CLARKE®

FIRE PUMP ENGINES

MODELS

DS0H-UFAAM0 DS0H-UFAA60
DS0H-UFAAN0 DS0H-UFAA98
DS0H-UFAA68 DS0H-UFAA92

FM-UL-cUL APPROVED RATINGS BHP/*KW*

DS0H MODEL ♦ λ	RATED SPEED 1470		1760		2100		2350	
DS0H-UFAAM0			520	*388*	530	*395*		
DS0H-UFAAN0			542	*404*	575	*429*		
DS0H-UFAA68	522	*389.5*	587	*438*				
DS0H-UFAA60					614	*458*	606	*452*
DS0H-UFAA98			650	*485*				
DS0H-UFAA92					722	*538.5*		

♦ All Models are available for Export

λ = Non-Emissionized

Picture shown represents the DS0H-UFAA98 and UFAA92 engine models

SPECIFICATIONS

ITEM	DS0H MODELS UFAAM0	UFAAN0	UFAA68	UFAA60	UFAA98	UFAA92
Number of Cylinders	10					
Aspiration	TRWA					
Rotation*	CW					
Overall Dimensions – in. (mm)	76.7 (1947) H x 61.7 (1568) L x 53.9 (1369) W					
Crankshaft Centerline Height – in. (mm)	23.5 (597)					
Weight – lb (kg)	3200 (1450)					
Compression Ratio	14.6:1					
Displacement – cu. in. (l)	1115 (18.3)					
Engine Type	4 Cycle, 2 Valves per Cylinder, Vee					
Bore & Stroke – in. (mm)	5.04 x 5.59 (128 x 142)					
Installation Drawing	D665					
Wiring Diagram AC	C07651					
Wiring Diagram DC	C071842					
Speed Interpolation	None					

Abbreviations: CW – Clockwise TRWA – Turbocharged with Raw Water Aftercooling L – Length W – Width H - Height

*Rotation viewed from Heat Exchanger / Front of engine

CERTIFIED POWER RATING

- Each engine is factory tested to verify power and performance.

ENGINE RATINGS BASELINES

- Engines are to be used for stationary emergency standby fire pump service only. Engines are to be tested in accordance with NFPA 25.
- Engines are rated at standard SAE conditions of 29.61 in. (752.1 mm) Hg barometer and 77°F (25°C) inlet air temperature [approximates 300 ft. (91.4 m) above sea level] by the testing laboratory (see SAE Standard J 1349).
- A deduction of 3 percent from engine horsepower rating at standard SAE conditions shall be made for diesel engines for each 1000 ft. (305 m) altitude above 300 ft. (91.4 m)
- A deduction of 1 percent from engine horsepower rating as corrected to standard SAE conditions shall be made for diesel engines for every 10°F (5.6°C) above 77°F (25°C) ambient temperature.

