

FM-UL-cUL APPROVED RATINGS BHP/KW

| DR8H MODEL ◆ λ | RATED SPEED | | | | | | | | | |
|-------------------|-------------|-----|------|-----|------|-----|------|-----|------|-----|
| | 1470 | | 1760 | | 1900 | | 2100 | | 2350 | |
| DR8H-UFAA40 | 385 | 287 | 460 | 343 | 472 | 352 | 490 | 365 | 490 | 365 |
| DR8H-UFAA5G | 450 | 336 | | | | | | | | |
| DR8H-UFAA68 | | | 495 | 369 | | | | | | |
| DR8H-UFAA62 | | | | | 497 | 371 | 500 | 373 | 500 | 373 |

◆ All Models are available for Export

λ = Non-Emissionized



SPECIFICATIONS

| ITEM | DR8H MODELS | | | |
|---|---|--------|--------|--------|
| | UFAA40 | UFAA5G | UFAA68 | UFAA62 |
| Number of Cylinders | 8 | | | |
| Aspiration | TRWA | | | |
| Rotation* | CW | | | |
| Overall Dimensions – in. (mm) | 68.6 (1742) H x 55.9 (1420) L x 53.5 (1358) W | | | |
| Crankshaft Centerline height – in. (mm) | 23.5 (597) | | | |
| Weight – lb (kg) | 2700 (1225) | | | |
| Compression Ratio | 14.6:1 | | | |
| Displacement – cu. in. (l) | 892 (14.6) | | | |
| Engine Type | 4 Cycle, 2 Valves per Cylinder, Vee | | | |
| Bore & Stroke – in. (mm) | 5.04 x 5.59 (128 x 142) | | | |
| Installation Drawing | D664 | | | |
| 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.

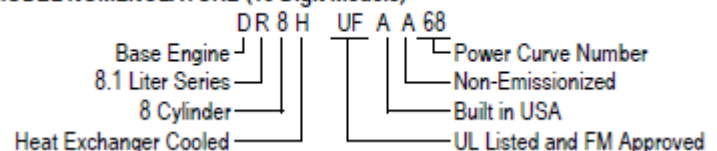


ENGINE EQUIPMENT

| 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 Driveshaft |
| Engine Heater | 230V-AC, 2500 Watt | |
| Exhaust Flex Connection | SS Flex, 150# Flange Connection, 5" | SS Flex, 150# Flange Connection, 6" |
| Exhaust Protection | Blankets (40, 5G, 68); Guards (62) | |
| 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)



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 www.clarkefire.com

**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 \perp
- C- - ENGINE CRANKSHAFT VERTICAL \perp
- 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:

- DR8H-UFAA40, -UFAA5G, -UFAA62, -UFAA68
- DR8H-UFKA40, -UFKA5G, -UFKA62, -UFKA68

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
- 3) COOLING LOOP SHOWN IS BASED ON STANDARD CONSTRUCTION AND FM SIZING CONDITIONS

