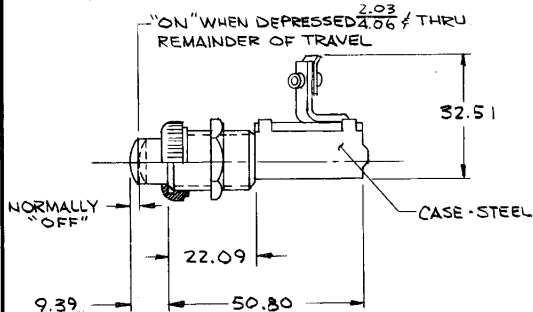
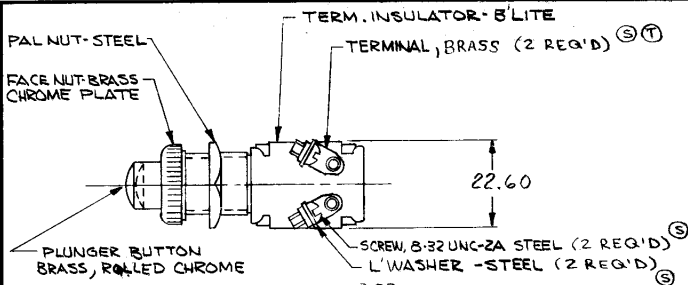


9023



NOTES :

- 1) COPPER ALLOY CONTACTS
- 2) NUMBER OF POLES 1
NUMBER OF THROWS 1
- 3) SEALING-NONE
- ④ 4) ALL STEEL PARTS PLATED
- 5) RATING:

	RESISTIVE	INDUCTIVE
12V	15 AMPS	10 AMPS
24V	8 AMPS	5 AMPS

LIFE @ RATED CURRENT
MAKE & BREAK / 12V-100,000 MIN.
24V - 50,000 MIN.

METRIC

Confidential Property of Cole Hersee

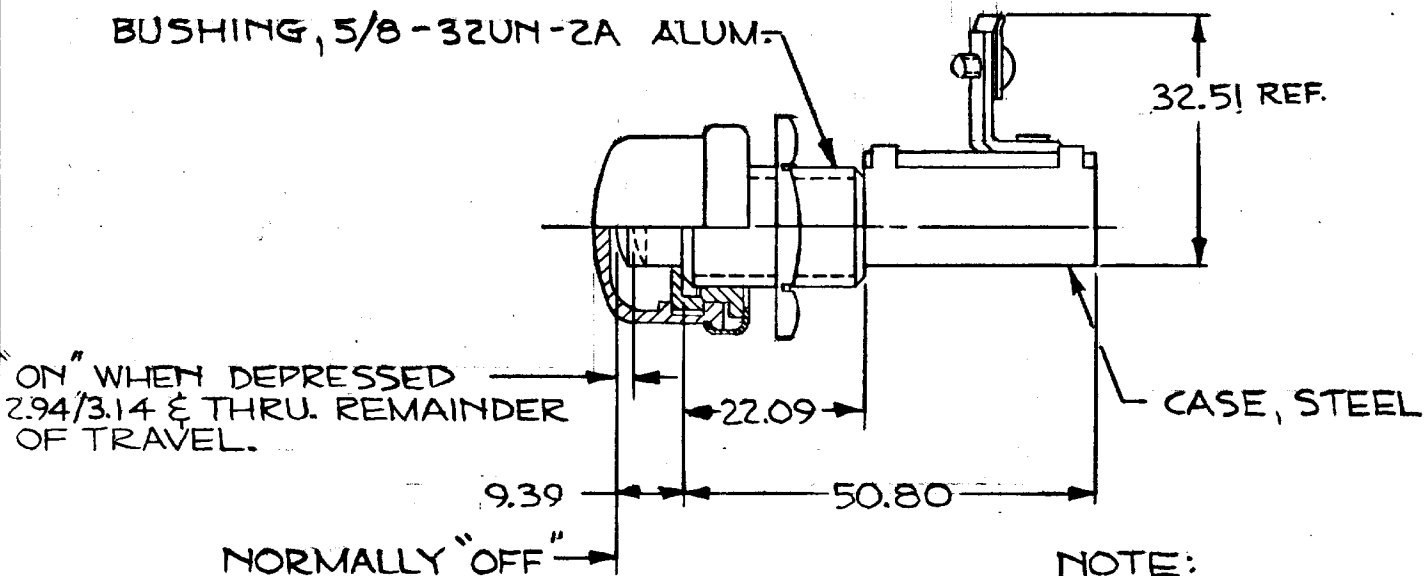
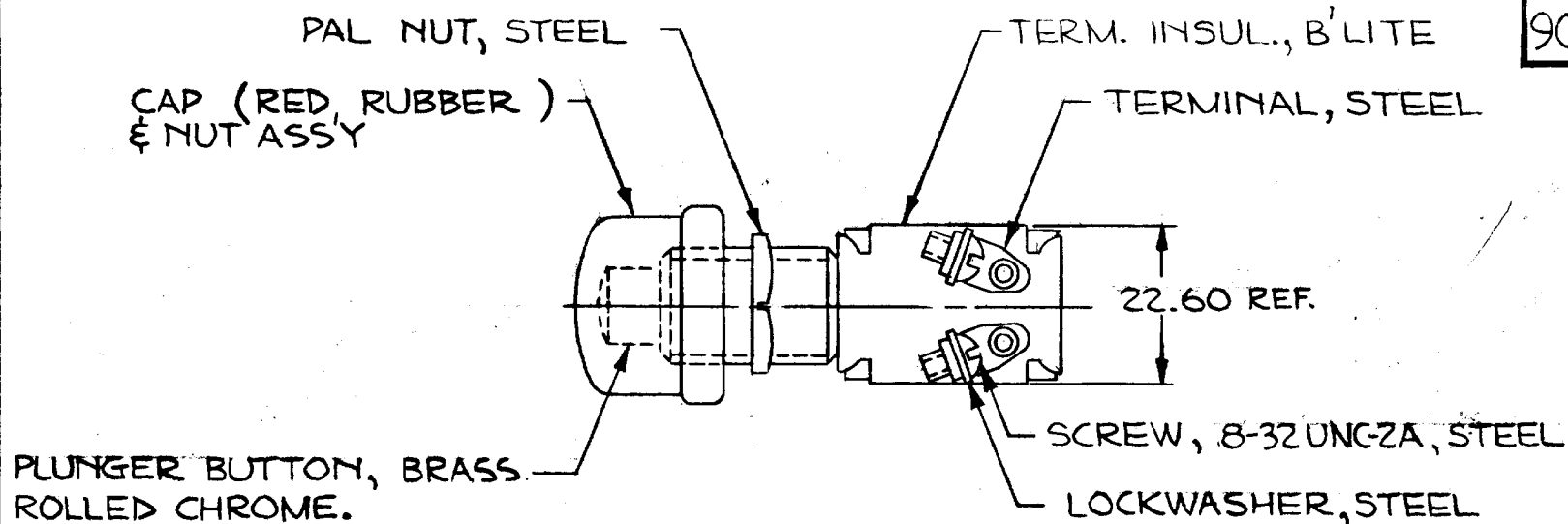
DO NOT SCALE

LET.	WAS	DATE	BY	LET	WAS	DATE	BY	MATERIAL	DRAWN	CHECKED	APPROVED	SCALE	DATE DRAWN
								—	W.R.	AF		1:1	2-28-46
				T	NOTE 50169	5-11-04	SA	FINISH	 <small>MADE IN U.S.A.</small>				DATE BLUEPRINT
				S	ECN 02321	6-25-02	M.L.	—					
				R	2186 / 25234	11/1/92	T.H.	TOLERANCES	STARTER SWITCH				9023
				Q	REORAM N	5/16/87	J.P.	DECIMAL ± METRIC ±					

