KODIAK SNOW BLOWER MAINTENANCE MANUAL & PARTS BOOK

Warning:

Read and observe the safety precautions and instructions in this manual and carefully observe the safety labels on the machine.
Failure to do so may cause serious injury, death or property loss. Keep this manual accessible at all times.

NOTICE:

A SNOW BLOWER is a highly technical and custom piece of equipment meant to operate in adverse weather conditions especially extremely cold temperatures.

Kodiak shall not be liable for any adverse consequences arising from the following circumstances:

- Operation of equipment not in accordance with the information in this manual.
- Lack of maintenance or proper lubrication
- Consequences resulting from unauthorized modification or alteration of the equipment.
- Equipment damage or accident caused by not using OEM parts or using untested or unauthorized parts or tools.
- Kodiak will not be responsible for any failure or damage to the machine due to force majeure such as natural disasters (earthquakes, typhoons, etc.) or political upheaval.

Different regions and local government departments may also have stricter operating regulations for snow blowers. In case of conflict with these safety operating regulations, the more stringent safety operating regulations should be followed.

Responsibilities of the Kodiak manufacturer

- To providing quality equipment
- Timely after-sales service
- Provide access to training to equipment operators and maintenance personnel.

Responsibilities of customer or other authorized personnel and management.

- Personnel involved in the operation and maintenance of the snow blower may only operate and maintain the snow blower if they have been systematically

trained and fully understand the instructions including operation and maintenance in this manual.

- Ensure that the operator is trained, fully understands Kodiak's operation and maintenance manual, has any applicable license as is required locally and is in good health.
- Periodically check the safety awareness of all relevant personnel.
- If there is any fault affecting the safety, stop operation immediately.
- Ensure timely maintenance and repair of the equipment.
- Plan the use of the equipment carefully and consciously.

Responsibilities of all operating personnel

- If there is any phenomenon that may cause abnormal operation of the equipment or if there is potential danger, operation should stop until the situation can be

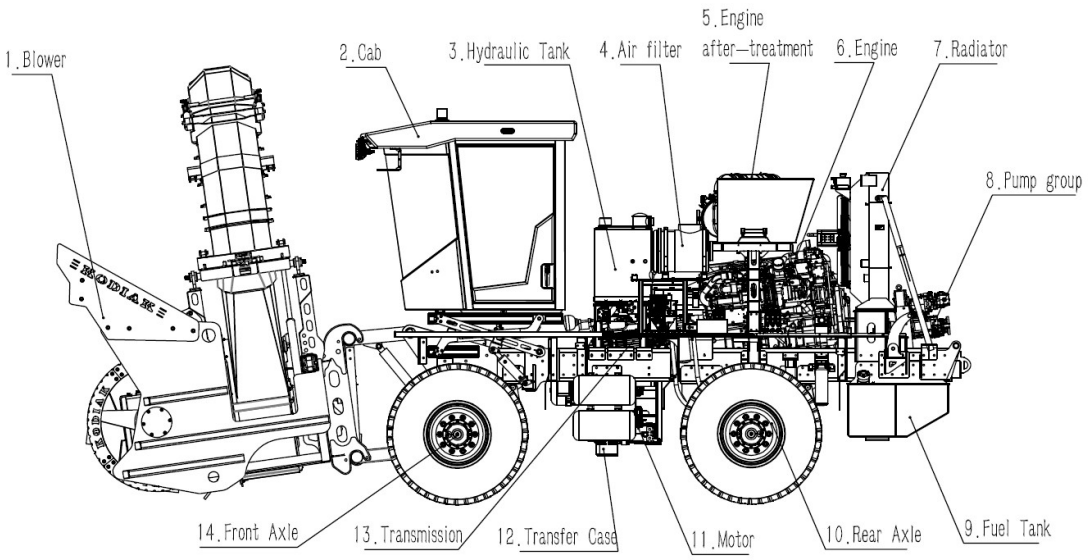
analyzed for safety.

- All personnel working on or around the equipment must obey all warning signals, signs and be vigilant for the safety of themselves and others.
- Pay attention to observe if there is any danger, and report the danger warning to the operator and any pertinent personnel in time.
  - Such as high voltage lines in the operating area, non-personnel, poor ground conditions, etc.

CONTENT

Part I Technical description

1. Technical description and Schematics



CR600S

Length: 8685mm

Width (Chassis): 2550mm

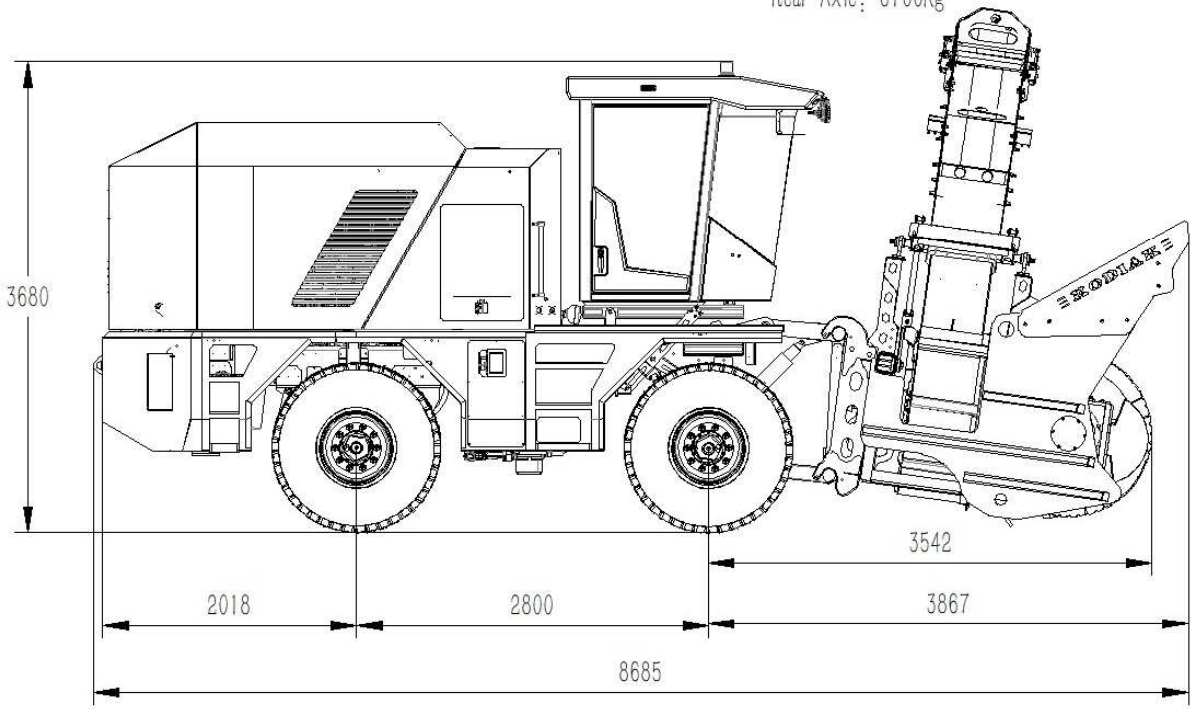
Width (With Blower): 2870mm

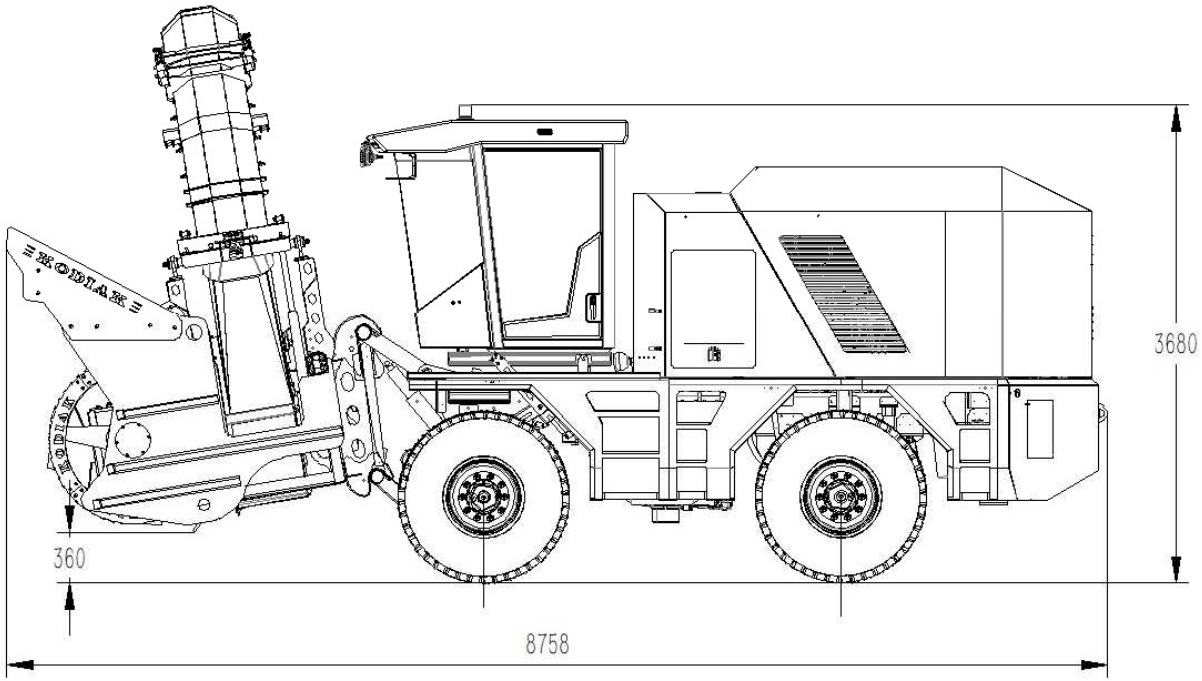
Height: 3680mm

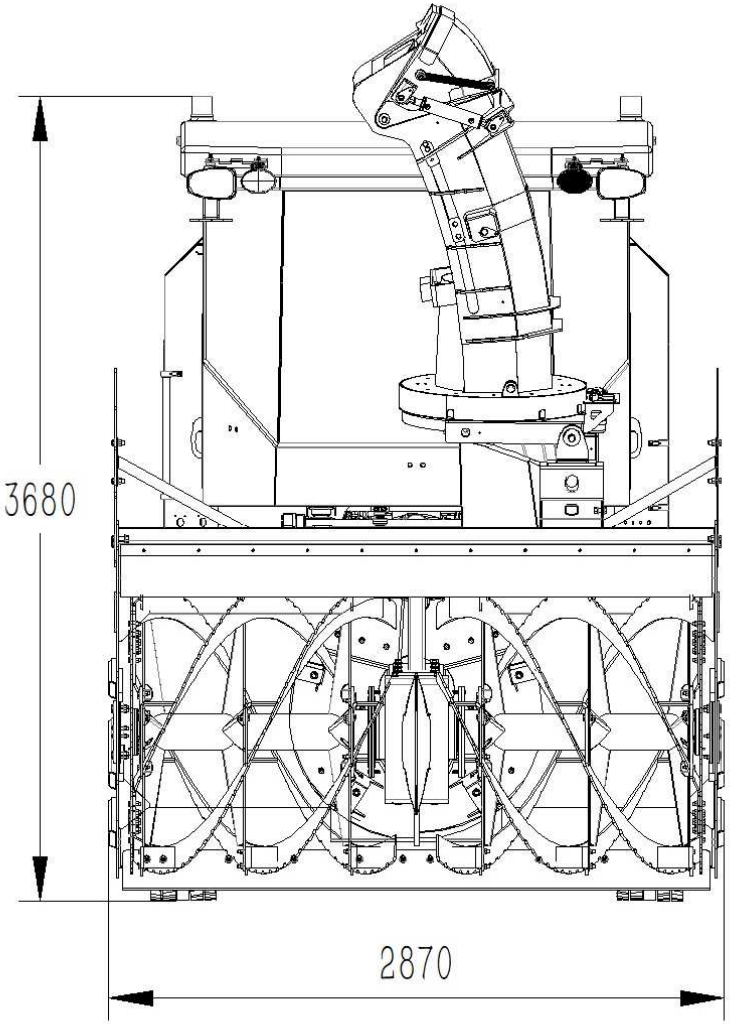
Gross Weight: 18240Kg

Front Axle: 12140Kg

Rear Axle: 6100Kg




KODIAK
3680
360
8758


3680
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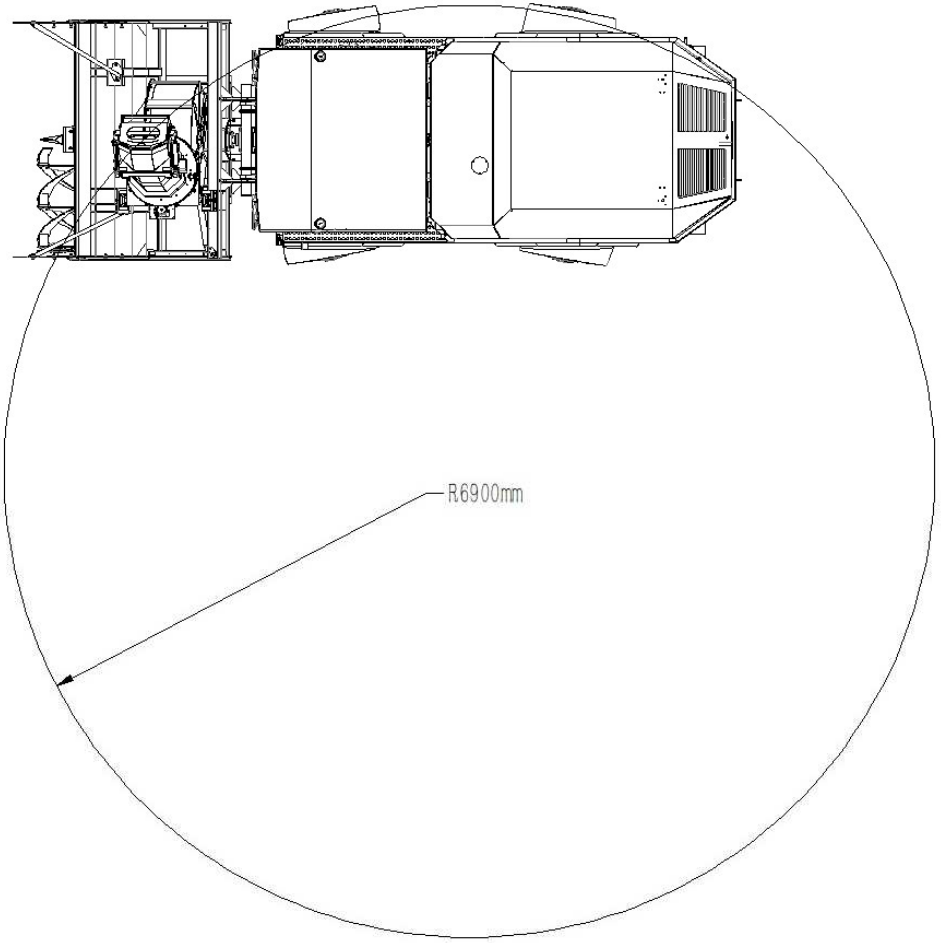
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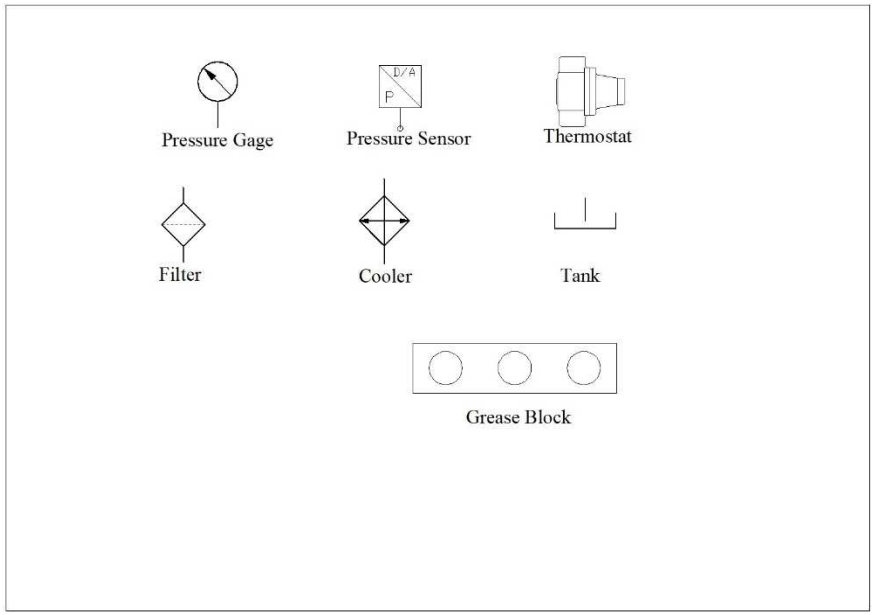
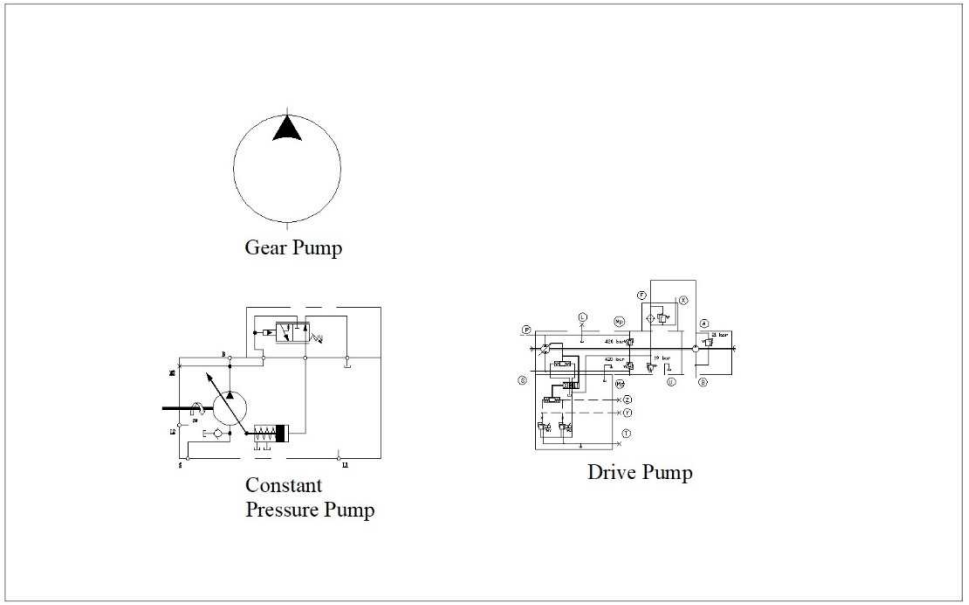
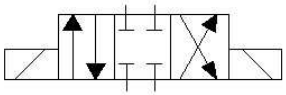
2.Hydraulic Schematics，Models & diagrams

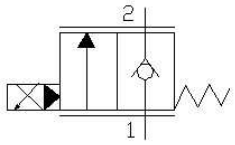

Pressure Gage
D/A
P
Pressure Sensor
Thermostat
Filter
Cooler
Tank
Grease Block


Gear Pump
Constant
Pressure Pump
Drive Pump

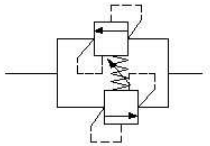
Check Valve



Manual Emergency Valve

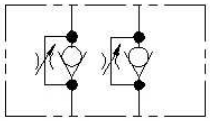


Flow Control Valve

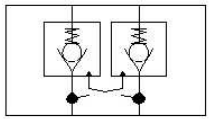


Refill/Relief Valve

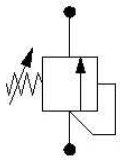
Throttle Valve



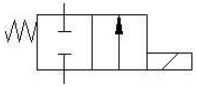
Throttle Valve



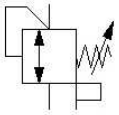
Pilot Operated Check Valve



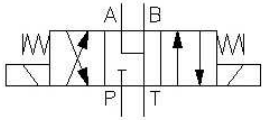
Reducing Valve



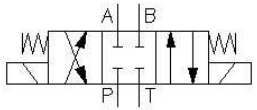
Lock Valve



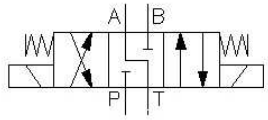
Relief Valve



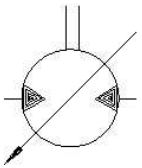
"Y"Directional Control Valve



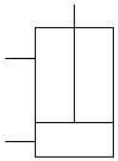
"O"Directional Control Valve



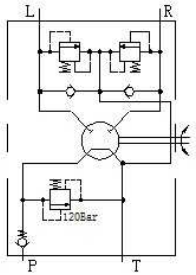
"N"Directional Control Valve



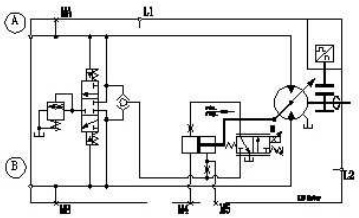
Gear motor



Cylinder

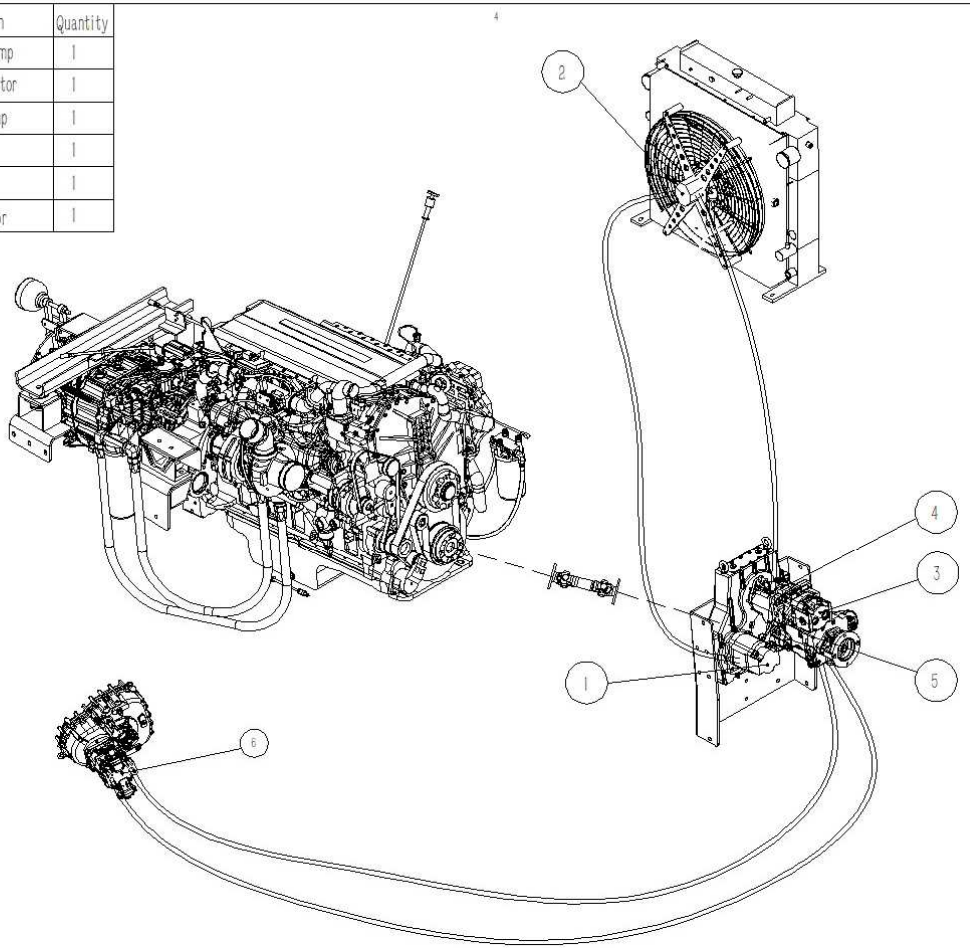


Steering Unit



Drive Motor

Num	Part Num.	Description	Quantity
1	CBHB-F550-AF15	Fan Drive Pump	1
2	CMF-E550S-AFPS	Fan Drive Motor	1
3	KP30.31D0	Steering Pump	1
4	MVP 48.45D-04S5-LME	Work Pump	1
5	HPV02-105L-E1D2	Drive Pump	1
6	H1-B-160-A-A-L2	Danfoss motor	1



KODIAK

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
Dual dimensions are in mm
Reference dimensions are in ( )

TOLERANCES:
Fractional: 1/8"
Angular: MACH±0.5° BEND
Machined/Drilled Holes:

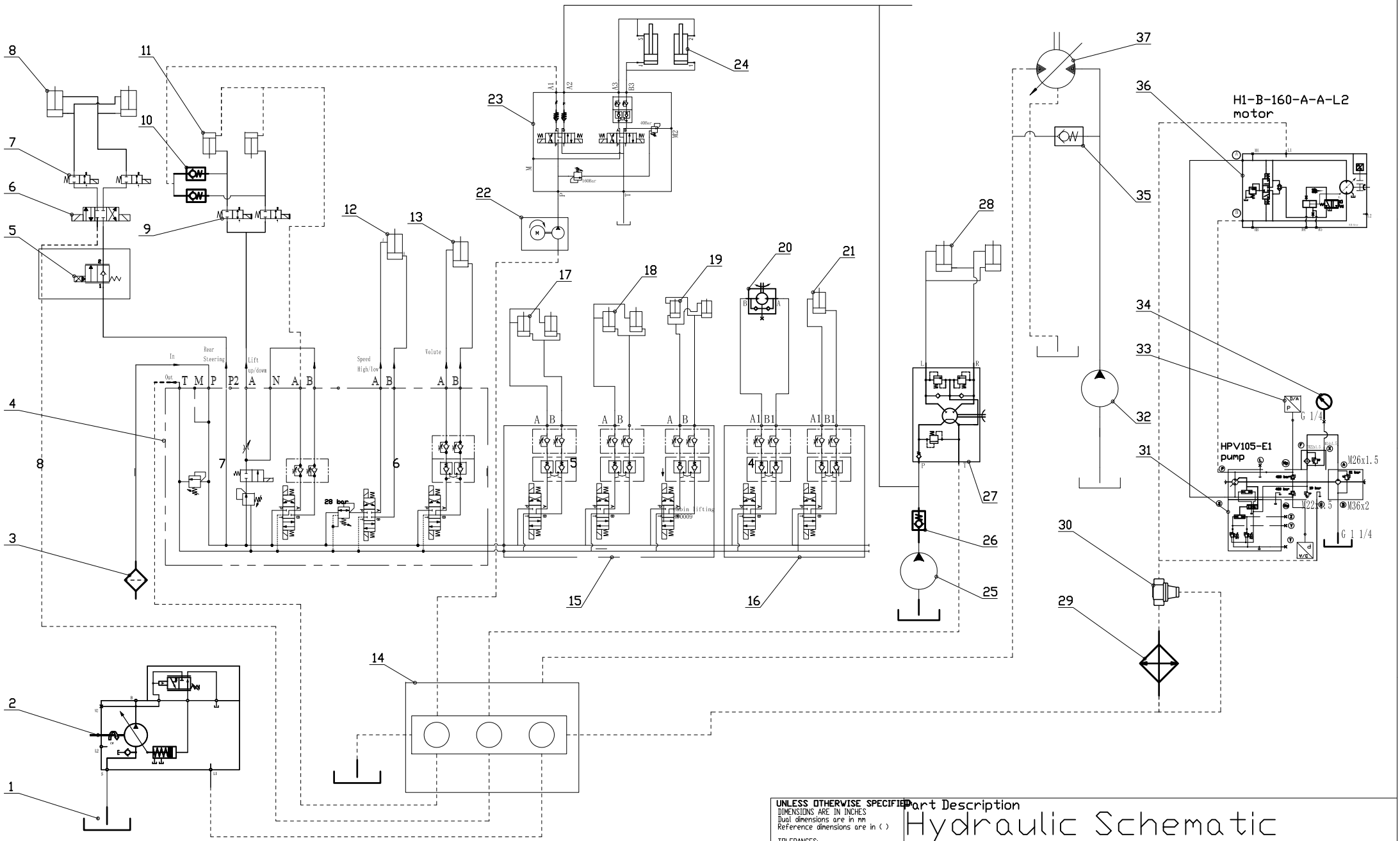
All Others
.XX ±0.10
.XXX ±0.05
.XXXX ±0.03

Part Description: Pump-Motor

Part Number: CR600S-0500000-3

Revision: -0

DRAWN BY: JND DATE: 01/04/2020 | SCALE: 1:2 | WEIGHT: | SHEET 1 OF 1



KODIAK

DRAWING NOT TO SCALE

MATERIAL

ASSEMBLY

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
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Reference dimensions are in ( )

TOLERANCES:
Fractional: ± 1/8"
Angular: MACH ± 0.5 ° BEND
Machined/Drilled Holes: ± 0.01

All Others
x.x ± 0.10
x.xx ± 0.06
x.xxx ± 0.03

Part Description
Hydraulic Schematic

Part Number
CR600S-0800100

Revision
-0

JND DATE 01/04/2020 | SCALE: 3:2 | WEIGHT: | SHEET 1 OF 1

Num	Part Num.	Description	Quantity
1	CR600S-320L	Hydraulic Tank	1
2	JR-D-S45B-PC-21-NN-NN-N-3-C2BE-A8N-NNN-JJJ-NNN	Working pump	1
3	PBF0160F010NB16N	Pressure Filter	1
4	SC2-M1H1E-4L20009	Hydraulic Valve Bank	1
5	EPC102CN-P21F40-G06-24DD	Flow control Valve	1
6	PVG32-1	Rear Steering Valve	1
7	EC102CN-P25F76-G06-24DD	Lock Valve	1
8	K06672	Steering Cylinder	2
9	EC102CN-P25F76-G06-24DD	Lock Valve	2
10	RV-DN10-G3/8-1	Check Valve	2
11	K044010	Lift Cylinder	2
12	ZHUCHI Transfer case	Shift Cylinder	1
13	K01120	Volute Cylinder	1
14	AH0900316S	Grease Block	1
15	W3LS-M1MHED-3L21018	Hydraulic Valve Bank	1
16	SC2-M1HMED-6L21007-2	Hydraulic Valve Bank	1
17	K90031	Folding guide siot Cylinder	2
18	K90032A	Expansing and contraction of guide groove Cylinder	2
19	K90037	Cab lifting Cylinder	2
20	OMR X160	Guide slot rotation	1
21	K90033	Pour down the guide groovr Cylinder	1
22	DC 5016-B	Electric pump	1
23	MCV-2BCY20-G04-01	Hydraulic Valve Bank	1
24	K90009	Cabin lifting Cylinder	2

Num	Part Num.	Description	Quantity
25	KP30.31D0-A8K9-POF/OD-T-PV-HSC	Steering Gear Pump	1
26	RV-DN12-G1/2	Check Valve	1
27	OSPC500/150N2158	Steering Unit	1
28	K06672	Steering Cylinder	2
29	Y0000151-A	Hydraulic Radiator	1
30	TV-12-60	Thermostat Valve	1
31	HPV105-02R E1	Walking Pump	1
32	CBHB-F550-AF15	Radiator Pump	1
33	S3550	Pressure Sensor	1
34	638008A4G13LP0L6MP/#-XPQT7	Pressurea Gage	1
35	RV-DN12-G1/2	Check Valve	2
36	H1-B-160-A-A-L2	Walking Motor	1
37	CMF-E550-AFPS	Radiator Motor	1

KODIAK

DRAWING NOT TO SCALE

MATERIAL

ASSEMBLY

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TOLERANCES:
Fractional: 1/8"
Angular: MACH ±0.5° BEND
Machined/Drilled Holes:

All Others
x.xx ±0.10
x.xx ±0.06
0.03

Part Description
Hydraulic Schematic Diagram

Part Number
CR600S-0800100

Revision
-0

DRAWN BY JND DATE 01/04/2020 | SCALE: 3:2 | WEIGHT: | SHEET 1 OF 1

Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
1	CR600S-320L	Hydraulic Tank	1	25	KP30.31D0-A8K9-POF/OD-T-PV-HSC	Steering Gear Pump	1
2	JR-D-S45B-PC-21-NN-NN-N-3-C2BE-A8N-NNN-IJJ-NNN	Working pump	1	26	RV-DN12-G1/2	Check Valve	1
3	PBF0160F010NB16N	Pressure Filter	1	27	OSPC500/150N2158	Steering Unit	1
4	SC2-M1H1E-4L20009	Hydraulic Valve Bank	1	28	K06672	Steering Cylinder	2
5	EPC102CN-P21F40-G06-24DD	Flow control Valve	1	29	Y0000151-A	Hydraulic Radiator	1
6	PVG32-1	Rear Steering Valve	1	30	TV-12-60	Thermostat Valve	1
7	EC102CN-P25F76-G06-24DD	Lock Valve	1	31	HPV105-02R E1	Walking Pump	1
8	K06672	Steering Cylinder	2	32	CBHB-F550-AF15	Radiator Pump	1
9	EC102CN-P25F76-G06-24DD	Lock Valve	2	33	S3550	Pressure Sensor	1
10	RV-DN10-G3/8-1	Check Valve	2	34	638008A4G13LP0L6MP/#-XPQT7	Pressurea Gage	1
11	K044010	Lift Cylinder	2	35	RV-DN12-G1/2	Check Valve	2
12	ZHUCHI Transfer case	Shift Cylinder	1	36	H1-B-160-A-A-L2	Walking Motor	1
13	K01120	Volute Cylinder	1	37	CMF-E550-AFPS	Radiator Motor	1
14	AH0900316S	Grease Block	1				
15	W3LS-M1MHED-3L21018	Hydraulic Valve Bank	1				
16	SC2-M1HMED-6L21007-2	Hydraulic Valve Bank	1				
17	K90031	Folding guide siot Cylinder	2				
18	K90032A	Expansing and contraction of guide groove Cylinder	2				
19	K90037	Cab lifting Cylinder	2				
20	OMR X160	Guide slot rotation	1				
21	K90033	Pour down the guide groovr Cylinder	1				
22	DC 5016-B	Electric pump	1				
23	MCV-2BCY20-G04-01	Hydraulic Valve Bank	1				
24	K90009	Cabin lifting Cylinder	2				

KODIAK

DRAWING NOT TO SCALE

MATERIAL

ASSEMBLY

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DIMENSIONS ARE IN INCHES
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Reference dimensions are in ( )

TOLERANCES
Fractional ±1/8"
Angular: MACH ±0.5° BEND
Machined/Drilled Holes:

All Others:
x.x ±0.10
x.xx ±0.05
.xxx ±0.03

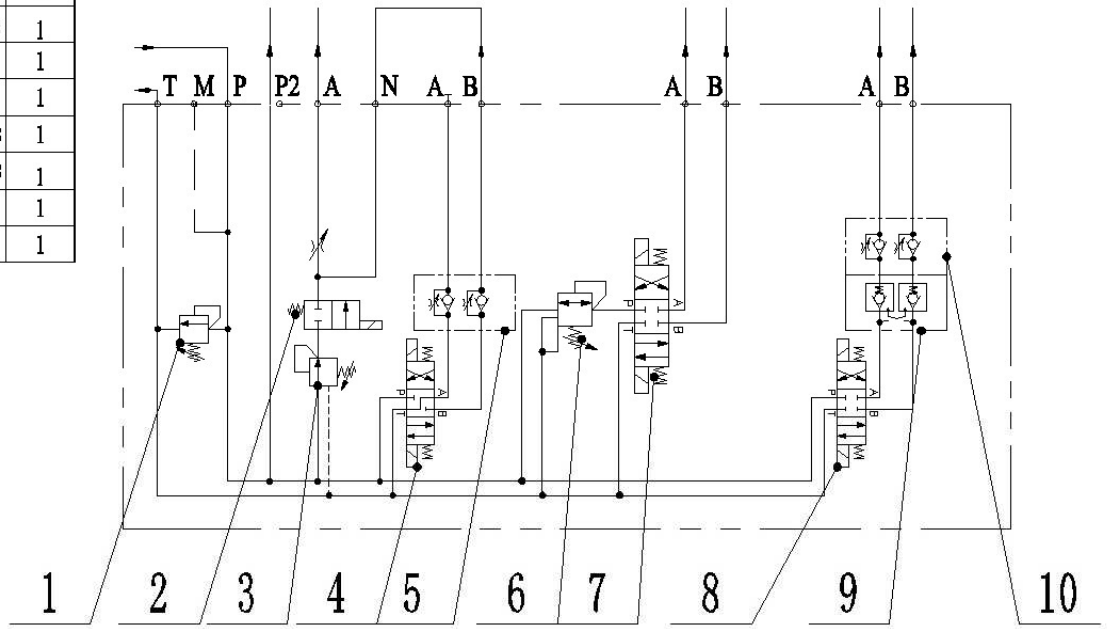
Part Description: Hydraulic Schematic Diagram

Part Number: CR600S-0800100

Revision: -0

DRAWN BY: JND DATE: 01/04/2020 | SCALE: 3/2 | WEIGHT: | SHEET 1 OF 1

Num	Part Num.	Description	Quantity
1	XYF10-08	Relief Valve	1
2	DASV10-28-0-N-00DR	Lock Valve	1
3	LPPR-10-30	Relief Valve	1
4	WDMFA06-AJB	Directional Control Valves	1
5	MSW-01-X-30	Throttle Valve	1
6	LDPR-08-6	Relief Valve	1
7	WDMFA06-ADB	Directional Control Valves	1
8	WDMFA06-ADB	Directional Control Valves	1
9	MPW-01-4-40	Two-way Yydraulic Lock	1
10	MSW-01-X-30	Throttle Valve	1



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TOLERANCES
Fractional: 1/8"
Angular: MACH ±0.5° BEND
Machined/Drilled Holes