c UL us

Meets NFPA 20 Requirements

FM C US APPROVED

CLARKE®

FIRE PUMP ENGINES

MODELS

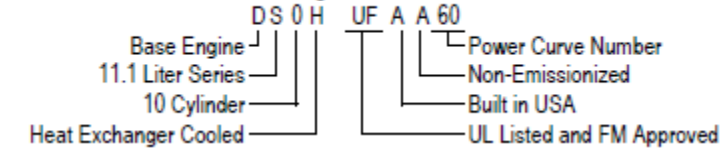
DS0H-UFAAM0 DS0H-UFAA60
DS0H-UFAAN0 DS0H-UFAA98
DS0H-UFAA68 DS0H-UFAA92

ENGINE EQUIPMENT

EQUIPMENT	STANDARD	OPTIONAL
Air Cleaner	Direct Mounted, Washable, Indoor Service with Drip Shield	Disposable, Drip Proof, Indoor Service Outdoor Type, Single or Two Stage (Cyclonic)
Alarms	Overspeed Alarm & Shutdown, Low Oil Pressure, Low & High Coolant Temperature, High Raw Water Flow, High Raw Water Temperature	Low Coolant Level, Low Oil Level, Oil Filter Differential Pressure, Fuel Filter Differential Pressure, Air Filter Restriction
Alternator	24V-DC, 45 Amps with Dual (2) V-Belt Drive with Guard	
Coupling	Bare Flywheel	Non-Listed SC2160A Driveshaft; Vertical Turbine Drivedisc
Engine Heater	230V-AC, 2500 Watt	
Exhaust Flex Connection	SS Flex, 150# Flange Connection, 5”	SS Flex, 150# Flange Connection, 6”
Exhaust Protection	Blankets	
Flywheel Housing	SAE #1	
Flywheel Power Take Off	14.0” Industrial Flywheel Connection	
Fuel Connections	Fire Resistant, Flexible, USA Coast Guard Approved, Supply and Return Lines	
Fuel Filter	Primary and Secondary	
Fuel Injection System	Direct Injection, Inline Pump	
Fuel Solenoid	24V-DC Energized to Stop	
Governor, Speed	Variable Speed, Mechanical	
Heat Exchanger	Tube and Shell Type, 60 PSI (4 BAR), NPT(F) Connections – Sea Water Compatible	
Instrument Panel	Tachometer, Hourmeter, Water Temperature, Oil Pressure and Two (2) Voltmeters, Front Opening	
Junction Box	Integral with Instrument Panel; For DC Wiring Interconnection to Engine Controller	
Lube Oil Cooler	Engine Water Cooled, Plate Type	
Lube Oil Filter	Full Flow with By-Pass Valve	
Lube Oil Pump	Gear Driven, Gear Type	
Manual Start Control	On Instrument Panel with Control Position Warning Light	
Overspeed Control	Electronic with Reset and Test on Instrument Panel	
Raw Water Cooling Loop – w/ Alarms	Galvanized	Sea Water, All 316SS, High Pressure
Raw Water Cooling Loop - Solenoid Operation	Automatic from Fire Pump Controller and from Engine Instrument Panel (for Horizontal Fire Pump Applications)	Not Supplied (for Vertical Turbine Fire Pump Applications)
Run – Stop Control	On Instrument Panel with Control Position Warning Light	
Starters	One (1) 24V-DC with Two (2) Start Contactors	
Throttle Control	Adjustable Speed Control, Tamper Proof	
Water Pump	Centrifugal Type, Dual (2) V-Belt Drive with Guard	

Abbreviations: DC – Direct Current, AC – Alternating Current, SAE – Society of Automotive Engineers, NPT(F) – National Pipe Tapered Thread (Female), SS – Stainless Steel

MODEL NOMENCLATURE (10 Digit Models)



CLARKE®

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C134251 revM
01FEB18

DR8 & DS0
ENGINE MATERIALS AND CONSTRUCTION

Air Cleaner

Type	Indoor Usage Only Oiled Fabric Pleats
Material	Surgical Cotton Aluminum Mesh

Air Cleaner - Optional

Type	Canister
Material	Pleated Paper
Housing	Enclosed

Camshaft

Material	Chromium Molybdenum Steel Nitride Hardening
Location	In Block
Drive	Gear
Type of Cam	Ground

Charge Air Cooler

Type	Raw Water Cooled - All
Materials (in contact with raw water)	
Tubes	90/10 CU/NI
Tube Header Plate	Brass (ASTM C4621)
Inlet/Outlet Covers	Bronze (BC6)
Plumbing	Galvanized Steel Pipe ISO 15540 Hose (Standard) Other Materials (Optional)

Coolant Pump

Type	Centrifugal
Drive	Belt

Coolant Thermostat

Type	Full Blocking
Qty	3

Cooling Loop (Galvanized)

Tees, Elbows, Pipe	Galvanized Steel
Ball Valves	Brass ASTM B 124
Solenoid Valve	Brass
Pressure Regulator	Bronze
Strainer	Cast Iron (1/2"- 1" Loops) or Bronze (1.25" - 2" Loops)

Cooling Loop (Sea Water)

Tees, Elbows, Pipe	316 Stainless Steel
Ball Valves	316 Stainless Steel
Solenoid Valve	316 Stainless Steel
Pressure Regulator/Strainer	Cast Brass ASTM B176 C87800

Cooling Loop (Sea Water)

Tees, Elbows, Pipe	316 Stainless Steel
Ball Valves	316 Stainless Steel
Solenoid Valve	316 Stainless Steel
Pressure Regulator/Strainer	316 Stainless Steel

Connecting Rod

Type	One Piece, Diagonally Split
Material	Die Forged Steel

Crank Pin Bearings

Type	One Piece
Material	Steel backed, Lead Bronze

Crankshaft

Material	Forged Steel
Type of Balance	Dynamical, Screwed on Balanced Weights

Cylinder Block

Type	One Piece w/ Non-Siamese Cyl.
Material	Cast Iron

Cylinder Head

Type	Individual, 2 Valve
Material	Cast Iron

Cylinder Liners

Type	Centrifugal Cast, Wet Liner
Material	Alloy Iron Plateau, Honed

(Effective Dec 2013)