MM.	IN.
0.25	.010
2.94	.116
3.14	.124
9.39	.370
22.09	.870
22.60	.890
32.51	1.280
50.80	2.000

9023-09

COLE-HERSEE CO.
NPM 9-29-78
EX-18147



NOTE:
Ⓐ I. ALL STEEL PARTS PLATED

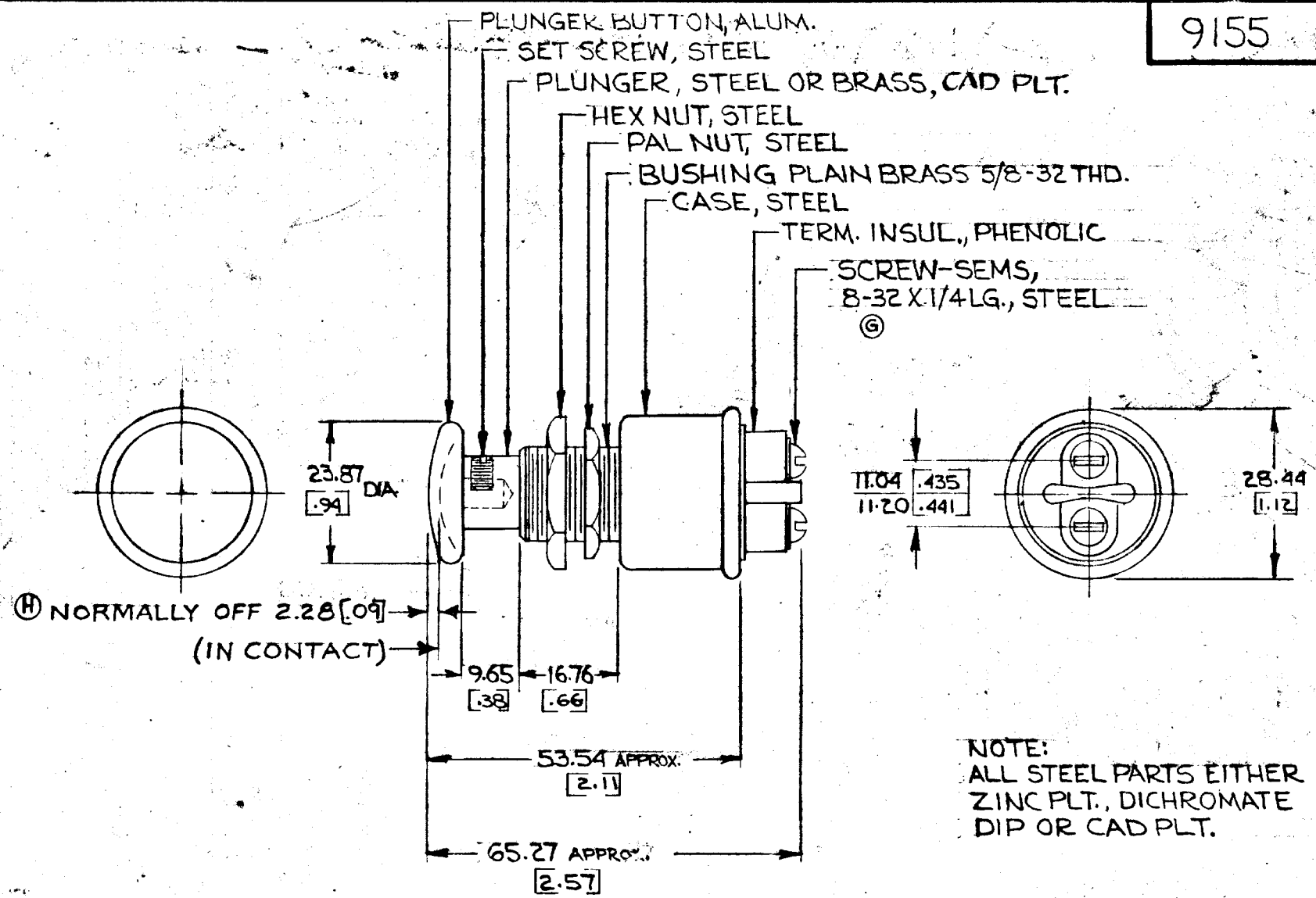
METRIC
10 AMPS @ 12 VOLTS

DO NOT SCALE

LET	WAS	DATE	BY	LET	WAS	DATE	BY	MATERIAL	DRAWN	CHECKED	APPR'D.	SCALE	BASIC EXCEPT W/CAP & NUT ASSY	DATE DRAWN
								—H—	VK	Y		1=1		5-10-78
								FINISH —H—	COLE-HERSEE COMPANY BOSTON, MASS. 02127, U.S.A.				DATE BLUEPRINT	
				A	JADOK ZINC / 25234	11/9/92	JN	TOLERANCES FRACTIONAL ± DECIMAL ±0.25	MOMENTARY SWITCH				9023-09	
					ISSUED	9-29-78								

COLE-HERSEE CO.

9155



DIMENSIONS: MILLIMETERS [INCHES]

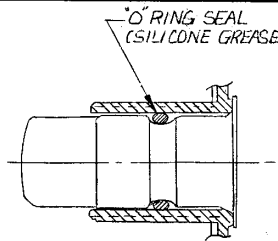
DO NOT SCALE

LET	WAS	DATE	BY	LET	WAS	DATE	BY	MATERIAL	DRAWN	CHECKED	APPR'D.	SCALE	DATE DRAWN
								H	VP	RS		FULL	12-21-53
								FINISH	COLE-HERSEE COMPANY BOSTON, MASS. 02127, U.S.A.				DATE BLUEPRINT
				H	ADD/23156	6/24/53	AK	H					
				G	REV.19288	1-14-76	KG	TOLERANCES	STARTER SWITCH				9155
				F	REDRAWN	10-29-75	KG	FRACTIONAL ±					
								DECIMAL ±.01					

SPAULDING CO., INC. 21-56481

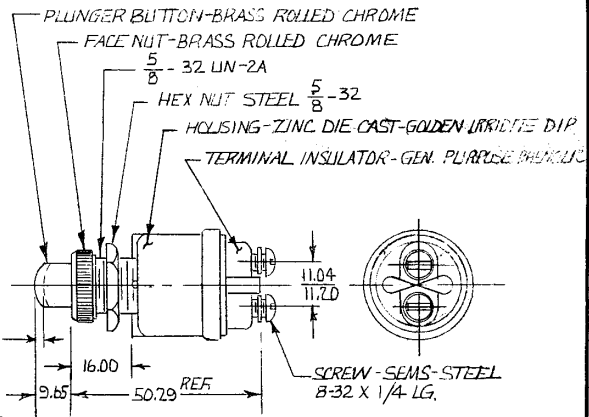
MMS	IN
0.025	.010
1.39	.055
3.17	.125
4.57	.180
6.35	.250
9.65	.380
11.04	.435
11.20	.447
16.00	.630
50.29	1.980

9216



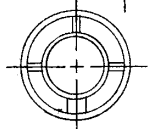
O RING SEAL
(SILICONE GREASE LUBRICANT)

SCALE 2X



NORMALLY OPEN, CONTACTS CLOSED
WHEN PLINGER DEPRESSED 1.39/3.17
THRU REMAINDER OF 4.57/6.35 FULL
TRAVEL.

SWITCH SHOWN IN
"OFF" POSITION



METRIC Ⓟ FRONT VIEW
OF CASE

- NOTE:
1. O RING SEALED AT MOUNTING BUSHING ONLY.
 2. SILVER CONTACT SURFACES.
 3. ALL EXTERIOR METAL PARTS MAY BE CAD. OR ZINC PLT. (CLEAR DICHROMATE DIP) UNLESS NOTED.

