		Material	STATUS
APPROVED		1-30-79		1	X4

CHANGE INFORMATION	DATE	BY	JOB NO.	TR

CHANGE INFORMATION	DATE	BY	JOB NO.	TR
CHANGE STATUS CTD X4	11-19-79	MS	C1493	B
Added DVL.	4-9-79	DB	CO910A	A

DRAWN	DAJ	TITLE	DRAWING NUMBER	
APPRV	DAJ	PIN-CLEVIS HARDENED	23-11347	
DATE	10/07/98	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 1	CHG. LTR. N
CATIA ORIGINAL				



NOM SIZE	A MAX	A MIN	B ±.010	C ±.010	E NOM	K REF	H ±.010	G NOM	FREIGHTLINER PART NUMBER	
.312 (3)	.311	.306	.434	.092	.156	.515	.594	.750	23-11347-005	
.375 (3)	.373	.368	.500	.120	.156	.890	.969	1.125	23-11347-004	
.500 (3)	.496	.491	.620	.150	.156	1.016	1.094	1.250	23-11347-006	
.500 (3)	.496	.491	.620	.150	.144	1.268	1.340	1.490	23-11347-003	
.500 (3)	.496	.491	.620	.150	.144	1.693	1.765	1.984	23-11347-007	
.500 (3)	.496	.491	.620	.150	.156	3.260	3.188	3.500	23-11347-008	N
.500 (3)	.496	.491	.620	.150	.144	3.750	3.820	4.000	23-11347-009	
.625 (4)	.621	.616	.810	.200	.144	1.602	1.674	1.824	23-11347-000	
.625 (3)	.621	.616	.810	.200	.144	2.216	2.288	2.438	23-11347-001	
.625 (3)	.621	.616	.810	.200	.144	4.408	4.480	4.630	23-11347-002	

ENGINEERING NOTES:

1. MATERIAL: STEEL, ASTM 1018
2. HEAT TREAT: CASE HARDEN .010 TO .015 DEEP,
   HARDNESS: 87-90 ROCKWELL 15-N,

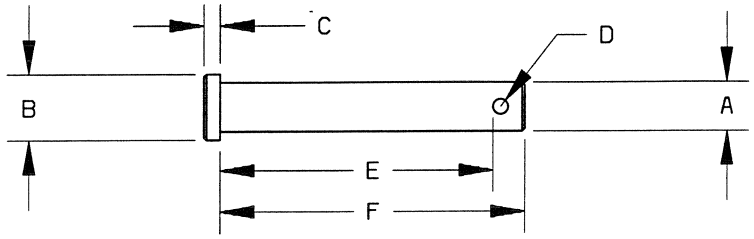
(3) FINISH: ZINC PLATE PER 49-00005-202,
PART MUST BE FREE FROM HYDROGEN EMBRITTLEMENT.

(4) FINISH: PLAIN

5. EXCEPT AS NOTED, DIMENSIONS & SPECIFICATIONS PER ANSI B18.8.1.

CHG	JOB NO	DATE	BY	REVISION
L	A84710-01	10/07/98	DAJ	REVISED AND REDRAWN IN CATIA, ADDED -008.
M	P02128-16	12/18/98	DAJ	ADDED -009.
N	PA2042-96	09/14/99	CGD	REVISED 23-11347-008

DRAWN	CGD	TITLE	DRAWING NUMBER	
APPRV	DAJ	PIN-CLEVIS PLATED, STD	23-11377	
DATE	03/29/99	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 2	CHG. LTR. U
CATIA ORIGINAL				



