Technical Catalog for

JX Tier 3 Electronic Engine

This manual covers John Deere Series engines
prepared by Clarke for fire pump service

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C133122 rev J

CONTENTS

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

CAUTION:

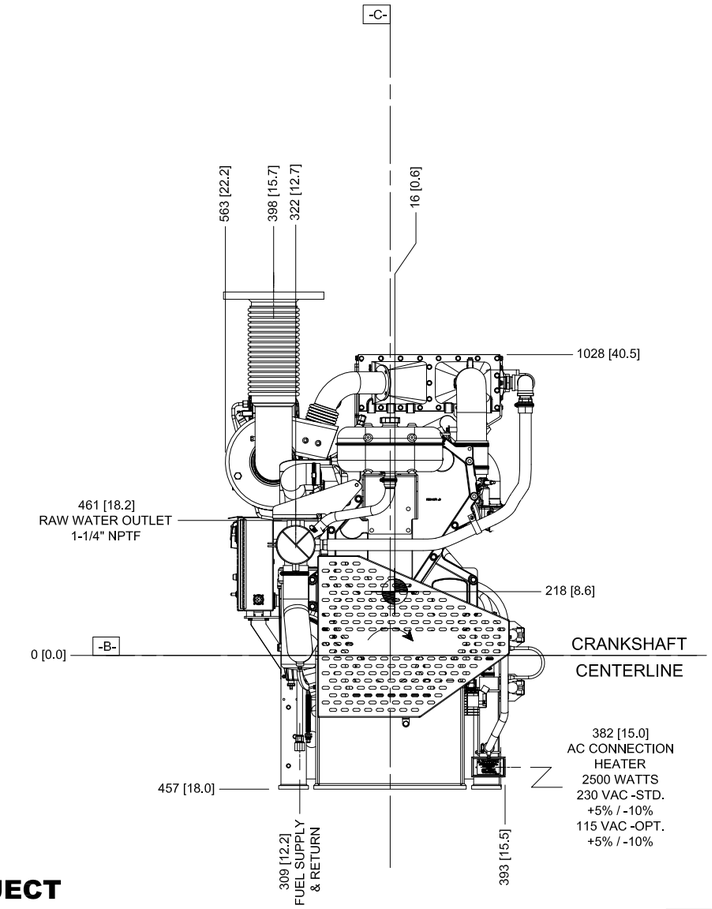
ALL PLUMBING MUST BE SUPPORTED
AND/OR ISOLATED SO THAT NO WEIGHT
OR STRESS IS APPLIED TO ANY ENGINE COMPONENT

"TRWA" (TURBOCHARGED w/ RAW WATER AFTERCOOLING) MODELS	JX6H-UFADF0, -UFAD60, JX6H-UFADK0*, -UFADN0, JX6H-UFADP0, -UFAD88

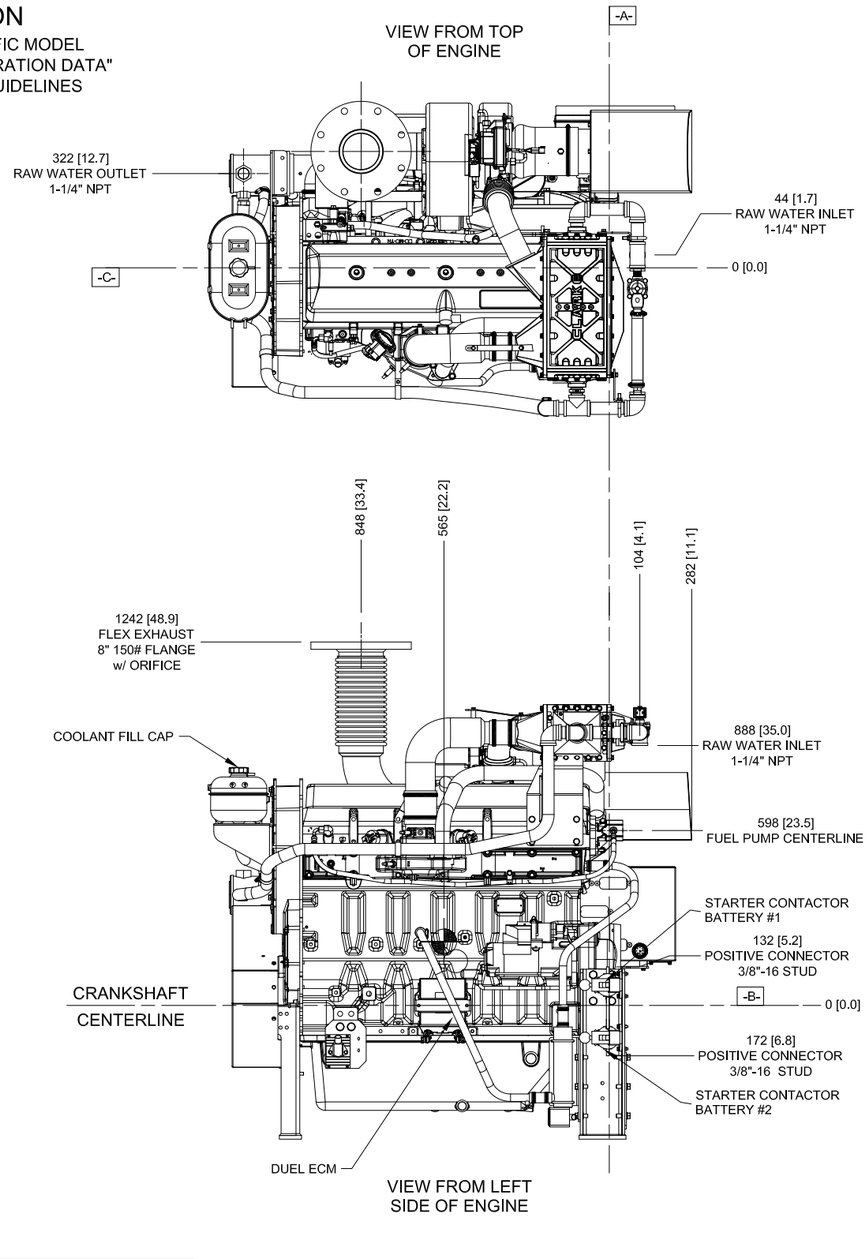
(*) INDICATES PLD ENGINE MODEL ONLY

ATTENTION

REFER TO THE SPECIFIC MODEL
"INSTALLATION AND OPERATION DATA"
FOR INSTALLATION GUIDELINES



VIEW FROM FRONT OF ENGINE



VIEW FROM LEFT SIDE OF ENGINE

DRAWING SUBJECT TO CHANGE WITHOUT NOTICE

DO NOT SCALE

REV	DESCRIPTION	ECN#	DWN	APVD	DATE
A	ISSUED ENGINEERING DRAWING	574	MAL	KJE	02SEP08
B	GENERAL CHANGES MADE TO DRAWING	574	MWL	KJE	27FEB09
C	FLYWHEEL HOUSING WAS INCORRECTLY LABELED AS SAE #2 (PAGE 2)	1858	MJD	MJD	04DEC09
D	TEMP CONTROL LAYOUT CHANGED	2260	JCA	KJE	09JUN11
E	REMOVED JX6H-UFADK0 AS NON-PLD	---	MLL	KRW	18JUL11
F	*FLYWHEEL DIM. REF. B.C. INSTEAD OF O.D.	---	DGP	KRW	02AUG11

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		± 0.001

ANGULAR: ± 0.5°

FABRICATION TOLERANCE

DECIMAL	mm	inch
X.	± 3	
X.X	± 1.5	± 0.12
X.XX		± 0.06

ANGULAR: ± 1.0°

CONTROLLED DRAWING: YES ☒ NO ☐

CLARKE
Fire Protection Products, Inc.

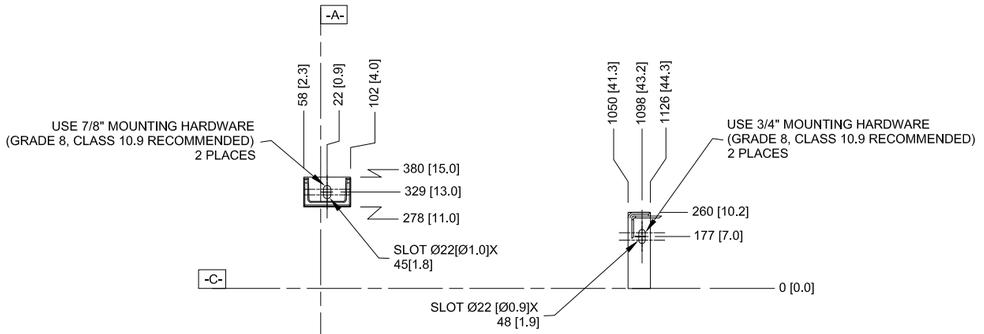
DRWN	MWLEMING
DATE	8/1/2008
ENGR	KJKUNKLER
MATERIAL	
ASSEMBLY	

NAME: INSTALLATION DRAWING, FIRE PUMP ENGINE JX6H TIER 3 MODELS

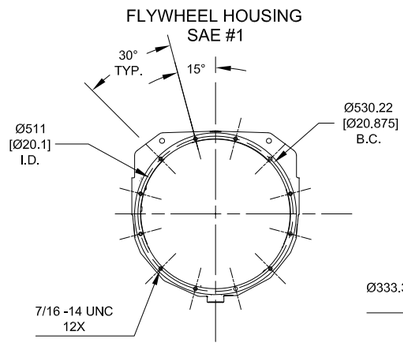
PART NO. D626 REV F

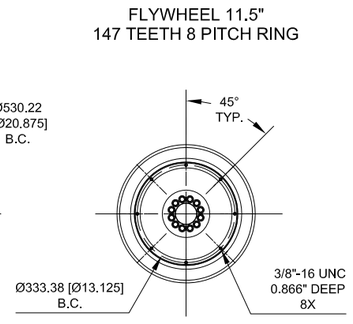
SCALE NTS | UNITS MM [INCH] | PAGE 1 OF 2

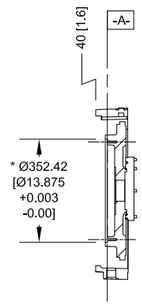
FOR ENGINE SPECIFIC OPTIONS
SEE www.CLARKEFIRE.com

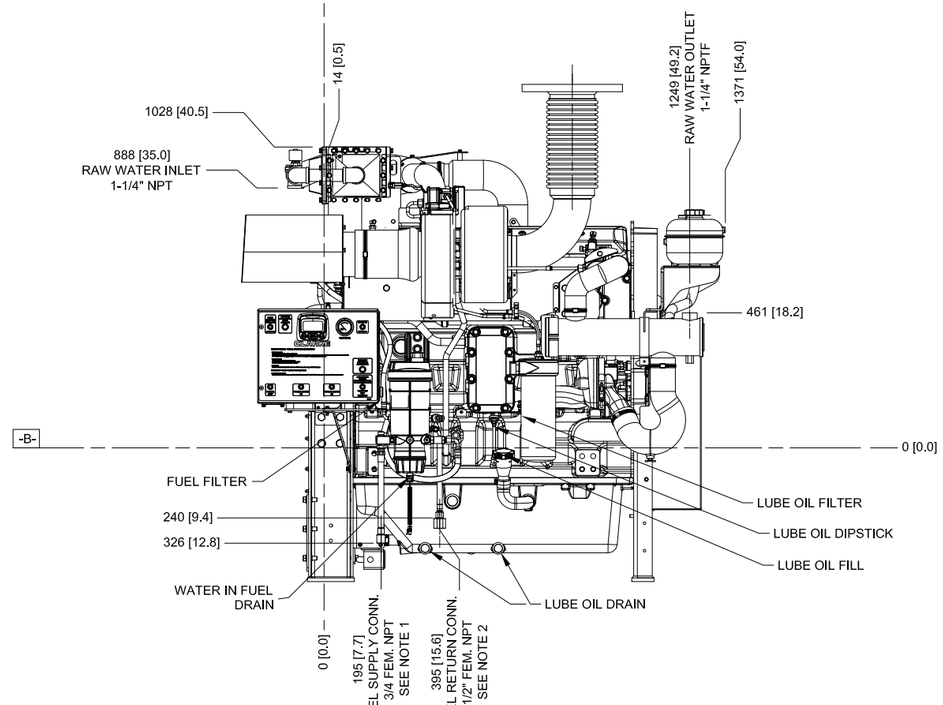


DETAIL DATUM -A-









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 BE 1/2" MINIMUM PIPE DIAMETER.

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		± 0.001

ANGULAR: ± 0.5'

FABRICATION TOLERANCE

DECIMAL	mm	Inch
X	± 3	
X.X	± 1.5	± 0.12
X.XX		± 0.06

ANGULAR: ± 1.0'

CONTROLLED DRAWING: YES ☐ NO ☒

CLARKE
Fire Protection Products, Inc.

DRWN	MWLEMING
DATE	8/1/2008
ENGR	KJKUNKLER
MATERIAL	
ASSEMBLY	

NAME: INSTALLATION DRAWING, FIRE PUMP ENGINE JX6H TIER 3 MODELS

PART NO. D626 REV F

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

Clarke Installation and Operation Datasheets
English to German I&O Data Translator
USA Produced
English Text

Basic Engine Description
Engine Manufacturer
Ignition Type
Compression (Diesel)
Number of Cylinders
Bore and Stroke
Displacement
Compression Ratio
Valves per Cylinder - Intake
- Exhaust
Combustion System
Direct Injection
Engine Type
In-Line, 4 Stroke Cycle
Fuel Management Control
Electronic, High Pressure Common Rail
Firing Order (CW Rotation)
Aspiration
Turbocharged
Charge Air Cooling Type
Raw Water
Rotation , viewed from front of engine, Clockwise (CW)
Standard
Engine Crankcase Vent System
Closed or Open
Installation Drawing
Weight

Power Rating
Nameplate Power

Cooling System
Engine Coolant Heat
Engine Radiated Heat
Heat Exchanger Minimum Flow
Raw H_20
Heat Exchanger Maximum Cooling Raw Water
Inlet Pressure
Flow
Typical Engine H_20 Operation Temp
Thermostat, Start to Open ºC (ºF)
Fully Opened
Engine Coolant Capacity
Coolant Pressure Cap
Maximum Engine Coolant Temperature
Minimum Engine Coolant Temperature
High Coolant Temp Alarm Switch

Electric System – DC
System Voltage (Nominal)
Battery Capacity for Ambients Above º
Voltage (Nominal)
Qty. per Battery Bank
SAE size per
Reserve Capacity – Minutes
Battery Cable Circuit*, Max Resistance - ohm
Battery Cable Minimum Size
Circuit Length
Charging Alternator Maximum Output – Amp
Starter Cranking Amps, Rolling

Clarke Betriebs-und Wartungshandbuch
Englisch zu Deutsch I&O Daten Ubersetzer
Made in USA
German Text

Grundlegende Motorbeschreibung
Motorhersteller
Art der Zündung
Verdichtung (Diesel)
Anzahl der Zylinder
Zylinderbohrung und Hub
Verdichtungsverhältnis
Druck Verhältniss
Ventile pro Zylinder – Ansaugen
– Abgas
Verbrennungssystem
Direkteinspritzung
Motortyp
Reihenbauweise, Hubzyklus
Kraftstoffverwaltung
Elektronik, Hochdruck Common Rail
Zündfolge (Drehung im Uhrzeigersinn)
Ansaugung
Turbo
Ladeluftkühlung
Rohwasser
Drehung, frontansicht Motor, Rechtsdrehung
Standard
Belüftungssystem Kurbelwellengehäuse
Geschlossen oder Geöffnet
Installationszeichnung
Gewicht

Nennleistung
Typenschild Leistung

Kühlsystem
Motorkühlung
Vom Motor abgestrahlte Wärme
Mindestströmung Wärmetauscher
Rohwasser
Maximalkühlung Wärmetauscher H_20
Eingangsdruck
Strömung
Typische Wassertemperatur Motor
Thermostat Starten zum Öffnen C (F) degrees
Voll geöffnet
Motorkühlmittelmenge
Kühlmitteldruckdose
Kühlmittel Höchsttemperatur
Kühlmittel Mindesttemperatur
Kühlmitteltemperatur-Alarmschalter

Elektrosystem – Gleichstrom
Batteriekapazität für Ambient uber** 0 Degress
Umgebungsbedingungen
Spannung (Nennspannung)
Menge pro Batteriespeicher
SAE Größe pro
Reservekapazität – Minuten
Batteriekabelkreis* - Maximaler Widerstand – Ohm
Mindestgröße Batteriekabel
Stromkreis*länge
Max. Ausgang Lichtmaschine – Ampere
Ampere Anlasserkurbel, Rotierend

English Text

(Continued)

NOTE: This engine is intended for indoor installation or in a weatherproof enclosure

[1] Engine H20 temperature is dependent on raw water temperature and flow

[2] High Coolant Switch threshold varies with engine load

[3] Positive and Negative Cables Combined Length

Exhaust System

- Exhaust Flow
- Exhaust Temperature
- Maximum Allowable Back Pressure
- Minimum Exhaust Pipe Dia.

Fuel System

- Fuel Consumption
- Fuel Return
- Fuel Supply
- Fuel Pressure
- Minimum Line Size – Supply
  - Schedule 40 Steel Pipe
  - Pipe Outer Diameter
- Maximum Line Size – Return
  - Schedule 40 Steel Pipe
  - Pipe Outer Diameter
- Maximum Allowable Fuel Pump Suction Lift
  - With Clean Filter
- Maximum Allowable Fuel Head above Fuel Pump, Supply or Return
- Fuel Filter Micron Size

Heater System

Engine Coolant Heater

- Wattage (Nominal)
- Voltage – AC, 1P
- Part Number

Air System

- Combustion Air Flow
- Air Cleaner
  - Part Number
  - Type
    - Indoor service only, with shield
    - Canister, single-stage
  - Cleaning Method
    - Washable - Disposable
- Air Intake Restriction Maximum Limit
  - Dirty Air Cleaner
  - Clean Air Cleaner
- Maximum Allowable Temperature (Air to Engine Inlet)

Lubrication System

- Oil Pressure – normal
- Low Oil Pressure Alarm Switch
- In Pan Oil Temperature
- Total Oil Capacity with Filter

Lube Oil Heater

- Wattage (Nominal)
- Voltage
- Part Number

Performance

- BMEP
- Piston Speed
- Mechanical Noise
- Power Curve

German Text

(Fortsetzung)

HINWEIS: Diese Maschine ist für Installation im Raum oder in einem wettergeschützten Gehäuse bestimmt.

[1] Motorkühlmitteltemperatur ist abhängig von Rohwassertemperatur und Durchsatz.

[2] Grenzwert Kühlmitteltemperaturschalter ist von Motorlast abhängig.

[3] Positive und negative Kabel Gesamtlänge

Abgassystem

Abgasstrom
Abgastemperatur
Maximal zulässiger Gegendruck
Mindestauspuffrohrdurchmesser

Kraftstoffsystem

Kraftstoffverbrauch
Kraftstoffrückfluss
Kraftstoff
Kraftstoffdruck
Mindestleitungsgröße – Zufuhr
  Anhang 40 Stahlrohr
  Außendurchmesser Leitung
Maximalleitungsgröße – Rücklauf
  Anhang 40 Stahlrohr
  Außendurchmesser Leitung
Max. zulässiger Ansaugdruck Kraftstoffpumpe
  mit sauberem Filter
Maximal zulässiger Kraftstoffdruck über der Kraftstoffpumpe, Zufuhr oder Rücklauf
Mikrongröße Kraftstofffilter

Erhitzersystem

Motorkühlmittelheizung
  Wattleistung (Nennwert)
  Spannung – Wechselstrom, 1P
  Teilnummer

Luftsystem

Verbrennungsluftdurchsatz
Luftfilter
  Teilnummer
  Typ
    Nur Wartung in der Halle, mit abgeschirmtem Behälter, einstufig
  Reinigungsmethode
    Waschbar - Einweg
Maximalgrenze für Ansaugluftbegrenzung
  Schmutziger Luftfilter
  Sauberer Luftfilter
Maximal zulässige Temperatur (Luft zum Motoreingang)

Schmiersystem

Öldruck – normalen
Öldruck-Alarmschalter
Öltemperatur in der Wanne
Gesamtölmenge mit Filter

Schmierölerhitzer

Wattleistung (Nennwert)
Spannung – Wechselstrom, 1P
Teilnummer

Leistung

BMEP
Kolbendrehzahl
Mechanische Geräusche
Leistungskurve

English Text

(Continued)

[4] Based on Nominal System. Back pressure flow analysis must be done to assure maximum allowable back pressure is not exceeded (Note: minimum exhaust Pipe diameter is based on: 15 feet of pipe, on 90° elbow, and a silencer pressure drop no greater than one half of the maximum allowable back pressure.)
[5] Review for horsepower derate if ambient air entering engine exceeds 77°F (25°C).
[6] Low Oil Pressure Switch threshold varies with engine speed.

German Text

(Fortsetzung)

[4] Basierend auf Sollwerten. Rückstaudruck-Durchsatzanalyse muss durchgeführt werden, um max. zulässigen Rückstaudruck nicht zu überschreiten (Hinweis: Mindestdurchmesser Auspuffrohr basiert auf: 4,5 m Rohr, 90° Bogen und Druckabfall Schalldämpfer nicht größer als der halbe zulässige Rückstaudruck).
[5] PS a weichend, wenn Ansaugluft wärmer als 25 °C.
[6] Grenzwert Öldruckschalter ist von Motordrehzahl abhängig.

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Fire Protection Products, Inc.

JX6H-UFAD60
INSTALLATION & OPERATION DATA (I&O Data)
USA Produced

Basic Engine Description

Engine Manufacturer	John Deere Co.
Ignition Type	Compression (Diesel)
Number of Cylinders	6
Bore and Stroke - in (mm)	5.2 (132) X 6.5 (165)
Displacement - in^3 (L)	824 (13.5)
Compression Ratio	16.0:1
Valves per cylinder	
Intake	2
Exhaust	2
Combustion System	Unit Injection
Engine Type	In-Line, 4 Stroke Cycle
Fuel Management Control	Electronic, Unit Injector
Firing Order (CW Rotation)	1-5-3-6-2-4
Aspiration	Turbocharged
Charge Air Cooling Type	Raw Water Cooled
Rotation, viewed from front of engine, Clockwise (CW)	Standard
Engine Crankcase Vent System	Open
Installation Drawing	D626
Weight - lb (kg)	3315 (1500)

Power Rating	**1760**	**2100**
Nameplate Power - HP (kW)	510 (380)	525 (392)

Cooling System - [C051433]	**1760**	**2100**
Engine Coolant Heat - Btu/sec (kW)	189 (199)	194 (205)
Engine Radiated Heat - Btu/sec (kW)	86 (90.7)	89 (93.9)
Heat Exchanger Minimum Flow		
60°F (15°C) Raw H_20 - gal/min (L/min)	40 (151)	40 (151)
95°F (35°C) Raw H_20 - gal/min (L/min)	60 (227)	60 (227)
Heat Exchanger Maximum Cooling Raw Water		
Inlet Pressure - psi (bar)	60 (4.1)	
Flow - gal/min (L/min)	80 (303)	
Typical Engine H_20 Operating Temp - °F (°C)[1]	175 (79.4) - 190 (87.8)	
Thermostat		
Start to Open - °F (°C)	180 (82.2)	
Fully Opened - °F (°C)	198 (92.2)	
Engine Coolant Capacity - qt (L)	32.7 (30.9)	
Coolant Pressure Cap - lb/in^2 (kPa)	15 (103)	
Maximum Engine Coolant Temperature - °F (°C)	221 (105)	
Minimum Engine Coolant Temperature - °F (°C)	160 (71.1)	
High Coolant Temp Alarm Switch - °F (°C)[2]	226 (108) - 232 (111)	

Electric System - DC	**Standard**	
System Voltage (Nominal)	24	
Battery Capacity for Ambients Above 32°F (0°C)		
Voltage (Nominal)	12	[C07633]
Qty. Per Battery Bank	2	
SAE size per J537	8D	
CCA @ 0°F (-18°C)	1400	
Reserve Capacity - Minutes	430	
Battery Cable Circuit, Max Resistance - ohm	0.0012	
Battery Cable Minimum Size		
0-120 in. *	00	
121-160 in.[3]	000	
161-200 in. Circuit Length[3]	0000	
Charging Alternator Maximum Output - Amp,	55	[C071365]
Starter Cranking Amps, Rolling - @60°F (15°C)	300	[RE522852]

NOTE: This engine is intended for indoor installation or in a weatherproof enclosure. [1]Engine H_2O temperature is dependent on raw water temperature and flow. [2]High Coolant Switch threshold varies with engine load. [3]Positive and Negative Cables Combined Length.

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JX6H-UFAD60
INSTALLATION & OPERATION DATA (I&O Data)
USA Produced

Exhaust System	**1760**	**2100**
Exhaust Flow - ft.³/min (m³/min)	2643 (74.8)	2764 (78.3)
Exhaust Temperature - °F (°C)	821 (438)	863 (462)
Maximum Allowable Back Pressure - in H_20 (kPa)	40 (10)	40 (10)
Minimum Exhaust Pipe Dia. - in (mm)[4]	8 (203)	8 (203)

Fuel System	**1760**	**2100**
Fuel Consumption - gal/hr (L/hr)	23.5 (88.9)	26.4 (99.9)
Fuel Return - gal/hr (L/hr)	26.5 (100)	23.6 (89.3)
Fuel Supply - gal/hr (L/hr)	50 (189)	50 (189)
Fuel Pressure - lb/in² (kPa)	70 (483) - 90 (621)	
Minimum Line Size - Supply - in.	.75 Schedule 40 Steel Pipe	
Pipe Outer Diameter - in (mm)	1.05 (26.7)	
Minimum Line Size - Return - in.	.50 Schedule 40 Steel Pipe	
Pipe Outer Diameter - in (mm)	0.848 (21.5)	
Maximum Allowable Fuel Pump Suction Lift with clean Filter - in H_20 (mH_20)	40 (1)	
Maximum Allowable Fuel Head above Fuel pump, Supply or Return - ft (m)	11.7 (3.6)	
Fuel Filter Micron Size	2 (Secondary)	

Heater System	**Standard**	**Optional**
Engine Coolant Heater		
Wattage (Nominal)	2500	2500
Voltage - AC, 1 Phase	230 (+5%, -10%)	115 (+5%, -10%)
Part Number	[C122194]	[C122190]

Air System	**1760**	**2100**	
Combustion Air Flow - ft.³/min (m³/min)	1108 (31.4)	1122.8 (31.8)	
Air Cleaner	**Standard**		**Optional**
Part Number	[C03595]		[C03330]
Type	Indoor Service Only, with Shield		Canister, Single-Stage
Cleaning method	Washable		Disposable
Air Intake Restriction Maximum Limit			
Dirty Air Cleaner - in H_20 (kPa)	26 (6.5)		14 (3.5)
Clean Air Cleaner - in H_20 (kPa)	8 (2)		7 (1.7)
Maximum Allowable Temperature (Air To Engine Inlet) - °F (°C)[5]	130 (54.4)		

Lubrication System	
Oil Pressure - normal - lb/in² (kPa)	42 (290)
Low Oil Pressure Alarm Switch - lb/in² (kPa)[6]	35 (241) to 41 (283)
In Pan Oil Temperature - °F (°C)	217 (103)
Total Oil Capacity with Filter - qt (L)	44.7 (42.3)

Lube Oil Heater	**Optional**
Wattage (Nominal)	150
Voltage	240V (+5%, -10%)
Part Number	C04533

Performance	**1760**	**2100**
BMEP - lb/in² (kPa)	279 (1920)	240 (1650)
Piston Speed - ft/min (m/min)	1907 (581)	2275 (693)
Mechanical Noise - dB(A) @ 1m	C133785	
Power Curve	C132688	

[4]Based on Nominal System. Back pressure flow analysis must be done to assure maximum allowable back pressure is not exceeded. (Note: minimum exhaust Pipe diameter is based on: 15 feet of pipe, one 90° elbow, and a silencer pressure drop no greater than one half of the maximum allowable back pressure.) [5]Review for horsepower derate if ambient air entering engine exceeds 77°F (25°C). [6]Low Oil Pressure Switch threshold varies w/engine speed. [ ] indicates component reference part number.

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Fire Protection Products, Inc.

JX6H-UFAD88
INSTALLATION & OPERATION DATA (I&O Data)
USA Produced

Basic Engine Description

Engine Manufacturer	John Deere Co.
Ignition Type	Compression (Diesel)
Number of Cylinders	6
Bore and Stroke - in (mm)	5.2 (132) X 6.5 (165)
Displacement - in^3 (L)	824 (13.5)
Compression Ratio	16.0:1
Valves per cylinder	
Intake	2
Exhaust	2
Combustion System	Unit Injection
Engine Type	In-Line, 4 Stroke Cycle
Fuel Management Control	Electronic, Unit Injector
Firing Order (CW Rotation)	1-5-3-6-2-4
Aspiration	Turbocharged
Charge Air Cooling Type	Raw Water Cooled
Rotation, viewed from front of engine, Clockwise (CW)	Standard
Engine Crankcase Vent System	Open
Installation Drawing	D626
Weight - lb (kg)	3315 (1500)

Power Rating	**1760**
Nameplate Power - HP (kW)	617 (460)

Cooling System - [C051433]	**1760**
Engine Coolant Heat - Btu/sec (kW)	219 (231)
Engine Radiated Heat - Btu/sec (kW)	105 (111)
Heat Exchanger Minimum Flow	
60°F (15°C) Raw H_20 - gal/min (L/min)	40 (151)
95°F (35°C) Raw H_20 - gal/min (L/min)	60 (227)
Heat Exchanger Maximum Cooling Raw Water	
Inlet Pressure - psi (bar)	60 (4.1)
Flow - gal/min (L/min)	80 (303)
Typical Engine H_20 Operating Temp - °F (°C)[1]	175 (79.4) - 190 (87.8)
Thermostat	
Start to Open - °F (°C)	180 (82.2)
Fully Opened - °F (°C)	198 (92.2)
Engine Coolant Capacity - qt (L)	32.7 (30.9)
Coolant Pressure Cap - lb/in^2 (kPa)	15 (103)
Maximum Engine Coolant Temperature - °F (°C)	221 (105)
Minimum Engine Coolant Temperature - °F (°C)	160 (71.1)
High Coolant Temp Alarm Switch - °F (°C)[2]	226 (108) - 232 (111)

Electric System - DC	**Standard**	
System Voltage (Nominal)	24	
Battery Capacity for Ambients Above 32°F (0°C)		
Voltage (Nominal)	12	[C07633]
Qty. Per Battery Bank	2	
SAE size per J537	8D	
CCA @ 0°F (-18°C)	1400	
Reserve Capacity - Minutes	430	
Battery Cable Circuit, Max Resistance - ohm	0.0012	
Battery Cable Minimum Size		
0-120 in. *	00	
121-160 in.[3]	000	
161-200 in. Circuit Length[3]	0000	
Charging Alternator Maximum Output - Amp,	55	[C071365]
Starter Cranking Amps, Rolling - @60°F (15°C)	300	[RE522852]

NOTE: This engine is intended for indoor installation or in a weatherproof enclosure. [1]Engine H_2O temperature is dependent on raw water temperature and flow. [2]High Coolant Switch threshold varies with engine load. [3]Positive and Negative Cables Combined Length.

CLARKE
Fire Protection Products, Inc.

JX6H-UFAD88
INSTALLATION & OPERATION DATA (I&O Data)
USA Produced

Exhaust System	**1760**
Exhaust Flow - ft.³/min (m³/min)	2823 (79.9)
Exhaust Temperature - °F (°C)	894 (479)
Maximum Allowable Back Pressure - in H_20 (kPa)	40 (10)
Minimum Exhaust Pipe Dia. - in (mm)[4]	8 (203)

Fuel System	**1760**
Fuel Consumption - gal/hr (L/hr)	30.5 (115)
Fuel Return - gal/hr (L/hr)	24.5 (92.7)
Fuel Supply - gal/hr (L/hr)	55 (208)
Fuel Pressure - lb/in² (kPa)	70 (483) - 90 (621)
Minimum Line Size - Supply - in.	.75 Schedule 40 Steel Pipe
Pipe Outer Diameter - in (mm)	1.05 (26.7)
Minimum Line Size - Return - in.	.50 Schedule 40 Steel Pipe
Pipe Outer Diameter - in (mm)	0.848 (21.5)
Maximum Allowable Fuel Pump Suction Lift with clean Filter - in H_20 (mH_20)	40 (1)
Maximum Allowable Fuel Head above Fuel pump, Supply or Return - ft (m)	11.7 (3.6)
Fuel Filter Micron Size	2 (Secondary)

Heater System	**Standard**	**Optional**
Engine Coolant Heater		
Wattage (Nominal)	2500	2500
Voltage - AC, 1 Phase	230 (+5%, -10%)	115 (+5%, -10%)
Part Number	[C122194]	[C122190]

Air System	**1760**	
Combustion Air Flow - ft.³/min (m³/min)	1158 (32.8)	
Air Cleaner	**Standard**	**Optional**
Part Number	[C03595]	[C03330]
Type	Indoor Service Only, with Shield	Canister, Single-Stage
Cleaning method	Washable	Disposable
Air Intake Restriction Maximum Limit		
Dirty Air Cleaner - in H_20 (kPa)	26 (6.5)	14 (3.5)
Clean Air Cleaner - in H_20 (kPa)	8 (2)	7 (1.7)
Maximum Allowable Temperature (Air To Engine Inlet) - °F (°C)[5]	130 (54.4)	

Lubrication System	
Oil Pressure - normal - lb/in² (kPa)	42 (290)
Low Oil Pressure Alarm Switch - lb/in² (kPa)[6]	35 (241) to 41 (283)
In Pan Oil Temperature - °F (°C)	217 (103)
Total Oil Capacity with Filter - qt (L)	44.7 (42.3)

Lube Oil Heater	**Optional**
Wattage (Nominal)	150
Voltage	240V (+5%, -10%)
Part Number	C04533

Performance	**1760**
BMEP - lb/in² (kPa)	337 (2320)
Piston Speed - ft/min (m/min)	1907 (581)
Mechanical Noise - dB(A) @ 1m	c133786
Power Curve	C132611

[4]Based on Nominal System. Back pressure flow analysis must be done to assure maximum allowable back pressure is not exceeded. (Note: minimum exhaust Pipe diameter is based on: 15 feet of pipe, one 90° elbow, and a silencer pressure drop no greater than one half of the maximum allowable back pressure.) [5]Review for horsepower derate if ambient air entering engine exceeds 77°F (25°C). [6]Low Oil Pressure Switch threshold varies w/engine speed. [ ] indicates component reference part number.

CLARKE
Fire Protection Products, Inc.