Heat Exchanger - Standard (Sea Water Compatible)

Type	Tube & Shell
Materials (in contact with raw water)	
Tubes	Copper
Shell	Copper
Headers	Copper
Electrode	Zinc

Injection Pump

Type	In Line
Drive	Gear

Lubrication Cooler

Type	Plate

Lubrication Pump

Type	Gear
Drive	Gear

Main Bearings

Type	Precision Half Shells
Material	Steel Backed, Lead Bronze

Piston

Type and Material	Aluminum Alloy with Reinforced/Top Groove
Cooling	Oil Jet Spray

Piston Pin

Type	Full Floating

Piston Rings

Number/Piston	3
Top	Keystone Barrel Faced- Hard Chrome Coated
Second	Tapered Cast Iron Hard Chrome Coated
Third	Double Rail Type with Expander Spring

DATUMS:
-A- - MOUNTING FACE OF FLYWHEEL
-B- - ENGINE CRANKSHAFT HORIZONTAL ℄
-C- - ENGINE CRANKSHAFT VERTICAL ℄

- CENTER OF GRAVITY

- CLOCKWISE (CW) ROTATION WHEN VIEWED FROM FRONT OF ENGINE

CAUTION:
ALL PLUMBING MUST BE SUPPORTED AND/OR ISOLATED SO THAT NO WEIGHT OR STRESS IS APPLIED TO ANY ENGINE COMPONENT

ATTENTION:
REFER TO THE SPECIFIC MODELS' "INSTALLATION AND OPERATION DATA" FOR INSTALLATION GUIDELINES

AVAILABLE MODELS:
DS0H-UFAA60, DS0H-UFAA68, DS0H-UFAAN0
DS0H-UFAAM0
DS0H-UFKA60, DS0H-UFKA68, DS0H-UFKAN0
DS0H-UFKAM0

SEE PAGE 3 FOR RAW WATER CONNECTIONS
DS0H-UFAA92, DS0H-UFAA98
DS0H-UFKA92, DS0H-UFKA98

(ALL MODELS ARE TURBOCHARGED WITH RAW WATER AFTER COOLING)

NOTES:
1) FUEL SUPPLY PIPING FROM TANK TO ENGINE SHOULD BE 3/4" MINIMUM PIPE DIAMETER
2) FUEL RETURN PIPING FROM TANK TO ENGINE SHOULD BE 1/2" MINIMUM PIPE DIAMETER

DO NOT SCALE

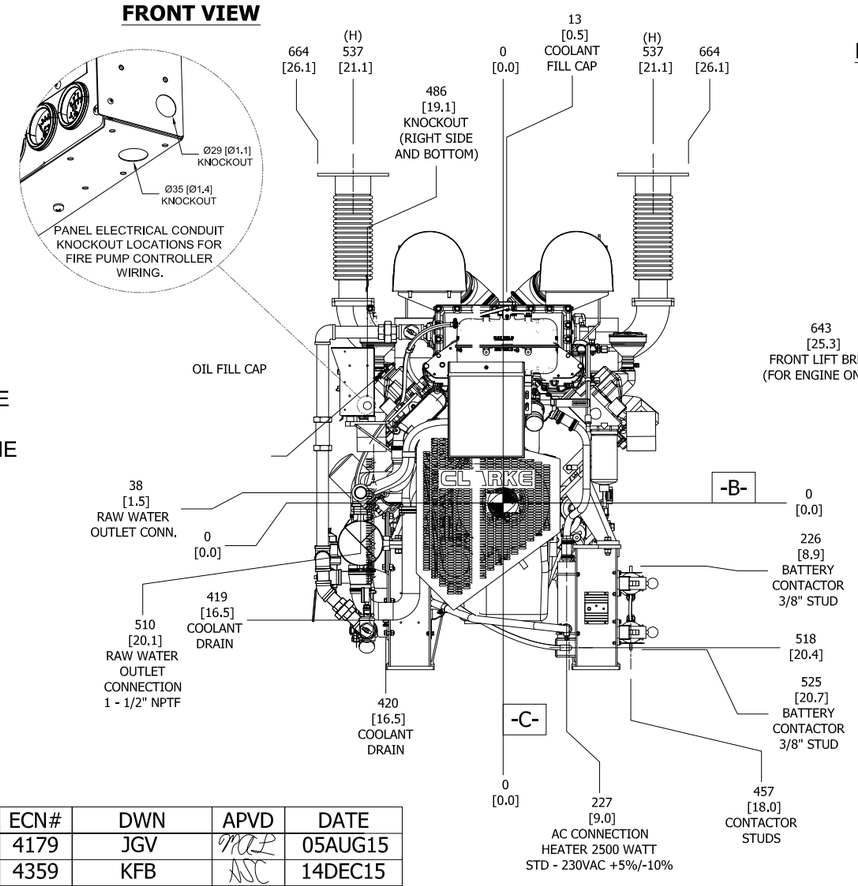
NOTE:
THE LOOP SHOWN IS BASED ON STANDARD LOOP CONSTRUCTION AND FM SIZING CONDITIONS

