CLARKE®

FIRE PUMP ENGINES

MODELS

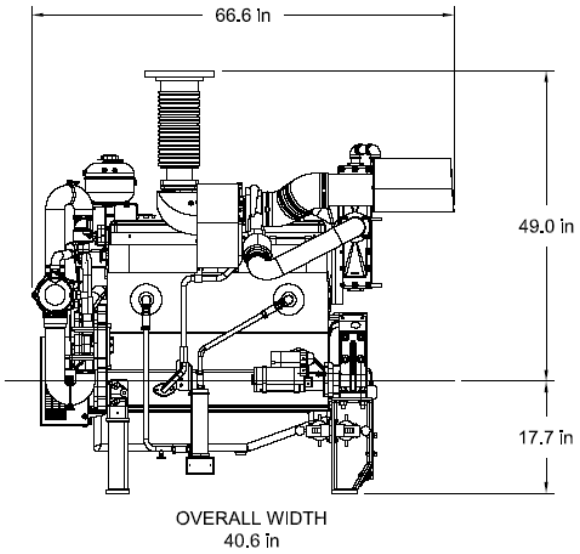
DQ6H-UFAA4G DQ6H-UFAA60
DQ6H-UFAA40 DQ6H-UFAA88
DQ6H-UFAA48 DQ6H-UFAA50 DQ6H-UFAA98

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

DQ6H MODEL ♦ λ	RATED SPEED 1470		1760		2100	
DQ6H-UFAA48	240	*179*				
DQ6H-UFAA4G			290	*216*		
DQ6H-UFAA40					310	*231*
DQ6H-UFAA50					340	*254*
DQ6H-UFAA60			345	*257*	360	*269*
DQ6H-UFAA88			375	*280*		
DQ6H-UFAA98	300	*224*	410	*306*		

♦ All Models are available for Export

λ = Non-Emissionized



SPECIFICATIONS

ITEM	DQ6H MODELS UFAA48	UFAA4G	UFAA40	UFAA50	UFAA60	UFAA88	UFAA98
Number of Cylinders	6						
Aspiration	TRWA						
Rotation*	CW						
Weight – lb (kg)	2500 (1134)						
Compression Ratio	17:1						
Displacement – cu. in. (l)	674 (11.1)						
Engine Type	4 Cycle, 2 Valves per Cylinder, In-Line						
Bore & Stroke – in. (mm)	4.84 x 6.1 (123 x 155)						
Installation Drawing	D658						
Wiring Diagram AC	C07651						
Wiring Diagram DC	C071842						
Engine Series	126 Series						
Speed Interpolation	Optional						

Abbreviations: CW – Clockwise TRWA – Turbocharged with Raw Water Aftercooling

*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

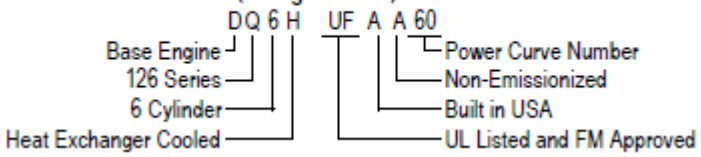
FM C US APPROVED

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
Alternator	24V-DC, 45 Amps with Dual (2) V-Belt Drive with Guard	
Exhaust Protection	Blankets	
Coupling	Bare Flywheel	Listed Driveshaft CDS50-SC; Vertical Turbine Drivedisc
Exhaust Flex Connection	Stainless Steel Flex, 150# Flange Connection, 6"	Stainless Steel Flex, 150# Flange Connection, 8"
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	
Engine Heater	230V-AC, 2000 Watt	115V-AC, 2000 Watt
Governor, Speed	Variable Speed, Mechanical	
Heat Exchanger	Tube and Shell Type, 60 PSI (4 BAR), NPT(F) Connections	Sea/Salt 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 Solenoid Operation	Automatic from Fire Pump Controller and from Engine Instrument Panel	
Run – Stop Control	On Instrument Panel with Control Position Warning Light	
Run Solenoid	24V-DC Energized to Stop	
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)