JX6H-UFADF0
INSTALLATION & OPERATION DATA (I&O Data)
USA Produced

Basic Engine Description

Engine Manufacturer	John Deere Co.
Ignition Type	Compression (Diesel)
Number of Cylinders	6
Bore and Stroke - in (mm)	5.2 (132) X 6.5 (165)
Displacement - in^3 (L)	824 (13.5)
Compression Ratio	16.0:1
Valves per cylinder	
Intake	2
Exhaust	2
Combustion System	Unit Injection
Engine Type	In-Line, 4 Stroke Cycle
Fuel Management Control	Electronic, Unit Injector
Firing Order (CW Rotation)	1-5-3-6-2-4
Aspiration	Turbocharged
Charge Air Cooling Type	Raw Water Cooled
Rotation, viewed from front of engine, Clockwise (CW)	Standard
Engine Crankcase Vent System	Open
Installation Drawing	D626
Weight - lb (kg)	3315 (1500)

Power Rating	**1760**	**2100**
Nameplate Power - HP (kW)	460 (343)	488 (364)

Cooling System - [C051433]	**1760**	**2100**
Engine Coolant Heat - Btu/sec (kW)	181 (191)	180.7 (191)
Engine Radiated Heat - Btu/sec (kW)	78 (82.3)	83 (87.6)
Heat Exchanger Minimum Flow		
60°F (15°C) Raw H_20 - gal/min (L/min)	40 (151)	40 (151)
95°F (35°C) Raw H_20 - gal/min (L/min)	60 (227)	60 (227)
Heat Exchanger Maximum Cooling Raw Water		
Inlet Pressure - psi (bar)	60 (4.1)	
Flow - gal/min (L/min)	80 (303)	
Typical Engine H_20 Operating Temp - °F (°C)[1]	175 (79.4) - 190 (87.8)	
Thermostat		
Start to Open - °F (°C)	180 (82.2)	
Fully Opened - °F (°C)	198 (92.2)	
Engine Coolant Capacity - qt (L)	32.7 (30.9)	
Coolant Pressure Cap - lb/in^2 (kPa)	15 (103)	
Maximum Engine Coolant Temperature - °F (°C)	221 (105)	
Minimum Engine Coolant Temperature - °F (°C)	160 (71.1)	
High Coolant Temp Alarm Switch - °F (°C)[2]	226 (108) - 232 (111)	

Electric System - DC	**Standard**	
System Voltage (Nominal)	24	
Battery Capacity for Ambients Above 32°F (0°C)		
Voltage (Nominal)	12	[C07633]
Qty. Per Battery Bank	2	
SAE size per J537	8D	
CCA @ 0°F (-18°C)	1400	
Reserve Capacity - Minutes	430	
Battery Cable Circuit, Max Resistance - ohm	0.0012	
Battery Cable Minimum Size		
0-120 in. *	00	
121-160 in.[3]	000	
161-200 in. Circuit Length[3]	0000	
Charging Alternator Maximum Output - Amp,	55	[C071365]
Starter Cranking Amps, Rolling - @60°F (15°C)	300	[RE522852]

NOTE: This engine is intended for indoor installation or in a weatherproof enclosure. [1]Engine H_2O temperature is dependent on raw water temperature and flow. [2]High Coolant Switch threshold varies with engine load. [3]Positive and Negative Cables Combined Length.

CLARKE
Fire Protection Products, Inc.

JX6H-UFADF0
INSTALLATION & OPERATION DATA (I&O Data)
USA Produced

Exhaust System	**1760**	**2100**
Exhaust Flow - ft.³/min (m³/min)	2519 (71.3)	2518 (71.3)
Exhaust Temperature - °F (°C)	787 (419)	829 (443)
Maximum Allowable Back Pressure - in H_20 (kPa)	40 (10)	40 (10)
Minimum Exhaust Pipe Dia. - in (mm)[4]	8 (203)	8 (203)

Fuel System	**1760**	**2100**
Fuel Consumption - gal/hr (L/hr)	20.3 (76.8)	24.3 (92)
Fuel Return - gal/hr (L/hr)	27.7 (105)	23.7 (89.7)
Fuel Supply - gal/hr (L/hr)	48 (182)	48 (182)
Fuel Pressure - lb/in² (kPa)	70 (483) - 90 (621)	
Minimum Line Size - Supply - in.	.75 Schedule 40 Steel Pipe	
Pipe Outer Diameter - in (mm)	1.05 (26.7)	
Minimum Line Size - Return - in.	.50 Schedule 40 Steel Pipe	
Pipe Outer Diameter - in (mm)	0.848 (21.5)	
Maximum Allowable Fuel Pump Suction Lift with clean Filter - in H_20 (mH_20)	40 (1)	
Maximum Allowable Fuel Head above Fuel pump, Supply or Return - ft (m)	11.7 (3.6)	
Fuel Filter Micron Size	2 (Secondary)	

Heater System	**Standard**	**Optional**
Engine Coolant Heater		
Wattage (Nominal)	2500	2500
Voltage - AC, 1 Phase	230 (+5%, -10%)	115 (+5%, -10%)
Part Number	[C122194]	[C122190]

Air System	**1760**	**2100**	
Combustion Air Flow - ft.³/min (m³/min)	1085 (30.7)	1095 (31)	
Air Cleaner	**Standard**		**Optional**
Part Number	[C03595]		[C03330]
Type	Indoor Service Only, with Shield		Canister, Single-Stage
Cleaning method	Washable		Disposable
Air Intake Restriction Maximum Limit			
Dirty Air Cleaner - in H_20 (kPa)	26 (6.5)		14 (3.5)
Clean Air Cleaner - in H_20 (kPa)	8 (2)		7 (1.7)
Maximum Allowable Temperature (Air To Engine Inlet) - °F (°C)[5]	130 (54.4)		

Lubrication System	
Oil Pressure - normal - lb/in² (kPa)	42 (290)
Low Oil Pressure Alarm Switch - lb/in² (kPa)[6]	35 (241) to 41 (283)
In Pan Oil Temperature - °F (°C)	217 (103)
Total Oil Capacity with Filter - qt (L)	44.7 (42.3)

Lube Oil Heater	**Optional**
Wattage (Nominal)	150
Voltage	240V (+5%, -10%)
Part Number	C04533

Performance	**1760**	**2100**
BMEP - lb/in² (kPa)	251 (1730)	223 (1540)
Piston Speed - ft/min (m/min)	1907 (581)	2275 (693)
Mechanical Noise - dB(A) @ 1m	C133787	
Power Curve	C132687	

[4]Based on Nominal System. Back pressure flow analysis must be done to assure maximum allowable back pressure is not exceeded. (Note: minimum exhaust Pipe diameter is based on: 15 feet of pipe, one 90° elbow, and a silencer pressure drop no greater than one half of the maximum allowable back pressure.) [5]Review for horsepower derate if ambient air entering engine exceeds 77°F (25°C). [6]Low Oil Pressure Switch threshold varies w/engine speed. [ ] indicates component reference part number.

CLARKE
Fire Protection Products, Inc.

JX6H-UFADK0
INSTALLATION & OPERATION DATA (I&O Data)
USA Produced

Basic Engine Description

Engine Manufacturer	John Deere Co.
Ignition Type	Compression (Diesel)
Number of Cylinders	6
Bore and Stroke - in (mm)	5.2 (132) X 6.5 (165)
Displacement - in^3 (L)	824 (13.5)
Compression Ratio	16.0:1
Valves per cylinder	
Intake	2
Exhaust	2
Combustion System	Unit Injection
Engine Type	In-Line, 4 Stroke Cycle
Fuel Management Control	Electronic, Unit Injector
Firing Order (CW Rotation)	1-5-3-6-2-4
Aspiration	Turbocharged
Charge Air Cooling Type	Raw Water Cooled
Rotation, viewed from front of engine, Clockwise (CW)	Standard
Engine Crankcase Vent System	Open
Installation Drawing	D626
Weight - lb (kg)	3315 (1500)

Power Rating	**1760**	**2100**
Nameplate Power - HP (kW)	517 (385.5)	526 (392)

Cooling System - [C051433]	**1760**	**2100**
Engine Coolant Heat - Btu/sec (kW)	191 (202)	195 (206)
Engine Radiated Heat - Btu/sec (kW)	88 (92.8)	89 (93.9)
Heat Exchanger Minimum Flow		
60°F (15°C) Raw H_20 - gal/min (L/min)	40 (151)	40 (151)
95°F (35°C) Raw H_20 - gal/min (L/min)	60 (227)	60 (227)
Heat Exchanger Maximum Cooling Raw Water		
Inlet Pressure - psi (bar)	60 (4.1)	
Flow - gal/min (L/min)	80 (303)	
Typical Engine H_20 Operating Temp - °F (°C)[1]	175 (79.4) - 190 (87.8)	
Thermostat		
Start to Open - °F (°C)	180 (82.2)	
Fully Opened - °F (°C)	198 (92.2)	
Engine Coolant Capacity - qt (L)	32.7 (30.9)	
Coolant Pressure Cap - lb/in^2 (kPa)	15 (103)	
Maximum Engine Coolant Temperature - °F (°C)	221 (105)	
Minimum Engine Coolant Temperature - °F (°C)	160 (71.1)	
High Coolant Temp Alarm Switch - °F (°C)[2]	226 (108) - 232 (111)	

Electric System - DC	**Standard**	
System Voltage (Nominal)	24	
Battery Capacity for Ambients Above 32°F (0°C)		
Voltage (Nominal)	12	[C07633]
Qty. Per Battery Bank	2	
SAE size per J537	8D	
CCA @ 0°F (-18°C)	1400	
Reserve Capacity - Minutes	430	
Battery Cable Circuit, Max Resistance - ohm	0.0012	
Battery Cable Minimum Size		
0-120 in. *	00	
121-160 in.[3]	000	
161-200 in. Circuit Length[3]	0000	
Charging Alternator Maximum Output - Amp,	55	[C071365]
Starter Cranking Amps, Rolling - @60°F (15°C)	300	[RE522852]

NOTE: This engine is intended for indoor installation or in a weatherproof enclosure. [1]Engine H_2O temperature is dependent on raw water temperature and flow. [2]High Coolant Switch threshold varies with engine load. [3]Positive and Negative Cables Combined Length.

CLARKE
Fire Protection Products, Inc.

JX6H-UFADK0
INSTALLATION & OPERATION DATA (I&O Data)
USA Produced

Exhaust System	**1760**	**2100**
Exhaust Flow - ft.³/min (m³/min)	2660 (75.3)	3003 (85)
Exhaust Temperature - °F (°C)	826 (441)	975 (524)
Maximum Allowable Back Pressure - in H_20 (kPa)	40 (10)	40 (10)
Minimum Exhaust Pipe Dia. - in (mm)[4]	8 (203)	8 (203)

Fuel System	**1760**	**2100**
Fuel Consumption - gal/hr (L/hr)	23.9 (90.5)	26.4 (99.9)
Fuel Return - gal/hr (L/hr)	26.1 (98.8)	23.6 (89.3)
Fuel Supply - gal/hr (L/hr)	50 (189)	50 (189)
Fuel Pressure - lb/in² (kPa)	70 (483) - 90 (621)	
Minimum Line Size - Supply - in.	.75 Schedule 40 Steel Pipe	
Pipe Outer Diameter - in (mm)	1.05 (26.7)	
Minimum Line Size - Return - in.	.50 Schedule 40 Steel Pipe	
Pipe Outer Diameter - in (mm)	0.848 (21.5)	
Maximum Allowable Fuel Pump Suction Lift with clean Filter - in H_20 (mH_20)	40 (1)	
Maximum Allowable Fuel Head above Fuel pump, Supply or Return - ft (m)	11.7 (3.6)	
Fuel Filter Micron Size	2 (Secondary)	

Heater System	**Standard**	**Optional**
Engine Coolant Heater		
Wattage (Nominal)	2500	2500
Voltage - AC, 1 Phase	230 (+5%, -10%)	115 (+5%, -10%)
Part Number	[C122194]	[C122190]

Air System	**1760**	**2100**	
Combustion Air Flow - ft.³/min (m³/min)	1111.2 (31.5)	1123.5 (31.8)	
Air Cleaner	**Standard**		**Optional**
Part Number	[C03595]		[C03330]
Type	Indoor Service Only, with Shield		Canister, Single-Stage
Cleaning method	Washable		Disposable
Air Intake Restriction Maximum Limit			
Dirty Air Cleaner - in H_20 (kPa)	26 (6.5)		14 (3.5)
Clean Air Cleaner - in H_20 (kPa)	8 (2)		7 (1.7)
Maximum Allowable Temperature (Air To Engine Inlet) - °F (°C)[5]	130 (54.4)		

Lubrication System	
Oil Pressure - normal - lb/in² (kPa)	42 (290)
Low Oil Pressure Alarm Switch - lb/in² (kPa)[6]	35 (241) to 41 (283)
In Pan Oil Temperature - °F (°C)	217 (103)
Total Oil Capacity with Filter - qt (L)	44.7 (42.3)

Lube Oil Heater	**Optional**
Wattage (Nominal)	150
Voltage	240V (+5%, -10%)
Part Number	C04533

Performance	**1760**	**2100**
BMEP - lb/in² (kPa)	282 (1940)	241 (1660)
Piston Speed - ft/min (m/min)	1907 (581)	2275 (693)
Mechanical Noise - dB(A) @ 1m	C133788	
Power Curve	C132689	

[4]Based on Nominal System. Back pressure flow analysis must be done to assure maximum allowable back pressure is not exceeded. (Note: minimum exhaust Pipe diameter is based on: 15 feet of pipe, one 90° elbow, and a silencer pressure drop no greater than one half of the maximum allowable back pressure.) [5]Review for horsepower derate if ambient air entering engine exceeds 77°F (25°C). [6]Low Oil Pressure Switch threshold varies w/engine speed. [ ] indicates component reference part number.

CLARKE
Fire Protection Products, Inc.

JX6H-UFADN0
INSTALLATION & OPERATION DATA (I&O Data)
USA Produced

Basic Engine Description

Engine Manufacturer	John Deere Co.
Ignition Type	Compression (Diesel)
Number of Cylinders	6
Bore and Stroke - in (mm)	5.2 (132) X 6.5 (165)
Displacement - in^3 (L)	824 (13.5)
Compression Ratio	16.0:1
Valves per cylinder	
Intake	2
Exhaust	2
Combustion System	Unit Injection
Engine Type	In-Line, 4 Stroke Cycle
Fuel Management Control	Electronic, Unit Injector
Firing Order (CW Rotation)	1-5-3-6-2-4
Aspiration	Turbocharged
Charge Air Cooling Type	Raw Water Cooled
Rotation, viewed from front of engine, Clockwise (CW)	Standard
Engine Crankcase Vent System	Open
Installation Drawing	D626
Weight - lb (kg)	3315 (1500)

Power Rating	**1760**	**2100**
Nameplate Power - HP (kW)	542 (404)	575 (429)

Cooling System - [C051433]	**1760**	**2100**
Engine Coolant Heat - Btu/sec (kW)	200 (211)	212 (224)
Engine Radiated Heat - Btu/sec (kW)	92 (97.1)	98 (103)
Heat Exchanger Minimum Flow		
60°F (15°C) Raw H_20 - gal/min (L/min)	40 (151)	40 (151)
95°F (35°C) Raw H_20 - gal/min (L/min)	60 (227)	60 (227)
Heat Exchanger Maximum Cooling Raw Water		
Inlet Pressure - psi (bar)	60 (4.1)	
Flow - gal/min (L/min)	80 (303)	
Typical Engine H_20 Operating Temp - °F (°C)[1]	175 (79.4) - 190 (87.8)	
Thermostat		
Start to Open - °F (°C)	180 (82.2)	
Fully Opened - °F (°C)	198 (92.2)	
Engine Coolant Capacity - qt (L)	32.7 (30.9)	
Coolant Pressure Cap - lb/in^2 (kPa)	15 (103)	
Maximum Engine Coolant Temperature - °F (°C)	221 (105)	
Minimum Engine Coolant Temperature - °F (°C)	160 (71.1)	
High Coolant Temp Alarm Switch - °F (°C)[2]	226 (108) - 232 (111)	

Electric System - DC	**Standard**	
System Voltage (Nominal)	24	
Battery Capacity for Ambients Above 32°F (0°C)		
Voltage (Nominal)	12	[C07633]
Qty. Per Battery Bank	2	
SAE size per J537	8D	
CCA @ 0°F (-18°C)	1400	
Reserve Capacity - Minutes	430	
Battery Cable Circuit, Max Resistance - ohm	0.0012	
Battery Cable Minimum Size		
0-120 in. *	00	
121-160 in.[3]	000	
161-200 in. Circuit Length[3]	0000	
Charging Alternator Maximum Output - Amp,	55	[C071365]
Starter Cranking Amps, Rolling - @60°F (15°C)	300	[RE522852]

NOTE: This engine is intended for indoor installation or in a weatherproof enclosure. [1]Engine H_2O temperature is dependent on raw water temperature and flow. [2]High Coolant Switch threshold varies with engine load. [3]Positive and Negative Cables Combined Length.

CLARKE
Fire Protection Products, Inc.

JX6H-UFADN0
INSTALLATION & OPERATION DATA (I&O Data)
USA Produced

Exhaust System	**1760**	**2100**
Exhaust Flow - ft.³/min (m³/min)	2725 (77.2)	2955 (83.7)
Exhaust Temperature - °F (°C)	843 (451)	908 (487)
Maximum Allowable Back Pressure - in H_20 (kPa)	40 (10)	40 (10)
Minimum Exhaust Pipe Dia. - in (mm)[4]	8 (203)	8 (203)

Fuel System	**1760**	**2100**
Fuel Consumption - gal/hr (L/hr)	25.6 (96.9)	29.2 (111)
Fuel Return - gal/hr (L/hr)	29.4 (111)	25.8 (97.7)
Fuel Supply - gal/hr (L/hr)	55 (208)	55 (208)
Fuel Pressure - lb/in² (kPa)	70 (483) - 90 (621)	
Minimum Line Size - Supply - in.	.75 Schedule 40 Steel Pipe	
Pipe Outer Diameter - in (mm)	1.05 (26.7)	
Minimum Line Size - Return - in.	.50 Schedule 40 Steel Pipe	
Pipe Outer Diameter - in (mm)	0.848 (21.5)	
Maximum Allowable Fuel Pump Suction Lift with clean Filter - in H_20 (mH_20)	40 (1)	
Maximum Allowable Fuel Head above Fuel pump, Supply or Return - ft (m)	11.7 (3.6)	
Fuel Filter Micron Size	2 (Secondary)	

Heater System	**Standard**	**Optional**
Engine Coolant Heater		
Wattage (Nominal)	2500	2500
Voltage - AC, 1 Phase	230 (+5%, -10%)	115 (+5%, -10%)
Part Number	[C122194]	[C122190]

Air System	**1760**	**2100**	
Combustion Air Flow - ft.³/min (m³/min)	1122.9 (31.8)	1160.3 (32.9)	
Air Cleaner	**Standard**		**Optional**
Part Number	[C03595]		[C03330]
Type	Indoor Service Only, with Shield		Canister, Single-Stage
Cleaning method	Washable		Disposable
Air Intake Restriction Maximum Limit			
Dirty Air Cleaner - in H_20 (kPa)	26 (6.5)		14 (3.5)
Clean Air Cleaner - in H_20 (kPa)	8 (2)		7 (1.7)
Maximum Allowable Temperature (Air To Engine Inlet) - °F (°C)[5]	130 (54.4)		

Lubrication System	
Oil Pressure - normal - lb/in² (kPa)	42 (290)
Low Oil Pressure Alarm Switch - lb/in² (kPa)[6]	35 (241) to 41 (283)
In Pan Oil Temperature - °F (°C)	217 (103)
Total Oil Capacity with Filter - qt (L)	44.7 (42.3)

Lube Oil Heater	**Optional**
Wattage (Nominal)	150
Voltage	240V (+5%, -10%)
Part Number	C04533

Performance	**1760**	**2100**
BMEP - lb/in² (kPa)	296 (2040)	263 (1810)
Piston Speed - ft/min (m/min)	1907 (581)	2275 (693)
Mechanical Noise - dB(A) @ 1m	C133789	
Power Curve	C132690	

[4]Based on Nominal System. Back pressure flow analysis must be done to assure maximum allowable back pressure is not exceeded. (Note: minimum exhaust Pipe diameter is based on: 15 feet of pipe, one 90° elbow, and a silencer pressure drop no greater than one half of the maximum allowable back pressure.) [5]Review for horsepower derate if ambient air entering engine exceeds 77°F (25°C). [6]Low Oil Pressure Switch threshold varies w/engine speed. [ ] indicates component reference part number.

CLARKE
Fire Protection Products, Inc.

JX6H-UFADP0
INSTALLATION & OPERATION DATA (I&O Data)
USA Produced

Basic Engine Description

Engine Manufacturer	John Deere Co.
Ignition Type	Compression (Diesel)
Number of Cylinders	6
Bore and Stroke - in (mm)	5.2 (132) X 6.5 (165)
Displacement - in^3 (L)	824 (13.5)
Compression Ratio	16.0:1
Valves per cylinder	
Intake	2
Exhaust	2
Combustion System	Unit Injection
Engine Type	In-Line, 4 Stroke Cycle
Fuel Management Control	Electronic, Unit Injector
Firing Order (CW Rotation)	1-5-3-6-2-4
Aspiration	Turbocharged
Charge Air Cooling Type	Raw Water Cooled
Rotation, viewed from front of engine, Clockwise (CW)	Standard
Engine Crankcase Vent System	Open
Installation Drawing	D626
Weight - lb (kg)	3315 (1500)

Power Rating	**1760**	**2100**
Nameplate Power - HP (kW)	575 (429)	600 (447)

Cooling System - [C051433]	**1760**	**2100**
Engine Coolant Heat - Btu/sec (kW)	212 (224)	223 (235)
Engine Radiated Heat - Btu/sec (kW)	98 (103)	102 (108)
Heat Exchanger Minimum Flow		
60°F (15°C) Raw H_20 - gal/min (L/min)	40 (151)	40 (151)
95°F (35°C) Raw H_20 - gal/min (L/min)	60 (227)	60 (227)
Heat Exchanger Maximum Cooling Raw Water		
Inlet Pressure - psi (bar)	60 (4.1)	
Flow - gal/min (L/min)	80 (303)	
Typical Engine H_20 Operating Temp - °F (°C)[1]	175 (79.4) - 190 (87.8)	
Thermostat		
Start to Open - °F (°C)	180 (82.2)	
Fully Opened - °F (°C)	198 (92.2)	
Engine Coolant Capacity - qt (L)	32.7 (30.9)	
Coolant Pressure Cap - lb/in^2 (kPa)	15 (103)	
Maximum Engine Coolant Temperature - °F (°C)	221 (105)	
Minimum Engine Coolant Temperature - °F (°C)	160 (71.1)	
High Coolant Temp Alarm Switch - °F (°C)[2]	226 (108) - 232 (111)	

Electric System - DC	**Standard**	
System Voltage (Nominal)	24	
Battery Capacity for Ambients Above 32°F (0°C)		
Voltage (Nominal)	12	[C07633]
Qty. Per Battery Bank	2	
SAE size per J537	8D	
CCA @ 0°F (-18°C)	1400	
Reserve Capacity - Minutes	430	
Battery Cable Circuit, Max Resistance - ohm	0.0012	
Battery Cable Minimum Size		
0-120 in. *	00	
121-160 in.[3]	000	
161-200 in. Circuit Length[3]	0000	
Charging Alternator Maximum Output - Amp,	55	[C071365]
Starter Cranking Amps, Rolling - @60°F (15°C)	300	[RE522852]

NOTE: This engine is intended for indoor installation or in a weatherproof enclosure. [1]Engine H_2O temperature is dependent on raw water temperature and flow. [2]High Coolant Switch threshold varies with engine load. [3]Positive and Negative Cables Combined Length.

CLARKE
Fire Protection Products, Inc.

JX6H-UFADP0
INSTALLATION & OPERATION DATA (I&O Data)
USA Produced

Exhaust System	**1760**	**2100**
Exhaust Flow - ft.³/min (m³/min)	2809 (79.5)	2947 (83.4)
Exhaust Temperature - °F (°C)	865 (463)	930 (499)
Maximum Allowable Back Pressure - in H_20 (kPa)	40 (10)	40 (10)
Minimum Exhaust Pipe Dia. - in (mm)[4]	8 (203)	8 (203)

Fuel System	**1760**	**2100**
Fuel Consumption - gal/hr (L/hr)	27.7 (105)	30.6 (116)
Fuel Return - gal/hr (L/hr)	27.3 (103)	24.4 (92.4)
Fuel Supply - gal/hr (L/hr)	55 (208)	55 (208)
Fuel Pressure - lb/in² (kPa)	70 (483) - 90 (621)	
Minimum Line Size - Supply - in.	.75 Schedule 40 Steel Pipe	
Pipe Outer Diameter - in (mm)	1.05 (26.7)	
Minimum Line Size - Return - in.	.50 Schedule 40 Steel Pipe	
Pipe Outer Diameter - in (mm)	0.848 (21.5)	
Maximum Allowable Fuel Pump Suction Lift with clean Filter - in H_20 (mH_20)	40 (1)	
Maximum Allowable Fuel Head above Fuel pump, Supply or Return - ft (m)	11.7 (3.6)	
Fuel Filter Micron Size	2 (Secondary)	

Heater System	**Standard**	**Optional**
Engine Coolant Heater		
Wattage (Nominal)	2500	2500
Voltage - AC, 1 Phase	230 (+5%, -10%)	115 (+5%, -10%)
Part Number	[C122194]	[C122190]

Air System	**1760**	**2100**	
Combustion Air Flow - ft.³/min (m³/min)	1138.4 (32.2)	1179 (33.4)	
Air Cleaner	**Standard**		**Optional**
Part Number	[C03595]		[C03330]
Type	Indoor Service Only, with Shield		Canister, Single-Stage
Cleaning method	Washable		Disposable
Air Intake Restriction Maximum Limit			
Dirty Air Cleaner - in H_20 (kPa)	26 (6.5)		14 (3.5)
Clean Air Cleaner - in H_20 (kPa)	8 (2)		7 (1.7)
Maximum Allowable Temperature (Air To Engine Inlet) - °F (°C)[5]	130 (54.4)		

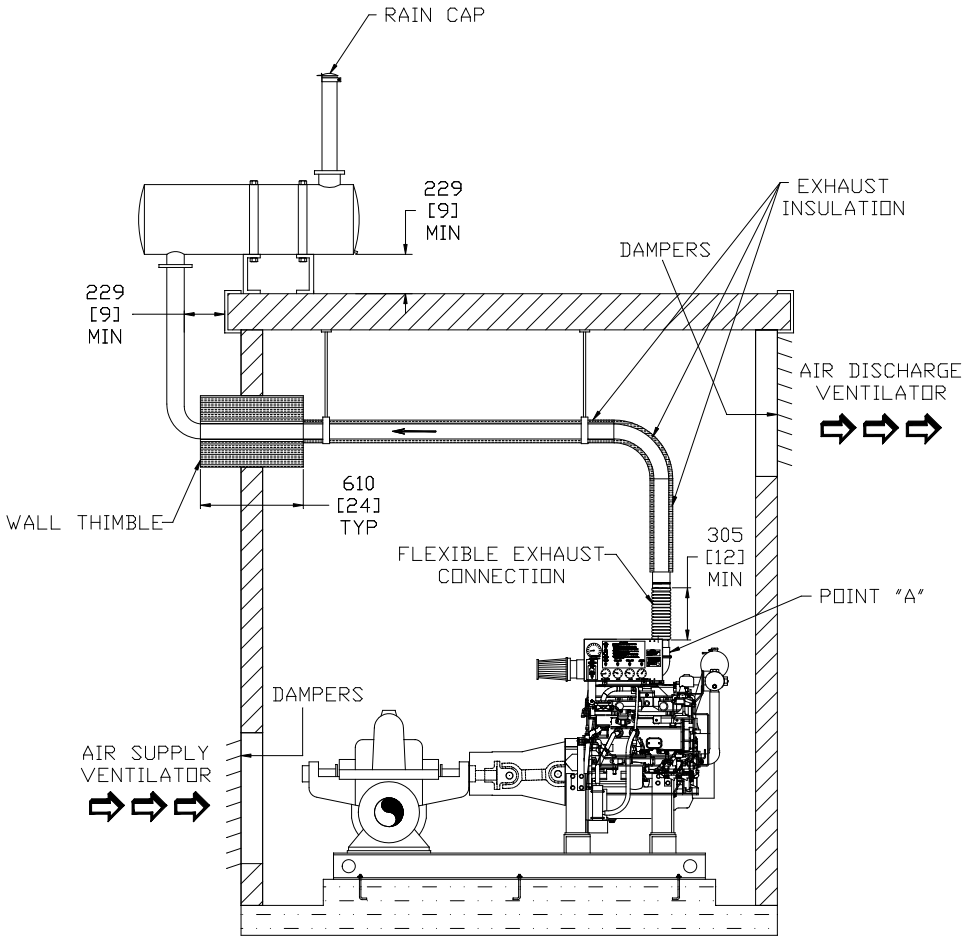
Lubrication System	
Oil Pressure - normal - lb/in² (kPa)	42 (290)
Low Oil Pressure Alarm Switch - lb/in² (kPa)[6]	35 (241) to 41 (283)
In Pan Oil Temperature - °F (°C)	217 (103)
Total Oil Capacity with Filter - qt (L)	44.7 (42.3)

Lube Oil Heater	**Optional**
Wattage (Nominal)	150
Voltage	240V (+5%, -10%)
Part Number	C04533

Performance	**1760**	**2100**
BMEP - lb/in² (kPa)	314 (2160)	275 (1900)
Piston Speed - ft/min (m/min)	1907 (581)	2275 (693)
Mechanical Noise - dB(A) @ 1m	C133790	
Power Curve	C132691	

[4]Based on Nominal System. Back pressure flow analysis must be done to assure maximum allowable back pressure is not exceeded. (Note: minimum exhaust Pipe diameter is based on: 15 feet of pipe, one 90° elbow, and a silencer pressure drop no greater than one half of the maximum allowable back pressure.) [5]Review for horsepower derate if ambient air entering engine exceeds 77°F (25°C). [6]Low Oil Pressure Switch threshold varies w/engine speed. [ ] indicates component reference part number.

REV	DESCRIPTION	ECN#	DWN	APVD	DATE
A	ISSUED ENGINEERING DRAWING	494	SK	KRW	31AUG04
B	ADDED SUPPLY & DISCHARGE VENTILATORS	494	MAL	KRW	25OCT04
C	CORRECTED DWG GEOMETRY AND ADDED PAD	494	JJW	KRW	15MAY06



INSTALLATION GUIDELINES:

1. REFER TO NFPA–20 2003, SECTION 11.5 FOR ADDITIONAL INFORMATION. NOTE, OTHER PIPING SYSTEMS ARE POSSIBLE. SCHEMATIC SHOWN IS FOR EGRESS THRU WALL, AND SIDE IN, SIDE OUT SILENCER.
2. THE EXHAUST PIPING SYSTEM AND SILENCER SHALL BE SUITABLE FOR THE USE INTENDED, AND THE EXHAUST BACK PRESSURE SHALL NOT EXCEED THE ENGINE MANUFACTURER'S RECOMENDATIONS (SEE WARNING BELOW).
3. THE EXHAUST PIPE SHALL NOT BE ANY SMALLER IN DIAMETER THAN THE ENGINE EXHAUST OUTLET.
4. THE EXHAUST PIPE SHALL BE COVERED WITH HIGH–TEMPERATURE INSULATION OR OTHERWISE GUARDED TO PROTECT PERSONNEL FROM INJURY.
5. THE SYSTEM MUST BE SUPPORTED SUCH THAT THERE IS NO WEIGHT ON THE FLEXIBLE EXHAUST CONNECTION.
6. THE EXHAUST PIPE SHALL BE POSITIONED IN SUCH A WAY AS TO PREVENT EXHAUST GASES FROM RE–ENTERING THE PUMP ROOM.
7. EXHAUST PIPE AND THE POINT OF EGRESS FROM THE PUMP ROOM SHALL BE CONSTRUCTED OR INSULATED SO THAT IT DOES NOT CAUSE A FIRE IGNITION RISK TO THE STRUCTURE.
8. EXHAUST SYSTEM SHALL TERMINATE OUTSIDE THE STRUCTURE AT A POINT WHERE HOT GASES, SPARKS, OR PRODUCTS OF COMBUSTION WILL DISCHARGE TO A SAFE LOCATION.
9. EXHAUST SYSTEM TERMINATIONS SHALL NOT BE DIRECTED TOWARDS COMBUSTIBLE MATERIAL OR STRUCTURES, OR INTO ATMOSPHERES CONTAINING FLAMMABLE GASES, FLAMMABLE VAPORS, OR COMBUSTIBLE DUST.
10. PROPERLY SIZED LOUVERS FOR COMBUSTION AIR AND FOR ROOM COOLING AND VENTILATION SHALL BE PROVIDED. THE TOTAL AIR SUPPLY PATH TO THE PUMP ROOM SHALL NOT RESTRICT THE FLOW OF AIR MORE THAN 5.1mm (.2in) WATER COLUMN. THE TOTAL AIR DISCHARGE PATH FROM THE PUMP ROOM SHALL NOT RESTRICT THE FLOW OF AIR MORE THAN 5.1mm (.2in) WATER COLUMN.

WARNING:
THE BACK PRESSURE TO THE ENGINE EXHAUST CONSIDERABLY INFLUENCES THE POWER OF THE ENGINE AND IT'S THERMAL LOADINGS. EXCESSIVE BACK PRESSURE MEASURED AT THE ENGINE EXHAUST OUTLET CONNECTION (POINT "A") DECREASES POWER, INCREASES THE TEMPERATURE OF THE EXHAUST GAS, PRODUCES SMOKE, INCREASES FUEL CONSUMPTION, SULPHURISES THE INTERNAL COOLING WATER (WITH SUBSEQUENT DAMAGE TO THE LUBRICANTS) AND PRODUCES SERIOUS CONSEQUENCES FOR OTHER ENGINE ELEMENTS (i.e. TURBOCHARGER, etc.).

UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:

	MM	IN
DECIMAL X	±1.5	±0.06
DECIMAL .XX	±0.8	±0.03
DECIMAL .XXX	±0.25	±0.01
FRACTIONAL	±1/32	
ANGULAR	±.5°	
MACHINED SURFACE TEXTURE	3.2	

CONTROLLED DRAWING: YES ☒ NO ☐

CLARKE
Fire Protection Products, Inc.