Confidential Property of Cole Hersee

DO NOT SCALE

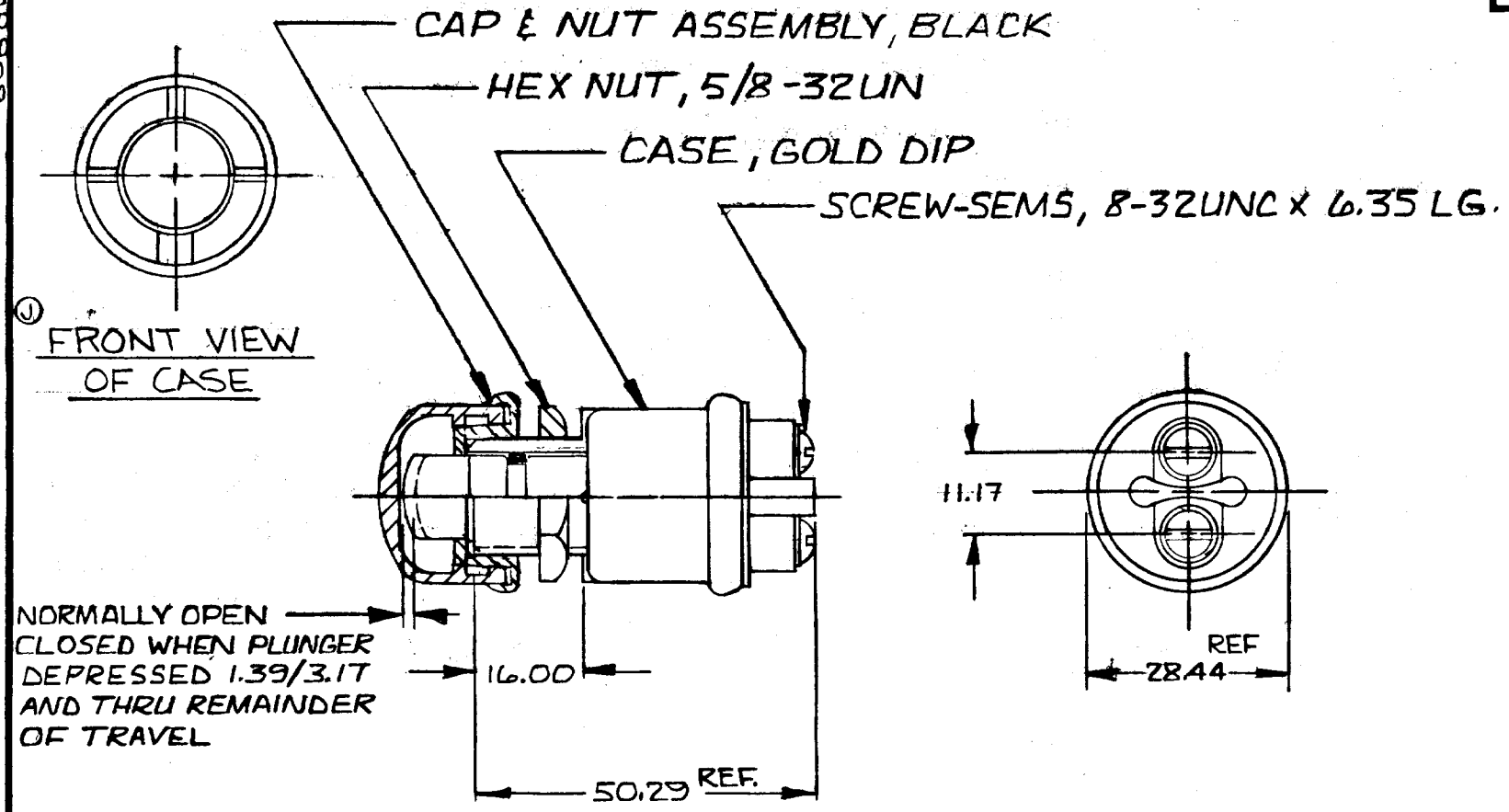
LET	WAS	DATE	BY	LET	WAS	DATE	BY	MATERIAL	DRAWN	CHECKED	APPR'D.	SCALE	DATE DRAWN
								FINISH	JP	T		1-1	5-29-58
									COLE-HERSEE COMPANY BOSTON, MASS. 02127, U.S.A.				DATE BLUEPRINT
								TOLERANCES FRACTIONAL ± DECIMAL ±0.25	INDUSTRIAL START SWITCH				9216

PA ADDED/2357/8-17-87 L12
N REDRAWN & ADD METR 9/6/77 DK

COLE-HERSEE CO.

25	.010
6.35	.250
11.17	.440
16.00	.630
28.44	1.120
50.29	1.980

9216-03



- NOTES:
1. O-RING SEALED AT MOUNTING STEM
 2. SILVER CONTACT SURFACES
 3. ALL STEEL PARTS PLATED

METRIC

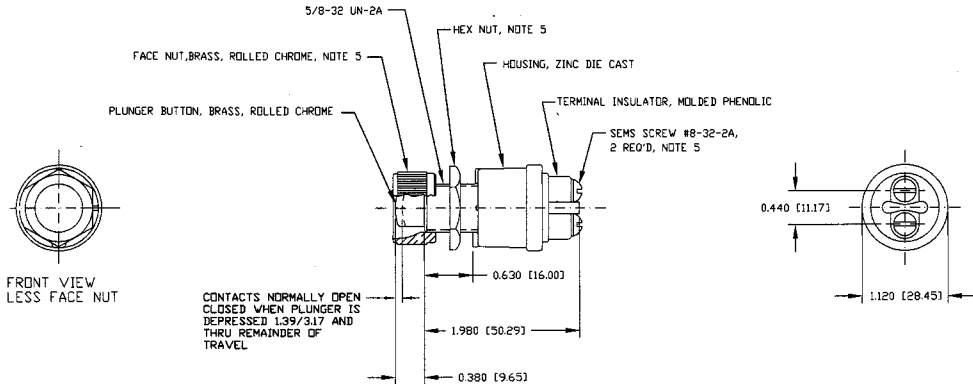
DO NOT SCALE

LET.	WAS	DATE	BY	LET	WAS	DATE	BY	MATERIAL	DRAWN	CHECKED	APPR'VD.	SCALE	9216 W/ CAP & NUT SA	DATE DRAWN
								#	CF	RJZ		1:1		3-28-68
								FINISH	 20 OLD COLONY AVENUE, SOUTH BOSTON, MA. U.S.A. 02127					DATE BLUEPRINT
								#						
				J	ADDED	2/23/76	9-16-87	LZ	TOLERANCES					
				H	REDRAWN	NO CHANGE	9-13-82	(R)	DECIMAL ±					
									METRIC ± .25					
													SWITCH MOM, N.O.	9216-03

CH-188(4-78)

Revision Control Record

Rev.	Description of Change	ECN No.	Date
J	NOTE	02481	10/08/02



NOTES:

1. ALL STEEL PARTS EITHER ZINC PLATED DICHROMATE DIP OR CAD PLT
2. ALL DIMENSIONS REFERENCE ONLY
3. HEAVY SILVER CONTACT SURFACES
4. RATING: 20 AMP @ 24V DC; 35 AMP @ 12V DC
5. PARTS MAYBE ASSEMBLED OR SUPPLIED IN BAG

Tolerances: Unless otherwise specified, the following are implied tolerances:
 • Surface Distort Dimensions $\pm .005$
 • Surface Distort Dimensions $\pm .008$
 • Angular Dimensions $\pm .1$ Deg.
 *Note: Refer to applicable English Dimension Tolerances per ASME. All tolerances are Non-Compensated. **
Dimensional Limits: All dimensions are expressed in inches except those shown in brackets (xx) are expressed in millimeters.
TRM - as an ASME/ANSI 3.1 Non-Toleranced Reference Dimension: shown for identification purposes only.

APPROVAL/DEFINITION: This Engineering Drawing, and the information contained herein, is proprietary to Cole Horse Company and may not be disclosed, reproduced, or in any other way transmitted or communicated to any other party without the express written consent of its authorized representatives of Cole Horse Company.
DESIGN RESPONSIBILITY: It is the responsibility of the individual using/ fabricating this drawing to ensure that the noted design revision (and) agree with the revision level of the Commercial Drawing/ General Drawing. This is a NON-CONTROLLED DOCUMENT unless otherwise specifically noted.
 Do NOT MAKE dimensional variations may occur during printing/ reproduction.

See for Special Characteristics:
 Critical Characteristics relating to Safety and/or Regulatory Compliance
 Significant Characteristics relating to Product Control (PCI)
 Control Characteristics relating to Form - Fit - Function as defined by Cole Horse Company and/or the Customer
 Note that the identification of any Characteristics as being "Special" does not alter the requirement that ALL specified dimensions & tolerances must be met.