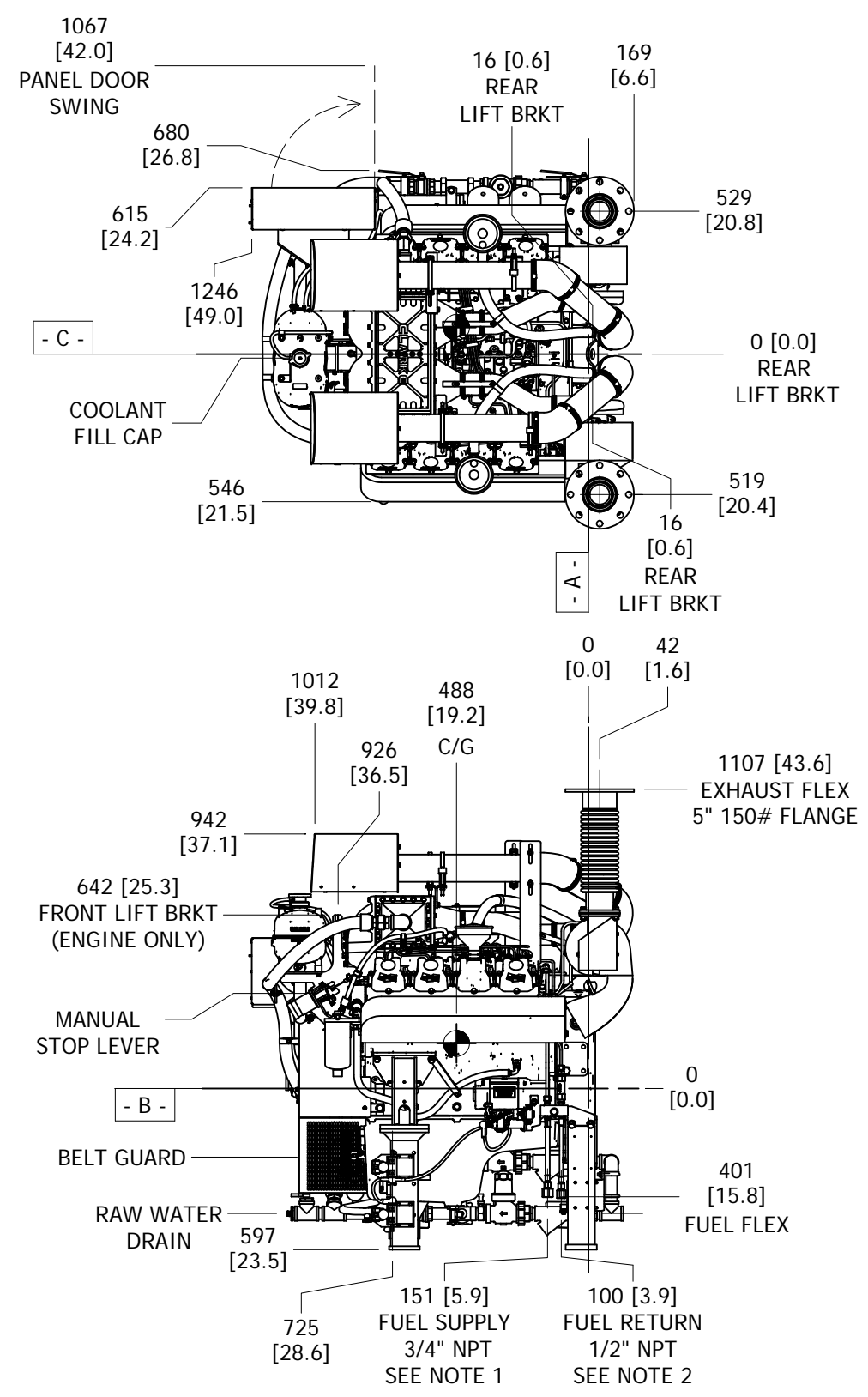
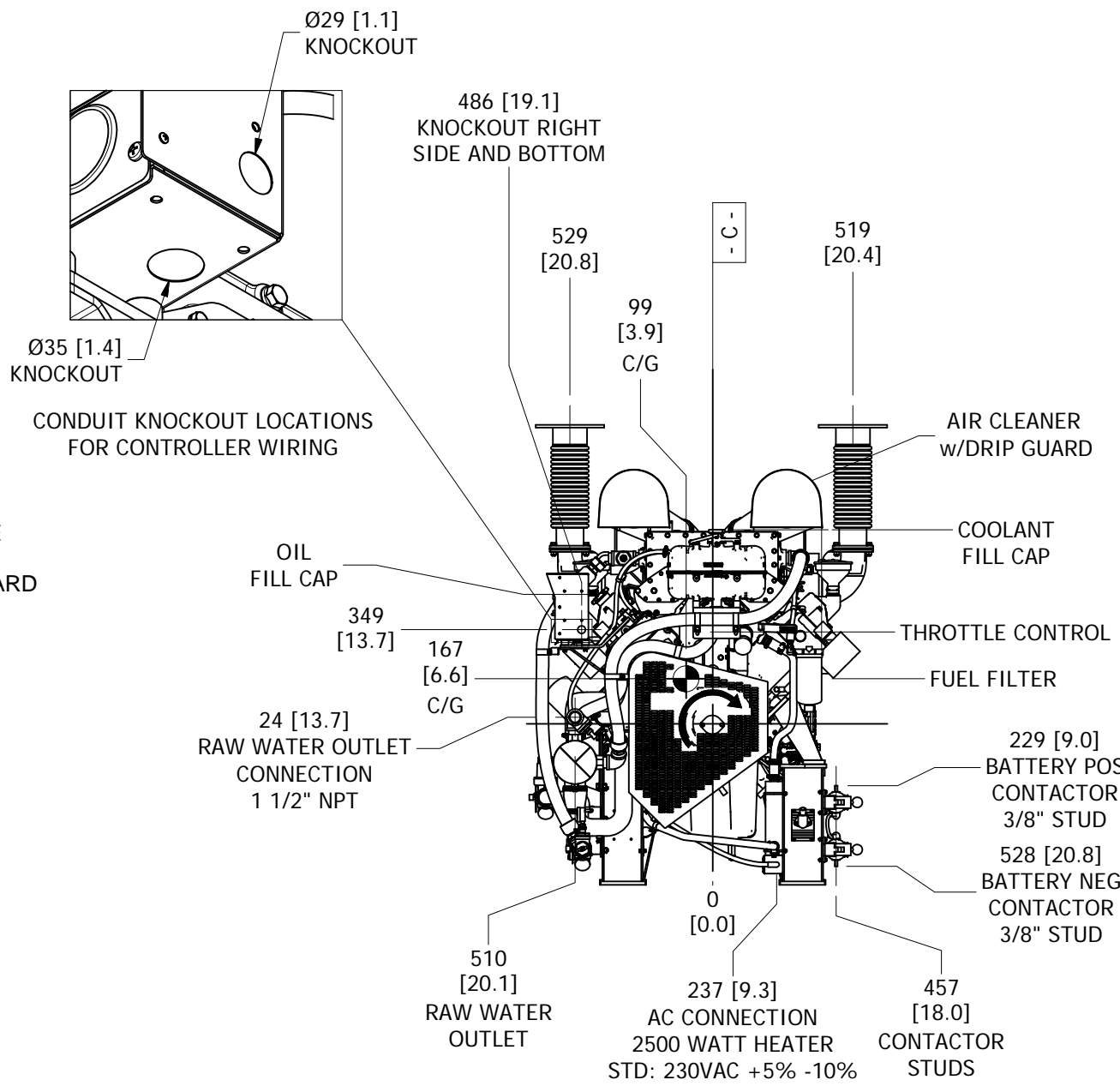
FOR ALTERNATE LOOP CONSTRUCTION (STAINLESS STEEL, SEA WATER AND HIGH PRESSURE) SIZES MAY VARY