MODEL NOMENCLATURE (10 Digit Models)



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DQ6H
ENGINE MATERIALS AND CONSTRUCTION

Air Cleaner
Type……..…….. Indoor Usage Only
Oiled Fabric Pleats
Material…….…….. Surgical Cotton
Aluminum Mesh

Air Cleaner - Optiona
Type…….. Canister
Material…….. Pleated Paper
Housing……..…… Enclosed

Camshaft
Material……..…….. Carbon Steel
Induction Hardening
Location……..…….. In Block
Drive……..…….. Gear, Spur
Type of Cam……..…….. Ground

Charge Air Cooler
Type……..…….. Raw Water Cooled
Materials (in contact with raw water)
Tubes……..…….. 90/10 CU/NI
Headers……..…….. 36500 Muntz
Covers……..…….. 83600 Red Brass
Plumbing……..…….. 316 Stainless Steel/ Brass
90/10 Silicone

Coolant Pump
Type…….. Centrifugal
Drive…….. Gear

Coolant Thermostat
Type…….. Full Blocking
Qty…….. 2

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 (316SS)
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…….. Diagonally Split
Material…….. Die Forged Steel

Crank Pin Bearings
Type…….. One Piece
Material…….. Steel backed, Lead Bronze

Crankshaft
Material…….. Forged Steel
Type of Balance…….. Dynamic

Cylinder Block
Type…….. One Piece with
Non-Siamese Cylinders
Material…….. Cast Iron Alloy

Cylinder Head
Type…….. …….. 3 Cyl. Slab
Material…… …….. Cast Iron

Cylinder Liners
Type…….. Centrifugal Cast, Dry Liner
Material……..…….. Alloy Iron Plateau, Honed

Valves
Type…….. Poppet
Arrangement……..…….. Overhead Valve
Number/Cylinder……..…….. 1 intake
1 exhaust
Operating Mechanism……..…….. Mechanical Rocker Arm
Valve Seat Insert……..…….. Replaceable

Fuel Pump
Type…….. Piston
Drive……..…….. Cam Lobe

Heat Exchanger - Standard (Non-Sea Water Compatible)
Type…….. Tube & Shell
Materials (in contact with raw water)
Tubes……..…….. Copper
Headers……..…….. Rubber
Shell……..…….. Aluminum
Housings……..…….. Cast Iron
Electrode……..…….. Zinc

Heat Exchanger - Optional (Sea Water Compatible)
Type…….. Tube & Shell
Materials (in contact with raw water)
Tubes……..…….. Copper
Headers……..…….. Copper
Shell……..…….. 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 Ring Groove
Cooling……..…….. Oil Jet Through Drive

Piston Pin
Type……..…….. Fixed

Piston Rings
Number/Piston…….. 3
Top……..…….. Keystone Barrel Faced-
Gas Nitride Coated
Second……..…….. Tapered Cast Iron
Hard Chrome Coated
Third……..…….. Double Rail Type
w/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:
DQ6H-UFAA4G, DQ6H-UFAA48, DQ6H-UFAA40, DQ6H-UFAA50, DQ6H-UFAA60, DQ6H-UFAA88, DQ6H-UFAA98

*DQ6H-UFKA4G, DQ6H-UFKA48, DQ6H-UFKA40, DQ6H-UFKA50, DQ6H-UFKA60, DQ6H-UFKA88, DQ6H-UFKA98

(ALL MODELS ARE TURBOCHARGED WITH RAW WATER AFTER COOLING)

NOTES:
1) FUEL SUPPLY PIPING FROM TANK TO ENGINE SHOULD BE 1/2" MINIMUM PIPE DIAMETER
2) FUEL RETURN PIPING FROM TANK TO ENGINE SHOULD BE 3/8" MINIMUM PIPE DIAMETER