NOM SIZE	A MAX	A MIN	B	C	D (DIA.) MAX	D (DIA.) MIN	E +.020 -.000	F	FREIGHTLINER PART NUMBER
3/16	0.186	0.181	0.312	0.062	0.073	0.088	1.117	1.250	23-11377-033
3/16	0.186	0.181	0.312	0.062	0.073	0.088	1.367	1.500	23-11377-034
1/4	0.248	0.243	0.375	0.094	0.088	0.101	0.633	0.766	23-11377-004
1/4	0.248	0.243	0.375	0.094	0.088	0.101	1.359	1.500	23-11377-036
1/4	0.248	0.243	0.375	0.094	0.088	0.101	2.109	2.250	23-11377-037
1/4	0.248	0.243	0.375	0.094	0.088	0.101	3.359	3.500	23-11377-032
3/8	0.373	0.368	0.500	0.125	0.104	0.119	0.883	1.062	23-11377-006
3/8	0.373	0.368	0.500	0.125	0.104	0.119	1.062	1.246	23-11377-031
3/8	0.373	0.368	0.500	0.125	0.104	0.119	1.188	1.375	23-11377-019
3/8	0.373	0.368	0.500	0.125	0.104	0.119	1.321	1.500	23-11377-018
3/8	0.373	0.368	0.500	0.125	0.104	0.119	2.000	2.180	23-11377-028
3/8	0.373	0.368	0.500	0.125	0.104	0.119	2.125	2.305	23-11377-027
3/8	0.373	0.368	0.500	0.125	0.104	0.119	2.820	3.000	23-11377-029
U 3/8	0.373	0.368	0.500	0.125	0.104	0.119	1.062	1.364	23-11377-042
R 3/8	0.373	0.368	0.500	0.125	0.156 NOM		3.750	4.000	23-11377-039
3/8	0.373	0.368	0.500	0.125	0.156 NOM		4.266	4.500	23-11377-035
S 7/16	0.436	0.431	0.560	0.150	0.156 NOM		1.500	1.734	23-11377-040
1/2	0.496	0.491	0.625	0.156	0.136	0.151	2.508	2.734	23-11377-030
5/8	0.643	0.638	0.812	0.203	0.140	0.171	2.210	2.500	23-11377-024
5/8	0.621	0.616	0.812	0.203	0.156 NOM		4.515	4.750	23-11377-025
5/8	0.621	0.616	0.812	0.203	0.156 NOM		5.580	5.800	23-11377-026
R 1	0.996	0.991	1.188	0.344	0.167	0.182	2.977	3.250	23-11377-038
T 1	0.996	0.991	1.188	0.344	0.167	0.182	3.750	4.500	23-11377-041

CHG	JOB NO	DATE	BY	REVISION
R	P08177-01	03/29/99	CGD	REVISED AND REDRAWN IN CATIA, ADDED -038 & -039.
S	P09214-01	07/15/99	CGD	ADDED 23-11377-040.
T	B50776-02	10/28/99	LFB	ADDED 23-11377-041.
U	P10827-01	12/09/99	LFB	ADDED 23-11377-042.

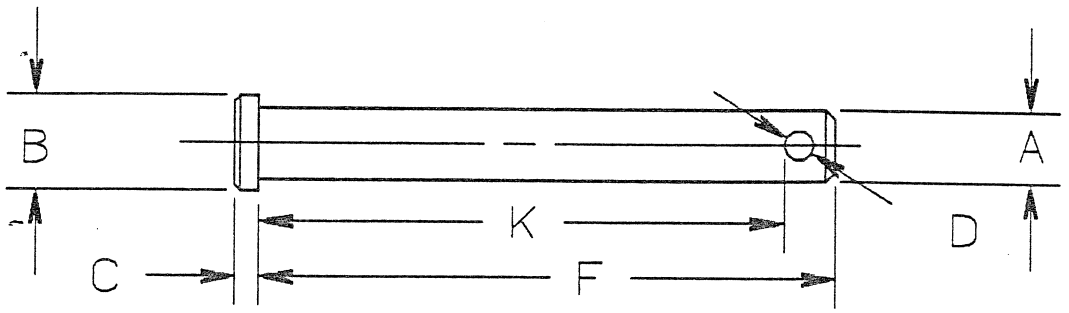
DRAWN	CGD	TITLE PIN-CLEVIS PLATED, STD	DRAWING NUMBER 23-11377	
APPRV	DAJ			
DATE	03/29/99			
CATIA ORIGINAL		FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 2 OF 2	CHG. LTR. U

ENGINEERING NOTES:

1. MATERIAL: SAE 1010 OR 1111 STEEL.
2. FINISH: ZINC PLATE PER FREIGHTLINER SPEC 49-00005-403.
3. MUST COMPLY WITH SAE J493.