DRWN	S.KORENBLIT
DATE	31AUG04
ENGR	KRWAULIGMAN
MATERIAL	
NAME	TYPICAL EXHAUST PIPING DETAIL PER NFPA–20 2003
PART NO.	C06918
REV	C
SIMILAR TO	
USED ON/LAYOUT PART NO.	
UNITS	MM [INCH]
PAGE	1
OF	1

Typical Exhaust Piping Detail per NFPA-20 2003 English to German Translator	Typgemäße Auspuffrohr-Installationsanleitung nach NFPA-20 2003 Englisch-Deutsch Übersetzung

English Text **Deutscher Text**

INSTALLATION GUIDELINES:

1. REFER TO NFPA-20 2003, SECTION 11.5 FOR ADDITIONAL INFORMATION. NOTE, OTHER PIPING SYSTEMS ARE POSSIBLE, SCHEMATIC SHOWN IS FOR EGRESS THRU WALL, AND SIDE IN SIDE OUT SILENCER.
2. THE EXHAUST PIPING SYSTEM AND SILENCER SHALL BE SUITABLE FOR THE USE INTENDED, AND THE EXHAUST BACK PRESSURE SHALL NOT EXCEED THE ENGINE MANUFACTURER'S RECOMMENDATION (SEE WARNING BELOW).
3. THE EXHAUST PIPE SHALL NOT BE ANY SMALLER IN DIAMETER THAN THE ENGINE EXHAUST OUTLET.
4. THE EXHAUST PIPE SHALL BE COVERED WITH HIGH-TEMPERATURE INSULATION OR OTHERWISE GUARDED TO PROTECT PERSONNEL FROM INJURY.
5. THE SYSTEM MUST BE SUPPORTED SUCH THAT THERE IS NO WEIGHT ON THE FLEXIBLE EXHAUST CONNECTION.
6. THE EXHAUST PIPE SHALL BE POSITIONED IN SUCH A WAY AS TO PREVENT EXHAUST GASES FROM RE-ENTERING THE PUMP ROOM.
7. EXHAUST PIPE AND THE POINT OF EGRESS FROM THE PUMP ROOM SHALL BE CONSTRUCTED OR INSULATED SO THAT IT DOES NOT CAUSE A FIRE IGNITION RISK TO THE STRUCTURE.
8. EXHAUST SYSTEM SHALL TERMINATE OUTSIDE THE STRUCTURE AT A POINT WHERE HOT GASES, SPARKS, OR PRODUCTS OF COMBUSTION WILL DISCHARGE TO A SAFE LOCATION.
9. EXHAUST SYSTEM TERMINATIONS SHALL NOT BE DIRECTED TOWARDS COMBUSTIBLE MATERIAL OR STRUCTURERS, OR INTO ATMOSPHERES CONTAINING FLAMMABLE GASES, FLAMMABLE VAPORS, OR COMUSTIBLE DUST.
10. PROPERLY SIZED LOUVERS FOR COMBUSTION AIR AND FOR ROOM COOLING AND VENTILATION SHALL BE PROVIDED. THE TOTAL AIR SUPPLY

INSTALLATIONS-ANWEISUNG:

1. SIEHE NFPA-20 2003, SECTION 11.5 FÜR WEITERE INFORMATIONEN. HINWEIS: ANDERE AUSPUFFANLAGEN SIND ZULÄSSIG, SCHAUTAFEL ZEIGT DEN AUSGANG DURCH DIE WAND UND DEN SCHALLDÄMPFER-ANSCHLUSS.
2. DIE AUSPUFFANLAGE UND DER SCHALLDÄMPFER MÜSSEN DEM VERWENDUNGSZWECK ENTSPRECHEN UND DER AUSPUFF-GEGENDRUCK DARF DIE VORGABEN DES MOTOR-HERSTELLERS NICHT ÜBERSCHREITEN (SIEHE WARNHINWEIS UNTEN).
3. DAS AUSPUFFROHR DARF KEINEN KLEINEREN DURCHMESSER ALS DER ABGASAUSGANG DES MOTORS HABEN.
4. DAS AUSPUFFROHR MUSS MIT EINER HITZEBESTÄNDIGEN ISOLIERUNG UMGEBEN ODER ANDERWEITIG GESCHÜTZT SEIN, UM VERLETZUNGEN DES PERSONALS ZU VERMEIDEN.
5. DIE ANLAGE MUSS SO ANGEBRACHT SEIN, DASS KEIN GEWICHT DIE BEWEGLICHE AUSPUFF-VERBINDUNG BELASTET.
6. DAS AUSPUFFROHR MUSS SO POSITIONIERT WERDEN, DASS ABGASE NICHT IN DEN PUMPENRAUM ZURÜCKSTRÖMEN KÖNNEN.
7. AUSPUFFROHR UND PUMPENRAUM-AUSGANGS-ÖFFNUNG MÜSSEN SO KONSTRUIERT UND ISOLIERT SEIN, DASS KEINE ENTZÜNDUNGSGEFAHR FÜR DIE ANLAGE BESTEHT.
8. DIE AUSPUFFANLAGE MUSS AUSSERHALB DER EINRICHTUNG AN EINEM PUNKT ENDEN, AN DEM HEISSE ABGASE, FUNKEN ODER VERBREN-NUNGSRÜCKSTÄNDE KEINE GEFAHR MEHR DARSTELLEN:
9. DAS ENDSTÜCK DER AUSPUFFANLAGE DARF NICHT AUF BRENNBARE MATERIALIEN ODER GEGENSTÄNDE GERICHTET SEIN ODER SICH NICHT IN DER NÄHE BRENNBARER GASE, DÄMPFE ODER STÄUBE BEFINDEN.
10. ANGEMESSENE LÜFTUNGSSCHLITZE FÜR VERBRENNUNGSLUFT,

PATH TO THE PUMP ROOM SHALL NOT RESTRICT THE FLOW OF AIR MORE THAN 5.1mm (.21 in) WATER COLUMN. THE TOTAL AIR DISCHARGE PATH FROM THE PUMP ROOM SHALL NOT RESTRICT THE FLOW OF AIR MORE THAN 5.1 mm (.21 in) WATER COLUMN.

RAUMKÜHLUNG UND VENTILATION MÜSSEN VORHANDEN SEIN. DER GESAMTE LUFTZUFÜHRUNGSWEG ZUM PUMPENRAUM DARF DEN LUFTSTROM NICHT MEHR ALS 5,1 mm WASSERSÄULE DROSSELN. DER GESAMTE ABLUFTWEG AUS DEM PUMPENRAUM DARF DEN LUFTSTROM NICHT MEHR ALS 5,1 mm WASSERSÄULE DROSSELN.

WARNING:

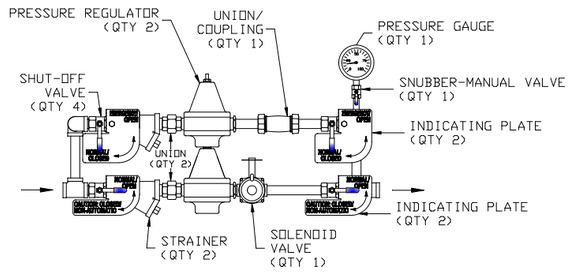
THE BACK PRESSURE TO THE ENGINE EXHAUST CONSIDERABLY INFLUENCES THE POWER OF THE ENGINE AND IT'S THERMAL LOADINGS. EXCESSIVE BACK PRESSURE MEASURED AT THE ENGINE EXHAUST OUTLET CONNECTION (POINT "A") DECREASES POWER, INCREASES THE TEMPERATURE OF THE EXHAUST GAS, PRODUCES SMOKE, INCREASES FUEL CONSUMPTION, SULPHURISES THE INTERANL COOLING WATER (WITH SUBSEQUENT DAMAGE TO THE LUBRICANTS) AND PRODUCES SERIOUS CONCEQUENCES FOR OTHER ENGINE ELEMENTS (i.e. TURBOCHARGER, etc).

ACHTUNG:

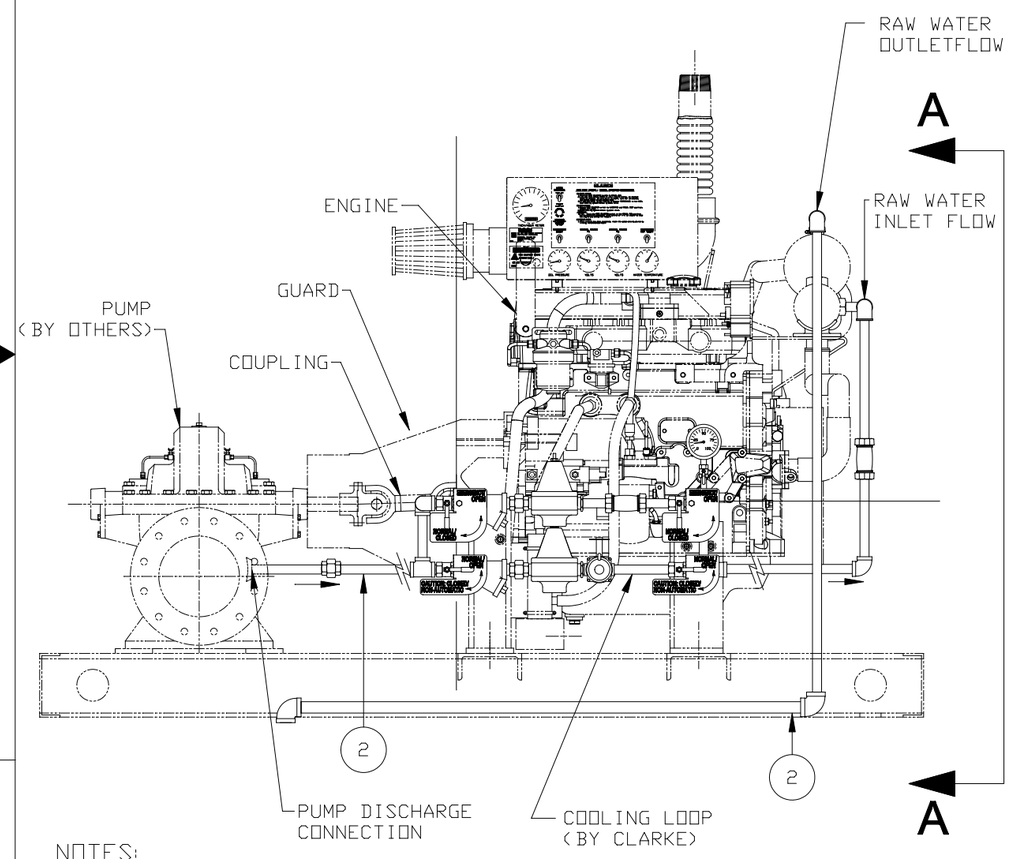
DER RÜCKDRUCK AN DER MOTOR-ABGASÖFFNUNG BEEINFLUSST DIE LEISTUNG UND DIE WÄRMEBELASTUNG DES MOTORS BETRÄCHTLICH. ZU STARKER RÜCKDRUCK , GEMESSEN AN DER MOTOR-ABGASÖFFNUNG (PUNKT „A"), VERMINDERT DIE LEISTUNG, ERHÖHT DIE TEMPERATUR DER ABGASE, PRODUZIERT RAUCH, ERHÖHT DEN KRAFTSTOFF-VERBRAUCH, VERSCHWEFELT DAS INTERNE KÜHLWASSER (MIT FOLGESCHÄDEN FÜR SCHMIERSTOFFE) UND KANN ERNSTHAFTE SCHÄDEN AN ANDEREN MOTORTEILEN (z. B. TURBOLADER, usw) ANRICHTEN.

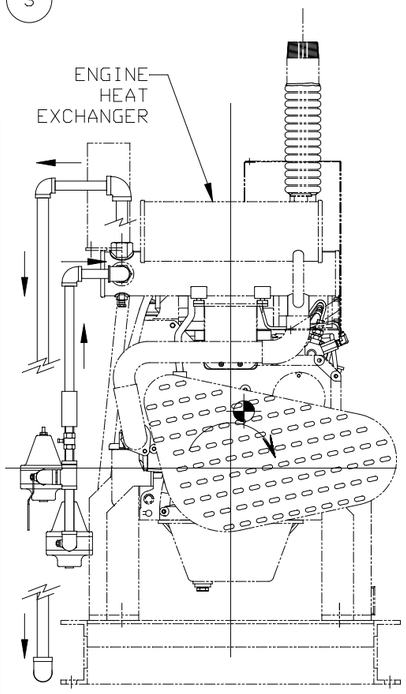
RAIN CAP	REGENABDECKUNG
DAMPERS	DROSSELKLAPPEN
EXHAUST INSULATION	AUSPUFF-ISOLIERUNG
AIR DISCHARGE VENTILATOR	LUFT-AUSSTOSSVENTILATOR
POINT "A"	PUNKT "A"
WALL THIMBLE	WAND-DICHTUNG
FLEXIBLE EXHAUST CONNECTION	BEWEGLICHE AUSPUFF-VERBINDUNG
AIR SUPPLY VENTILATOR	LUFTZUFUHR-VENTILATOR

REV	DESCRIPTION	ECN#	DWN	APVD	DATE
A	ISSUED ENGINEERING DRAWING	N/A	MAL	KRW	14AUG03
B	ADDED VALVE INDICATOR OPEN/CLOSED TO LOOP	540	JJW	KRW	04APR06

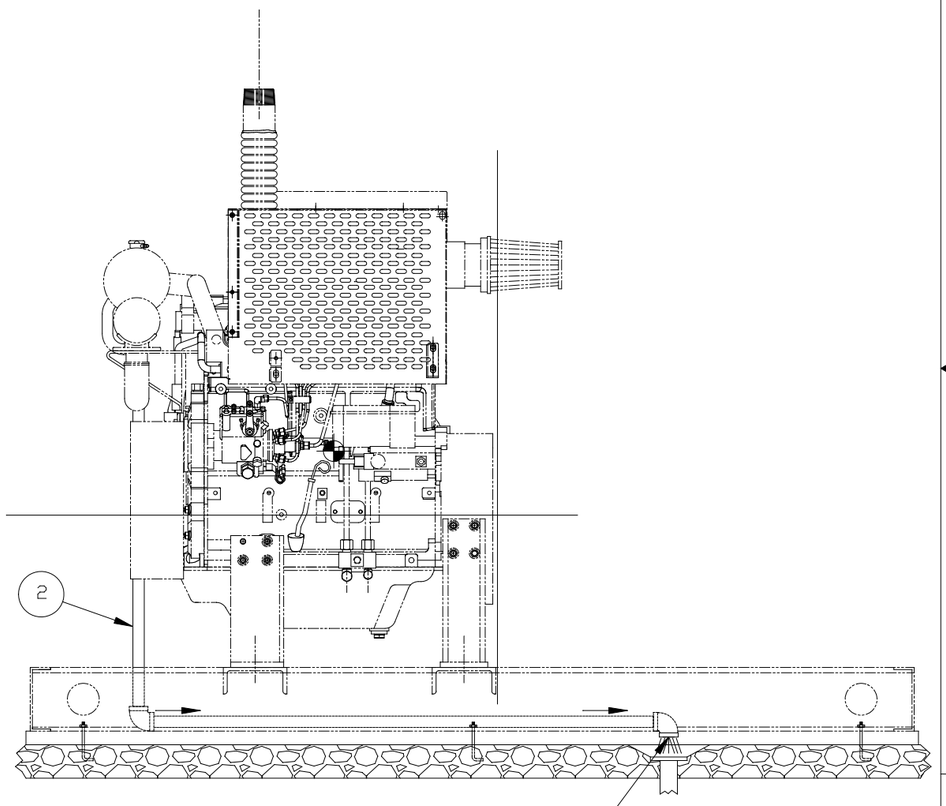


STANDARD COOLING LOOP





VIEW A-A (FRONT OF ENGINE)



NOTES:

1. PIPING ARRANGEMENT PER NFPA-20.
2. PIPING BY OTHERS.
3. DISCHARGE PIPING FROM HEAT EXCHANGER OUTLET IS ONE PIPE SIZE LARGER THAN THE INLET PIPING TO THE HEAT EXCHANGER.

→ COOLING LOOP WATER - DIRECTION OF FLOW

CONTROLLED DRAWING: YES ☐ NO ☒

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

CLARKE
Fire Protection Products, Inc.

DRWN	MALAUER
DATE	14AUG03
ENGR	KRWAULIGMAN
MATERIAL	

NAME: NFPA-20 COOLING LOOP PIPING DETAIL

PART NO. C13977 REV B

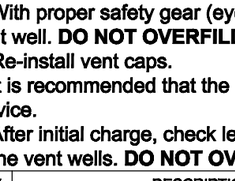
SCALE NTS | UNITS MM [INCH] | PAGE 1 OF 1

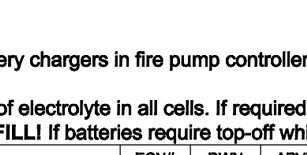
Clarke Cooling Loop Piping Detail C13977
English to German Translator

English Text	**German Text**
NFPA-20 Cooling Loop Piping Detail	NFPA-20 Rohr-Element des Kühlkreislaufs
NOTES:	HINWEISE:
1) PIPING ARRANGEMENT PER NFPA-20	1) ROHRSYSTEM-ANORDNUNG NACH NFPA-20
2) PIPING BY OTHERS	2) ROHRSYSTEM VON ANDEREN
3) DISCHARGE PIPING FROM HEAT EXCHANGER OUTLET IS ONE PIPE SIZE LARGER THAN THE INLET PIPING TO THE HEAT EXCHANGER.	3) DAS ABFLUSSROHR AN DER AUSTRITTSÖFFNUNG DES WÄRMETAUSCHERS IST EINE ROHRGRÖSSE GRÖSSER ALS DAS EINLASSROHR ZUM WÄRMETAUSCHER.
COOLING LOOP WATER – DIRECTION OF FLOW	KÜHLKREISLAUF-WASSER - FLIESSRICHTUNG
PUMP DISCHARGE CONNECTION	PUMPEN-ABFLUSS-STUTZEN
COOLING LOOP (BY CLARKE)	KÜHLKREISLAUF (VON CLARKE)
ENGINE COOLING WATER PIPED TO DRAIN	ZUM ABFLUSS GELEITETES MOTOR-KÜHLWASSER
ENGINE	MOTOR
GUARD	SCHUTZBLECH
COUPLING	KUPPLUNG
PUMP	PUMPE
INLET	EINLASS
ENGINE HEAT EXCHANGER	MOTOR-WÄRMETAUSCHER
OUTLET	ABFLUSS
VIEW A-A	ANSICHT A-A
BY-PASS LINE	BYPASS(ÜBERBÜCKUNGS)-LEITUNG
UNION	STUTZEN
PRESSURE REGULATOR	DRUCK-REGLER
GAUGE	ANZEIGE-INSTRUMENT
BALL VALVE	KUGEL-VENTIL
WYE STRAINER	Y-ABSCHEIDER (SIEB)
SHUT-OFF VALVE	ABSPERR-HAHN (VENTIL)
12V OR 24V SOLENOID VALVE	12V ODER 24V-MAGNET-VENTIL
STANDARD COOLING LOOP	NORMALER KÜHLKREISLAUF

Clarke Battery P/N	Battery Model #	SAE # per J537	Engine Model Reference	Mfg.	Volts	Overall Dimensions L x W x H in(mm)	Weight lb (kg) Wet	Weight lb (kg) Dry	Performance Level Cold Cranking Amps @ 0 F (CCA) (3A)	Performance Level Cranking Amps @ 32 F (CA)	Performance Level Reserve Capacity (Minutes) (3B)	Performance Level Rating @ 80 F (Amp Hours) (3C)
C07633	908D - Dry	8D-900	All JU4H, JU4R, JU6H & JW6H	Deka	12V	20.75 x 11.0 x 10.0 (527 x 279 x 254)	130 (59.1)	80 (36.4)	1400	1700	430	185
			ALL JX6H, DP, DQ & DT		24V							

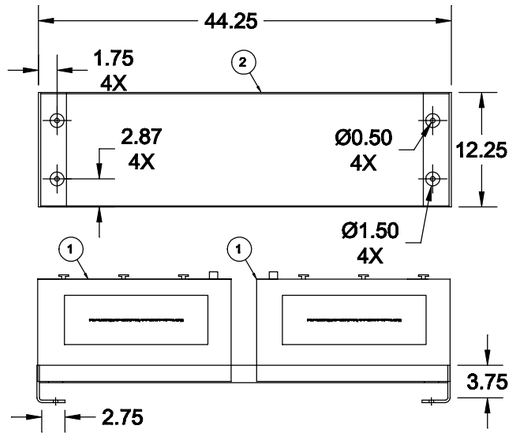
Note: All information provided per Deka Commerical Battery Link, http://www.eastpenn-deka.com/assets/base/0010.pdf





Post Connector Dimensions in(mm)			
POSITIVE		NEGATIVE	
DIA	H	DIA	H
3/4" (19.1 mm)	3/4" (19.1 mm)	5/8" (15.9 mm)	3/4" (19.1 mm)

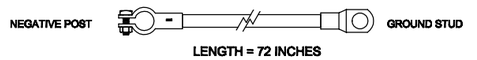
BATTERY RACK
ITEM # 2
CLARKE P/N:C07001



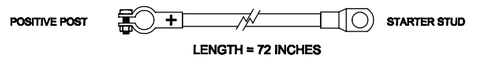
12 V & 24 V BATTERY CABLE SPECIFICATIONS

Item	Clarke P/N	Size AWG (mm²)	Terminal 1 Type	Terminal 2 Type	Terminal 2 Φ
3	C071171	2/0 (70)	Negative Post	Ring	1/2" (12 mm)
4	C071172	2/0 (70)	Positive Post	Ring	1/2" (12 mm)
5	C07631	2/0 (70)	Positive Post	Negative Post	

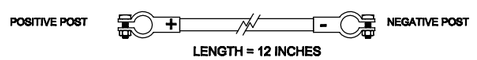
ITEM # 3 (CLARKE P/N: C071171)



ITEM # 4 (CLARKE P/N: C071172)



ITEM # 5 (CLARKE P/N: C07631)



Notes:

1. Batteries equipped with handles and lifting ledges.
2. Batteries are manufactured in black polypropylene case and cover.
3. Meets SAE storage battery requirements for SAE J537 JUN92.
   - 3A. While discharging specified amps, the battery voltage across the terminals after 30 seconds is 1.2 volts/cell or greater.
   - 3B. Time (minutes) to discharge battery at 25 amps when voltage across the battery terminals have fallen to 1.75 volts/cell.
   - 3C. Amp Hours = (reserve (minutes) x 25 amps)/60 min/hr
4. Battery should set into battery rack on 1/2" plywood (or equal) to provide insulation and support.
5. Battery meets NFPA 20 2010 requirements: At 40°F (4.5 °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 11.27.2.1.4). Batteries shall be sized on a calculated capacity of 72 hours of standby power followed by three 15-second cycles per battery unit, without ac power being available for battery charging (Section 11.2.7.1.5). Essential loads, including the engine, controller, and all pump equipment combined, shall not exceed 0.5 ampere each for a total of 1.5 amperes, on continuous basis (Section 11.2.7.2.3.2).
6. 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.
7. Batteries are shipped dry charged and without electrolyte (by others). See "Activation - Dry Charged Batteries."

Activation - Dry Charged Batteries:

1. Use premix battery grade electrolyte (Specific Gravity: 1.265) Each 908D battery will take approximately 18 qts (16.5 L) of electrolyte.
2. Remove the six vents caps for each battery.
3. With proper safety gear (eye protection, gloves, etc.) carefully fill each of the six cells to cover the plates and just below the vent well. **DO NOT OVERFILL!**
4. Re-install vent caps.
5. It is recommended that the battery chargers in fire pump controller are used for 1 day prior to putting batteries/engine in service.
6. After initial charge, check level of electrolyte in all cells. If required, add additional electrolyte to bring all levels to the bottom of the vent wells. **DO NOT OVERFILL!** If batteries require top-off while in service, add water. **DO NOT ADD ACID**.

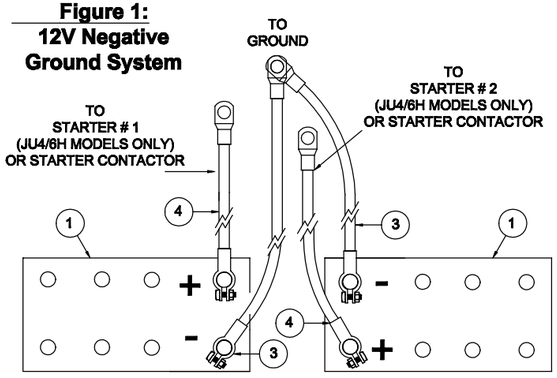
REV	DESCRIPTION	ECN#	DWN	APVD	DATE
F	OVERALL DRAWING REVISION	1920	JCA	KRW	31JUL10
G	ADDED ACTIVATION NOTE	2095	JCA	KJK	14OCT10
H	CORRECTED FIGURE 1 - WIRING	2146	JCA	KRW	30NOV10
J	ADDED DOOSAN ENGINE MODELS	2355	AMC	KRW	23SEP11

12V 908D BATTERY KIT, CLAKE P/N: C07844 (FIGURE 1)

Item	Clarke P/N	QTY	Description
1	C07633	2	Battery - 908D, Dry, 1400 CCA, 12V
2	C07001	1	Battery Rack
3	C071171	2	Battery Cable - Negative/Ground
4	C071172	2	Battery Cable - Positive/Starter

NOTE: CABLES NOT TO SCALE

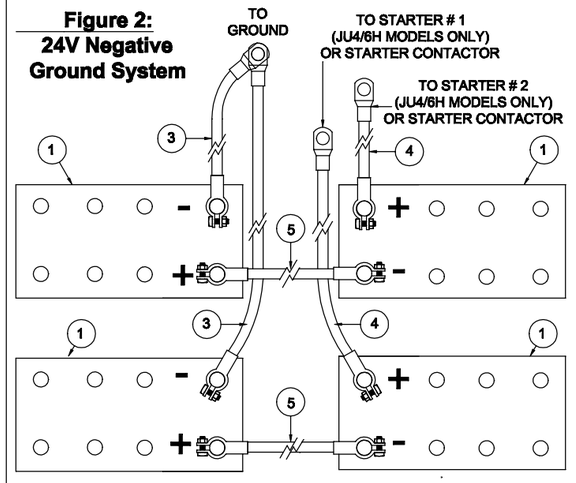
Figure 1: 12V Negative Ground System



24V 908D BATTERY KIT, CLAKE P/N: C07688 (FIGURE 2)

Item	Clarke P/N	QTY	Description
1	C07633	4	Battery - 908D, Dry, 1400 CCA 12V
2	C07001	2	Battery Rack
3	C071171	2	Battery Cable - Negative/Ground
4	C071172	2	Battery Cable - Positive/Starter
5	C07631	2	Battery Cable - Negative to Postive

Figure 2: 24V Negative Ground System



MACHINE TOLERANCES

DECIMAL	mm	Inch
X.	±1.0	
.XX	±0.8	±0.03
.XXX	±0.3	±0.05
.XXXX	±0.025	±0.01
.XXXXX		±0.001

ANGULAR: ±0.5°

FABRICATION TOLERANCES

DECIMAL	mm	Inch
X.	±3	
.XX	±1.5	±0.12
.XXX		±0.06

ANGULAR: ±1.0°

CONTROLLED DRAWING (YES / NO)

DRWN	JAUGENSTEIN
DATE	31JUL10
ENGR	KWAULIGMAN

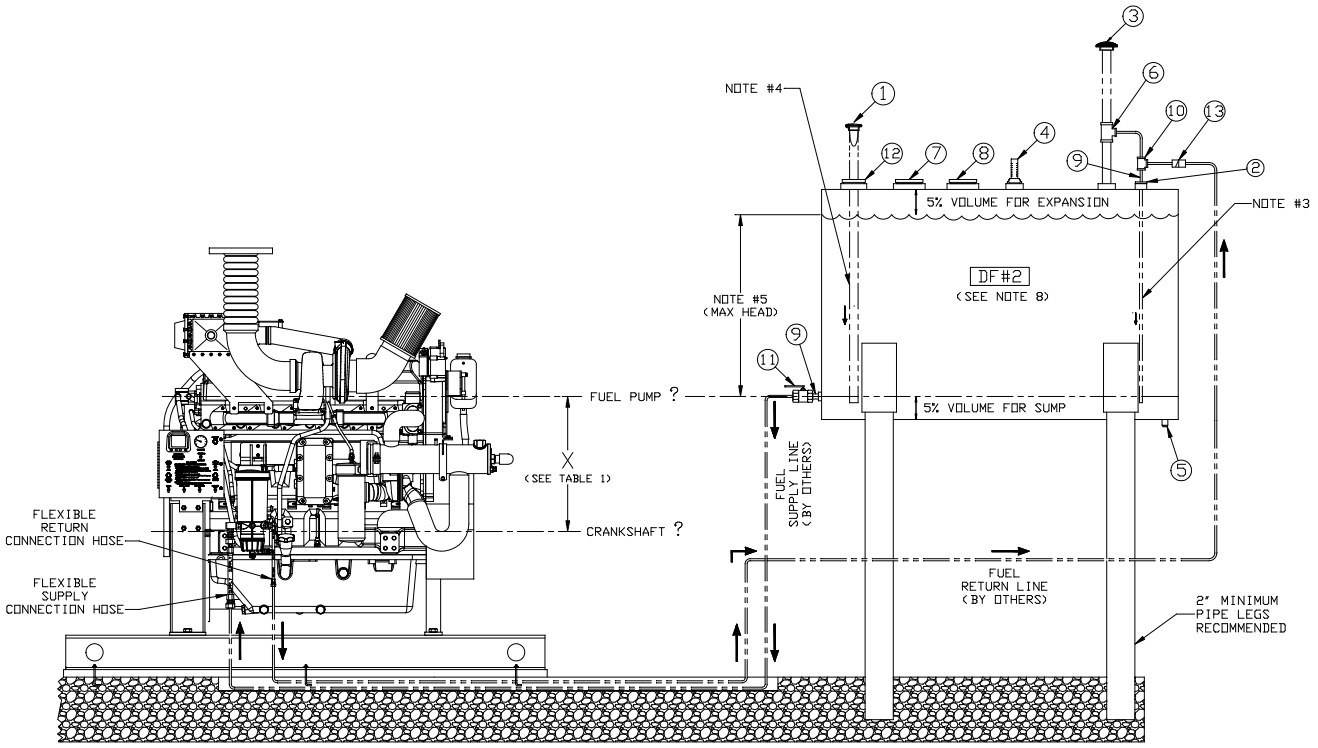
CLARKE
Fire Protection Products, Inc.

NAME: CLARKE USA SUPPLIED LEAD-ACID BATTERY KIT SPECIFICATIONS: ALL UL/FM NFPA20 ENGINE MODELS

PART NO. C131885 REV J

UNITS MM [INCH]

PAGE 1 OF 1



JX6H SHOWN
WITH SINGLE WALL FUEL TANK

TABLE 1	
ENGINE MODEL	X
JU4H	14.33" [364.0]
JU6H	14.33" [364.0]
JW6H	8.52" [216.4]
JX6H	23.50" [597.0]

TABLE 2		
ENGINE MODEL	MINIMUM FUEL SUPPLY SIZE IN [MM]	MINIMUM FUEL RETURN SIZE IN [MM]
JU4H	1/2"	3/8"
JU6H	1/2"	3/8"
JW6H	1/2"	3/8"
JX6H	3/4"	1/2"

- TYPICAL -

REV	DESCRIPTION	ECN#	DWN	APVD	DATE
A	ISSUED ENGINEERING DRAWING	1022	JJW	KRW	28NOV06
B	REVISED FOR CLARITY	1022	MWL		10JAN07
C	ADDED TABLE 2	1022	MWL	KRW	08JUN07

NOTES:

1. REFER TO THE LATEST EDITION OF NFPA 20 FOR ADDITIONAL REQUIREMENTS. ALSO, INSTALL TANK IN ACCORDANCE WITH THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION
2. FUEL SUPPLY TANK SHALL HAVE A CAPACITY AT LEAST EQUAL TO 1 GAL PER HP (5.07L PER kW), PLUS 5 PERCENT VOLUME FOR EXPANSION AND 5 PERCENT VOLUME FOR SUMP
3. DOWNPIPE RECOMMENDED FOR FUEL RETURN LINE TO PREVENT FOAMING INSIDE TANK. TERMINATE 3"-6"[76.2mm-152.4mm] FROM TANK BOTTOM
4. DOWNPIPE RECOMMENDED FOR FUEL LINE TO PREVENT FOAMING INSIDE TANK. TERMINATE 3"-6"[76.2mm-152.4mm] FROM TANK BOTTOM
5. THE ENGINE MANUFACTURER'S FUEL PUMP STATIC HEAD PRESSURE LIMITS SHALL NOT BE EXCEEDED WHEN THE LEVEL OF FUEL IN THE TANK IS AT A MAXIMUM
6. FUEL PIPING SHALL NOT BE GALVANIZED STEEL OR COPPER
7. THE FUEL SUPPLY TANK AND FUEL SHALL BE RESERVED EXCLUSIVLY FOR THE FIRE PUMP DIESEL ENGINE
8. THE FUEL RETURN LINE SHALL BE INSTALLED ACCORDING TO THE ENGINE MANUFACTURER'S RECOMMENDATION. IN ZONES WHERE FREEZING TEMPERATURES [32°F (0°C)] COULD BE ENCOUNTERED, THE FUEL TANK SHALL BE LOCATED IN THE PUMP ROOM
9. IN AREAS WHERE LOCAL AIR QUALITY MANAGEMENT REGULATIONS ONLY ALLOW THE USE OF DF#1 FUEL, AND NO DIESEL FIRE PUMP DRIVER IS AVAILABLE LISTED FOR USE WITH DF#1 FUEL, AN ENGINE LISTED FOR DF#2 SHALL BE PERMITTED TO BE USED BUT SHALL HAVE THE NAMEPLATE RATED HORSEPOWER DERATED 10 PERCENT, PROVIDED THE ENGINE MANUFACTURER APPROVES THE USE OF DF#1 FUEL
10. THE GRADE OF THE FUEL OIL SHALL BE INDICATED ON THE FUEL TANK BY LETTERS THAT ARE A MINIMUM OF 6" (152mm) IN HEIGHT AND IN CONTRASTING COLOR TO THE TANK
11. CONSULT ENGINE MANUFACTURE'S INSTALLATION AND OPERATION DATA SHEET FOR THE SPECIFIC ENGINE MODEL TO DETERMINE MINIMUM FUEL SUPPLY AND RETURN PIPE DIAMETERS.

ITEM	QTY.	DESCRIPTION (ALL FITTINGS BY OTHERS)
1	1	2" FILL CAP- WITH PROVISION FOR PADLOCK, COMBINED WITH REMOVABLE STRAINER (MAX. .06 MESH)
2	1	DOUBLE TAP BUSHING, 1" X .50"
3	1	VENT CAP, 1.25" NPT
4	1	DIRECT READING TANK GAUGE, 2" NPT
5	1	PIPE PLUG FOR DRAIN, 1" NPT
6	1	PIPE TEE, 1.25" x 1.25" x TABLE 2 (MIN. FUEL RETURN SIZE)
7	1	PIPE PLUG, 4" NPT (PROVISION FOR EMERGENCY RELEIF VENT)
8	1	PIPE PLUG, 2" NPT (PROVISION FOR LOW FUEL ALARM ACCESS)
9	1	PIPE NIPPLE, TABLE 2 (MIN. FUEL SUPPLY SIZE) x CLOSE
10	1	PIPE TEE, .50" x .50" x TABLE 2 (MIN. FUEL RETURN SIZE)
11	1	STOP COCK, TABLE 2 (MIN. FUEL SUPPLY SIZE) (WITH PROVISION FOR PADLOCK)
12	1	DOUBLE TAP BUSHING, 3" x 2"
13	1	CHECK VALVE, TABLE 2 (MIN. FUEL RETURN SIZE) (PREVENTS SIPHONING)

SIMILAR TO: ---

CLARKE
Fire Protection Products, Inc.

DRWN: JWOJTKIEWICZ
DATE: 28NOV06
ENGR: KRWAULIGMAN

NAME: FUEL TANK AND FUEL SUPPLY SCHEMATIC PER NFPA 20

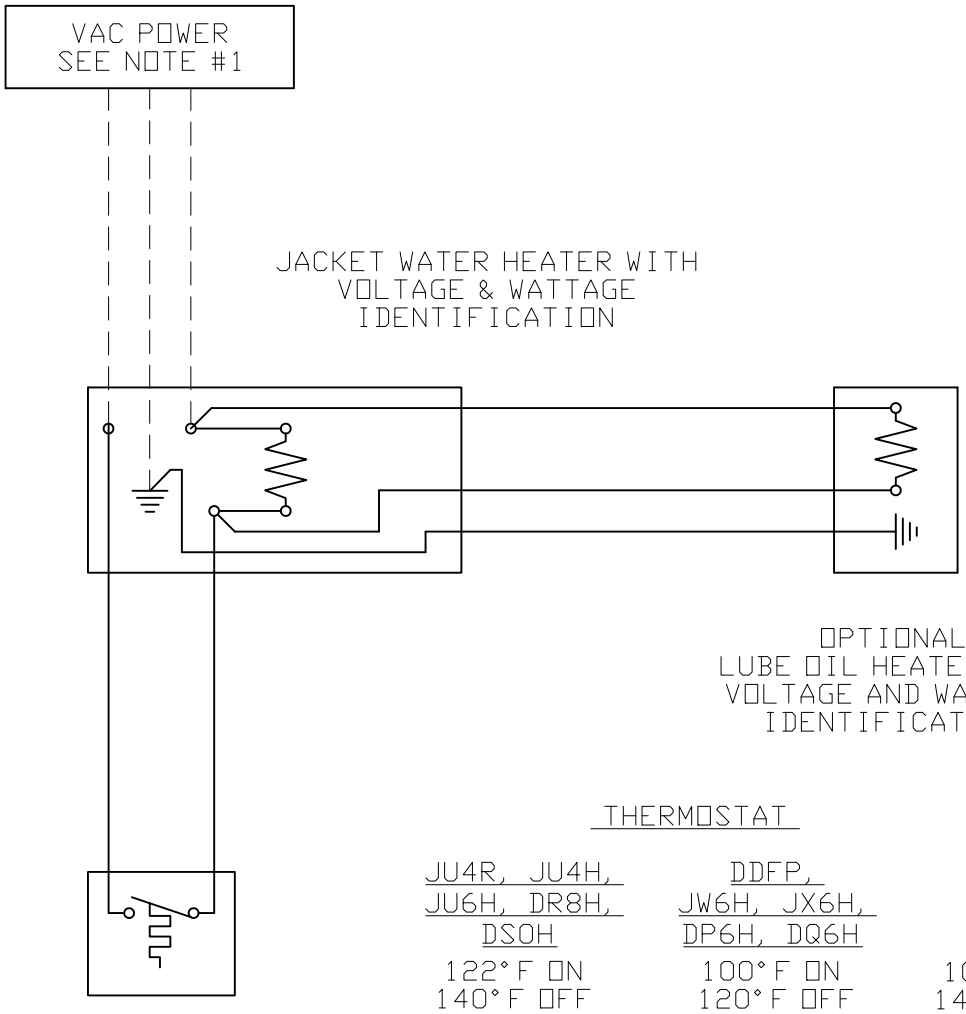
INSTALLATION TOLERANCE

DECIMAL	mm	DECIMAL	inch
.X	±12.0	.X	±0.50
.XX	±6.0	.XX	±0.25
ANGULAR	±.5°	ANGULAR	±.5°

DWG. NO. C132026 REV C

SCALE: NTS UNITS: INCH [MM] PAGE 1 OF 1

C07651 REV G



THERMOSTAT

JU4R, JU4H, JU6H, DR8H, DSOH	DDFP, JW6H, JX6H, DP6H, DQ6H	VMFP
122° F ON 140° F OFF	100° F ON 120° F OFF	100° F ON 140° F OFF

NOTE 1. VARIFY HEATER VOLTAGE PRIOR TO CONNECTING TO POWER SOURCE, VERIFY SUPPLY CIRCUIT HAS ADEQUATE AMPERAGE FOR J. W. HEATER AND LUBE OIL HEATER WHEN PROVIDED.

