REV	DESCRIPTION	ECN#	DWN	APV'D	DATE
G	ADDED KA4H-UFKA34 ENGINE MODEL	4929	RDR	JCA	22JUN17
H	ADDED DT2R-UFAA19, & UFAA49 ENGINE MODELS	4823	RDR	JCA	19JUL17
	ADDED DS0R-UFAA67, & UFAA59 ENGINE MODELS	5091			
J	UPDATED NFPA20 REFERENCE TO 2016	N/A	JCA	JCA	19JAN18

Engine Model	Voltage (DC) (Note 1)	Ni-Cad Battery P/N (See Note 6) DRY (Note 2)	Weight per cell kg (lbs)	Single Cell Dimensions (Figure 3) Lenght (L) mm (inches)	Width (W) mm (inches)	Height (H) mm (inches)	Amp Hour Rating (See Note 3)	Available Cranking Amps	# Of Cells Required for each Battery Set	Total Cells Provided for 2 Battery Sets	Single cell Electrolyte mL (oz) (See Note 5)	Electrolyte for 2 Battery Sets L (Gal) (See Note 4 / 5)	Battery Tray P/N (Optional) (Figure 4)	# of Trays Required	Tray Length (X) mm (inches)	Total Height (T) With Tray mm (inches)	Tray Weight kg (lbs)
JU4H-UF10, 12, 04, 14, 20, 22, 24, 34, H0, H2, 40, 42, 58, 50, 52, 54 ZE4H-UFAD60 KA4H-UFKA24, 34 (12V ONLY) JU4R-UF09, 11, 19, 21, 40, 49, 51, 53, JU4H-UFAEA0, AEE8, AEF2, ADJ8, ADJ2, ADPO, ADR0, ADW8, ADY8, AD98 JU4R-UFAEA9, 13, AEE7, AEF1, 23	12 (Figure 1)	C072320	6.3 (13.9)	92 (3.6)	122 (4.8)	309 (12.2)	103 Ah	1296	10	20	1173.5 (39.7)	23.4 (6.2)	C072328	1	1050 (41.3)	594 (23.4)	17.5 (38.6)
	24 (Figure 2)	C072320	6.3 (13.9)	92 (3.6)	122 (4.8)	309 (12.2)	103 Ah	1296	20	40	1173.5 (39.7)	46.9 (12.4)	C072328	2	1050 (41.3)	594 (23.4)	17.5 (38.6)
JU6H-UFD0, D2, 30, 32, 34, G8, M8, M0, M2, 58, 50, 52, 54, 68, 60, 62, AAPG, AAQ8, AAX8, AARG, 84, AAS0 JU6R-UFAAD9, AAD1, AA29, AA31, AA33, AAM7, AAM9, AAM1, AA57, AA49, AA59, AA51, AAPF, AA53, AAQ7, AA61, AA83, AARF, AAS9 JU6H-UFADMG, ADNG, ADN0, ADP0, ADP8, ADQ0, AD88, ADR0, ADR8, ADS8, ADT0, ADX8, AD98,	12 (Figure 1)	C072322	7.8 (17.2)	115 (4.5)	122 (4.8)	309 (12.2)	132 Ah	1573	10	20	1514.2 (51.2)	30.3 (8)	C072329	1	1200 (47.2)	594 (23.4)	19 (41.9)
	24 (Figure 2)	C072320	6.3 (13.9)	92 (3.6)	122 (4.8)	309 (12.2)	103 Ah	1296	20	40	1173.5 (39.7)	46.9 (12.4)	C072328	2	1050 (41.3)	594 (23.4)	17.5 (38.6)
ZF6H-UFAC60, 70	12 (Figure 1)	C072322	7.8 (17.2)	115 (4.5)	122 (4.8)	309 (12.2)	132 Ah	1573	10	20	1514.2 (51.2)	30.3 (8)	C072329	1	1200 (47.2)	594 (23.4)	19 (41.9)
JW6H-UFAA80, ADF0, ADJ0, AD70, AD80,	12 (Figure 1)	C072322	7.8 (17.2)	115 (4.5)	122 (4.8)	309 (12.2)	132 Ah	1573	10	20	1514.2 (51.2)	30.3 (8)	C072329	1	1200 (47.2)	594 (23.4)	19 (41.9)
	24 (Figure 2)	C072320	6.3 (13.9)	92 (3.6)	122 (4.8)	309 (12.2)	103 Ah	1296	20	40	1173.5 (39.7)	46.9 (12.4)	C072328	2	1050 (41.3)	594 (23.4)	17.5 (38.6)
JX6H-UFADF0, AD60, ADN0, ADP0, AD88	24 (Figure 1)	C072320	6.3 (13.9)	92 (3.6)	122 (4.8)	309 (12.2)	103 Ah	1296	20	40	1173.5 (39.7)	46.9 (12.4)	C072328	2	1050 (41.3)	594 (23.4)	17.5 (38.6)
DP6H-UFAA50, AA88, AA70	24 (Figure 2)	C072320	6.3 (13.9)	92 (3.6)	122 (4.8)	309 (12.2)	103 Ah	1296	20	40	1173.5 (39.7)	46.9 (12.4)	C072328	2	1050 (41.3)	594 (23.4)	17.5 (38.6)
DQ6H-UFAA50, AA60, AA88, AA98	24 (Figure 2)	C072320	6.3 (13.9)	92 (3.6)	122 (4.8)	309 (12.2)	103 Ah	1296	20	40	1173.5 (39.7)	46.9 (12.4)	C072328	2	1050 (41.3)	594 (23.4)	17.5 (38.6)
DR8H-UFAA40, AA5G, AA68, AA62	24 (Figure 2)	C072322	7.8 (17.2)	115 (4.5)	122 (4.8)	309 (12.2)	132 Ah	1573	20	40	1514.2 (51.2)	57.5 (15.2)	C072329	2	1200 (47.2)	594 (23.4)	19 (41.9)
DS0H-UFAAM0, AAN0, AA68, AA60, AA98, AA92/ DS0R-UFAA67, AA59	24 (Figure 2)	C072322	7.8 (17.2)	115 (4.5)	122 (4.8)	309 (12.2)	132 Ah	1573	20	40	1514.2 (51.2)	57.5 (15.2)	C072329	2	1200 (47.2)	594 (23.4)	19 (41.9)
DT2H-UFAA58, AA20, AA50, AA60, AA88, AA98/ DT2R-UFAA19, AA49	24 (Figure 2)	C072322	7.8 (17.2)	115 (4.5)	122 (4.8)	309 (12.2)	132 Ah	1573	20	40	1514.2 (51.2)	57.5 (15.2)	C072329	2	1200 (47.2)	594 (23.4)	19 (41.9)

