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ADMIRALTY FLEET ORDER

AMMUNITION, GENERAL—E.F.C. VALUES OF CORDITE CHARGES

ADMIRALTY, S.W.1,

23rd September, 1943.

The following Order having been approved by My Lords Commissioners of the Admiralty is hereby promulgated for information and guidance and necessary action.

By Command of their Lordships,

H. V. Markham

To all Commanders-in-Chief, Flag Officers, Senior Naval Officers, Captains and Commanding Officers of H.M. Ships and Vessels.

NOTE :—The scale of distribution of this Order is limited to half that shown in the Admiralty Fleet Order Volume, 1941, Instructions, paragraph 10, with a minimum of 2 copies : 1 copy for the Gunnery Officer.

Head of "P" Branch

4522.—Ammunition, General—E.F.C. Values of Cordite Charges

Cancelled by
AFO 6761/46

(Part G. 02550/42.—23 Sep. 1943.)

To assist officers in keeping Memoranda of Inspection of guns, the equivalent full charge value of all cordite charges in normal supply are promulgated in the following tables, together with notes to assist in assessing the E.F.C. value of any charges not included in the tables.

Tables of Equivalent Full Charges.

Types of Propellant.

S.C. includes Cordite S.C., SSC., H.S.C.T., which may be followed by suffixes K or P.

N. includes Cordite, N, N.Q., N/A.Q., N/F.Q., which may be followed by suffixes K, P, M, S or T.

N.H. includes N.H., F.N.H., and F.N.H/P and N.C.T.

Unless otherwise stated, reference to a mark of gun, covers all variations of that Mark (e.g., Q.F., 4-in. V covers V*-V***, AV-V* and VC).

TABLE I.

E.F.C. values of Charges of Cordite S.C.

Charge	Gun	E.F.C. Value	Charge	Gun	E.F.C. Value
Proof ...	All guns ...	2	$\frac{3}{8}$ charge ...	B.L., 16-in., and 6-in. XII, XXII, and XXIII.	$\frac{2}{16}$
Super charge H.V. ...	Q.F., 2-pdr., VIII and XIV.	$1\frac{1}{2}$	$\frac{1}{2}$ charge ...	All guns ...	$\frac{1}{16}$
$\frac{3}{4}$ Supercharge Full ...	All guns ...	1	H.A. and L.A. reduced charges.	Q.F., 4-in., IV, V and XII.	$\frac{1}{16}$
H.A. fixed ...	Q.F., 4-in., V	$1\frac{1}{8}$	Blank charges	All guns ...	$\frac{1}{16}$
$\frac{3}{8}$ charge ...	All guns ...	$\frac{1}{16}$	Bombardment charges.	All guns ...	$\frac{1}{16}$
$\frac{4}{8}$ charge ...	All guns other than B.L., 16-in., and 6-in. XII, XXII and XXIII.	$\frac{1}{16}$	Any charge fired with projectile.	Q.F., 3.7-in. howitzer.	1

Note.—Any reduced charges not shown in the above Table, including Star Shell Charges, are to be assessed by weight as the charge (full, $\frac{3}{4}$, $\frac{2}{3}$, or $\frac{1}{2}$) next above it. No charge is, however, to be assessed at less than $\frac{1}{16}$ E.F.C.

Cordite N.—E.F.C. value should be assessed at one-quarter of that of the corresponding S.C. charge in the above Table, except as stated below.

Cordite N.H.—E.F.C. value should be assessed at one-half of that of the corresponding S.C. charge in the above Table, except as stated below.

For any gun which is designed to fire N.H. cordite, and which does not fire S.C. cordite—e.g., U.S. and most Allied guns—N.H. full charges should be given an E.F.C. value of 1, and N charges $\frac{1}{2}$.

American Guns.—The E.F.C. value of all charges of American cannon powder for American guns is to be assessed from the formula :—

$$\text{E.F.C. value} = \frac{(\text{weight of charge})}{(\text{weight of full charge})}$$

For ease of reference, the E.F.C. value of all charges in normal supply are tabulated in Tables II, III and IV.

$$\text{Proof charges for all guns} = \begin{cases} 2 \text{ E.F.C. for S.C. Cordite.} \\ 1 \text{ E.F.C. for N.H. Cordite.} \\ \frac{1}{2} \text{ E.F.C. for N. Cordite.} \end{cases}$$

TABLE II.