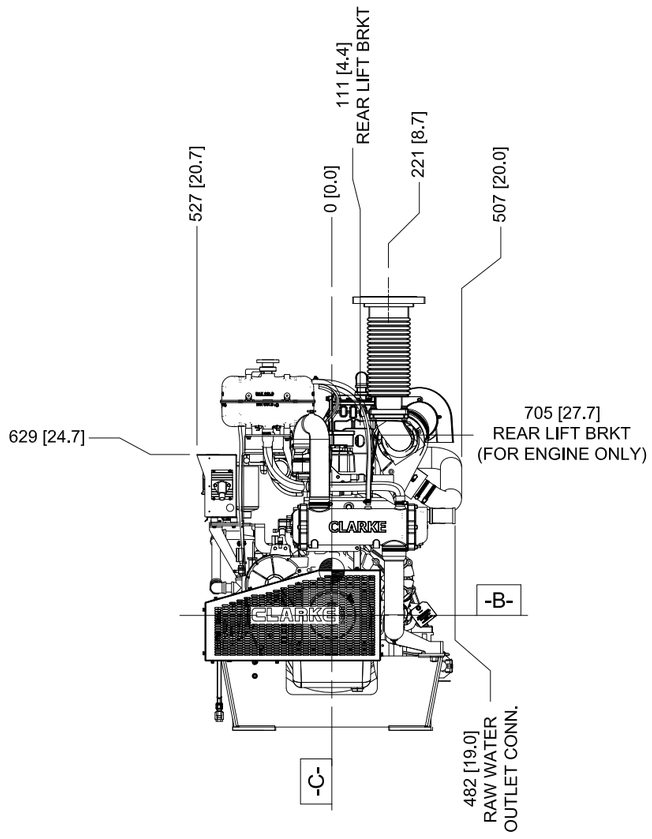
DRAWING SUBJECT TO CHANGE WITHOUT NOTICE

DO NOT SCALE

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

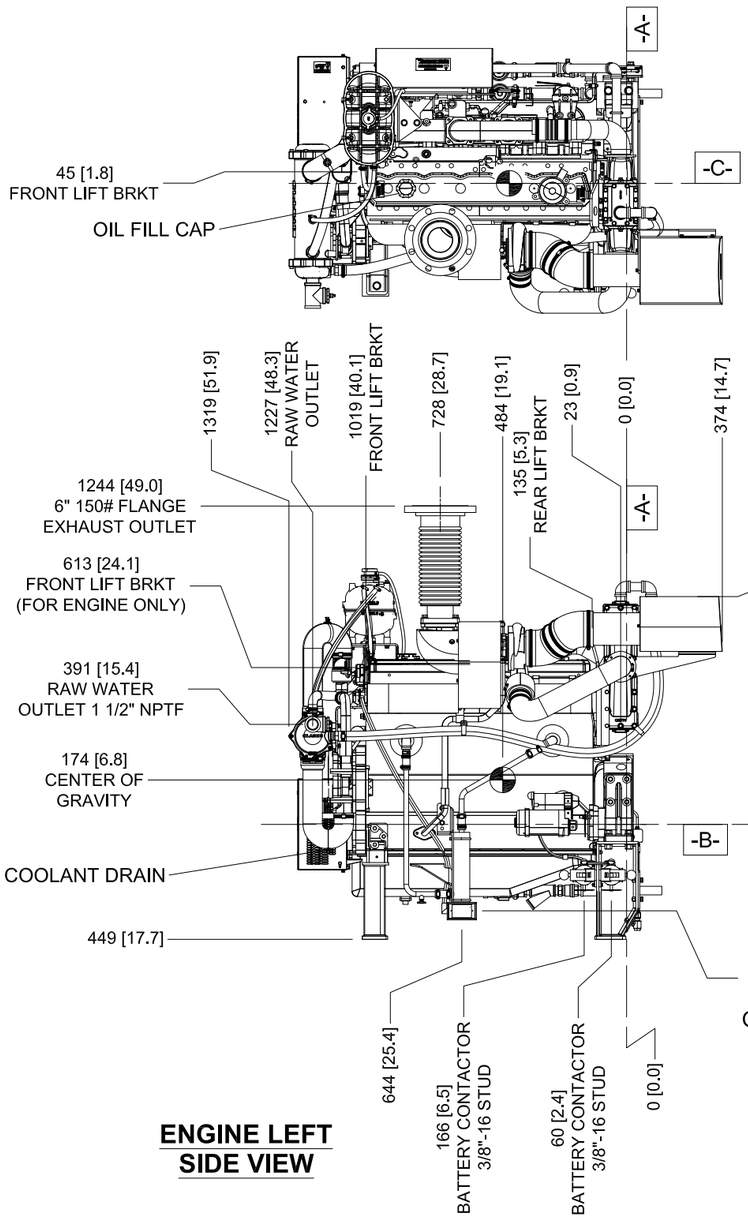
FOR ALTERNATE LOOP CONSTRUCTION (STAINLESS STEEL, SEA WATER, AND HIGH PRESSURE) SIZES MAY VARY