NOTES:

1) Cell Voltage:
   The nominal voltage is 1.2 V.
2) WARNING: NI-CAD INDIVIDUAL CELLS MAY HAVE BEEN SHIPPED "DRY"! PLEASE VERIFY CELLS ARE FILLED WITH THE PROPER ELECTROLYTE (POTASSIUM HYDROXIDE) BEFORE CONNECTING THE COMPLETED BATTERY SETS TO THE ENGINE OR TO A BATTERY CHARGER OR BOTH. *BATTERIES WILL BE DESTROYED IF CONNECTED PRIOR TO FILLING.* ALSO, PLEASE CONTACT CLARKE FOR HELPING SOURCE THE PROPER ELECTROLYTE FOR THESE NI-CAD CELLS.
3) Nominal Capacity:
   The nominal capacity of the nickel-cadmium battery is given in ampere - hours (Ah). It denotes the amount of electricity at +20 C, which can be removed from the battery after a full charge with 5 - hour discharge to 1.0 V / cell.
4) Includes an additional 10% electrolyte.
5) Electrolyte:
   The electrolyte is made from diluted potassium hydroxide with a density of 1.19 Kg/L at 20° C. Cells can be provided filled and charged or empty and discharged. When delivered by sea or air freight, the empty and discharged condition is recommended. In this case, the electrolyte can be packed separately and ready to fill. Dry batteries can be shipped non hazardous.
6) Battery meets NFPA 20 2016 requirements: Section 11.2.7.2.1.4: at 40 °F (4°C), each battery unit shall have twice the capacity sufficient to maintain the cranking speed recommended by the engine manufacturer through a 3 minute attempt-to-start cycle, which is six consecutive cycles of 15 seconds of cranking and 15 seconds of rest. Section 11.2.7.2.1.5: batteries shall be sized, based on calculations, to have capacity to carry the loads defined in 11.2.7.2.3 for 72 hours of standby power followed by three 15 second attempt-to-start cycles per battery unit as defined in 11.2.7.2.1.4 without AC power being available for battery charging. section 11.2.7.2.3.2: essential loads, including the engine, controller and all pump room equipment combined, shall not exceed 0.5 ampere each for a total of 1.5 amperes,on continuous basis.
7) Battery cable length (total circuit) should not exceed the guidelines for minimum size or max circuit resistance as provided on the installation & operation data sheet for the given engine model
8) For installation instructions refer to C135698.