All Others
xx ±0.10
xxx ±0.05
0.03

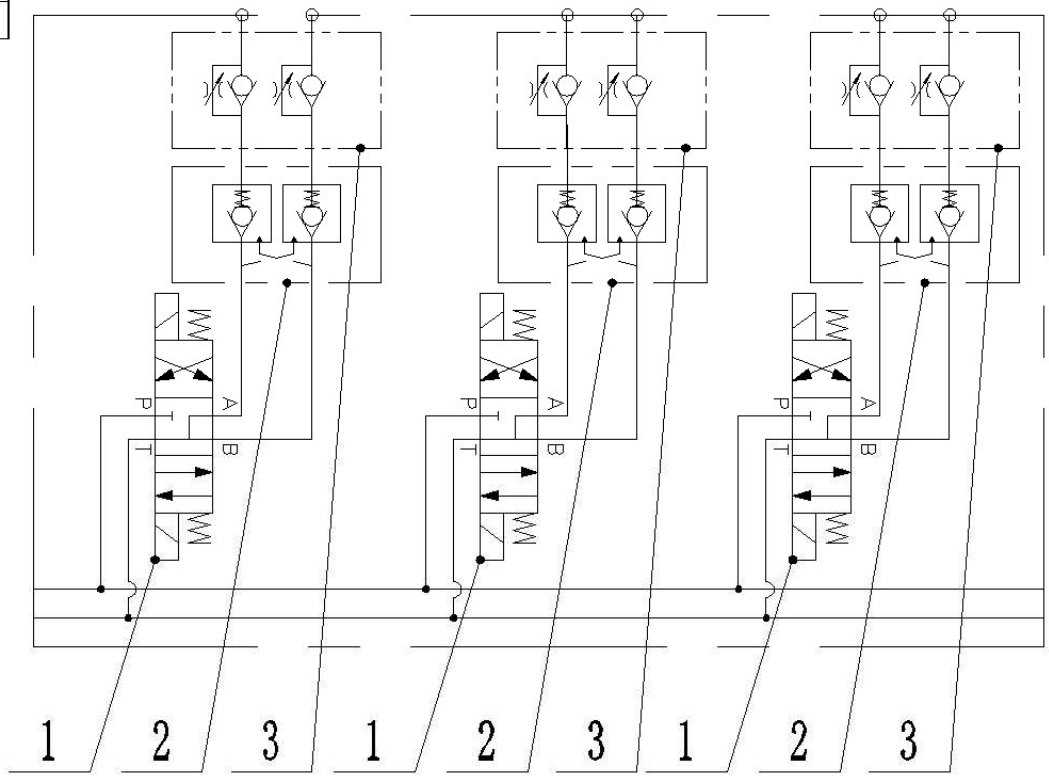
Part Description
Valve Bank

Part Number
SC2-M1H1EH-4L20009-V1

-0

DRAWN BY JND DATE 01/04/2020 | SCALE: 3:2 | WEIGHT: | SHEET 1 OF 1

Num	Part Num.	Description	Quantity
1	WDMFA06-ADB	Directional Control Valves	3
2	MPW-01-4-40	Two-way Ydraulic Lock	3
3	MSW-01-X-30	Throttle Valve	3



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ASSEMBLY

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Reference dimensions are in ( )

TOLERANCES
Fractional± 1/8"
Angular: MACH ±0.5° BEND
Machined/Drilled Holes

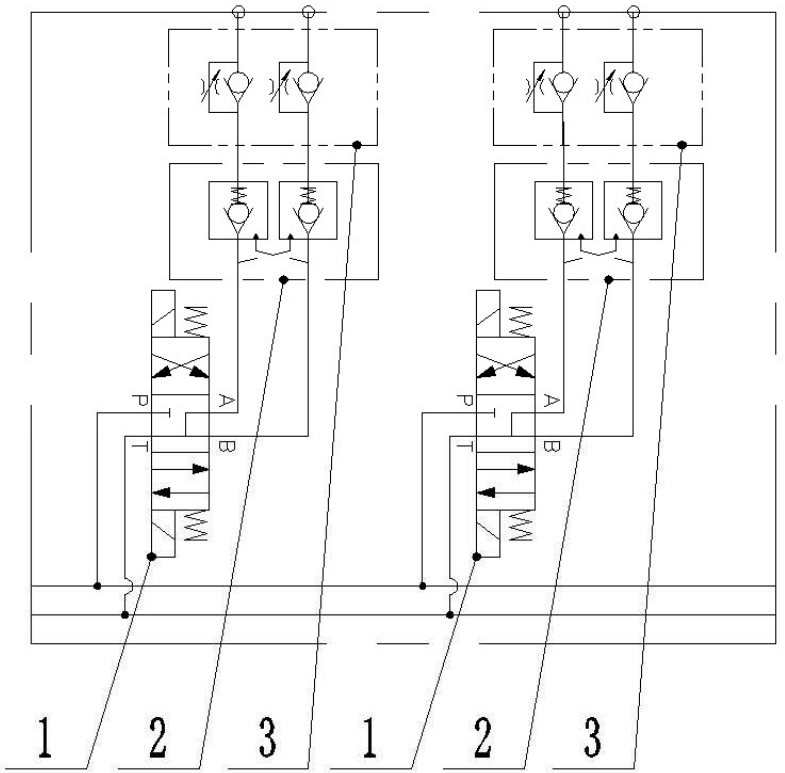
All Others
.xx ±0.10
.xxx ±0.05
0.03

Part Description
Valve Bank

Part Number
W3IS-M1HMED-3L21018 -0

DRAWN BY JND DATE 01/04/2020 | SCALE: 3:2 | WEIGHT: | SHEET 1 OF 1

Num	Part Num.	Description	Quantity
1	WDMFA06-ADB	Directional Control Valves	2
2	MPW-01-4-40	Two-way Ydraulic Lock	2
3	MSW-01-X-30	Throttle Valve	2



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Reference dimensions are in ( )

TOLERANCES:
Fractional ±1/8"
Angular: MACH ±0.5° BEND
Machined/Drilled Holes

All Others
xx ±0.01
xxx ±0.05
.003

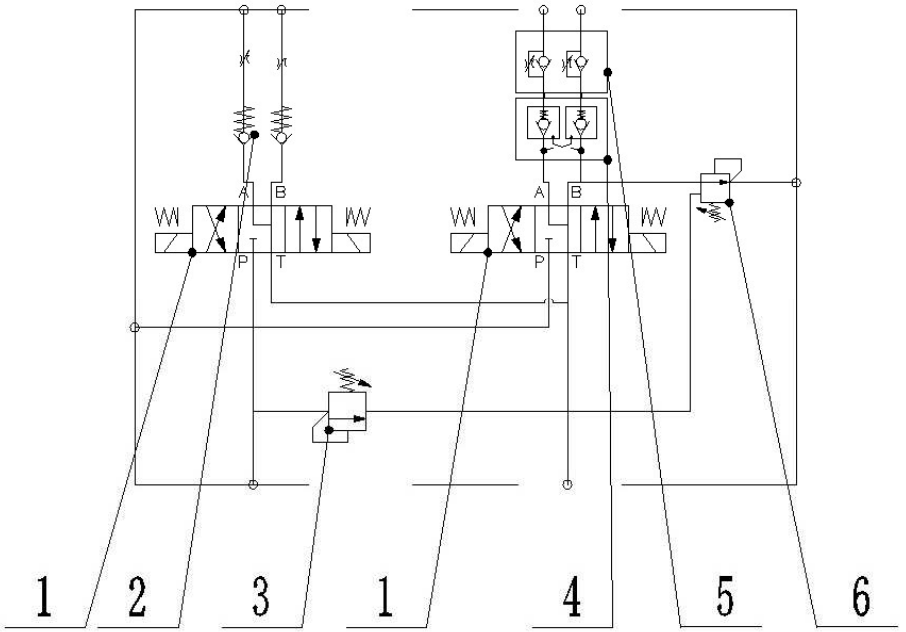
Part Description
Valve Bank

Part Number
SC2-M1HMED-6L21007-2

-0

DRAWN BY JND DATE 01/04/2020 | SCALE: 3:2 | WEIGHT: | SHEET 1 OF 1

Num	Part Num.	Description	Quantity
1	LSV-08-34-M-2-ER	Directional Control Valves	2
2	LCV-08-P-0.3	Check Valve	2
3	LADRV6-08-33	Relief Valve	1
4	LDPC-08-3.4	Two-way Ydraulic Lock	1
5	LFC-08	Throttle Valve	1
6	LDPR-08-12	Relief Valve	1



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Reference dimensions are in ( )

TOLERANCES:
Fractional: 1/8"
Angular: MACH ±0.5° BEND
Machined/Drilled Holes

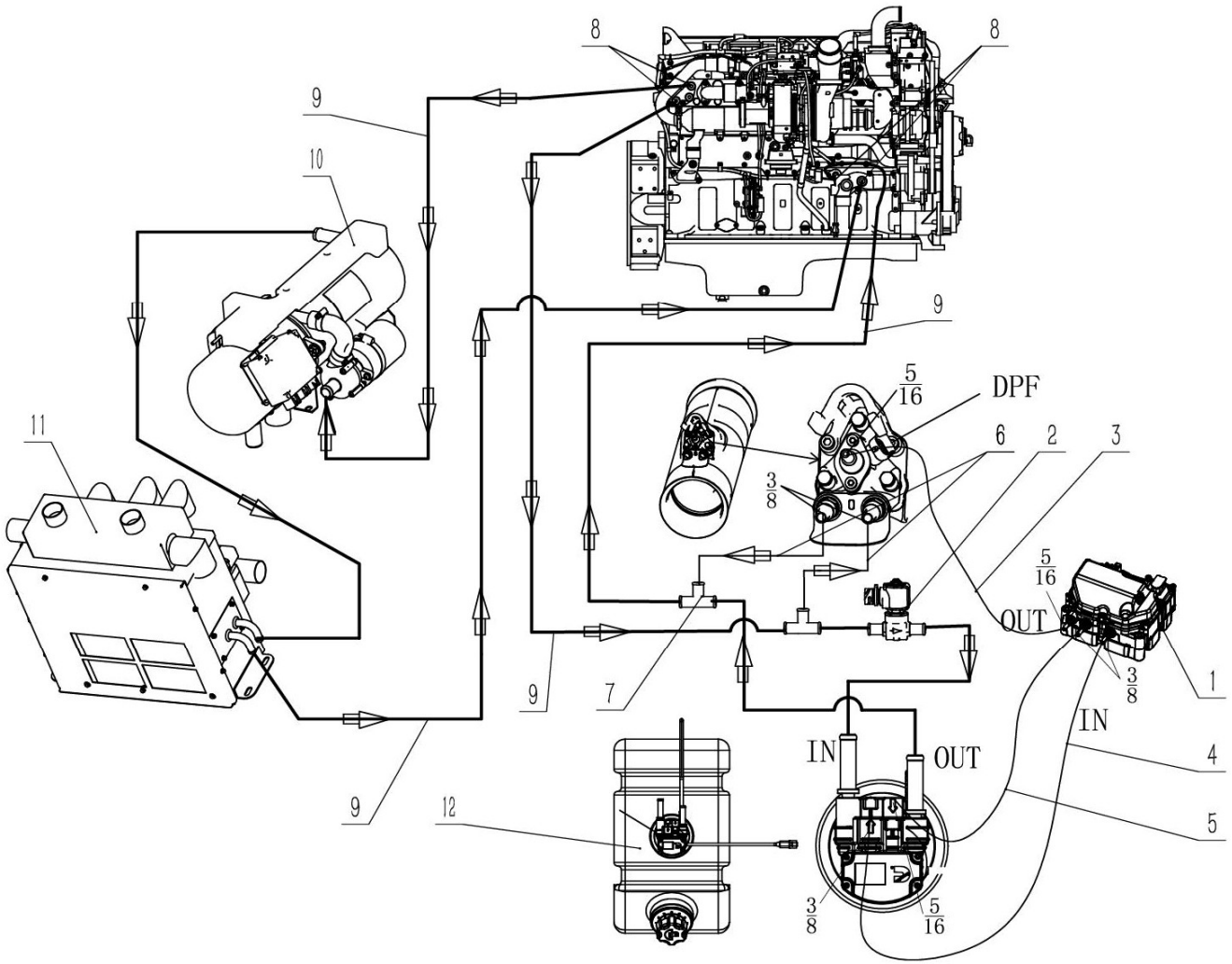
All Others
x.x ±0.10
x.xx ±0.05
0.02

Part Description
Valve Bank

Part Number
MCV-2BCY20-G04-02 -0

DRAWN BY JND DATE 01/04/2020 | SCALE: 3:2 | WEIGHT: | SHEET 1 OF 1

3.Water Schematics， Models & diagrams

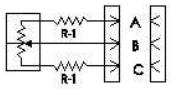

8
8
9
10
9
11
5/16
DPF
6
2
3
3/8
5/16
OUT
9
7
3/8
1
IN
IN
OUT
4
9
12
5
3/8
5/16

CR580S-0502000-1 takeover diagram

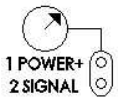
Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
1	A066Y351	UL2 Supply Module	1	7	Φ16-Φ16-Φ10mm	tee joint	2
2	A073D664	Coolant control valve	1	8	C2874497	Connecting valve	4
3	A073V321	pressure line	1	9	Φ16mm-L=30m	hose	1
4	A073D252	Suction line	1	10	YJH-Q15A,24	heater	1
5	A073D238	return line	1	11	LZYL-1	evaporator assembly	1
6	Φ10mm-L=20m	hose	1	12	A072S768	DEF Tank	1

4.Electrical Schematics， Models & diagrams

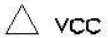
Wrie colors abbreviation	
Red	RD
Black	BK
White	WT
Pink	PK
Purple	PL
Blue	BU
Green	GN
Yellow	YE
Orange	OG
Gray	GY
Brown	BN



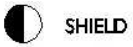
Potentiometer



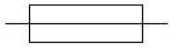
Sensor

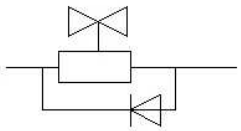


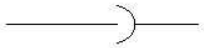
Power supply

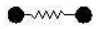


Shielded wire

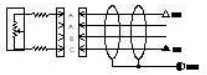

Fuse

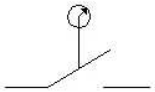

Hydraulic solenoid

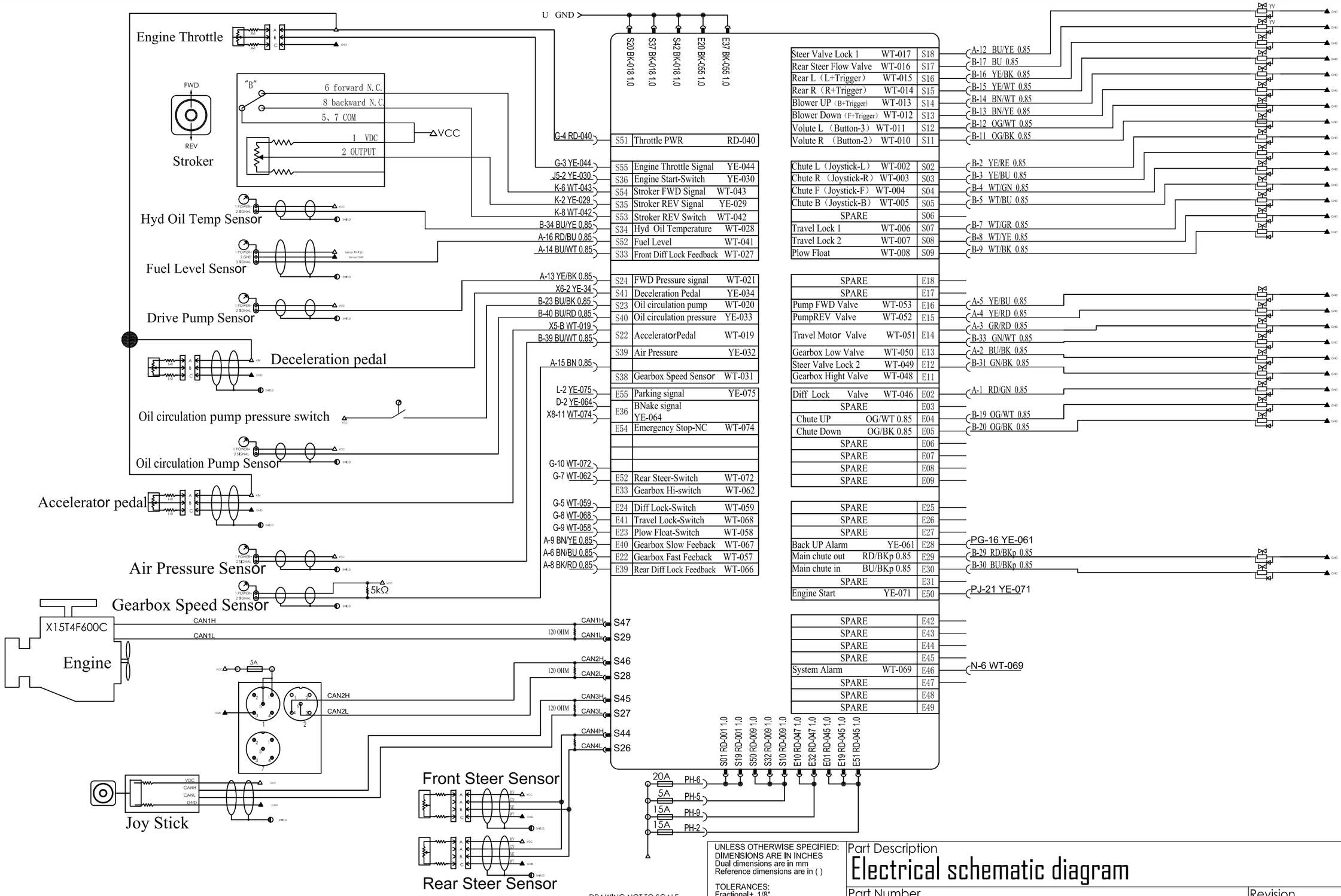

Electrical connector


Resistor

Grounding


Magnetic induction


Pressure Switch


U GND
S20 BK-018 1.0
S37 BK-018 1.0
S42 BK-018 1.0
E20 BK-055 1.0
E37 BK-055 1.0
Engine Throttle
FWD
REV
Stroker
"B"
6 forward N.C.
8 backward N.C.
5、7 COM
1 VDC
2 OUTPUT
VCC
Hyd Oil Temp Sensor
Fuel Level Sensor
Drive Pump Sensor
Deceleration pedal
Oil circulation pump pressure switch
Oil circulation Pump Sensor
Accelerator pedal
Air Pressure Sensor
5kΩ
Gearbox Speed Sensor
X15T4F600C
Engine
CAN1H
CAN1L
120 OHM
CAN2H
CAN2L
CAN3H
CAN3L
CAN4H
CAN4L
5A
Joy Stick
VDC
CANH
CANL
GND
Front Steer Sensor
Rear Steer Sensor
G-4 RD-040
G-3 YE-044
J5-2 YE-030
K-6 WT-043
K-2 YE-029
K-8 WT-042
B-34 BU/YE 0.85
A-16 RD/BU 0.85
A-14 BU/WT 0.85
A-13 YE/BK 0.85
X6-2 YE-34
B-23 BU/BK 0.85
B-40 BU/RD 0.85
X5-B WT-019
B-39 BU/WT 0.85
A-15 BN 0.85
L-2 YE-075
D-2 YE-064
X8-11 WT-074
G-10 WT-072
G-7 WT-062
G-5 WT-059
G-8 WT-068
G-9 WT-058
A-9 BN/YE 0.85
A-6 BN/BU 0.85
A-8 BK/RD 0.85
S01 RD-001 1.0
S19 RD-001 1.0
S50 RD-009 1.0
S32 RD-009 1.0
S10 RD-009 1.0
E10 RD-047 1.0
E32 RD-047 1.0
E01 RD-045 1.0
E19 RD-045 1.0
E51 RD-045 1.0
20A
5A
15A
15A
PH-6
PH-5
PH-9
PH-2
S51 Throttle PWR RD-040
S55 Engine Throttle Signal YE-044
S36 Engine Start-Switch YE-030
S54 Stroker FWD Signal WT-043
S35 Stroker REV Signal YE-029
S53 Stroker REV Switch WT-042
S34 Hyd Oil Temperature WT-028
S52 Fuel Level WT-041
S33 Front Diff Lock Feedback WT-027
S24 FWD Pressure signal WT-021
S41 Deceleration Pedal YE-034
S23 Oil circulation pump WT-020
S40 Oil circulation pressure YE-033
S22 AcceleratorPedal WT-019
S39 Air Pressure YE-032
S38 Gearbox Speed Sensor WT-031
E55 Parking signal YE-075
E36 BNake signal YE-064
E54 Emergency Stop-NC WT-074
E52 Rear Steer-Switch WT-072
E33 Gearbox Hi-switch WT-062
E24 Diff Lock-Switch WT-059
E41 Travel Lock-Switch WT-068
E23 Plow Float-Switch WT-058
E40 Gearbox Slow Feeback WT-067
E22 Gearbox Fast Feeback WT-057
E39 Rear Diff Lock Feedback WT-066
Steer Valve Lock 1 WT-017 S18
Rear Steer Flow Valve WT-016 S17
Rear L（L+Trigger） WT-015 S16
Rear R（R+Trigger） WT-014 S15
Blower UP（B+Trigger） WT-013 S14
Blower Down（F+Trigger） WT-012 S13
Volute L （Button-3） WT-011 S12
Volute R （Button-2） WT-010 S11
Chute L（Joystick-L） WT-002 S02
Chute R （Joystick-R） WT-003 S03
Chute F（Joystick-F） WT-004 S04
Chute B（Joystick-B） WT-005 S05
SPARE S06
Travel Lock 1 WT-006 S07
Travel Lock 2 WT-007 S08
Plow Float WT-008 S09
SPARE E18
SPARE E17
Pump FWD Valve WT-053 E16
PumpREV Valve WT-052 E15
Travel Motor Valve WT-051 E14
Gearbox Low Valve WT-050 E13
Steer Valve Lock 2 WT-049 E12
Gearbox Hight Valve WT-048 E11
Diff Lock Valve WT-046 E02
SPARE E03
Chute UP OG/WT 0.85 E04
Chute Down OG/BK 0.85 E05
SPARE E06
SPARE E07
SPARE E08
SPARE E09
SPARE E25
SPARE E26
SPARE E27
Back UP Alarm YE-061 E28
Main chute out RD/BKp 0.85 E29
Main chute in BU/BKp 0.85 E30
SPARE E31
Engine Start YE-071 E50
SPARE E42
SPARE E43
SPARE E44
SPARE E45
System Alarm WT-069 E46
SPARE E47
SPARE E48
SPARE E49
A-12 BU/YE 0.85
B-17 BU 0.85
B-16 YE/BK 0.85
B-15 YE/WT 0.85
B-14 BN/WT 0.85
B-13 BN/YE 0.85
B-12 OG/WT 0.85
B-11 OG/BK 0.85
B-2 YE/RE 0.85
B-3 YE/BU 0.85
B-4 WT/GN 0.85
B-5 WT/BU 0.85
B-7 WT/GR 0.85
B-8 WT/YE 0.85
B-9 WT/BK 0.85
A-5 YE/BU 0.85
A-4 YE/RD 0.85
A-3 GR/RD 0.85
B-33 GN/WT 0.85
A-2 BU/BK 0.85
B-31 GN/BK 0.85
A-1 RD/GN 0.85
B-19 OG/WT 0.85
B-20 OG/BK 0.85
PG-16 YE-061
B-29 RD/BKp 0.85
B-30 BU/BKp 0.85
PJ-21 YE-071
N-6 WT-069
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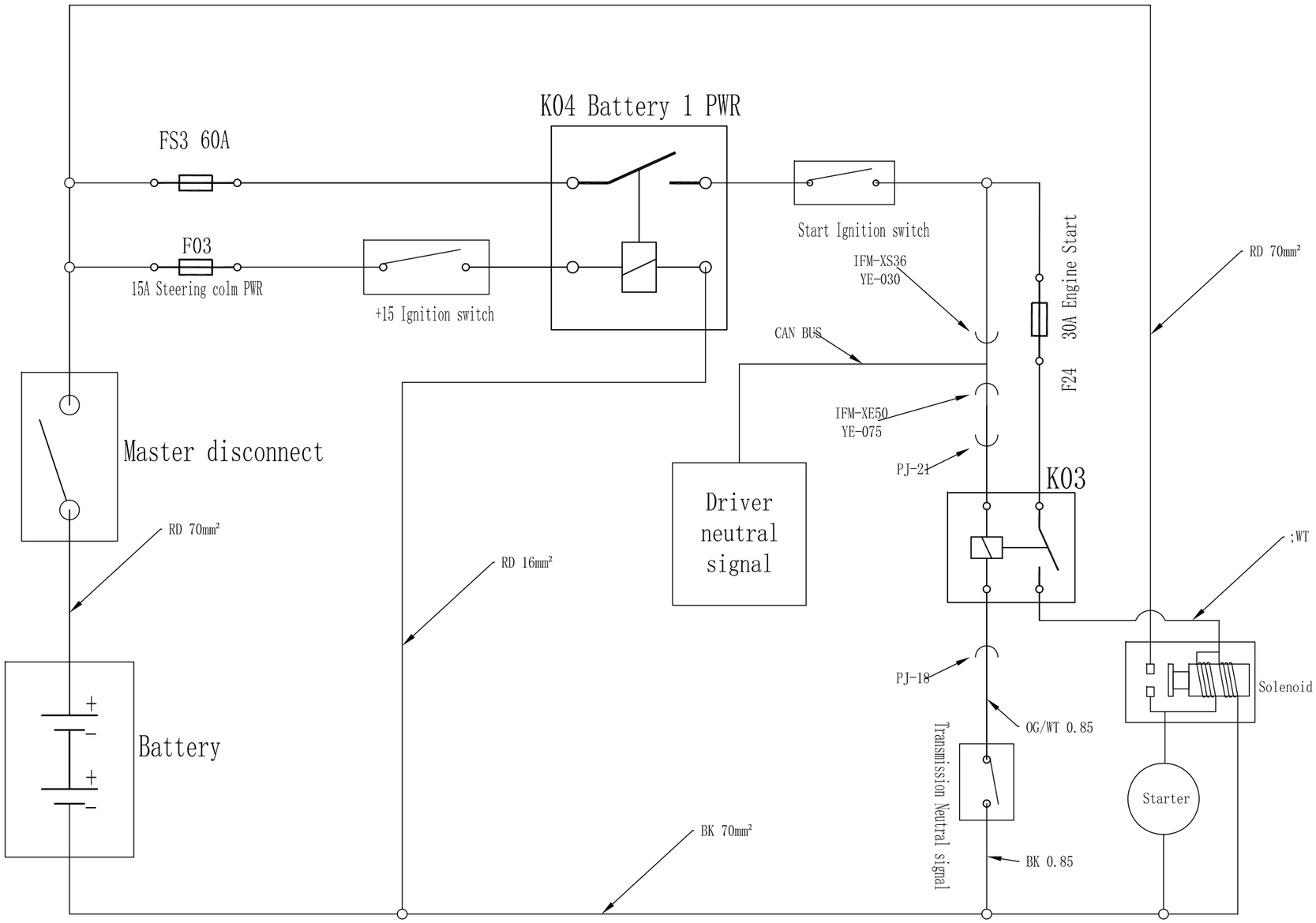
MATERIAL
ASSEMBLY
UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
Dual dimensions are in mm
Reference dimensions are in ( )
TOLERANCES:
Fractional± 1/8"
Angular: MACH± 0.5° BEND± 2°
Machined/Drilled Holes: ±0.01
All Others
x.x ±0.10
x.xx ±0.06
x.xxx ±0.03
Part Description
Electrical schematic diagram
Part Number
CR600S-0902001
Revision
-0
DRAWN BY
DATE
SCALE: 3:2
WEIGHT:
SHEET 1 OF 1



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DRAWING NOT TO SCALE

MATERIAL

ASSEMBLY

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Reference dimensions are in ( )

TOLERANCES:
Fractional± 1/8"
Angular: MACH±0.5° BEND±2°
Machined/Drilled Holes: ±0.01

All Others
x.x ±0.10
x.xx ±0.06
x.xxx ±0.03

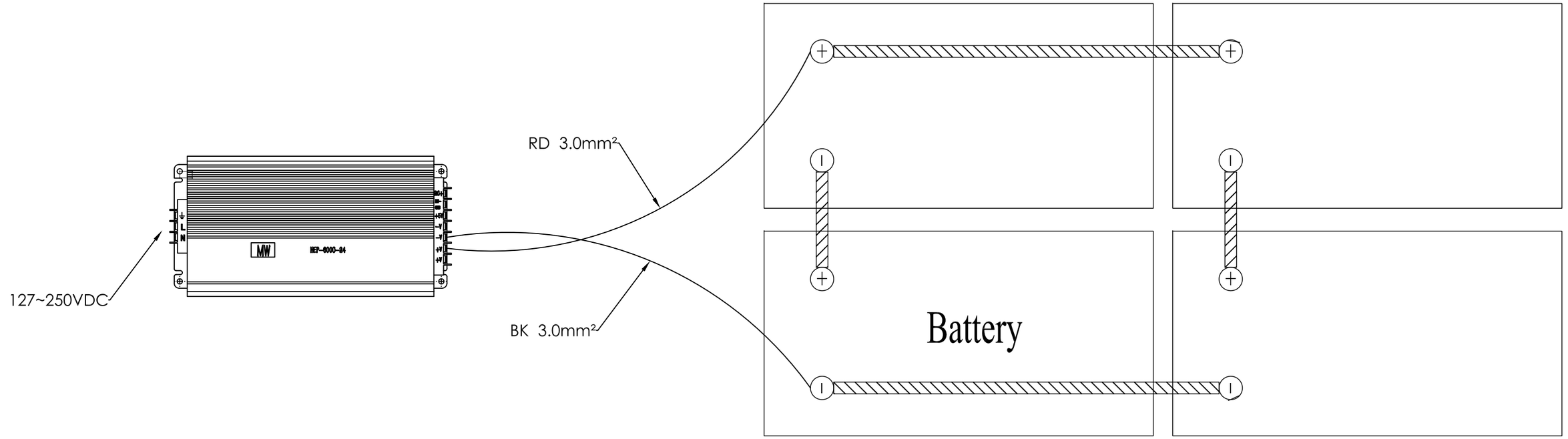
Part Description
Engine Starting Schematic Diagram

Part Number
CR600S-0901010

Revision
-0

DRAWN BY DATE

SCALE: 3:2 WEIGHT: SHEET 1 OF 1



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DRAWING NOT TO SCALE

MATERIAL

ASSEMBLY

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
Dual dimensions are in mm
Reference dimensions are in ( )

TOLERANCES:
Fractional± 1/8"
Angular: MACH± 0.5° BEND± 2°
Machined/Drilled Holes: ±0.01

All Others
x.x ±0.10
x.xx ±0.06
x.xxx ±0.03

Part Description
Battery CHarging Diagram

Part Number
CR600S-0901009

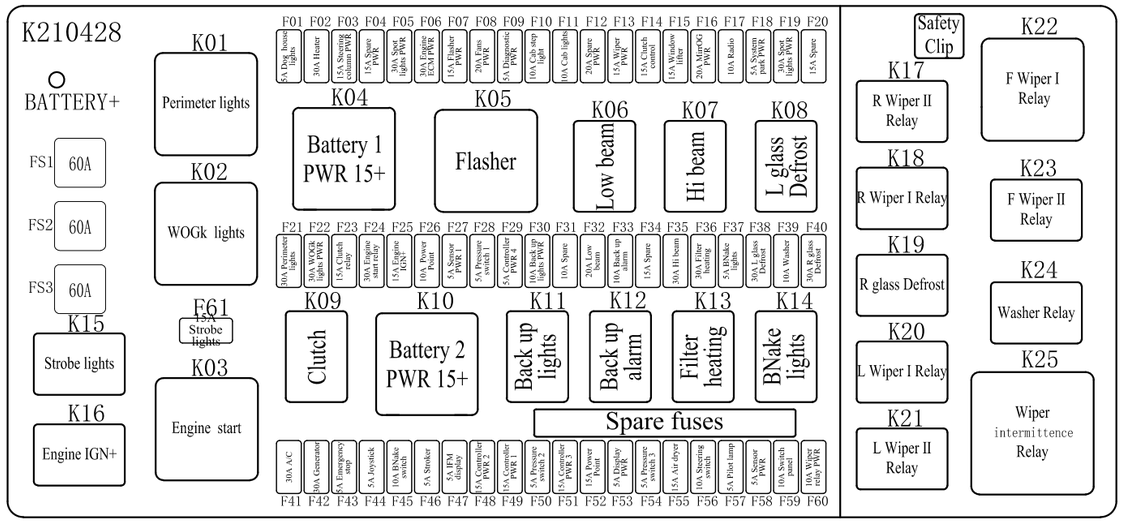
Revision
-0

DRAWN BY DATE

SCALE: 3:2

WEIGHT:

SHEET 1 OF 1



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DRAWING NOT TO SCALE

MATERIAL

ASSEMBLY

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
Dual dimensions are in mm
Reference dimensions are in ( )

TOLERANCES:
Fractional± 1/8"
Angular: MACH±0.5° BEND±2°
Machined/Drilled Holes: ±0.01

All Others
x.x ±0.10
x.xx ±0.06
x.xxx ±0.03

Part Description
Fuse Box Definition Diagram

Part Number
CR600S-0901008

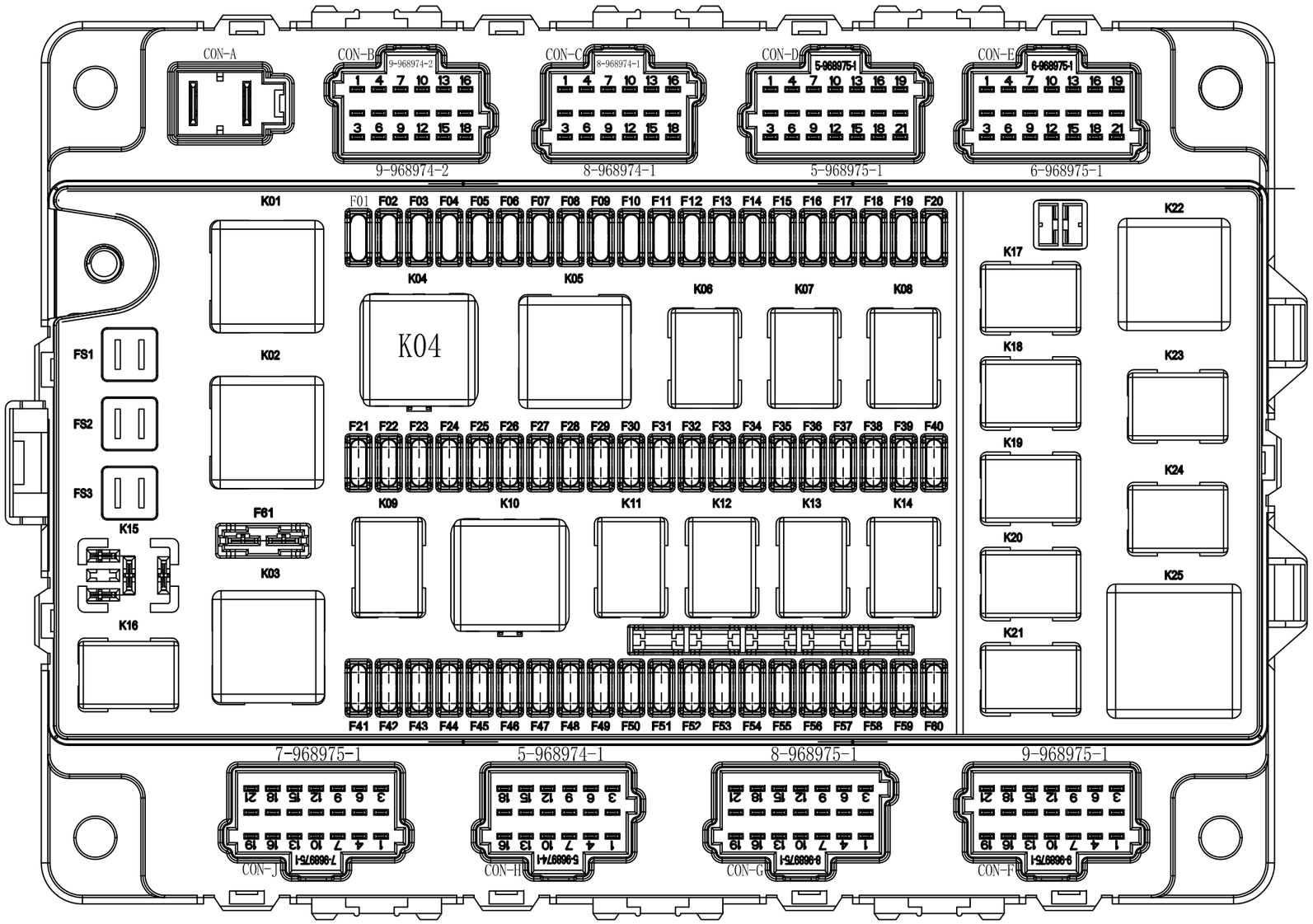
Revision
-0

DRAWN BY DATE

SCALE: 3:2

WEIGHT:

SHEET 1 OF 1



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MATERIAL

ASSEMBLY

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
Dual dimensions are in mm
Reference dimensions are in ( )

TOLERANCES:
Fractional± 1/8"
Angular: MACH±0.5° BEND±2°
Machined/Drilled Holes: ±0.01