2. ---- WIRING SUPPLIED BY OTHERS

CONTROLLED DRAWING

This is a registered part with FM/UL for use on an approved/ listed fire pump driver. No substitutions are allowed. Consult engineering prior to and regarding any change.

SYM	REVISION	ECN#	DRWN	APVD	DATE
G	ADDED JU4R, JU4H, JU6H, DR8H, & DSOH TO THERMOSTAT DATA	2204	MJD	MJD	03FEB12
F	ADDED DP6H / DQ6H TO THERMOSTAT DATA	1669	MJD	MJD	25JAN11
E	REMOVED JDFP AND ADDED JW/JX6H TO THERMOSTAT DATA	772	SK		18JUL05

UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:

USAGE:

DWN DMPOTTER
DATE 15DEC95
ENGR JTWHITNEY
CHK

CLARKE
DETROIT DIESEL-ALLISON
3133 EAST KEMPER ROAD, CINCINNATI, OHIO 45241

NAME
WIRING DIAGRAM
J. W. HEATER-115/230VAC

SIZE	PART NO.	REV
A	C07651	G

INSP	SERIES CODE	SCALE	UNITS	SHEET
Y	MP	NONE	NONE	1 OF 1

English Text

WIRING DIAGRAM
J.W. HEATER 115/230VAC

Notes:

1. VERIFY HEATER VOLTAGE PRIOR TO CONNECTING TO POWER SOURCE, VARIFY SUPPLY CIRCUIT HAS ADEQUATE AMPERAGE FOR J.W. HEATER AND LUBE OIL HEATER WHEN PROVIDED.
2. - - - - WIRING SUPPLIED BY OTHERS

DDFP
JDFP
VMFP
ON
OFF
VAC POWER
SEE NOTE #1
JACKET WATER HEATER WITH VOLTAGE & WATTAGE IDENTIFICATION
OPTIONAL
LUBE OIL HEATER WITH VOLTAGE AND WATTAGE IDENTIFICATION
THERMOSTAT

Texte en français canadien

SCHÉMA DE CÂBLAGE
CHAUFFE-EAU RADIATEUR 115/230V c.a.

Remarques :

1. VÉRIFIEZ LA TENSION DU RADIATEUR AVANT DE LE RELIER À L'ALIMENTATION ÉLECTRIQUE, VÉRIFIER QUE LE CIRCUIT D'ALIMENTATION A UNE CAPACITÉ SUFFISANTE POUR LE CHAUFFE-EAU RADIATEUR ET LE RÉCHAUFFEUR D'HUILE DE LUBRIFICATION, LE CAS ÉCHÉANT.
2. - - - - CÂBLÂGE FOURNI PAR D'AUTRES

DDFP
JDFP
VMFP
MARCHE
ARRÊT
ALIMENTATION EN COURANT ALTERNATIF
VOIR REMARQUE N° 1
CHAUFFE-EAU RADIATEUR AVEC IDENTIFICATION DE TENSION ET DE PUISSANCE
EN OPTION
RÉCHAUFFEUR D'HUILE DE LUBRIFICATION AVEC IDENTIFICATION DE TENSION ET DE PUISSANCE
THERMOSTAT

C131053 revA

Clarke Verspannung Diagramm C07651
Englisch zu Deutsch Übersetzung

English Text

WIRING DIAGRAM
J.W. HEATER 115/230VAC

Notes:

1. VARIFY HEATER VOLTAGE PRIOR TO CONNECTING TO POWER SOURCE, VARIFY SUPPLY CIRCUIT HAS ADEQUATE AMPERAGE FOR J.W. HEATER AND LUBE OIL HEATER WHEN PROVIDED.
2. - - - - WIRING SUPPLIED BY OTHERS

DDFP
JDFP
VMFP
ON
OFF
VAC POWER
SEE NOTE #1
JACKET WATER HEATER WITH VOLTAGE & WATTAGE IDENTIFICATION
OPTIONAL
LUBE OIL HEAER WITH VOLTAGE AND WATTAGE IDENTIFICATION
THERMOSTAT

Clarke Verspannung Diagramm C07651
Englisch zu Deutsch Übersetzung

German Text

SCHALTPLAN
MANTEL-WASSERERHITZER 115/230VAC

Anmerkungen:

1. ERHITZERSPANNUNG VOR DEM ANSCHLUSS AN STROMQUELLE PRÜFEN, PRÜFEN, OB VERSORGUNGSSTROMKREIS DIE RICHTIGE STROMSTÄRKE FÜR DEN MANTELWASSERERHITZER UND SCHMIERÖLERHITZER (FALLS GELIEFERT)
2. SCHALTUNGEN WERDEN VON ANDEREN GELIEFERT.

DDFP (?)
JDFP (?)
VMFP (?)
AN
AUS
VAC LEISTUNG
SIEHE ANMERKUNG #1
MANTELWASSERERHITZER MIT SPANNUNGS- UND WATTLEISTUNGSKENNZEICHNUNG
OPTIONAL
SCHMIERÖLERHITZER MIT SPANNUNGS- UND WATTLEISTUNGSKENNZEICHNUNG
THERMOSTAT

Clarke Wiring Diagram C07651
English to Spanish Translator

English Text

WIRING DIAGRAM
J.W. HEATER 115/230VAC

Notes:

1. VARIFY HEATER VOLTAGE PRIOR TO CONNECTING TO POWER SOURCE, VARIFY SUPPLY CIRCUIT HAS ADEQUATE AMPERAGE FOR J.W. HEATER AND LUBE OIL HEATER WHEN PROVIDED.
2. - - - - WIRING SUPPLIED BY OTHERS

DDFP
JDFP
VMFP
ON
OFF
VAC POWER
SEE NOTE #1
JACKET WATER HEATER WITH VOLTAGE & WATTAGE IDENTIFICATION
OPTIONAL
LUBE OIL HEAER WITH VOLTAGE AND WATTAGE IDENTIFICATION
THERMOSTAT

Diagrama de Cableado C07651 de Clarke
Traductor del Inglés al Español

Texto en Español

DIAGRAMA DE CABLEADO
CALENTADOR J.W. 115/230VAC

Notas:

1. VERIFIQUE EL VOLTAJE DEL CALENTADOR ANTES DE CONECTAR A LA FUENTE DE POTENCIA, VERIFIQUE QUE EL CIRCUITO DE ALIMENTACIÓN TENGA EL AMPERAJE ADECUADO PARA EL CALENTADOR J.W. ASÍ COMO EL CALENTADOR DE ACEITE LUBRICANTE CUANDO SE TENGA INSTALADO.
2. ----CABLEADO SUMINISTRADO POR OTROS

DDFP
JDFP
VMFP
ACTIVADO
DESACTIVADO
POTENCIA VAC
CONSULTE LA NOTA #1
CALENTADOR DE AGUA DE LA CHAQUETA CON VOLTAJE E IDENTIFICACIÓN DE VOLTAJE
OPCIONAL
CALENTADOR DE ACEITE LUBRICANTE CON IDENTIFICACIÓN DE VOLTAJE Y WATTAJE
TERMOSTATO

Clarke Verspannung Diagramm C07651
Englisch zu Deutsch Übersetzung

English Text

WIRING DIAGRAM
J.W. HEATER 115/230VAC

Notes:

1. VARIFY HEATER VOLTAGE PRIOR TO CONNECTING TO POWER SOURCE, VARIFY SUPPLY CIRCUIT HAS ADEQUATE AMPERAGE FOR J.W. HEATER AND LUBE OIL HEATER WHEN PROVIDED.
2. - - - - WIRING SUPPLIED BY OTHERS

DDFP
JDFP
VMFP
ON
OFF
VAC POWER
SEE NOTE #1
JACKET WATER HEATER WITH VOLTAGE & WATTAGE IDENTIFICATION
OPTIONAL
LUBE OIL HEAER WITH VOLTAGE AND WATTAGE IDENTIFICATION
THERMOSTAT

Clarke Verspannung Diagramm C07651
Englisch zu Deutsch Übersetzung

German Text

SCHALTPLAN
MANTEL-WASSERERHITZER 115/230VAC

Anmerkungen:

1. ERHITZERSPANNUNG VOR DEM ANSCHLUSS AN STROMQUELLE PRÜFEN, PRÜFEN, OB VERSORGUNGSSTROMKREIS DIE RICHTIGE STROMSTÄRKE FÜR DEN MANTELWASSERERHITZER UND SCHMIERÖLERHITZER (FALLS GELIEFERT)
2. SCHALTUNGEN WERDEN VON ANDEREN GELIEFERT.

DDFP (?)
JDFP (?)
VMFP (?)
AN
AUS
VAC LEISTUNG
SIEHE ANMERKUNG #1
MANTELWASSERERHITZER MIT SPANNUNGS- UND WATTLEISTUNGSKENNZEICHNUNG
OPTIONAL
SCHMIERÖLERHITZER MIT SPANNUNGS- UND WATTLEISTUNGSKENNZEICHNUNG
THERMOSTAT

REV	DESCRIPTION	ECN#	DWN	APVD	DATE
A	ISSUED ENGINEERING DRAWING	2992	MJD	MJD	11NOV13

LEGEND

AB - ALTERNATOR BRIDGE
AL - ALTERNATOR
AM - AUTOMATIC MODE POSITION
B1 - BATTERY #1
B2 - BATTERY #2
BB1 - BATTERY BRIDGE #1
BB2 - BATTERY BRIDGE #2
BES - BUMP ENABLE SWITCH
BSS - SPEED BUMP SWITCH
BI - BATTERY ISOLATOR
CS1 - CRANK (MANUAL) SWITCH - BATT #1
CS2 - CRANK (MANUAL) SWITCH - BATT #2
CB - COOLANT BRIDGE
CDD - CRANK DISCONNECT DIODE
DIA - DIAGNOSTIC GAUGE
DIGB - DIAGNOSTIC GAUGE DIODE BRIDGE
DIGDS - DIAGNOSTIC GAUGE DISPLAY SWITCH
EBL - ALTERNATE ECU INDICATING LAMP
ERSDB - ENGINE RUN SIGNAL DIODE BRIDGE
ESS - ECU SELECTOR SWITCH
LOPVS - LOW OIL PRESSURE VERIFY SWITCH
MDS - MODE SELECTOR SWITCH
MM - MANUAL MODE POSITION
MML - MANUAL MODE INDICATING LAMP
MP - MAGNETIC PICK-UP
MSS - MANUAL STOP SWITCH
OCB - OVER-CURRENT BREAKER
OVRS - OVERSPEED VERIFY @ 67% RESET SWITCH
SC1 - STARTER CONTACTOR BATT#1
SC2 - STARTER CONTACTOR BATT#2
SCB - SOLENOID CONTROL BOARD
SCBB - SOLENOID CONTROL BOARD DIODE
ST - STARTER
TCS - TEMPERATURE CONTROL SOLENOID
THR - SCB THERMISTOR (COMPRESSOR INLET)
TVS - TEMPERATURE ALARM VERIFY SWITCH
VBS - BATTERY VOLTAGE SELECTOR
VMG - VOLTMETER GAUGE
WS - WATER SOLENOID VALVE
WT - WATER TEMPERATURE N.O. SW 205°F

COLOR CODE

A - WHITE
B - RED
C - ORANGE
D - YELLOW
E - GREEN
F - GREEN
G - BLUE
G - BLUE
I - PINK
J - BLACK
K - BROWN
L - GRAY
M - PURPLE

INSTRUMENT PANEL

SWITCH PLATE

NOTE: SEE C071361 FOR ECU CONNECTION DIAGRAM

DUAL ECU SWITCHBOARD

BASE (BOARD for AUTO-SWITCHING ECUs)

PANEL DOOR

DISCHARGE SENSOR

SUCTION SENSOR

VSPLC

VSSLC

VSPLC / VSSLC / LOPP ALARMS CONNECTOR

DIAGNOSTIC CONNECTOR

POWER HARNESS CONNECTOR

FIRE PUMP CONTROLLER INTER-CONNECT

12 VOLT BATTERY / DUAL STARTER OPTION DETAIL

SEE NOTE 1

SEE NOTE 2

SEE NOTE 3

SEE NOTE 4

NOTES:
1) SOME MODELS HAVE A STARTER THAT IS INTERNALLY GROUNDED; FOR THOSE THE BATTERY NEGATIVE CABLE (GRD) SHOULD BE ATTACHED TO THE ENGINE BLOCK (ALL PAINT SHOULD BE REMOVED TO BARE METAL)

2) ONLY ON 4045 PTE ENGINES

3) NOT ON 6090 PTE ENGINES

4) SOME MODELS HAVE A STARTER THAT IS INTERNALLY GROUNDED; FOR THOSE THE BATTERY NEGATIVE CABLE (GRD) SHOULD BE ATTACHED TO THE ENGINE BLOCK (ALL PAINT SHOULD BE REMOVED TO BARE METAL)

FOR ENGINES BUILT AFTER AFTER NOVEMBER 2013

CONTROLLED DRAWING: YES / NO

CLARKE
Fire Protection Products, Inc.

DRWN	MJDEMBKOWSKI
DATE	01APR09
ENGR	KJKUNKLER
MATERIAL	
USED ON / LAYOUT PART NO.	

NAME: WIRING DIAGRAM, TIER 3 ELECTRONIC ENGINES WITH ECM AUTO-SWITCHING

PART NO. C072200 REV A

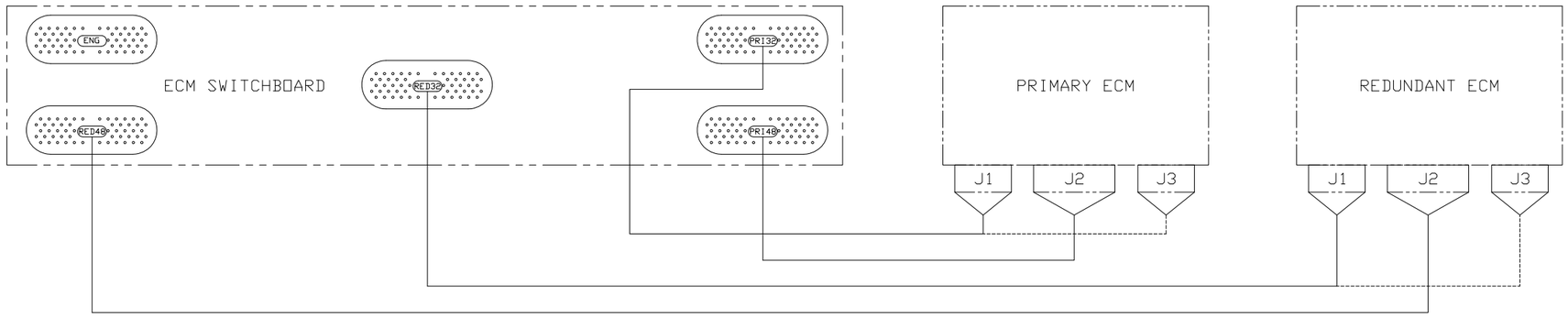
SCALE NTS | UNITS MM [INCH] | PAGE 1 OF 1

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

REV	DESCRIPTION	ECN#	DWN	APVD	DATE
A	ISSUED DRAWING	572	KJK		02NOV08
B	CORRECTED ECM CONNECTION - WIRE#5023 (ZONE B8); REVISED ENGINE HARNESS P/N CHART	1612	MJD		06APR09
C	PRI48 & RED48 TO ECU J2: WIRE 5473 WAS 'STOP ENGINE LAMP'. ADDED WIRE 7919. UPDATED CLARKE ENGINE MODELS AND ADDED ECM PART NUMBERS AND LEVELS.	2134	MJD	MJD	05AUG11
D	PRI48 & RED48 TO ECU J2: REVISED DESCRIPTION AND PINOUT OF SWITCHBOARD CONNECTION OF WIRE 5439. DELETED WIRE 7101. ADDED SPLICE DETAIL	2992	MJD	MJD	12NOV13



PRI32 & RED32 TO ECU J1 & J3

6068PTE

WIRE NUMBER	WIRE COLOR	ECM CONNECTION - J1 (PRIMARY & ALTERNATE)	SWITCHBOARD CONNECTION (PRI32 & RED32)	DESCRIPTION
5497	Purple	J1-A1	7	Injector Low 5 (cyl 4)
5467	Purple	J1-A3	17	Oil Pressure
5445	Dk Green	J1-A4	14	Cam Speed
5494	Yellow	J1-B1	8	Injector Low 4 (cyl 2)
5453	Orange	J1-B2	36	Water-In-Fuel
5469	White	J1-B3	38	Fuel Pressure
5447	Purple	J1-B4	3	Crank Speed
5499	White	J1-C1	18	Injector Low 3 (cyl 6)
5463	Orange	J1-C2	25	Manifold Air Temperature
5023	Dk Green	J1-C3	52	Manifold Air Pressure
5461	Brown	J1-C4	4	Coolant Temperature
5495	Dk Green	J1-D1	9	Injector Low 2 (cyl 3)
5414	Yellow	Spliced together in J1-D2	13	Sensor Return 2
5444	Yellow		6	
5946	Lt Blue	J1-D3	29	Excitation Voltage 1
5448	Gray	J1-D4	35	Crank Speed Return
5493	Orange	J1-E1	31	Injector Low 0 (cyl 1)
5427	Purple	J1-E2	26	Sensor Return 1
5475	Dk Green	J1-E3	1	Rail Pressure
5443	Orange	J1-E4	43	Cam Speed Return
5498	Gray	J1-F1	10	Injector Low 1 (cyl 5)
5410	Black	J1-F2	51	Shield Drain
5415	Lt Blue	Spliced together in J1-F3	33	Excitation Voltage 2
5511	Brown		47	
5428	Gray	J1-F4	5	Fuel Temperature
5491	Brown	J1-G1	54	Inject High 0,1,2
5496	Lt Blue	J1-G2	21	Inject High 3,4,5
5424	Yellow	J1-H1	12	High Pressure Fuel Pump High Solenoid
5419	White	J1-H2	53	High Pressure Fuel Pump Low Solenoid

6090PTE

WIRE NUMBER	WIRE COLOR	ECM CONNECTION - J1 (PRIMARY & ALTERNATE)	SWITCHBOARD CONNECTION (PRI32 & RED32)	DESCRIPTION
5497	Purple	J1-A1	7	Injector Low 5 (cyl 4)
5494	Yellow	J1-B1	8	Injector Low 4 (cyl 2)
5417	Purple	J1-B3	28	Turbo Speed In Low
5435	Dk Green	J1-B4	50	Turbo Speed In High
5499	White	J1-C1	18	Injector Low 3 (cyl 6)
5458	Gray	J1-C3	23	Low Pressure Fuel Pump Current Out
5495	Dk Green	J1-D1	9	Injector Low 2 (cyl 3)
5457	Purple	J1-D2	24	Low Pressure Fuel Pump Speed CMD
5410	Black	J1-D3	51	Shield Drain
5486	Lt Blue	J1-D4	39	Source Drv 6 LPFP Power On
5493	Orange	J1-E1	31	Injector Low 0 (cyl 1)
5434	Yellow	J1-E2	48	Low Pressure Fuel Pump Status
5498	Gray	J1-F1	10	Injector Low 1 (cyl 5)
5429	White	J1-F4	42	Source Drv 10 Cold Start Aid
5491	Brown	J1-G1	54	Inject High 0,1,2
5496	Lt Blue	J1-G2	21	Inject High 3,4,5
5424	Yellow	J1-H1	12	High Pressure Fuel Pump High Solenoid
5419	White	J1-H2	53	High Pressure Fuel Pump Low Solenoid
5449B	White	J1-H3	Spliced together then go to pin 22	VTG power
5449A	White	J1-H4	Spliced together then go to pin 22	
5511	Brown	J3-A2	47	Excitation #5 +
5444	Yellow	J3-A3	6	Excitation #5 -
5428	Gray	J3-B1	5	Fuel Temperature
5474	Yellow	J3-B2	27	DeltaTemp Return
5475	Dk Green	J3-C1	1	Rail Pressure
5469	White	J3-C2	38	Fuel Pressure
5467	Purple	J3-C3	17	Oil Pressure
5453	Orange	J3-D2	36	Water-In-Fuel
5461	Brown	J3-D3	4	Coolant Temperature
5023	Orange	J3-D4	52	Rail Pressure
5463	Orange	J3-E2	25	EGR Exhaust Temperature
5433	Orange	J3-E4	45	VGT Communications
5456	Lt Blue	J3-F1	44	EGR Mixed Temperature
5455	Dk Green	J3-F2	15	EGR Fresh Air Temperature
5448	Gray	J3-F3	35	Crank Speed Return
5447	Purple	J3-F4	3	Crank Speed
5946	Lt Blue	J3-G1	29	Excitation Voltage 1
5427	Purple	J3-G2	26	Sensor Return 1
5443	Orange	J3-G3	43	Cam Speed Return
5445	Dk Green	J3-G4	14	Cam Speed
5414	Yellow	J3-H3	13	Sensor Return 2
5416	Lt Blue	J3-H4	33	Excitation Voltage 2

6135PTP

WIRE NUMBER	WIRE COLOR	ECM CONNECTION - J1 (PRIMARY & ALTERNATE)	SWITCHBOARD CONNECTION (PRI32 & RED32)	DESCRIPTION
5497	Purple	J1-A1	7	Injector Low 5 (cyl 4)
5494	Yellow	J1-B1	8	Injector Low 4 (cyl 2)
5417	Purple	J1-B3	28	Turbo Speed In Low
5435	Dk Green	J1-B4	50	Turbo Speed In High
5499	White	J1-C1	18	Injector Low 3 (cyl 6)
5503	Brown	J1-C4	52	H-Bridge 3 +
5495	Dk Green	J1-D1	9	Injector Low 2 (cyl 3)
5410	Black	J1-D3	51	Shield drain
5486	Orange	J1-D4	39	H-Bridge 3 -
5493	Orange	J1-E1	31	Injector Low 0 (cyl 1)
5498	Gray	J1-F1	10	Injector Low 1 (cyl 5)
5491	Brown	J1-G1	54	Inject High 0,1,2
5496	Lt Blue	J1-G2	21	Inject High 3,4,5
5421	Brown	J1-G3	41	EGR Valve High Driver
5423	Orange	J1-G4	11	EGR Valve Low Driver
5449B	White	J1-H3	Spliced together then go to pin 22	VTG power
5449A	White	J1-H4	Spliced together then go to pin 22	
5511	Brown	J3-A2	47	Excitation #5 +
5444	Yellow	J3-A3	6	Excitation #5 -
5425	Dk Green	J3-A4	48	EGR Valve Position #1
5428	Gray	J3-B1	5	Fuel Temperature
5474	Yellow	J3-B2	27	DeltaTemp Return
5515	Dk Green	J3-B4	24	EGR Valve Position #2
5469	White	J3-C2	38	Fuel Pressure
5467	Purple	J3-C3	17	Oil Pressure
5468	Gray	J3-C4	37	Manifold Air Pressure
5516	Lt Blue	J3-D1	16	Compressor Inlet Temp
5453	Orange	J3-D2	36	Water-In-Fuel
5461	Brown	J3-D3	4	Coolant Temperature
5463	Orange	J3-E2	25	EGR Exhaust Temperature
5433	Orange	J3-E4	45	VGT Communications
5456	Lt Blue	J3-F1	44	EGR Mixed Temperature
5455	Dk Green	J3-F2	15	EGR Fresh Air Temperature
5448	Gray	J3-F3	35	Crank Speed Return
5447	Purple	J3-F4	3	Crank Speed
5946	Lt Blue	J3-G1	29	Excitation Voltage 1
5427	Purple	J3-G2	26	Sensor Return 1
5443	Orange	J3-G3	43	Cam Speed Return
5445	Dk Green	J3-G4	14	Cam Speed
5414	Yellow	J3-H3	13	Sensor Return 2
5416	Lt Blue	J3-H4	33	Excitation Voltage 2

6068PTP

WIRE NUMBER	WIRE COLOR	ECM CONNECTION - J1 (PRIMARY & ALTERNATE)	SWITCHBOARD CONNECTION (PRI32 & RED32)	DESCRIPTION
5497	Purple	J1-A1	7	Injector Low 5 (cyl 4)
5494	Yellow	J1-B1	8	Injector Low 4 (cyl 2)
5417	Purple	J1-B3	28	Turbo Speed In Low
5435	Dk Green	J1-B4	50	Turbo Speed In High
5499	White	J1-C1	18	Injector Low 3 (cyl 6)
5495	Dk Green	J1-D1	9	Injector Low 2 (cyl 3)
5410	Black	J1-D3	51	Shield Drain
5493	Orange	J1-E1	31	Injector Low 0 (cyl 1)
5498	Gray	J1-F1	10	Injector Low 1 (cyl 5)
5491	Brown	J1-G1	54	Inject High 0,1,2
5496	Lt Blue	J1-G2	21	Inject High 3,4,5
5421	Brown	J1-G3	41	EGR Valve High Driver
5424	Yellow	J1-H1	12	High Pressure Fuel Pump High Solenoid
5419	White	J1-H2	53	High Pressure Fuel Pump Low Solenoid
5449B	White	J1-H3	Spliced together then go to pin 22	VTG power
5449A	White	J1-H4	Spliced together then go to pin 22	
5511	Brown	J3-A2	47	Excitation #5 +
5444	Yellow	J3-A3	6	Excitation #5 -
5425	Dk Green	J3-A4	34	EGR Valve Position
5428	Gray	J3-B1	5	Fuel Temperature
5474	Yellow	J3-B2	27	DeltaTemp Return
5475	Dk Green	J3-C1	1	Rail Pressure
5469	White	J3-C2	38	Fuel Pressure
5467	Purple	J3-C3	17	Oil Pressure
5468	Gray	J3-C4	37	Manifold Air Pressure
5516	Lt Blue	J3-D1	16	Compressor Inlet Temp
5453	Orange	J3-D2	36	Water-In-Fuel
5461	Brown	J3-D3	4	Coolant Temperature
5023	Orange	J3-D4	52	Rail Pressure
5463	Orange	J3-E2	25	EGR Exhaust Temperature
5433	Orange	J3-E4	45	VGT Communications
5456	Lt Blue	J3-F1	44	EGR Mixed Temperature
5455	Dk Green	J3-F2	15	EGR Fresh Air Temperature
5448	Gray	J3-F3	35	Crank Speed Return
5447	Purple	J3-F4	3	Crank Speed
5946	Lt Blue	J3-G1	29	Excitation Voltage 1
5427	Purple	J3-G2	26	Sensor Return 1
5443	Orange	J3-G3	43	Cam Speed Return
5445	Dk Green	J3-G4	14	Cam Speed
5414	Yellow	J3-H3	13	Sensor Return 2
5416	Lt Blue	J3-H4	33	Excitation Voltage 2

60908PTP

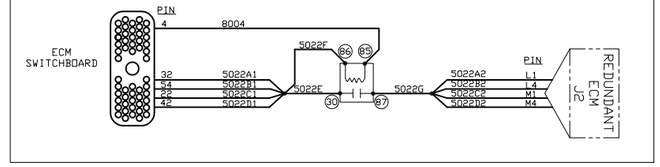
WIRE NUMBER	WIRE COLOR	ECM CONNECTION - J1 (PRIMARY & ALTERNATE)	SWITCHBOARD CONNECTION (PRI32 & RED32)	DESCRIPTION
5497	Purple	J1-A1	7	Injector Low 5 (cyl 4)
5494	Yellow	J1-B1	8	Injector Low 4 (cyl 2)
5417	Purple	J1-B3	28	Turbo Speed In Low
5435	Dk Green	J1-B4	50	Turbo Speed In High
5499	White	J1-C1	18	Injector Low 3 (cyl 6)
5458	Gray	J1-C3	23	Low Pressure Fuel Pump Current Out
5495	Dk Green	J1-D1	9	Injector Low 2 (cyl 3)
5457	Purple	J1-D2	24	Low Pressure Fuel Pump Speed CMD
5410	Black	J1-D3	51	Shield Drain
5486	Lt Blue	J1-D4	39	Source Drv 6 LPFP Power On
5493	Orange	J1-E1	31	Injector Low 0 (cyl 1)
5434	Yellow	J1-E2	48	Low Pressure Fuel Pump Status
5498	Gray	J1-F1	10	Injector Low 1 (cyl 5)
5429	White	J1-F4	42	Source Drv 10 Cold Start Aid
5491	Brown	J1-G1	54	Inject High 0,1,2
5496	Lt Blue	J1-G2	21	Inject High 3,4,5
5424	Yellow	J1-H1	12	High Pressure Fuel Pump High Solenoid
5419	White	J1-H2	53	High Pressure Fuel Pump Low Solenoid
5449B	White	J1-H3	Spliced together then go to pin 22	VTG power
5449A	White	J1-H4	Spliced together then go to pin 22	
5511	Brown	J3-A2	47	Excitation #5 +
5444	Yellow	J3-A3	6	Excitation #5 -
5425	Dk Green	J3-A4	34	EGR Valve Position
5428	Gray	J3-B1	5	Fuel Temperature
5474	Yellow	J3-B2	27	DeltaTemp Return
5475	Dk Green	J3-C1	1	Rail Pressure
5469	White	J3-C2	38	Fuel Pressure
5467	Purple	J3-C3	17	Oil Pressure
5468	Gray	J3-C4	37	Manifold Air Pressure
5516	Lt Blue	J3-D1	16	Compressor Inlet Temp
5453	Orange	J3-D2	36	Water-In-Fuel
5461	Brown	J3-D3	4	Coolant Temperature
5023	Orange	J3-D4	52	Rail Pressure
5463	Orange	J3-E2	25	EGR Exhaust Temperature
5433	Orange	J3-E4	45	VGT Communications
5456	Lt Blue	J3-F1	44	EGR Mixed Temperature
5455	Dk Green	J3-F2	15	EGR Fresh Air Temperature
5448	Gray	J3-F3	35	Crank Speed Return
5447	Purple	J3-F4	3	Crank Speed
5946	Lt Blue	J3-G1	29	Excitation Voltage 1
5427	Purple	J3-G2	26	Sensor Return 1
5443	Orange	J3-G3	43	Cam Speed Return
5445	Dk Green	J3-G4	14	Cam Speed
5414	Yellow	J3-H3	13	Sensor Return 2
5416	Lt Blue	J3-H4	33	Excitation Voltage 2

PRI48 & RED48 TO ECU J2

ALL

WIRE NUMBER	WIRE COLOR	ECM CONNECTION - J2 (PRIMARY & REDUNDANT	SWITCHBOARD CONNECTION (PRI48 & RED48)	DESCRIPTION
5904	Yellow	J2-A1	13	SAE J1939 High
5616	Lt Blue	J2-A3	33	Excitation #3 +
5905	Dk Green	J2-B1	1	SAE J1939 Low
5012	Red	J2-B2	23	Switched Battery(Key Switch)
5916	Lt Blue	J2-C1	50	Warning Lamp
7005	Lt Blue	J2-C2	8	High Coolant Temperature Alarm
5814	Yellow	J2-C3	24	Excitation 3 -
7102	White	J2-C4	44	Analog 26 - Discharge Pressure Transducer
5439	White	J2-D1	34	ECM Heartbeat
5473	Orange	J2-D2	51	Low Coolant Temperature Alarm
5436	Lt Blue	J2-D3	37	Analog 12 Air Filter Restriction Switch
5955	Dk Green	J2-D4	26	Bump Up
5943	Orange	J2-E1	20	Switch In 2 - Full Throttle - Grounded
5918	Gray	J2-E3	46	Override Shutdown
5923	Orange	J2-E4	16	Bump Enable
5936	Lt Blue	J2-F1	27	Bump Down
5954	Yellow	J2-F2	40	Switch In 1 - Full Throttle - Grounded
7103	Dk Green	J2-F4	43	Analog 21 - Suction Pressure Transducer
5948	Gray	J2-G4	47	Analog 23 - Loss of coolant switch
5939	White	J2-J1	17	Switch In 3 - Overspeed Verify Enable Input
7919	Brown	J2-J2	10	Low Coolant Temperature Test Switch Input
7002	Brown	J2-J4	38	1000 rpm (Source Driver 1)
5941	Brown	J2-K1	36	External Shutdown
5020	Black	J2-K2	5	CAN Shield
7003	Lt Blue	J2-K4	28	Source Drv 2 - Overspeed Alarm
5022A	Red	J2-L1	32	Unswitched Battery
5050A	Black	J2-L2	11	System Ground
5050B	Black	J2-L3	31	System Ground
5022B	Red	J2-L4	54	Unswitched Battery
5022C	Red	J2-M1	22	Unswitched Battery
5050C	Black	J2-M2	53	System Ground
7004	Orange	J2-M3	18	Source Drv 3 - Low Oil Pressure Alarm
5022D	Red	J2-M4	42	Unswitched Battery

SPLICE DETAIL-REDUNDANT ECM J2 HARNESS (RED48)



JOHN DEERE DESIGNATION	ENG (ENGINE HARNESS) - SEE THE FOLLOWING FOR ENGINE HARNESS DIAGRAM CLARKE ENGINE MODELS	WIRING DIAGRAM P/N	ECM P/N	ECM LEVEL
4045PTE	JU4H-UFADW8, JU4H-UFADY8, JU4H-UFAD98, JU4H-UFAD4G, JU4H-UFAD5G, JU4H-UFADPO JU4H-UFADRO, JU4H-UFADJG	C071367	RE526588	L16
6068PTE	JU6H-UFADKO, JU6H-UFADNO, JU6H-UFAD88, JU6H-UFAD58, JU6H-UFADNG, JU6H-UFADP8 JU6H-UFADM8, JU6H-UFADMG	C071367		
6068PTP	JU6H-UFADTO, JU6H-UFAD98, JU6H-UFADPO, JU6H-UFADQO, JU6H-UFADRO, JU6H-UFADR8, JU6H-UFADS8, JU6H-UFADW8, JU6H-UFADX8	C071368	RE520953	L14
6090PTE	JW6H-UFAD80, JW6H-UFADFO, JW6H-UFADJO, JW6H-UFAD7O	C071369		
6090PTP	JW6H-UFADDO	C071370		
6135PTP	JX6H-UFADFO, JX6H-UFAD6O, JX6H-UFADKO, JX6H-UFADNO, JX6H-UFADPO, JX6H-UFAD88	C071371	RE520954	L15

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

USED ON / LAYOUT PART NO.

CLARKE
Fire Protection Products, Inc.