FOR ALTERNATE LOOP CONSTRUCTION (STAINLESS STEEL, SEA WATER, AND HIGH PRESSURE) SIZES MAY VARY

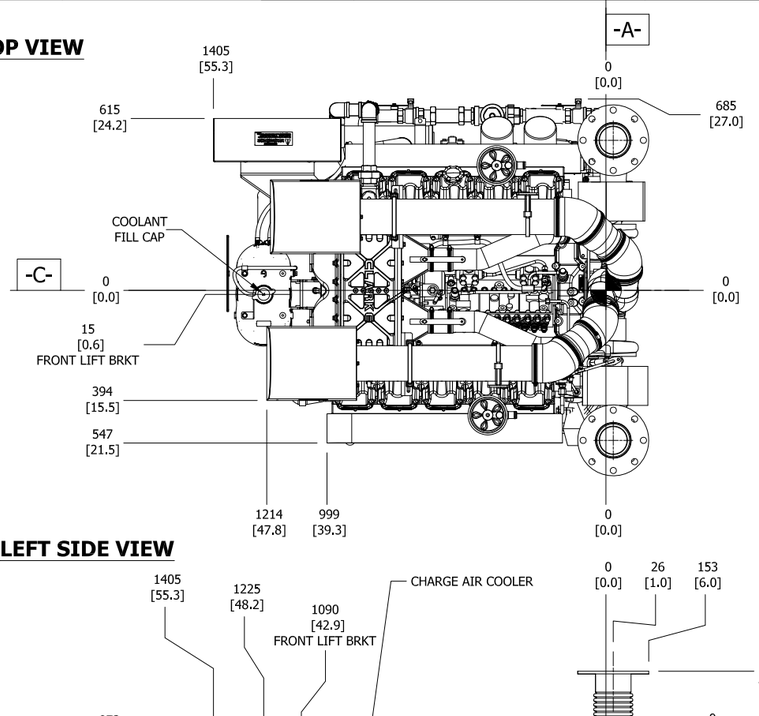
DRAWING SUBJECT TO CHANGE WITHOUT NOTICE