All Others
x.x ±0.10
x.xx ±0.06
x.xxx ±0.03

Part Description
Fuse Box Plug-in Definition Diagram

Part Number
CR600S-0901007

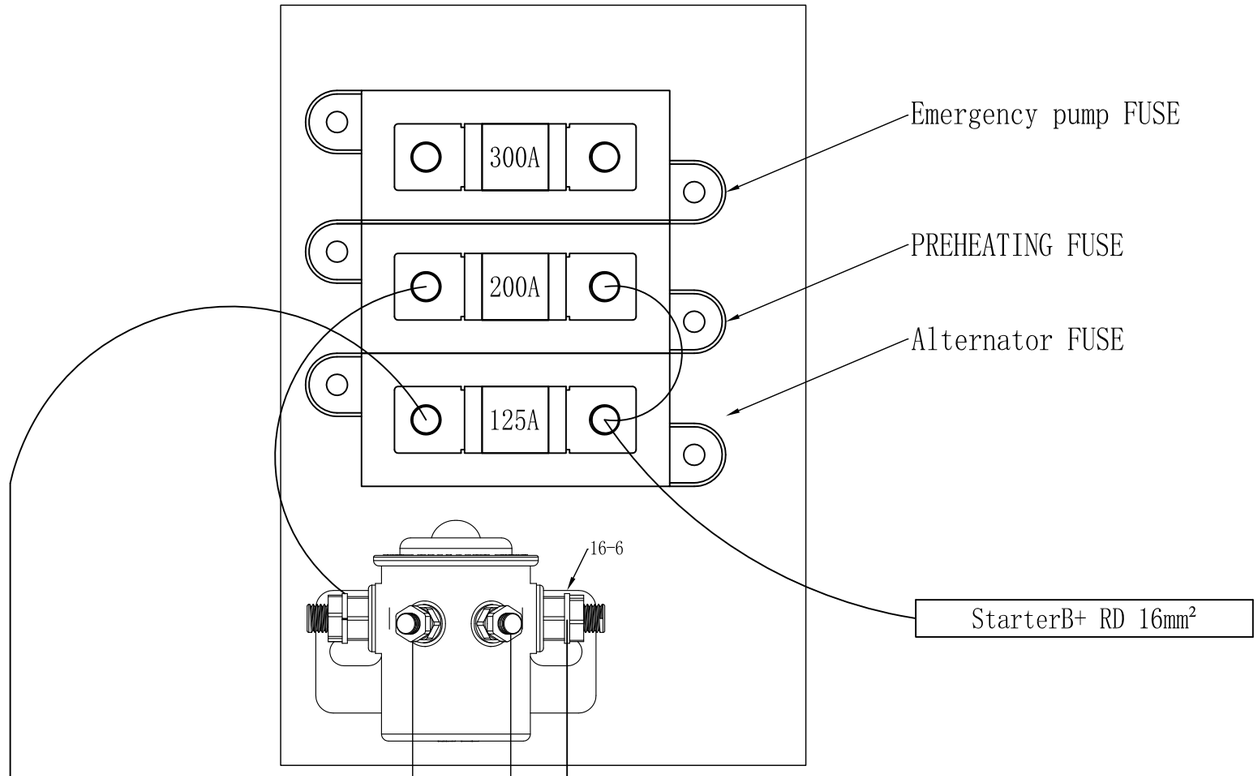
Revision
-0

DRAWN BY DATE

SCALE: 3:2

WEIGHT:

SHEET 1 OF 1



J73-Inlet preheating relay Dome terminals			
1	Inlet air heating relay circuit	WT/BK 0.85	J2-75
2	Intake air heating signal	WT-⑮	J2-76

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MATERIAL

ASSEMBLY

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
Dual dimensions are in mm
Reference dimensions are in ( )

TOLERANCES:
Fractional± 1/8"
Angular: MACH±0.5° BEND±2°
Machined/Drilled Holes: ±0.01

All Others
x.x ±0.10
x.xx ±0.06
x.xxx ±0.03

Part Description
Preheating wiring harness

Part Number
CR600S-0901006

Revision
-0

DRAWN BY DATE

SCALE: 3:2 | WEIGHT: | SHEET 1 OF 1

P1I=Throwing head lock 1 DT06-2S		
1	The solenoid valve is grounded BK 0.85	B-1
2	Throwing head lock 1 PU/BK P 0.85	B-7

P12=Throwing head lock 2 DT06-2S		
1	The solenoid valve is grounded BK 0.85	B-1
2	Throwing head lock 2 YE/BKP 0.85	B-8

8=Hydraulic wiring harnesses 192900-0425		
1	The harness is grounded BK 2.0	Ground common end
2	Turn left in the guide trough YE/RD 0.85	4A-2
3	Turn right in the guide trough YE/BU 0.85	4B-2
4	The guide groove is extended WT/GN 0.85	5A-2
5	The guide groove is retracted WT/BU 0.85	5B-2
6		
7	Throwing head lock 1 PU/BK P 0.85	P1I-2
8	Throwing head lock 2 YE/BK P 0.85	P12-2
9	Floating WT/BK 0.85	8F-2
10		
11	Turn right with the snow guide OG/BK 0.85	11B-2
12	Turn left at the snow guide OG/WT 0.85	11A-2
13	Drop your head BN/YE 0.85	9B-2
14	Throw your head up OG/WT 0.85	9A-2
15	Turn right with the rear Wfeel YE/WT 0.85	18-4
16	The rear Wfeel turns left YE/BK 0.85	18-1
17	Steering flow valves BU 0.85	19-2
18		
19		
20		
21		
22		
23	Walking oil replenishment pressure switch BU/BK 0.85	XZ-2
24	The guide trough is lifted GY/RD 0.85	5A-2
25	The guide trough is down GN/RD 0.85	5B-2
26	Tilt your head to the left GY 0.85	QUA-2
27	Tilt your head to the right GY P 0.85	QUB-2
28		
29	The dominant sticks out towards the groove RD/BKP 0.85	2A-2
30	The dominant direction is retracted to the slot BU/BK P 0.85	2B-2
31	Transfer case high-speed valve GN/BK 0.85	10I-2
32		
33	Transfer case low-speed valve GN/WT 0.85	10B-2
34	Hydraulic oil temperature signal BU/YE 0.85	HYT-2
35	Hydraulic oil level switch WT/RD 0.85	HYH-2
36	Centralized lubNication pump power supply RD 0.85	JRB-3
37	The cab is lowered YE/GN 0.85	1A-2
38	Cab lifting WT/YE0.85	1B-2
39	Barometric pressure signal BU/WT 0.85	5B-2
40	Oil circulation pressure BU/RD 0.85	7H-2
41		
42		
43		
44		
45		
46	Sensor power supply RD/WT 0.85	Sensor common end
47	Pressure switching power supply RD/BN 0.85	Common end of the pressure switch
48		

8I=Floating DT06-2S		
1	The solenoid valve is grounded BK 0.85	B-1
2	Floating WT/BK 0.85	B-9

9A=Throw your head up DT06-2S		
1	The solenoid valve is grounded BK 0.85	B-1
2	Throw your head up BN/WT 0.85	B-14

10I=Transfer case at high speed DT06-2S		
1	The solenoid valve is grounded BK 0.85	B-1
2	Transfer case high-speed valve GN/BK 0.85	B-31

11A=Turn left at the snow guide DT06-2S		
1	The solenoid valve is grounded BK 0.85	B-1
2	Turn left at the snow guide OG/WT 0.85	B-12

19=Steering proportional flow valves DT06-2S		
1	The solenoid valve is grounded BK 0.85	B-1
2	Steering flow valves BU 0.85	B-17

4A=The guide trough turns left DT06-2S		
1	The solenoid valve is grounded BK 0.85	B-1
2	The guide trough turns left YE/RD 0.85	B-2

5A=The guide trough is lifted DT06-2S		
1	The solenoid valve is grounded BK 0.85	B-1
2	The guide trough is lifted GY/RD 0.85	B-24

QUA=Tilt your head to the left DT06-2S		
1	The solenoid valve is grounded BK 0.85	B-1
2	Tilt your head to the left GY 0.85	B-26

1A=The cab is lowered DT06-2S		
1	The solenoid valve is grounded BK 0.85	B-1
2	The cab is lowered YE/GN 0.85	B-37

2A=The dominant sticks out towards the groove DT06-2S		
1	The solenoid valve is grounded BK 0.85	B-1
2	The dominant sticks out towards the groove RD/BK P 0.85	B-29
2A=The guide groove is extended DT06-2S		
1	The solenoid valve is grounded BK 0.85	B-1
2	The guide groove is extended WT/GN 0.85	B-4

AB=Barometric pressure Sensor 436504		
1	Sensor power supply RD/WT 0.85	B-46
2	Barometric pressure signal BU/WT 0.85	B-39

XZ=Walking refueling pump switch 436505A		
1	Pressure switching power supply RD/BN 0.85	B-47
2	Walking oil replenishment pressure switch BU/BK 0.85	B-23

3B=The guide groove is retracted DT06-2S		
1	The solenoid valve is grounded BK 0.85	B-1
2	The guide groove is retracted WT/BU 0.85	B-5

2B=The dominant direction is retracted to the slot DT06-2S		
1	The solenoid valve is grounded BK 0.85	B-1
2	The dominant direction is retracted to the slot BU/BK P 0.85	B-30

1B=Cab lifting DT06-2S		
1	The solenoid valve is grounded BK 0.85	B-1
2	Cab lifting WT/YE 0.85	B-38

QUB=Tilt your head to the right DT06-2S		
1	The solenoid valve is grounded BK 0.85	B-1
2	Tilt your head to the right GY P 0.85	B-27

JRB=Centralized lubNication pump DIN43650A		
1		
2	The solenoid valve is grounded BK 0.85	B-1
3	Centralized lubNication pump power supply RD 0.85	B-36

18=The rear Wfeel are steered to PVG valves DT06-4S		
1	The rear Wfeel turns left YE/BK 0.85	B-16
2	The solenoid valve is grounded BK 0.85	B-1
3	The solenoid valve is grounded BK 0.85	B-1
4	Turn right with the rear Wfeel YE/WT 0.85	B-15

HYT=Hydraulic oil temperature Sensor 282080-1		
1	Sensor power supply RD/WT 0.85	B-46
2	Hydraulic oil temperature signal BU/YE 0.85	B-34

HYH=Hydraulic oil level switch 282080-1		
1	Pressure switching power supply RD/BN 0.85	B-47
2	Hydraulic oil level switch WT/RD 0.85	B-35

11B=Turn right with the snow guide DT06-2S		
1	The solenoid valve is grounded BK 0.85	B-1
2	Turn right with the snow guide OG/BK 0.85	B-11

10B=Transfer case low speed DT06-2S		
1	The solenoid valve is grounded BK 0.85	B-1
2	Transfer case low-speed valve GN/WT 0.85	B-13

9B=Drop your head DT06-2S		
1	The solenoid valve is grounded BK 0.85	B-1
2	Drop your head BN/YE 0.85	B-13

7H=Oil circulation pressure 43650A		
1	Sensor power supply RD/WT 0.85	B-46
2	Oil circulation pressure BU/RD 0.85	B-40

5B=The guide trough is down DT06-2S		
1	The solenoid valve is grounded BK 0.85	B-1
2	The guide trough is down GN/RD 0.85	B-25

4B=Turn right in the guide trough DT06-2S		
1	The solenoid valve is grounded BK 0.85	B-1
2	Turn right in the guide trough YE/BU 0.85	B-3

KODIAK

DRAWING NOT TO SCALE

MATERIAL

ASSEMBLY

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
Dual dimensions are in mm
Reference dimensions are in ( )

TOLERANCES:
Fractional± 1/8"
Angular: MACH±0.5° BEND±2°
Machined/Drilled Holes: ±0.01

All Others
x.x ±0.10
x.xx ±0.06
x.xxx ±0.03

Part Description
Hydraulic wiring harness

Part Number
CR600S-0901005

Revision
-0

DRAWN BY DATE | SCALE: 3:2 | WEIGHT: | SHEET 1 OF 1

HM2=Travel motor solenoid valve DT06-2S		
1	The travel motor solenoid valve is grounded BK 0.85	
2	Travel motor solenoid valve GY/RD 0.85	A-J

J8B=CompressOG temperature Sensor 5420011		
1	Sensor pressure signal	
2	Sensor power supply	
3	Sensor temperature signal	
4	Sensor loops	

NO. 5256264

H2X=Sensor over-harness 618-7469		
1	Sensor pressure signal	
2	Sensor power supply	
3	Sensor temperature signal	
4	Sensor loops	

The engine comes with its own plug

F1=Transfer case low-speed feedback 6.3 Plug springs		
1	Pressure switching power supply RD/WT 1.0.85	A-1
2	Transfer case low-speed feedback BN/YE 0.85	A-9
F8=Transfer case high-speed feedback 6.3 Plug springs		
1	Pressure switching power supply RD/WT 1.0.85	A-1
2	Transfer case high-speed feedback BN/BE 0.85	A-6

Y1B=Hydraulic oil filter blockage signal 282080=1		
1	Ground BK 0.85	
2	Oil filter blockage signal WT=19 0.85	A-19

G1=Clutch BSake solenoid valve 1=14118448=2		
1	The solenoid valve is grounded BK 0.85	
2		
3	Clutch BSaking VT/RD 0.85	A-7

J8B=Coolant Sensor 12110293		
A	Sensor 5V power supply RD/BN 0.85	C-38
B	Coolant level signal OG/BK 0.85	C-35
C	The Sensor loop is collinear WT=20	C-32

C1=External resistor for the speed Sensor 282080=1		
1	Sensor power supply RD/WT W 0.85	H8-A
2	Speed signal BN 0.85	H8-B

5K Ω

C1A=External resistor 282160=1		
1	to 3 pick up 5k Ω resistance	
2	to 1 pick up 5k Ω resistance	

G2=Differential lock solenoid valve 1=14118448=2		
1	The solenoid valve is grounded BK 0.85	
2		
3	Differential lock solenoid valve RD/GY 0.85	A-7

P5B=Power-off indicator 13533441		
1	Power-off indicator RT/OG 0.85	C1B-5
2	Vehicle power supply WT/BK P 0.85	C-16

C1A=Air-cooled temperature Sensor 12162197		
1	The Sensor loop is collinear WT=20	C-32
2	Air-cooled outlet temperature RD=7 0.85	C-34

H1=Travel motor speed Sensor DT06-3S		
A	Sensor power supply RD/WT W 0.85	G-1
B	Rotational speed signal BN 0.85	G-15
C	Transfer case grounding BK 0.85	

G3=Clutch solenoid valve 1=14118448=2		
1	The solenoid valve is grounded BK 0.85	
2		
3	Clutch solenoid valve OG/BK 0.85	A-11

A1 =Air dryer KASCO 449515		
1	Air dry grounding BK 2.0	
2	Air drying power supply GY 2.0	D7-2
3		
4		

H5=Fuel level SEN=SE 282085=1		
1	Fuel level grounding BK 0.85	
2	Sensor power supply RD/WT 0.5 0.85	C-4
3	Fuel level signal RD/BU 0.85	C-18

H6=forward pressure175301=1803		
1	Sensor power supply RD/WT W 0.85	C-3
2	Pressure signal YE/BK 0.85	C-13

A=Power harnessss ITT 192900=0056		
A	Engine start signal WT 2.0	S1-1
B	Engine ECM 30 power supply RD 3.0	J2 power supply
C	Engine IGN 15 power supply YE/WT 0.85	J2-5
D	Fuel heating power supply BK/WT 2.0	V1-1
E	Dryer power supply GY 2.0	A1-2
F	Clutch BSaking VT/RD 0.85	G1-3
G	Transmission neutral signal OG/WT 0.85	B5-2
H	Clutch solenoid valve OG/BK 0.85	G1-1
I	Pressure switching power supply RD/WT 1.0.85	B1B-1&B1L-1&Q1-1&Q2-1&Q3-1
J	Sensor power supply RD/VI W 0.85	H1M1-1&R1V-2&H1P-1
K	Engine diagnostic power supply RD 0.85	J1-2
L	Condenser fan power supply BK/RD 3.0	L1-30
I	Differential lock solenoid valve RD/GN 0.85	G2-3
2	Rear-AYeel steering start-stop valves 2 BK/BK 0.85	R2-2
3	Travel motor solenoid valve GY/RD 0.85	HM2-2
4	Travel pump forward solenoid valve YE/RD 0.85	N2-2
5	Travel pump retreat solenoid valve YE/BK 0.85	N1-2
6	Transfer case high-grade feedback BN/BE 0.85	H1P-2
7		
8	Rear axle differential lock feedback BK/RD 0.85	Q2-2
9	Transfer case low-speed feedback BN/YE 0.85	F1-2
10	Vacuum sign IN o.n.	C2B-1
11		
12	Rear-AYeel steering start-stop valves1 BK/YE 0.85	R1-2
13	forward pressure signal YE/BK 0.85	H6-2
14	Differential feedback on the front axle BK/WT 0.85	Q1-2
15	Transfer case speed signal BN 0.85	HM1-2
16	Diesel level Sensor RD/BU 0.85	H5-3
17	Air concerns about cO&e blockage signals WT=17 0.85	A8-2
18		
19	Oil filter blockage signal WT=19 0.85	Y1B-2

A2=C18 connector 132016=001		
1	After-processing module power supply RD 0.85	H2B-5
2	Post-treatment power drive YE/RD 0.85	J2-7
3	OEM Temperature signal GR 0.85	
4		
5	Sensor 5V power supply RD/BN	J2-21
6	Post-processing DEFSCR diagnosis 1 GN/BK 0.85	J2-38
7	29=Post-processing DEFSCR diagnosis2 GN/BK 0.85	J2-39
8	Post-processing DEFSCR diagnosis 3 GN/YE 0.85	J2-40
9	Post-processing DEF RELAY OG/WT 0.85	J2-3
10	Switch Sensor loops GY/WT 0.85	J2-42
11	Post-treatment regeneration switch BK/WT 0.85	J2-41
12	Post-processing prohibits regeneration PK 0.85	J2-67
13	J1939 CAN1-H YE	>>
14	J1939 CAN1-L GN	J2-46
15		
16	Module power supply WT/BK P 0.85	P01-2

V1=Water separator 15300002		
1	Heater power supply BK/WT 2.0	A-D
2	Ground BK 2.0	

J7B=Inlet preheating relay Bone terminals		
1	Inlet air heating relay circuit VT/BK 0.85	C2-75
2	Intake air heating signal WT=20	C2-76

J7B=Oil= water separator HY06-2S		
1	Oil switching loop is collinear GY/WT 0.85	C2-42
2	Fuel water signal GN/RD 0.85	C2-33

B5=Transmission neutral switch 1=1813099=3		
1	Grounding wire BK 0.85	
2	Transmission neutral signal OG/WT 0.85	A-G

G7F=Refrigerant drying bottle 6.3 Plug springs		
	Compress0G signal YE 0.85	L-10
	Compress0G signal=N YE 0.85	HC-2 接 C-20

L=Engine grounding

CC1D=OEMterminal plug=ins 13533441		
1	Power-off indicator WT/YE 0.85	P01-1

L1=Condenser fan relay Plug springs		
	Condenser fan power supply BK/RD 3.0	L-1
	The relay is grounded BK 0.85	
	Compress0G signal=N YE 0.85	L2B-2
	Fan power supply BK/RD 3.0	Cans

A8=Air cleaner blockage signal 282080=1		
1	ground BK 0.85	
2	Air filter blocking signal WT/BK 0.85	A-17

ST=Engine start Bone terminals		
1	Engine start signal WT 2.0	A-A

R1=Rear-AYeel steering start-stop valves1 DT06-2S		
1	The solenoid valve is grounded BK 0.85	
2	Rear-AYeel steering start-stop valves1 BK/YE 0.85	R1-12

R2=Rear-AYeel steering start-stop valves DT06-2S		
1	The solenoid valve is grounded BK 0.85	
2	Rear-AYeel steering start-stop valves 2 BK/BK 0.85	R2-2

AHDC=Inlet pressure temperature Sensor 2897232		
1	Inlet pressure signal	The engine JI end ones with its own wiring harness(FI=AYeel bussing position)
2	Sensor power supply	
3	Inlet air temperature signal	
4	The Sensor is grounded	

J2Z=Urea tank heating solenoid valve 282104=1		
1	Urea tank heating outer valve RD/YE 0.85	J2-62
2	Urea tank short-cff valve circuit GY/BK 0.85	J2-67

J2B=AFTERTREATMENT DEF LINE HEATER DIAGNOSTIC 1 282104=1		
1	Heating power supply GN/BE 0.85	J2-38
2	Ground VT=20	J2-84+85

J2B=AFTERTREATMENT DEF LINE HEATER DIAGNOSTIC 2 282104=1		
1	Post-processing DEFSCR diagnosis2 GN/BK 0.85	J2-39
2	Ground VT=20	J2-84+85

J3B=AFTERTREATMENT DEF LINE HEATER DIAGNOSTIC 3 282104=1		
1	Heating power supply GN/YE 0.85	J2-40
2	Ground VT=20	J2-84+85

Q2=Rear drive axle WABCO 449515		
1	Pressure switching power supply RD/WT 1.0.85	A-1
2	Rear axle differential lock signal BK/RD 0.85	A-8
3		
4		

DEF=Post-processing module 2=17B30639=1		
2	Sensor 5V power supply RD/BN 0.85	J2-21
3	Post-processing of the injection pressure signal 0.85	J2-16
4	The Sensor loop is collinear WT=20	J2-32
5	After-processing module power supply RD 0.85	J2-1
6	The post-processing module is grounded BK 0.85	J2-4
8	Post-treatment DEF pump control loop Twisted pair=20	J2-51
9	Post-treatment DEF pump power supply YE/GN 0.85	J2-29
10	Post-treatment DEF pump control Twisted pair=20	J2-6
11	Aftertreatment pump reversing valve RD/BK 0.85	J2-61
12	Urea tank shut-cff valve circuit GY/BK 0.85	J2-67

H6D=After-processing differential pressure Sensors/Jet valves DT06D-6P		
1	Aftertreatment DEF jet valve- WT=20	J2-77
2	Aftertreatment DEF jet valve+ WT=20	J2-53
3	The Sensor loop is collinear WT=20	J2-32
4	Post-processing of DPF differential pressure signals YE/GY 0.85	J2-41
5	Aftertreatment DPF outlet gas pressure signals GN 0.85	J2-42
6	Sensor 5V power supply RD/BN 0.85	J2-48

D7=After-treatment power supply DT06-2S		
1	The solenoid valve is grounded BK 0.85	
2	Engine diagnostic power supply RD 0.85	C-1

N2=Travel pump forward solenoid valveDT06-2S		
1	The solenoid valve is grounded BK 0.85	
2	Forward solenoid valve YE/RD 0.85	A-4

N1=Travel pump retreat solenoid valve DT06-2S		
1	The solenoid valve is grounded BK 0.85	
2	Backward solenoid valve YE/BK 0.85	A-5

J2=Main engine ECM (1196457216)		
1=25=26=27=28 ECM power supply+ RD 1.5		L-16
49=50=51=52=73 ECM ground - BK 1.5		J2
3=Post-treatment DEF relay heating appliance OG/WT 0.85		D7-2
5=Engine IGN 15 electric YE/WT 0.85		I-C
6=Post-treatment DEF pump control Twisted pair=20		A10-10
7=Post-treatment power drive YE/RD 0.85		C-2
9=Sensor 5V power supply RD/BN 0.85		H8B-4 & H8D=6 & DEF=2 & A2=3
11=Fuel water signal GN/RD 0.85		J2B-2
12=Post-processing pressure signals GY 0.85		DEF-2
22=J1939 CAN1-H CAN+ YE		A2-13
24=Air-cooled outlet temperature RD=7 0.85		C2C-2
32=The Sensor loop is collinear WT=20		H8B-4 & CHF=4 & H8D=3 & C1C=4
35=Coolant level signal OG/BK 0.85		H8B-5
38=Post-processing DEFSCR diagnosis1 GN/BK 0.85		A2A-4 & J2B=4
39=Post-processing DEFSCR diagnosis2 GN/BK 0.85		A2A-7 & J2B=1
40=Post-processing DEFSCR diagnosis3 GN/YE 0.85		A2A-6 & J2B=5
41=Post-processing of DPF differential pressure signals BT/OG 0.85		H6D=4
42=Aftertreatment DPF outlet gas pressure signals GN 0.85		H6D=5
46=J1939 CAN1-L CAN-GN		A2=14
53=Aftertreatment DEF jet valve+ WT=20		H6D=2
54=Post-treatment DEF pump control loop Twisted pair=20		A10=9
58=Urea tank shut-cff valve circuit GY/BK 0.85		A10=12 & J2Z=2
62=The switch is grounded collinear GY/WT 0.85		A2=15
67=Intake air heating signal WT/BK 0.85		J7B=1
68=Inlet heating circuit WT=20		J7B=2
69=Aftertreatment DEF jet valve- WT=20		H6D=1
73=Post-treatment DEF pump power supply YE/GN 0.85		A10=8
83=Aftertreatment pump reversing valve RD/BK 0.85		A10=11
92=Urea tank heating water valve RD/YE 0.85		J2Z=1
94=The urea tube is heated and grounded WT=20		J2B=3 & J2B=2 & J3B=2
95=Post-processing prohibits regeneration PK 0.85		A2=12
96=Post-treatment regeneration switch BK/WT 0.85		A2=11

DRAWING NOT TO SCALE

MATERIAL

ASSEMBLY

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
Dual dimensions are in mm
Reference dimensions are in ( )

TOLERANCES:
Fractional± 1/8"
Angular: MACH±0.5° BEND±2°
Machined/Drilled Holes: ±0.01

All Others
x.x ±0.10
x.xx ±0.06
x.xxx ±0.03

Part Description
Engine wiring harness

Part Number
CR600S-0901004

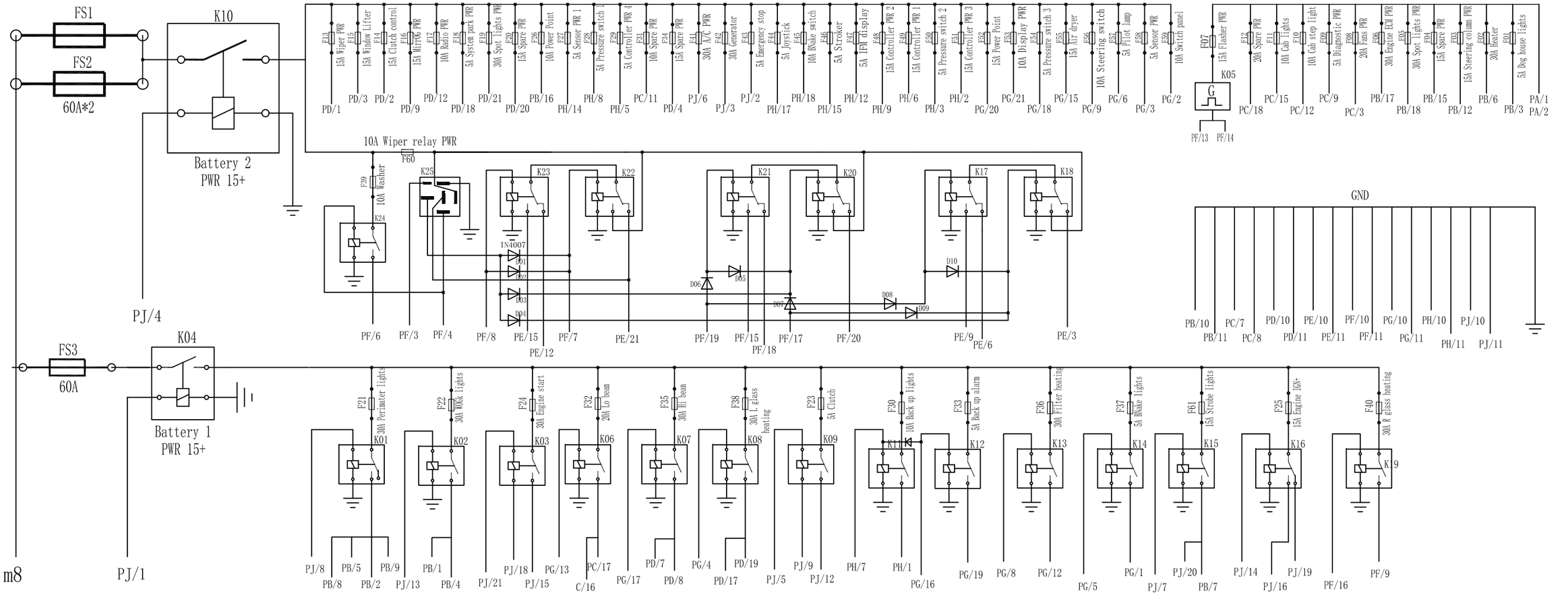
Revision
-0

DRAWN BY JND DATE

SCALE: 3:2

WEIGHT:

SHEET 1 OF 1



PB 9-968974-2		
1	WOGk lights	WT-45 2.0
2	Perimeter light	WT-48 1.5
3	Dog house lights	RD-116
4		
5	Switch lamp	RD-161
6	Heating	RD-139
7	Strobe lights	RD-115
8		
9	Perimeter light	RD-111
10	Ground lead	BK-140
11		
12	Steering column PWR	RD-131
13		
14		
15	DEF PWR	RD 0.85
16	Power Point	WT-19 2.5
17	Engine ECM PWR	RD-080
18	Condenser fan PWR	RD 3.0

PC 8-968974-1		
1		
2		
3	Fans PWR	WT-9+11 1.25
4		
5		
6		
7		
8		
9	Diagnostic PWR	RD-089
10		
11	Clutch switch PWR	RD-099
12	Cab light	WT-6+12 1.5
13		
14		
15	Arrow light	RD/BU 2.0
16	Low Beam	WT-46 2.0
17		
18	DEF Heater PWR	BU/WT 2.0

PD 5-968975-1		
1	M Wiper PWR	WT/RD 1.5
2	Clutch control	RD-189 1.0
3	Reserve PWR	WT-30 1.0
4	Wiper PWR	WT-10 2.5
5		
6		
7	Hi beam	WT-47 2.0
8		
9	MirrOG PWR	WT-2 2.0
10		
11		
12	Radio PWR	WT-1 1.25
13		
14		
15		
16		
17	L glass heating	WT-17 3.0
18	System park PWR	RD-100
19		
20	Cabin motor	RD/WT 2.0
21	Spot lights PWR	WT-7 2.0

PE 6-968975-1		
1		
2		
3	R wipe motor park	WT-RF 1.5
4		
5		
6	R wiper motor n1	WT-RL 1.5
7		
8		
9	R wiper motor n2	WT-RH 1.5
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		

PF 9-968975-2		
1		
2		
3	Main Wiper	RD-106 1.0
4	Washer	RD-107 1.0
5		
6	Washer pump	WT-7+9 1.5
7		
8		
9	R glass heating	WT-28 3.0
10		
11		
12		
13	Flash PWR	RD-121 1.0
14		
15	L wiper motor n2	WT-LH 1.5
16	Window heating	PG-4
17	Side wiper n1	RD-128 1.0
18	L wiper motor n1	WT-LL 1.5
19	Side wiper n2	RD-129 1.0
20	L wiper motor park	WT-LF 1.5
21		

PG 8-968975-1		
1	BNake lights	RD-112
2	Switchs PWR	RD-166
3	Sensor PWR	RD-077
4	Windows heating SW	YE-127
5	BNake signal	YE-064
6	Lamp PWR	RD-167
7		
8	Clutch control	RD-189 1.0
9	Steering column PWR	RD-185
10	Ground lead	BK-185
11		
12	Filter heating PWR	RD-082
13	Low beam signal	YE-119
14		
15	Air dryer PWR	RD-083
16	IFM Back up alarm	YE-061
17	Hi beam signal	YE-120
18	Pressure switch 3	RD-078
19	Back up alarm	RD-114
20	Perimeter lights	RD-169
21	Display PWR	RD-096

PH 5-9689747-1		
1	Back up lights	RD-113
2	Controller 3 PWR	RD-045
3	Pressure switch 2	RD-087
4		
5	Controller 4 PWR	RD-009
6	Controller 1 PWR	RD-001
7	Back up light SW	YE-126
8	Pressure switch 1	RD-088
9	Controller 2 PWR	RD-047
10		
11		
12	IFM dispaly PWR	RD-170
13		
14	Sensor PWR	RD-171
15	Stroker PWR	RD-172
16		
17	Joystick PWR	RD-173
18	BNake switch PWR	RD-133

PJ 7-968975-1		
1	IGN 15+ PWR	RD-132
2	Emergency stop PWR	RD-117
3	Generator PWR	RD-188
4	IGN 15+ PWR	RD-132
5	Clutch control	RD-189 1.0
6	A/C PWR	RD-098
7	Strobe lights SW	YE-123
8	Clearer light SW	RD-124
9	Eaton neutral signal	YE-085 PJ-18
10	Ground lead	BK-174
11		
12	Clutch BNake	WT/RD 0.85
13	WOGk lights SW	YE-125
14	Emergency stop NO	WT-118
15	Engine start PWR	YE-079
16		
17		
18	Eaton neutral signal	YE-085 PJ-9
19	Engine IGN 15+	RD-081
20	Strobe lights	WT-30 2.0
21	Engine start signal	YE-071

KODIAK

DRAWING NOT TO SCALE

MATERIAL

ASSEMBLY

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Reference dimensions are in ( )

TOLERANCES:
Fractional± 1/8"
Angular: MACH± 0.5° BEND± 2°
Machined/Drilled Holes: ±0.01

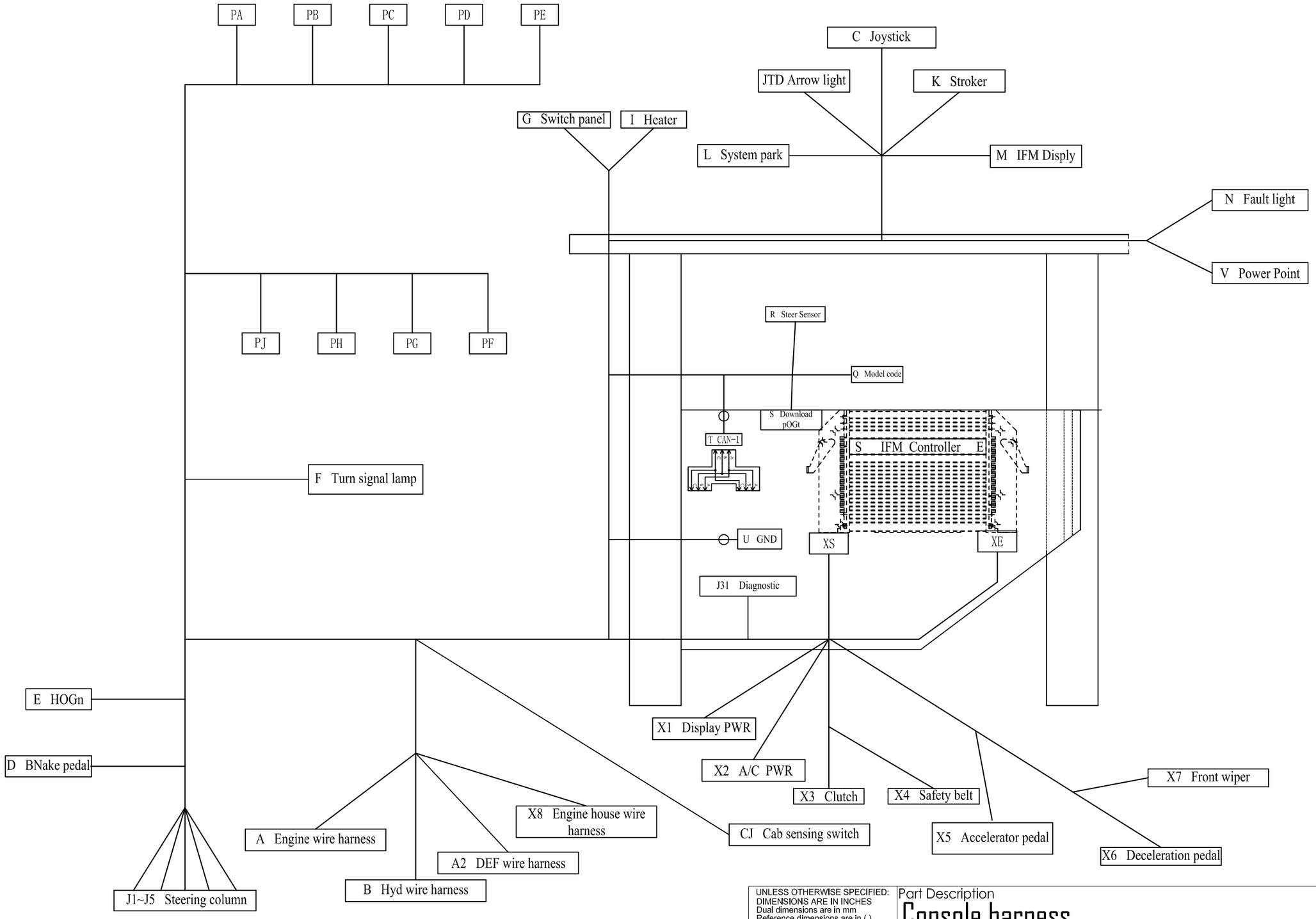
All Others
x.x ±0.10
x.xx ±0.06
x.xxx ±0.03

Part Description
Schematic diagram of fuse box

Part Number
CR600S-0901003

Revision
-0

DRAWN BY DATE | SCALE: 3:2 | WEIGHT: | SHEET 1 OF 1



KODIAK

DRAWING NOT TO SCALE

MATERIAL

ASSEMBLY

UNLESS OTHERWISE SPECIFIED:
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Dual dimensions are in mm
Reference dimensions are in ( )

TOLERANCES:
Fractional± 1/8"
Angular: MACH± 0.5° BEND± 2°
Machined/Drilled Holes: ±0.01