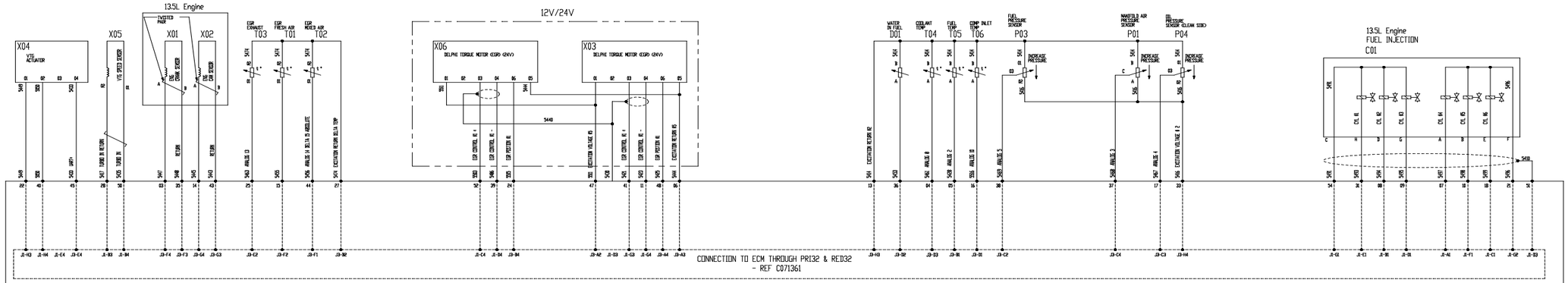
DRWN MJDEMBKOWSKI
DATE 06APR09
ENGR KJKUNKLER
MATERIAL

NAME: WIRING DIAGRAM, TIER 3 ECU CONNECTIONS

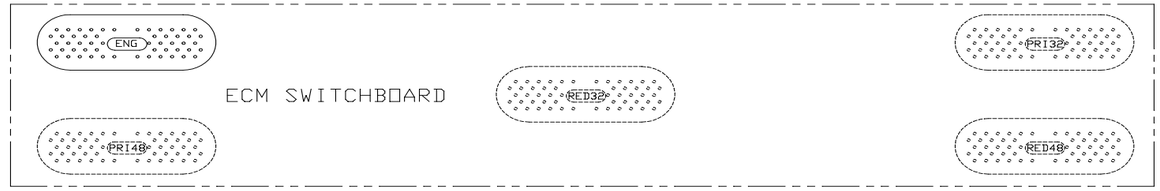
PART NO. C071361 REV D

SCALE NTS | UNITS MM [INCH] | PAGE 1 OF 1

REV	DESCRIPTION	ECN#	DWN	APVD	DATE
A	ISSUED DRAWING	574	KJK		02NOV08



ENG - SWITCHBOARD CONNECTION - 6135PTP



REFERENCE DEERE WIRING DIAGRAM

MODEL RL	MODEL REV
Changing	A. 5
DRW RL	DRW REV
Changing	A. 5
SOURCING	OPEN X
	CLOSED

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MATERIAL

DRAWING:

ORIGINATOR: ERIC J. SCHMADEKE
ORIGINATION DATE: 2007-11-16
REFERENCES: JDS-G113
METRIC
DRAWING SCALE
NAME: DIAGRAM, SCHEMATIC L15, 13.5L OEM (CLARKE)
SIZE: F
CAGE CODE:
DEERE & COMPANY
SUBMITTING UNIT: JD90
SHEET: 1/1
VERSION: RG
PART NUMBER: RE537503
REVISION: A

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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: XXXXXXXXX

YES / NO CONTROLLED DRAWING

DRWN: NAME
DATE: DDMMMYY
ENGR: ENGINEER
MATERIAL: XXXXXXX
USED ON / LAYOUT PART NO.:

CLARKE
Fire Protection Products, Inc.

NAME: WIRING DIAGRAM, 6135PTP TIER 3 ENG CONNECTION
PART NO.: C071371
REV: A
SCALE: NTS
UNITS: MM [INCH]
PAGE: 1
OF: 1

CLARKE

Fire Protection Products

PARTS ILLUSTRATIONS

JX6H TIER 3 SERIES (1760-2350 RPM):

MODEL ENGINES
FOR
FIRE PUMP APPLICATIONS

JX6H-UFADF0, JX6H-UFAD60,
JX6H-UFADK0, JX6H-UFADN0,
JX6H-UFADP0, JX6H-UFAD88

UF=UNDERWRITERS LABORATORIES/FACTORY MUTUAL CERTIFIED

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U.S.A.

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FAX: +513 771 5375

www.clarkefire.com

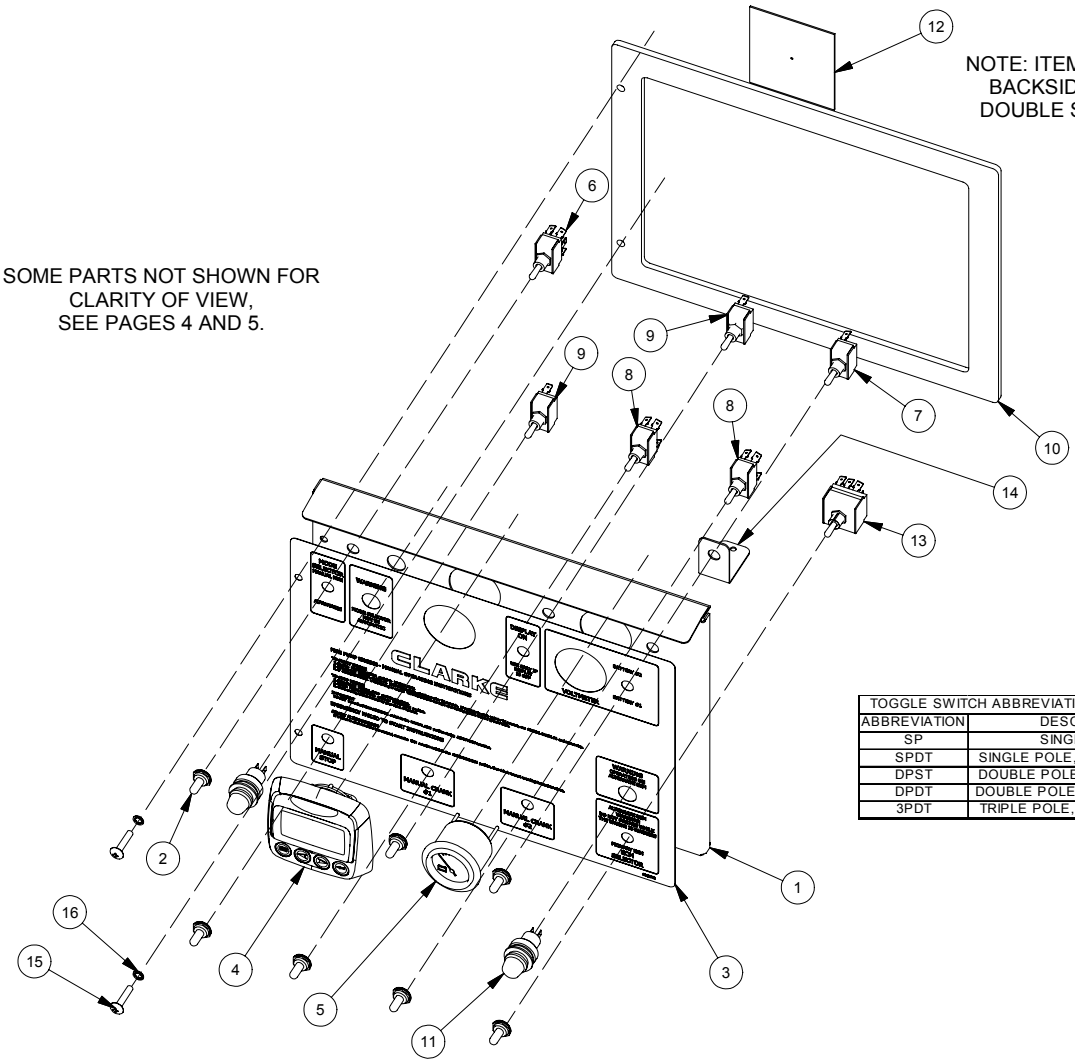
C131760 REV C

TABLE OF CONTENTS

INSTRUMENT PANEL ASSEMBLY DETAILS (DOOR w/MOUNTED COMPONENTS) ALL MODELS

NOTE: ITEM 12 IS INSTALLED TO THE BACKSIDE OF THE DOOR USING DOUBLE SIDED TAPE P/N C126252

SOME PARTS NOT SHOWN FOR CLARITY OF VIEW, SEE PAGES 4 AND 5.

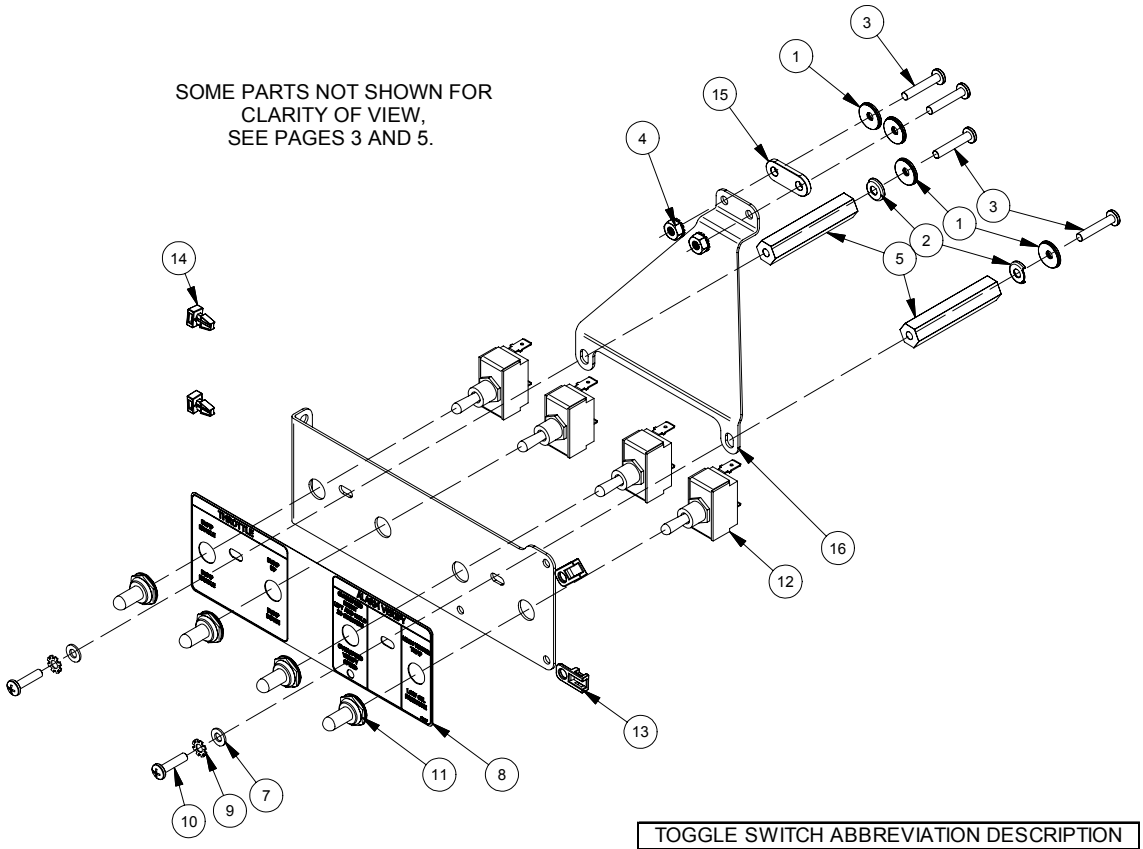


TOGGLE SWITCH ABBREVIATION DESCRIPTION	
ABBREVIATION	DESCRIPTION
SP	SINGLE POLE
SPDT	SINGLE POLE, DOUBLE THROW
DPST	DOUBLE POLE, SINGLE THROW
DPDT	DOUBLE POLE, DOUBLE THROW
3PDT	TRIPLE POLE, DOUBLE THROW

ITEM	MFR. P/N	QTY	DESCRIPTION
1	C071329	1	FORMED DOOR
2	C124641	7	TOGGLE SWITCH BOOT
3	C125782	1	INSTRUCTION PLATE
4	C071328	1	POWERVIEW, DIAGNOSTIC GUAGE
5	C071245	1	VOLTMETER, 12VOLT
	C071246	1	VOLTMETER, 24 VOLT
6	C070956	1	DPDT TOGGLE SWITCH (AUTO/MANUAL RUN SELECTOR)
7	C070490	1	SPDT TOGGLE SWITCH (BATTERY SELECTOR)
8	C071479	2	DPST TOGGLE SWITCH (MANUAL CRANK 1 & 2)
9	C070955	2	SP TOGGLE SWITCH (MANUAL STOP)
10	C126012	1	GASKET
11	C070944	2	LAMP, 12 VOLT
	C070945	2	LAMP, 24 VOLT
12	C071481	1	CONTROL BOARD (CAC BYPASS SOLENIOD)
13	C071480	1	3PDT TOGGLE SWITCH (ECM)
14	C100438	1	BRACKET, WIRING HARNESS
15	NPN	2	M6 HEAD SCREW
16	NPN	2	M6 TOOTH LOCK WASHER

NPN = NO PART NUMBER

INSTRUMENT PANEL ASSEMBLY
(INSIDE MOUNTED CONTROL TOGGLE SWITHES)
ALL MODELS

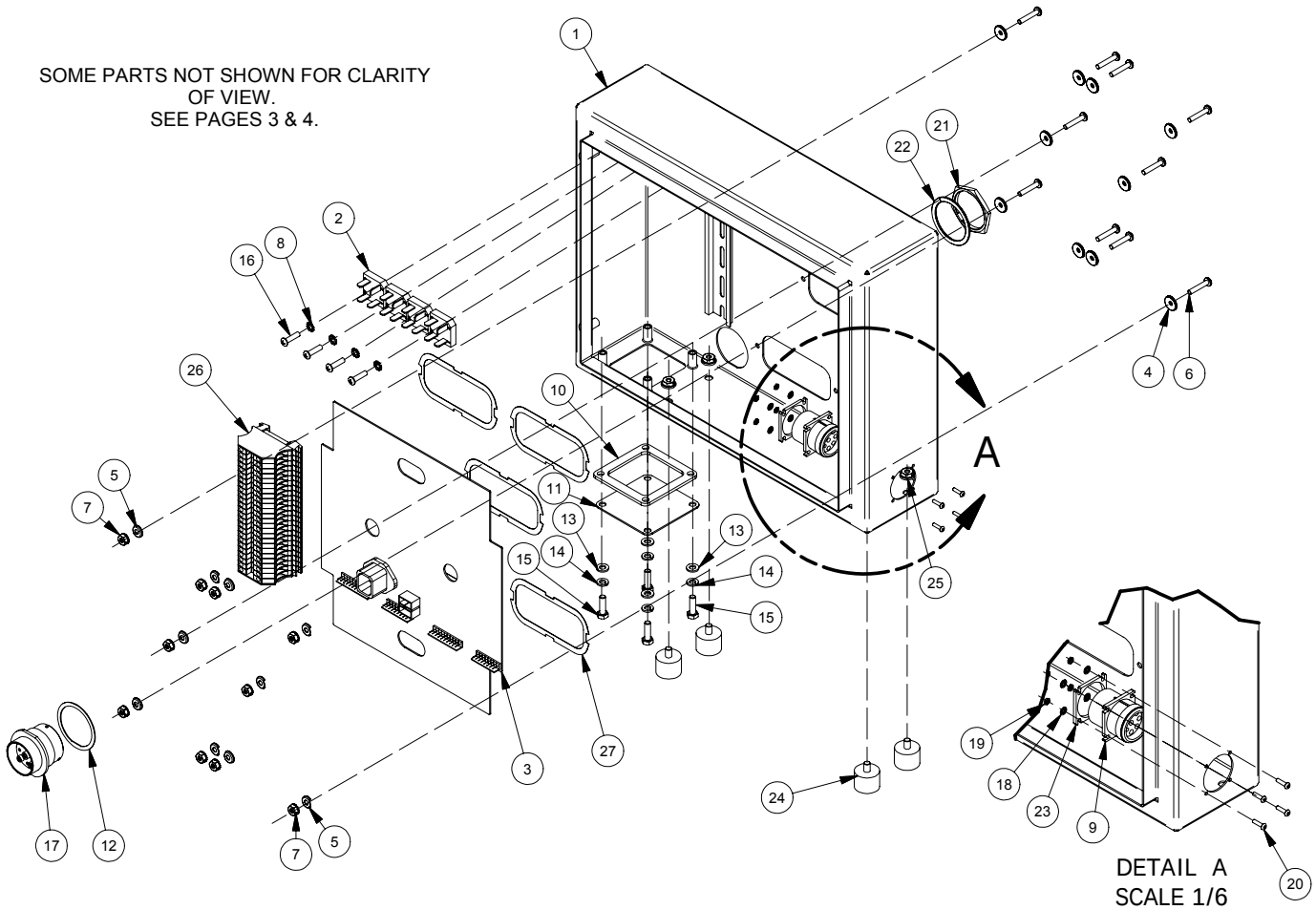


TOGGLE SWITCH ABBREVIATION DESCRIPTION	
ABBREVIATION	DESCRIPTION
SPDT	SINGLE POLE, DOUBLE THROW

ITEM	MFR. P/N	QTY	DESCRIPTION
1	C125810	4	RUBBER CUP WASHER
2	C125790	2	TERMINAL CUP WASHER
3	NPN	4	10-32 SOCKET CAP SCREW
4	NPN	2	10-32 NUT
5	C125822	2	HEX SPACER
6	C071319	1	MOUNTING PLATE
7	NPN	2	#10 FLAT WASHER
8	C125927	1	INTERNAL INSTRUCTION PLATE
9	NPN	2	# 10 STAR LOCK WASHER
10	NPN	2	10-32 CAP SCREW
11	C124641	4	TOGGLE SWITCH BOOT
12	C071075	4	SPDT TOGGLE SWITCH (THROTTLE BUMP & ALARM VERIFY)
13	C126034	2	CABLE TIE (BOLT ON)
14	C126030	2	CABLE TIE (PUSH IN)
15	C071477	1	SPACER
16	C071478	1	BRACKET, MOUNTING SUPPORT

NPN = NO PART NUMBER

INSTRUMENT PANEL ASSEMBLY (BOX w/MOUNTED COMPONENTS)
ALL MODELS

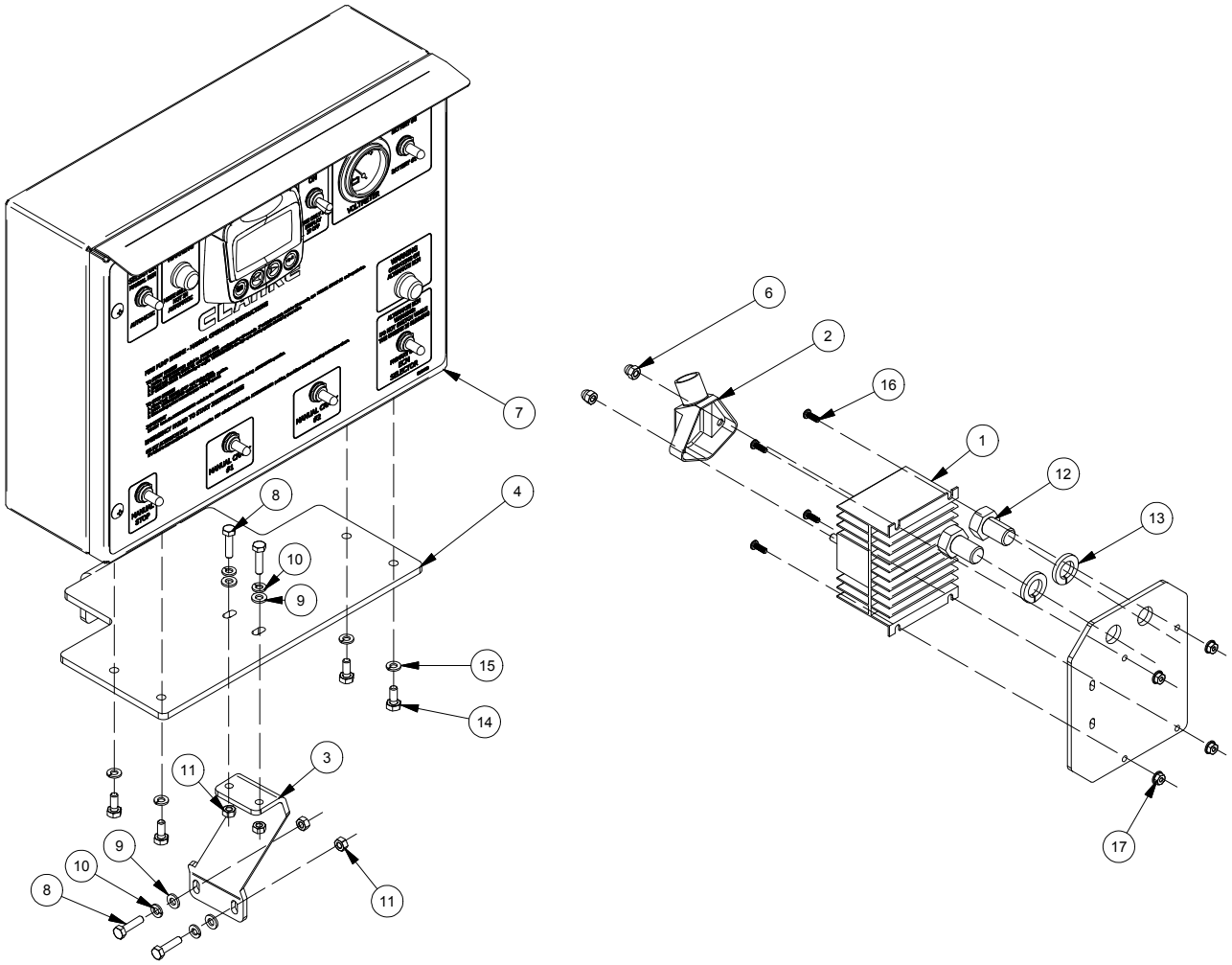


ITEM	MFR. P/N	QTY	DESCRIPTION
1	C071329	1	Formed Door
2	C071007	4	RECTIFIER DIODE
3	C071312	1	SWITCHBOARD, DUAL ECM
4	C125810	10	RUBBER CUP WASHER
5	C125790	10	TERMINAL CUP WASHER
6	NPN	10	10 - 32 SOCKET CAP SCREW
7	NPN	10	10 - 32 LOCK NUT
8	NPN	4	#10 STAR LOCK WASHER
9	NPN	1	DATA CONNECTOR (J1939 - FEMALE)
10	C126007	1	GASKET, GLAND PLATE
11	C071227	1	GLAND PLATE
12	C126015	1	GASKET, POWER HARNESS
13	NPN	4	M6 FLAT WASHER
14	NPN	4	M6 LOCK WASHER

ITEM	MFR. P/N	QTY	DESCRIPTION
15	NPN	4	M6 HEX HEAD BOLT
16	NPN	4	10-32 BUTTON HEAD CAP SCREW
17	NPN	1	PIN CONNECTOR
18	NPN	4	4-40 TOOTH LOCK WASHER
19	NPN	4	4-40 HEX NUT
20	NPN	4	4-40 BUTTON HEAD CAP SCREW
21	NPN	1	PIN CONNECTOR NUT
22	NPN	1	PIN CONNECTOR LOCK WASHER
23	C126005	1	GASKET, DIAGNOSTIC CONNECTOR
24	C070589	4	ISOLATOR
25	NPN	4	1/4" HEX FLANGE NUT
26	C071317	1	TERMINAL BLOCK ASSEMBLY
27	C126026	1	GASKET, 54 WAY HEADER

NPN = NO PART NUMBER

INSTRUMENT PANEL ASSEMBLY
ALL MODELS

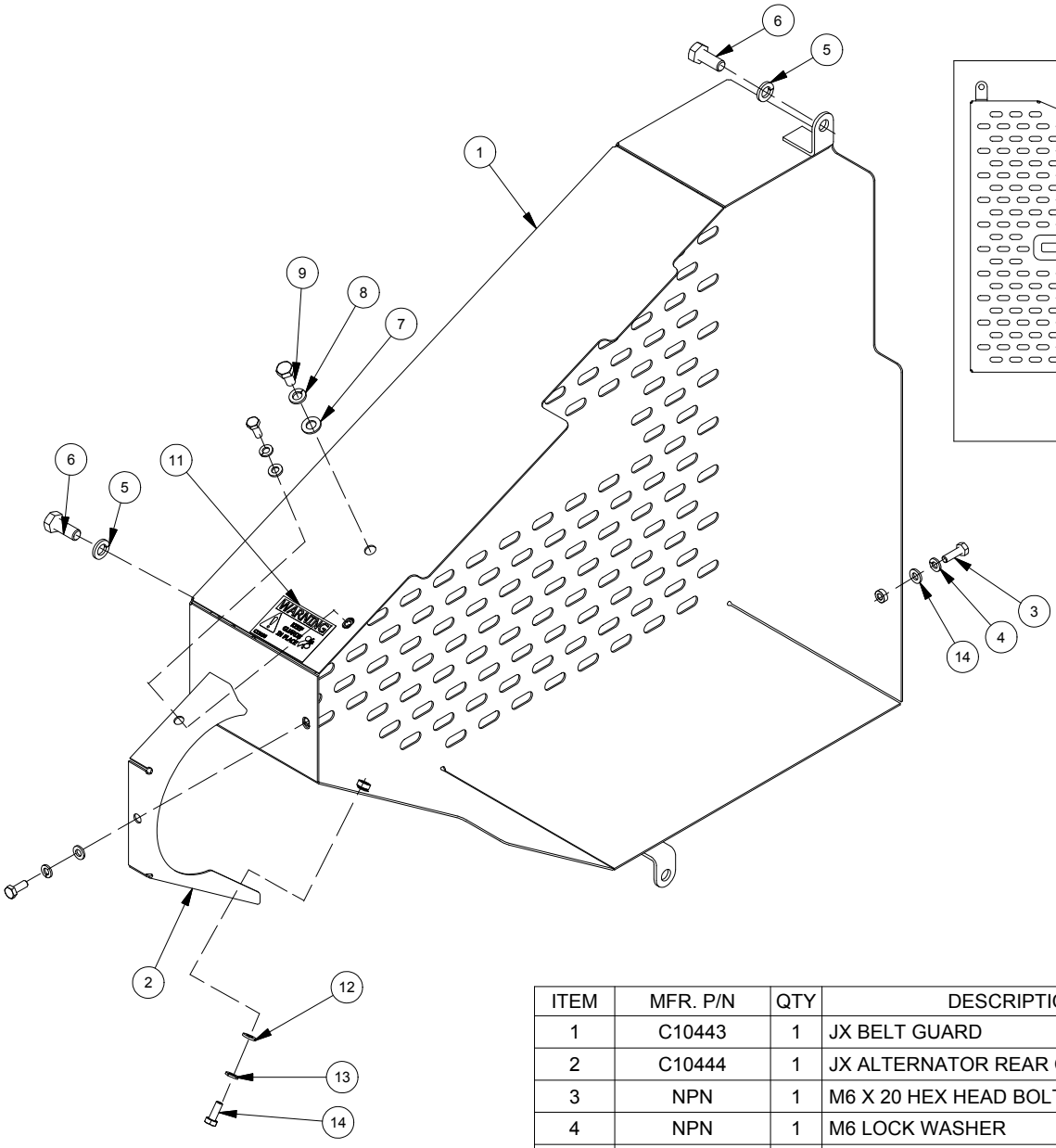


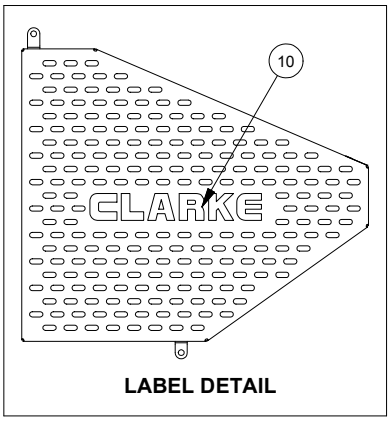
ITEM	MFR. P/N	QTY	DESCRIPTION	ITEM	MFR. P/N	QTY	DESCRIPTION
1	C07378	1	BATTERY ISOLATOR	9	NPN	4	PLAIN WASHER
2	C071222	1	BATTERY COVER	10	NPN	4	LOCK WASHER
3	C071325	1	BRACE, MOUNT INSTRUMENT PANEL, 6135	11	NPN	4	M6 HEX HEAD NUT
				12	NPN	2	M16 HEX HEAD BOLT, 25" LG
4	C071324	1	BRACKET, INSTRUMENT PANEL SUPPORT, 13.5L	13	NPN	2	M16 LOCK WASHER
				14	NPN	4	1/4" HEX HEAD BOLT, 5/8" LG
5	C071334	1	BRACKET, BATTERY ISOLATOR	15	NPN	4	1/4" LOCK WASHER
6	C125568	2	M6 ACORN NUT	16	NPN	4	#8-32 MACHINE SCREW, 1/2" LG
7	C071445	1	T3 INSTRUMENT PANEL ASSEMBLY	17	NPN	4	#8-32 HEX HEAD FLANGE NUT
8	NPN	4	M6 HEX HEAD BOLT, 25" LG				

NPN = NO PART NUMBER

Clarke Reference Bill of Materials: 071043

BELT GUARD
ALL MODELS





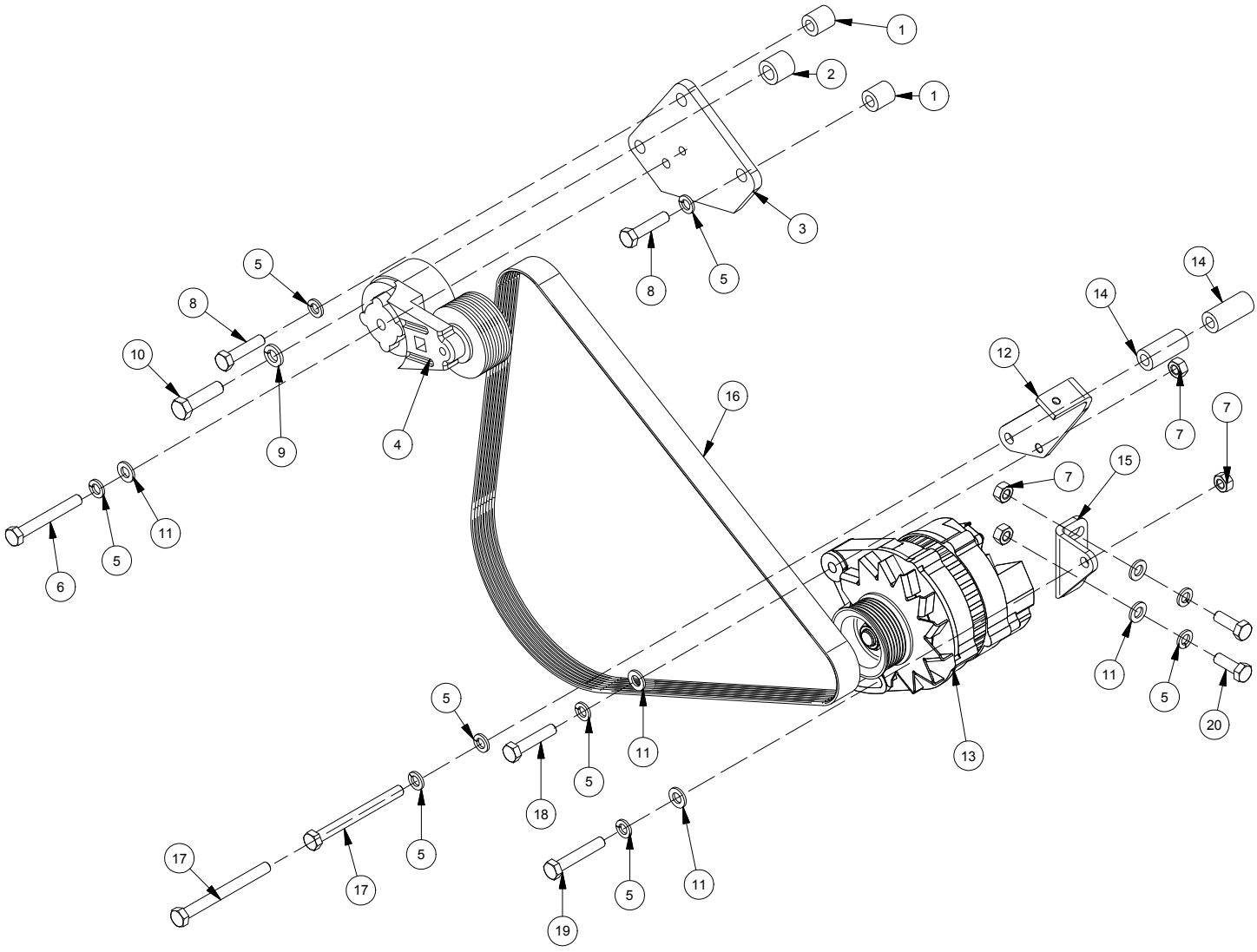
LABEL DETAIL

ITEM	MFR. P/N	QTY	DESCRIPTION
1	C10443	1	JX BELT GUARD
2	C10444	1	JX ALTERNATOR REAR COVER PLATE
3	NPN	1	M6 X 20 HEX HEAD BOLT
4	NPN	1	M6 LOCK WASHER
5	NPN	2	M10 LOCK WASHER
6	NPN	2	M10 X 25 HEX HEAD BOLT, 1.5" LG
7	NPN	1	M8 FLAT WASHER
8	NPN	1	M8 LOCK WASHER
9	NPN	1	M8 X 16 HEX HEAD BOLT
10	C130180	1	CLARKE LOGO LABEL
11	C13190	1	LABEL, KEEP GUARDS IN PLACE
12	NPN	3	M6 FLAT WASHER
13	NPN	3	M6 LOCK WASHER
14	NPN	3	M6 X 16 HEX HEAD BOLT

NPN = NO PART NUMBER

Clarke Reference Bill of Materials: 011019

ALTERNATOR ASSEMBLY
ALL MODELS

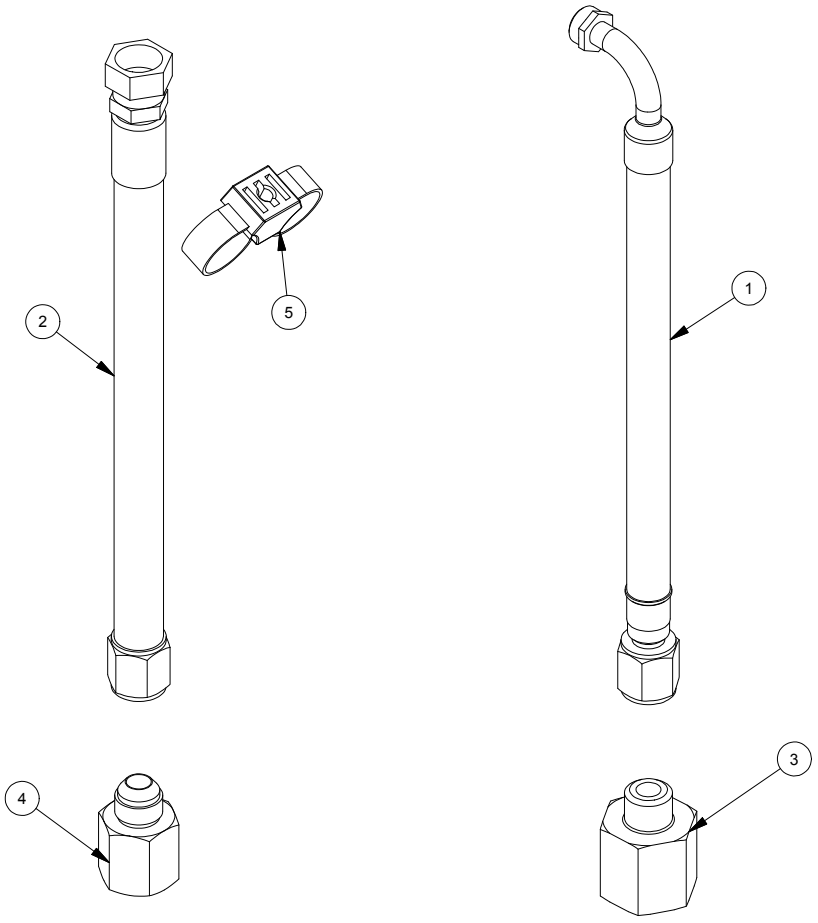


IT	MFR. P/N	QTY	DESCRIPTION	ITEM	MFR. P/N	QTY	DESCRIPTION
1	C122054	2	SPACER	11	NPN	5	M10 FLAT WASHER
2	C125069	1	SPACER	12	C071430	1	ALTERNATOR SUPPORT BRACKET
3	C124936	1	MOUNTING BRACKET, BELT TENSIONER	13	C071366	1	24V ALTERNATOR
4	C071094	1	BELT TENSIONER	14	C122056	2	SPACER
5	NPN	9	M10 LOCK WASHER	15	C124939	1	BRACKET, ALTERNATOR
6	NPN	1	M10 X 80 HEX HEAD BOLT	16	C071033	1	BELT ALTERNATOR
7	NPN	4	M10 HEX HEAD NUT	17	NPN	2	M10 X 110 HEX HEAD BOLT
8	NPN	2	M10 X 45 HEX HEAD BOLT	18	NPN	1	M10 X 50 HEX HEAD BOLT
9	NPN	1	M12 LOCK WASER	19	NPN	1	M10 X 60 HEX HEAD BOLT
10	NPN	1	M12 X 45 HEX HEAD BOLT	20	NPN	2	M10 X 30 HEX HEAD BOLT