FOR ENGINES BUILT IN USA BEGINNING APRIL 2015

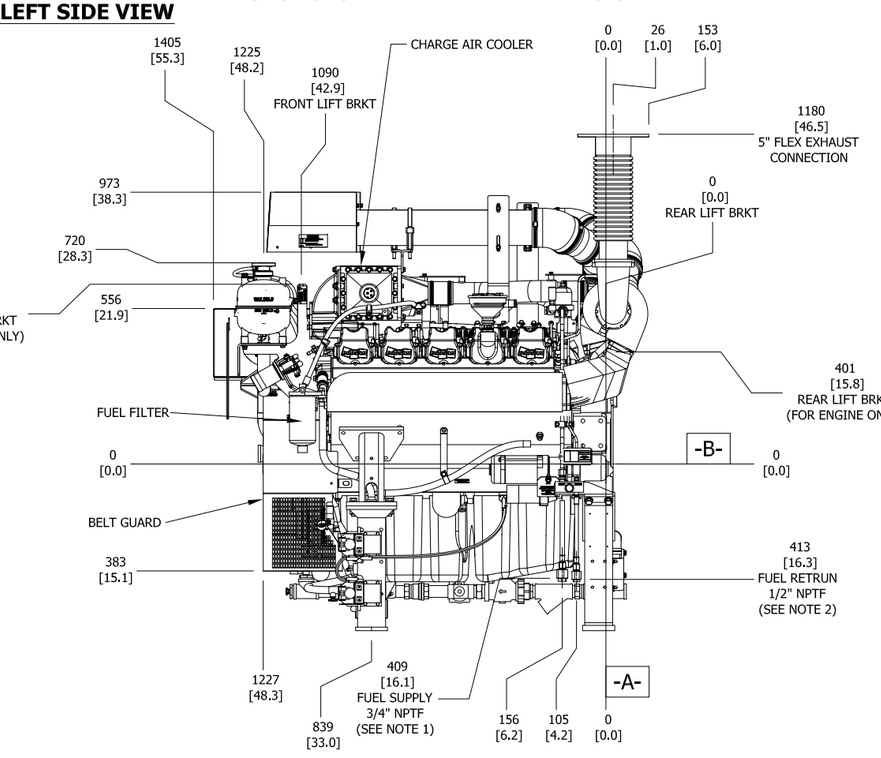
FRONT VIEW



TOP VIEW



LEFT SIDE VIEW



REV	DESCRIPTION	ECN#	DWN	APVD	DATE
L	ADDED FLYWHEEL INFO	4179	JGV	MAL	05AUG15
M	UPDATED TO SHOW INDICATING PLATES	4359	KFB	MSC	14DEC15
N	ADDED DIMS TO ENGINE LIFTING BRACKETS	5061	MDM	MAL	26JUN17
P	ADDED KNOCKOUT LOCATION DETAIL, REMOVED 115 VAC OPTION	5236/ 5145	ECK	MAL	29NOV17
Q	UPDATED TOLERANCE, LOGO, & DIM PRECISION	5393	NMM	MAL	11MAY18

GENERAL TOLERANCES
UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS [INCHES] AND MAY VARY ± 9,5 [0,38]

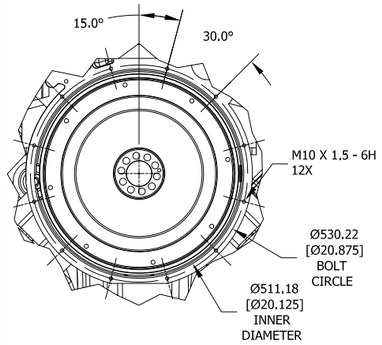
YES ☒ NO ☐ CONTROLLED DRAWING

CLARKE®

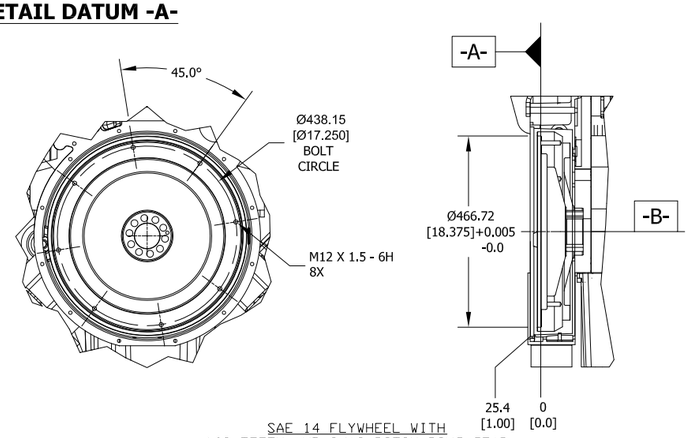
DRWN JAUGENSTEIN
DATE 20SEPT11
ENGR KJKUNKLER
MATERIAL STANDARD ENGINE BUILD
ASSEMBLY DSOH-UF ENGINE SERIES

NAME INSTALLATION DRAWING, DS0H-UFAA & UFKA ENGINE MODELS DIESEL FIRE PUMP DRIVER
PART NO. D665 REV Q
SCALE NTS UNITS MM [INCH] PAGE 1 OF 3