All Others
x.x ±0.10
x.xx ±0.06
x.xxx ±0.03

Part Description
Console harness

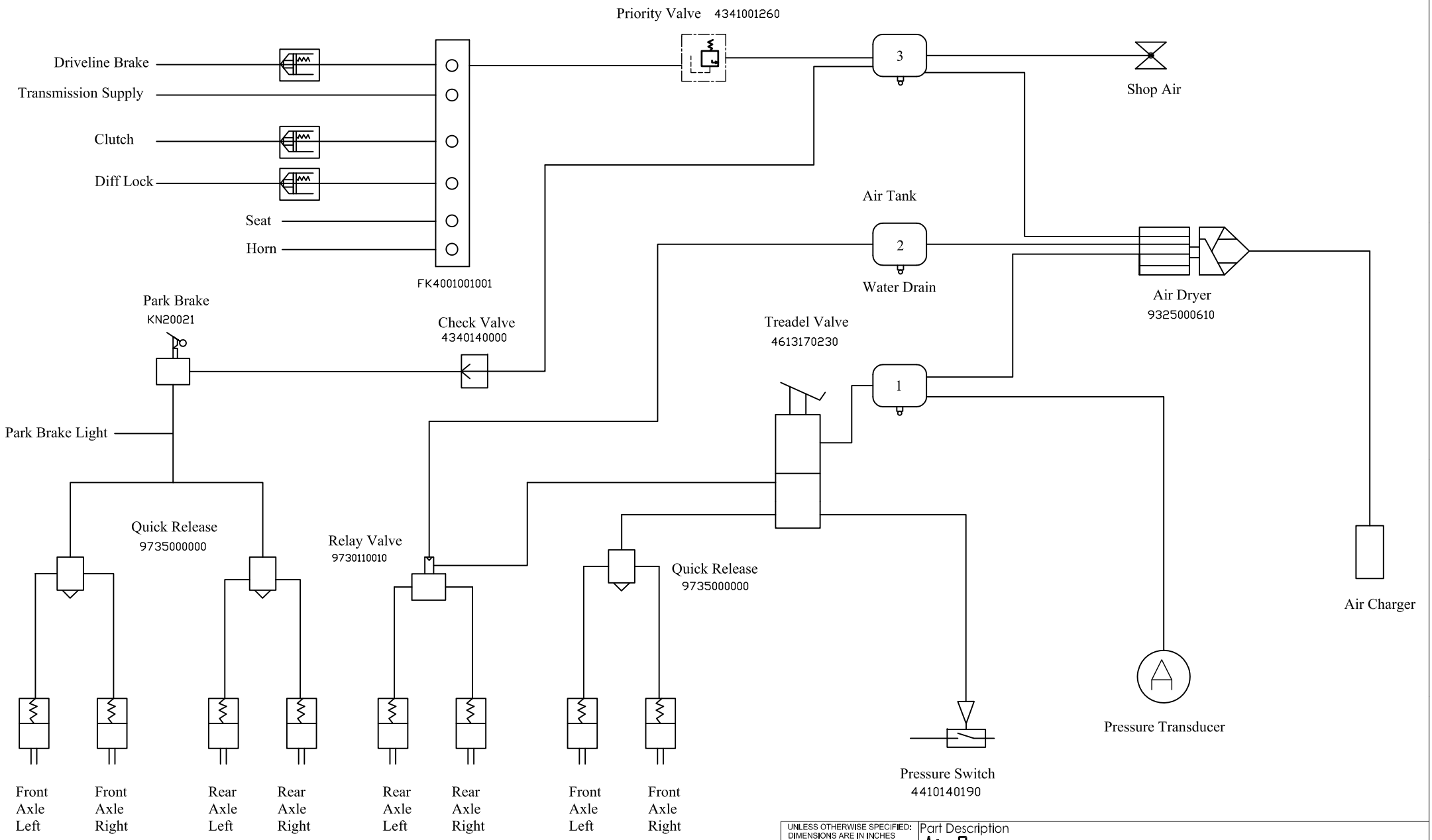
Part Number
CR600S-0901002

Revision
-0

DRAWN BY DATE

SCALE: 3:2 WEIGHT: SHEET 1 OF 1

5.Air System Schematics， Models & diagrams



KODIAK

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Reference dimensions are in ( )

TOLERANCES:
Fractional± 1/8"
Angular: MACH±0.5° BEND±2°
Machined/Drilled Holes: ±0.01

All Others
x.x ±0.10
x.xx ±0.06
x.xxx ±0.03

Part Description
Air System

Part Number
CR600S-0700000

Revision
-0

DRAWN BY JND DATE 01/04/2020 | SCALE: 3:2 | WEIGHT: | SHEET 1 OF 1

Part Ⅱ Inspection and Maintenance

1.1 Maintenance Overview

- For replacement parts, grease and oil, be sure to use genuine Kodiak accessories or products approved by Kodiak.
- Do not mix different types of fluids when changing oil, coolant, or refueling. When changing different types of oil, all old oil must be drained and new oil must be completely filled. At the same time, the oil filter must be replaced. (A small amount of residual oil in the lines will not be affected by mixing with new oil)

1.2 Oil

- The high temperature and high pressure of normal use on engine oils, hydraulic oils etc, caused degradation over time. Regular oil changes are required on this vehicle.
- Ensure that the oil used complies with the grade and temperature recommendations specified in the Operations and Maintenance Manual.
- In the specified oil change cycle, even if the oil is not dirty, it should be changed.
- Lubricating oil is essential for proper system function, similar to blood in the human body. Handle with care to prevent contaminants (water, metal debris, dust) from entering.
- Most machine failures are caused by contamination entering the system.
- Take special care to prevent contamination during oil storage or filling.
- Add oil to the specified level to ensure proper operation. Underfilling or overfilling may cause malfunctions.
- Do not mix oils of different grades or brands.
- If the hydraulic oil is contaminated or the system has water or air in the lines, contact Kodiak authorized dealer for service.
- Regular oil quality analysis is recommended to monitor machine condition. Contact your authorized dealer if this service is needed.
- Always replace the appropriate filters during an oil change. When replacing the engine oil filter, ensure the new filter is pre-filled with clean oil that meets specifications.
- Use only the oils recommended by the manufacturer.
- Using non-recommended hydraulic oil can cause filter blockages. Do not use unauthorized oils.
- During hydraulic oil replacement, ensure that residual oil in the lines and cylinders is properly cleaned. A minimal amount of oil mixing is acceptable.

1.3 Hydraulic Oil

- Hydraulic oil is essential to the hydraulic system. It is used to transfer, convert and control energy. At the same time, it also plays the role of lubrication, anti rust, anti-corrosion and cooling of the system. Maintaining clean oil is necessary for proper performance of the hydraulic system and the service life of the hydraulic components.
- The level of oil contamination should ALWAYS stay below NAS9. If it is higher than NAS9, the hydraulic oil mustl be replaced. The hydraulic oil requirements for the hydraulic system of the equipment are as follows: The original hydraulic oil used is Mobil DTE 10 excel 32. Hydraulic oil may be polluted in the process of transportation and storage. Even newly bought hydraulic oil may look very clean, but in fact it can be "dirty". It must be kept still for several days, filtered and then

added to the hydraulic system for use. The oil leaked from the system shall not return to the oil tank without filtration and testing.

- Please fill the hydraulic oil in strict accordance with the requirements. If the hydraulic oil does not meet the requirements or the hydraulic oil is not replaced in time, any warranty will be voided. Mobil brand hydraulic oil is recommended. If other brands of lubricating oil are used, Kodiak must be consulted prior to use.
- In order to judge the pollution degree of hydraulic oil, the usual evaluation method is to compare the oil to be evaluated with the clean new oil, and observe the difference of oil color, turbidity, dust and sediment. The following is a brief introduction to the simple assessment method used in the field.

Table 2.3-1: Onsite Visual Method for Assessing Oil Contamination

Appearance color	Smell	Pollution status	Treatment measures
Clear, unchanged	Normal	No contamination	Continue use
Clear, faded	Normal	Mix in other oils	If viscosity is within specs, continue use
Clear, sparkling	Normal	Mixed with metal chips	Filter or change oil
Clear with black spots	Normal	Mixed with impurities	Filter or change oil
Dark brown	Foul	Oxidized impurities	Change all oil
Milky white	Normal	Mixed with air or water	Change all oil

1.4 Fuel

- In order to prevent condensation from and forming in the fuel tank, the fuel tank must be filled after daily work.
- The fuel injection pump is a precision component. If the fuel contains water or contaminants, the pump will not work normally.
- Drain any water from the fuel system before and 10 minutes after starting the engine.
- If there are any impurities in the fuel tank, flush the fuel tank and the fuel system.
- If the engine has run out of fuel or if the filter element is replaced, the air in the system must be purged.
- Always use the fuel specified in the Operation and Maintenance Manual.
- When the fuel is used above the specified temperature, the viscosity will decrease and the output power will decrease.
- When storing or filling fuel, pay special attention not to let impurities in.

1.5 Coolant for the cooling system

- Coolant has important anti-corrosion and anti-freezing functions.
- Even in areas where antifreeze is not required, the use of antifreeze is essential.
- The engine is equipped with Mobil-45 Antifreeze. Mobil-45 Antifreeze has excellent anti-corrosion, anti-freezing and cooling characteristics.
- As a general rule, we do not recommend using any coolant with a freezing point higher than that of Mobil -45°C Antifreeze. Using other coolants may lead to issues such as freezing at low temperatures.
- Natural water, such as river water and well water (hard water), contain minerals (calcium, magnesium, etc.), which is easy to scale inside the engine and radiator. Once the engine or radiator has internal scaling, it will be difficult to

remove. Due to poor heat exchange and overheating, we do not recommend the use of self-made coolant.

- When using antifreeze, be sure to follow the precautions in this manual.
- Pure antifreeze is flammable and should be kept away from open fire.
- If the engine overheats due to lack of coolant, wait for the engine to cool down before adding coolant.
- If the coolant level is low, it will cause overheating, and as air enters the coolant, it will also cause corrosion problems.

1.6 Grease

- Grease is used to prevent twisting and noise at connection points.
- Grease not only lubricates sliding surfaces, but it also prevents the mixing of dust and water.
- If any parts appear inflexible or noisy after long-term use, check for abnormal wear. If the part is not damaged, add grease.
- Be sure to use the recommended grease, and follow the recommended replacement cycle and ambient temperature in this manual.
- Before adding new grease, wipe away the old grease.
- Be sure to wipe off the old grease where there is sand and dirt, otherwise the rotating parts will be worn.

1.7 Storage of oil and fuel

- Oil and fuel should be placed indoors to prevent water, dust or other debris from entering.
- When the oil barrel is stored for a long time, the oil barrel should be placed on the side so that the oil filling port of the oil barrel is on the side (to prevent moisture inhalation).
- If the oil drum has to be placed outdoors, cover it with tarpaulin or take other protective measures.
- To prevent oil from deteriorating during long-term storage, always use the oldest oil first, following the first-in, first-out (FIFO) rule.

1.8 Filter element

- The filter element is an essential safety component, which can prevent any impurities in the oil circuit and gas circuit from entering the system and causing failure.
- Replace all filter elements regularly. Please refer to the relevant sections of this manual for details.
- When working in harsh conditions, the filter element should be replaced in a short period according to the sulfur content of all lubricating oils and fuels.
- Do not reuse filter elements, always replace it with a new one.
- When replacing the filter element, check whether there are metal particles adsorbed on the old filter element. If metal particles are found, please contact Kodiak or an authorized agent.
- Do not store filters without packaging.

1.9 Electrical system maintenance

- If the electrical equipment is wet or the cladding of the wire is damaged, it may cause an electrical short circuit and lead to machine failure. Do not flush the inside of the electrical cabinet with water. When washing the machine, be careful not to let water enter the electrical components.
- The external electromagnetic interference may cause failure of the control system. When installing radio receivers or other wireless devices, please contact Kodiak or its authorized agent.
- When installing electrical equipment, connect it with a dedicated power connector.
- Do not use mismatched fuses, starting switches or batteries.
- If you need to add new electrical components, please contact Kodiak or its authorized agent BEFORE INSTALLATION.
- Battery charging: vehicle charger can be used to charge the battery (AC 220 V). Please turn off the main power switch before charging to protect the electrical equipment.

Do not spray water on electrical components.

2 Lubrication

2.1 Manual lubrication

- There are 34 lubrication points on the head assembly, 63 lubrication points on the chassis making a total of 97 lubrication points.
- When using the grease gun to lubricate the lubricating point, make sure that the clamp head of the grease gun is in good contact with the oil cup (that is, the clamp head can be tightly stuck with the oil cup).
- In case of failure to inject oil, please check whether there is any problem with the chuck, and replace it in time if there is any problem. If there is no problem with the grease gun, please replace the oil cup and then inject oil. If the grease still cannot be injected, it means that the clearance between the pin shaft and the bushing is too small or there are impurities in the clearance between the pin shaft and the bushing. Rotate the pin shaft and inject grease at the same time, so that the grease can be injected.
- Every time lubrication is carried out, the clearance between pin shaft and bushing shall be subject to the overflow of clean grease.

2.1.1 Blower head lubrication

- The blower head is a working part, which is used more frequently than other parts. Grease must be injected daily before operation otherwise the bearing or contact surface will be doubly worn leading to parts failure.
- The following figure (Figure 3.1.1-1) shows the specific location of the polishing head lubrication point. Points 9, 10, 11, 13, and 18 indicate lubrication points for the sliding track. Start the equipment after smearing oil in the chute, and then turn the snow throwing cylinder to make the oil in the chute spread evenly under the push of the slider.

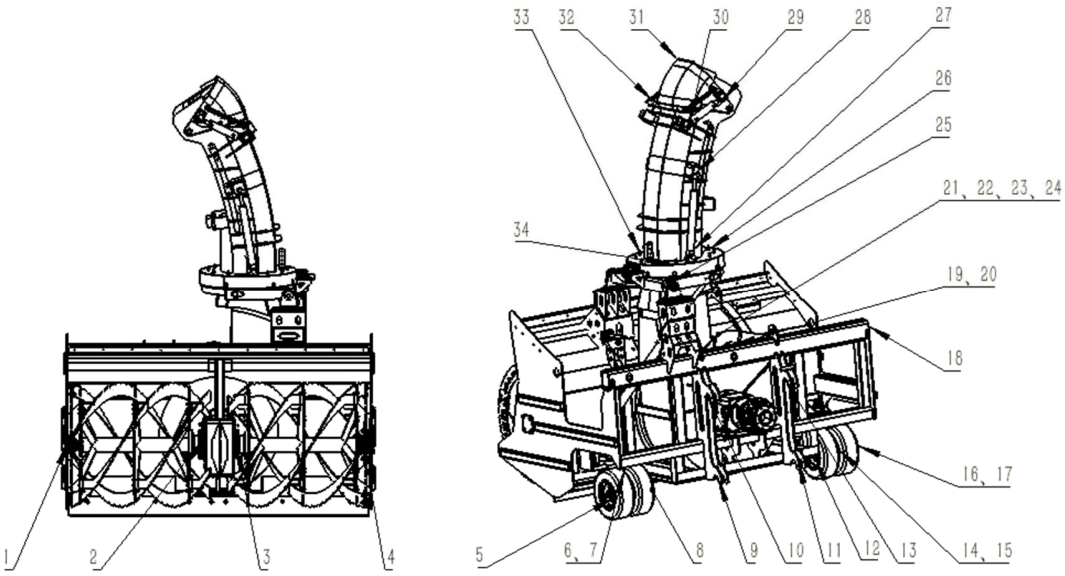


Figure 3.1.1-1: Blower Lubrication Points

2.1.2 Chassis lubrication

Chassis lubrication is divided into three sections:

1. Axle assembly – Lubrication of the wheel steering system
2. Drive shaft – Includes both the blower output shaft and axle drive shaft
3. Frame assembly – Lubrication points are in concealed areas with limited working space; use caution to avoid missing lubrication points and prevent injuries from accidental contact.

- **Axle Assembly**

The axle assembly has 16 lubrication points. Figure 3.1.2-1 shows the lubrication points on the front axle. The rear axle lubrication points follow the same placement as the front axle and are not shown separately.

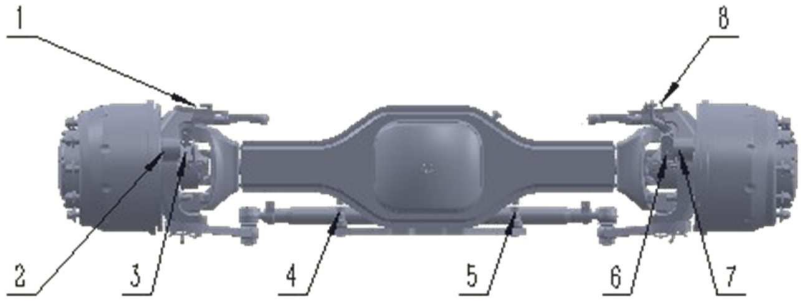


Figure 3.1.2-1: Front Axle Lubrication Points

- **Drive Shaft**

The drive system assembly contains 17 lubrication points. Apply grease according to Figure 3.1.2-2.

Important:

If the universal joint of the drive shaft lacks lubrication, high-speed rotation will cause dry friction, generating excessive heat and potentially damaging the universal joint. Always grease the drive shaft as per the maintenance schedule.

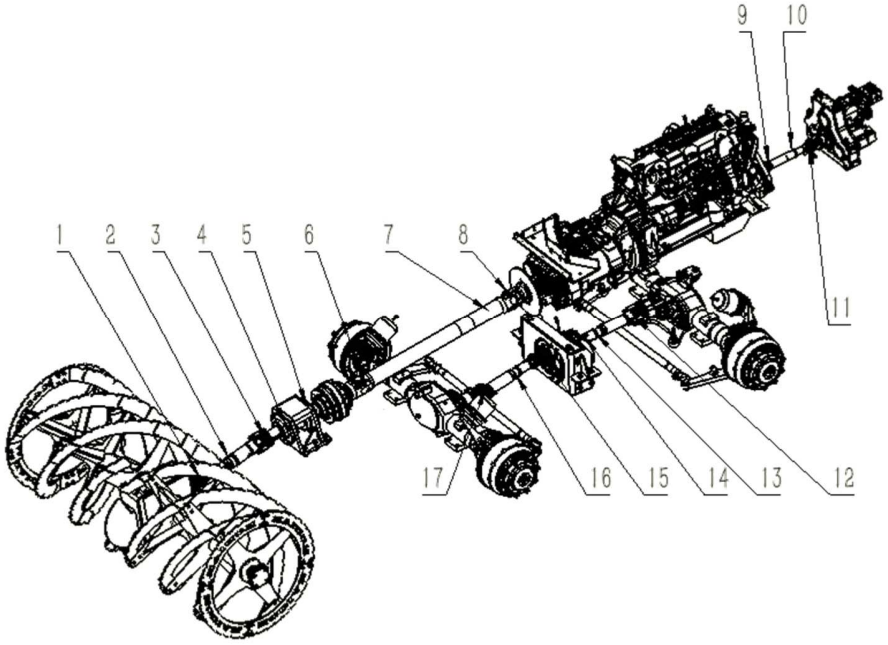


Figure 3.1.2-2: Drive Shaft Lubrication Points

- **Frame Assembly**

The frame assembly has 30 lubrication points. Figure 3.1.2-3 shows the lubrication points for one side of the frame. The lubrication points on the opposite side are identical and are not separately illustrated.

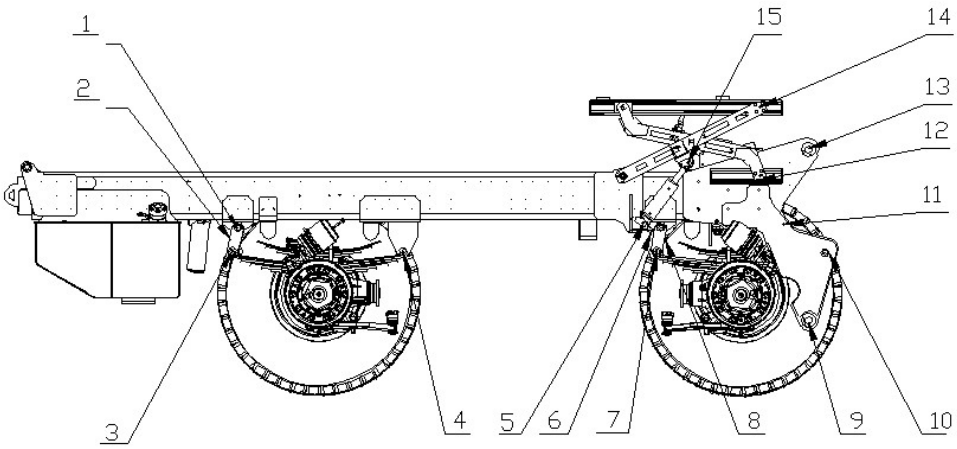


Figure 3.1.2-3: Frame Lubrication Points (Single Side)

Warning

When adding lubricating grease, ensure no impurities mix with the grease. Contaminants can clog the system's oil lines, leading to equipment failure.

2.2 Selection standard of lubricating grease

- The selection of grease is related to speed, working temperature, load and ambient temperature. The grease recommended by Kodiak is Mobil grease XHP222.
- If you want to use a different grease, please contact Kodiak before using.

3 Wear Parts

- Wear parts, such as engine and diesel fuel filters, shear bolts, and air filters, must be replaced at regular maintenance intervals or before reaching their wear limit.
- Table 4-1 lists the vehicle's primary wear parts. To maintain cost-effective operation, replace wear components correctly and use only genuine Kodiak parts for optimal performance.
- When ordering replacement parts, contact Kodiak or an authorized dealer.

Table 4-1: Wear Parts List

Item	Quantity	Remarks
Engine Oil Filter	1	—
Fuel/Water Separator	1	—
Fuel Filter	1	Primary filtration and secondary filtration
Air Filter	2	Primary filtration and secondary filtration
Hydraulic System Filters	3	Return oil filter element, drive pump filter element and hydraulic oil filter
Blower Brake Disc	1	—
Cutting Edge	1	K052001

4 Maintenance Capacity Table

- All fluids must be filled according to the Maintenance Capacity Table to ensure proper system function. Overfilling may cause excessive resistance, leading to performance issues or fluid overflow. Underfilling can result in inadequate lubrication and equipment failure.
- Use only Kodiak-recommended fluids for optimal performance. Fluid capacities are listed in Table 5-1 below.

Table 5-1: Maintenance Capacity Table

No.	Part name	Brand of oil and fluid	Model of oil and fluid	Consumption per unit (L)	Note	Maintenance Cycle year	Remarks
1	Gearbox	Mobil	Delvac Gear Oil 80W-90 GL-5	25	Level hole	1	-
2	Transfer case	Mobil	Delvac Gear Oil 80W-90 GL-5	11	Level hole	1	-
4	Transmission	Mobil	Delvac Gear Oil 80W-90 GL-5	15	Level hole	1	-
5	Engine coolant	Mobil	-45°C Antifreeze	83	Liquid level to the middle of oil mirror	2	Includes engine radiator etc.
6	Engine oil	Mobil	5W-40 K150	38	Between A and F	1	-
7	Axle Housing	Mobil	Delvac Gear Oil 80W-90 GL-5	26	Liquid level to the bottom of observation port	1	13L per axle
8	Wheel Reduction Hub	Mobil	Delvac Gear Oil 80W-90 GL-5	6	Liquid level to the bottom of observation port	1	1.5L per wheel
9	Windshield Washer Fluid	-	B-2075-80℃	3	Top up	-	-
10	Hydraulic Oil	Mobil	DTE 10 EXCEL 32	300	Liquid level to window 2/3	1	Hydraulic system fill
11	Pump Drive Transfer Case	Mobil	Delvac Gear Oil 80W-90 GL-5	5.5	Mid-level on dipstick	1	-
12	Diesel Fuel	Diesel	0#Diesel	800	Fill to fuel inlet	-	Above 5°C (41°F)
			-10#Diesel	800	Fill to fuel inlet	-	Above -5°C (23°F)
			-20#Diesel	800	Fill to fuel inlet	-	Above -15°C (5°F)

		-35#Diesel	800	Fill to fuel inlet	-	Above -30°C (-22°F)
		-50#Diesel	800	Fill to fuel inlet	-	Above -40°C (-40°F)
Note: Select the appropriate diesel fuel grade based on operating conditions. The manufacturer provides only a small amount of fuel for initial inspection and acceptance testing.						

5 Filter Model Summary

All maintenance filter elements are summarized in the table below, along with the steps, maintenance cycle and precautions of replacing filter elements are described in detail in Section 9.

Table 6-1: Filter Model Summary

No.	Description	Model	Manufacturer	Quantity	Maintenance cycle
1	Engine Oil Filter	LF9070	Fleetguard	1	a year
2	Fuel/Water Separator	FS36230	Fleetguard	1	a year
3	Secondary Fuel Filter	FF63010	Fleetguard	1	a year
4	Primary Air Filter	AF26433	Fleetguard	1	1 year / 3 times cleaning
5	Secondary Air Filter	AF26434	Fleetguard	1	a year
6	Hydraulic Oil Filter	PBE0160F010N	Collins	2	2 years
7	Hydraulic Return Oil Filter	FAX-400X20	Liming Hydraulics	2	2 years
8	Drive Pump Filter	0009830615	Linde Hydraulics	2	2 years
9	Air Dryer	4324102412	WABCO	2	2 years or when exhaust valve releases water
10	Urea Pump Filter	5303604	Cummins	1	a year
11	Urea Tank UQS Filter	4353889	Cummins	1	a year

6Tightening Torque Technical Specifications

- Threaded connections are a crucial and widely used form of mechanical fastening. Most threaded fasteners require proper tightening during assembly to ensure rigidity, tightness, and resistance to loosening. This is especially critical for key structural components, where achieving the specified tightening torque is essential.
- Failure to follow torque specifications can affect the reliability, performance, and safety of related components and even the entire system. If any fasteners are found to be loose or need replacement, they must be tightened to the specified torque values.
- To prevent damage due to excessive force during assembly and to establish a standardized approach for safely securing fasteners, the following tables provide the maximum tightening torque values for bolts, nuts, and stud bolts used in this vehicle.

Table 7-1: Maximum Tightening Torque for Threaded Fasteners (Metric)
(Adjust table formatting as needed for final publication.)

Thread Size (Nominal	Grade			
	4.8	8.8	10.9	12.9
	Torque specifications			

Diameter × Pitch)	Nm	Lb.ft	Nm	Lb.ft	Nm	Lb.ft	Nm	Lb.ft
M1.6	–	–	0.20	0.15	–	–	0.20	0.15
M2.0	–	–	0.25	0.20	–	–	0.45	0.30
M2.5	–	–	1	0.75	–	–	1	0.75
M3.0	–	–	1	0.75	–	–	2	1.5
M3.5	–	–	2	1.5	–	–	3	2
M4.0	–	–	3	2	–	–	4	3
M5.0	–	–	5	4	–	–	8	6
M6.0	–	–	9	6	–	–	13	10
M9.0×1.25	–	–	21	15	27	20	32	23
M9.0×1.00	–	–	23	17	29	21	34	25
M10.0×1.50	–	–	42	31	54	39	63	46
M10.0×1.25	–	–	45	32	57	41	67	48
M12.0×1.75	–	–	74	53	94	68	110	80
M12.0×1.25	–	–	81	58	103	74	121	87
M14.0×2.00	–	–	118	85	151	109	176	127
M14.0×1.50	–	–	128	92	163	118	190	137
M16.0×2.00	169	122	–	–	234	169	274	197
M16.0×1.50	181	130	–	–	250	180	292	211
M19.0×2.50	234	169	–	–	323	234	378	273
M19.0×1.50	263	190	–	–	363	262	425	307
M20.0×2.50	330	239	–	–	457	330	531	386
M20.0×1.50	367	265	–	–	507	366	593	423
M22.0×2.50	451	325	–	–	623	450	728	526
M22.0×1.50	495	357	–	–	684	494	800	577
M24.0×3.00	571	412	–	–	790	570	923	667
M24.0×2.00	623	450	–	–	861	622	1007	727
M27.0×3.00	837	605	–	–	1158	836	1354	977
M27.0×2.00	903	652	–	–	1250	902	1461	1055
M30.0×3.00	1135	820	–	–	1570	1134	1835	1325
M30.0×2.00	1258	908	–	–	1740	1256	2034	1468
M30.0×1.50	1300	939	–	–	1799	1299	2102	1516
M36.0×4.00	1985	1433	–	–	2745	1982	3208	2317
M36.0×3.00	2102	1517	–	–	2907	2099	3398	2453

Note:

- The maximum tightening torque of standard bolts & nuts in this table is about 75% of the yield limit of material.
- All torque values in the table are relative to lubricated threads. The meaning of "lubrication" here includes the use of thread lubricant, cadmium plating or hardened washer.
- The torque values in the table are the recommended values for general fasteners. In practical application, the allowable tightening load has a variation of ± 10%.

Table 7-2 maximum tightening torque of threaded fasteners (SAE)

Thread size (Nominal Diameter× Pitch)	性能等级								With 12 point cap screws	
	GM 260-m Steel SAE grade 2		GM 280-m Steel SAE grade 5		GM 290-m Steel SAE grade 7		GM 300-m Steel SAE grade 8			
	拧紧力矩									
	Nm	Lb.ft	Nm	Lb.ft	Nm	Lb.ft	Nm	Lb.ft	Nm	Lb.ft
0.25-20	5	4	8	6	11	8	12	9	14	10
0.25-28	7	5	10	7	12	9	14	10	15	11
0.31-18	11	8	18	13	22	16	24	18	27	20
0.31-24	12	9	19	14	24	18	27	20	30	22
0.44-14	33	24	47	35	59	43	68	50	75	55
0.44-20	37	27	54	40	68	50	79	58	87	64
0.50-13	50	37	75	55	94	69	106	78	119	88
0.50-20	56	41	88	65	106	78	122	90	134	99
0.56-12	75	55	108	80	136	100	156	115	171	126
0.56-18	81	60	122	90	149	110	176	130	191	141
0.62-11	102	75	149	110	190	140	217	160	237	175
0.62-18	115	85	169	125	210	155	244	180	270	199
0.75-10	176	130	271	200	332	245	380	280	420	310
0.75-16	203	150	298	220	366	270	420	310	472	348
0.88-9	169	125	434	320	536	395	610	450	679	501

0.88-14	190	140	488	360	590	435	678	500	751	554
1.00-8	258	190	651	480	800	590	915	675	1021	753
1.00-12	285	210	719	530	881	650	1003	740	1119	825
1.00-14	285	210	732	540	902	665	1030	760	1148	847
1.12-7	366	270	800	590	1132	835	1302	960	1447	1067
1.12-12-	407	300	902	665	1274	940	1451	1075	1624	1198
1.25-7	515	380	1132	835	1600	1180	1830	1350	2043	1507
1.25-12	569	420	1254	925	1776	1310	2034	1500	2267	1672
1.38-6	664	490	1478	1090	2095	1545	2400	1770	2676	1974
1.38-12	759	560	1688	1245	2393	1765	2739	2020	3056	2254
1.50-6	881	650	1966	1450	2786	2055	3186	2350	3556	2623
1.50-8	936	690	2088	1540	2962	2185	3390	2500	3781	2789
1.50-12	990	730	2217	1635	3145	2320	3593	2650	4010	2958
2.00-8	–	–	–	–	7342	5415	8406	6200	9367	6909
2.00-12	–	–	–	–	7687	5670	8786	6480	9811	7236
2.25-4.5	–	–	–	–	9701	7155	11090	8180	12377	9129
2.25-8	–	–	–	–	10629	7840	12148	8960	13566	10006
2.25-12	–	–	–	–	11050	8150	12636	9320	14102	10401
2.5-12	–	–	–	–	15280	11270	17463	12880	19500	14383

Note:

- The maximum tightening torque of standard bolts & nuts in this table is about 75% of the yield limit of bolt (nut) material.
- The thread specification is "0.25-20", in which 0.25 means the nominal diameter of the thread is 0.25in; 20 means 20 teeth per inch (i.e. pitch), converted into metric system, it is 25.4mm/20 = 1.27mm, i.e. pitch is 1.27mm.
- All torque values in the table are relative to lubricated threads. The meaning of "lubrication" here includes the use of thread lubricant, cadmium plating or hardened washer.
- The tightening torque in the table is the recommended value for general fasteners. In practical application, the tightening load is allowed to change by ± 10%.
- The torque specifications in the table correspond to the material specified in the GM standard. For the material beyond GM standard, you can query table 6-3, first convert it into GM standard material, and then check the torque value.

Table 7-3: Correspondence Between Non-GM and GM Standard Materials

Non-GM Standard Material		Hardness	GM Standard Material
Low Carbon Steel	SAE1018	Rockwell B 85–100	GM 260-M
	SAE1020		
Medium Carbon Steel	SAE1035	Rockwell C 19–30	GM 280-M
	SAE1038		
	SAE1045		
Medium Carbon Alloy Steel	SAE4140	Rockwell C 28–34	GM 290-M
		Rockwell C 32–38	GM 300-M
	SAE8642	Rockwell C 28–34	GM 290-M
		Rockwell C 32–38	GM3 00-M
	SAE5157	Rockwell C 28–34	GM 290-M
	SAE5147	Rockwell C 32–38	GM 300-M

Note:

- Improper screwdrivers and spanners shall not be used when tightening bolts and nuts. When tightening the nuts of a group of bolts, according to the shape of the connected parts and the distribution of bolts or nuts, tighten them evenly in a certain order (generally 2-3 times) to ensure that all screws or bolts have the same preload. When tightening a group bolt of rectangular arrangement, it should start from the middle and gradually expand and tighten symmetrically to both sides; when tightening the group bolts or nuts of circular or square arrangement, it must be done symmetrically, if there is a locating pin, it should start from the screw or bolt close to the locating pin.
- When a safety wire is used at the bolt head, it shall be threaded and wrapped firmly according to the thread rotation direction. When double nuts are used and adhesive

is not used to prevent loosening, thin nuts should be installed first, and then the thick nuts should be tightened with about 80% torque, and then the thick nuts should be tightened with 100% torque.

- If the fastener needs to be replaced, its model should be the same as the original, or a replacement with the same performance as the original should be used. It is not allowed to use substitutes that are inferior to the original quality or inconsistent with the original design, so as to avoid unnecessary losses such as equipment damage or personal injury.

Self-Locking Fasteners

- When a self-locking fastener is removed and reinstalled onto its original mating component, it generates a measurable engagement force or torque that provides a relocking function. However, with each use, the locking capability of a self-locking nut degrades to some extent.
- To ensure the reliability of self-locking fasteners, the fasteners used on this vehicle are specified to be reusable up to a maximum of five times under technical requirements.
- Each time a self-locking fastener is removed, a mark must be made on its head. This allows assembly workers to track how many times the fastener has been used. If a self-locking fastener has been used five times, it must be replaced. The table below specifies the minimum torque required for removal after the first use of a self-locking fastener. If a self-locking fastener can be loosened with a torque lower than the minimum value in the table, it must be discarded, regardless of whether it has been used five times or not.

Table 7-4: Minimum General Removal Torque for Self-Locking Fasteners

Thread Size	Bolt		Lock nut			
	Grade					
	SAE grade 5, SAE grade 8 and ASTM a-574		SAE grade 5		SAE grade 8	
	Nm	Lb. ft	Nm	Lb. ft	Nm	Lb. ft
0.25-20	0.3	3	0.4	3.5	0.5	4.5
0.25-28	0.3	3	0.4	3.5	0.5	4.5
0.31-18	0.6	5	0.6	5.5	0.9	7.5
0.31-24	0.6	5	0.6	5.5	0.9	7.5
0.38-16	1.0	9	1.0	9.5	1.3	11.5
0.38-24	1.0	9	1.0	9.5	1.3	11.5
0.44-14	1.4	12	1.4	12	1.8	16
0.44-20	1.4	12	1.4	12	1.8	16
0.50-13	1.8	16	1.7	15	2.3	20
0.50-20	1.8	16	1.7	15	2.3	20
0.56-12	2.5	22	2.4	21	3.2	28
0.56-18	2.5	22	2.4	21	3.2	28
0.62-11	3.4	30	3.1	27	4.1	36
0.62-18	3.4	30	3.1	27	4.1	36
0.75-10	5.1	45	4.6	41	6.1	54
0.75-16	5.1	45	4.6	41	6.1	54
0.88-9	7.3	65	7.0	62	9.3	82
0.88-14	7.3	65	7.0	62	9.3	82
1.00-8	9.6	85	9.5	84	12.7	112
1.00-12	9.6	85	9.5	84	12.7	112
1.00-14	-	-	9.5	84	12.7	9.5

7 Safety Critical Parts

7.1 Shear Bolt

- The shear bolt (Figure 8.1-1) is designed to protect the engine and transmission parts. The shear bolt can cut off the power source when the load exceeds the design load or when the blower is stuck, so as to protect parts of the engine, transfer case and other important assemblies.
- Please refer to Section 9.4 for shear bolt replacement.

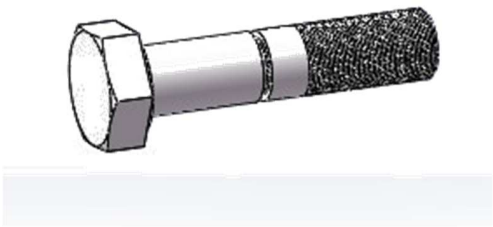


Figure 8.1-1 shear bolt

7.2 Torque Limiter

The torque limiter is a safety device that automatically disconnects power when the impeller torque exceeds the overload threshold, protecting the engine and transmission. After shutdown, resetting the torque limiter restores normal power transmission.