CHG	JOB NO	DATE	BY	REVISION
R	P08177-01	03/29/99	CGD	REVISED AND REDRAWN IN CATIA, ADDED -038 & -039.
S	P09214-01	07/15/99	CGD	ADDED 23-11377-040.
T	B50776-02	10/28/99	LFB	ADDED 23-11377-041.
U	P10827-01	12/09/99	LFB	ADDED 23-11377-042.

DRAWN	RDF	TITLE	ITEM NUMBER
APPRV	PCK	PIN, CLEVIS PLAIN, STD	23-11424
DATE	07/13/89	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 1

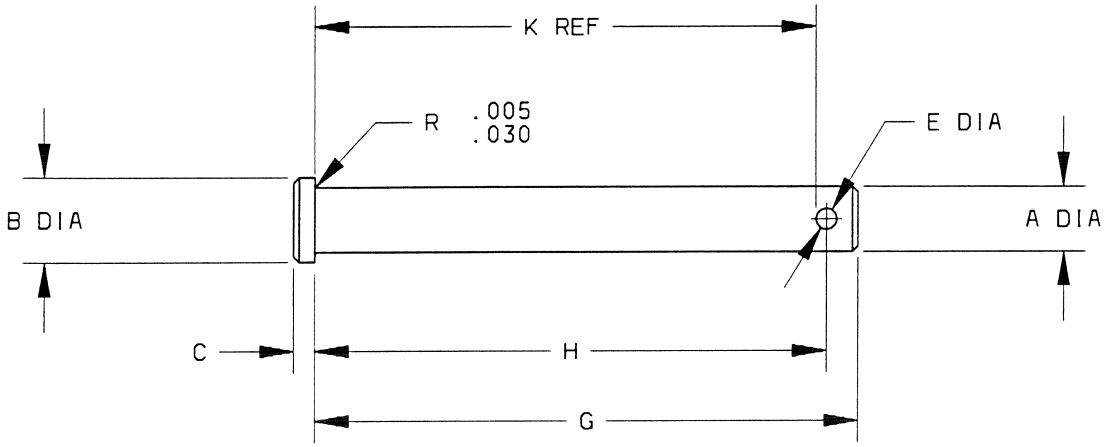


NOM SIZE	A MAX	A MIN	B ±.010	C ±.010	D MIN	D MAX	K REF	F ±.010	FREIGHTLINER PART NUMBER
1/4	0.248	0.243	0.375	0.094	0.073	0.088	0.633	0.766	23-11424-004
1/4	0.248	0.243	0.375	0.094	0.073	0.088	0.867	1.000	-021
5/16	0.311	0.306	0.438	0.094	0.104	0.119	0.757	0.938	-005
3/8	0.373	0.368	0.500	0.125	0.104	0.119	0.883	1.062	-006
3/8	0.373	0.368	0.500	0.125	0.104	0.119	1.321	1.500	-018
3/8	0.373	0.368	0.500	0.125	0.104	0.119	1.188	1.375	-019
3/8	0.373	0.368	0.500	0.125	0.104	0.119	1.562	1.750	-020
3/8	0.373	0.368	0.500	0.125	0.104	0.119	2.937	3.125	-023
1-1/4	1.245	1.235	1.635	0.405	0.250	0.275	3.375	4.000	-025

1. MATERIAL: SAE 1010 OR 1111 STEEL OR STRONGER.
   NO HEAT TREATMENT OR CASE HARDENING.
2. FINISH: PLAIN
3. UNDIMENSIONED DETAILS TO COMPLY WITH SAE J493.
4. MCMASTER-CARR 98306A851 IS AN APPROVED EQUIVALENT FOR -025.