12V BATTERY SET

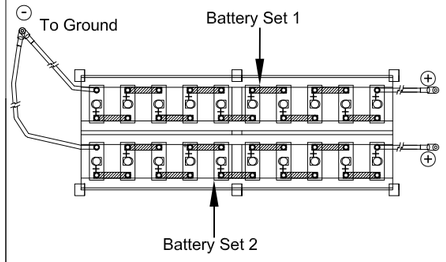


Figure 1

24V BATTERY SET

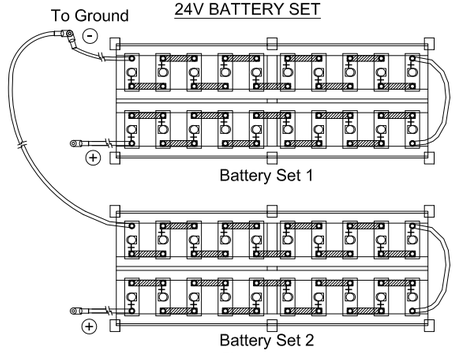


Figure 2

CELL DETAIL

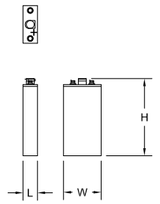


Figure 3

BATTERY P/N WET	BATTERY P/N DRY	TERMINAL SIZE	CABLE SIZE AWG	LUG #	A	B	C	D	E	F	G
C072308	C072320	M8	4/O	L379	0.590	0.700	2.375	0.405	1.030	0.525	0.125
C072309	C072321	M8	4/O	L379	0.590	0.700	2.375	0.405	1.030	0.525	0.125
C072310	C072322	M8	4/O	L379	0.590	0.700	2.375	0.405	1.030	0.525	0.125

DIMENSIONS IN INCHES

BATTERY CABLE LUGS

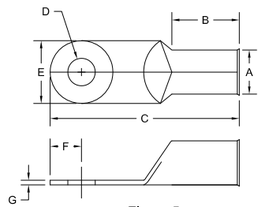
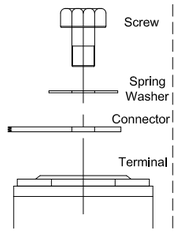


Figure 5

CONNECTOR DETAIL



DETAIL "A"

BATTERY TRAY DETAIL

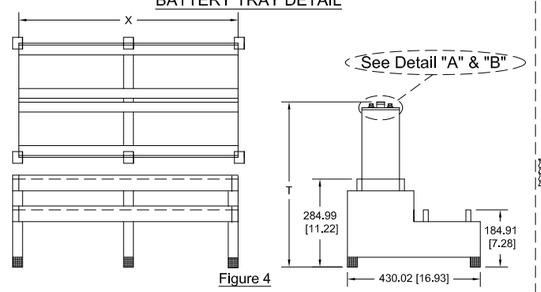
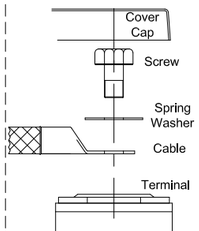


Figure 4

GROUP OR END CONNECTOR DETAIL



DETAIL "B"

UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:

	MM	IN
DECIMAL .X	±1.5	±0.06
.XX	±0.8	±0.03
.XXX	±0.25	±0.01
FRACTIONAL ±1/32		
ANGULAR ±.5°		

SIMILAR TO ------

YES NO CONTROLLED DRAWING

CLARKE Fire Protection Products, Inc.

DRWN	SAPATEL
DATE	18APR14
ENGR	KRWAULIGMAN
MATERIAL	SEE ABOVE

NAME: Ni-Cad BATTERY SPECIFICATION SHEET FOR ALL CLARKE ENGINE MODELS (MEET ALL NFPA 20 2016 REQUIREMENTS)

PART NO. C135691 REV J

SCALE NTS UNITS MM [INCH] PAGE 1 OF 1