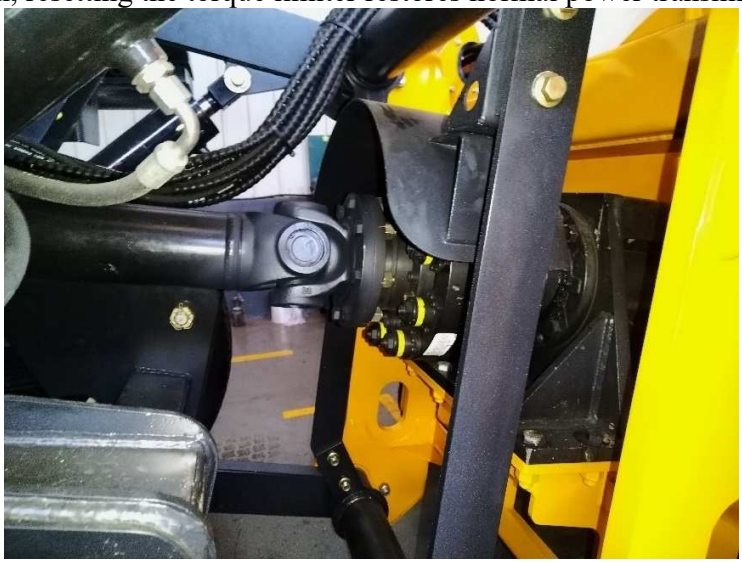


Figure 8.2-1: Torque Limiter

7.3 Engine Compartment Fall Protection Device

When the engine compartment is lifted, this device mechanically locks the compartment in a secure position, effectively protecting maintenance personnel. Locked Position: See Figure 8.3-1, Unlocked Position: See Figure 8.3-2.

Note: Do not lower the engine compartment while the device is in the locked state, as this may cause deformation or damage to the hydraulic cylinder.

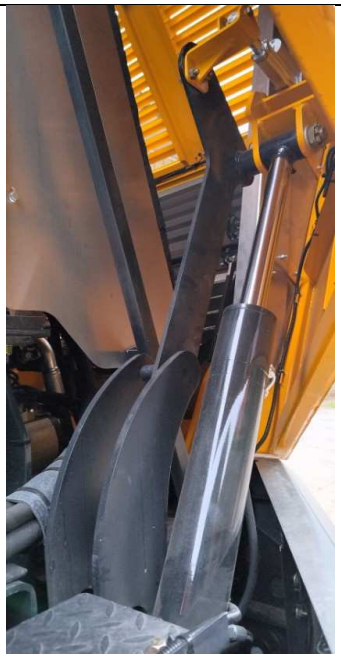


Figure 8.3-1

Figure 8.3-2

8 Maintenance Procedures

8.1 Daily maintenance

1. Lubrication
   - Check the oil quantity of the 68 lubricating ports, and add oil/grease if necessary
2. Electrical system
   - Check the operation of indicator lights, warning lights, and auxiliary electrical equipment.
   - Braking system
   - Tire pressure
3. Engine
   - Check the oil level and refill if low.
   - Check for leaks
   - Check the fan for damage
   - Check oil temperature and oil pressure gauge reading
4. Fuel system
   - Check the fuel system for leaks
   - Check the fuel level
   - Check the water separator for water accumulation.
5. Cooling system
   - Check the coolant level and add coolant if it is low.
   - Check the hoses and components for leaks.
6. Air Filter

Warning

Due to the low temperature environment, the silicone tube expands and contracts with heat, and the coolant may leak from the silicone tube joint. Tightening the clamp can solve the problem.

- Check the air filter indicator
- Check the air intake system for cracks and leaks

7. Hydraulic system
   - Check the oil level of the hydraulic oil tank and add oil if it is low
   - Check the hydraulic system and components for leakage and the hose for wear or damage
8. Axle
   - Visually inspect the tire pressure
   - If the axle wheel nut and oil filling / drain plug are loose, retighten them in promptly
   - Check the lubricating oil for any leakage
   - Check the braking performance and reset. The clearance between the brake lining and drum must be within the range of 0.5-1.5mm. If the
   - clearance exceeds the range or reset is abnormal, please adjust and maintain it in time.
9. Heating system
   - Check whether the ball valve of the heating system pipeline is closed (open when in use, as shown in figure 9.1-1), and whether the heater has leakage.
10. Start the vehicle and check the operational condition of all working components.

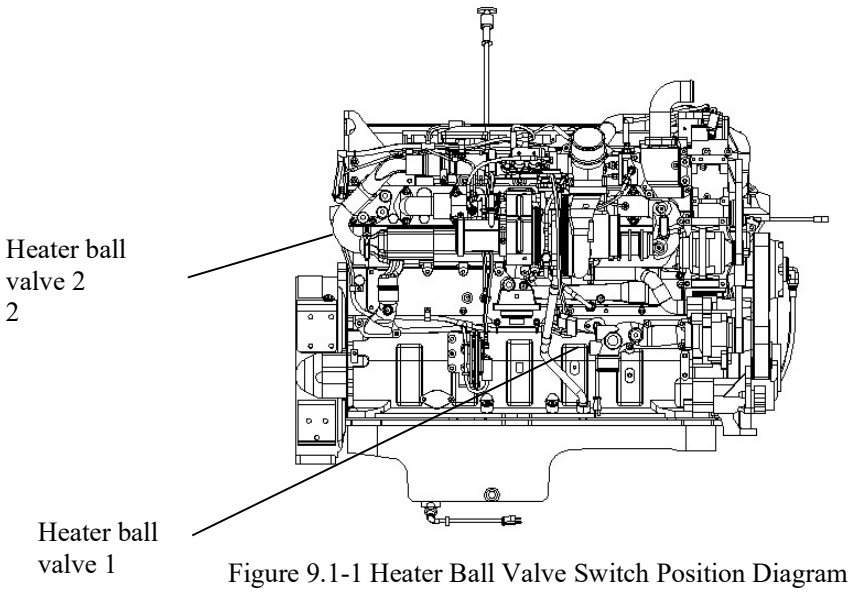


Figure 9.1-1 Heater Ball Valve Switch Position Diagram

8.2 Shear Pin Replacement and Torque Limiter Reset

- The shear pin is a crucial safety component in the transmission system. When encountering rocks mixed in the snow or when the load exceeds the design limit, the shear pin cuts off the engine's power output to protect the engine.
- There are a total of four shear pins in the equipment, with two located on each side of the auger transfer case flanges (as shown in Figure 9.2-1). If the auger does not rotate while the snow blower impeller does, it indicates that the transfer case shear pin has broken.

- Steps for Installing a Shear Pin:
  1. Use a flathead screwdriver to remove the failed bolt head.

Warning:

The shear bolt has been designed and checked. Do not replace with ordinary bolts as it will lead to equipment failure. Failure to use genuine kodiak shear bolts will result in immediate void of

  2. Replace it with a new shear pin. If the alignment hole is difficult to locate, slowly rotate the auger to align it before inserting the bolt.
  3. Tighten the bolt securely.

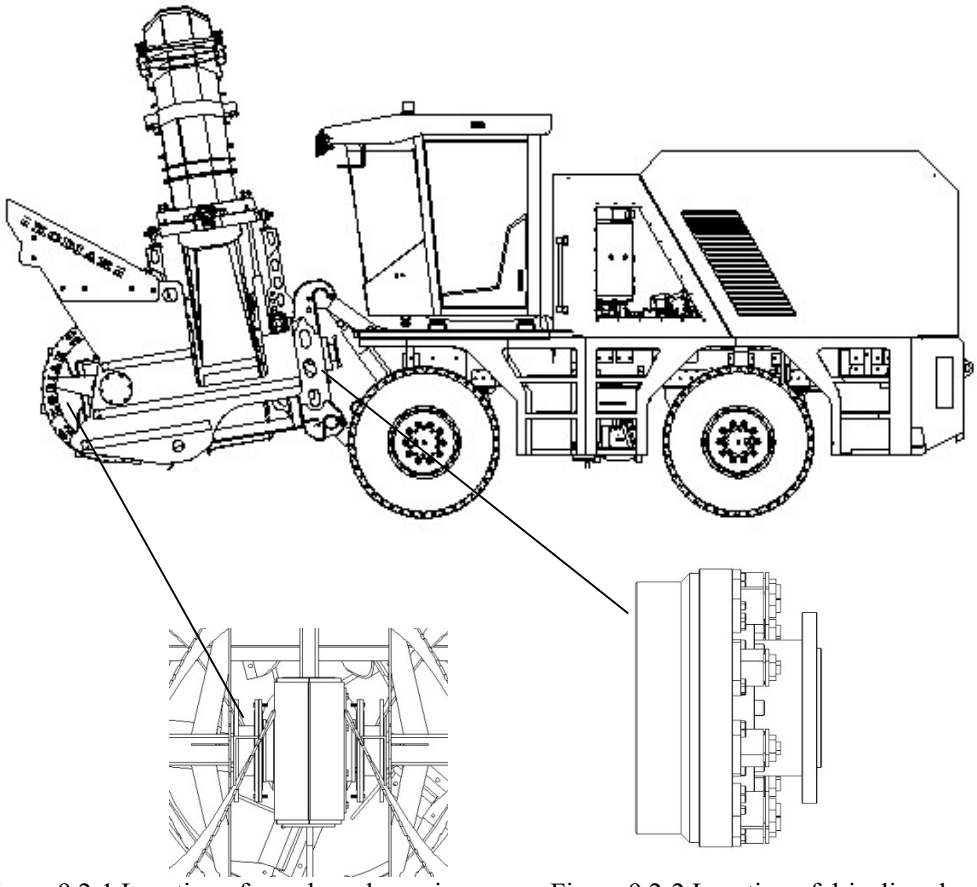


Figure 9.2-1 Location of gear box shear pin

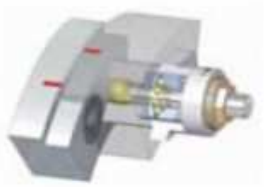
Figure 9.2-2 Location of driveline shear pin

When the load exceeds the preset torque of the torque limiter, the limiter begins to slip, protecting the engine and the transfer case. Once the torque limiter is activated, the operator should immediately reduce speed, stop the machine, and reset the torque limiter.

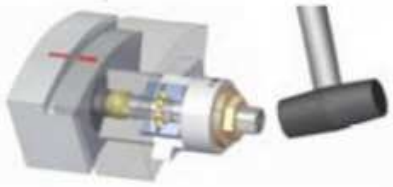
Reset Procedure:

1. Align the torque limiter flange so that the two markings match, as shown in Figure 9.2-3.
2. Use a hammer to tap the nine pins back into place, as shown in Figure 9.2-5.
3. Restart the equipment to complete the reset process.

Engage
Figure 9.2-3



break away from
Figure 9.2-4



reset
Figure 9.2-5

8.3 Wiper Maintenance

- If the wiper is frozen, do not start the wiper, otherwise the wiper blade will be pulled down or the wiper motor will burn out.
- First, start the defrosting function, let the warm air melt the thin ice or frost surrounding the wiper. After it has melted, start the wiper.
- The washer fluid used by the wiper should be suitable for the local temperature environment. We recommend: B-2075, which can withstand low temperatures of -80 ℃. The position of wiper filler is shown in figure 9.3-1 below.

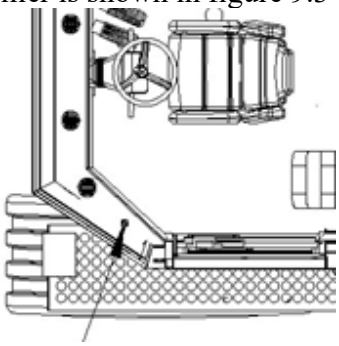


Figure 9.3-1 Location of wiper fluid filling port inside cab

8.4 One month maintenance

8.4.1 Clean the primary filter element

- The dual element air filter consists of a primary element and a secondary element. If properly cleaned and inspected, the primary filter element can be cleaned up to six times. No matter how many times it has been cleaned, it must be replaced after one year. Once the air filter maintenance indicator light (Figure 9.4.1-1) turns on, it's time to clean the filter.

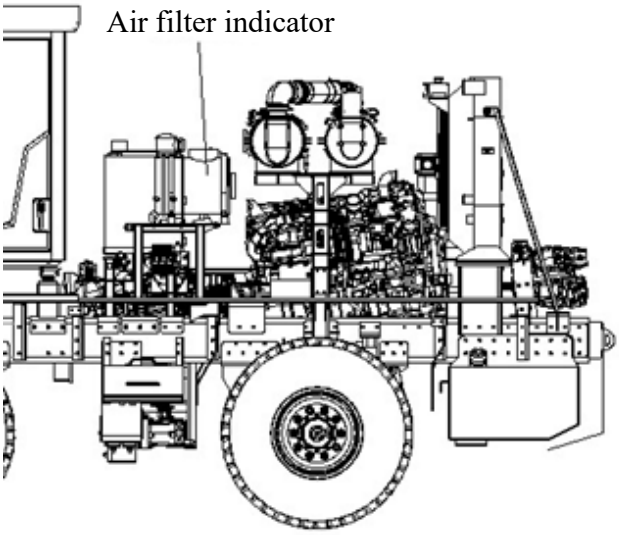
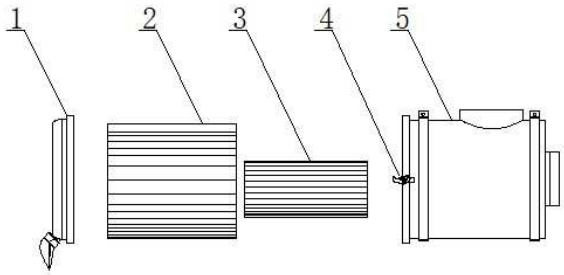


Figure 9.4.1-1 location of air filter and maintenance indicator

- The steps to clean or replace the primary filter element are as follows:



1-Filter head cover plate 2-Primary filter element 3-Secondary filter 4-Butterfly buckle 5-Filter body

Figure 9.4.1-2 structural diagram of air filter

1. Stop the equipment and hang the "no operation for maintenance" tag;
2. Loosen the butterfly fastener 4 of the air filter (as shown in Fig. 9.4.1-2) and take out the filter head 1.

ATTENTION

When cleaning the filter element, only the primary filter element should be cleaned, not the secondary. Failure to do so may introduce contamination into the engine.

入发动机内部的危险，这会损坏发动机

3. Grasp the end face of primary filter element 2 with both hands and gently pull it out.

4. Hold the secondary filter element 3 so that it does not shake or fall out, and clean the inside of the air cleaner housing with a dry cloth.

5. Confirm that there are no cracks in the lip of the vacuum valve. If any crack is found, replace it with a new one.

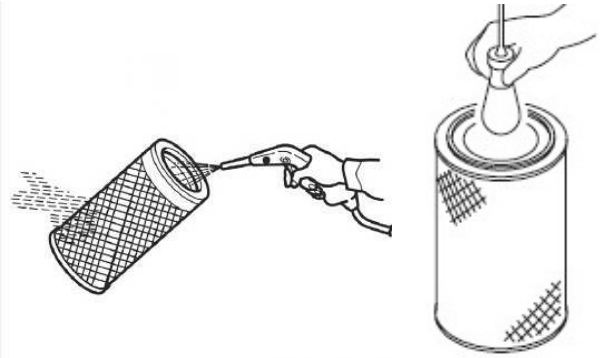
ATTENTION
When pulling out the primary air filter, you should stand on a stable and secure platform. If your footing is not stable, there is a risk of falling and injury during the operation.

6. Use compressed air (0.69MPa {7kg/cm²}) to blow out dust from the inside of the primary filter along the folds. After cleaning the primary filter three times, the secondary filter must be replaced.

7. After cleaning, use a light bulb to shine through the primary filter from the inside. If any holes or thin spots are found, replace the primary filter.

ATTENTION

Do not blow air from the outside to the inside



8. Insert the primary filter (2) into the air filter housing (5), then securely fasten it with the butterfly latch (4) to complete the filter cleaning.

ATTENTION
1.When removing the primary air filter element, stand on a solid and stable surface. If your footing is not secure, there is a risk of falling and injury during operation. 2.Be mindful of the engine maintenance hatch above your head to avoid head injuries.

9.4.2 Adding coolant

- While operating the equipment, it is necessary to observe the water temperature of the engine. If the water temperature rises suddenly, it is likely there is a coolant shortage in the cooling system. At this time, stop the engine immediately after idling for a period of time, and then wait for the coolant to cool before filling. The position of the filling port is shown in figure 9.4.2-1 below, and the filling steps are as follows:

1. Stop the engine and hang the "no operation for maintenance" tag.
2. Cover the pressure cap with a clean cloth and rotate it 90 degrees clockwise.
3. Use a clean funnel when pouring the coolant. Add it to the middle and upper part of the liquid window.
4. In order to remove the air contained in the coolant, run the engine at low idle for 5 minutes, and then run it at high idle for another 5 minutes.
5. After stopping the engine for about 3 minutes, observe the coolant level, and more if it is still low.
6. Put on the pressure cap and add coolant.

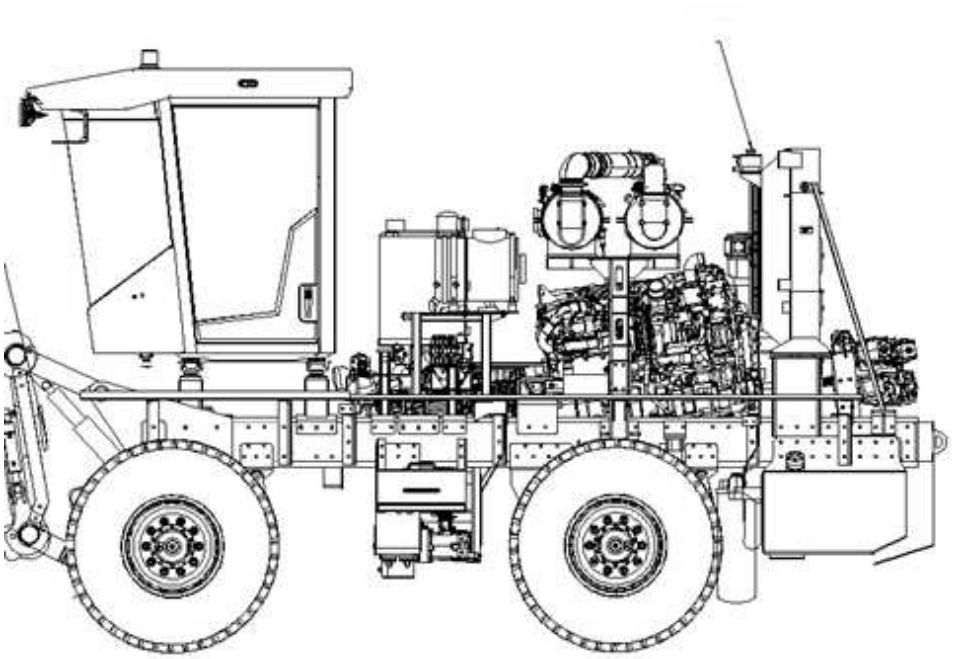


Figure 9.4.2-1 schematic diagram of adding coolant

WARNING

1. After the engine has been running, the coolant reservoir is under pressure. Always wait until the coolant has cooled down before opening the pressure cap.
2. Mixing different brands of coolant is strictly prohibited.
3. Pure antifreeze is flammable; store it away from open flames. Antifreeze is toxic—if it splashes into your eyes, rinse thoroughly with plenty of water and seek medical attention immediately.

8.5 Six month maintenance

Cleaning the heat sinks

- Check the radiator for these items: corrosion, dirt, grease, insects, leaves and other debris. Clean the radiator if necessary.
- Compressed air is the preferred method to remove loose debris. Blow the compressed air in the opposite direction to the airflow of the heat sink. Keep the

nozzle about 6 mm (0.25 in) away from the heat sink. Slowly move the air nozzle parallel to the radiator duct. This action will remove debris between the tubes.

- Pressurized water can also be used for cleaning. The maximum water pressure for cleaning must be less than 275 kPa (40 psi). High pressure water is used to soften the sludge. Clean the radiator core from both sides.
- Use degreaser and steam to remove oil and grease. Clean both ends of the heat sink. Rinse the radiator core with detergent and hot water. Rinse the radiator core thoroughly with clean water.
- After cleaning, start the engine and raise to a high idle. This step helps to remove debris and dry the tank core. When the engine stops, put a bulb behind the radiator core to check whether the core is clean. Clean again if necessary. Check the radiator for damage. A bent heatsink can be fixed by a "comb knife". Check that these components are in good condition: weldments, mounting brackets, air lines, connections, clamps and seals, and repair if necessary.
- Note adjust the frequency of cleaning work according to the influence of working environment.

8.6 One year maintenance

8.6.1 Replace the air filter element

1. Shut down the equipment and attach a “Maintenance in Progress – Do Not Operate” tag.
2. Release the retaining wing latches (4) securing the primary filter element and remove the filter cover (see Figure 9.6.1-2).
3. Grasp both ends of the primary filter element (2) with both hands and gently pull it out.
4. Hold the secondary filter element (3) securely to prevent movement or displacement, then clean the interior of the air cleaner housing using a dry cloth. Remove the secondary filter element.
5. Use a dry cloth or compressed air to remove dust from the vacuum valve.
6. Inspect the vacuum valve lip for cracks. Replace it if cracks are found.
7. Install a new secondary filter element into the air cleaner housing, reinstall the primary filter element, and secure it using the retaining wing latches (4) to complete the filter replacement.

Note: The secondary filter element must be replaced after the primary filter element has been cleaned three times. The primary filter element must be replaced after six cleanings.

WARNING
1. When removing the primary air filter element, stand on a stable and secure surface. Failure to do so may result in a fall and potential injury. 2. Be aware of the engine compartment above your head to avoid accidental head impact.

8.6.2 Oil change and oil filter change

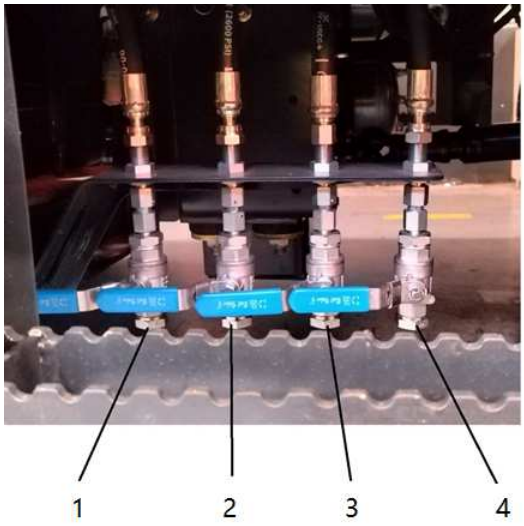
Tools Required:

- Adjustable wrench
- Oil filter wrench (P/N 4316753)

- Container with at least 50L capacity
- 38L of Mobil 10W-40 CK-4 engine oil
- New oil filter (LF9070)

Procedure:

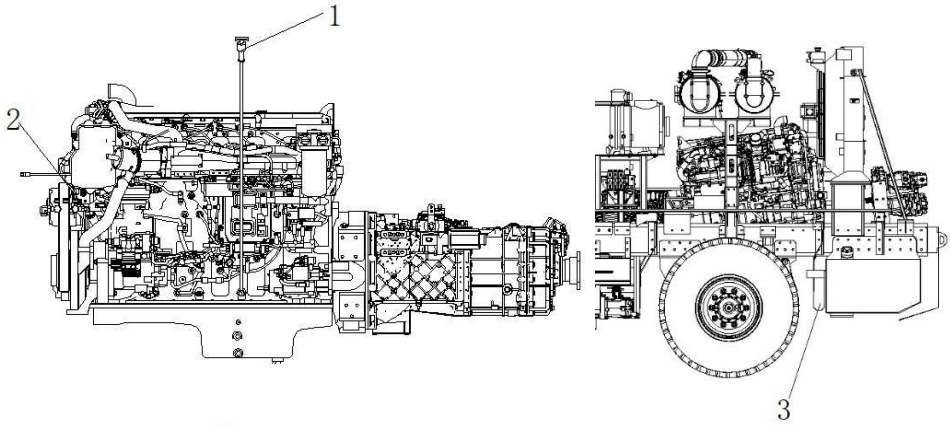
1. Start the equipment for 10 minutes, then stop the machine and let the engine oil cool down to about 40 ℃ (high oil temperature will result in low oil viscosity, the debris in the engine can flow out with the engine oil), and hang the "no operation for maintenance" tag.
2. Remove the engine oil drain plug at the location shown in Figure 9.6.2-1.
3. Open the oil filler cap (2) as shown in Figure 9.6.2-2 to allow air to enter, facilitating oil drainage.
4. If available, use clean compressed air to blow out any remaining oil through the oil filler port.



1. Compressed air tank drain port 2. Engine coolant drain port 3. Engine oil drain port 4. Hydraulic oil drain port

Figure 9.6.2-1 Centralized Drain Ports

5. Wipe off any residual oil around the drain and filler ports. Reinstall and tighten the drain plug.
6. Place the oil filter wrench around the center of the oil filter (3) as shown in Figure 9.6.2-2. Rotate counterclockwise to remove the old filter. (Caution: Avoid excessive force to prevent damage to surrounding components.)
7. Clean the sealing surface of the filter mounting base. Ensure that the old oil filter gasket is completely removed.
8. Pre-fill the new oil filter (LF9070) with fresh engine oil.
9. Lubricate the new O-ring seal with a thin layer of oil.



1- Oil dipstick 2- filling port 3- oil filter element
Figure 9.6.2-2: Oil Filter Location Diagram

10. Thread the new oil filter onto the base until the sealing surface contacts.
11. Tighten an additional 3/4 to 1 turn. When installing the new filter, avoid overtightening with an oil filter wrench to prevent damage.

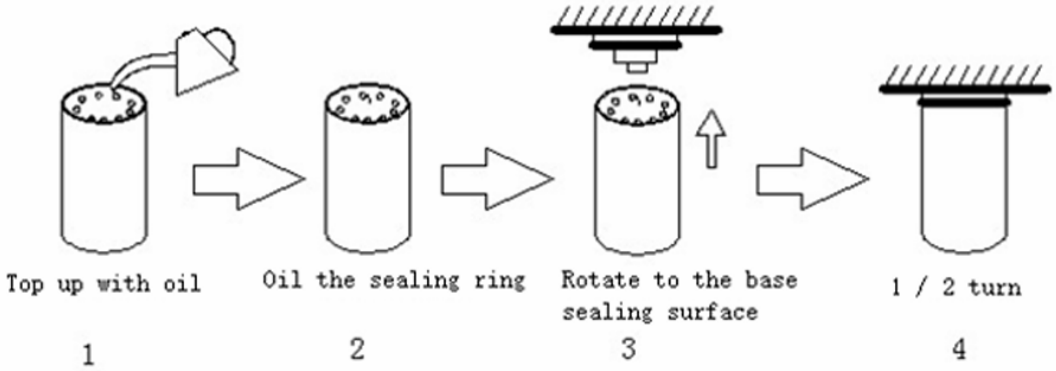


Figure 9.6.2-3: Oil Filter Installation Diagram

12. Refill engine oil, ensuring no contaminants enter the engine during the process.
13. Start the engine and let it run at **low idle** for two minutes. This step ensures that the lubrication system is primed and the oil filter is filled with oil. Check the oil filter for leaks.
14. Stop the engine and wait at least ten minutes to allow the oil to drain back into the oil pan.
15. Remove the dipstick and check the oil level. Ensure the oil level is between the **ADD** and **FULL** marks on the dipstick.
16. Clean the oil fill port and reinstall the oil fill cap.

Note: Ensure the engine is level or in its normal operating location to display an accurate fluid level.

Note: After switching the engine to the OFF position, wait ten minutes before checking the oil level to allow the engine lubricating oil to drain into the oil pan. Fully insert the dipstick to obtain an accurate reading.

Figure 9.6.2-4 Engine Oil Dipstick

17. Cut open the engine oil filter. Unfold the pleated filter paper and inspect for metal debris inside the filter. An excessive amount of metal debris in the oil filter may indicate early wear or an impending failure.

- Use a magnet to separate ferrous (black) and non-ferrous metal particles found in the oil filter element.

- Non-ferrous Metals indicate wear of aluminum, brass or bronze parts of the engine. Possible parts involved are: main bearing, connecting rod bearing, turbocharger bearing and cylinder head.
- It is normal to find a small amount of metal debris in the oil filter due to normal wear and friction. If excessive debris is found, contact your Kodiak agent for further analysis.

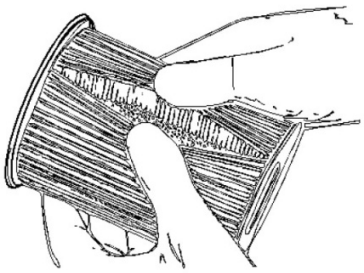


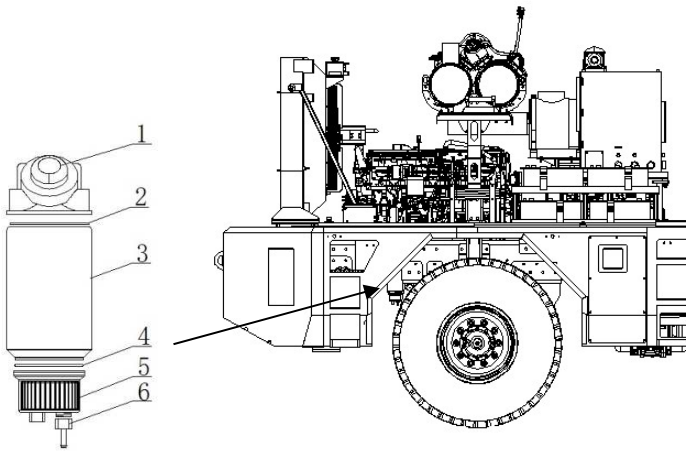
Figure 9.6.2-5 oil filter element

WARNING

After engine operation, all engine components remain at high temperatures.
Therefore, do not replace the coolant filter immediately after shutdown.
Wait until the coolant has cooled before performing this operation.

8.6.3 Replace the filter element of the oil-water separator

1. Stop the equipment and hang the "no operation for maintenance" tag.
2. Prepare a container for waste oil, an oil filter wrench and a new filter element.
3. Rotate the drain valve 6 for 3 turns to drain water.
4. Screw down the water collecting cup (5) for use and do not discard it. Screw down the filter 3 from the base.
5. Install a new filter element. Lubricate the new O-ring (2) with clean diesel fuel before installation.
6. Tighten the water collecting cup (5) for 1 / 4-1 / 2 turn.
7. Fill the new filter element (3) with fuel and install it.
8. Lubricate the sealing ring (4) between the new filter and the base.
9. Tighten the new filter to the base plane and then rotate it 3 / 4 turn (it is forbidden to tighten the filter with a wrench).
10. Clean up any fuel residue and store tools properly.
11. Before priming the fuel system, loosen the air bleed screw and manually press the primer pump (1) to purge air from the fuel lines.
12. Start the engine and inspect for leaks around the filter. If leakage occurs, check for a missing or damaged sealing gasket.

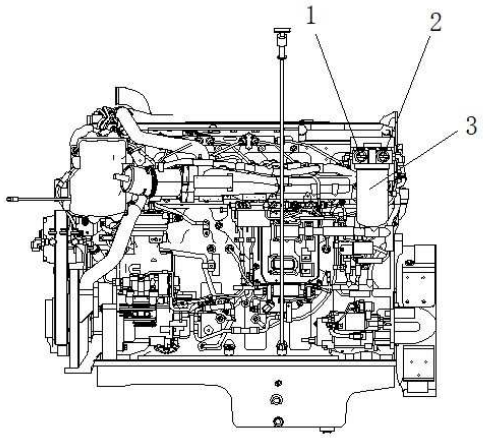


1．Exhaust button 2. Sealing ring 3. Filter cup 4. Sealing ring 5. Collecting cup 6. Drain valve
Figure 9.6.3-1 Installation drawing of oil water separator

8.6.4 Replace the fuel filter

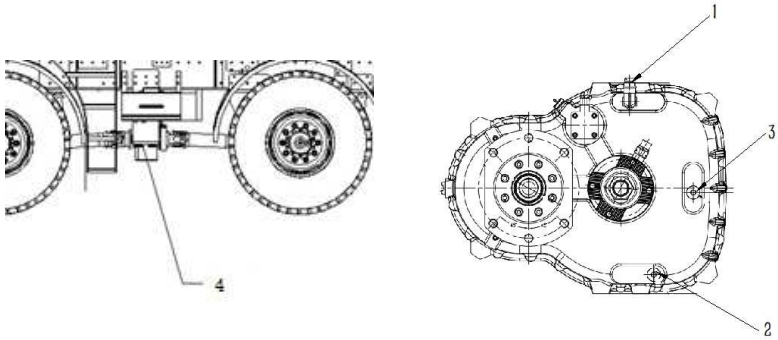
The fuel filter element and the oil-water separator filter element are always replaced together to ensuring that the whole oil system will not have poor filtration due to the mixing of the old and the new.

1. Stop the equipment and hang the "no operation for maintenance" tag.
2. Prepare a container for used oil, a filter wrench, and a new fuel filter (FF63010).
3. Close the fuel inlet and outlet valves (See Figure 9.6.4-1).
4. Use a wrench to remove the fuel filter.
5. Remove the old filter element and discard the old sealing gasket.
6. Check that the new filter plug is correctly installed.
7. Fill the new filter element with clean diesel fuel.
8. Lubricate the new sealing gasket.
9. Remove the protective plug from the filter.
10. Install the new filter and rotate until the gasket contacts the sealing surface.
11. Rotate 3 / 4 turn to tighten.
12. Repeat the same process for the second fuel filter. Start the engine and check for leaks. If no leaks are detected, the fuel filter replacement is complete.



1. Oil outlet knob 2. Oil inlet knob 3. Fuel filter element
Figure 9.6.4-1 Fuel filter diagram

8.6.5 Changing oil in the transfer case

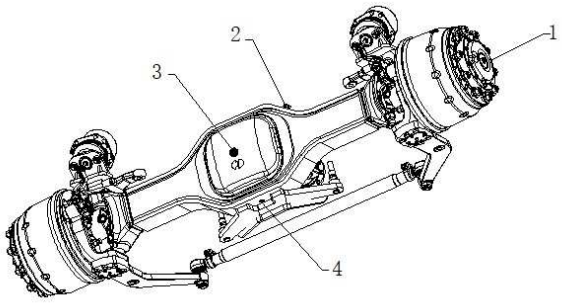


1. Vent Hole and Fill Port 2. Oil drain 3. Oil filler 4. Travelling pump

Figure 9.6.5-1 location of traveling transfer case

1. Stop the equipment, hang the "no operation for maintenance" tag, and chalk the tires.
2. Prepare a spanner, a funnel, a waste oil container and compressed air.
3. Remove plug (2) and use the container to receive the waste oil.
4. After draining, open the fill port (1) and blow compressed air through it to clear any remaining oil.
5. Seal the drain plug (2), then use a funnel to fill the system with lubricating oil. For the correct oil capacity, refer to Chapter 5 "Maintenance Instructions" or fill until the oil overflows from the fill port (1).
6. Start the equipment and check for leaks at the plug. If any leaks are found, tighten the plug again.
7. It is normal to find small amounts of metal debris in the oil filter due to normal wear and friction. If excessive metal debris is found, please contact a Kodiak dealer for further analysis.

8.6.6 Changing axle oil



1. Planetary hub oil drain and filling port 2. Axle pack air vent 3. Axle pack lubricating oil filling port 4. Oil drain port

Fig.9.6.6-1 changing lubricating oil for axle pack

Changing axle oil

1. Drive the car to a flat position, turn off the engine, hang up the "no operation for maintenance" tag, place it at the start key, and chalk the tires.
2. Remove oil plug (4), catch the waste oil with a container, and open the lubricating oil filling port (3) of the bridge package at the same time to make the waste liquid flow faster.
3. Blow clean compressed air into the oil chamber from port (3) to blow out the residual oil. Clean up the residual oil in port (3) and port (4), replace the oil plug in port (4), to a torque of 80 ± 10nm.
4. Fill lubricating oil with funnel. The model of lubricating oil is Mobil 80w-90GL-5. Please do not add different types of lubricating oil, fill it to the following figure 9.6.6-2-a.

Changing planetary hub oil

5. Start the vehicle, place the hub oil outlet 1 at 6 clocks (Fig.9.6.6-2-b), turn off the engine, and then remove the plug to drain the oil; use a pipe or funnel to drain the waste oil into the container

6. Start the vehicle, place the hub oil outlet 1 in the 3 clock direction (Fig.9.6.6-2-c), turn off the engine, and then use a clean funnel to fill in new lubricating oil until it is as shown in Fig.9.6.6-2-c.

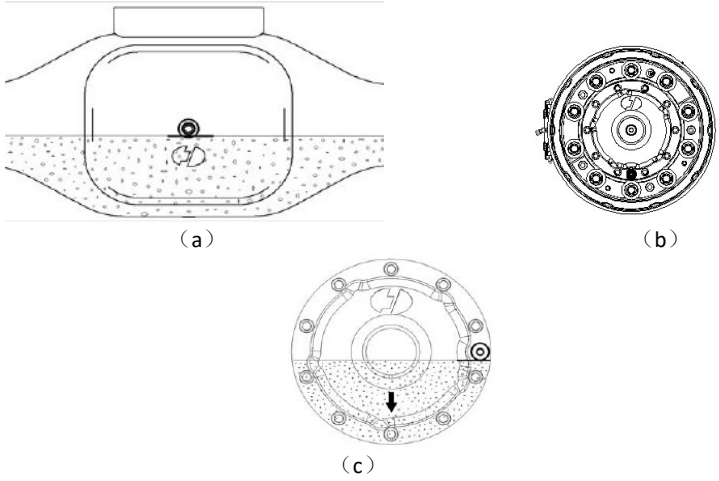
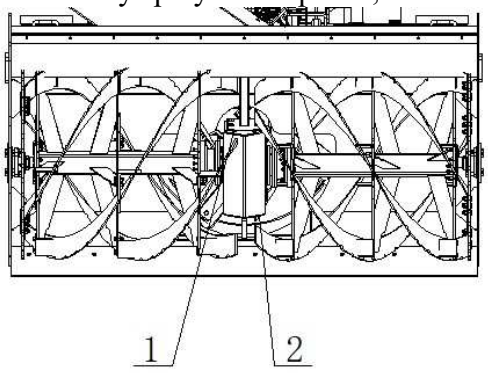


Figure 9.6.6-2 oil level diagram of axle

8.6.7 Changing gearbox oil

1. Stop the equipment and hang the "no operation for maintenance" tag.
2. Prepare a 14mm hex wrench, a funnel, and a waste oil container larger than 13L.
3. Loosen the drain plug as shown in Figure 9.6.7-1, then collect the waste oil in a container. Loosen the fill plug to allow air flow and accelerate oil drainage.
4. After draining, use compressed air to blow through the fill port to remove any metal particles. Note: Some residual oil may spray out of port 2, so avoid contact with skin.