NPN = NO PART NUMBER

Clarke Reference Bill of Materials: 072022

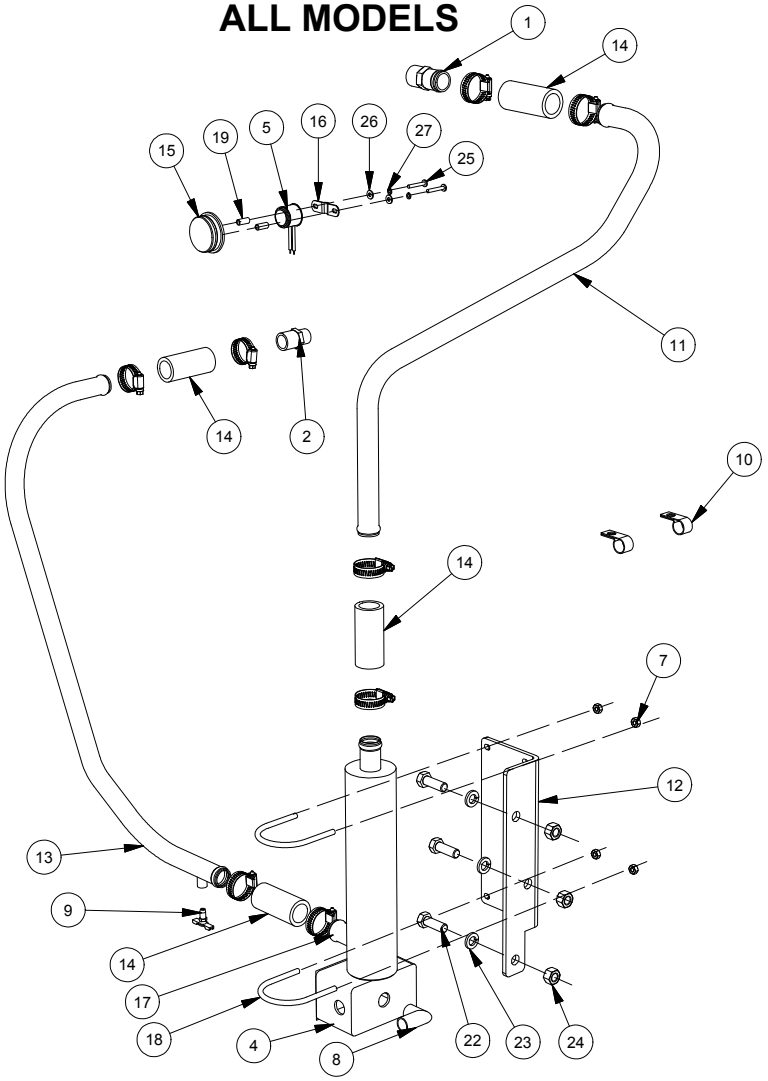
FLEX FUEL LINES
ALL MODELS



ITE	MFR. P/N	QT	DESCRIPTION
1	C02543	1	FUEL HOSE ASSY, 90 DEG. ELBOW, JX
2	C020542	1	FUEL HOSE ASS'Y, STRAIGHT, JX
3	C125382	1	ADAPTOR, 37 DEGREE FLARE TO NPTF
4	C125381	1	ADAPTOR, 37* FLARE to NPTF
5	C125973	1	DUAL CLAMP ZIP TIE

Clarke Reference
Bill of Materials:
020005

JACKET WATER HEATER SYSTEM
ALL MODELS

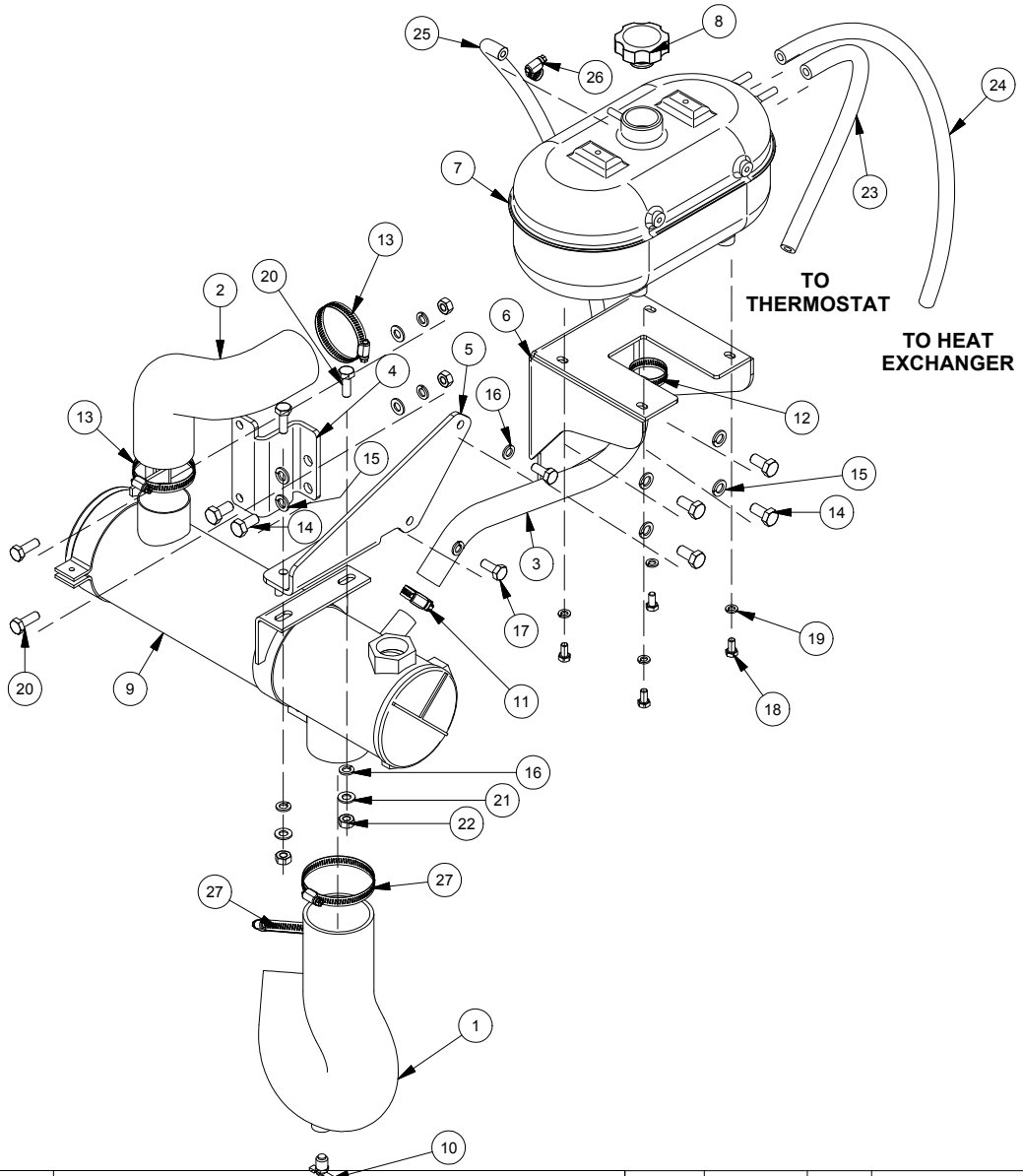


ITEM	MFR. P/N	QTY	DESCRIPTION	ITEM	MFR. P/N	QTY	DESCRIPTION
1	C050145	1	ADAPTOR, 1.00" HOSE TO 0.75" PIPE	15	C071029	1	ADAPTER, MOUNT THERMOSTAT, JX6H
2	C050144	1	ADAPTOR, 1.00" HOSE TO 0.50" PIPE	16	C071032	1	CLAMP, MOUNT THERMOSTAT TO ADAPTER, JX6H
3	C05626	1	GASKET, NEOPRENE, A/C CONNECTION BOX TO JACKET WATER HEATER	17	C122190	1	HEATER, 115V
4	C07659	1	BOX, HEATER - MODIFICATIONS	18	C122196	2	U-BOLT
5	C07648	1	THERMOSTAT, 100 DEG. TO 120 DEG. F	19	C124944	2	SPACER, MOUNT CLAMP TO THERMOSTAT ADAPTER, JX6H
6	C07658	1	COVER, HEATER BOX				
7	C12094	4	NYLOC NUT, 1/4-20	20	C121709	8	HOSE CLAMPS
8	C12143	1	CONNECTOR, CONDUIT ELBOW, 3/8"	21	C131433	1	LABEL, JACKET WATER HEATER
9	C12152	1	DRAIN COCK, 1/8"	22	NPN	3	M12 HEX HEAD BOLT, 35" LG
10	C120660	2	CLAMP, RUBBERIZED	23	NPN	3	M12 LOCK WASHER
11	C051223	1	TUBE 1.0", HEATER OUTLET, JX6H	24	NPN	3	M12 HEX HEAD NUT
12	C051213	1	BRACKET, MOUNT HEATER, JX	25	NPN	2	#10 -24 SCREWS
13	C051221	1	TUBE 1.0", HEATER INLET, JX6H	26	NPN	2	#10 FLAT WASHER
14	C051247	4	HOSE, SILICONE, 3 IN. LG.	27	NPN	2	# 10 LOCK WASHER

NPN = NO PART NUMBER

Clarke Reference
Bill of Materials:
12009 - 115 VOLT
120010 - 230 VOLT

COOLING SYSTEM - HEAT EXCHANGER
ALL MODELS



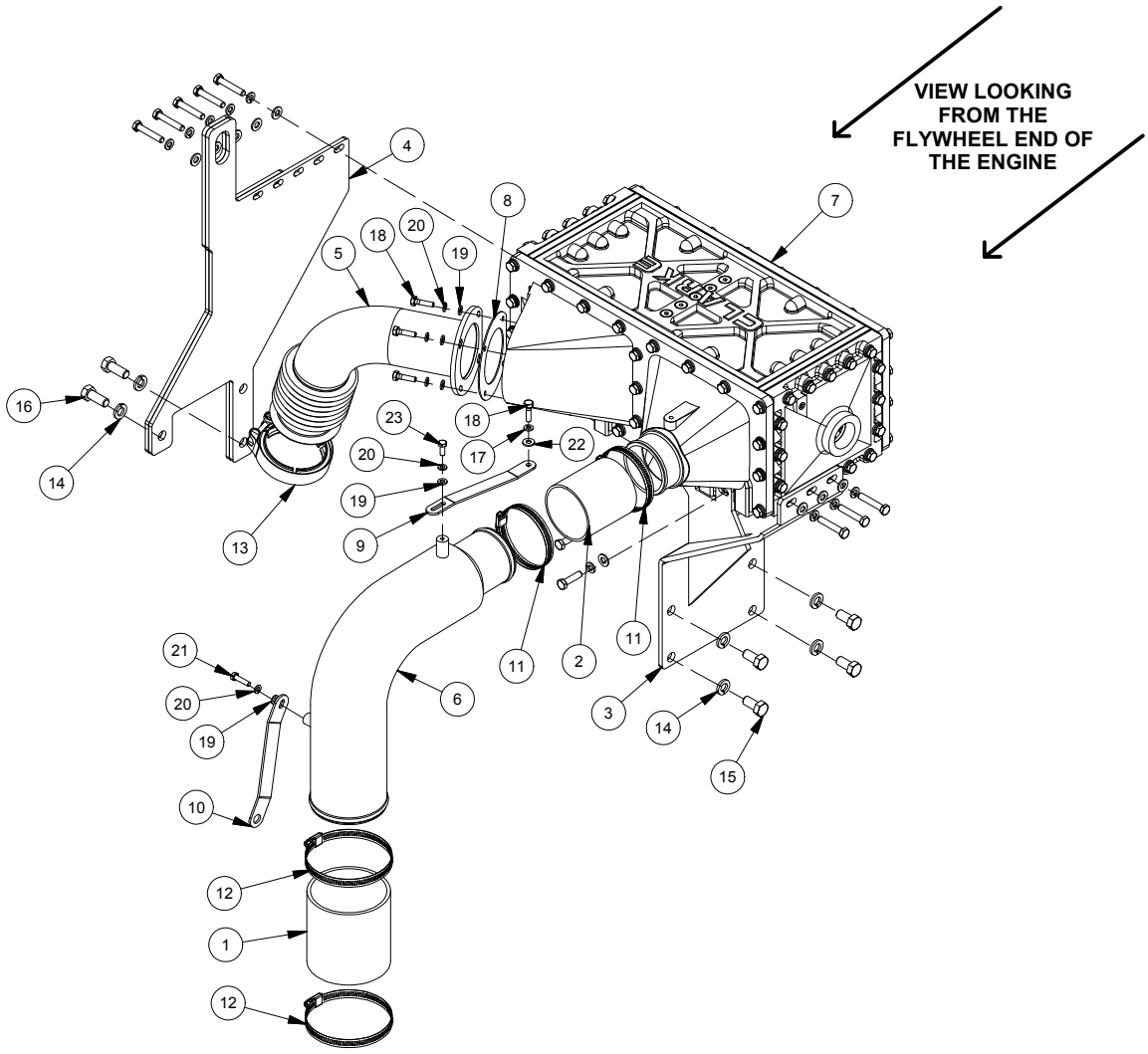
ITEM	MFR. P/N	QTY	DESCRIPTION
1	C051399	1	HOSE, OUTLET HEAT EXCHANGER
2	C051400	1	HOSE, INLET HEAT EXCHANGER
3	C051403	1	HOSE, HEAT EXCHANGER TO EXPANSION TANK, 6135
4	C051405	1	BRACKET, HEAT EXCHANGER - REAR, 6135
5	C051404	1	BRACKET, HEAT EXCHANGER, 6135
6	C051415	1	SUPPORT, EXPANSION TANK, 6135
7	C051432	1	EXPANSION TANK
8	C051434	1	PRESSURE CAP, 15# (DEERE EXPANSION TANK)
9	C051433	1	HEAT EXCHANGER, JX
10	C12153	1	DRAIN COCK, 1/4"
11	C12643	1	HOSE CLAMP, 1.5" - 0.75"
12	C12644	1	HOSE CLAMP, 1.0625" - 2.00"
13	C12646	2	HOSE CLAMP, #40
14	NPN	6	M12 X 25 HEX HEAD BOLT
15	NPN	6	M12 LOCK WASHER

ITEM	MFR. P/N	QTY	DESCRIPTION
16	NPN	6	M10 LOCK WASHER
17	NPN	2	M10 X 25 HEX HEAD BOLT
18	NPN	4	M8 X 16 HEX HEAD BOLT
19	NPN	4	M8 LOCK WASHER
20	NPN	4	M10 X 30 HEX HEAD BOLT
21	NPN	4	M10 FLAT WASHER
22	NPN	4	M10 HEX HEAD NUT
23	C051402	1	VENT HOSE - THERMOSTAT TO EXPANSION TANK
24	C051401	1	VENT HOSE - HEAT EXCHANGER TO EXPANSION TANK
25	C12677	1	OVERFLOW HOSE
26	C121743	1	SPRING CLAMP
27	C12648	2	HOSE CLAMP, # 56

NPN = NO PART NUMBER

Clarke Reference Bill of Materials: 051031

CHARGE AIR COOLER (CAC)
ALL MODELS

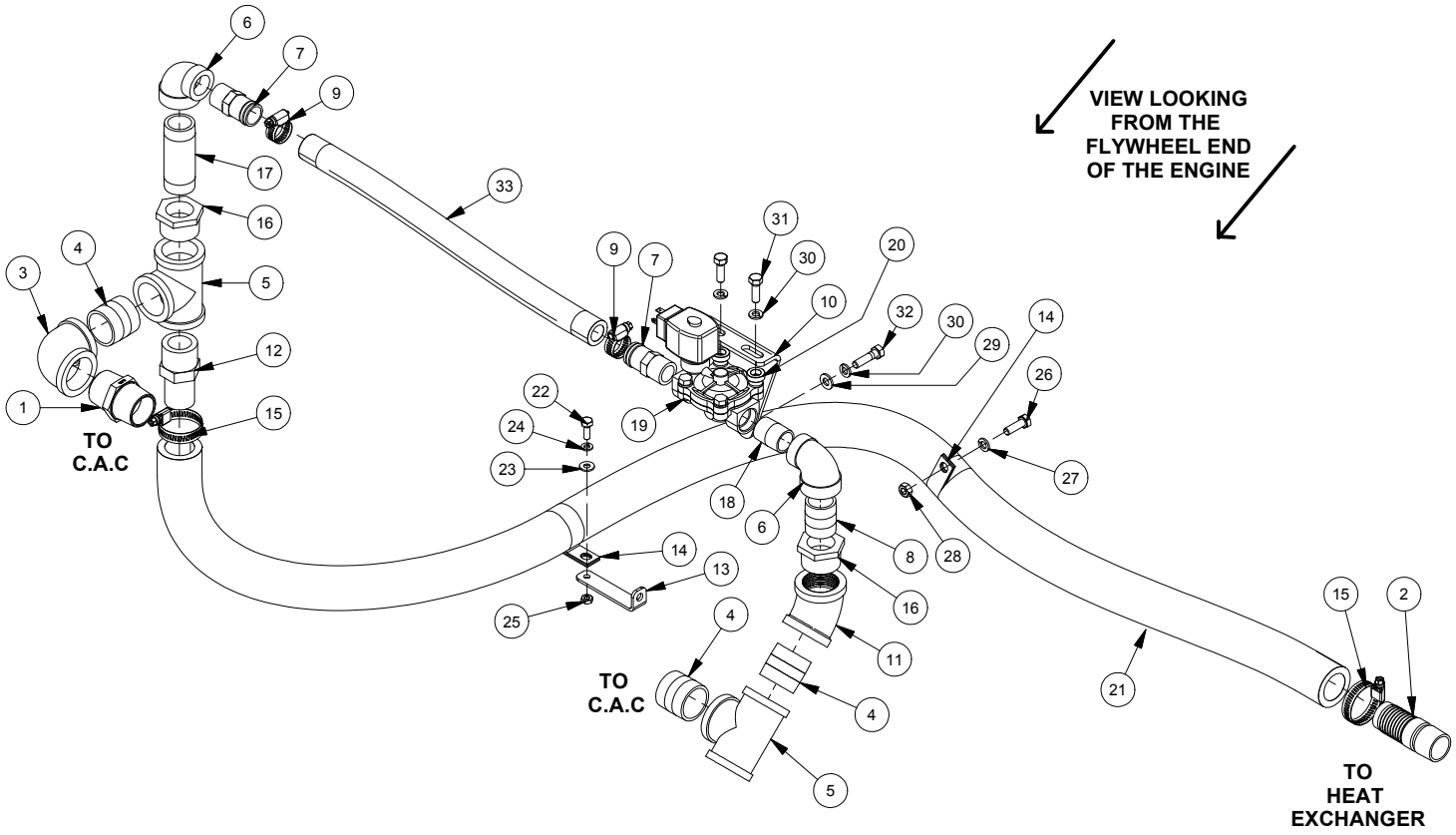


ITEM	MFR. P/N	QTY	DESCRIPTION	ITEM	MFR. P/N	QTY	DESCRIPTION
1	C03552	1	HOSE, CAC 4" ID x 4.5" LG.	13	C126010	1	MARMON CLAMP, 3"
2	C03558	1	HOSE, CAC, 3.0" ID X 3.5" LG.	14	NPN	6	M12 LOCK WASHER
3	C03607	1	BRACKET, MOUNT CAC, 6135	15	NPN	4	M12 X 25 HEX HEAD BOLT
4	C03606	1	BRACKET, MOUNT CAC, 13.5	16	NPN	2	M12 X 30 HEX HEAD BOLT
5	C03614	1	TUBE, CAC AIR INLET, 6135	17	NPN	1	1/4 LOCK WASHER
6	C03615	1	TUBE, CAC AIR OUTLET, 6135	18	NPN	5	1/4 - 20 HEX HEAD BOLT
7	C03652	1	CAC ASSEMBLY	19	NPN	6	M6 FLAT WASHER
8	C03635	1	GASKET, AIR INLET, CAC	20	NPN	6	M6 LOCK WASHER
9	C03639	1	STRAP, TUBE, CAC OUTLET	21	NPN	1	M6 X 25 HEX HEAD BOLT
10	C03638	1	STRAP, TUBE, CAC OUTLET	22	NPN	1	1/4 FLAT WASHER
11	C121715	2	HOSE CLAMP, 2.75" DIA	23	NPN	1	M6 X 16 HEX HEAD BOLT
12	C121717	2	HOSE CLAMP, 3.75" LG				

NPN = NO PART NUMBER

Clarke Reference Bill of Materials: 031021

CHARGE AIR COOLER (CAC) TEMPERATURE CONTROL
ALL MODELS

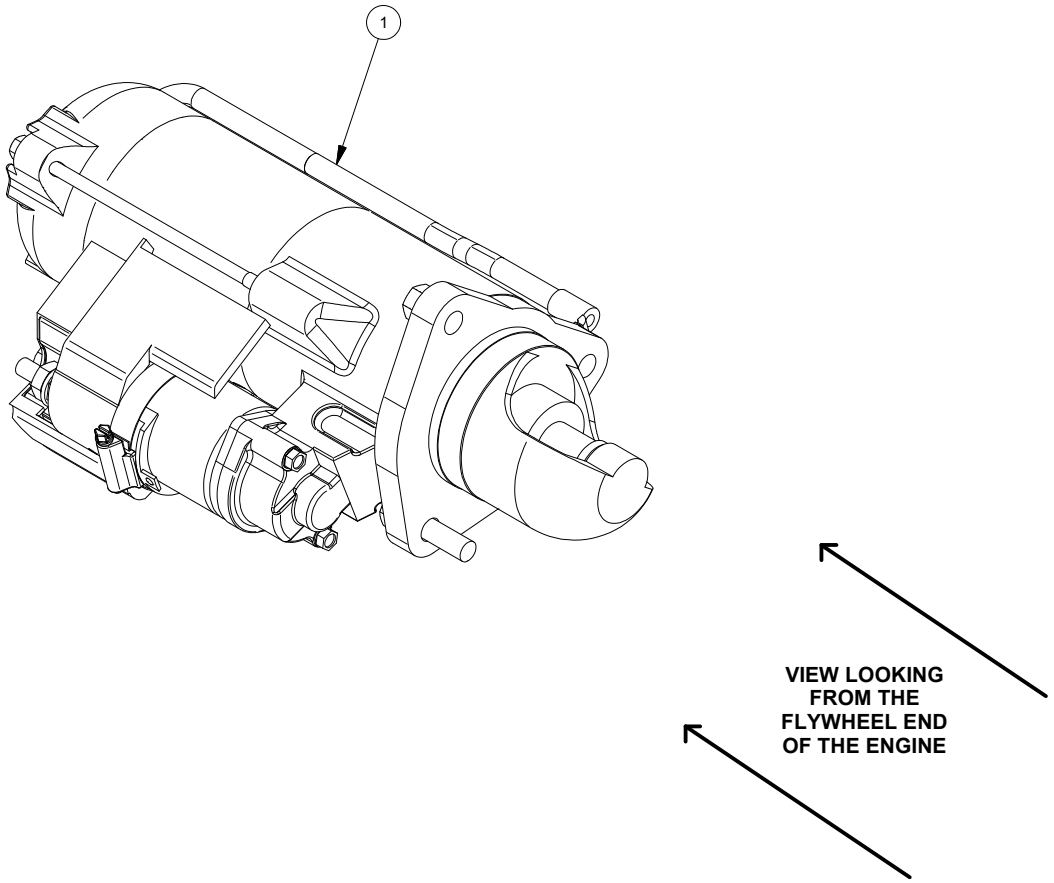


ITEM	MFR. P/N	QTY	DESCRIPTION	ITEM	MFR. P/N	QTY	DESCRIPTION
1	C126050	1	TUBE HEX NIPPLE, 1 1/4 NPT	18	C122075	1	NIPPLE, CLOSE - 0.75" NPT
2	C05148	1	ADAPTER, 1" NPT TO 1 1/4" HOSE	19	C126153	1	VALVE, SOLENOID - 24V
3	C121844	1	ELBOW, 90 DEG, 1.25 INCH NPT	20	C125532	2	1/4" SPACER
4	C122121	3	CLOSE NIPPLE, 1.25 NPT	21	C051430	1	1 1/4" HOSE, 69 LG (HEAT
5	C121862	2	1 1/4" PIPE TEE				EXHANGER TO C.A.C)
6	C122299	2	1" X 3/4" REDUCING ELBOW	22	NPN	1	1/4" HEX HEAD BOLT, 0.75" LG
7	C050145	2	ADAPTOR, 1.00" HOSE TO 0.75" PIPE	23	NPN	1	1/4" FLAT WASHER
8	C122098	1	1" CLOSE NIPPLE	24	NPN	1	1/4" LOCK WASHER
9	C121710	2	CT CLAMPS	25	NPN	1	1/4" HEX HEAD NUT
10	C051451	1	SOLENOID VAVLE SUPPORT BRACKET	26	NPN	1	M8 X 25 HEX HEAD BOLT
11	C123128	1	1 1/4" PIPE ELBOW, 45 DEGREE	27	NPN	1	M8 LOCK WASHER
12	C123973	1	ADAPTOR, 1.25" HOSE TO 1.25" PIPE	28	NPN	1	M8 HEX HEAD NUT
13	C071354	1	BRACKET, VALVE COVER	29	NPN	1	5/16" FLAT WASHER
14	C124006	2	CLAMP, RUBBERIZED, 1.75" I.D.	30	NPN	3	5/16" LOCK WASHER
15	C121712	2	HOSE CLAMP	31	NPN	2	5/16" HEX HEAD BOLT, 1.00" LG
16	C123287	2	BUSHING - 1 1/4" NPT TO 1" NPT	32	NPN	1	5/16" HEX HEAD BOLT, 1.25" LG
17	C122103	1	NIPPLE, PIPE - 1" NPT X 3.25" LONG	33	C051455	1	1 " HOSE, 18" LG

NPN = NO PART NUMBER

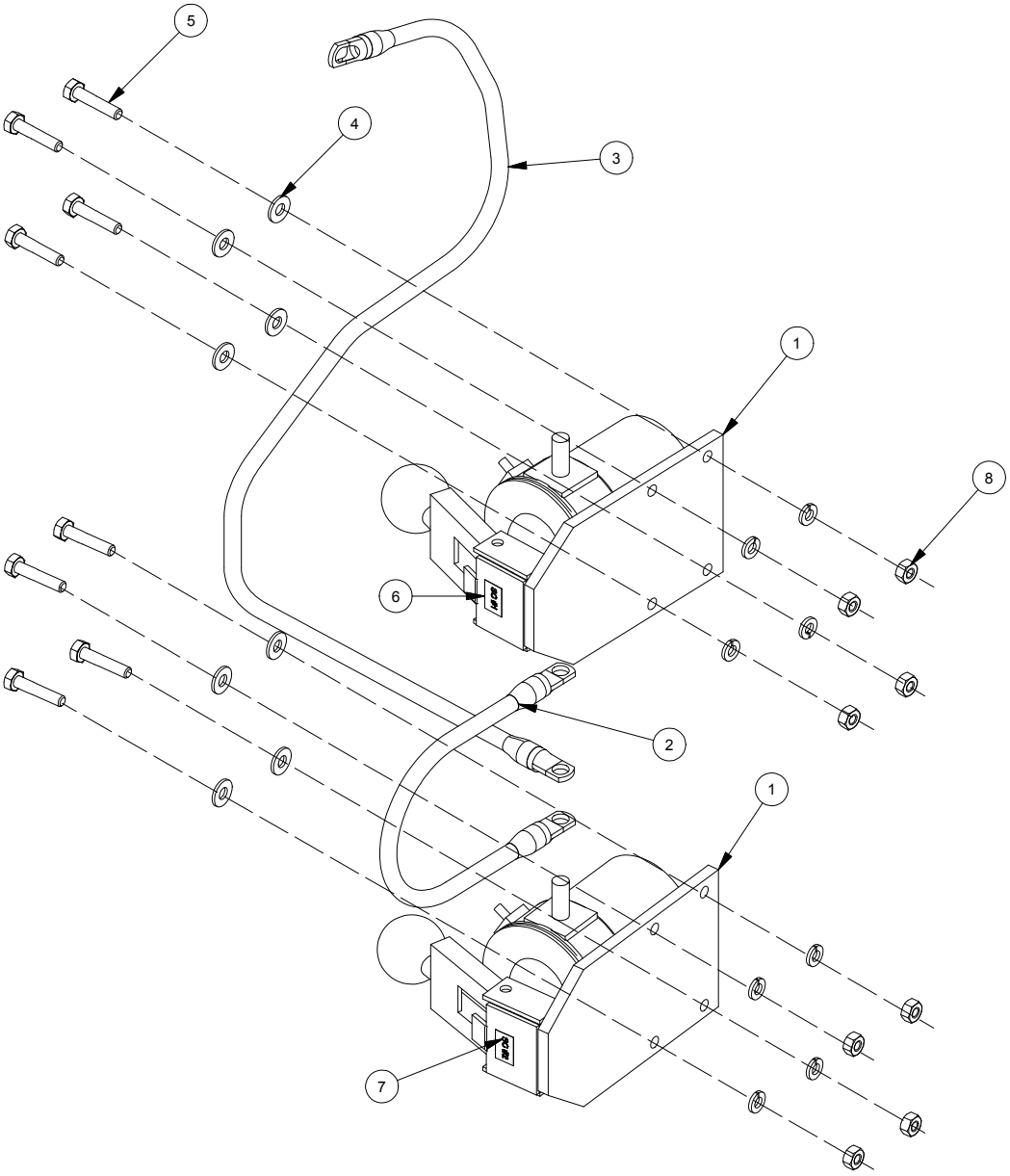
Clarke Reference Bill of Materials: 033004

STARTER MOTOR
ALL MODELS

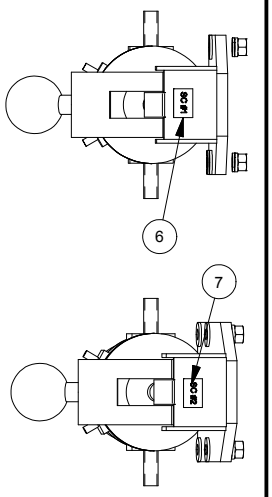


ITEM	MFR. P/N	QTY	DESCRIPTION
1	RE522852	1	STARTER MOTOR, 24V

STARTER CONTACTORS
ALL MODELS



LABEL DETAIL



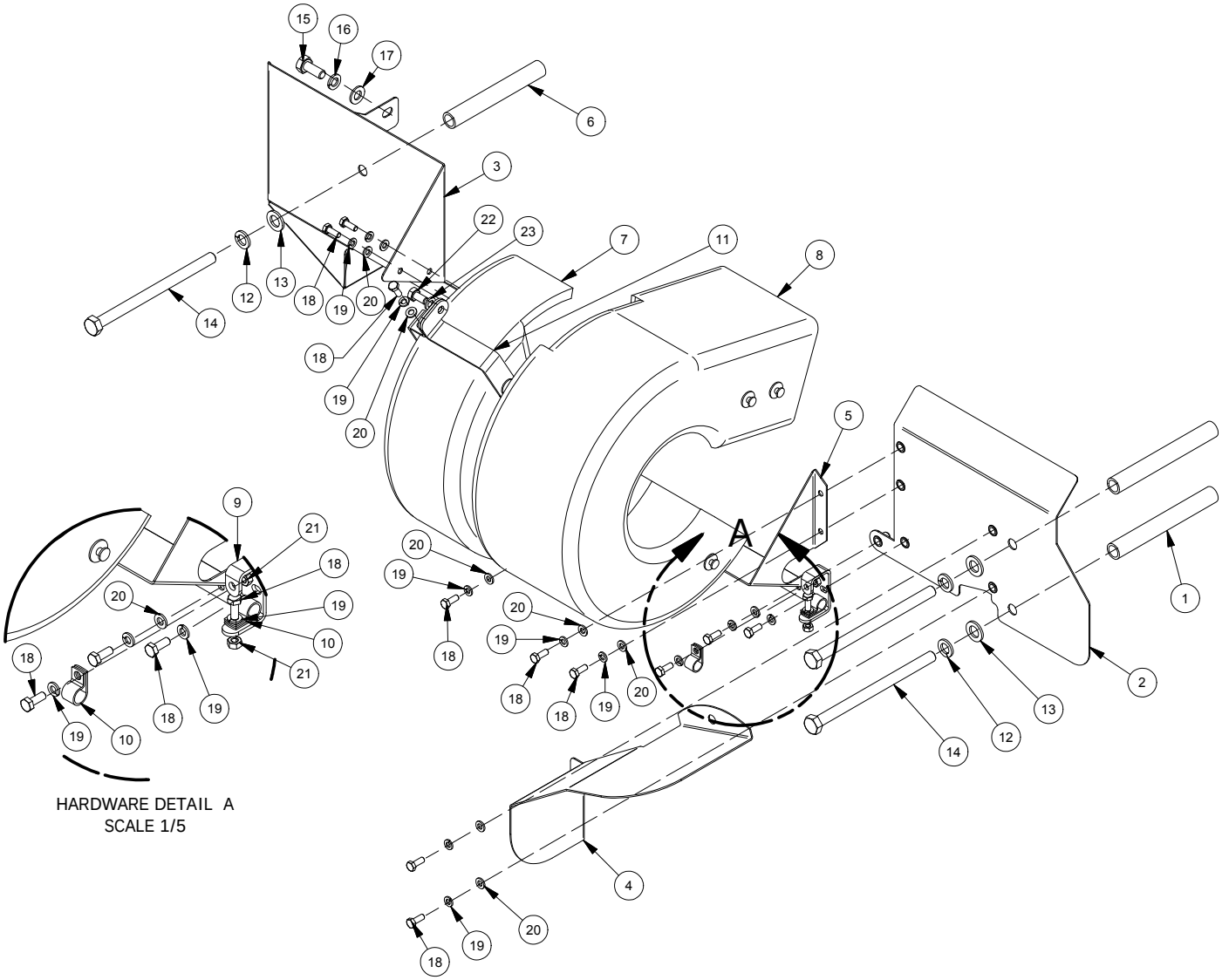
VIEW LOOKING FROM THE FLYWHEEL END OF THE ENGINE

IT	MFR. P/N	QTY	DESCRIPTION
1	C071062	2	BATTERY CONTACTOR, 24V
2	C070060	1	BATTERY CONTACTOR JUMPER CABLE
3	C070058	1	BATTERY STARTER CABLE
4	NPN	8	1/4" FLAT WASHER
5	NPN	8	1/4" HEX HEAD BOLT, 1 1/4" LG
6	C12754	1	LABEL, STARTER CONTACTOR#1
7	C12755	1	LABEL, STARTER CONTACTOR #2
8	NPN	8	1/4" HEX HEAD NUTS