DETAIL DATUM -A-

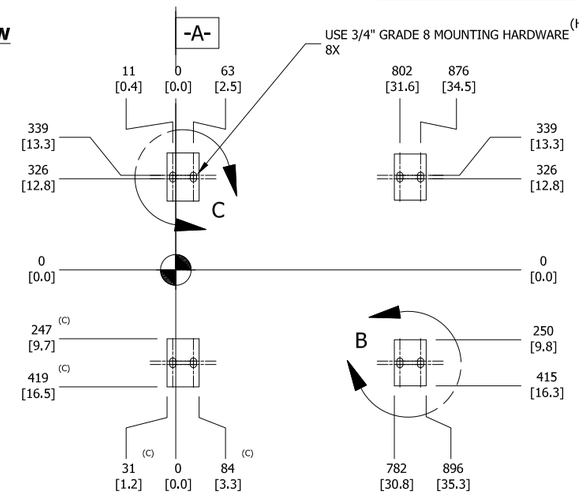


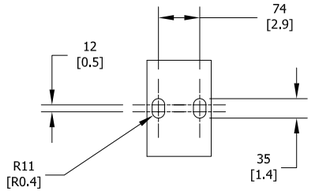
SAE #1
FLYWHEEL HOUSING



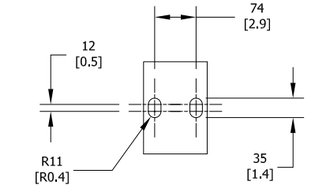
SAE 14 FLYWHEEL WITH
160 TEETH AND 8/10 PITCH RING GEAR

BOTTOM VIEW



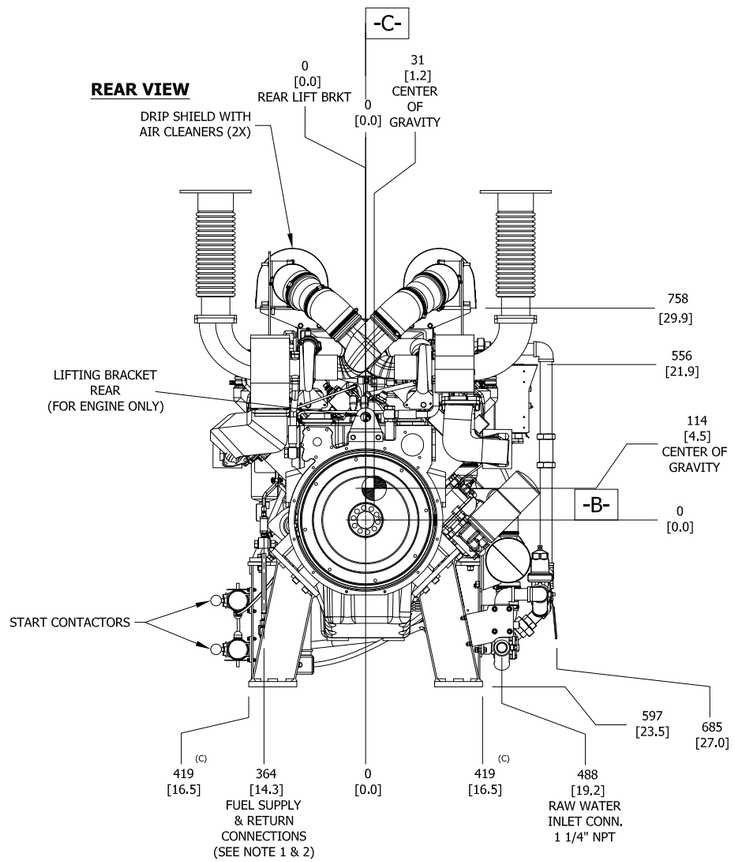


SLOT DETAIL C
REAR MOUNTING FEET

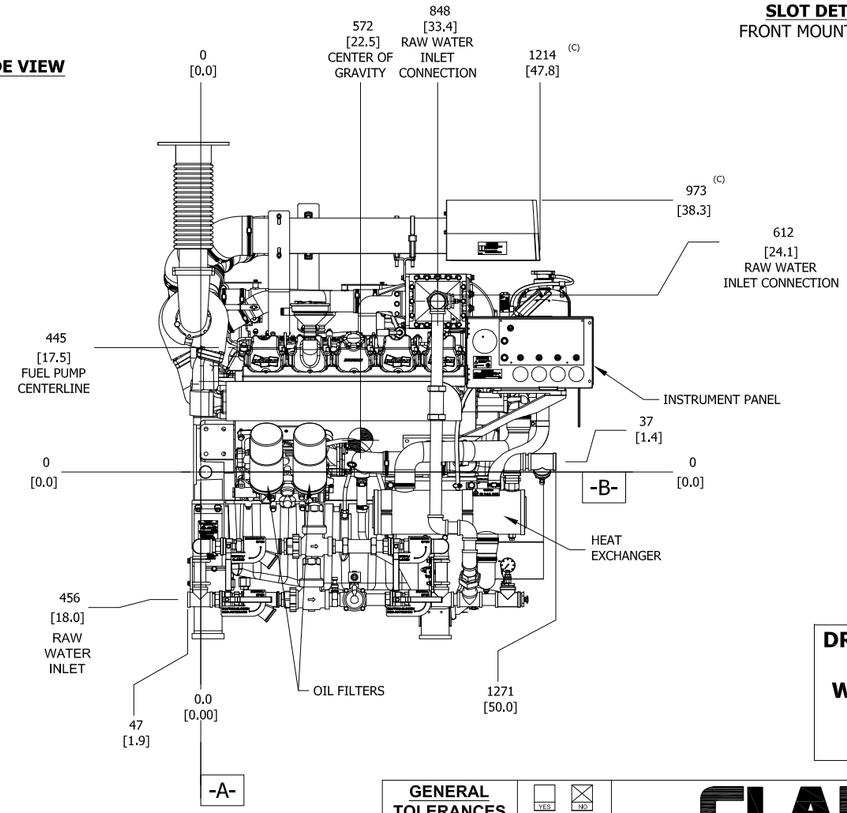


SLOT DETAIL B
FRONT MOUNTING FEET

REAR VIEW



RIGHT SIDE VIEW



DRAWING SUBJECT TO CHANGE WITHOUT NOTICE

DO NOT SCALE

NOTES:
1) FUEL SUPPLY PIPING FROM TANK TO ENGINE SHOULD BE 3/4" MINIMUM PIPE DIAMETER.