1. Fill Port 2. Drain Port

Figure 9.6.7-1: Auger Transfer Case Oil Port Location

5. Inspect the old oil for the presence of metal particles. A small amount of metal particles in the oil is normal wear. If excessive particles are found along with metal shavings, contact Kodiak or an authorized service dealer for further analysis.
6. Apply 686 sealant to the drain plug and tighten it.
7. Use a funnel to add the transfer case gear oil (Deltamax gear oil 80W-90) from port 1. Do not mix different brands or types of oil. Please use the oil recommended by Kodiak. Fill until the oil reaches the upper portion of the sight window.
8. Apply 686 sealant to the fill plug 1 and tighten it.
9. Start the equipment and run the auger for 10 minutes, checking for leaks around the transfer case. If any leaks are found, tighten the plug as needed.

8.6.8 Discharge of water and sediment from the fuel tank

- Fuel quality is critical to engine performance and service life. Water in the fuel can cause excessive wear in the fuel system. Fuel naturally condenses as it heats and cools. As fuel circulates through the system and returns to the tank, condensation may form—leading to water accumulation in the fuel tank. Regularly draining the tank and using fuel from reliable sources helps reduce water contamination.

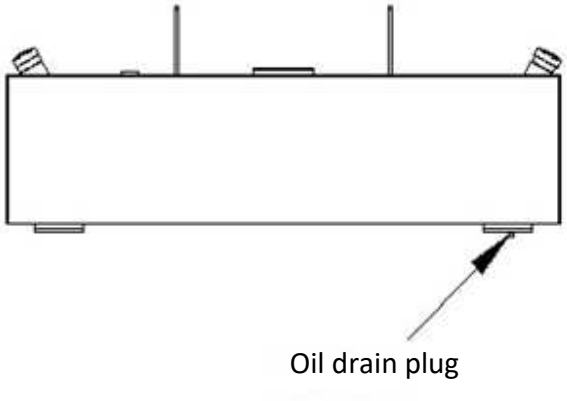
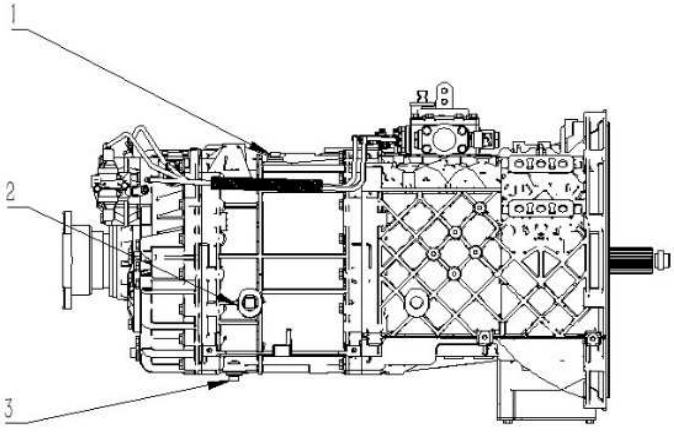


Figure 9.6.8-1: Fuel Tank Drain Port

1. Let the equipment sit idle for 72 hours to allow contaminants and diesel to separate.
2. Loosen the fuel drain plug as shown in Figure 9.6.8-1, and collect the waste oil in a container.
3. Inspect the drained fluid: If only diesel is discharged, reseal the drain plug. If contaminants are present, consider cleaning the entire fuel tank. Refer to Section 10.6 for tank cleaning procedures.

8.6.9 Changing transmission oil

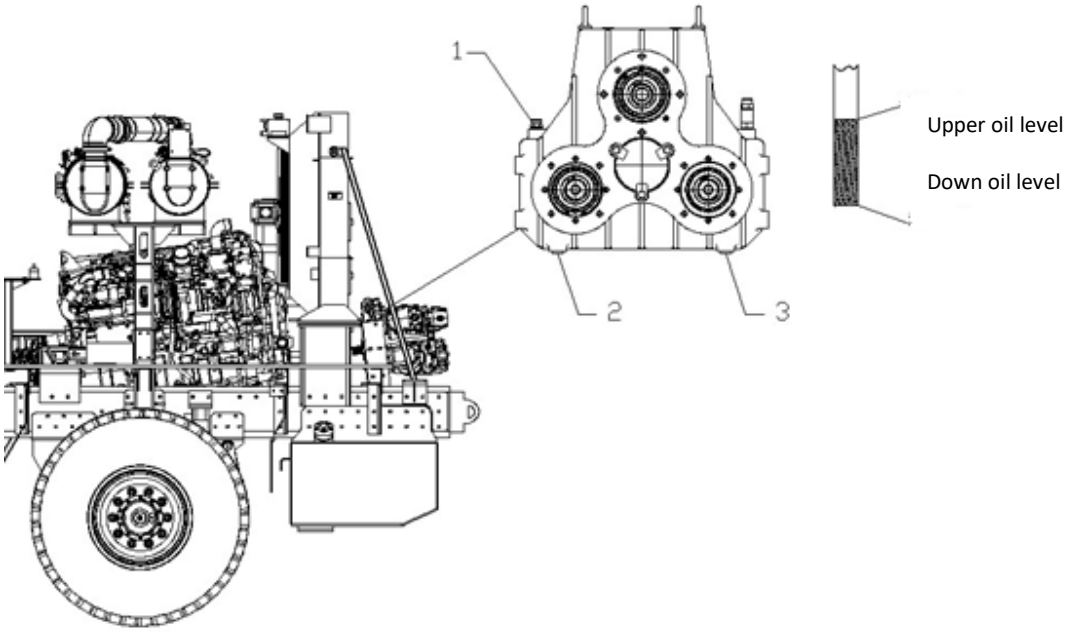


1- Fill Port 2- Oil Level Port 3- Drain Port

Figure 9.6.9-1: Transmission Fill and Drain Port Locations

1. Remove the drain plug (3) and drain used oil into a suitable container.
2. Remove the fill plug (1) to allow airflow and improve drainage.
3. After draining is complete, reinstall and tighten the drain plug (3).
4. Remove the oil level plug (2).
5. Using a funnel, fill transmission oil through fill port (1) until oil begins to spill from the level port (2). Do not mix different lubricant types. Reinstall and tighten fill plug (1).
6. Start the equipment and drive for 10 minutes to observe whether there is oil leakage at the oil port. If there is oil leakage, tighten it again.

8.6.10Changing Pump Transfer Case Oil



1- Fill Port 2、3- Oil Level Ports

Figure 9.6.10-1: Pump Transfer Case Drain Port Locations

1. Remove drain plug (2) and (3), use a container to receive the waste oil
2. Remove oil filler plug (1) to facilitate the removal of oil
3. After the oil is discharged, tighten the plug (2) and (3).
4. Use a funnel to pour transmission oil through the fill port. Fill until the oil level reaches the middle of the dipstick. Do not mix different types of lubricants. Reinstall and tighten fill plug (1).
5. Start the equipment and drive for 10 minutes to observe whether there is oil leakage at the oil port. If there is oil leakage, tighten it again.

8.7 Two year maintenance

8.7.1 Changing the coolant

1. Stop the engine and hang the "no operation for maintenance" tag;
2. Remove the engine coolant drain plug as shown in Figure 9.6.2-1.
3. Turn the ball valve handle 90°, and use a container with a capacity of more than 80L to collect the waste coolant. While draining the coolant, remove the radiator pressure cap as shown in Figure 9.7.1-1.

Tank pressure cap

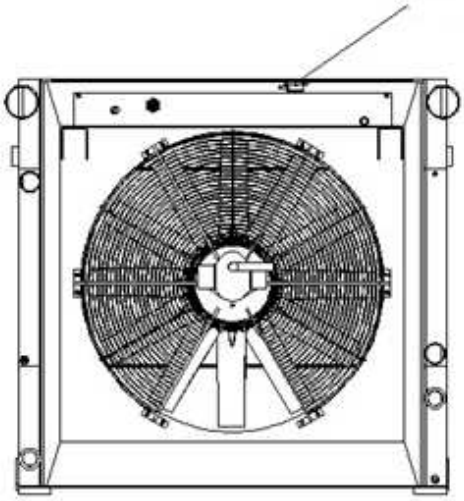


Figure 9.7.1-1 Radiator Pressure Cap Location

4. After draining the coolant, close the ball valve.
5. Add new coolant to the radiator until it reaches the center of the sight glass.
6. To remove air from the coolant system, start the engine and let it run at low idle for 5 minutes, then at high idle for another 5 minutes. (Leave the fill cap open during this process.).
7. After stopping the engine for about 3 minutes, observe the coolant level, and fill if it is low.
8. Open the heater vent plug (see Figure 9.7.1-2). Once coolant begins to overflow slightly, close the plug.
9. Start the heater, and touch to feel whether there is liquid flow in the inlet and outlet pipes of the heater, and whether the liquid temperature in the water pipe rises slowly. If there is no liquid flow in the heater, please contact Kodiak or the maintenance agent.
10. Clean the residual liquid on the water tank cover to complete the filling of coolant.

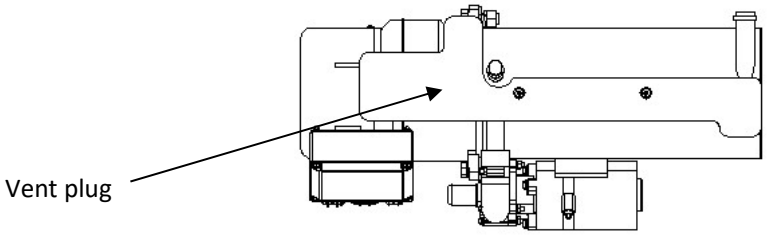


Figure 9.7.1-2 Heater Vent Plug Location

8.7.2 Changing hydraulic oil and filter element of hydraulic system

A. Changing the hydraulic oil

1． Stop the engine and hang the "No Operation for Maintenance" tag. Prepare an adjustable wrench and a container with a capacity of over 300L to collect waste oil.
2． Loosen the hydraulic oil drain plug as shown in Figure 9.7.2-1, and use the container to collect the used oil.
3． Turn the ball valve handle (3) clockwise 90° to start draining. Observe whether the hydraulic oil is emulsified or contains excessive impurities. If the oil is degraded, clean

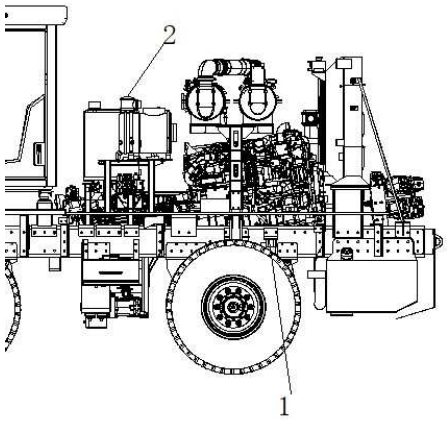
the hydraulic tank. A small amount of debris is considered normal system wear, but if a large amount is found, contact Kodiak after-sales service.

4. Once draining is complete, close the ball valve.

5. Tighten the drain plug.

6. Use a hydraulic oil filler pump to refill 300L of hydraulic oil (note: residual oil in the lines may reduce the required amount slightly).

B. Change hydraulic oil filter



1. Return oil filter element 2. Hydraulic oil filter

Figure 9.7.2-2: Return Oil Filter & Hydraulic Oil Filter Location

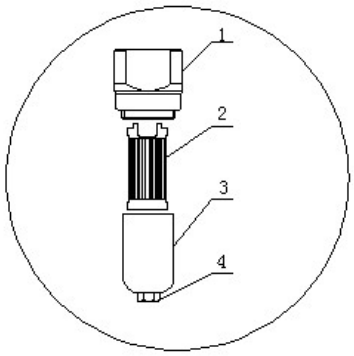


Figure 9.7.2-3: Hydraulic Oil Filter Location

Prepare a waste oil container and a wrench.

1. Put the container under the filter element 1 to receive the oil, and use a wrench to open the nut 4, as shown in figure 9.7.2-2.

2. Remove the oil cup (3) and the filter element (2).

3. Replace with a new filter element model: PBE0160F010N, please use the model recommended by Kodiak, otherwise the oil resistance is too large or the chemical reaction system may fail.

4. Tighten the bolt (4), clean the residual oil on the surface of the oil cup, and complete the filter element replacement.

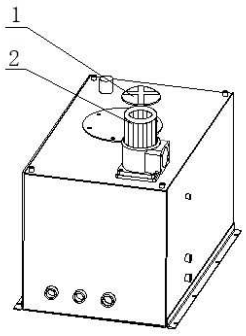
C. Replace oil return filter element

1. Open the filter cover (1) and take out the filter element.

2. Replace with a new filter element.

3. Tighten the filter cover (1).

4. Start the equipment and observe whether the cover plate leaks. If it leaks, tighten it again.



1. Cover plate of filter element 2. Oil return filter element

Figure 9.7.2-3 Schematic diagram of hydraulic oil filter element replacement

D. Replace the pump filter element

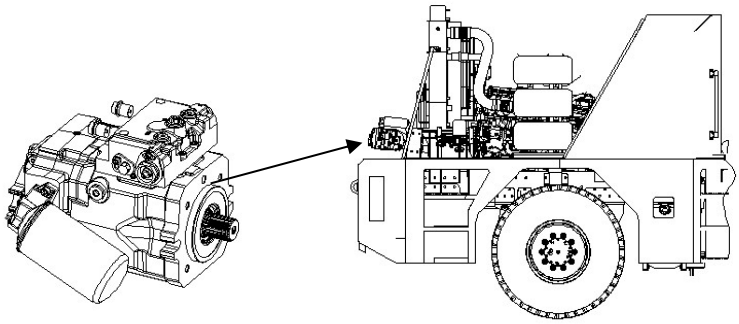


Figure 9.7.2-4 Pump filter element

1. Remove the filter element with the filter element wrench.
2. Apply an oil film on the washer.
3. Tighten the filter element until the filter mounting surface contacts the flange end of the filter.
4. Use the filter element wrench to further rotate the filter element by 30 ° and tighten it.
5. Start the engine, check for leaks and retighten if necessary.

After starting the engine, also check for oil leakage at the return filter and hydraulic oil filter. If no leaks are found, the replacement of hydraulic oil and system filters is complete. If leakage is observed, identify the cause and resolve the issue.

8.7.3 Changing Air Dryer Filter Element

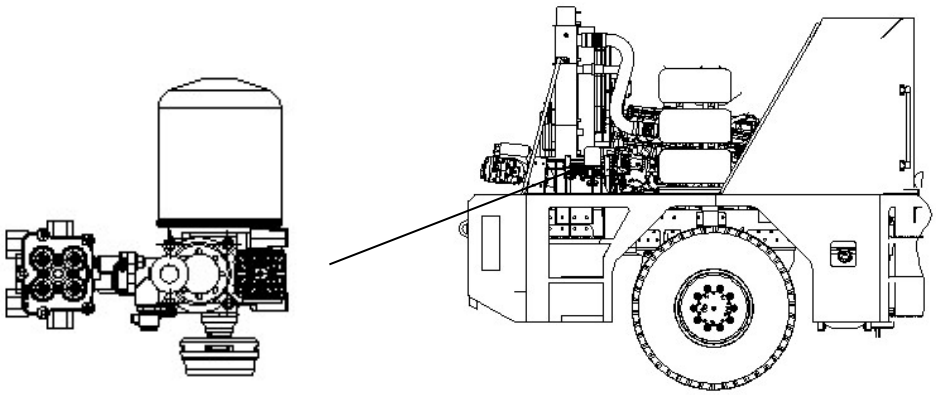


Figure 9.7.3-1: Air Dryer Location Diagram

1. Important: Ensure the air dryer is fully depressurized before replacement.
2. Before installation, apply grease to the sealing ring and thread sleeve.
3. Hand-tighten the dryer canister (maximum torque: 15 N).

8.8 Major Overhaul Maintenance

As the equipment ages, the service life of certain assemblies such as the auger assembly, transfer case assembly, etc., reaches its end. Disassembly and installation of these components are technically demanding and require professional personnel. Therefore, such maintenance is typically performed by the manufacturer.

8.8.1 Engine Overhaul

For engine maintenance, please contact Kodiak or Cummins service personnel. Engine overhaul and maintenance should be carried out in accordance with the engine maintenance manual.

8.8.2 Replacement of Critical Assemblies

Replacement of assemblies such as the transfer case, auger assembly, and snow blower drum requires specialized tools and technical expertise. Please contact Kodiak service personnel for assistance.

8.9 Pre-Storage Maintenance

As the snow blower is seasonal equipment and has a long waiting time, the equipment must be maintained before it is put into storage. In addition to maintenance according to section 9.1, Kodiak also requires the following points:

1. Thoroughly clean the entire machine. After the surface is dry, customers with the necessary conditions may apply touch-up paint as needed.
2. Lubricate the equipment according to Section 3.1.
3. After lubrication, run the engine for 10 minutes to ensure that no wiring was shorted during cleaning. Operate all working mechanisms once to allow the newly added grease to distribute evenly.
4. Store the equipment in a dry environment to prevent rust.
5. Turn off the main power supply.
6. Start the equipment every two months and run it for 10 minutes for lubrication. If the battery is low, recharge it promptly. Be sure to switch the main power supply to the "OFF" position before charging.

9 Others

This section includes items that do not follow a fixed maintenance schedule. Replacements are generally determined based on actual operating conditions or failure due to unconventional use. Please use only genuine Kodiak parts.

9.1 Tire Change

- Inspect tire wear and replace tires as needed. The general service life of a tire is about 50,000–80,000 km. However, since a snow blower vehicle is a specialized machine that typically runs less than 1,000 km per year, mileage should not be used as the main criterion for tire replacement.
- Instead, check whether the tire tread has been punctured or shows bulging. Owners should regularly inspect the wear indicators on the tires. At a remaining tread depth of 1.6 mm, wear indicator marks are located within the tread grooves (see Figure 10.1-1). Some tires are marked with "TWI" to indicate the Tread Wear Indicator, which visually shows the level of tire wear.
- Once the tire reaches the wear limit, traction performance is significantly reduced, braking distances increase, and the risk of puncture or blowout increases—especially on icy or snowy roads. Tires worn beyond the wear indicator should not be used.

Figure 10.1-1 Tire Wear Indicator

Tire Replacement Steps:

Tools: torque wrench, Jack, No.22 socket, etc.

1. Park the vehicle on a flat, stable surface. Place wheel chocks to prevent rolling and shut off the engine.
2. Position the jack and use the socket to loosen the bolts on the wheel hub. Remove the tire.
3. Install the spare tire (Tire specification: 385/95R24). Tighten the bolts according to the torque range shown in Figure 10.1-2 (550–600 Nm) using a crisscross (diagonal) pattern for pre-tightening. Ensure the tire and wheel hub specifications match. Do not install mismatched tires.
4. Tire pressure should be 900 kPa.

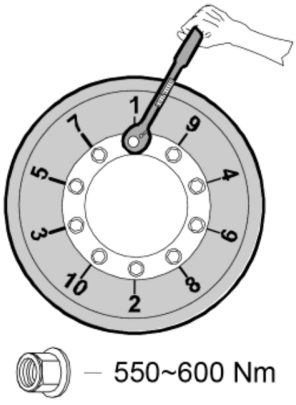


Figure 10.1-2 Wheel Hub Torque Range

9.2 Belt Replacement

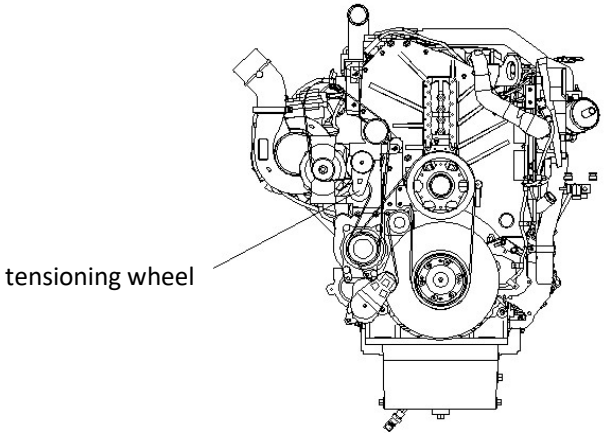
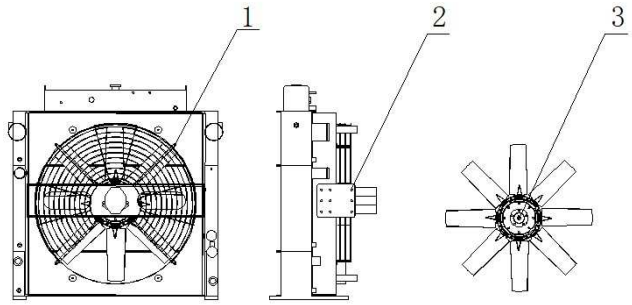


Figure 10.2-1 Tension Pulley Belt

1. Insert the square head of the L-shaped wrench (part no. 4316750) into the square hole on the tension pulley, and press downward. When the tension pulley moves down, remove the old belt.
2. Install the new belt (Part number: 3687535).
3. Check whether the V-groove of the belt is seated properly in the pulley groove. If the installation is correct, start the engine and observe whether the pulley runs normally. If there is no abnormality, the belt replacement is complete.

9.3Fan Replacement



1- Fan Shroud Bolt 2- Motor Mounting Bracket Bolt 3- Fan Locking Bolt

Figure 10.3-1 Fan Replacement Diagram

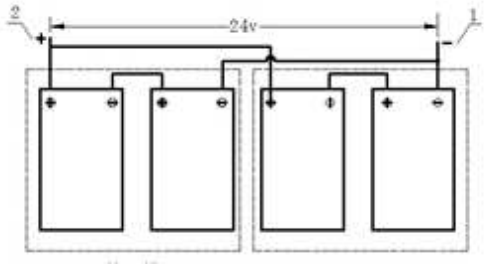
1. Loosen the fan cover bolt (1).
2. Loosen the motor mounting bracket bolt (2) to take out the motor and fan cover together. If necessary, loosen the motor oil pipe, so that the motor assembly can be moved out more easily
3. Loosen the fan locking bolts (3) and remove the old fan.
4. Install the new fan and tighten bolts (3).
5. Reinstall all components in their original positions. Rotate the fan manually and check whether the blades are touching the edges of the fan shroud. If there's no contact, you may start the engine. The fan replacement is now complete.

9.4 Battery Replacement

1. First, turn off the main power and remove the negative terminal (1), then remove the positive terminal (2);
2. Install four batteries: connect two 12V batteries in series to form a 24V unit, then connect the two 24V units in parallel to supply a total of 24V. Please use the battery

models recommended by Kodiak. If you need to change the battery capacity, consult Kodiak or its authorized service providers.
3. When installing, connect the positive cable (2) first, then the negative cable (1). During removal, disconnect in reverse order—this prevents accidental short circuits due to incorrect operation. Do not mix old and new batteries.

Figure 10.4-1 Battery Wiring Method



9.5 Radiator Cleaning

1. Stop the engine, hang the "No Operation for Maintenance" tag, and wait for the engine to cool. Then open the radiator pressure cap (see Figure 9.7.1-1);
2. Open the engine coolant drain ball valve (see Figure 9.6.2-1);
3. After draining the coolant, close the ball valve;
4. Fill the radiator with tap water until full, then close the radiator cap;
5. Start the engine and run at low idle for 10 minutes until the coolant temperature reaches over 90°C (194°F);
6. Stop the engine and repeat steps 1–3;
7. After draining the water, clean the radiator and internal parts of the cooling system with a cleaning agent;
8. After cleaning, open the drain valve, remove the drain plug, and drain all water;
9. Close the drain valve;
10. Fill the system with new coolant up to the center of the radiator sight window;
11. To remove air from the coolant, run the engine at low idle for 5 minutes, followed by high idle for 5 minutes (with the filler cap removed during this step);
12. Stop the engine and wait for about 3 minutes, then check the coolant level and top up if needed;
13. Open the heater air vent plug—close it after a small amount of coolant overflows;
14. Start the heater. Touch the inlet and outlet pipes of the heater to check for fluid flow and rising temperature. If there is no coolant circulation in the heater, contact Kodiak or an authorized service provider;
15. Wipe any remaining coolant off the radiator cap to complete the cleaning procedure.

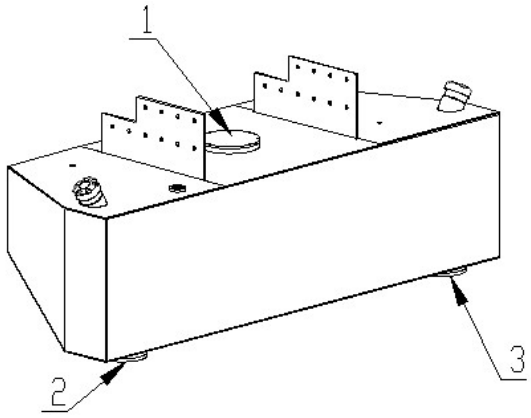
WARNING

1. After the engine has been running, the coolant in the radiator will be under pressure due to high temperatures. Always wait for the coolant to cool down before opening the pressure cap.
2. Pure antifreeze is flammable, so it should be stored away from open flames. Antifreeze is toxic. If it gets into the eyes, rinse thoroughly with plenty of water and seek medical attention immediately.

9.6 Fuel Tank Cleaning

1. Prepare tools: a set of wrenches, a waste oil container, and 1.5 kg of compressed air.
2. Unscrew the fuel drain plug and drain most of the oil, leaving about 25% of diesel in the tank.
3. Tighten the drain plug and use compressed air to blow air into the tank through the fuel fill opening, aiming the nozzle at the corners of the tank to mix the impurities and oil together. Once the air blowing stops, immediately begin draining the oil.
4. Open the cleaning ports 2 and 3 (as shown in Figure 10.6-1); wipe the bottom of the tank with a clean, lint-free cloth through cleaning ports 2 and 3.
5. Use a flashlight to check if the tank is clean. If not, add clean oil and repeat the above steps.
6. Add clean diesel and start the engine. If the engine fails to start, use the manual fuel pump to bleed the air until the engine starts.
7. Check if the tank plugs are leaking. If leaking, tighten the plugs.

Note: Contaminated oil should be allowed to settle for 72 hours before it can be reused.



1-Upper cleaning port 2&3-Lower cleaning port
Figure 10.6-1: Fuel Tank Cleaning Ports

9.7 Replacing Power Hoses

- The power connection silicone hose is a consumable part. Long-term high and low temperature changes accelerate the aging of rubber products. Regardless of whether the rubber products have leaks or look "good", they must be replaced when the replacement period is reached.
- There are 12 silicone connection points in the device (as shown in Figure 10.7-1). These silicone hoses are designed to withstand both cold and high temperatures. Please use genuine parts from Kodiyak when replacing.
- Replacement Steps:

1. Replacing the Water Line Silicone Hose

1）Turn off the machine and drain the coolant from the water tank.

2）Loosen the clamps on the silicone hose and remove the old hose. Install the new silicone hose. Apply some coolant to the hose connections to facilitate installation.

3）Tighten the clamps.

4）Add coolant.

5）Follow step 10 in the "Cleaning the Radiator" section (10.5) to bleed the engine and heater.

2. Replacing the Air Line Silicone Hose

1）Turn off the machine and loosen the clamps on the silicone hose. Remove the old hose and replace it with a new one. Apply coolant to the hose connections if needed.
2）Tighten the clamps.

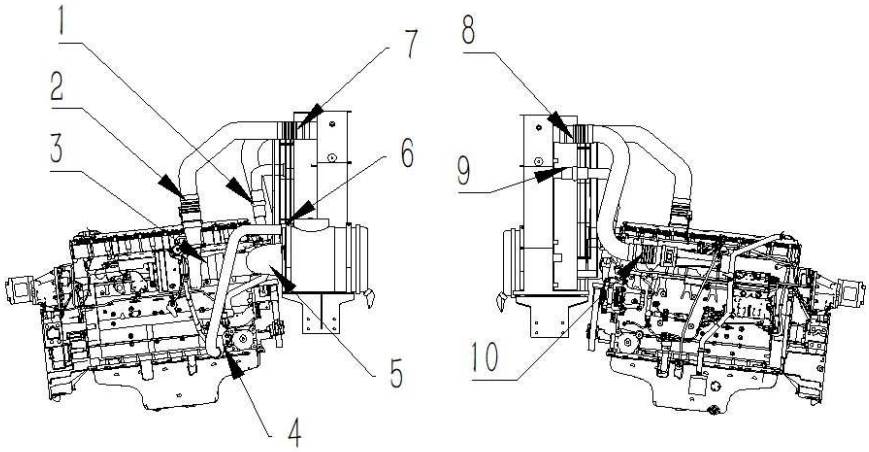


Figure 10.7-1: Silicone Hose Distribution Diagram

9.8 Replacing Engine Mount Dampers

Engine vibration dampers are affected greatly by the operating environment. Over time, the rubber components gradually age and lose their vibration-dampening properties. The typical service life of rubber components is 4 to 5 years. If excessive vibration is noticed during engine operation, it is necessary to replace the rubber dampers. Replacing these dampers requires special tools, so please contact Kodiyak service personnel for assistance.

Part III Safety, Troubleshooting, Assembly & Disassembly

1. Safety instructions

Many accidents in the operation, maintenance and repair of machines are caused by non-compliance with basic safety rules or preventive measures. If you recognize all kinds of potential dangerous situations, accidents can often be avoided. All potential

dangers must be reported to the staff. It is necessary to train the staff to master the

necessary skills and use the tools correctly. Improper operation, lubrication,

maintenance or repair of the machine is dangerous and can at minimum cause failure to the equipment and at worst even casualties. You must read and understand the

information about the operation, lubrication, maintenance and repair of the machine before you attempt to carry out these works.

1.1 Maintenance personnel

Only trained and instructed personnel can operate and maintain the machine.

1.2. Risk in Maintenance

Pressure Release

sure all pressure of the hydraulic system is released BEFORE you

e any valve, cylinder, hydraulic connector or valve cover.

- Liquid Penetration

A protective shield must be used while checking for leaks. Liquid ejected under pressure, even from the pinhole, may penetrate human organs, causing serious injury, or even death. If the fluid penetrates the skin, seek medical attention immediately.

- Prevention of Injury

Do not make any adjustments when the machine is running.

- Prevention of burns

At operating temperature, the engine coolant is hot and pressurized. The radiator and all piping to the heater or engine contain hot water and steam. If exposed this can cause serious burns. Hot engine oil and machine parts can also cause personal injury. Avoid contact with skin. Engine turbocharger, exhaust pipe, muffler, heater and

other parts are all at high temperature. Do not touch them while the engine is running or within 2 hours of operation.

- Prevention of fire and explosion

All fuel, oil, lubricants and some coolant mixtures are flammable. Leakage or spillage on hot surfaces or electrical components can cause a fire. No smoking is allowed in or around the equipment

- Prevention of cuts and pinches

Equipment belts, fans and rotating shafts and all rotating parts may catch hands, feet or clothes when they rotate. Please pay attention to your hands, feet and clothing in any dangerous area during maintenance

1.3.Precautions Before Maintenance

- Place a "do not operate" or similar warning label on the key switch or handle before maintenance and repair of the machine.
- Wear a safety helmet, protective glasses and other protective measures according to the requirements of working conditions.
- Don't wear bulky clothes or jewelry as they may catch on parts of the machine.
- Be familiar with hand signals and who sends them. Accept signals from only one person.
- Do not put maintenance solutions in glass containers.
- Report all items that must be repaire

1.4 Precautions in Maintenance work.

- Before starting the engine or starting the machine, make sure that no one is working on or near the machine.
- Do not start the engine or move any handle if there is a "do not operate" or similar label on the key switch or handle.

- When getting in and out or on and off the machine: Keep hands and feet in three-point contact while climbing (one hand two feet or two hands one foot).
- It is forbidden to jump up and down from the vehicle, and it is not allowed to climb when the machine is running.
- Do not use any operating mechanism as a handrail.
- It is necessary to keep the cab, vehicle suspension ladder and handrail clean, especially when it snows.
- It is necessary to keep the suspension ladder and handrail clean.