Cole Horse Co.
 26 Old Colony Ave., North Boston, MA, 02127
 Phone: 617-366-2100 Website: www.colehorse.com

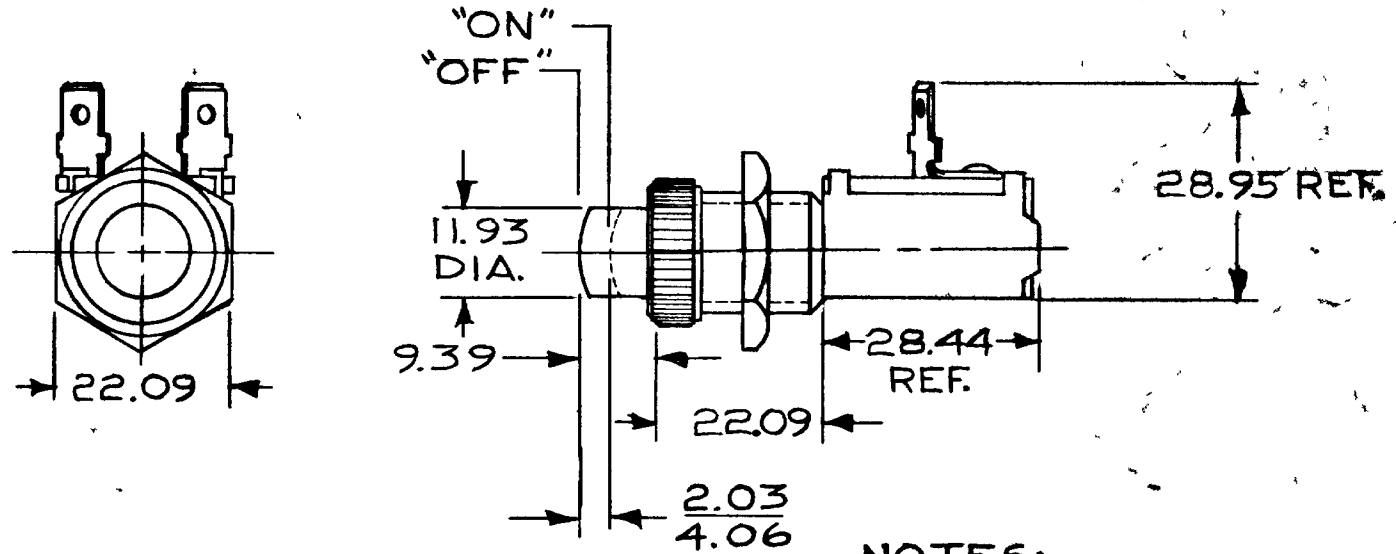
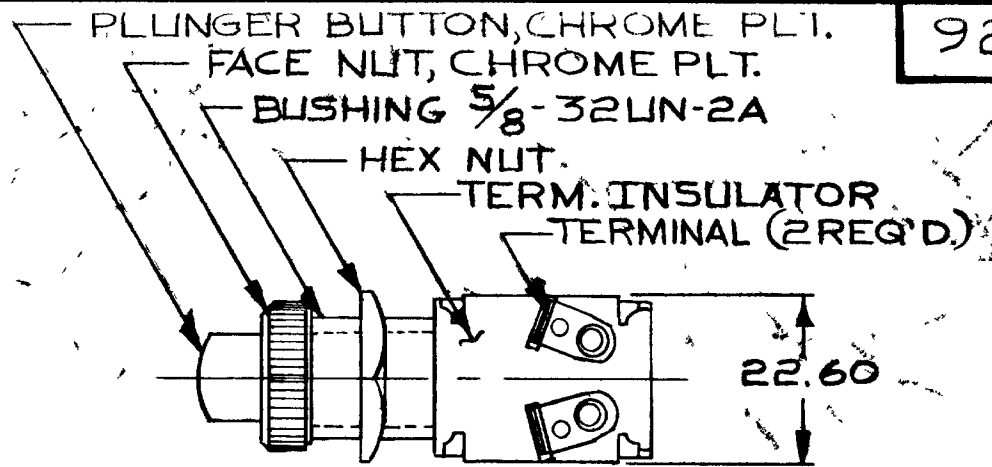
Description: HEAVY DUTY STARTER SWITCH

Original Part No.: 9231

MM IN
 .25 .010
 2.03 .080
 4.06 .160
 9.39 .370
 11.93 .470
 22.09 .870
 22.60 .890
 28.44 1.120
 28.95 1.140

9023
 (SCREW)

9238



NOTES:
 1. ALL STEEL PARTS PLATED
 2. RATING: 10AMPS @ 12VOLTS

METRIC

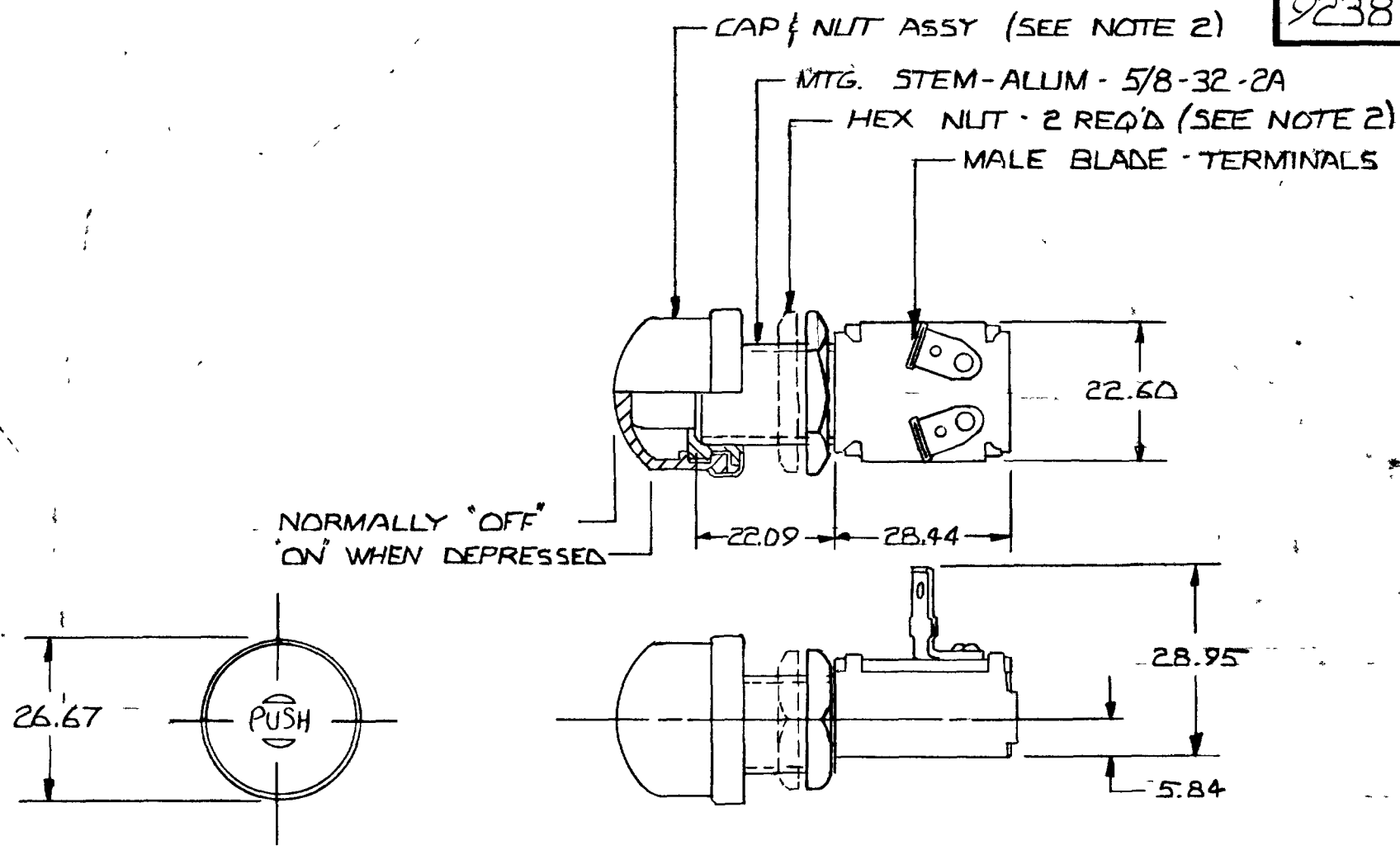
DO NOT SCALE

LET	WAS	DATE	BY	LET	WAS	DATE	BY	MATERIAL	DRAWN	CHECKED	APPRV D	SCALE	DATE DRAWN
									JP	8-28-80		1:1	6-1-59
								FINISH	 20 OLD COLONY AVENUE SOUTH BOSTON, MA U.S.A. 02127				DATE BLUEPRINT
								TOLERANCES DECIMAL ± METRIC ±.25					NORMALLY "OFF" MOMENTARY SWITCH

CH-188(4-78)