CHG	JOB/RLSE NO	DATE	BY	REVISION
B	PB1001-40	07/13/89	RDF	REVISED & REDRAWN, DELETED INACTIVE ITEMS, ADDED -025
C	PA2006-96	11/07/89	RDF	CORRECTED -019, K FROM 1.880 TO 1.188
D	PA2024-43	09/13/90	PCK	CORRECTED -006, K FROM 0.833 TO 0.883

DRAWN	CGD	TITLE	DRAWING NUMBER	
APPRV	DAJ	PIN-CLEVIS GRADE 8, ZINC PLATED	23-12139	
DATE	05/06/99			
CATIA ORIGINAL		FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 1	CHG. LTR. E



NOM. SIZE	A MAX	A MIN	B ±.010	C ±.010	E NOM	K REF	H ±.010	G NOM	FREIGHTLINER PART NUMBER
.625	0.621	0.616	0.810	0.200	0.144	1.778	1.850	2.000	23-12139-001
						2.278	2.350	2.500	23-12139-002
						4.400	4.470	4.700	23-12139-003
						4.050	4.120	4.350	23-12139-004
						3.310	3.380	3.610	23-12139-005
					0.196	3.900	4.000	4.350	23-12139-006

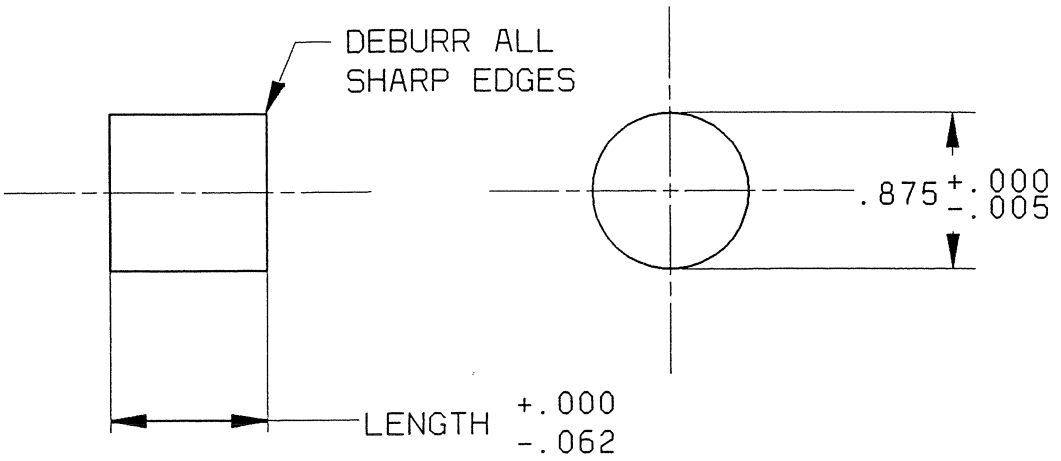
ENGINEERING NOTES:

1. MATERIAL AND MECHANICAL PROPERTIES: PER SAE J429 GRADE 8.
2. FINISH: ZINC PLATE PER 49-00005-403.
3. EXCEPT AS NOTED, DIMENSIONS AND SPECIFICATIONS PER ANSI B18.8.1.

CHG	JOB NO	DATE	BY	REVISION
E	P05051-32	05/06/99	CGD	REVISED AND REDRAWN IN CATIA, ADDED -006.

ADRIENNE CHILBERG

DRAWN	DRJ	TITLE PIN, DOWEL 1117 COLD FINISHED	DRAWING NUMBER 23-12189
APPRV	ERK		
DATE	08/26/94	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 1 / CHG. LTR. A
CATIA ORIGINAL			