2. Troubleshooting, Assembly and Disassembly

2.1 Troubleshooting.

Blower head

Problem	Cause	Remedy
Snow not throwing	• Snow buildup in volute caused by wet or heavy snow, moving too fast, • Very light snow, moving too slow	• Manually clean with a shovel. • Adjust speed to the condition of show
Ribbons not rotating	Master or secondary shear flange shear bolts are broken	Replace shear bolts
Excessive shaking	Buildup of snow or ice on fan blades.	Manually clear away ice or snow
Ribbons move slowly when transmission is in neutral	Driveline brake worn out or failed	Replace brake pads or replace braking unit

Engine won’t start

Problem	Cause	Remedy
Engine won’t turn over	• Low battery voltage • Hydrostatic stroker is not in neutral • Gear shifter not in neutral • Start relay, blown fuse • Damaged starter	• Charge battery • Put the hydrostatic stroker • Place gear shifter in neutral • Replace starter relay and fuse • Repair or replace starter
Engine turns but will not start	• Low fuel • Air in the fuel lines • Emergency stop switch pressed	• Add fuel • Bleed the air from the line • Release emergency stop switch

Vehicle won't move

Problem	Cause	Remedy

Vehicle won’t move	Electrical issue	• On the monitor, check the signal output for hydrostatic drive
		• Check the output current of the controller
		• Check the circuit of the drive pump, solenoid valve and drive motor solenoid valve
		• Check the resistance of the drive motor solenoid and valve coil
		• On the monitor, check the parking brake signal,
		  ○ foot brake signal,
		  ○ emergency stop switch

Vehicle won’t move	Calibration issue	Re calibrate the min & max in the “settings” tab of the system
Vehicle won’t move	Hydraulic system issue	• Check driving pump charge pressure • Check drive pump pressure • Check for hydraulic fluid leakage

Vehicle won't move	Mechanical reason	• Check pump driveline • Check air pressure to make sure parking brake can release

Transmission

Problem	Cause	Remedy
Clutch won't engage or disengage, no shifting	• Damaged clutch solenoid valve • Clutch plates worn out	• Replace clutch solenoid valve • Check for damaged wiring • Replace clutch pads
Clutch won't engage or disengage, no shifting	Insufficient clutch air pressure, resulting in the shift booster not working	Check the air pressure on the display (>0.6Mpa)
Can't select gear, or will not disengage	• Damaged cable • Insufficient cable travel	• Replace the cable • Adjust the shift cable

Blower head hydraulic

Problem	Cause	Remedy
BLowerhead lift, volute rotations, floating function failure	Controller output current is abnormal	You can check whether the controller has output by checking the IO interface of the display screen. Gray means no output, green means normal output, and red means line failure or solenoid valve coil failure.
same	Damaged working pump for pressure or leakage	Fix pump or leakage
same	Damaged solenoid valve	• Replace solenoid valve

Front Axle

Problem	Cause	Remedy
Front wheels do not turn	Steering pressure too low	● Check system pressure, ● check for leakage
Steering system making noise	Mechanical failure	● Check grease point for abnormal wear ● Check all linkages in steering system

Rear Axle

Problem	Cause	Remedy
Wheels do not turn	Controller output current is abnormal	You can check whether the controller has output by checking the IO interface of the display screen. Gray means no output, green means normal output, and red means line failure or solenoid valve coil failure.
same	Damaged joystick	Replace the joystick. If you need to realign the rear wheels, this can be done manually with the valve in the engine compartment
	Steering system pressure too low	● Check system pressure, ● check for leakage
Rear Steer won't engage on monitor	Transfer case in high (Rabbit)	Set transfer case to low (tortoise)

Transfer case

Problem	Cause	Remedy
Transfer case cannot switch between high and low	Controller output current is abnormal	You can check whether the controller has output by checking the IO interface of the display screen. Gray means no output, green means normal output, and red means line failure or solenoid valve coil failure.
same	Physical switch damaged or wiring damaged	Check wiring on switch

same	Mechanical failure	Service transfer case

Air system

Problem	Cause	Remedy
Low system air pressure	• Air leak • Sensor failure	• Replace or fix the line with the leak • Replace the air pressure sensor
Brake system has water	• Air dryer failure • Air tank with water	• Change air dryer filter • Replace air dryer • Drain air tank
Brakes are sluggish	• System leak • Pressure is too low • Brake clearance too big	• Fix leaks • Check system pressure • Adjust brake clearance
Axle differential lock failure	• System air pressure too low • Differential lock electromagnet damaged • Differential lock switch wires disconnected or damaged	• Check air system • Replace the differential lock solenoid • Replace switch or repair wires

System communication Failure

Problem	Cause	Remedy
Communication failure	Engine communication failure	• Check the ECM • Check for loose or damaged wires • Check the resistance of the CAN-BUS line
Same	Joystick communication failure	• Check the joystick power supply • Check wiring • Check the resistance of the CAN-BUS line
Same	Front or rear steer comm failure	• Check the front and rear axle steering angle sensor • Check for loose or damaged wires • Check the resistance of the CAN-BUS line

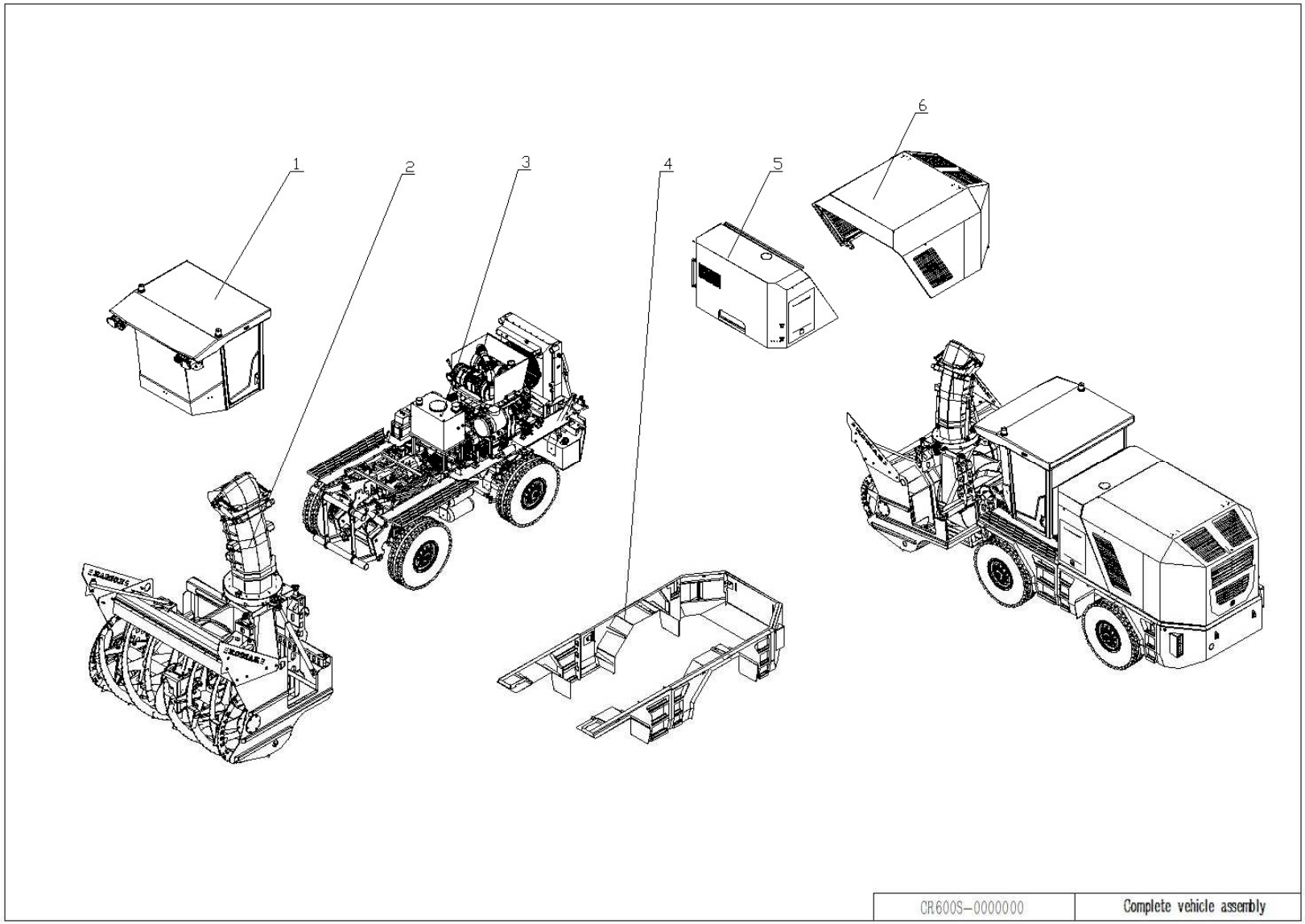
Battery charging failure

Problem	Cause	Remedy
Alternator not charging	● Damaged alternator ● Alternator fuse blown ● Alternator loose or damaged wires	● Replace or repair alternator ● Replace fuse ● Fix wires
Battery not holding charge	● Damaged battery ● Battery disconnected ● Master disconnect failure	● Visually inspect the battery for damage. ● Test battery ● Check wiring ● Replace master disconnect

Water system Failure

Problem	Cause	Remedy
Water temperature alarm	● Insufficient cooling ● Damaged fan ● Coolant level sensor failure	● Check coolant level, add if needed ● Replace fan ● Replace sensor
Pipeline leaks	● Loose clamps ● Ruptured silicone tube	● Tighten clamps ● Replace silicone tubes
Water temperature under load operation is lower than 60 °C	Engine thermostat is broken	Contact Kodiak or Cummins for replacement thermostat
No heat in cab	● Ball valve not open ● Check coolant lines for damage	● Open ball valve ● Replace damaged lines ● Check vent lines in console for blockage or kinking
Heater exhausts is black	● Heater carbon deposits ● Exhaust pipe blocked	● Repair or replace heater ● Check if the intake pipe is blocked

Part Ⅳ Parts List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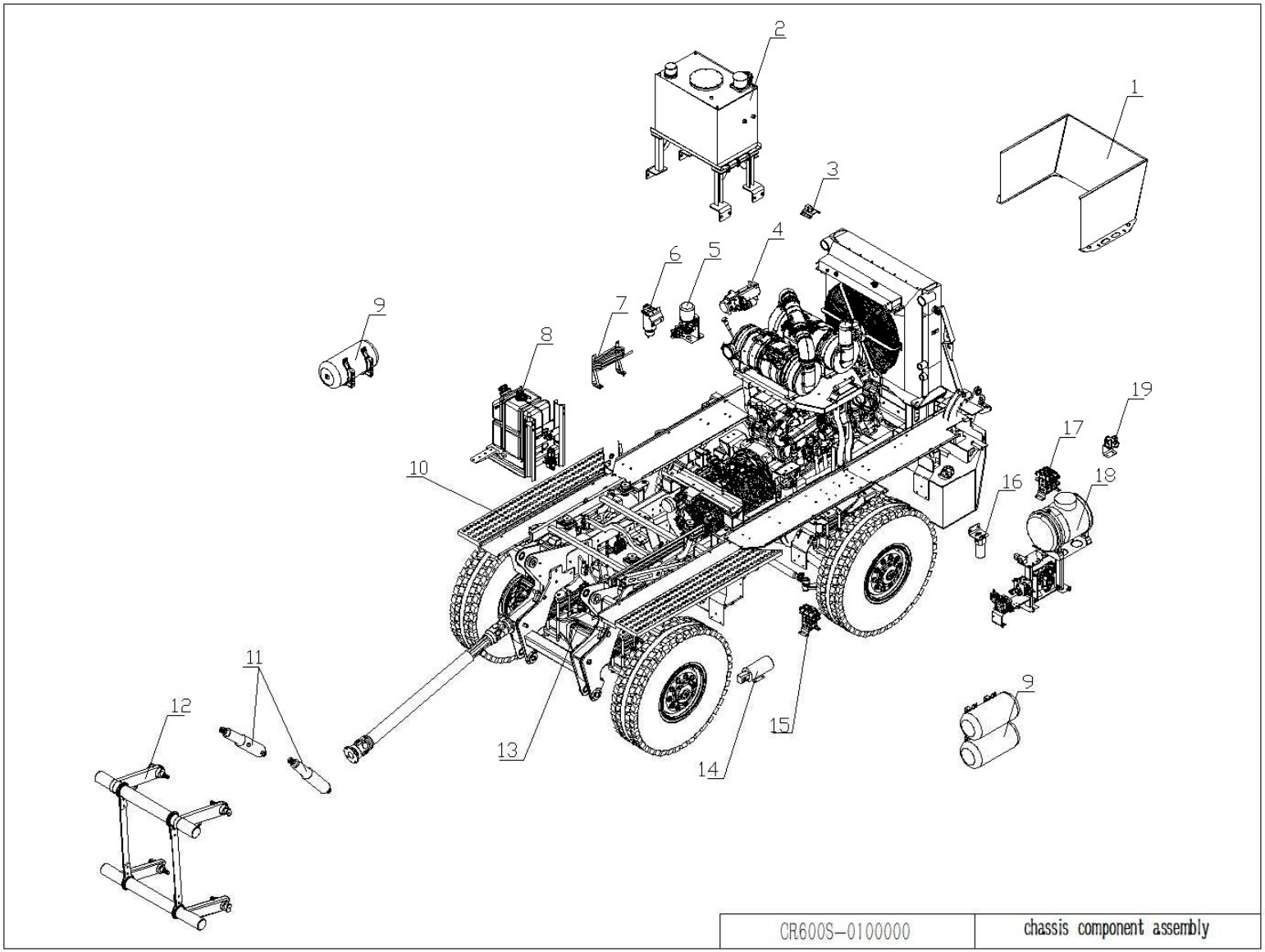
CR600S-0000000
Complete vehicle assembly

CR600S-0000000 Complete vehicle assembly

Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
1	CR600S-0200000	Cab assembly	1	4	CR600S-1500000	Lower encircling assembly	1
2	CR600S-1000000	Blower head assembly	1	5	CR600S-0301000	Front engine compartment assembly	1
3	CR600S-0100000	Chassis component assembly	1	6	CR600S-0302000	Rear engine compartment assembly	1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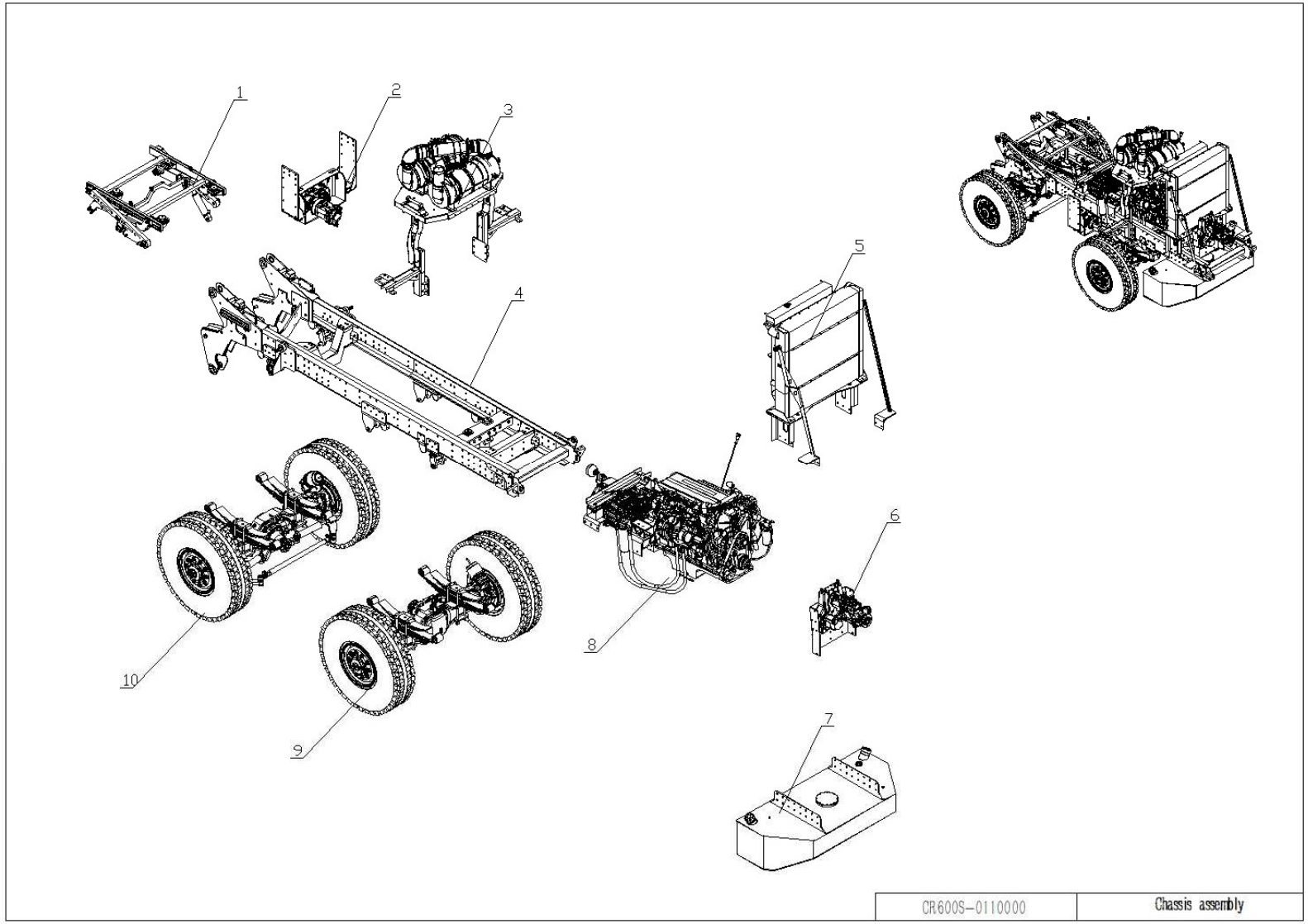
CR600S-0100000
chassis component assembly

CR600S-0100000 chassis component assembly

Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
1	CR600S-0102630	DPF guard	1	11	K044010	Lifting cylinder	2
2	CR600S-0104100	Hydraulic tank assembly	1	12	CR600S-0103000	Lift arm assembly	1
3	CR600S-0104030	Check valve mounting assembly	1	13	CR600S-0110000	Chassis assembly	1
4	G4-11000134	Fuel heater assembly	1	14	DC5016-B	Emergency pump	1
5	550S1-0800510	Dryer assembly	1	15	CR600S-0104090	Dual valve	1
6	CR600S-0104010	Oil-water separator assembly	1	16	CR600S-0104020	Hydraulic filter	1
7	550S1-0800510	Cooling pipe assembly	1	17	CR600S-0104080	Triple valve group assembly	1
8	CR600S-0102700	Ureatank assembly	1	18	550S1-0800650	Air filter stand	1
9	CR600S-0302150	Air cylinder assembly	1	19	550S1-0800670	thermostat	1
10	CR600S-1509000	catwalk	1				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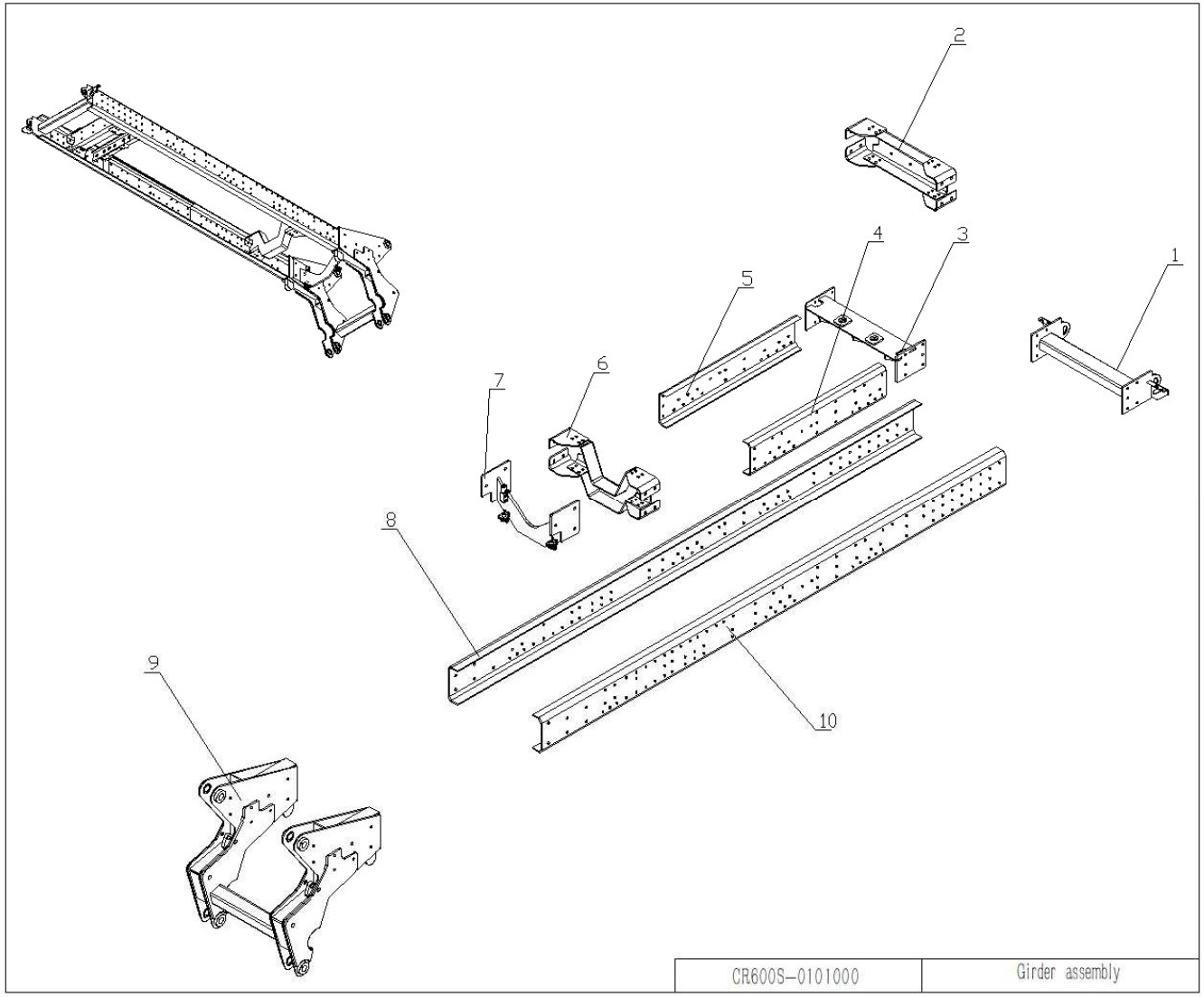
CR600S-0110000
Chassis assembly

CR600S-0110000 Chassis assembly

Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
1	CR600S-0110000	Cab lift assembly	1	6	CR600S-0102400	Pump pad assembly	1
2	CR600S-0101500	Transter box assembly	1	7	CR600S-0103200	Fuel tank assembly	1
3	CR600S-0102600	Engineexhaust supports	1	8	CR600S-0500000	Power package	1
4	CR600S-0101000	Girder assembly	1	9	CR600S-0101400	Rear axle assembly	1
5	CR600S-0102500	Radiator mounting assembly	1	10	CR600S-0101300	Front axle assembly	1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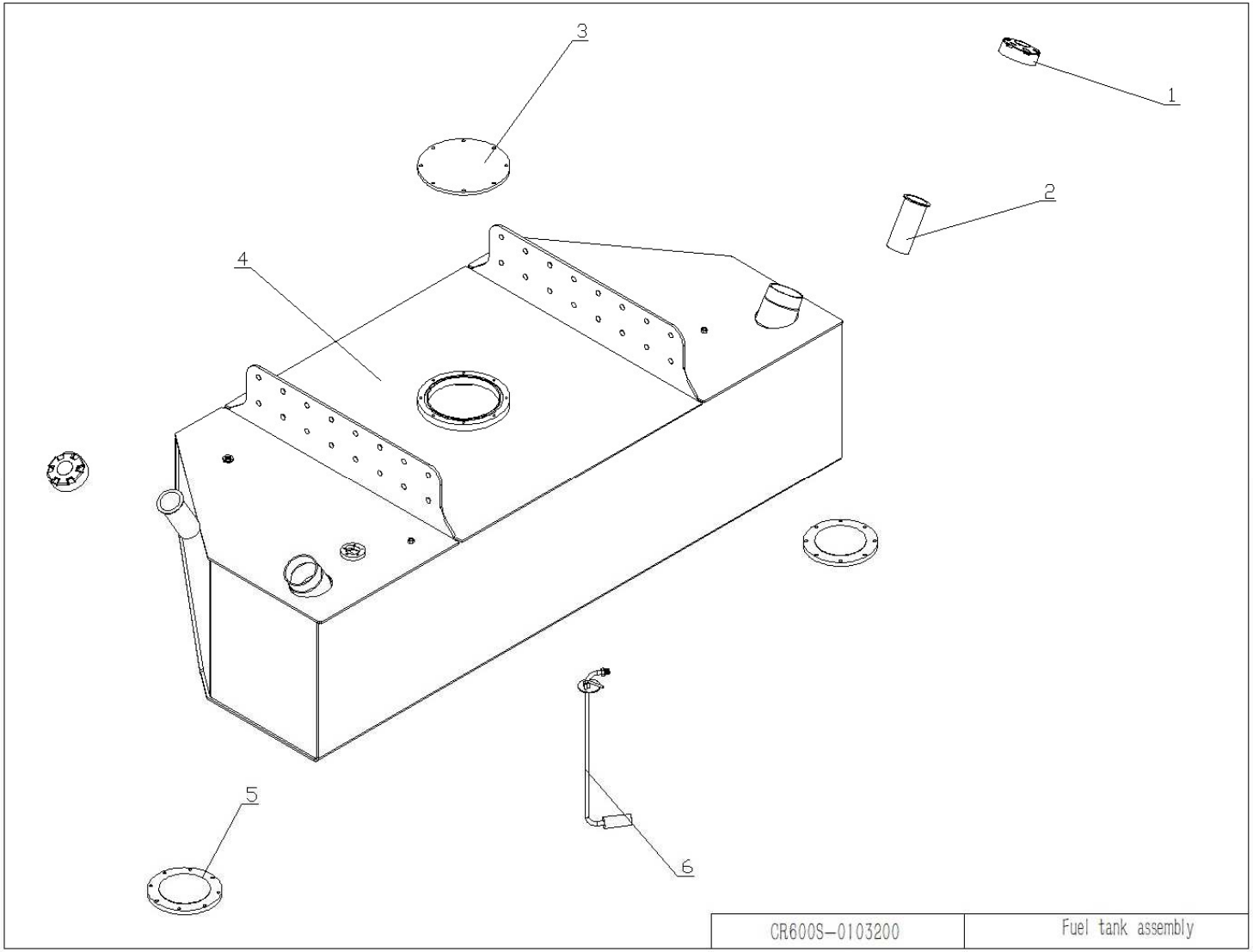
CR600S-0101000
Girder assembly

CR600S-0101000 Girder assembly

Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
1	CR600S-0110010	Rear beam	1	6	CR600S-0101200	Front V-beam assembly	1
2	CR600S-0104040	Middle beam	1	7	CR600SD-0103140	Lower V-beam assembly	1
3	CR600S-0501180	Engine rear connection frame	1	8	CR600S-0101002	Right girder	1
4	CR600S-0101003	Left reinforcement beam	1	9	CR600S-0103100	Connecting seat	1
5	CR600S-0101004	Right reinforcement beam	1	10	CR600S-0101001	Left girder	1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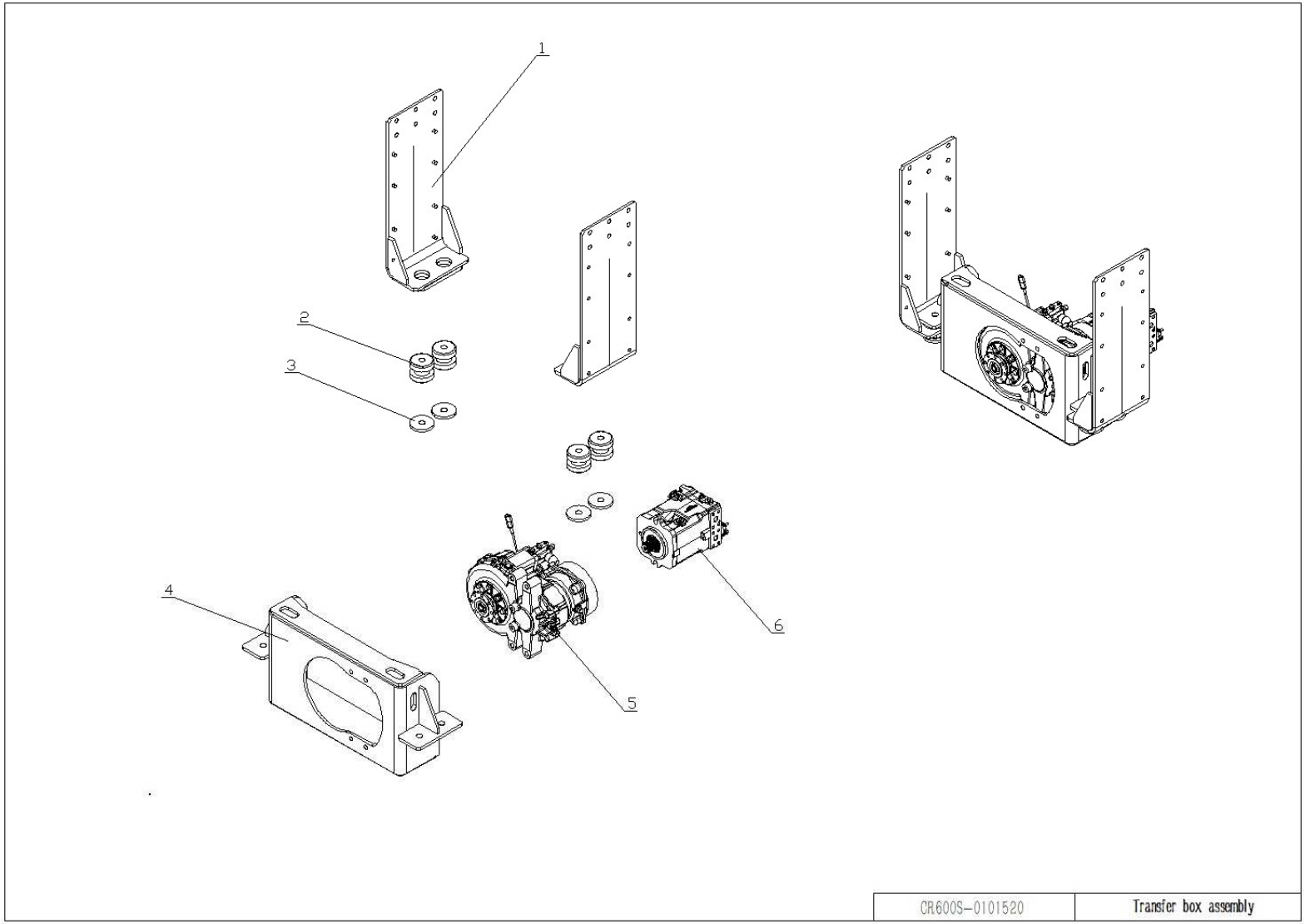
CR600S-0103200
Fuel tank assembly

CR600S-0103200 Fuel tank assembly

Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
1	050D0670-1	fuel tank cap	2	4	CR600S-0103210	Fuel tank assembly	1
2	050D0670-2	screen	2	5	220	Cleaning cover	2
3	270	Cleaning cover	1	6	JKM04174.TN570	Fuel sensor	1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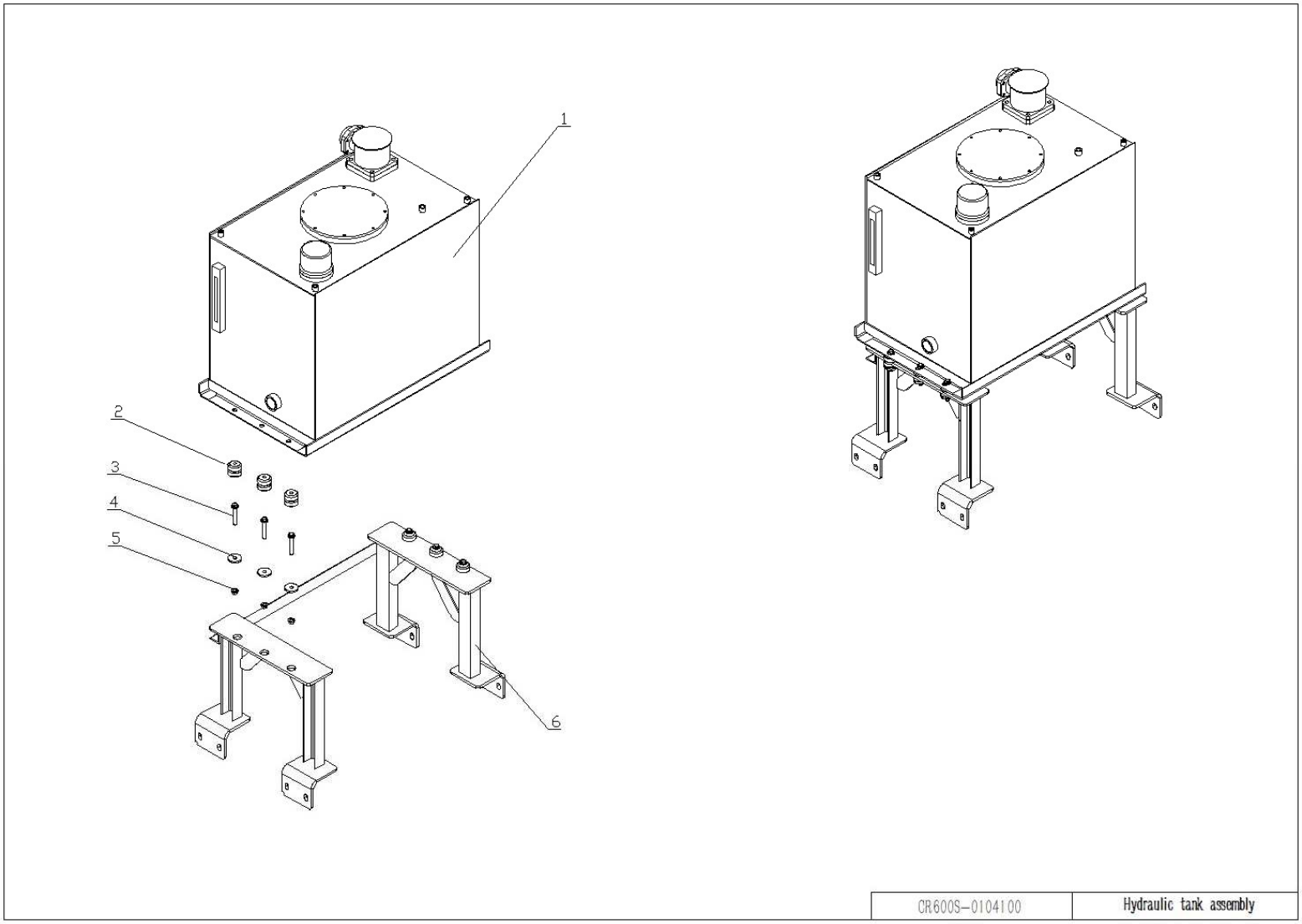
CR600S-0101520
Transfer box assembly

CR600S-0101520 Transter box assembly

Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
1	CR600S-0101510B	Transfer case support	2	4	CR600S-0104200	Transfer case mount	1
2	22004-3	Rubber mounts	2	5	HMV105-E6-t23-u35-1203	drive motor	2
3	CR600S-0101514	Gasket	1	6	367-97-121	transfer case	1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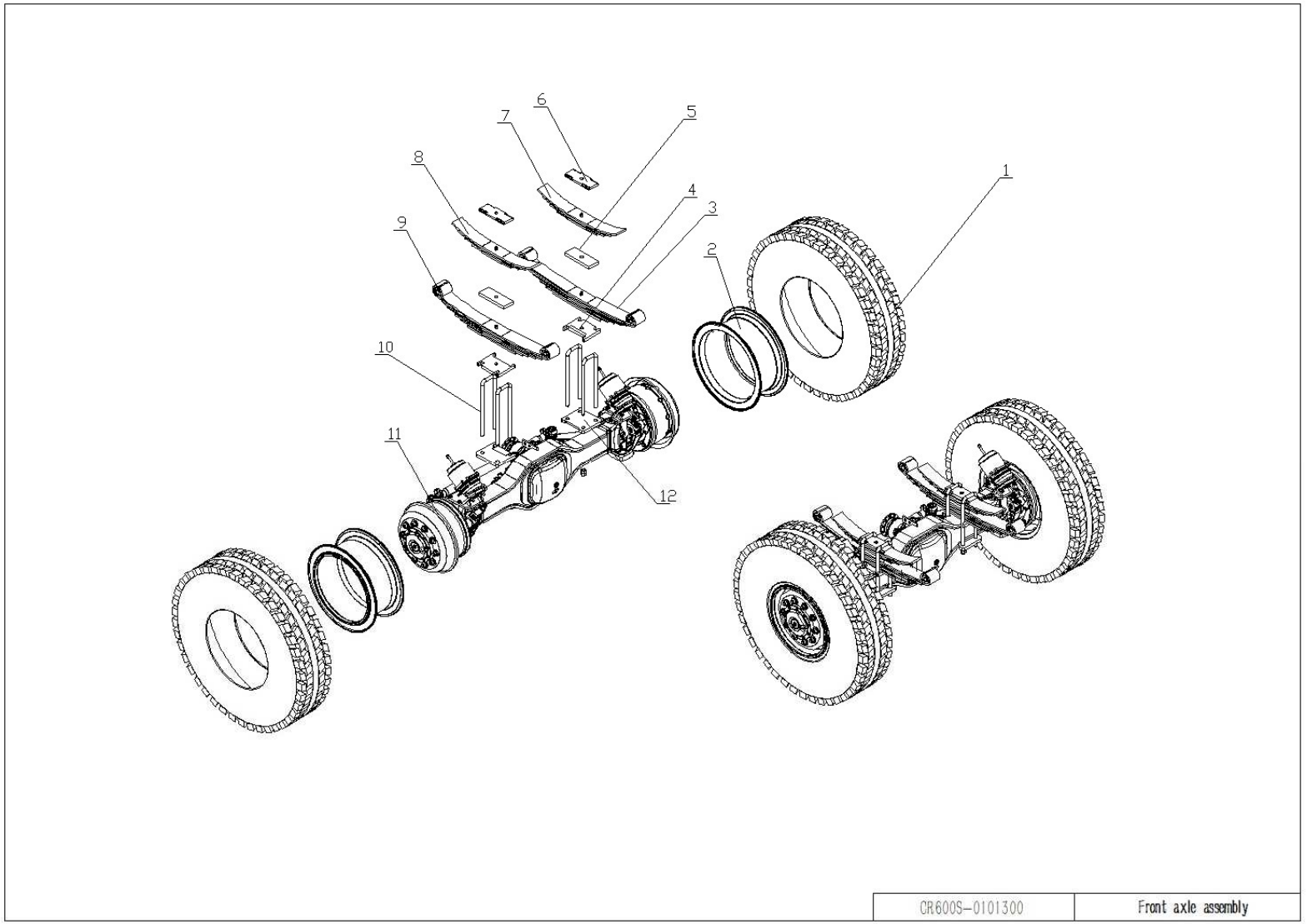
CR600S-0104100
Hydraulic tank assembly