9238-01

MM	IN
5.84	.23
22.09	.87
22.60	.89
26.67	1.05
28.44	1.12
28.95	1.14



NOTE:
 ⓑ 1. ALL STL. PARTS PLATED
 Ⓒ 2. CAP. & NUT ASSY & ONE HEX NUT SHIPPED LOOSE & ONE HEX NUT ASSEMBLED

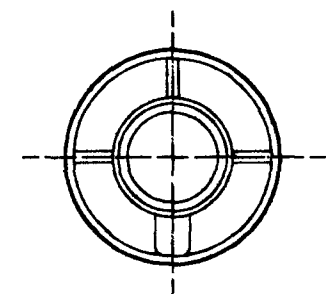
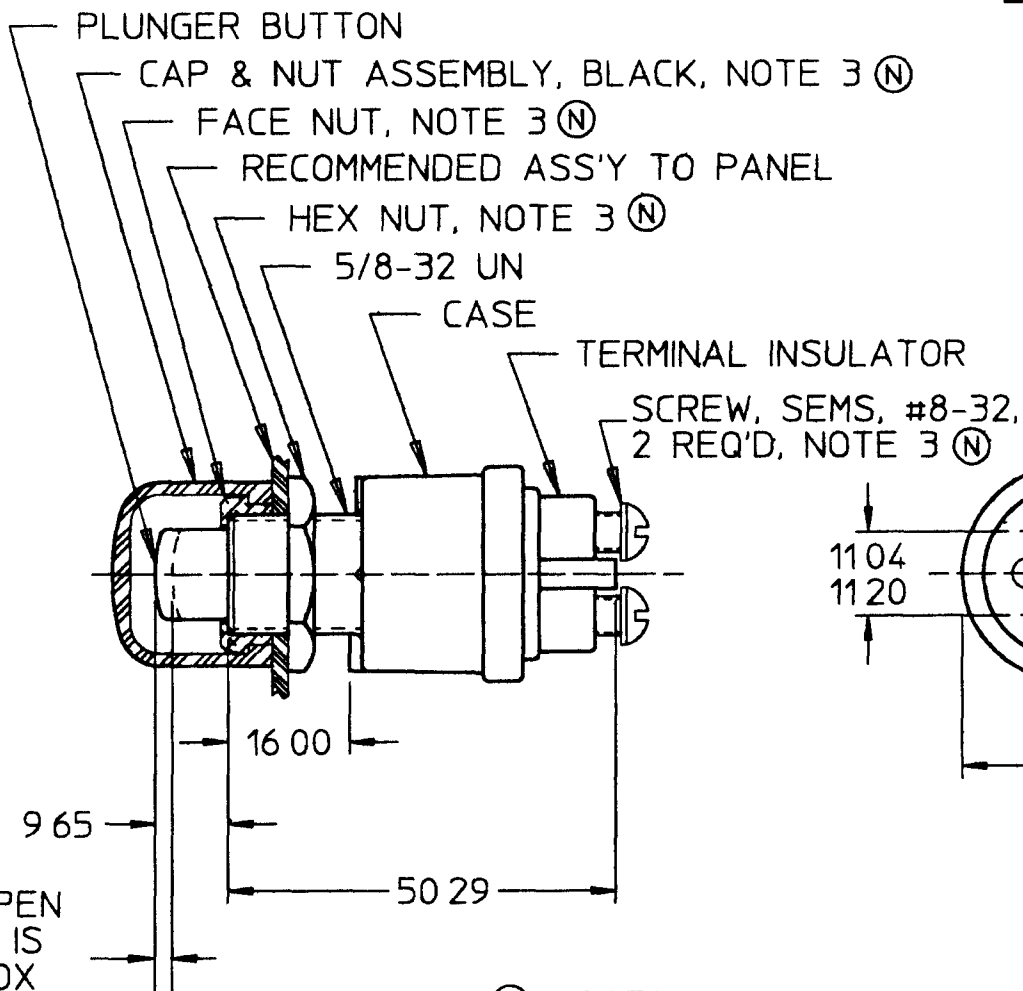
20 AMPS - 12 VOLTS

DO NOT SCALE

LET	WAS	DATE	BY	LET	WAS	DATE	BY	MATERIAL	DRAWN	CHECKED	APPRV D	SCALE	BASIC EXCEPT W/ CAP & NUT ASSY	DATE DRAWN
								— # —	EA	S.J.B. 6-1-88		1=1		7-31-73
								FINISH	 Cole Hersee Co. <small>20 OLD COLONY AVENUE SOUTH BOSTON, MA U.S.A. 02127</small>					DATE BLUEPRINT
				C	ECN 265-H HEX NUT ASSEMBLED	3/19/97	JMP	— # —						
				B	CAD OR ZINC 25234	11/9/92	JH	TOLERANCES	MOMENTARY SWITCH					9238-01
				A	REDRAWN	5/31/88	-JK	DECIMAL ± METRIC ±						

CH-188(4-78)

MM	IN
1 77 0 070	
9 65 0 380	
11 04 0 434	
11 20 0 440	
16 00 0 630	
28 44 1 120	
50 29 1 980	



FRONT VIEW OF CASE

CONTACTS NORMALLY OPEN
CLOSED WHEN PLUNGER IS
DEPRESSED 1770 APPROX
AND THRU REMAINDER OF
TRAVEL

CURRENT RATING	
35 AMPS	12 VDC
20 AMPS	24 VDC

METRIC

- (P) NOTES
- 1 ALL STEEL PARTS PLATED
 - 2 SILVER CONTACT SURFACES
 - 3 PARTS MAYBE ASSEMBLED OR SUPPLIED IN A BAG

DO NOT SCALE

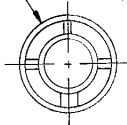
LET	WAS	DATE	BY	LET	WAS	DATE	BY	MATERIAL	DRAWN	CHK	APVD	SCALE	DATE DRAWN
									EA	jmf		11	11/2/59
								FINISH	Cole Hersee Co. 20 OLD COLONY AVENUE, BOSTON, MA, U.S.A. 02127				DATE BLUEPRINTED
				P	ECN #26813	7/16/97	AJS	TOLERANCES	SWITCH, MOM. NO 9245 Confidential Property of Cole Hersee				
				N	ECN #26688 PUT ON CAD	5/23/97	CHW	DECIMAL ± ANGLE ±					

9276-09

MM	IN
25	.010
16.00	.630
28.44	1.120
30.48	1.200
1.39	0.055
3.17	0.125

A

FRONT VIEW OF CASE



BLACK CAP NUT ASSY.

PLUNGER BUTTON

O-RING

HEX NUT 5/8-32 UN

SCREW, SEMS
8-32

28.44

CONTACTS NORMALLY
OPEN / CLOSED WITH
PLUNGER DEPRESSED
1.39 / 3.17 THROUGH
REMAINDER OF TRAVEL

16.00


50.54

NOTE:

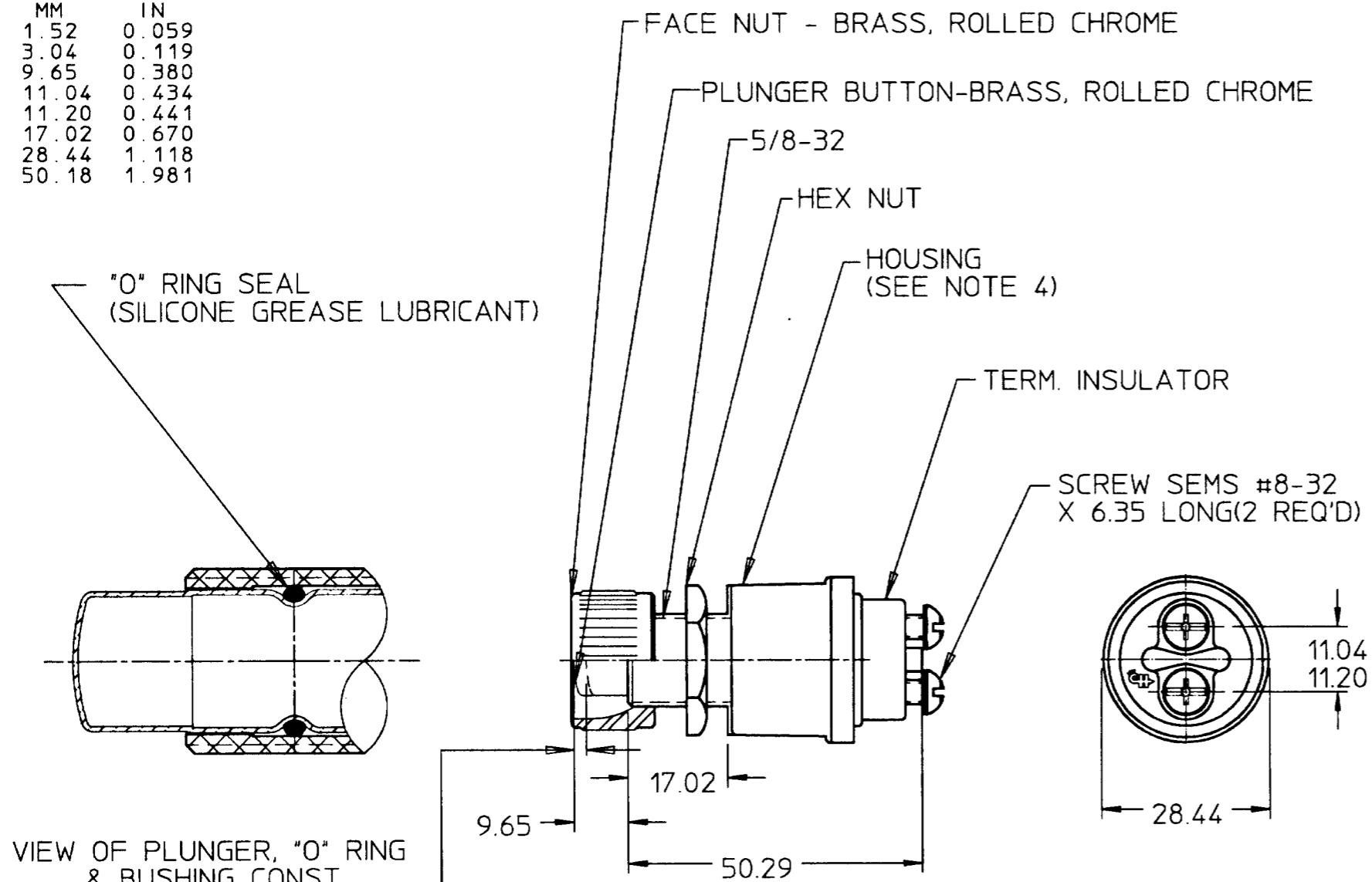
- SILVER CONTACT SURFACES
- ALL STEEL PARTS PLATED

METRIC Confidential Property of Cole Hersee

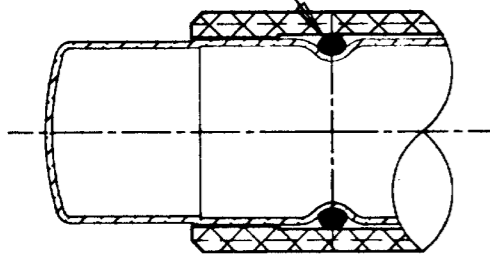
DO NOT SCALE

LET.	WAS	DATE	BY	LET	WAS	DATE	BY	MATERIAL	DRAWN	CHECKED	APPR'D	SCALE	DATE DRAWN
								—	J	K	A	1:1	1-22-88
								FINISH					DATE BLUEPRINT
								—					
				A	ECN 0234B	7/24/88	NL	TOLERANCES	 MOM SWITCH 2 CIRCUIT				9276-09
					ISSUED	1-25-88	AF	DECIMAL ± .25 METRIC ±					

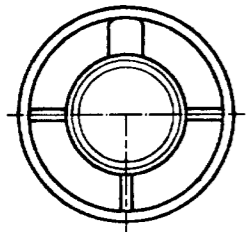
MM	IN
1.52	0.059
3.04	0.119
9.65	0.380
11.04	0.434
11.20	0.441
17.02	0.670
28.44	1.118
50.18	1.981



"O" RING SEAL
(SILICONE GREASE LUBRICANT)



VIEW OF PLUNGER, "O" RING & BUSHING CONST
SCALE 2:1



FRONT VIEW OF CASE

- NOTES:
- SOLID SILVER RIVET STATIONARY CONTACT, SILVER LAMINATED MOVING CONTACT
 - NUMBER OF POLES: 1
NUMBER OF THROWS: 1
 - SEALING:
"O" RING SEAL BETWEEN PLUNGER AND MOUNTING STEM
 - HOUSING: ZINC DIE CAST-60-DEEP DICHROMATE DIP
 - ALL STEEL PARTS EITHER ZINC PLATED WITH DICHROMATE DIE OR CADMIUM PLT
 - RATING:
12V DC: RESISTIVE 35 AMPS
INDUCTIVE 30 AMPS
24V DC: RESISTIVE 20 AMPS
INDUCTIVE 18 AMPS
 - LIFE @ RATED CURRENT
MAKE AND BREAK
12V & 24V-100,000 MIN.
 - ALL DIMENSION REFERENCE ONLY UNLESS NOTED OTHERWISE

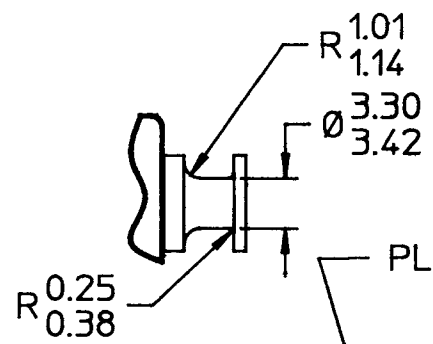
DO NOT SCALE

METRIC

LET.	WAS	DATE	BY	LET.	WAS	DATE	BY	MATERIAL	DRAWN	CHK	APVD	SCALE	90000 W/SPEC.	DATE DRAWN
								N/A	KG	DS	N/A	1:1	FACE NUT	02/03/67
								FINISH	Cole Hersee Co. 20 OLD COLONY AVENUE, BOSTON, MA., U.S.A., 02127					DATE BLUEPRINTED
				M	ECN #00381	05/09/00	MK	N/A						
				L	PUT ON CAD	05/05/00	MK							
				--	ISSUED	02/06/77	TR	TOLERANCES DECIMAL ± N/A ANGLE ± N/A	START SWITCH					90000-01

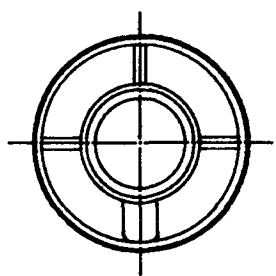
90011

MM	IN
0.25	0.010
0.38	0.015
1.01	0.040
1.14	0.045
1.77	0.070
3.30	0.130
3.42	0.135
6.29	0.248
6.40	0.252
9.65	0.380
11.04	0.435
11.20	0.441
11.93	0.470
16.00	0.630
28.44	1.120
46.73	1.840