DRAWING SUBJECT TO CHANGE WITHOUT NOTICE DO NOT SCALE

CONTROLLED DRAWING

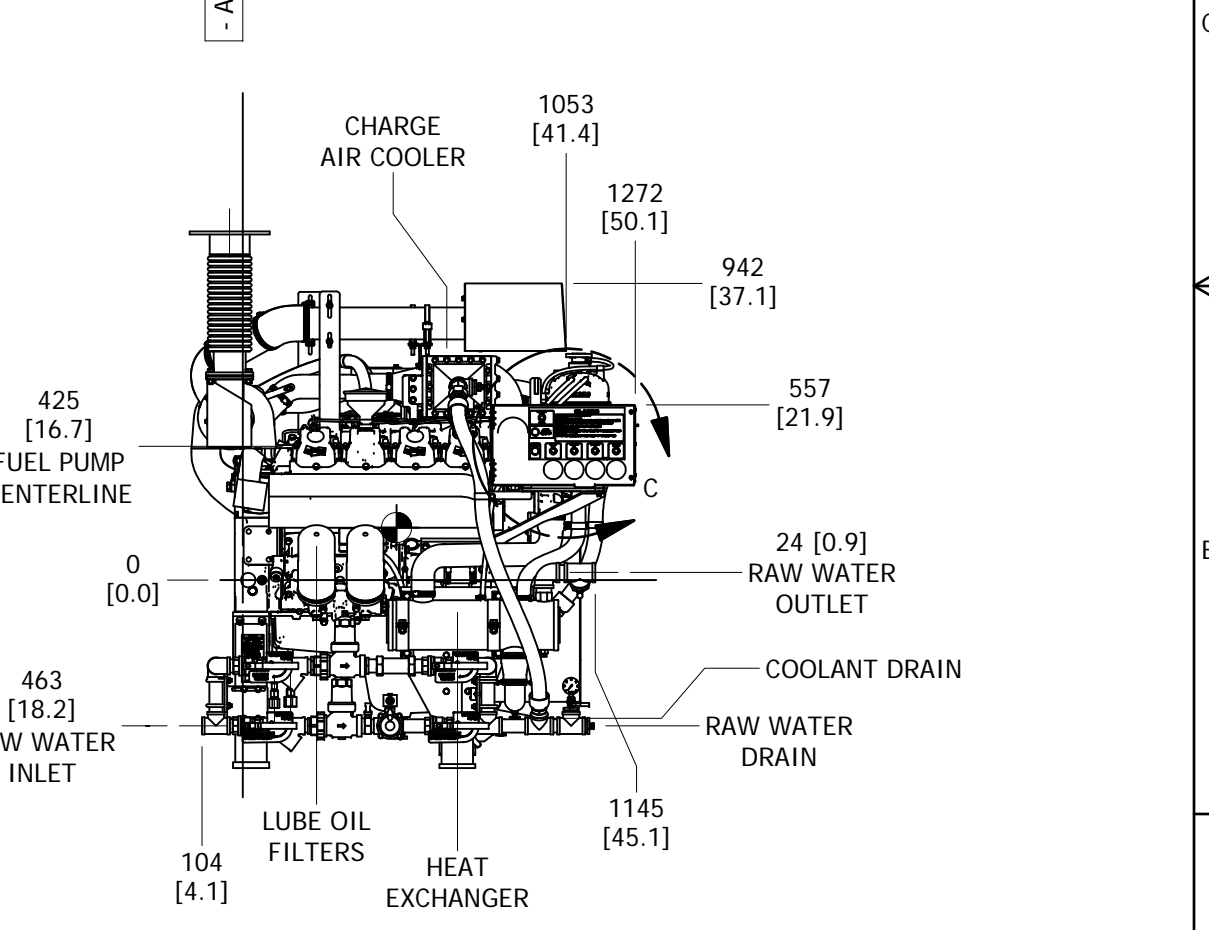