NPN = NO PART NUMBER

Clarke Reference Bill of Materials: 75003

EXHAUST GUARD
ALL MODELS



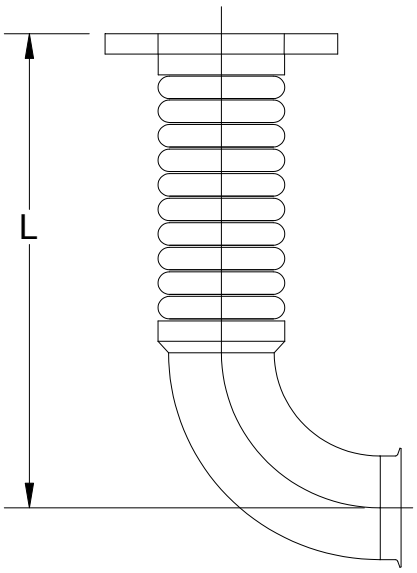
ITEM	MFR. P/N	QTY	DESCRIPTION	ITEM	MFR. P/N	QTY	DESCRIPTION
1	C06984	2	SPACER, EXHAUST GUARD, 6135	13	NPN	3	M12 FLAT WASHER
2	C06997	1	GUARD, EXHAUST MANIFOLD, 6135	14	NPN	3	M12 X 180 HEX HEAD BOLT
3	C06985	1	GUARD, EXHAUST MANIFOLD, 6135	15	NPN	1	M10 X 25 HEX HEAD BOLT
4	C06986	1	HEATSHIELD, HEAT EXCHANGER HOSE, 6135	16	NPN	1	M10 LOCK WASHER
5	C060987	1	GUARD, EXHUAST MANIFOLD - 6135	17	NPN	1	M10 FLAT WASHER
6	C061004	1	SPACER, EXHAUST GUARD, 6135	18	NPN	12	M6 X 16 HEX HEAD BOLT
7	C061007	1	TURBO BLANKET - 6135	19	NPN	12	M6 LOCK WASHER
8	C061006	1	TURBO BLANKET, EXHAUST SIDE - 6135	20	NPN	9	M6 FLAT WASHER
9	C061029	1	TURBO DRAIN TUBE SUPPORT BRACE	21	NPN	3	M6 HEX HEAD NUT
10	C125326	2	CLAMP, LOOP, NON-RUBBERIZED, 1/2"	22	NPN	1	M8 X 16 HEX HEAD BOLT
11	C061026	1	BRACKET, UPPER TURBO BLANKET SUPPORT	23	NPN	1	M8 LOCK WASHER
12	NPN	3	M12 LOCK WASHER				

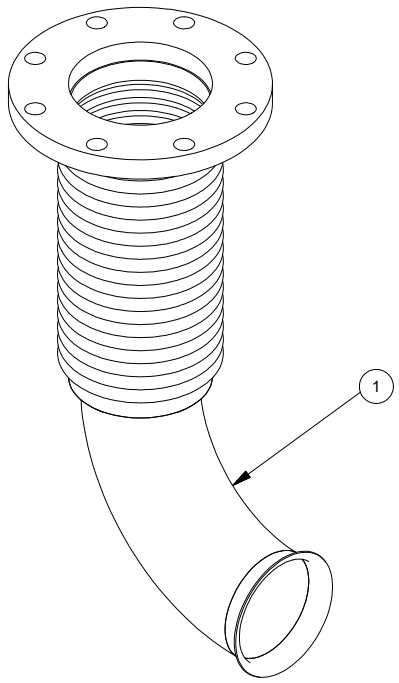
NPN = NO PART NUMBER

Clarke Reference Bill of Materials: 060029

EXHAUST FLEX
ALL MODELS

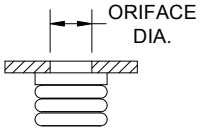
150# ANSI FLANGE
(EXHAUST SIDE
CONNECTION)





ITEM	CLARKE P/N									QTY
	MODELS	STANDARD				OPTION				
		EXHAUST CONN. SIZE	L (INCH)	P/N	DESCRIPTION	EXHAUST CONN. SIZE	L (INCH)	P/N	DESCRIPTION	
1	UFADF0	8	22.88	C061126^	8" FLEX EXHAUST	10	22.88	C061127^	10" FLEX EXHAUST	1
	UFAD60	8	22.88	C061126^	8" FLEX EXHAUST	10	22.88	C061127^	10" FLEX EXHAUST	
	UFADK0	8	22.88	C061126^	8" FLEX EXHAUST	10	22.88	C061127^	10" FLEX EXHAUST	
	UFADN0	8	22.88	C061126^	8" FLEX EXHAUST	10	22.88	C061127^	10" FLEX EXHAUST	
	UFADP0	8	22.88	C061126^	8" FLEX EXHAUST	10	22.88	C061127^	10" FLEX EXHAUST	
	UFAD88	8	22.88	C061126^	8" FLEX EXHAUST	10	22.88	C061127^	10" FLEX EXHAUST	
^ With Orifice (See Table 1 Below)										

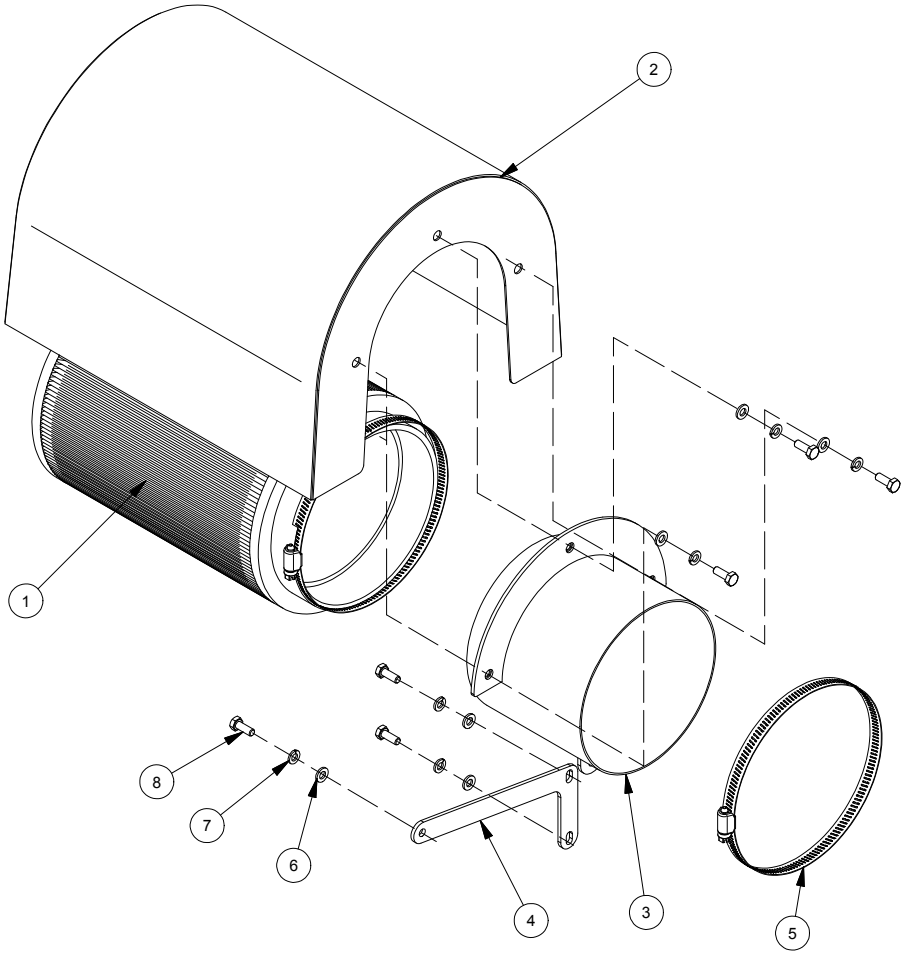
TABLE 1



P/N	ORIFACE DIA. (IN)
C061126	4.750
C061127	4.750

Clarke Reference
Bill of Materials:
061043 - 8" FLEX EXHAUST
061044 - 10" FLEX EXHAUST

DRIP GUARD & AIR CLEANER
ALL MODELS

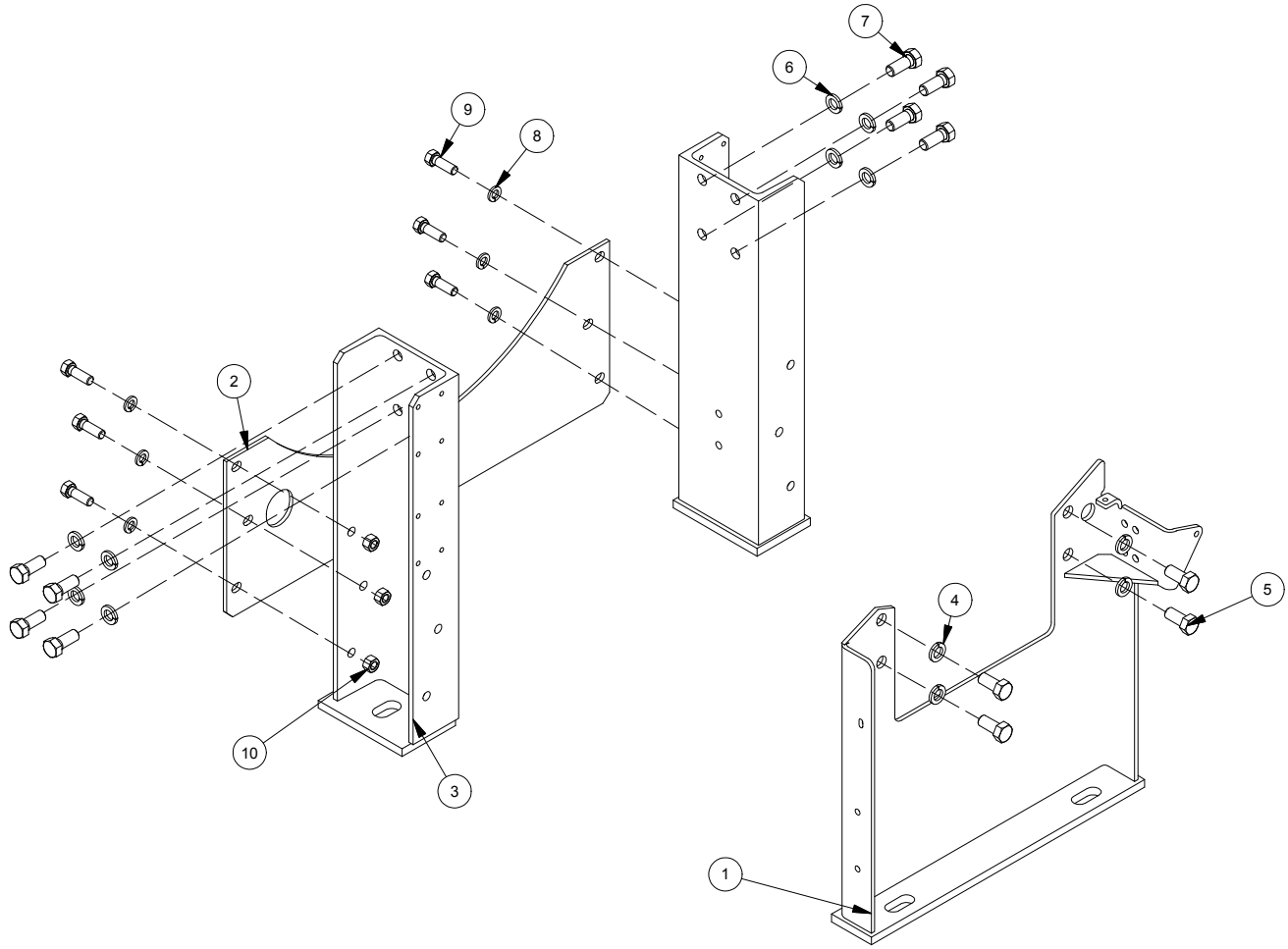


IT	MFR. P	Q	DESCRIPTION
1	C03595	1	FILTER, AIR, 6" I.D.
2	C03603	1	DRIP GUARD ASSEMBLY, 6" TUBE
3	C03608	1	TUBE, 6", DRIP GUARD
4	C03637	1	BRACE, SUPPORT AIR INLET TUBE, 6135
5	C12652	1	#88 CLAMP
6	NPN	6	M6 FLAT WASHER
7	NPN	6	M6 LOCK WASHER
8	NPN	6	M6 HEX HEAD BOLT, 16" LG

NPN = NO PART NUMBER

Clarke Reference Bill of Materials: 030073

ENGINE MOUNTING FEET
ALL MODELS



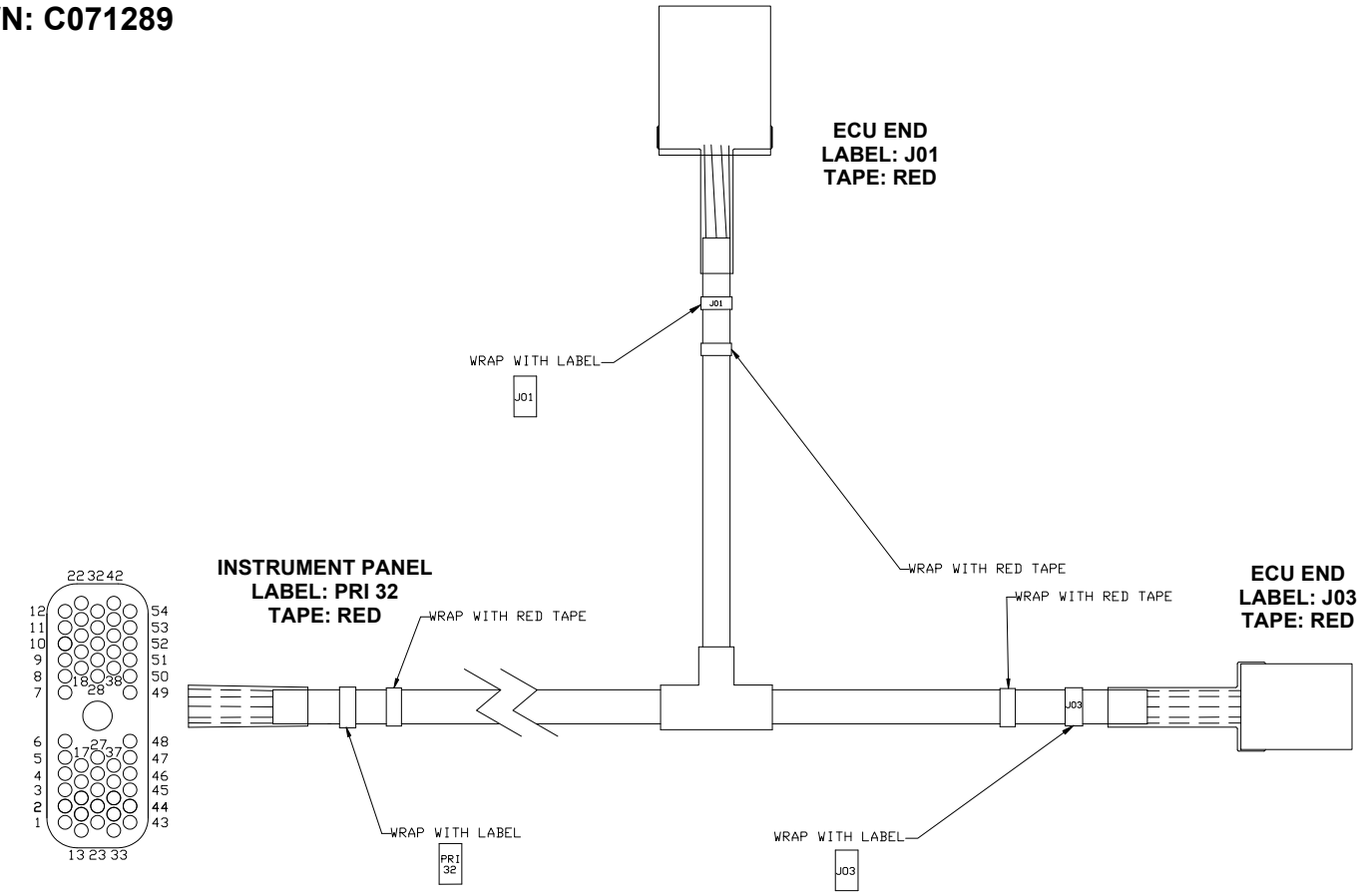
ITEM	MFR. P/N	QTY	DESCRIPTION
1	C124907	1	FOOT, FRONT MOUNTING, 6135
2	C124904	1	BRACE, REAR MOUNTING FEET, JX
3	C124905	2	FOOT, REAR MOUNTING, JX
4	NPN	4	M16 LOCK WASHER
5	NPN	4	M16 X 35 HEX HEAD BOLT
6	NPN	8	5/8" LOCK WASHER
7	NPN	8	5/8" X 1.50" HEX HEAD BOLT
8	NPN	6	1/2" LOCK WASHER
9	NPN	6	1/2" X 1.50" HEX HEAD BOLT
10	NPN	6	1/2" HEX HEAD NUT

NPN = NO PART NUMBER

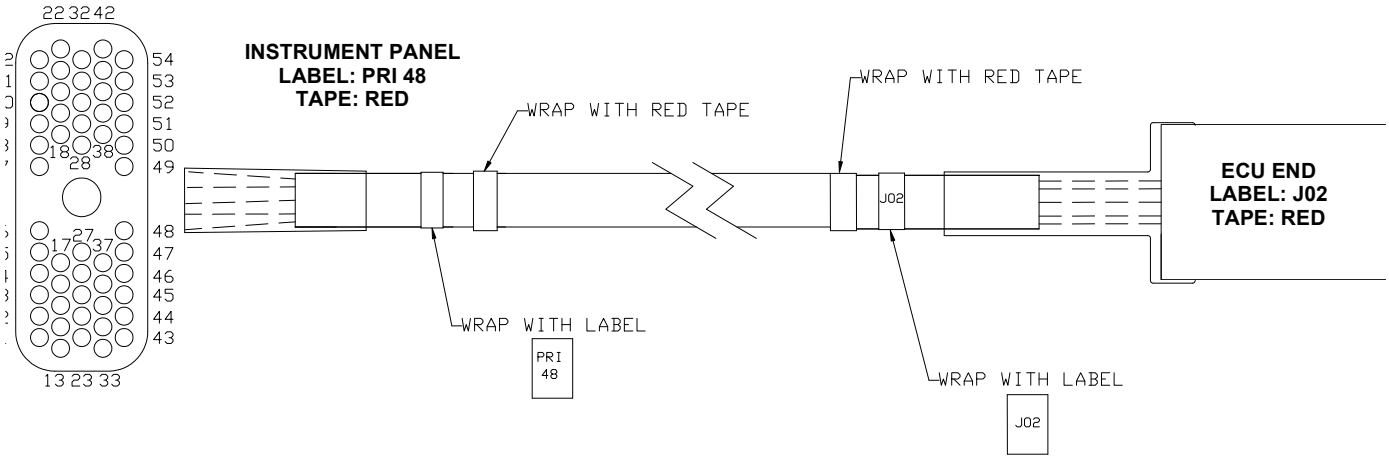
Clarke Reference Bill of Materials: 110002

ENGINE ECM HARNESSES
ALL MODELS

P/N: C071289



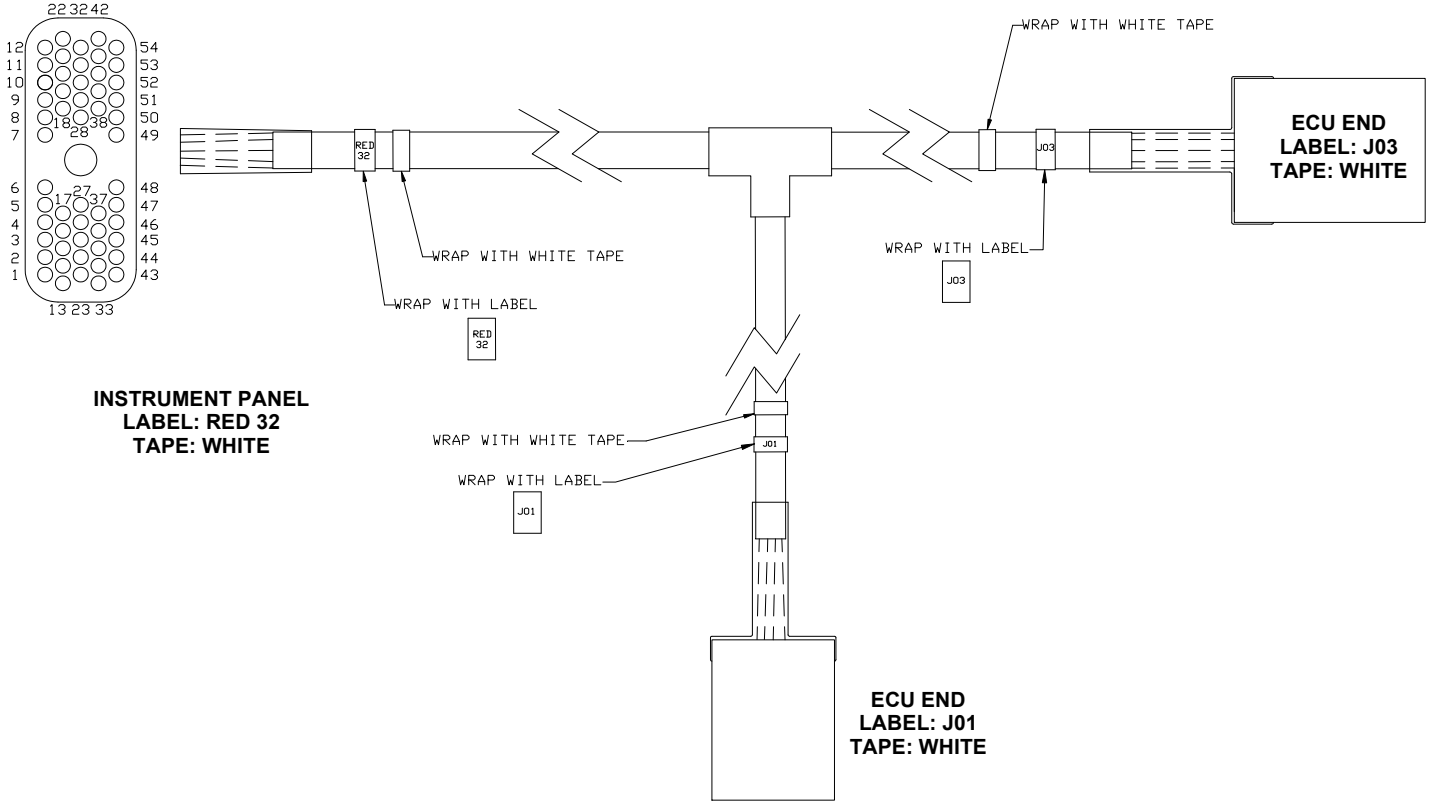
P/N: C071292



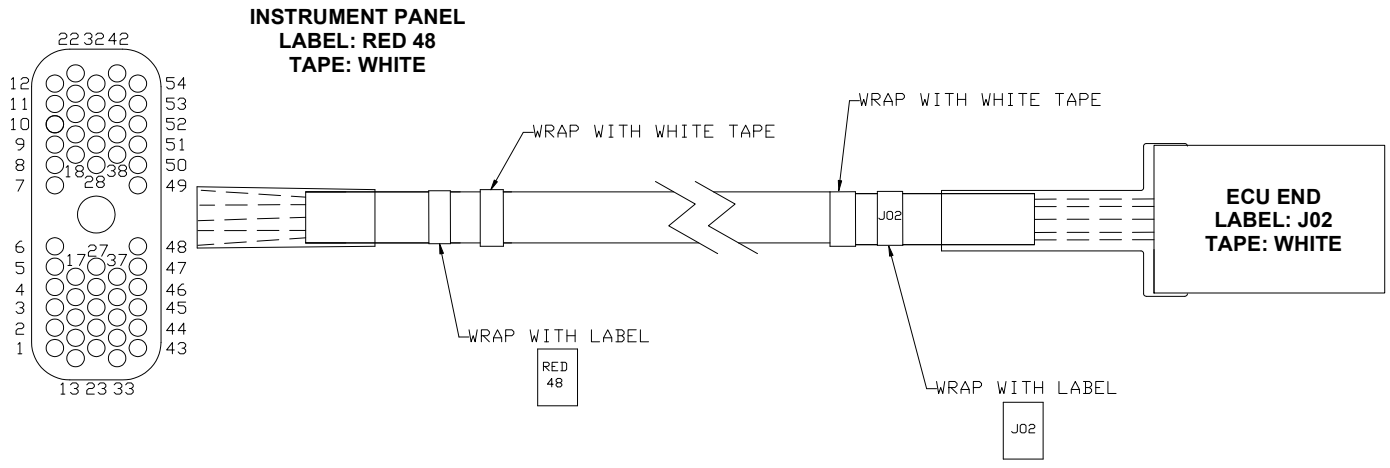
Clarke Reference:
C071463

ENGINE ECM HARNESSES CONT.
ALL MODELS

P/N: C071300

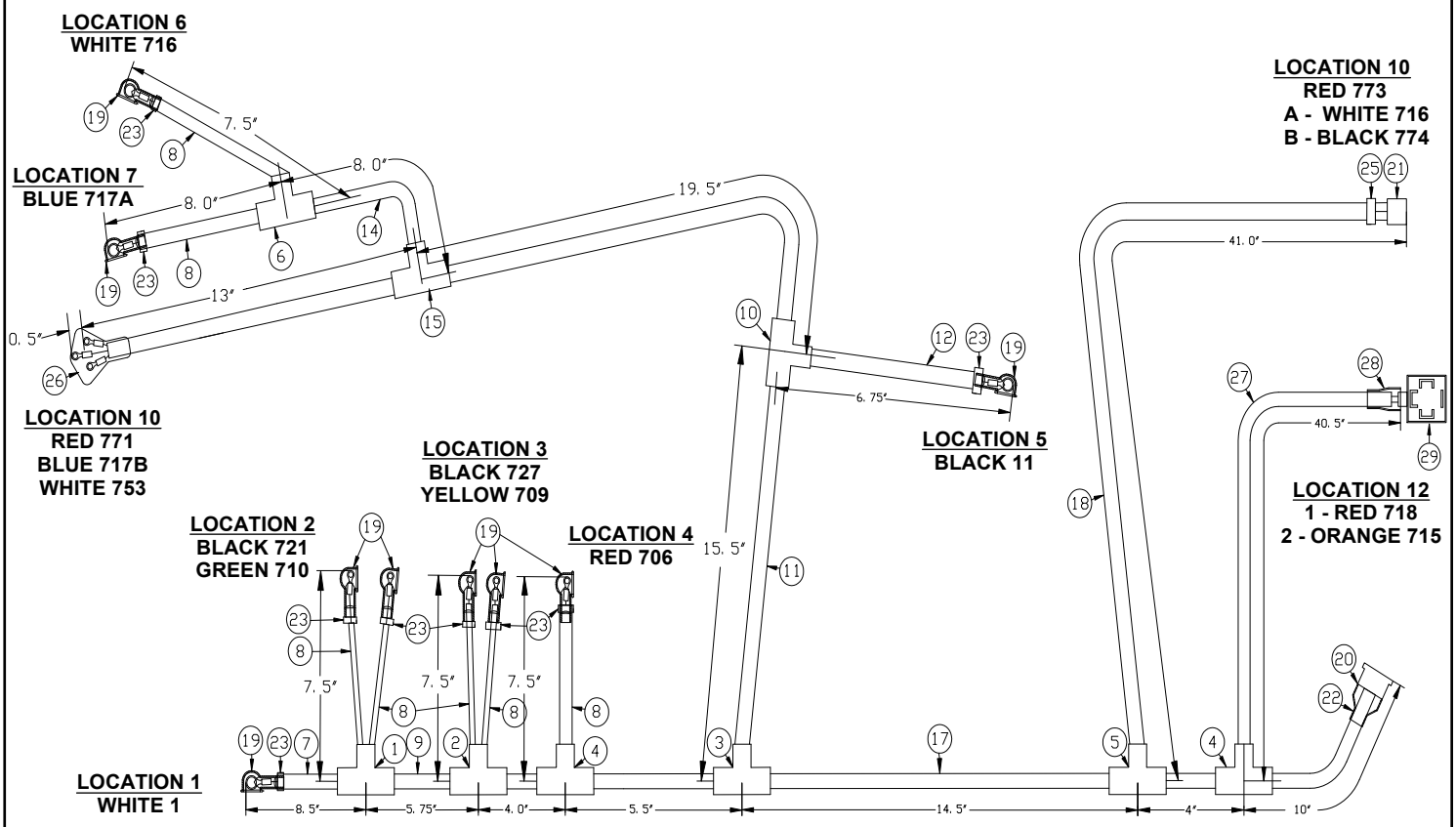


P/N: C071303



Clarke Reference:
C071463

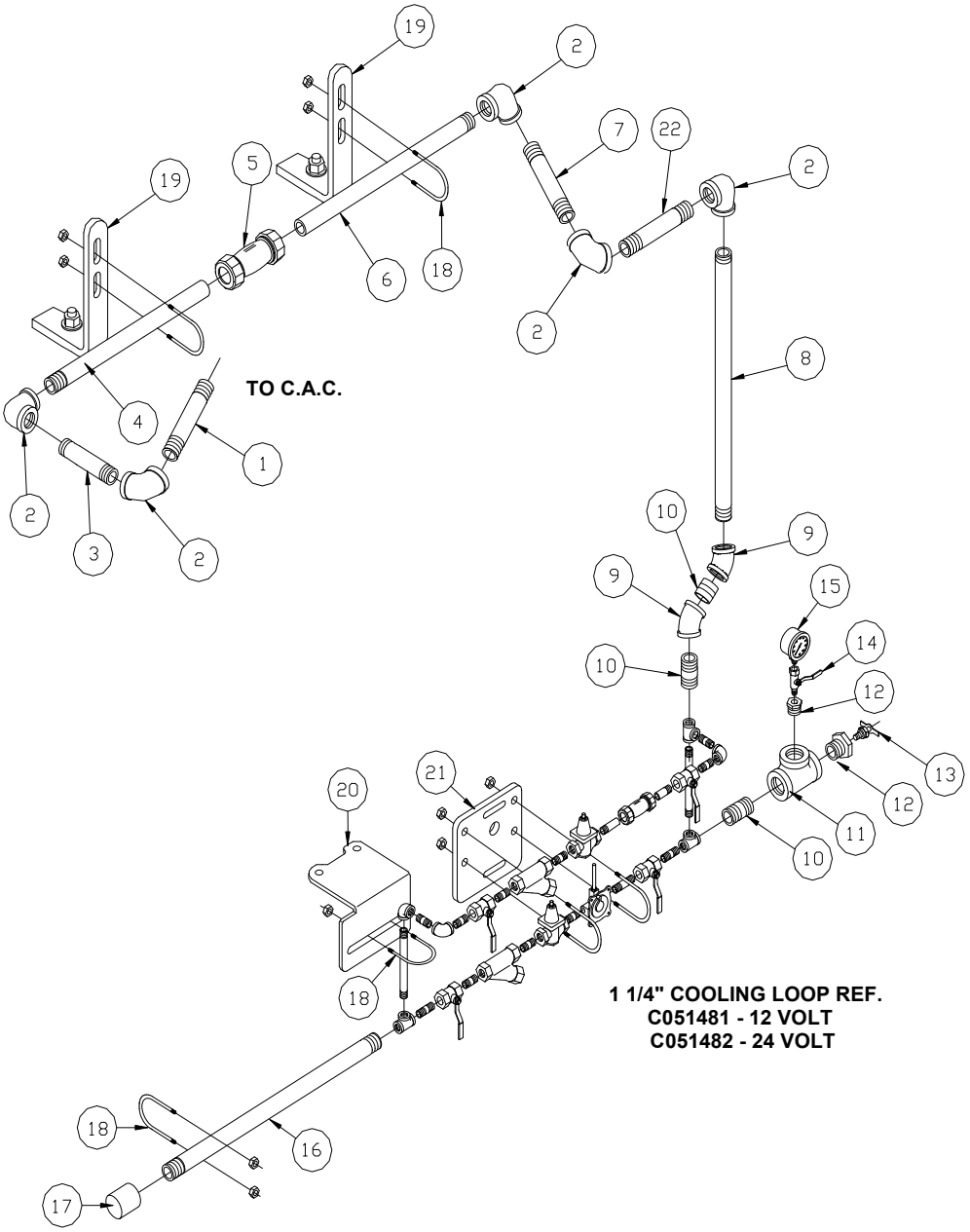
ENGINE POWER HARNESS
ALL MODELS



ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
1	1	1 X 5/8 X 1/4 TEE	16		
2	1	3/4 X 5/8 X 1/2 TEE	17	1	3/4 LOOM 36" LG
3	1	3/4 X 1/2 X 3/4 TEE	18	1	3/8 LOOM 30.5 LG
4	2	3/4 X 1/4 X 3/4 TEE	19	9	BOOT
5	2	3/4 X 3/8 X 3/4 TEE	20	1	CONNECTOR
6	1	3/8 X 1/4 X 1/4 TEE	21	1	CONNECTOR
7	7	1/4 LOOM 7" LG	22	1	BOOT
8	1	1/4 LOOM 6.5" LG	23	9	1/4 END RING
9	1	1/2 LOOM 5" LG	24		
10	1	1/2 X 1/4 X 1/2	25	1	3/8 END RING
11	1	1/2 LOOM 47" LG	26	1	BOOT
12	1	1/4 LOOM 5" LG	27	1	1/4 LOOM 40.5" LG
13			28	1	RUBBER BOOT
14	1	3/8 LOOM 7" LG	29	1	CONNECTOR
15	1	1/2 X 3/8 X 1/2			