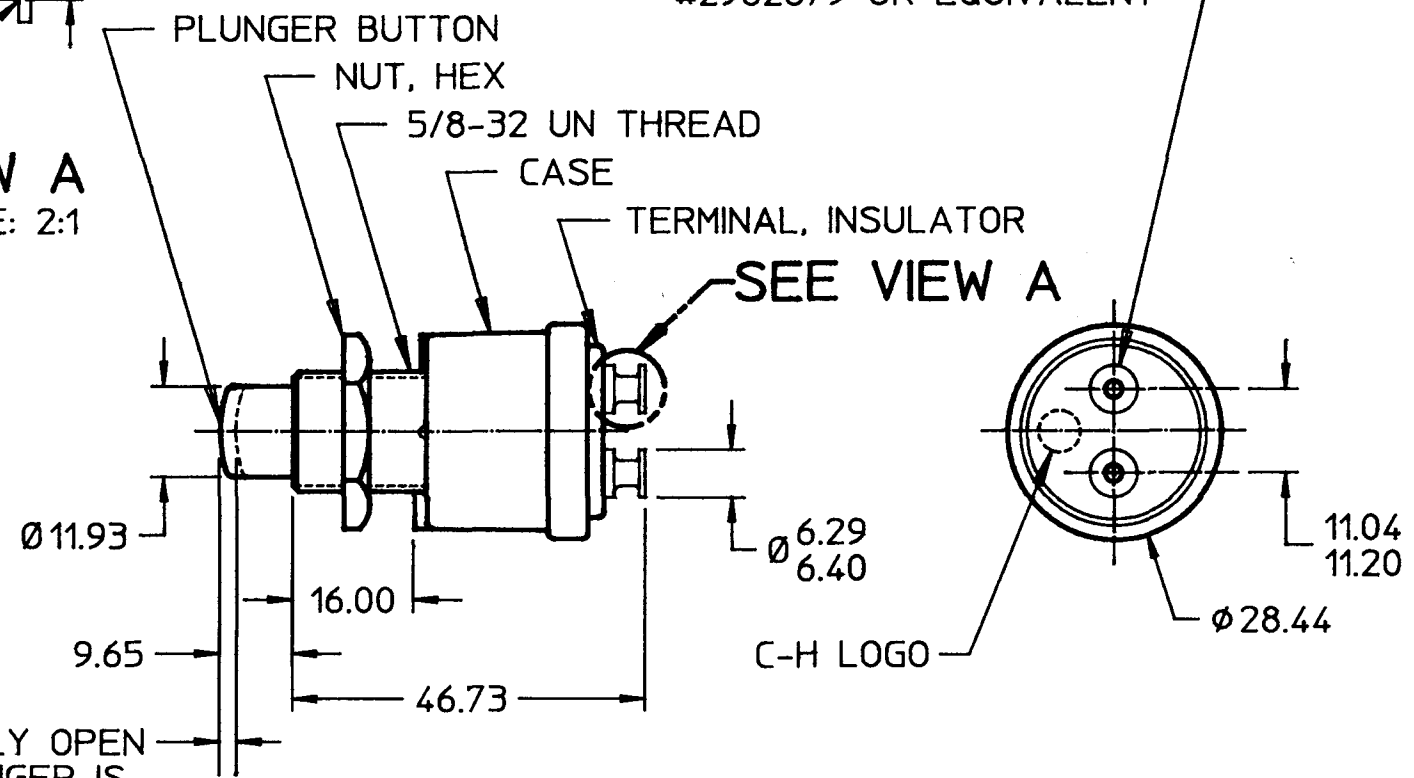
VIEW A
SCALE: 2:1

TERMINAL - COPPER ALLOY
CABRA #342 NICKEL PLATE
FOR PACKARD CONNECTOR
#2962679 OR EQUIVALENT



FRONT VIEW
OF CASE


CONTACTS NORMALLY OPEN
CLOSED WHEN PLUNGER IS
DEPRESSED 1.77 APPROX.
AND THRU REMAINDER OF
TRAVEL



- NOTES:
1. ALL STEEL PARTS PLATED
2. SILVER CONTACT SURFACES

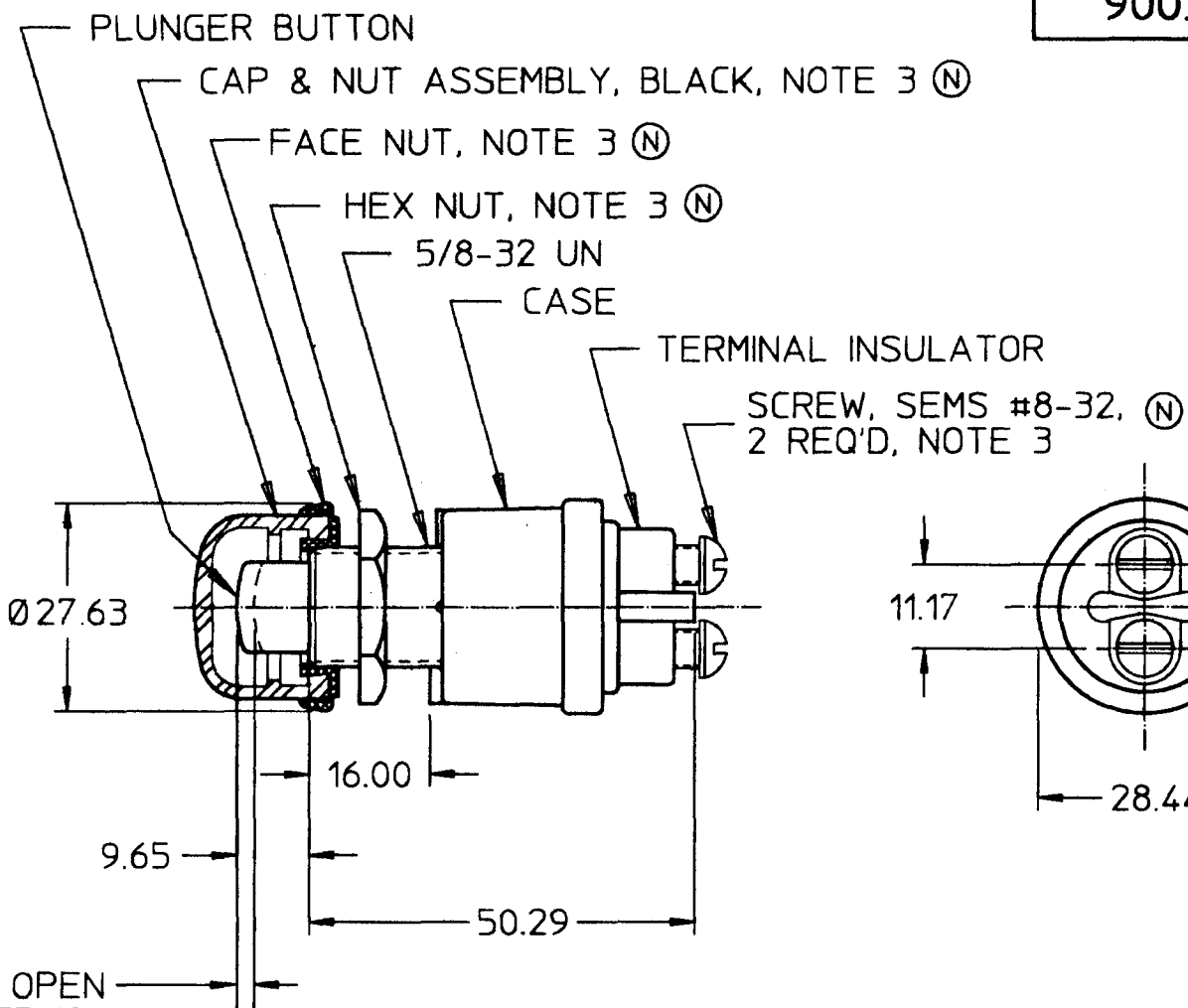
METRIC

DO NOT SCALE

LET.	WAS	DATE	BY	LET.	WAS	DATE	BY	MATERIAL	DRAWN	CHK	APVD	SCALE		DATE DRAWN
									S	<i>[Signature]</i>		1:1	EX13671	4/24/64
								FINISH	 Cole Hersee Co. 20 OLD COLONY AVENUE, BOSTON, MA, U.S.A. 02127					DATE BLUEPRINTED
								TOLERANCES DECIMAL ± ANGLE ±						
				H	PUT ON CAD	1/27/93	MJT		SWITCH, MOM, NO					90011

90030

MM	IN
1.77	0.070
9.65	0.380
11.17	0.440
16.00	0.630
27.63	1.088
28.44	1.120
50.29	1.980



FRONT VIEW OF CASE

CONTACTS NORMALLY OPEN
 CLOSED WHEN PLUNGER IS
 DEPRESSED 1.770 APPROX.
 AND THRU REMAINDER OF
 TRAVEL

METRIC

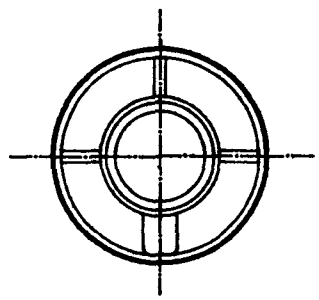
35 AMPS	12 VDC
20 AMPS	24 VDC
CURRENT RATING	

- NOTES:
1. ALL STEEL PARTS PLATED
 2. SILVER CONTACT SURFACES (N)
 3. PARTS MAYBE ASSEMBLED OR SUPPLIED IN A BAG (P)