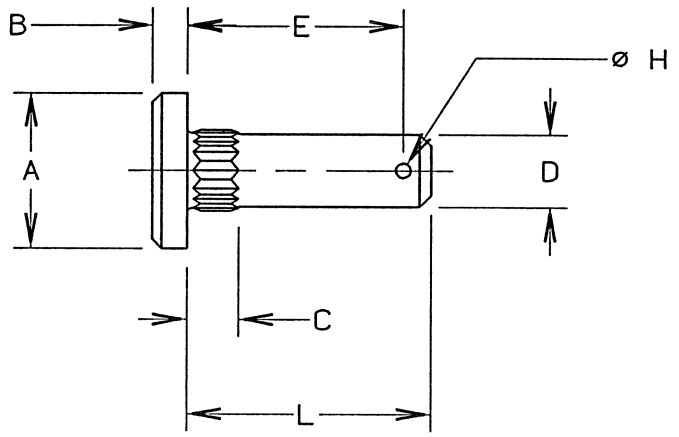


LENGTH	PART NUMBER
1.25	23-12189-125
.75	23-12189-075

1. MATERIAL: 48-00831-088, 1117 COLD FINISH STEEL ROD

CHG	JOB NO	DATE	BY	REVISION
A	805135-01	03/25/97	DRW	REVISED AND REDRAWN TO CATIA. ADDED -075 VERSION

DRAWN	DAJ	TITLE	ITEM NUMBER
APPRV	ERK	PIN-CLEVIS RIBBED NECK	23-12260
DATE	06/27/95	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 1



DIMENSION							FREIGTHLINER PART NUMBER
A	B	C	D	E	H	L	
.42/.44	.08/.10	.12(MAX)	.306/.311	.68(MIN)	5/64	.81(MAX)	23-12260-000

ENGINEERING NOTES:

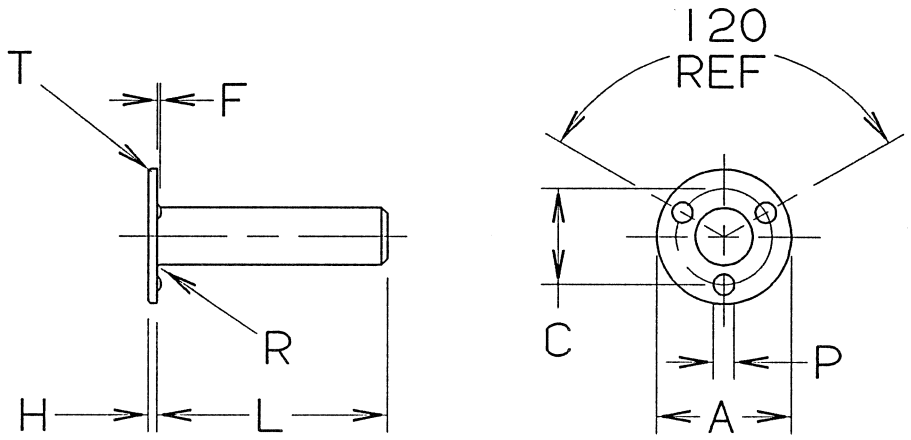
MATERIAL: STEEL, GRADE 5 PER SAE J429.

FINISH: ZINC PLATE WITH YELLOW DICHROMATE PER FTL 49-00005-203.

ABOVE DIMENSIONS FOR REFERENCE ONLY.

CHG	JOB/RLSE NO	DATE	BY	REVISION
-	P2A242-53	06/27/95	DAJ	INITIAL LOAD

DRAWN	DAJ	TITLE	ITEM NUMBER
APPRV	ERK	PIN - PROJECTION WELD	23-12280
DATE	09/14/95	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 1



PIN BODY DIA	A HEAD DIA.	H HEAD HEIGHT	P PROJECTION DIA.	F PROJECTION HEIGHT	L LENGTH	MANUFACTURERS NUMBER ONB	FREIGHTLINER PART NUMBER
.163	.437	.062	.086	.028	5/8	MP-0163-S	23-12280-000
					7/8		23-12280-001

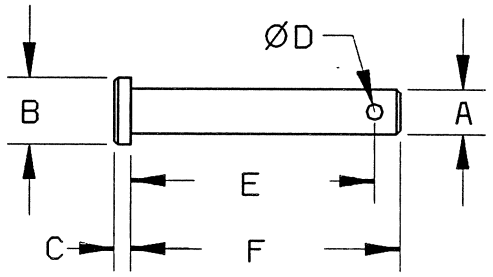
ENGINEERING NOTES:

1. MATERIAL: STEEL, C1008-1010 HIGH-WELDING QUALITY, LOW CARBON STEEL
2. FINISH: PLAIN

CHG	JOB/RLSE NO	DATE	BY	REVISION
-	P2A364-99	09/14/95	DAJ	INITIAL LOAD
A	P2794F-01	04/18/96	DAJ	ADDED -001

DRIENNE CHILBERG

DRAWN	FHC	TITLE PIN-CLEVIS PLATED, STD	DRAWING NUMBER 23-12391
APPRV	DAJ		
DATE	08/12/96		
CATIA ORIGINAL		FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 1 / CHG. LTR. -



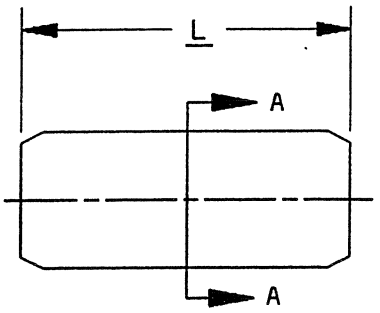
NOM SIZE	A		B	C	D		E ±.020 ±.000	F	FREIGHTLINER PART NUMBER
	MAX	MIN			MAX	MIN			
1/4	.248	.243	.375	.094	.088	.101	1.359	1.500	23-12391-000

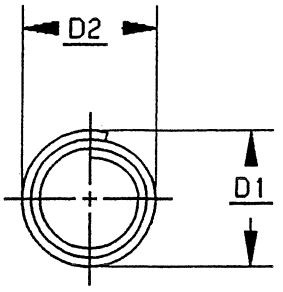
ENGINEERING NOTES:

1. MATERIAL: 4140 STEEL, HEAT TREAT TO GRADE 8.
2. FINISH: ZINC PLATE PER FREIGHTLINER SPEC 49-00005-403.

CHG	JOB NO	DATE	BY	REVISION
-	P00792-01	08/12/96	FHC	INITIAL RELEASE

DRAWN	DAJ	TITLE	DRAWING NUMBER	
APPRV	DAJ	PIN - SPIROL HEAVY DUTY	23-12533	
DATE	08/04/98	FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 1	CHG. LTR. -
CATIA ORIGINAL				





Section A-A

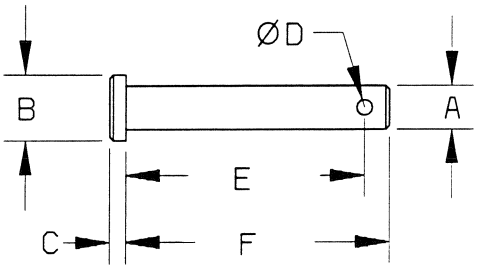
NOMINAL PIN SIZE	DIMENSIONS (MAX/MIN)			RECOMMENDED HOLE SIZE	FREIGHTLINER PART NUMBER
	D1	D2	L		
.250	.268/.258	.256/.249	1.51/1.49	.252/.249	23-12533-000

Engineering Notes:

1. Material: Carbon Steel SAE 1070-1095
2. Finish: Plain
3. Above dimensions for reference only.

CHG	JOB NO	DATE	BY	REVISION
-	P06065-01	08/04/98	DAJ	INITIAL LOAD

DRAWN	CGD	TITLE	DRAWING NUMBER	
APPRV	DAJ	PIN-CLEVIS, METRIC ZINC CLEAR	23-12667	
DATE	07/02/99			
CATIA ORIGINAL		FREIGHTLINER CORPORATION PORTLAND, OREGON	SHEET 1 OF 1	CHG. LTR. A



NOM. SIZE	A		B	C	D NOM	E	F	FREIGHTLINER PART NUMBER
	MAX	MIN						
19	18.98	18.85	31.80	6.60	4.00	75.80	82.10	23-12667-000

A

ENGINEERING NOTES:

1. MATERIAL: PER SAE J403 1010-1020 STEEL.
2. FINISH: ZINC PLATE PER 49-00005-403.
3. DIMENSIONS SHOWN ABOVE ARE FOR REFERENCE ONLY.

CHG	JOB NO	DATE	BY	REVISION
-	P09084-01	07/02/99	CGD	INITIAL LOAD
A	PA2042-97	10/11/99	LFB	18.98 WAS 18.85, 18.85 WAS 18.98