FOR ENGINES BUILT IN USA BEGINNING APRIL 2015



ENGINE FRONT VIEW

ENGINE TOP VIEW



ENGINE LEFT SIDE VIEW

REV	DESCRIPTION	ECN#	DWN	APVD	DATE
J	1-1/2" NIPPLE AND 90° ELBOW ADDED TO SIDE OUTLET OF HEAT EXCHANGER	3278	JDH	KJE	12JUN14
K	FUEL SUPPLY AND RETURN CALLOUTS WERE IN ERROR	3784	MLL	JCA	17OCT14
L	ADDED COOLING LOOP/PIPING KIT	3631	KFB	MSC	30JAN15
M	ADDED FLYWHEEL INFO	4179	JGV	MCP	05AUG15
N	RAW WATER OUTLET SIZE WAS 1 1/4"	4345	CMM	KPW	01DEC15
P	UPDATED COOLING LOOP, ADDED INDICATOR PLATES	4359	PMK	MSC	15DEC15
Q	UPDATED COOLANT GEOMETRY TO SHOW ISOLATORS	4475	JGV	JCA	07MAR16
R	REMOVED ENGINE MODELS DQ6H-UFAAX8 / DQ6H-UFKAX8	4764	RDR	MCP	25OCT16
S	ADDED DIMS TO ENGINE LIFTING BRACKETS	5061	MDM	MCP	26JUN17

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MACHINE TOLERANCE

DECIMAL	mm	Inch
X	± 1,5	
X,XX	± 0,8	± 0,06
X,XXX	± 0,3	± 0,03
X,XXXX	± 0,025	± 0,01
X,XXXXX		± 0,001

ANGULAR: ± 0,5°

FABRICATION TOLERANCE

DECIMAL	mm	inch
X	± 3	
X,XX	± 1,5	± 0,12
X,XXX		± 0,06

ANGULAR: ± 1,0°

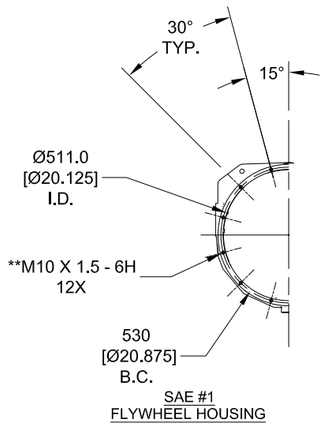
CONTROLLED DRAWING: YES ☒ NO ☐

CLARKE
Fire Protection Products, Inc.