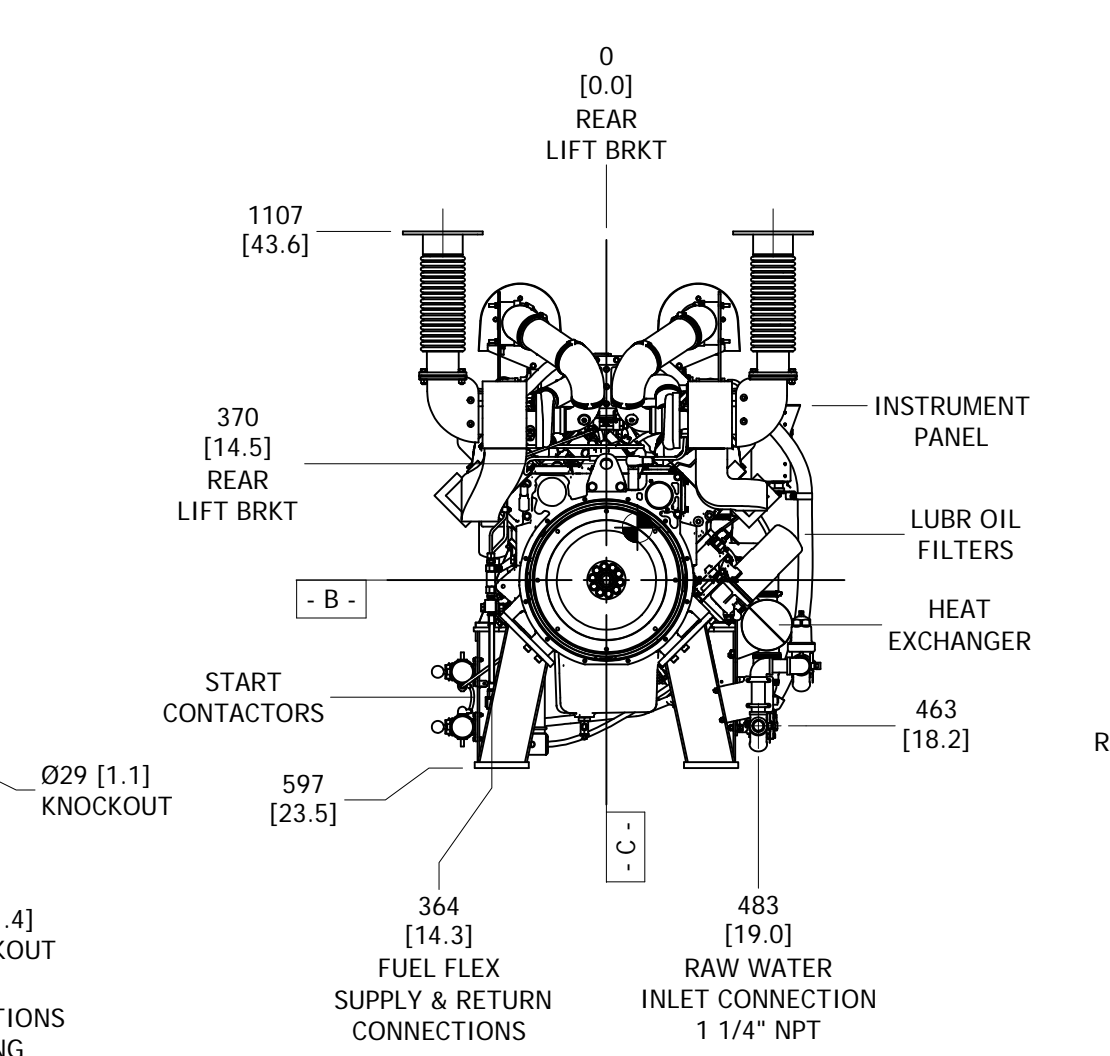
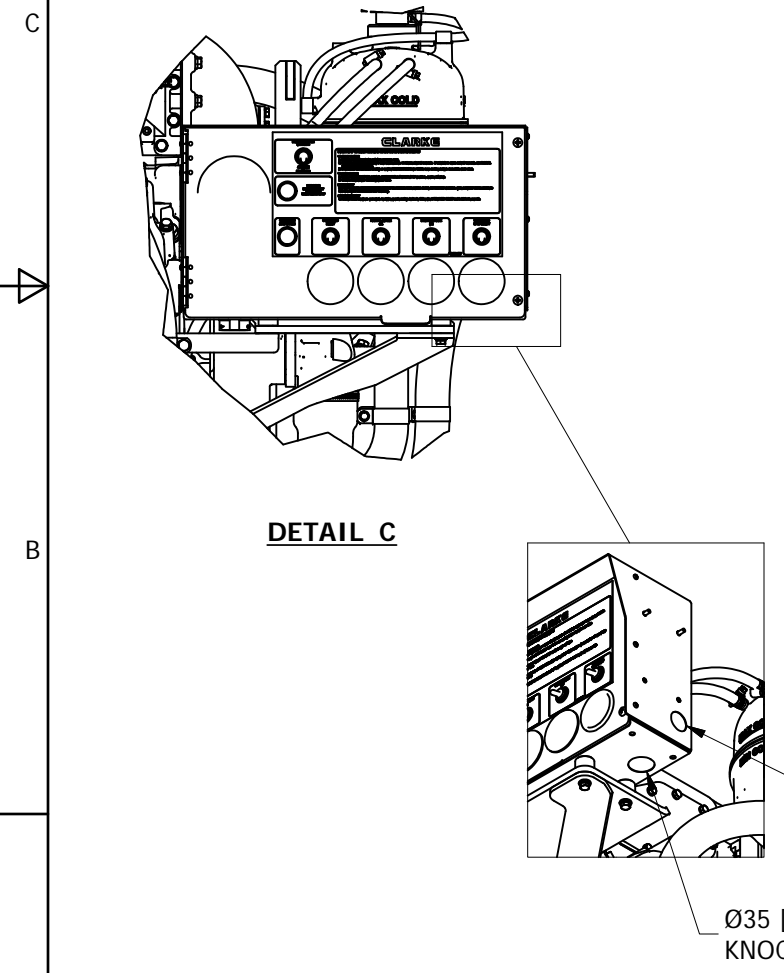
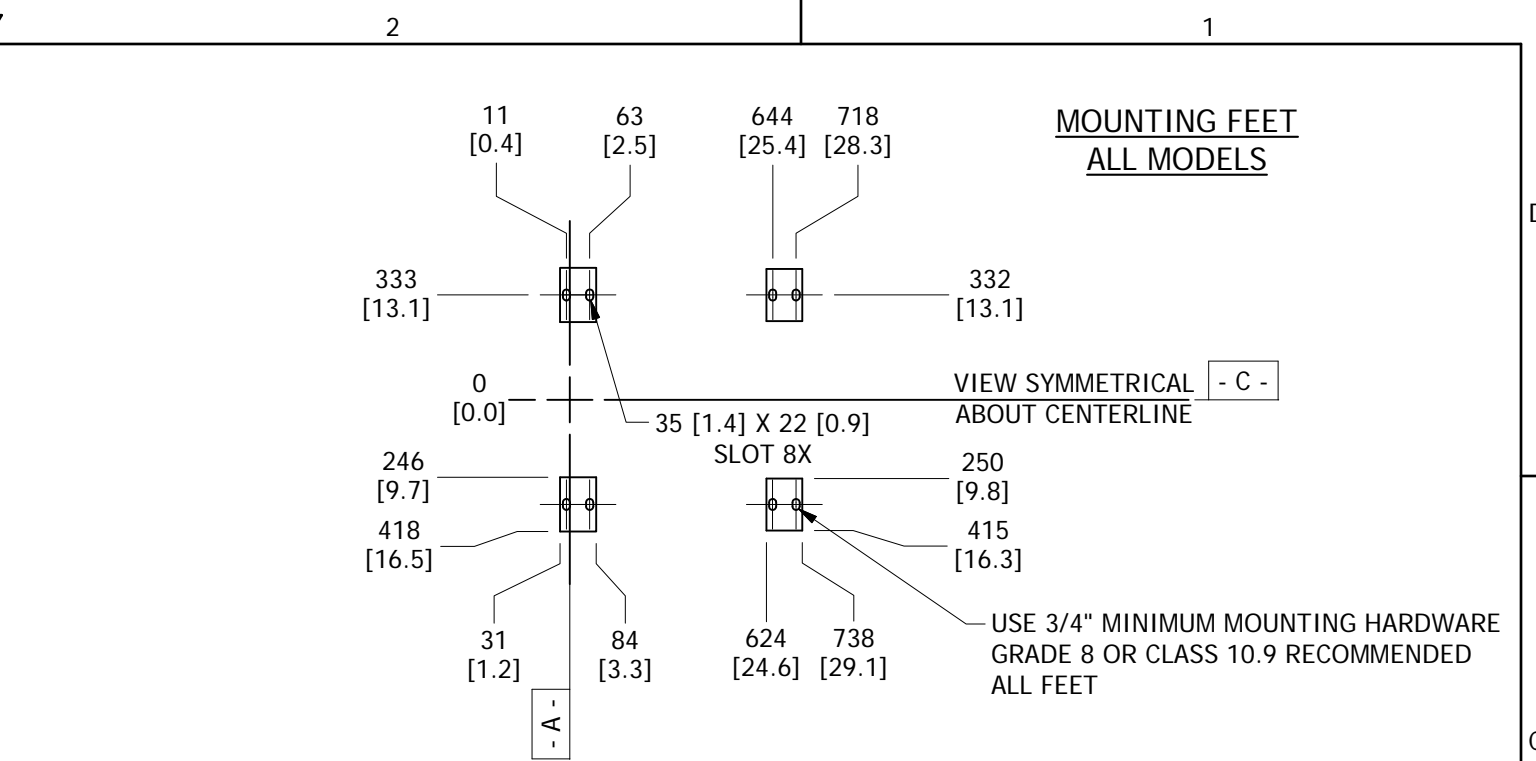