Clarke Reference:
C071295

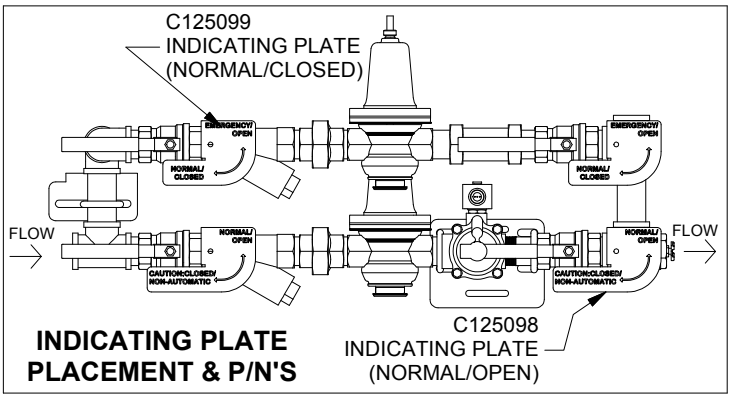
PIPING KIT ASSEMBLY
ALL MODELS



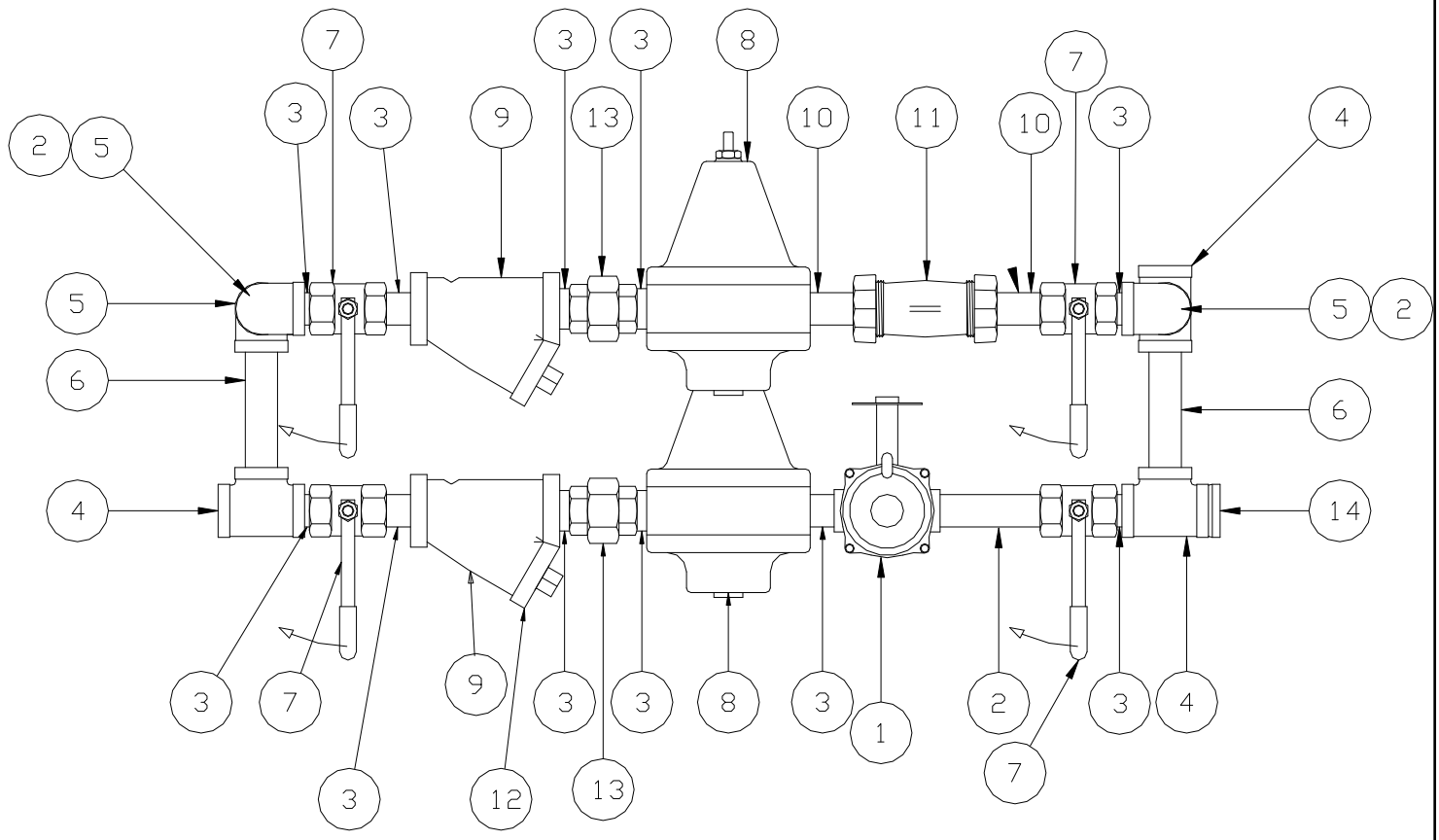
ITEM	MFR. P/N	QTY	DESCRIPTION	ITEM	MFR. P/N	QTY	DESCRIPTION
1	C126192	1	1 1/4" PIPE NIPPLE, 5.5" LG	12	C121934	2	1 1/4" X 1/4" REDUCER BUSHING
2	C121844	5	1 1/4" PIPE ELBOW, 90 DEGREES	13	C12153	1	1/4" DRAINCOCK
3	C122125	1	1 1/4" PIPE NIPPLE, 4.0" LG	14	C05505	1	1/4" DRAINCOCK
4	C122415	1	1 1/4" PIPE TOE, 24.0" LG	15	C051545	1	PRESSURE GAUGE
5	C122258	1	1 1/4" PIPE COUPLING DRESSER	16	C125082	1	1 1/4" PIPE NIPPLE, 25" LG
6	C122414	1	1 1/4" PIPE TOE, 18.0" LG	17	CONSUMABLE	1	1 1/4" PLASTIC CAP
7	C122133	1	1 1/4" PIPE NIPPLE, 8.5" LG	18	C051126	6	U-BOLT
8	C124872	1	1 1/4" PIPE NIPPLE, 22.0" LG	19	C05939	2	SUPPORT BRACKET
9	C123128	2	1 1/4" PIPE ELBOW, 45 DEGREE	20	C051259	1	SUPPORT BRACKET
10	C122121	3	1 1/4" PIPE NIPPLE, CLOSED	21	C051260	1	SUPPORT BRACKET
11	C121862	1	1 1/4" PIPE TEE, STRIAGHT	22	C122131	1	1 1/4" PIPE NIPPLE, 7.5" LG

Clarke Reference
Bill of Materials:
C051475 - PIPING KIT

COOLING LOOP ASSEMBLY
ALL MODELS



INDICATING PLATE PLACEMENT & P/N'S



ITEM	MFR. P/N	QTY	DESCRIPTION	ITEM	MFR. P/N	QTY	DESCRIPTION
1	C124063	1	1 1/4" SOLENOID VALVE (12 VOLT)	8	C121922	2	1 1/4" REGULATOR VALVE
	C124064	1	1 1/4" SOLENOID VALVE (24 VOLT)	9	C121820	2	1 1/4" STRAINER, Y-TYPE
2	C122124	3	1 1/4" PIPE NIPPLE, 3.0" LG	10	C122403	2	1 1/4" PIPE TOE, 3.0" LG
3	C122121	11	1 1/4" PIPE NIPPLE, CLOSED	11	C122258	1	1 1/4" PIPE COUPLING DRESSER
4	C121862	3	1 1/4" PIPE TEE	12	C122295	2	1/2" PIPE SQUARE HEAD PLUG
5	C121844	3	1 1/4" PIPE ELBOW, 90 DEGREE	13	C121880	2	1 1/4" PIPE UNION
6	C122125	2	1 1/4" PIPE NIPPLE, 4.0" LG	14	C122339	1	1 1/4" PIPE CAPPLUG
7	C121814	4	1 1/4" BALL VAVLE				

Clarke Reference
Bill of Materials:
0C051481 - 12 VOLT COOLING LOOP KIT
0C051482 - 24 VOLT COOLING LOOP KIT

DRIVESHAFT ASSEMBLY (SC2160A)
ALL MODELS

NOTES:

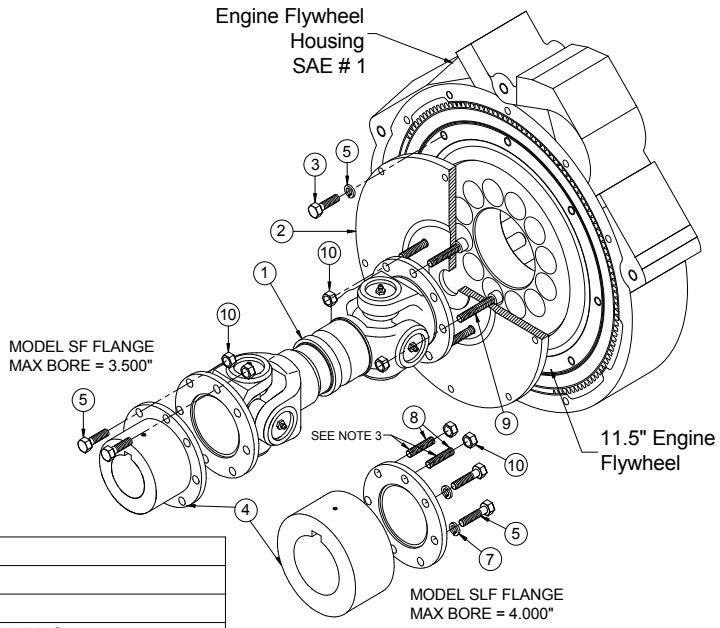
1. SEE OPERATION AND MAINTENANCE INSTRUCTIONS MANUAL FOR ALIGNMENT PROCEDURE AND FOR TIGHTENING TORQUE VALUES FOR ALL DRIVESHAFT MOUNTING HARDWARE.

2. IT IS RECOMMENDED THAT A THREADLOCKER (I.E. PERMATEX - BLUE #24240 FOR BOLTS AND PERMATEX - GREEN #64040 FOR STUDS) BE USED IN ASSEMBLY.

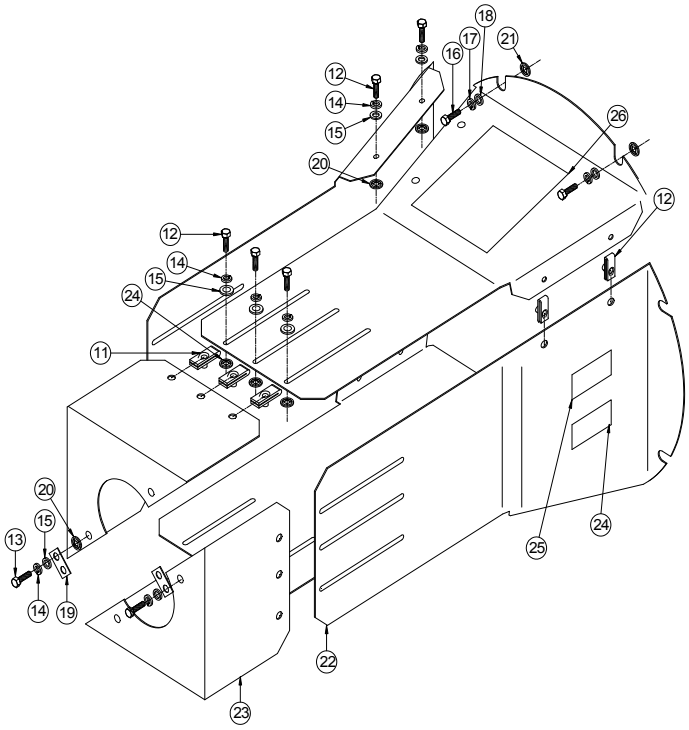
3. ADDITIONAL (4) STUDS ARE SHIPPED LOOSE FOR USE WHEN A MODEL "SLF " FLANGE IS UTILIZED. DISCARD IF USING A MODEL "SF" FLANGE.

4. LOCTITE COMPANION FLANGE & SET SCREW PER ETB001.

5. SC2160A IS NON-LISTED.

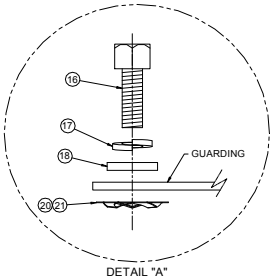


ITEM	MFR. P/N	QTY	DESCRIPTION
1	C083771	1	DRIVESHAFT,SC2160A
2	C084708	1	DRIVE DISK, SC2160
3	C120836	8	3/8" - 16 GRADE 8 BOLT, 1 1/2" LG
4	C083112 - C083160	1	180-10 SERIES COMPANION SF FLANGE (in)
	C083161	1	180-10 SERIES COMPANION SLF FLANGE (in)
	C083437 - C083494	1	180-10 SERIES COMPANION SF FLANGE (mm)
	C083495 - C083509	1	180-10 SERIES COMPANION SLF FLANGE (mm)
5	U121076	10	M16-2 HEX HEAD BOLT, 45mm LG
6	C122999	8	3/8" GRADE 8 LOCK WASHER
7	C122976	4	M16 LOCK WASHER
8	C126696	6	M16-2 STUD, 70mm LG
9	C125745	10	M16 SOCKET HEAD CAP SCREW, 55LG
10	C125845	20	M16-2.00 LOCK NUT



ITEM	MFR. P/N	QTY	DESCRIPITION
11	C121926	20	1/4" -20 CLIP U-NUT
12	NPN	20	1/4" - 20 BOLT, 3/4" LG
13	NPN	4	1/4" - 20 BOLT, 1/2" LG
14	NPN	24	1/4" LOCK WASHER
15	NPN	24	1/4" FLAT WASHER
16	NPN	8	3/8" - 16 BOLT, 3/4"
17	NPN	8	3/8" LOCK WASHER
18	NPN	8	3/8" FLAT WASHER
19	C10326	2	STABLIZER
20	C126772	24	1/4" METAL RETAINING WASHER
21	C126780	8	3/8" PLASTIC RETAINING WASHER
22	C10463	4	DRIVESHAFT GUARD
23	C10346	2	DRIVESHAFT ENDCAP
24	C13190	1	LABEL (KEEP GUARD WARNING)
25	C13258	1	LABEL (DRIVESHAFT - LUBRICATE)
26	C132958	1	LABEL (ALIGNMENT PROCEDURE)

NPN = NO PART NUMBER

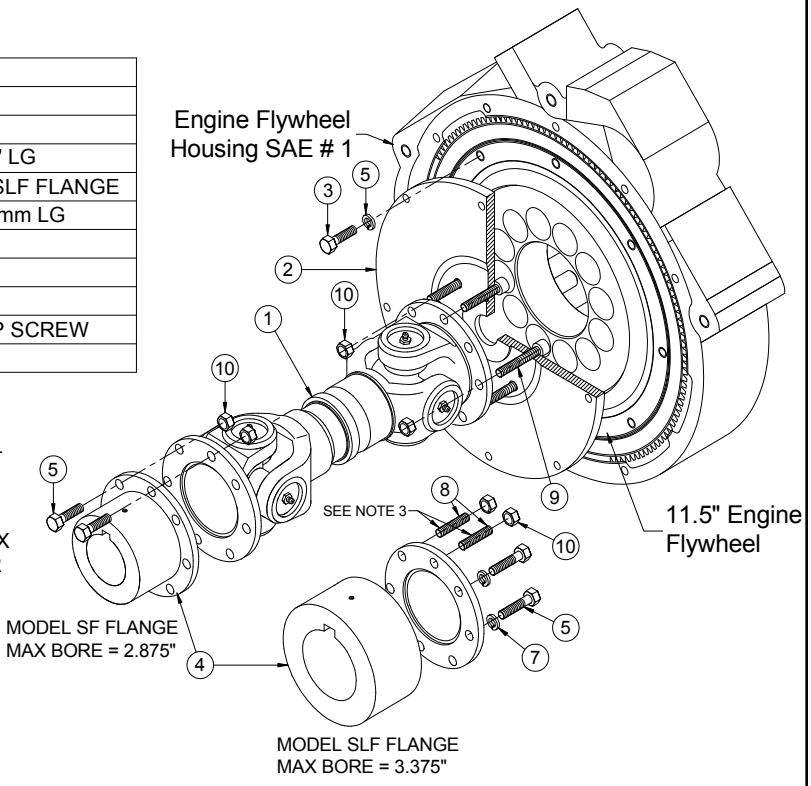


DETAIL "A"
TYPICAL BOLT
ATTACHMENT

Clarke Reference Bill of Materials: 080106

DRIVESHAFT ASSEMBLY (SC2140)
JX6H-UFADF0

ITEM	MFR. P/N	QTY	DESCRIPTION
1	C08319	1	DRIVESHAFT,SC2140
2	C08449	1	DRIVE DISK, SC2140
3	C120834	8	3/8" - 16 GRADE 8 BOLT, 1 1/4" LG
4	C08323 - C08372	1	150 SERIES COMPANION SF/SLF FLANGE
5	C122934	8	M12-1.75 HEX HEAD BOLT, 40mm LG
6	C122999	8	3/8" GRADE 8 LOCK WASHER
7	C122979	4	M12 LOCK WASHER
8	C123541	4	M12 - 1.75 STUD, 46mm LG
9	C125728	8	M12 - 1.75 SOCKET HEAD CAP SCREW
10	C125849	16	12 - 1.75 LOCK NUT



NOTES:

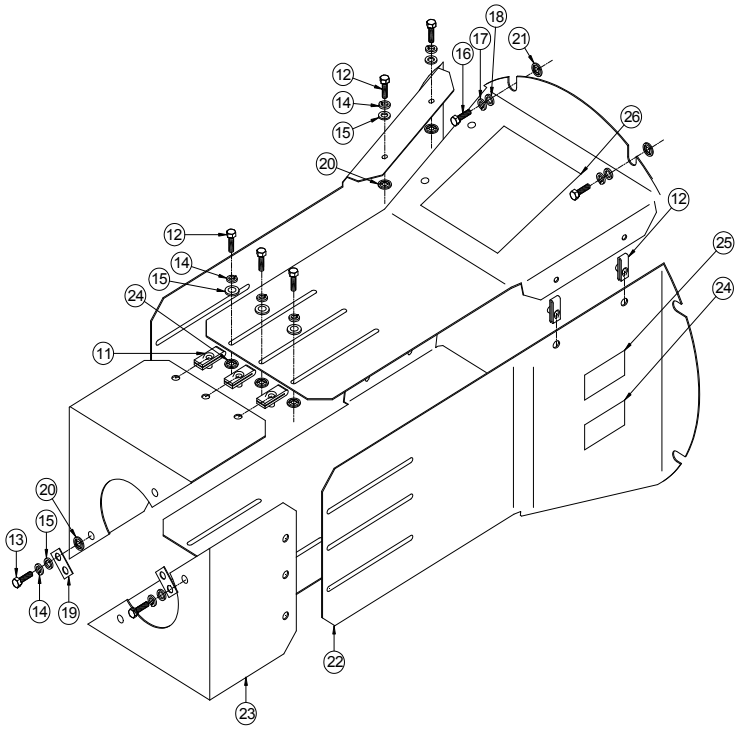
1. SEE OPERATION AND MAINTENANCE INSTRUCTIONS MANUAL FOR ALIGNMENT PROCEDURE AND FOR TIGHTENING TORQUE VALUES FOR ALL DRIVESHAFT MOUNTING HARDWARE.

2. IT IS RECOMMENDED THAT A THREADLOCKER (I.E. PERMATEX - BLUE #24240 FOR BOLTS AND PERMATEX - GREEN #64040 FOR STUDS) BE USED IN ASSEMBLY.

3. ADDITIONAL (4) STUDS ARE SHIPPED LOOSE FOR USE WHEN A MODEL "SLF " FLANGE IS UTILIZED. DISCARD IF USING A MODEL "SF" FLANGE.

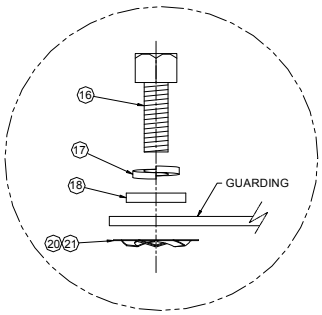
4. LOCTITE COMPANION FLANGE & SET SCREW PER ETB001.

5. SC2140 IS NON-LISTED.



ITEM	MFR. P/N	QTY	DESCRIPITION
11	C121926	20	1/4" -20 CLIP U-NUT
12	NPN	20	1/4" - 20 BOLT, 3/4" LG
13	NPN	4	1/4" - 20 BOLT, 1/2" LG
14	NPN	24	1/4" LOCK WASHER
15	NPN	24	1/4" FLAT WASHER
16	NPN	8	3/8" - 16 BOLT, 3/4"
17	NPN	8	3/8" LOCK WASHER
18	NPN	8	3/8" FLAT WASHER
19	C10326	2	STABLIZER
20	C126772	24	1/4" METAL RETAINING WASHER
21	C126780	8	3/8" PLASTIC RETAINING WASHER
22	C10463	4	DRIVESHAFT GUARD
23	C10346	2	DRIVESHAFT ENDCAP
24	C13190	1	LABEL (KEEP GUARD WARNING)
25	C13258	1	LABEL (DRIVESHAFT - LUBRICATE)
26	C131918	1	LABEL (ALIGNMENT PROCEDURE)

NPN = NO PART NUMBER

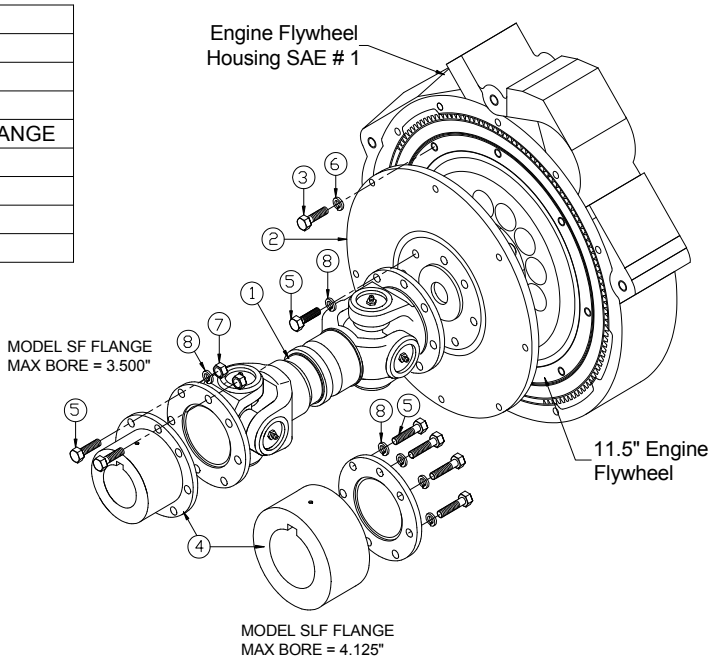


DETAIL "A"
TYPICAL BOLT
ATTACHMENT

Clarke Reference Bill of Materials: 080077

DRIVESHAFT ASSEMBLY (SC2155)
JX6H-UFAD_ _: 60, K0, N0, P0
(BEING SUPERSEDED BY SC2160A)

ITEM	MFR. P/N	QTY	DESCRIPTION
1	C08526	1	DRIVESHAFT, SC2155
2	C08531	1	DRIVE DISK, SC2155
3	C120836	8	3/8" - 16 GRADE 8 BOLT, 1 1/2" LG
4	C08532 - C08570	1	180 SERIES COMPANION SF/SLF FLANGE
5	C122937	16	M14-2 HEX HEAD BOLT, 40mm LG
6	C122999	8	3/8" GRADE 8 LOCK WASHER
7	C122947	8	M14-2 NUT
8	C122980	16	M14-2 LOCK WASHER



NOTES:

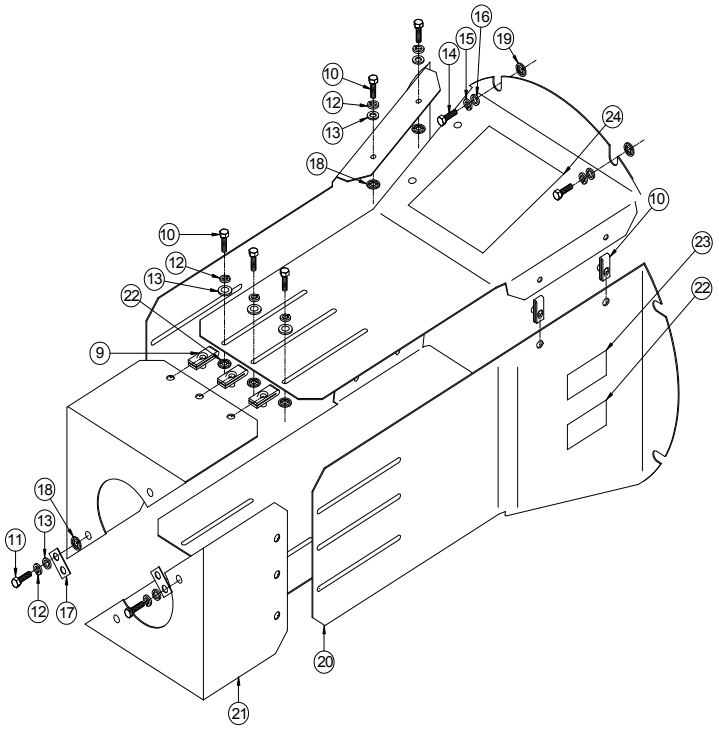
1. SEE OPERATION AND MAINTENANCE INSTRUCTIONS MANUAL FOR ALIGNMENT PROCEDURE AND FOR TIGHTENING TORQUE VALUES FOR ALL DRIVESHAFT MOUNTING HARDWARE.

2. IT IS RECOMMENDED THAT A THREADLOCKER (I.E. PERMATEX - BLUE #24240 FOR BOLTS AND PERMATEX - GREEN #64040 FOR STUDS) BE USED IN ASSEMBLY.

3. ADDITIONAL (4) STUDS ARE SHIPPED LOOSE FOR USE WHEN A MODEL "SLF " FLANGE IS UTILIZED. DISCARD IF USING A MODEL "SF" FLANGE.

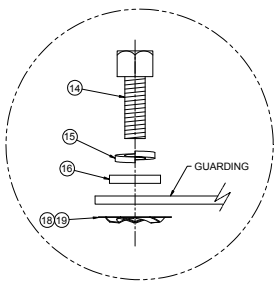
4. LOCTITE COMPANION FLANGE & SET SCREW PER ETB001.

5. SC2155 IS NON-LISTED.



ITEM	MFR. P/N	QTY	DESCRIPITION
9	C121926	20	1/4" -20 CLIP U-NUT
10	NPN	20	1/4" - 20 BOLT, 3/4" LG
11	NPN	4	1/4" - 20 BOLT, 1/2" LG
12	NPN	24	1/4" LOCK WASHER
13	NPN	24	1/4" FLAT WASHER
14	NPN	8	3/8" - 16 BOLT, 3/4"
15	NPN	8	3/8" LOCK WASHER
16	NPN	8	3/8" FLAT WASHER
17	C10326	2	STABLIZER
18	C126772	24	1/4" METAL RETAINING WASHER
19	C126780	8	3/8" PLASTIC RETAINING WASHER
20	C10463	4	DRIVESHAFT GUARD
21	C10346	2	DRIVESHAFT ENDCAP
22	C13190	1	LABEL (KEEP GUARD WARNING)
23	C13258	1	LABEL (DRIVESHAFT - LUBRICATE)
24	C131918	1	LABEL (ALIGNMENT PROCEDURE)

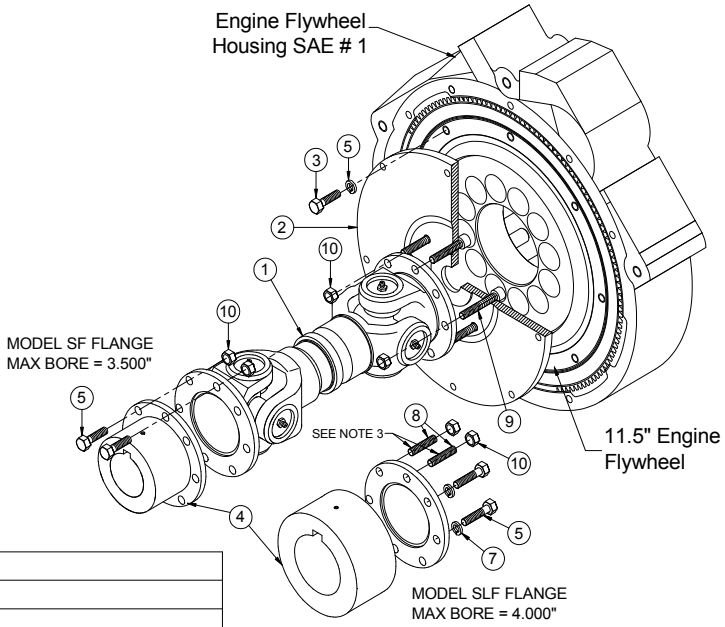
NPN = NO PART NUMBER



DETAIL "A"
TYPICAL BOLT
ATTACHMENT

Clarke Reference Bill of Materials: 080076

DRIVESHAFT ASSEMBLY (SC2160)
JX6H-UFAD88
(BEING SUPERSEDED BY SC2160A)



NOTES:

1. SEE OPERATION AND MAINTENANCE INSTRUCTIONS MANUAL FOR ALIGNMENT PROCEDURE AND FOR TIGHTENING TORQUE VALUES FOR ALL DRIVESHAFT MOUNTING HARDWARE.

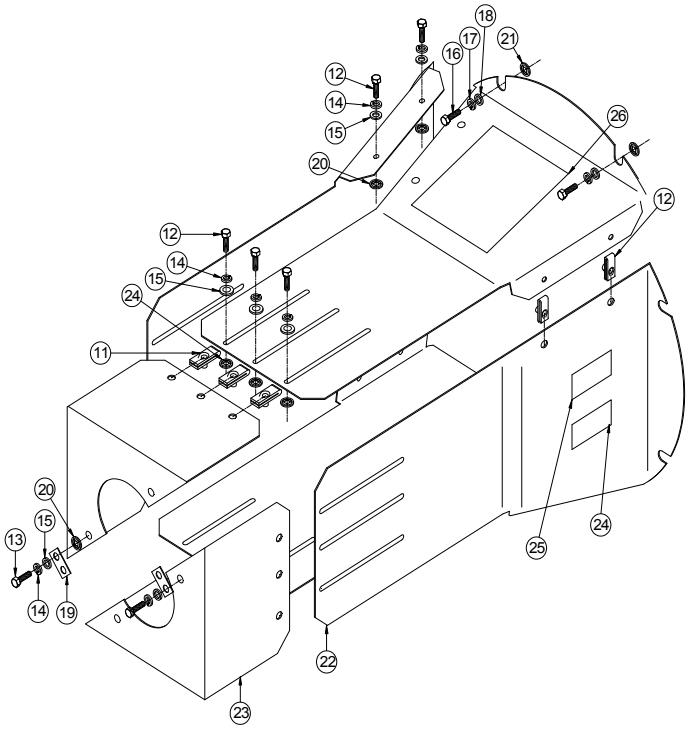
2. IT IS RECOMMENDED THAT A THREADLOCKER (I.E. PERMATEX - BLUE #24240 FOR BOLTS AND PERMATEX - GREEN #64040 FOR STUDS) BE USED IN ASSEMBLY.

3. ADDITIONAL (4) STUDS ARE SHIPPED LOOSE FOR USE WHEN A MODEL "SLF " FLANGE IS UTILIZED. DISCARD IF USING A MODEL "SF" FLANGE.

4. LOCTITE COMPANION FLANGE & SET SCREW PER ETB001.

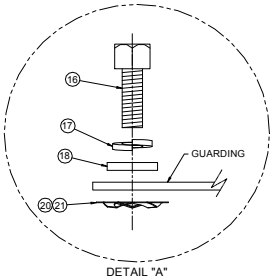
5. SC2160 IS NON-LISTED.

ITEM	MFR. P/N	QTY	DESCRIPTION
1	C083777	1	DRIVESHAFT,SC2160
2	C084708	1	DRIVE DISK, SC2160
3	C120836	8	3/8" - 16 GRADE 8 BOLT, 1 1/2" LG
4	C083112 - C083160	1	180-10 SERIES COMPANION SF FLANGE (in)
	C083161	1	180-10 SERIES COMPANION SLF FLANGE (in)
	C083437 - C083494	1	180-10 SERIES COMPANION SF FLANGE (mm)
	C083495 - C083509	1	180-10 SERIES COMPANION SLF FLANGE (mm)
5	U121076	10	M16-2 HEX HEAD BOLT, 45mm LG
6	C122999	8	3/8" GRADE 8 LOCK WASHER
7	C122976	4	M16 LOCK WASHER
8	C126696	6	M16-2 STUD, 70mm LG
9	C125745	10	M16 SOCKET HEAD CAP SCREW, 55LG
10	C125845	20	M16-2.00 LOCK NUT



ITEM	MFR. P/N	QTY	DESCRIPITION
11	C121926	20	1/4" -20 CLIP U-NUT
12	NPN	20	1/4" - 20 BOLT, 3/4" LG
13	NPN	4	1/4" - 20 BOLT, 1/2" LG
14	NPN	24	1/4" LOCK WASHER
15	NPN	24	1/4" FLAT WASHER
16	NPN	8	3/8" - 16 BOLT, 3/4"
17	NPN	8	3/8" LOCK WASHER
18	NPN	8	3/8" FLAT WASHER
19	C10326	2	STABLIZER
20	C126772	24	1/4" METAL RETAINING WASHER
21	C126780	8	3/8" PLASTIC RETAINING WASHER
22	C10463	4	DRIVESHAFT GUARD
23	C10346	2	DRIVESHAFT ENDCAP
24	C13190	1	LABEL (KEEP GUARD WARNING)
25	C13258	1	LABEL (DRIVESHAFT - LUBRICATE)
26	C132958	1	LABEL (ALIGNMENT PROCEDURE)

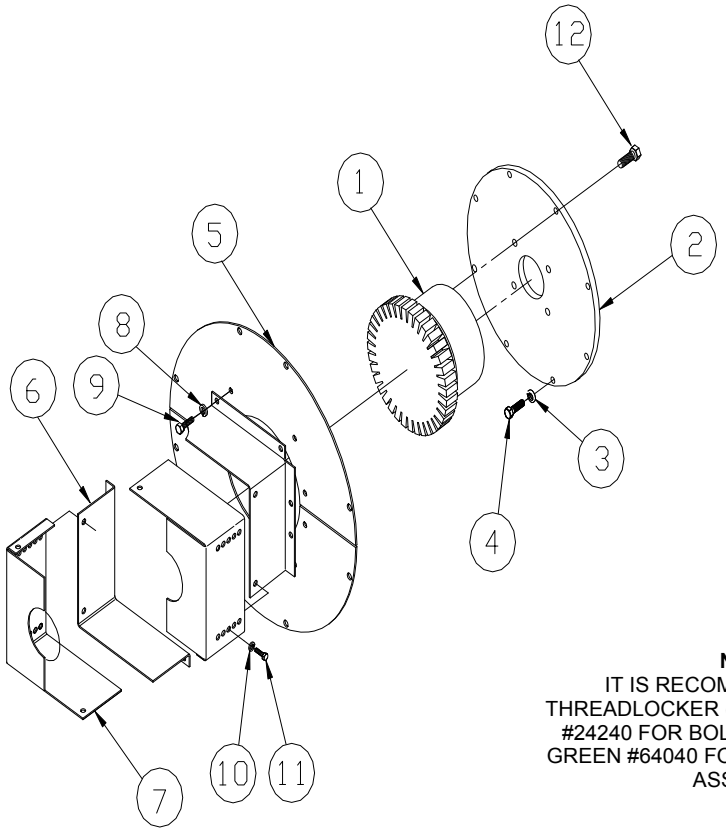
NPN = NO PART NUMBER



DETAIL "A"
TYPICAL BOLT
ATTACHMENT

Clarke Reference Bill of Materials: 080067

FALK COUPLING/ FLYWHEEL GUARD ASSEMBLY
ALL MODELS



NOTE:
IT IS RECOMMENDED THAT A THREADLOCKER (I.E. PERMATEX - BLUE #24240 FOR BOLTS AND PERMATEX - GREEN #64040 FOR STUDS) BE USED IN ASSEMBLY.

FOR MODELS - JX6H-UFAD_ _: F0, 60, K0, N0

ITEM	MFR. P/N	QTY	DESCRIPTION
1	C08099	1	FALK HUB - 1090T
2	C08103	1	FALK COUPLING DRIVE DISC - 1090T
3	C122999	8	3/8" GRADE 8 LOCK WASHER
4	C12834	8	3/8" GRADE 8 BOLT, 1.25" LG
5	C10090	2	FALK FLYWHEEL COVER
6	C10097	2	DRIVE COUPLING GUARD - FRONT
7	C10102	2	DRIVE COUPLING GUARD - REAR
8	NPN	8	M10 LOCK WASHER
9	NPN	8	M10 X 1.5 HEX HEAD BOLT, 20 MM LG
10	NPN	14	1/4" LOCK WASHER
11	NPN	14	1/4" - 20 HEX HEAD BOLT, 0.50" LG
12	5103251	10	9/16" - 20 GRADE 8 BOLT, 1.375" LG

NPN = NO PART NUMBER

FOR MODELS - JX6H - UFAD_ _: P0, 88

ITEM	MFR. P/N	QTY	DESCRIPTION
1	C08101	1	FALK HUB -1100T
2	C08105	1	FALK COUPLING DRIVE DISC - 1100T
3	C122999	16	3/8" GRADE 8 LOCK WASHER
4	C12834	16	3/8" GRADE 8 BOLT, 1.25" LG
5	C10090	2	FALK FLYWHEEL COVER
6	C10097	2	DRIVE COUPLING GUARD - FRONT
7	C10102	2	DRIVE COUPLING GUARD - REAR
8	NPN	8	M10 LOCK WASHER
9	NPN	8	M10 X 1.5 HEX HEAD BOLT, 20 MM LG
10	NPN	14	1/4" LOCK WASHER
11	NPN	14	1/4" - 20 HEX HEAD BOLT, 0.5" LG
12	5103251	12	9/16" - 20 GRADE 8 BOLT, 1.375" LG

NPN = NO PART NUMBER

Clarke Reference
Bill of Materials:
DD1100001- 1100T FALK DRIVE
080004 - 1090T FALK DRIVE
C10288 - FALK COUPLING / FLYWHEEL ASSEMBLY