2) FUEL RETURN PIPING FROM ENGINE TO TANK SHOULD 1/2" MINIMUM PIPE DIAMETER.
3) ENGINE MOUNTING FEET ARE SYMMETRICAL ABOUT CRANKSHAFT CENTERLINE DATUM

FOR ENGINE SPECIFIC OPTIONS
SEE www.clarkefire.com

GENERAL TOLERANCES
UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS [INCHES] AND MAY VARY ± 9,5 [0,38]

CONTROLLED DRAWING (YES ☒ / NO ☐)

CLARKE®

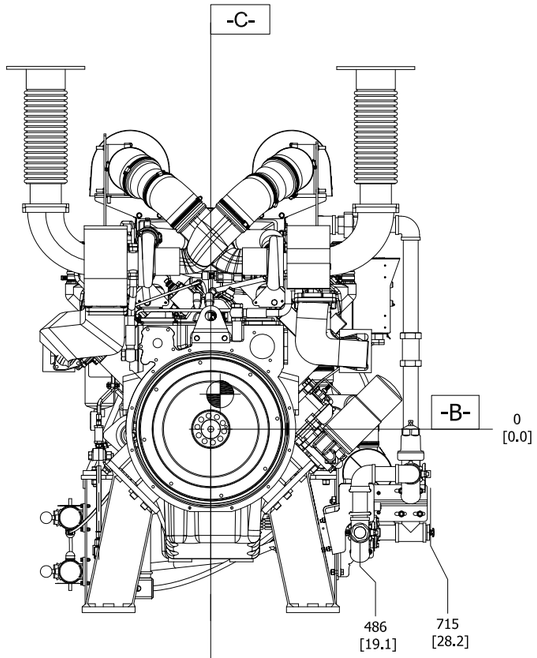
DRWN	JAUGENSTEIN
DATE	20SEPT11
ENGR	KJKUNKLER
MATERIAL	STANDARD ENGINE BUILD
ASSEMBLY	DSOH-UF ENGINE SERIES