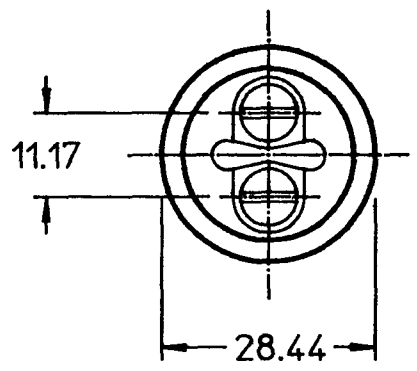
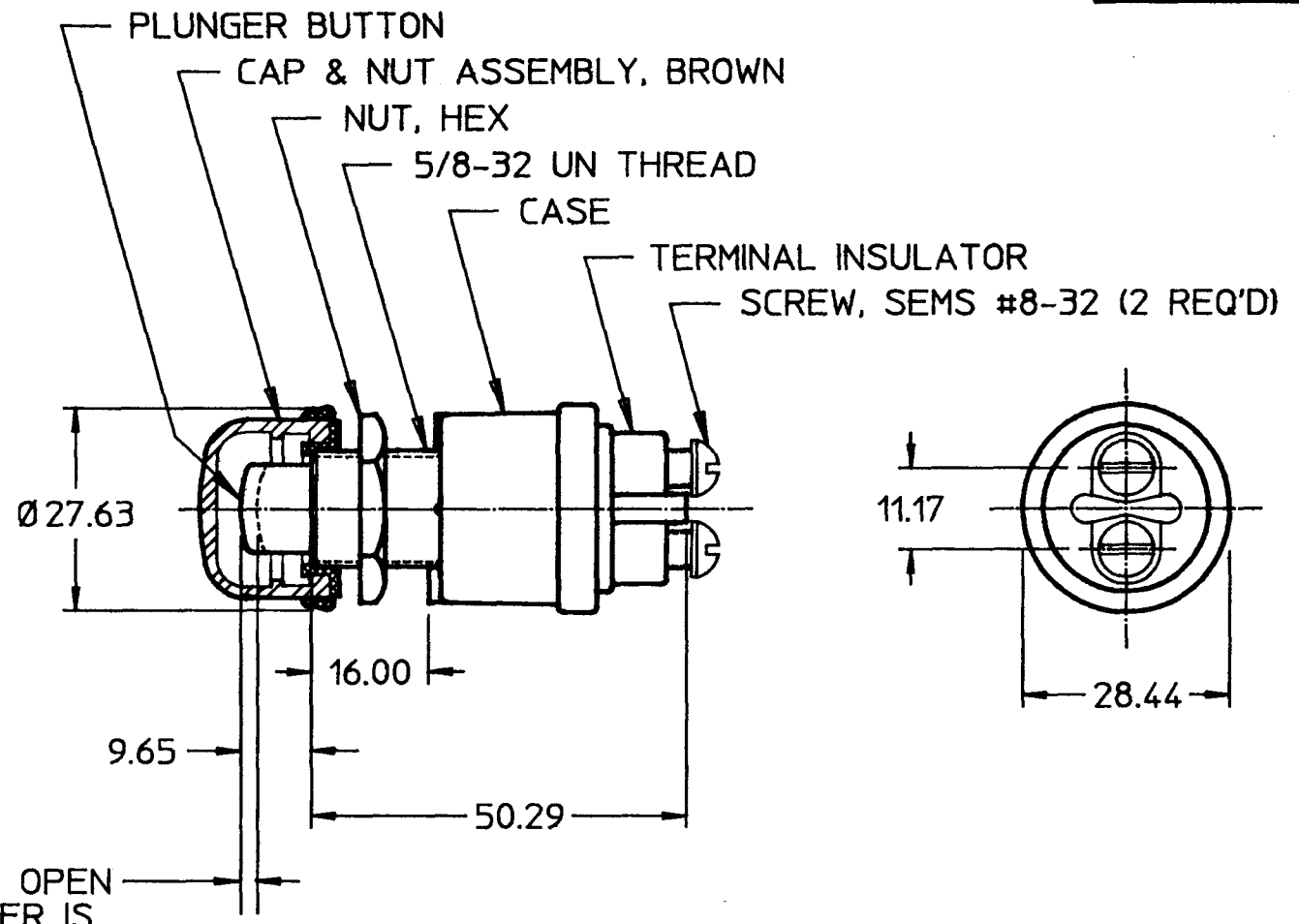
DO NOT SCALE

LET.	WAS	DATE	BY	LET.	WAS	DATE	BY	MATERIAL	DRAWN	CHK	APVD	SCALE	DATE DRAWN
									CF	JMP		1:1	11/9/67
								FINISH	Cole Hersee Co. 20 OLD COLONY AVENUE, BOSTON, MA., U.S.A., 02127				DATE BLUEPRINTED
				P	ECN #26813	7/17/97	AJS	TOLERANCES	SW, P-P, MOM, N.O.				90030
				N	ECN #26688 PUT ON CAD	5/23/97	CHW	DECIMAL ± ANGLE ±					

MM	IN
1.77	0.070
9.65	0.380
11.17	0.440
16.00	0.630
27.63	1.088
28.44	1.120
50.29	1.980



FRONT VIEW OF CASE



CONTACTS NORMALLY OPEN
CLOSED WHEN PLUNGER IS
DEPRESSED 1.770 APPROX.
AND THRU REMAINDER OF
TRAVEL

35 AMPS	12 VDC
20 AMPS	24 VDC
CURRENT RATING	

- NOTES:
1. ALL STEEL PARTS PLATED
2. SILVER CONTACT SURFACES

METRIC

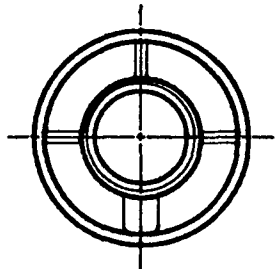
DO NOT SCALE

LET.	WAS	DATE	BY	LET.	WAS	DATE	BY	MATERIAL	DRAWN	CHK	APVD	SCALE	90030 EXCEPT WITH BEIGE CAP & NUT ASSY	DATE DRAWN
									RW	JL		1:1		4/7/71
								FINISH	Cole Hersee Co. 20 OLD COLONY AVENUE, BOSTON, MA, U.S.A. 02127					DATE BLUEPRINTED
								TOLERANCES DECIMAL ± ANGLE ±						SWITCH, MOM, NO
				K	PUT ON CAD	1/25/93	MJT							

90036-02

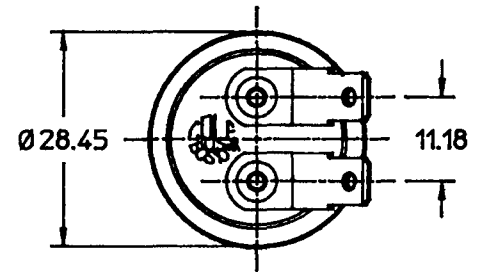
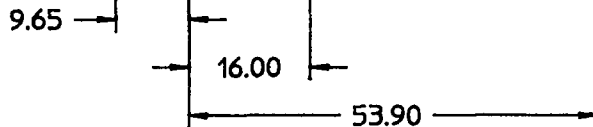
MM	IN
1.40	0.055
3.18	0.125
9.65	0.380
11.18	0.440
16.00	0.630
28.45	1.120
53.90	2.122

- PLUNGER BUTTON, BRASS, CHROME PLATED
- NUT, FACE, BRASS, ROLLED CHROME
- NUT, HEX. STEEL
- 5/8-32 UN-2A THD
- HOUSING, ZINC DIE CAST
- MALE BLADE TERMINAL, SAE J858, TYPE 1B, BRASS #31562 TO FIT C-H #30208 OR PACKARD #2962679 CONNECTOR (2 REQ'D)



FRONT VIEW OF CASE

CONTACTS NORMALLY OPEN. CLOSED WHEN PLUNGER DEPRESSED 1.40/3.18 AND THROUGH REMAINDER OF TRAVEL



- NOTES:
1. ALL STEEL PARTS PLATED
 2. ALL DIMENSIONS ARE REFERENCE

METRIC

DO NOT SCALE

LET.	WAS	DATE	BY	LET.	WAS	DATE	BY	MATERIAL	DRAWN	CHK	APVD	SCALE	90036 WITH 8304 FACENUT	DATE DRAWN
									CF	RN		1:1		4/14/69
								FINISH	Cole Hersee Co. 20 OLD COLONY AVENUE, BOSTON, MA, U.S.A. 02127					DATE BLUEPRINTED
								TOLERANCES DECIMAL ± ANGLE ±						
				J	PUT ON CAD	2/24/94	MJT		HEAVY DUTY ST. SW.					90036-02