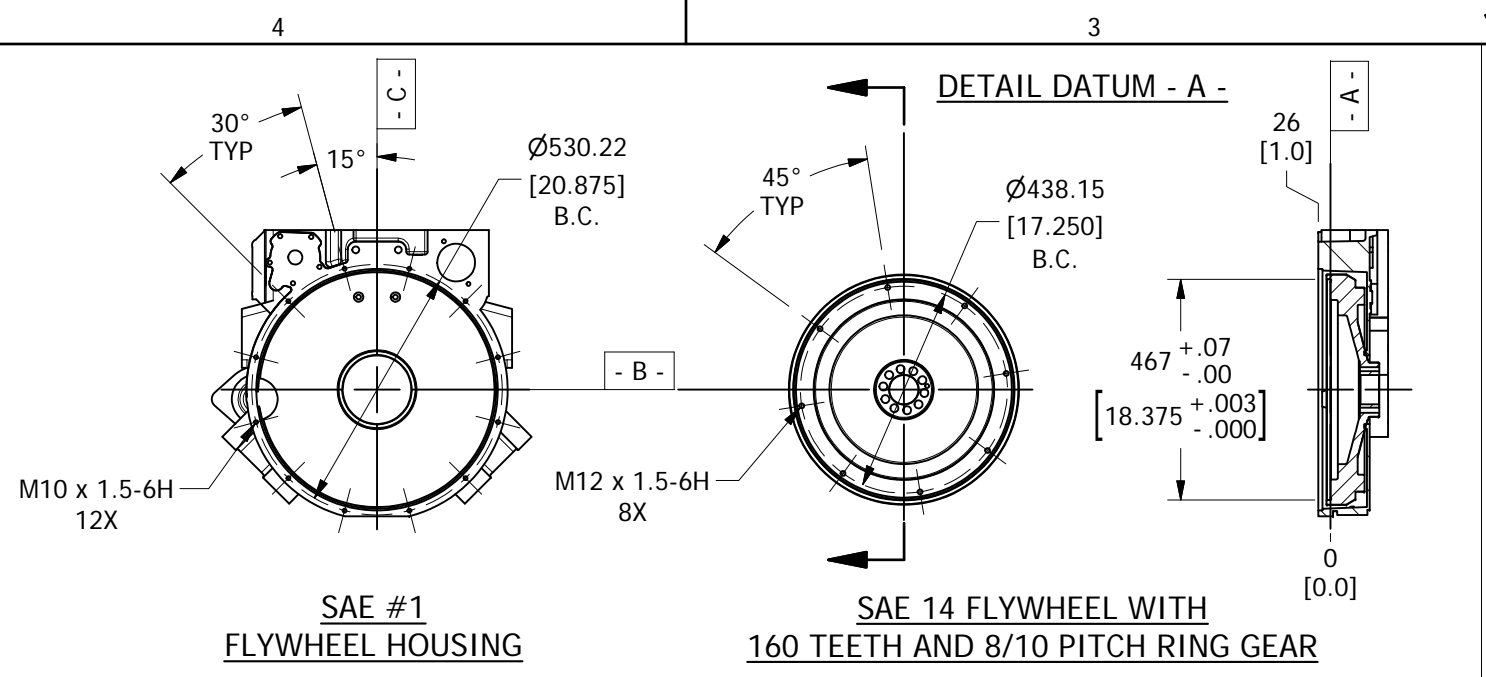
THIS IS A REGISTERED PART WITH A THIRD PARTY AGENCY FOR USE ON A PRODUCT. NO SUBSTITUTIONS ARE ALLOWED. CONSULT ENGINEERING PRIOR TO AND REGARDING ANY CHANGE.