B.L. Guns

Gun	Charge	Cordite S.C.	E.F.C. value	N	E.F.C. value	N.H.	E.F.C. value
16-in. I	Full ...	280	1				
II ...	$\frac{3}{8}$...	280	$\frac{2}{16}$				
and III	... } ...	280	$\frac{2}{16}$				
15-in. I ...	Supercharge ...	300	2				
	$\frac{3}{4}$ Supercharge ...	280	1				
	Full ...	280	$\frac{1}{16}$				
	$\frac{3}{4}$...	280	$\frac{1}{16}$				
	$\frac{1}{2}$...	280	$\frac{1}{16}$				
14-in. VII ...	Supercharge ...	500	2				
	Full ...	300	1				
	$\frac{3}{4}$...	300	$\frac{1}{16}$				
13.5-in. V ...	Supercharge ...	390	2				
	Full ...	280	1				
	$\frac{3}{4}$...	280	$\frac{1}{16}$				
	$\frac{1}{2}$...	280	$\frac{1}{16}$				
8-in. VIII ...	Full ...	205	1				
	$\frac{3}{4}$...	205	$\frac{1}{16}$				
7.5-in. VI ...	Full ...	150	1				
	$\frac{3}{4}$...	150	$\frac{1}{16}$				
6-in. VII ...	Full ...	103 or 140	1	224-058	$\frac{1}{16}$		
	$\frac{3}{4}$...	103 or 140	$\frac{1}{16}$				
	Star ...	061	$\frac{1}{16}$				
6-in. XI ...	Full ...	150	1				
	$\frac{3}{4}$...	150	$\frac{1}{16}$				
	Star ...	061	$\frac{1}{16}$				
6-in. XII... ..	Supercharge ...	150	2				
	$\frac{3}{4}$ Supercharge ...	150	1				
	Full ...	122	1				
	$\frac{3}{4}$...	122	$\frac{2}{16}$				
	Star ...	061	$\frac{1}{16}$				
	All bombardment charges	008	$\frac{1}{16}$				
6-in. XIII ...	Full ...	140	1				
	$\frac{3}{4}$...	140	$\frac{1}{16}$				
6-in. XXII ...	Full ...	150	1	224-058	$\frac{1}{16}$		
& XXIII ...	... ..	150	$\frac{2}{16}$	or			
	All bombardment charges	008	$\frac{1}{16}$	138			
5.5	Full ...	115	1				
	$\frac{3}{4}$...	115	$\frac{1}{16}$				
U.S. 5-in. VIII ...	Full ...						
	Target ...						
4.7 in. I & II ...	Full ...	103	1	164-048	$\frac{1}{16}$		
*	Reduced ...	044 or 048	$\frac{1}{16}$				
	Star ...	061	$\frac{1}{16}$	042	$\frac{1}{16}$		
4-in. VII, VIII, IX	Full ...	100 or 103	1	164-048	$\frac{1}{16}$		
	Star ...	048	$\frac{1}{16}$	029	$\frac{1}{16}$		
	Reduced (for training purposes)	048	$\frac{1}{16}$				

Note.—When firing B.L. 4.7 in. Mk. I, I and II guns with the following Q.F. Shell or shot, each round is to count as twice the E.F.C. given in this table, according to the charge used.

Q.F. S.A.P. Mk. VA.

Q.F. H.E. Mk. VIIIA N.T.

Q.F. S.A.P. Mk. VIA N.T.

Shot practice Q.F. Mark VIA.

Q.F. H.E. Mark VIIA.

Shot Practice Q.F. Mark VIIIA N.T.