NAME: INSTALLATION DRAWING, DS0H-UFAA & UFKA ENGINE MODELS DIESEL FIRE PUMP DRIVER

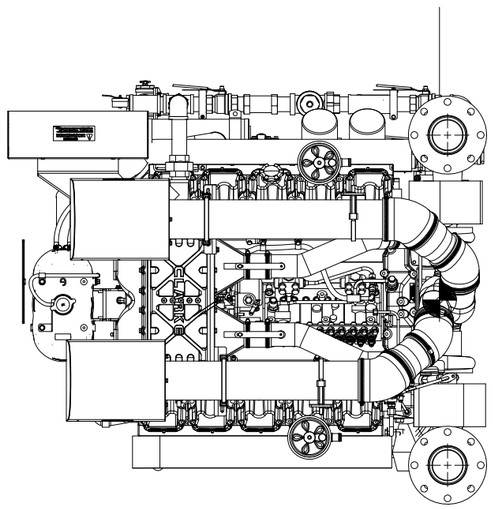
PART NO. D665 REV Q

SCALE NTS | UNITS MM [INCH] | PAGE 2 OF 3

VIEW FROM REAR OF ENGINE



VIEW FROM TOP OF ENGINE -A-



DO NOT SCALE

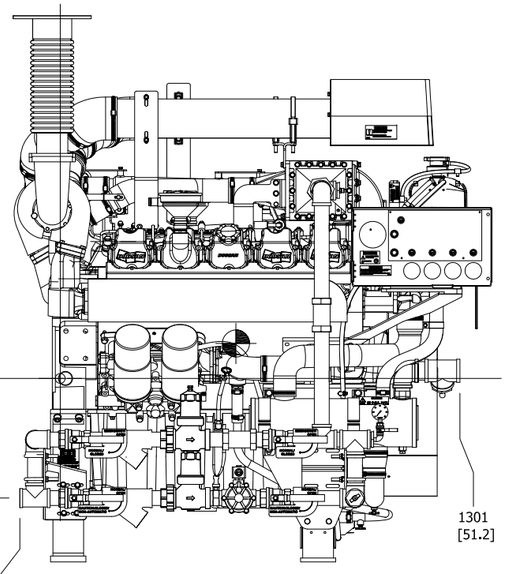
TRWA WITH 1 1/2" LOOP MODELS	DSOH-UFAA92 AA98 KA92 KA98

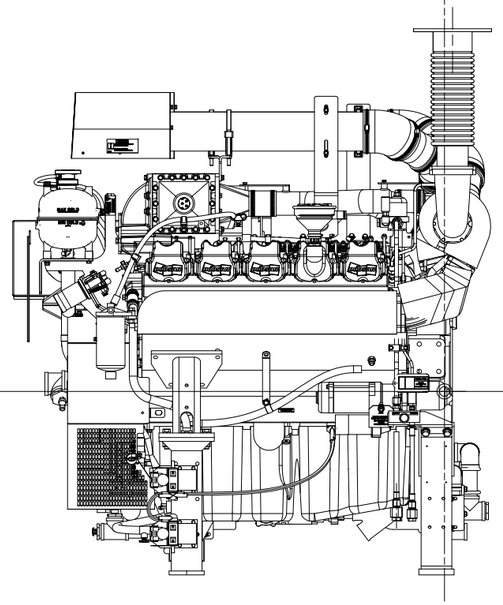
FOR ALL OTHER MODELS SEE PAGE 2

DATUMS

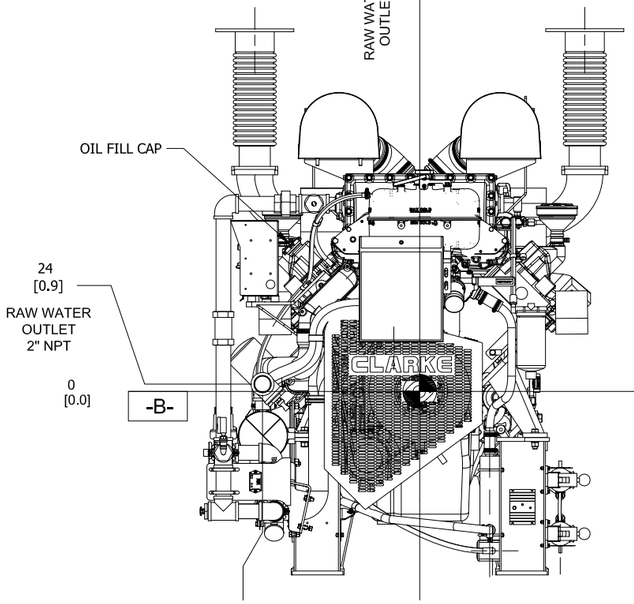
- -A- - MOUNTING FACE OF FLYWHEEL
- -B- - ENGINE CRANKSHAFT HORIZONTAL CENTERLINE
- -C- - ENGINE CRANKSHAFT VERTICAL CENTERLINE
- - CENTER OF GRAVITY OF ENGINE
- - CLOCKWISE ROTATION WHEN VIEWED FROM FRONT OF ENGINE

VIEW FROM RIGHT SIDE OF ENGINE





VIEW FROM LEFT SIDE OF ENGINE



VIEW FROM FRONT OF ENGINE

GENERAL TOLERANCES UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS [INCHES] AND MAY VARY ± 9,5 [0.38]	YES / NO CONTROLLED DRAWING	CLARKE®	
	DRWN JAUGENSTEIN	NAME	INSTALLATION DRAWING, DS0H-UFAA & UFKA ENGINE MODELS DIESEL FIRE PUMP DRIVER
	DATE 20SEPT11		
	ENGR KJKUNKLER		
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	ASSEMBLY DSOH-UF ENGINE SERIES	SCALE NTS / UNITS MM [INCH]	PAGE 3 OF 3