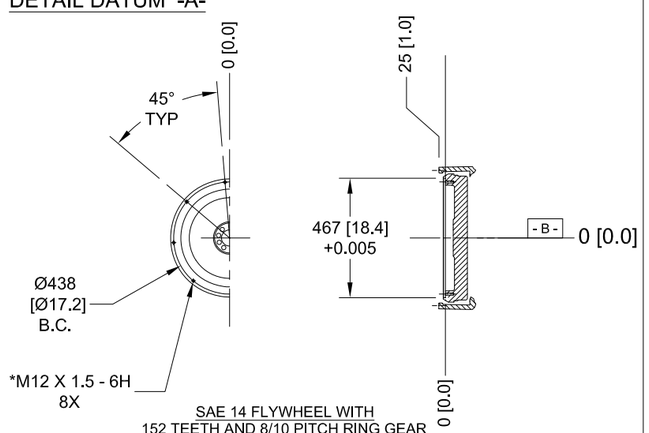
DRWN: RTOLLE
DATE: 12/9/2010
ENGR: KKUNKLER
MATERIAL:
ASSEMBLY: DQ6H-UFAA/-UFKA

NAME: INSTALLATION DRAWING, DQ6H-UFAA/-UFKA MODELS, DIESEL FIRE PUMP DRIVER
PART NO.: D658
REV: S
SCALE: NTS
UNITS: MM [INCH]
PAGE 1 OF 2