TABLE III.
Q.F. Guns—Fixed Ammunition

Gun	Charge	Cordite	E.F.C. value	N	E.F.C. value	N.H.	E.F.C. value
4.7-in. VIII ...	Full ...	103	1	164-048	$\frac{4}{16}$		
	Target ...	103	1				
	Smoke ...						
4.5-in. I and III...	Star ...	061	$\frac{1}{16}$	052	$\frac{1}{16}$	055	$\frac{8}{16}$
	Full ...	122	1	198-054	$\frac{4}{16}$		
	Target ...	122	1				
	Smoke ...						
	Reduced ...	061	$\frac{4}{16}$				
4-in. XVI ...	Star ...	103	$\frac{1}{16}$	059	$\frac{1}{16}$	050	$\frac{12}{16}$
	Full ...	103	1	164-048	$\frac{4}{16}$		
	Target ...	061	$\frac{4}{16}$				
	Smoke ...						
	Reduced for practice	061	$\frac{1}{16}$				
4-in. V ...	Star ...	048	$\frac{1}{16}$	052	$\frac{1}{16}$	033	$\frac{6}{16}$
	Bombardment ...	048	$\frac{1}{16}$				
	H.A. ...	061	$\frac{12}{16}$	116-036	$\frac{3}{16}$		
	Target ...	061	$\frac{12}{16}$				
	Smoke ...						
4-in. V ...	Star ...	048	$\frac{1}{16}$	029	$\frac{1}{16}$		
	Shell ...						
	L.A. ...	103	1	160-048	$\frac{4}{16}$		
4-in. IV and XII	Full ...	103	1	059	$\frac{4}{16}$		
	Star shell ...	048	$\frac{1}{16}$	042	$\frac{1}{16}$		
4-in. XIX ...	Full ...	048	1	042	$\frac{4}{16}$		
	Star shell ...			042	$\frac{8}{16}$		
4-in. XX ...	Full ...	(M.D.) 16	1	164-048	$\frac{4}{16}$		
				070	$\frac{4}{16}$		
U.S. 4-in. IX ...	Full ...						1
	Target ...						
	Illuminating ...						
3-in., 20 cwt. 16 lb. shell.	Full ...	044	1	052	$\frac{4}{16}$	033	$\frac{1}{16}$
		048					
3-in., 20 cwt. 12½ lb. shell.	Full ...	061	1	029	$\frac{1}{16}$		
	Star ...	048	$\frac{4}{16}$				
U.S. 3-in. all marks	Full ...						1
	Target ...						
	Illuminating ...						
6-pdr., 6-cwt. ...	Full ...	134-055	1	029	$\frac{4}{16}$		
6-pdr. Hotchkiss	Full ...	124-058 or 134-055	1	029	$\frac{4}{16}$		
	Sub. Cal. and practice	134-055	1				
6-pdr. 7 cwt., II and IV.	Full ...	W.T. 206-100	1	029	$\frac{4}{16}$	033	$\frac{8}{16}$
3-pdr. ...	Full ...	124-058 or 134-055	1	029	$\frac{4}{16}$		
		027	1				
	Sub. Cal. ...		1				
2-pdr. II* and II*C	Full ...	124-058	1				
2-pdr. VIII H.V.	Full ...	134-055	$1\frac{8}{16}$				
	Reduced ...	134-055	1				
2-pdr. VIII L.V.	Full ...	134-055 or 124-058	1				
2-pdr. IX and X XI	Full ...	WMT. 148-048	1				
	Full ...	MCT. 15-13 or S.S.C. 008	1				
XII ...	Full ...	134-055 or 124-058	1				
2-pdr., XIV ...	Full ...	134-055	$\frac{8}{16}$				
2-pdr., Sub. Cal. H.A.	SSC. 008	1				
	... ..	MCT. 15-13	1			
L.A.	124-058 or 134-055	1				
40 mm. ...	Full ...	WT & WMT all sizes.	1	All sizes	$\frac{4}{16}$	All sizes	$\frac{8}{16}$