FOR ENGINE SPECIFIC OPTIONS SEE www.clarkefire.com



| REV | DESCRIPTION | ECN# | DWN | APVD | DATE |
|-----|---|--------------|-----|--------------------|---------|
| R | ADDED KNOCKOUT LOCATION DETAIL, REMOVED 115VAC OPTION | 5236 5145 | ECK | <i>[Signature]</i> | 29NOV17 |
| S | UPDATED TOLERANCE, LOGO AND DIMENSION PRECISION | 5393 | NMM | <i>[Signature]</i> | 11MAY18 |
| T | UPDATED VIEW GEOMETRY AND DRAWING FORMAT | 5516 | EMS | <i>[Signature]</i> | 20FEB19 |

| | | | |
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| <small>UNLESS NOTED OTHERWISE, TOLERANCING GUIDELINES WILL BE AS SHOWN BELOW.</small> | DRWN: JAUGENSTEIN DATE: 09SEP11 ENGR: KJKUNKLER MATERIAL: N/A ASSEMBLY: EC 5516 SIMILAR TO: D665 | NAME: INSTALLATION DRAWING, FIRE PUMP ENGINE-DR8H-UFAA & UFKA MODELS PART NO.: D664 SCALE: NTS UNITS: MM [INCH] PAGE 1 OF 2 | |



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| <small>ALL DIMENSIONS CAN VARY ± 9.53 [0.375]</small> | | INSTALLATION DRAWING, FIRE PUMP ENGINE-DR8H-UFAA & UFKA MODELS | |
| | | PART NO. D664 SCALE NTS UNITS MM [INCH] | REV T PAGE 2 OF 2 |