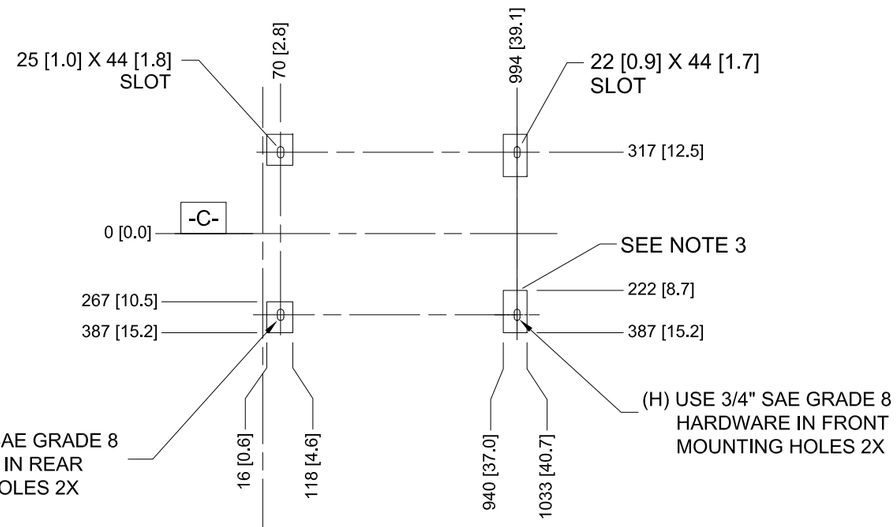
DETAIL DATUM -A-

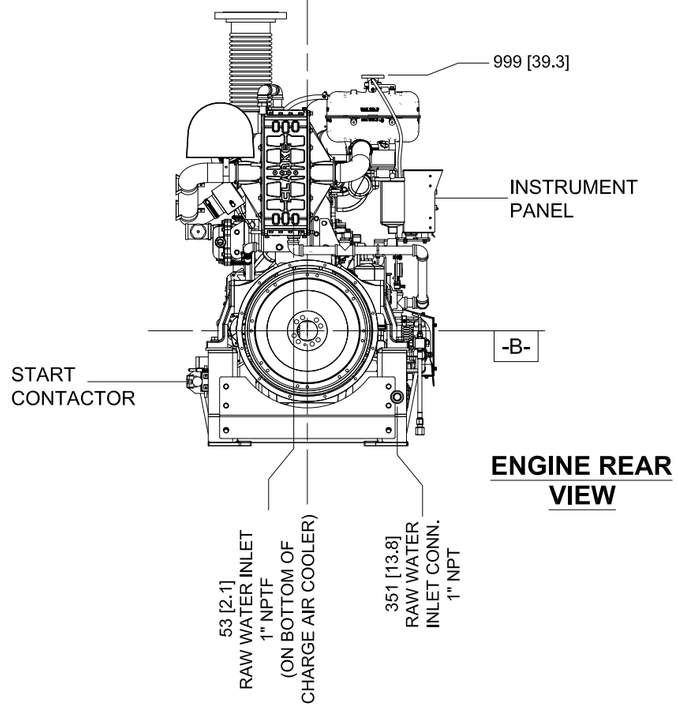


SAE #1 FLYWHEEL HOUSING

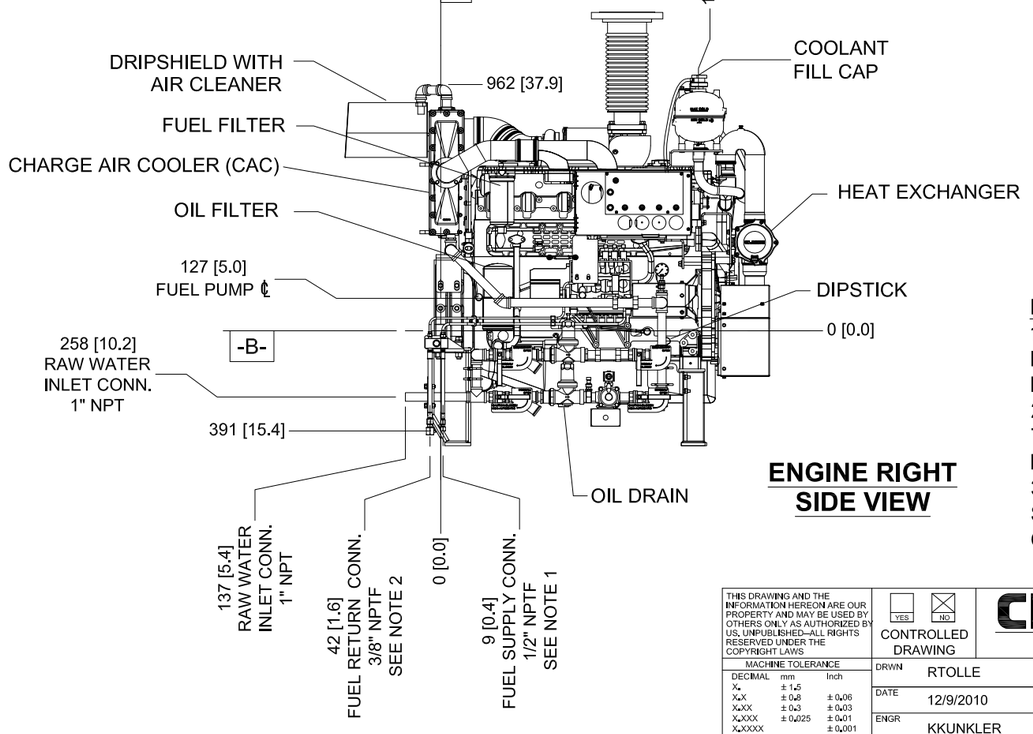


SAE 14 FLYWHEEL WITH 152 TEETH AND 8/10 PITCH RING GEAR





ENGINE REAR VIEW



ENGINE RIGHT SIDE VIEW

NOTES:

1) FUEL SUPPLY PIPING FROM TANK TO ENGINE SHOULD BE 1/2" MINIMUM PIPE DIAMETER
2) FUEL RETURN PIPING FROM ENGINE TO TANK SHOULD BE 3/8" MINIMUM PIPE DIAMETER
3) ENGINE MOUNTING FEET ARE SYMMETRICAL ABOUT CRANKSHAFT CENTERLINE DATUM -C-

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CONTROLLED DRAWING: YES ☐ NO ☒

CLARKE
Fire Protection Products, Inc.

MACHINE TOLERANCE		
DECIMAL	mm	Inch
X	± 1,5	
X,X	± 0,8	± 0,06
X,XX	± 0,3	± 0,03
X,XXX	± 0,025	± 0,01
X,XXXX		± 0,0001
ANGULAR: ± 0,5°		

FABRICATION TOLERANCE		
DECIMAL	mm	inch
X	± 3	
X,X	± 1,5	± 0,12
X,XX		± 0,06
ANGULAR: ± 1,0°		

DRWN	RTOLLE
DATE	12/9/2010
ENGR	KKUNKLER
MATERIAL	
ASSEMBLY	DQ6H

NAME: INSTALLATION DRAWING DQ6H-UFAA MODELS DIESEL FIRE PUMP DRIVER

PART NO. D658 REV S

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