TABLE IV
Q.F. Guns—Separate Ammunition

Gun	Charge	Cordite S.C.	E.F.C. Value	N.	E.F.C. Value	N.H.	E.F.C. Value
5.25 ...	Full ...	140	1	224-058	$\frac{4}{16}$	065	$\frac{8}{16}$
	Reduced ...	140	$\frac{4}{16}$				
	Star ...	103	$\frac{4}{16}$	080	$\frac{1}{16}$		
	Bombardment ...	008	$\frac{1}{16}$				
U.S. 5-in. XII ...	Full ...						1
	Target ...						
4.7-in. IX & XII	Full ...	109	1	168-048 or 164-048	$\frac{4}{16}$	050	$\frac{8}{16}$
	Reduced ...	061	$\frac{2}{16}$				
	Star ...	061	$\frac{1}{16}$	052 or 042	$\frac{1}{16}$		
	Bombardment ...	008	$\frac{1}{16}$				
	Reduced for Gunnery School.	048	$\frac{1}{16}$				
4.7-in. XI ...	Full ...	122	1	198-054	$\frac{4}{16}$		
	Reduced ...	061	$\frac{4}{16}$				
	Star ...			059	$\frac{1}{16}$		
4.7-in. V*	Full ...	103	1				
	Bombardment ...	008	$\frac{1}{16}$				
4.5-in. III S/L and IV.	Full ...	122	1	198-054	$\frac{4}{16}$	055	$\frac{8}{16}$
	Reduced ...	061	$\frac{4}{16}$				
	Star ...	103	$\frac{1}{16}$	059	$\frac{1}{16}$		
	Bombardment ...	008	$\frac{1}{16}$				
4-in. IV ...	Full ...	103	1	059	$\frac{4}{16}$		
	Star ...	048	$\frac{1}{16}$	042	$\frac{1}{16}$		
	Reduced ...	048	$\frac{1}{16}$				
4-in. V ...	Full ...	103	1	164-048	$\frac{4}{16}$	050	$\frac{8}{16}$
	Star ...	048	$\frac{1}{16}$	029	$\frac{1}{16}$		
12-pdr. ...	Full ...	061	1	059 or 052	$\frac{4}{16}$	033	$\frac{8}{16}$
12-cwt. ...	Star ...	124/058 134/055	$\frac{1}{16}$	029	$\frac{1}{16}$		
3.7-in. howitzer...	011	1				

TABLE IV
O.L. Values - Various Assumptions

Year	Rate	Value	Rate	Value	Rate	Value	Rate	Value
1977	4.00	224.000	1	140	...	...	...	...
1978	4.00	224.000	1	140	...	...	...	...
1979	4.00	224.000	1	140	...	...	...	...
1980	4.00	224.000	1	140	...	...	...	...
1981	4.00	224.000	1	140	...	...	...	...
1982	4.00	224.000	1	140	...	...	...	...
1983	4.00	224.000	1	140	...	...	...	...
1984	4.00	224.000	1	140	...	...	...	...
1985	4.00	224.000	1	140	...	...	...	...
1986	4.00	224.000	1	140	...	...	...	...
1987	4.00	224.000	1	140	...	...	...	...
1988	4.00	224.000	1	140	...	...	...	...
1989	4.00	224.000	1	140	...	...	...	...
1990	4.00	224.000	1	140	...	...	...	...
1991	4.00	224.000	1	140	...	...	...	...
1992	4.00	224.000	1	140	...	...	...	...
1993	4.00	224.000	1	140	...	...	...	...
1994	4.00	224.000	1	140	...	...	...	...
1995	4.00	224.000	1	140	...	...	...	...
1996	4.00	224.000	1	140	...	...	...	...
1997	4.00	224.000	1	140	...	...	...	...
1998	4.00	224.000	1	140	...	...	...	...
1999	4.00	224.000	1	140	...	...	...	...
2000	4.00	224.000	1	140	...	...	...	...
2001	4.00	224.000	1	140	...	...	...	...
2002	4.00	224.000	1	140	...	...	...	...
2003	4.00	224.000	1	140	...	...	...	...
2004	4.00	224.000	1	140	...	...	...	...
2005	4.00	224.000	1	140	...	...	...	...
2006	4.00	224.000	1	140	...	...	...	...
2007	4.00	224.000	1	140	...	...	...	...
2008	4.00	224.000	1	140	...	...	...	...
2009	4.00	224.000	1	140	...	...	...	...
2010	4.00	224.000	1	140	...	...	...	...
2011	4.00	224.000	1	140	...	...	...	...
2012	4.00	224.000	1	140	...	...	...	...
2013	4.00	224.000	1	140	...	...	...	...
2014	4.00	224.000	1	140	...	...	...	...
2015	4.00	224.000	1	140	...	...	...	...
2016	4.00	224.000	1	140	...	...	...	...
2017	4.00	224.000	1	140	...	...	...	...
2018	4.00	224.000	1	140	...	...	...	...
2019	4.00	224.000	1	140	...	...	...	...
2020	4.00	224.000	1	140	...	...	...	...