CR600S-0104100 The Hydraulic tank assembly

Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
1	（XKD000-1)320L	Hydraulic tank	1	4	CR600S-1087719	gasket	6
2	Eh50	Gasket	6	5	Q33012T13F3-P125	hex nut	6
3	Q1851280TF30	Hex bolt	6	6	CR600S-0104110	Hydraulic tank support	1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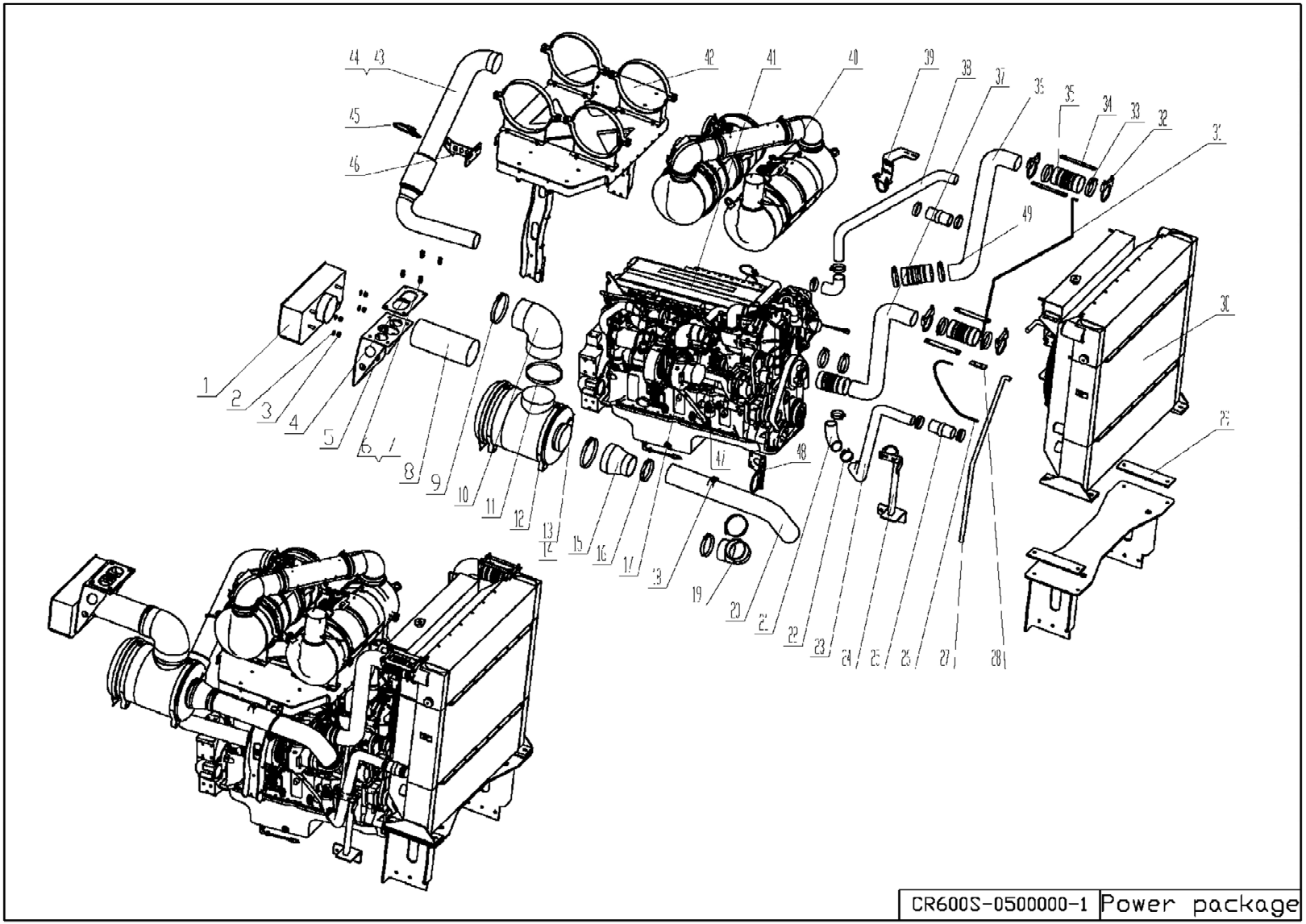
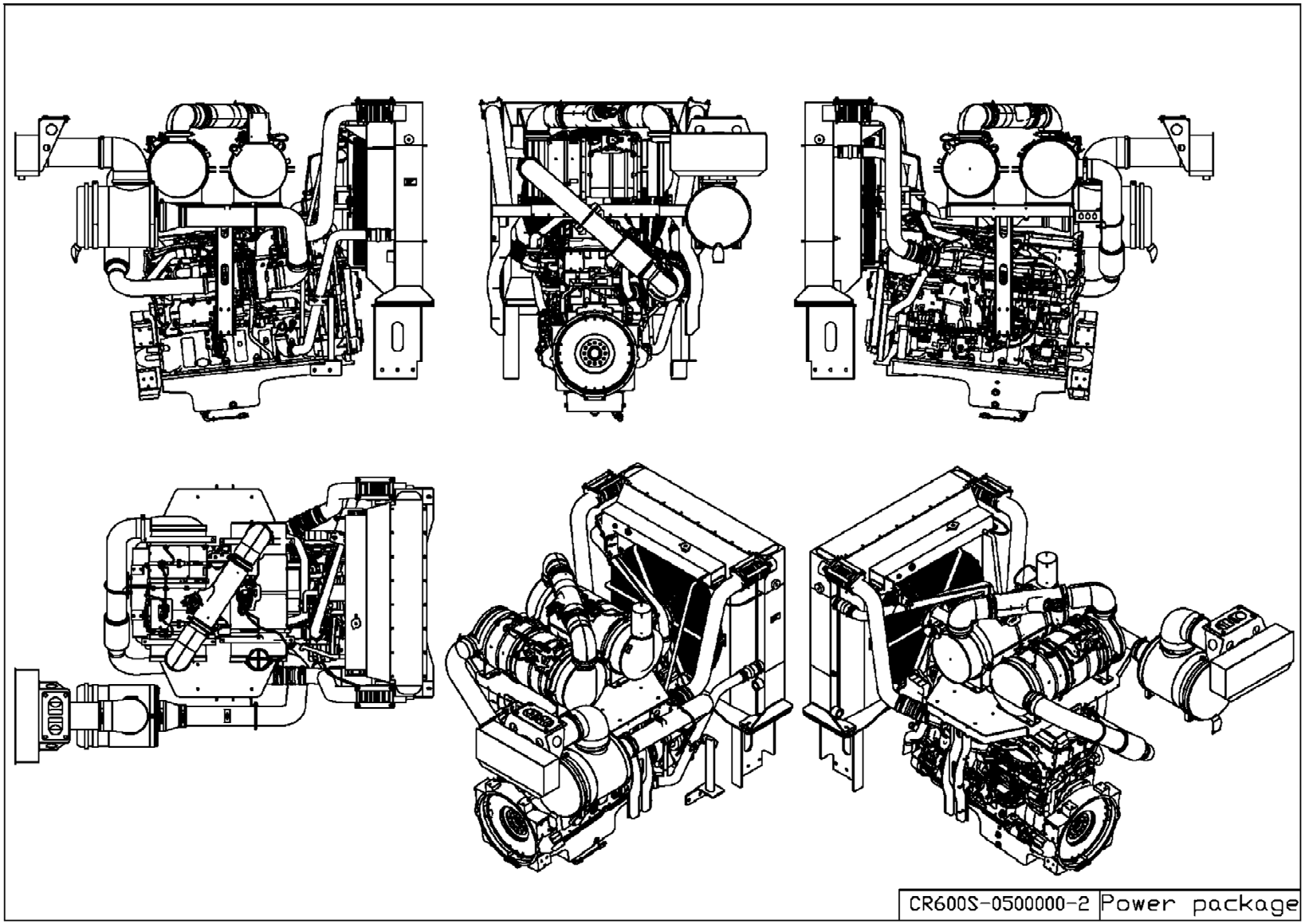
CR600S-0101300
Front axle assembly

CR600S-0101300 Front axle assembly

Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
1	385/65R22.5-20PR AGC28	Aeolus tire	1	7	Y01-A9-1 R	Right secondary spring	1
2	24103260	22.5*11.75 Wheel rim	1	8	Y01-A9-1 L	Left secondary spring	1
3	YO1-A9-2 R	Right spring	1	9	YO1-A9-2 L	Left spring	1
4	CR600S-0101303	Spring plate 3	1	10	CR600S-0101305	Leaf spring U bolts	1
5	CR600S-0101302	Spring plate2	1	11	HDZ13T341526009	axle	1
6	CR600S-0101301	Spring plate1	1	12	CR600S-0101304	U bolt plate	1


CR600S-0500000-1
Power package

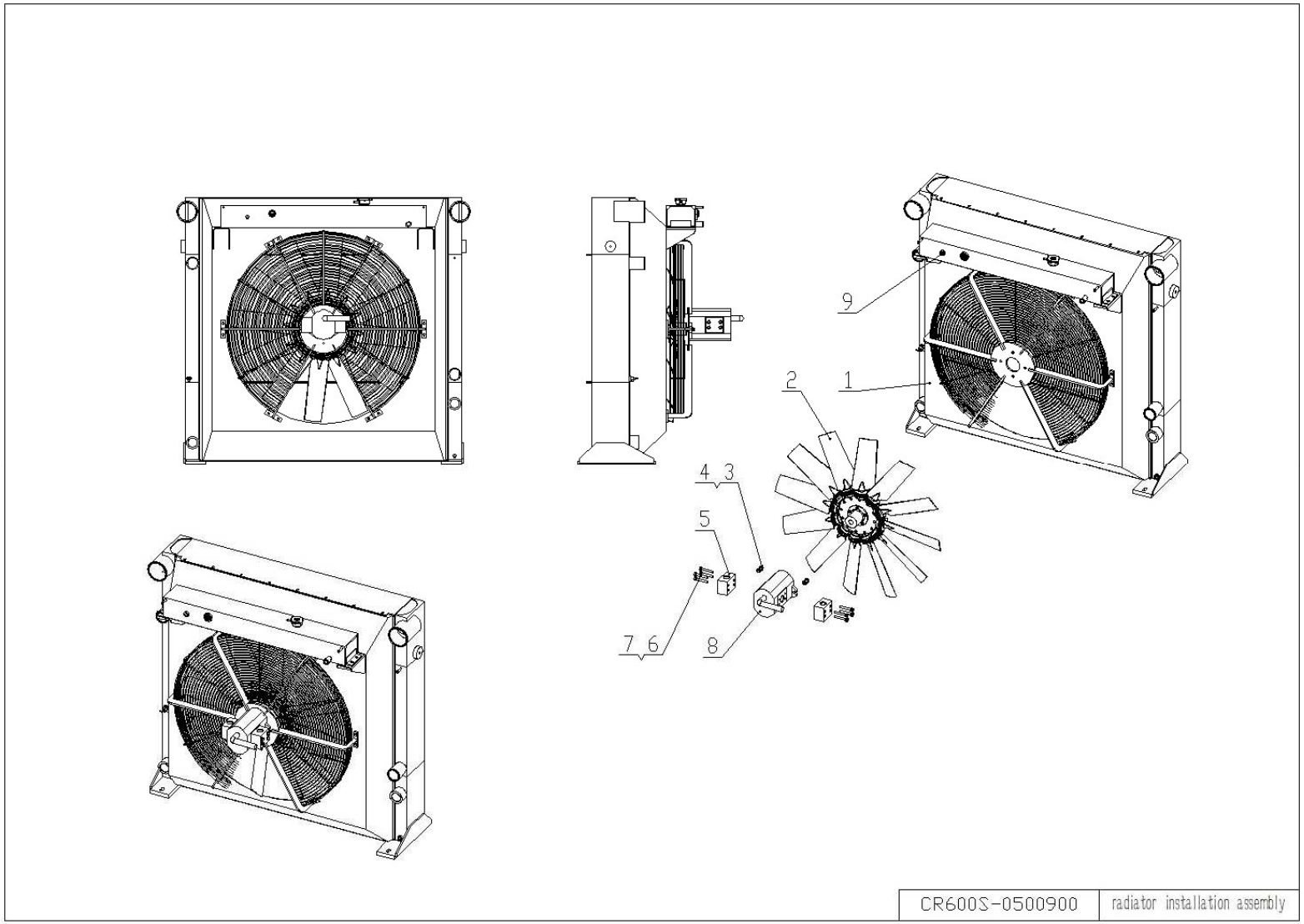

CR600S-0500000-2
Power package

CR600S-0500000-Power package

Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
1	LET2-204B	Pre -filter	1	26	⌀10-L=800mm	Pipe	1
2	Q401B16	Flat Washers	4	27	⌀25-L=1700mm	Hydrating pipe	1
3	DTF6175PTM16×2	nut	4	28	CR600S-0502401A	Base plate	1
4	CR600S-0303323	Support gasket	1	29	380x100x10mm	Rubber mount	2
5	CR600S-0303320A	Fixed rack	1	30	CR600S-0500900	The radiator installation assembly	1
6	Q1851445T	bolt	4	31	⌀10-L=1400mm	Pipe	1
7	Q33114T13	nut	4	32	⌀102	U -shaped card hoop	4
8	⌀180x2-L=420mm	Stainless steel straight tube	1	33	107-115	T -type spring card hoop	8
9	186-194	T -type spring card hoop	2	34	CR600S-0303313B	⌀102Pipe fixed board	4
10	⌀180-⌀210	90 ° variable diameter silicone tube	1	35	Y3071049 （⌀102-L=190）	Straight silicone tube	2
11	222-230	T -type spring card hoop	1	36	CR600S-0500200A	Water pipe	1
12	A220399301 （AH8822）	Empty filter assembly	1	37	CR600S-0500100A	Water pipe	1

Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
13	NPT 1/8	connector	1	38	CR600S-0500300A	Mid -cold into the water pipe (with welding)	1
14	WG9725193501	Air filter maintenance indicator switch	1	39	CR600S-0500400	Fixed rack	1
15	⌀127-⌀178	variable diameter silicone tube	1	40	A044X606	DPF	1
16	134-145 （137-145）	T -type spring card hoop	3	41	YY-T4F-X15C600 -LZYL	engine	1
17	3682674	Turbo 90° elbow	1	42	CR600S-0102610	DPF bracket	1
18	5698454	Temperature Sensor	1	43	CR600S-0500700B	Exhaust pipe (with welding)	1
19	CF830622 (⌀127-⌀127）	90 ° Silicone tube	1	44	CR600S-0500700B -GRM	Exhaust wrap	1
20	CR600S-0500600A	Turbo intake	1	45	⌀127	U -shaped card hoop	1
21	Y060056 (⌀63-⌀63)	90 ° Silicone tube	2	46	CR600S-0502300	Fixed rack (with welding)	1
22	67-75	T -type spring card hoop	8	47	4965497	Coolant water	1

Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
23	CR600S-0500400A	Cold out of the water pipe (with welding)	1	48	CR600S-0505420	Intake pipe fixing frame	1
24	CR600S-0500800A	Cold water pipe support	1	49	4088833	Temperature Sensor	1
25	Y060014-K (⌀63-⌀63)	Straight silicone tube	2				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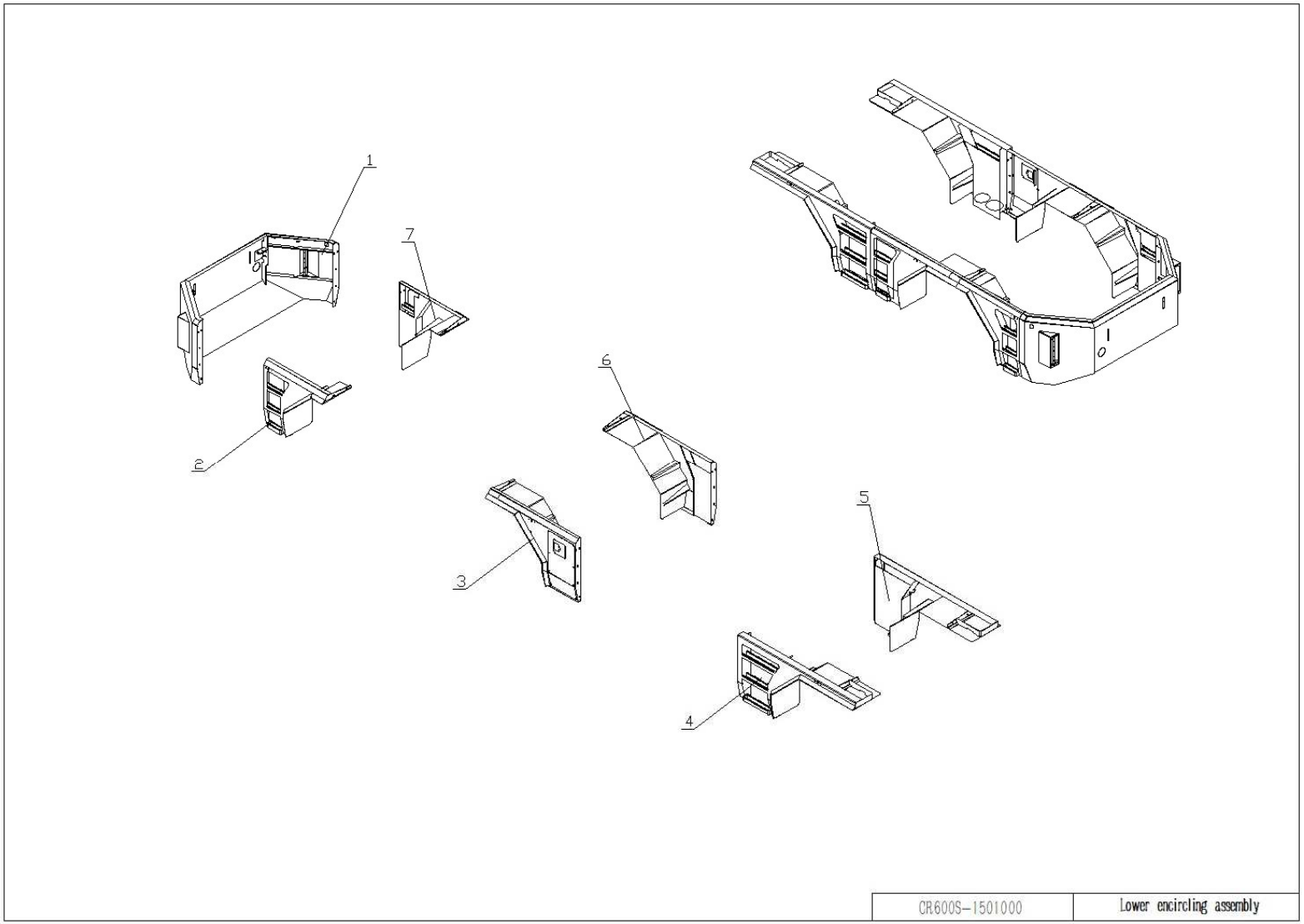
CR600S-0500900
radiator installation assembly

CR600S-0500900 The radiator installation assembly

Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
1	Y000151-A	Fan guard	1	6	Q150B1065T	bolt	8
2	900/12-12/37.5/PAG /4ZR/22N7#/6/82/B	Fan	1	7	Q40310	Spring pad ring	8
3	Q1851035T	bolt	2	8	CMF-E550-AFPS	motor	1
4	Q33110T13	nut	2	9	2872769	liquid level sensor	1
5	M33-FL	value	2				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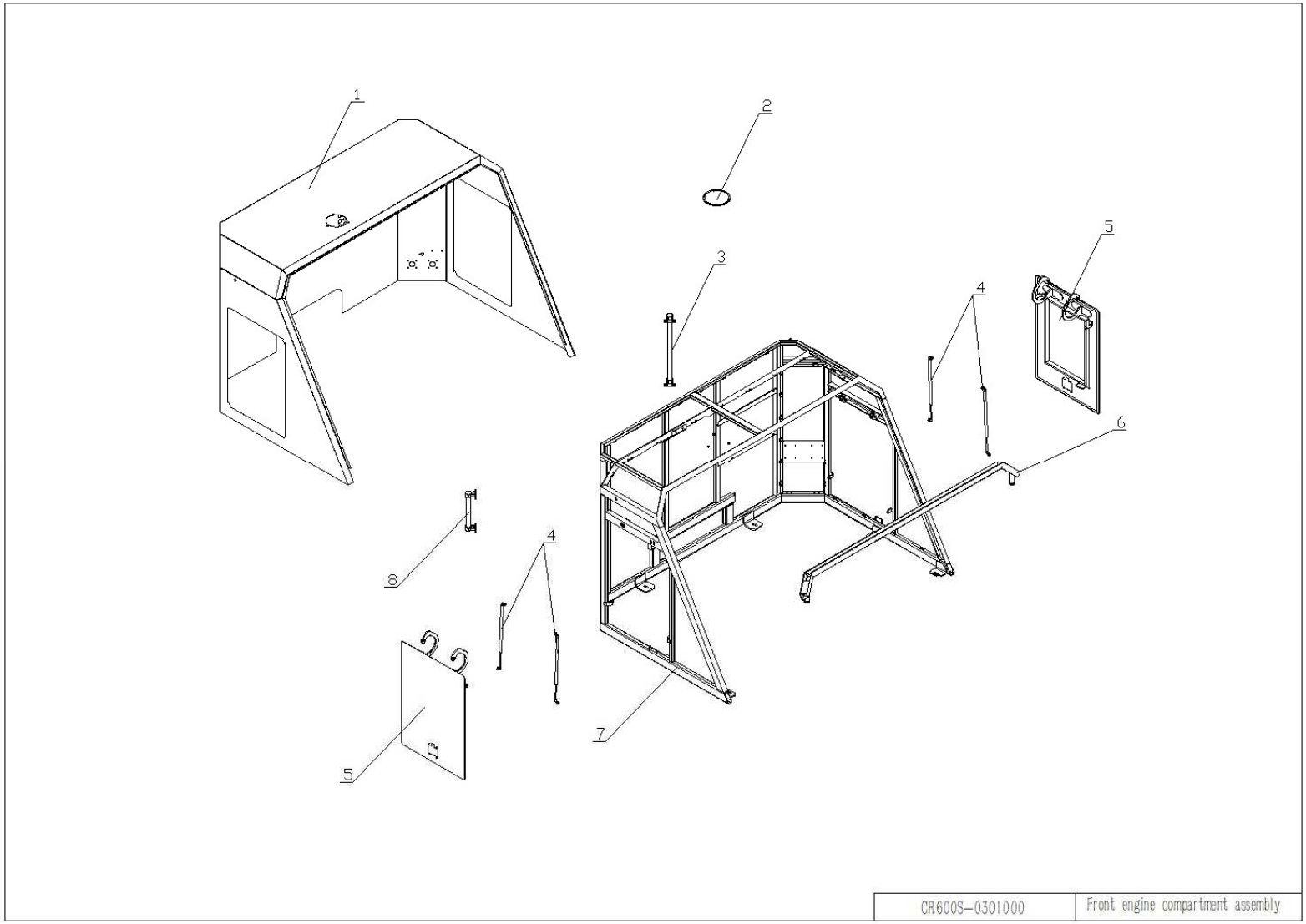
CR600S-1501000
Lower encircling assembly

CR600S-1500000 Lower encircling assembly

Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
1	CR600S-1500100	Rear body assembly	1	5	CR600S-1500400	left front body assembly	1
2	CR600S-1500500	Right rear body assembly	1	6	CR600S-1500300	left center body assembly	1
3	CR600S-1500600	Right center body assembly	1	7	CR600S-1500200	left rear body assembly	1
4	CR600S-1500700	Right front body assembly	1				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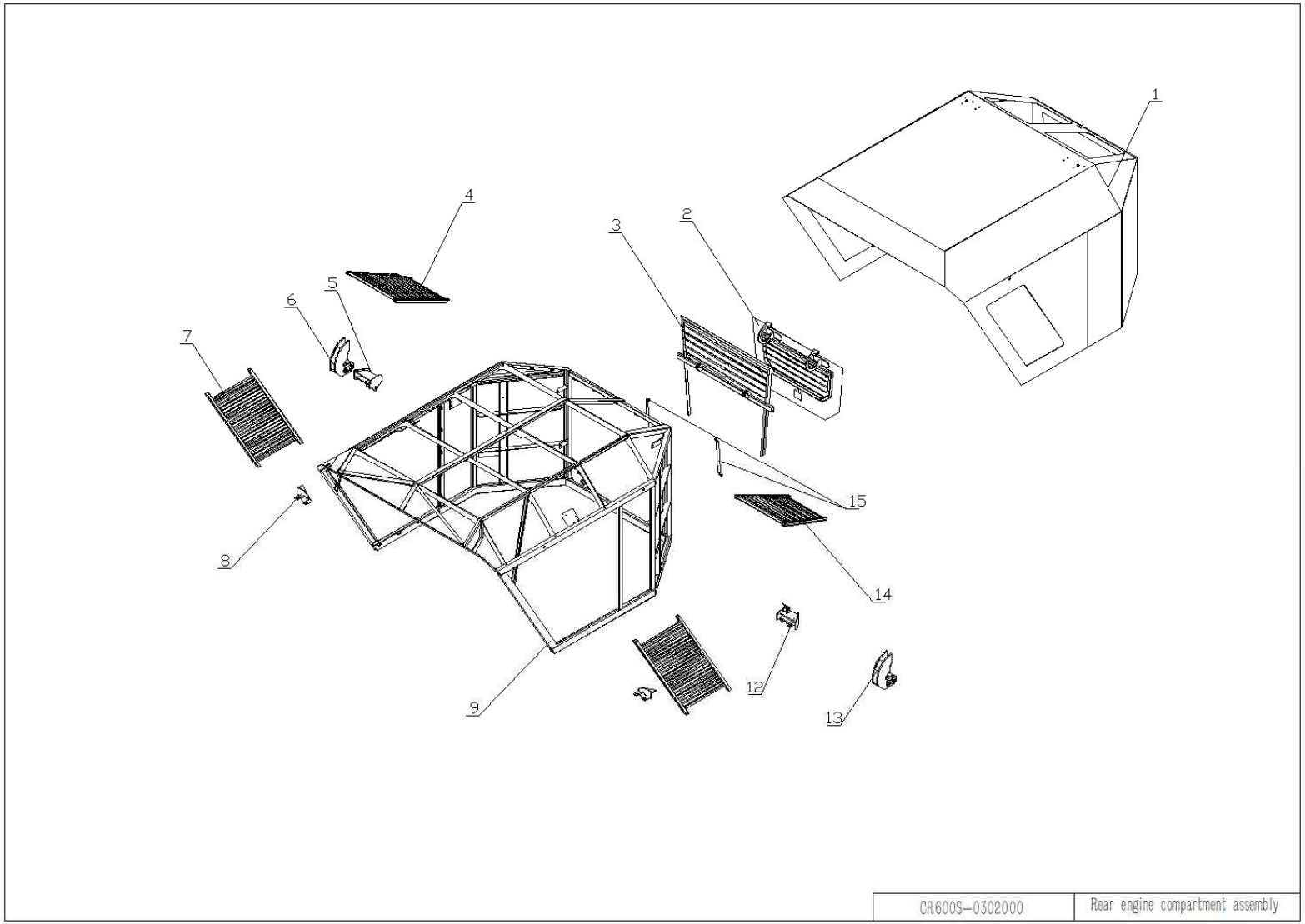
CR600S-0301000
Front engine compartment assembly

CR600S-0301000 Front engine compartment assembly

Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
1	CR600S-0301200	Front doghouse assembly	1	5	CR600S-0301500	Access door	1
2	CR600S-1001224	Hydraulic tank access port	1	6	CR600S-0303180	Sink assembly	1
3	CR600S-0302150	Hand rail	1	7	CR600S-0301100	Front frame assembly	1
4	D22/d1-L815*S360*10*250	Gas spring	1	8	CR600S-0302140	Hand rail	1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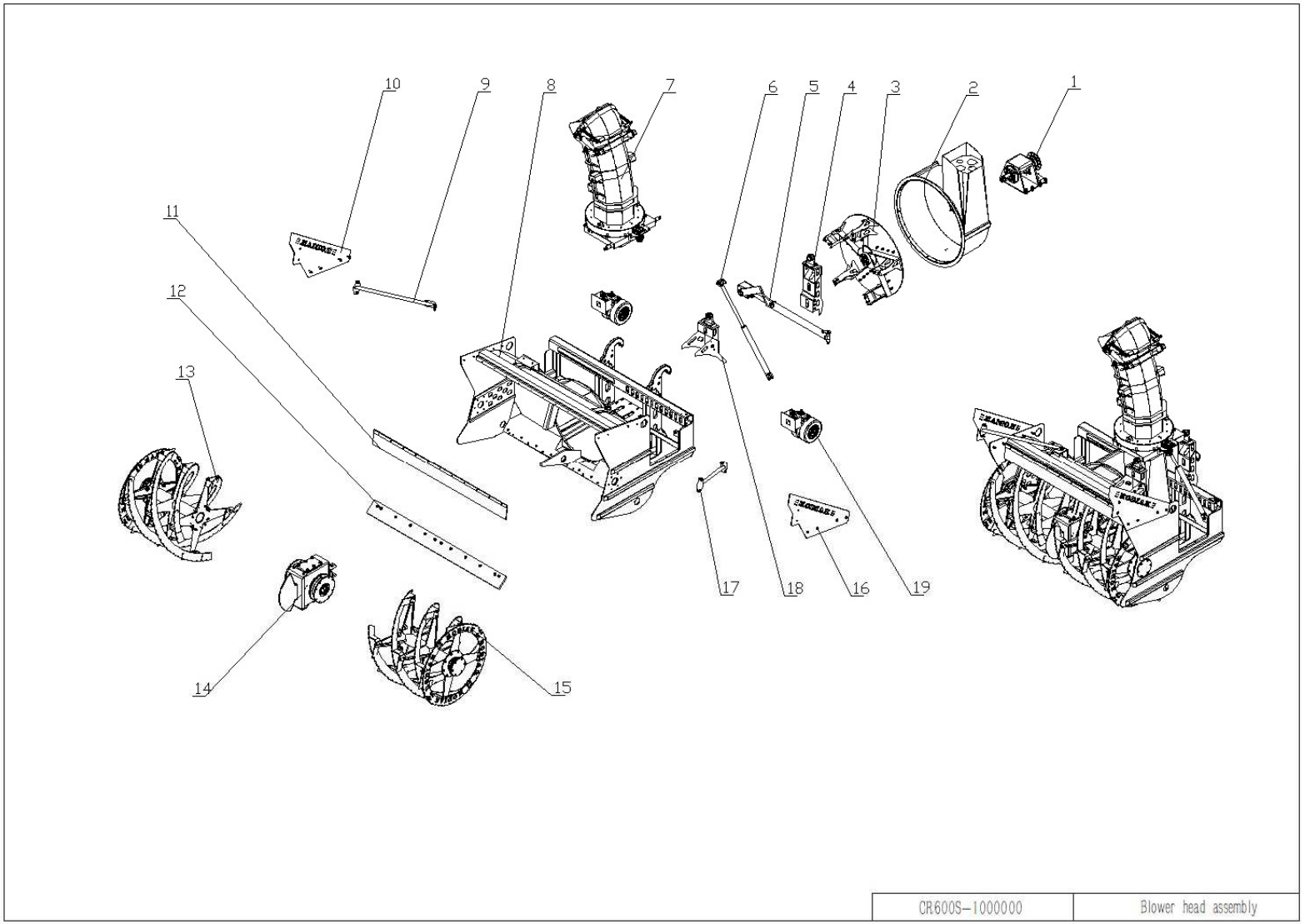
CR600S-0302000
Rear engine compartment assembly

CR600S-0302000 Rear engine compartment assembly

Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
1	CR600S-0302200	Rear doghouse assembly	1	9	CR600S-0302100	Doghouse frame	1
2	CR600S-0302700	Rear hatch door assembly	1	10	CR600S-0302620	Left limit seat assembly	1
3	CR600S-0302300	Diffuser vent assembly	1	11	CR600S-0302400	Left vent assembly	1
4	CR600S-0302810	Upper left vent	1	12	CR600S-0302210	Cylinder upper support(left)	1
5	CR600S-0302220	Cylinder upper support(right)		13	CR600S-0302820	Hinge assembly	1
6	CR600S-0302190	Hinge assembly		14	CR600S-0301100	Upper right vent	1
7	CR600S-0302500	Right vent assembly		15	YQL625-220	Gas spring	2
8	CR600S-0302610	Right limit seat assembly					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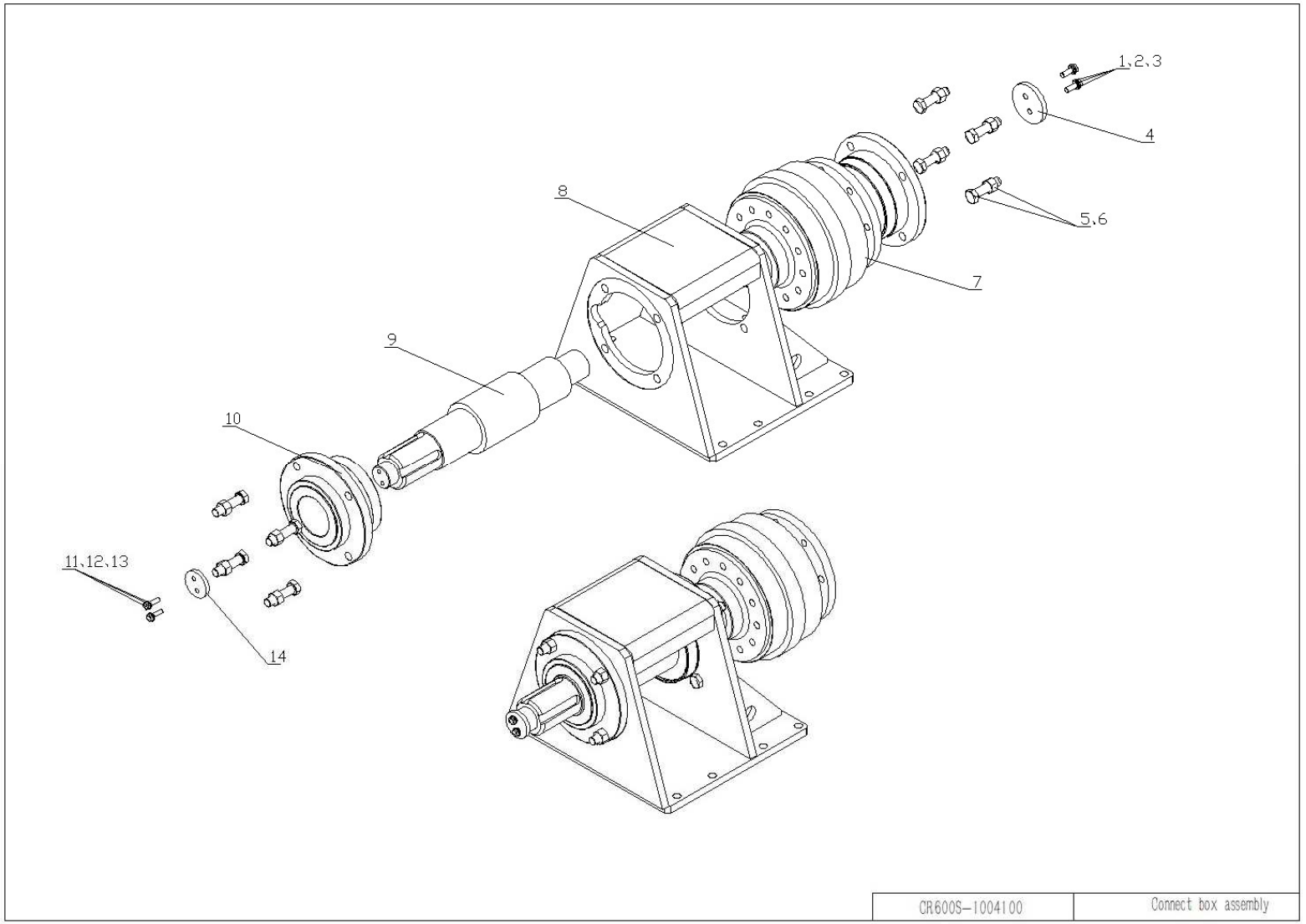
CR600S-1000000
Blower head assembly

CR600S-1000000 Blower head assembly

Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
1	CR600S-1004100	Connect box assembly	1	11	CR600S-1001750	Rubber flap	1
2	CR600S-1002000	Volute	1	12	CR600S-1001743	Scraper blade	1
3	CR600S-1005030	Snow Impeller assembly	1	13	CR600S-1006200	Left ribbon assembly	1
4	CR600S-1001190	Inner spot chute support	1	14	CR600S-1001800	Center drive gear box	1
5	CR600S-1006100	Volute guide	1	15	CR600S-1006300	Right ribbon assembly	1
6	K90033	Volute cylinder	1	16	CR600S-1001623	Left cutter bar	1
7	CR600S-1006000	Spot chute	1	17	CR600S-1001620	Left cutter bar support	2
8	CR600S-1001000	Blower head frame	1	18	CR600S-1001170	Outer spot chute support	
9	CR600S-1001630	Right cutter bar support	1	19	CR600S-1007000	Caster wheel	
10	CR600S-1001624	Right cutter bar	1				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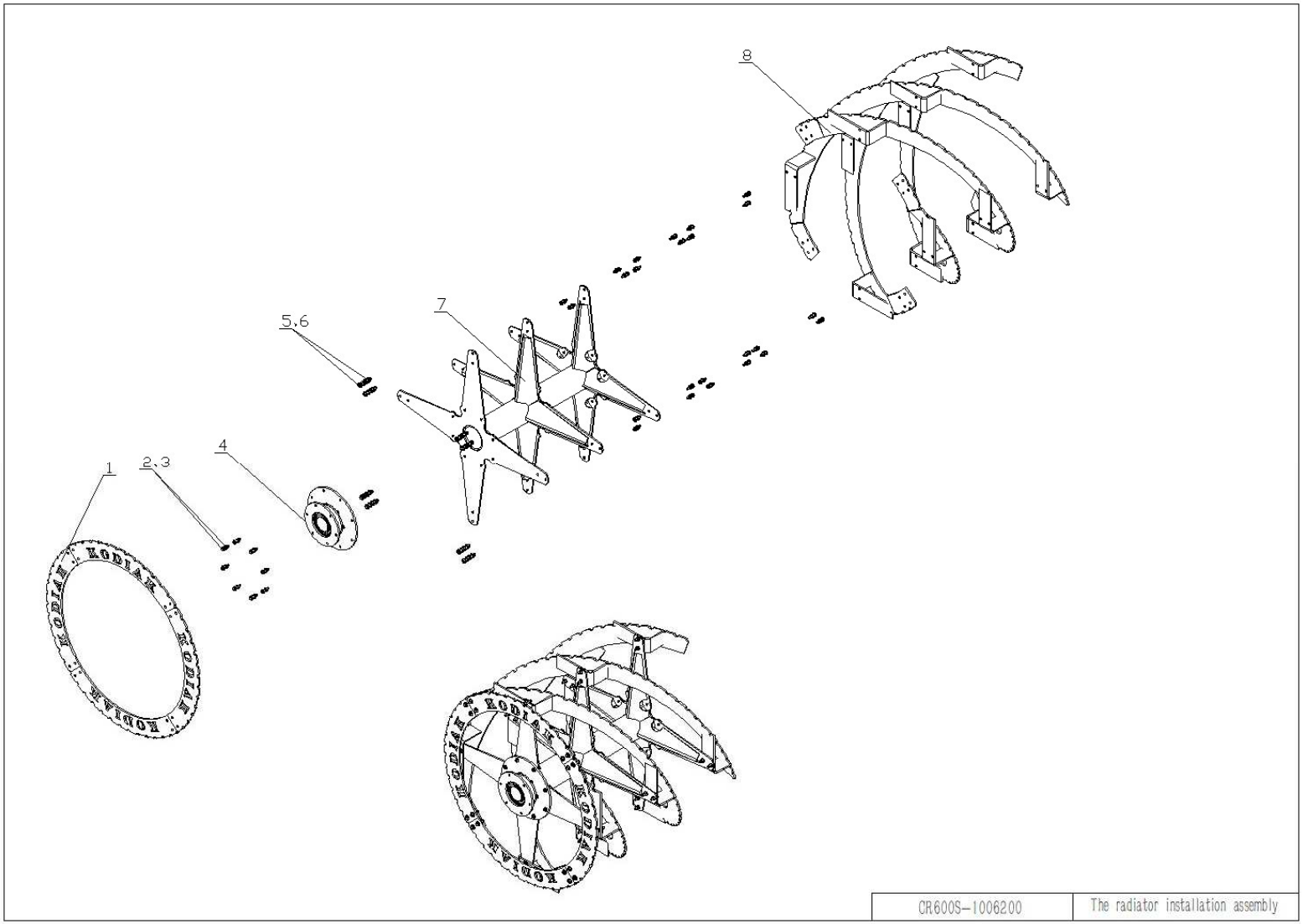
CR600S-1004100
Connect box assembly

CR600S-1004100 Blower head assembly

Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
1	Q150B1035TF2	Hexagon Head Bolts	2	8	CR600S-1004170	Connecting box welded assembly	1
2	Q40310	Spring Washers	2	9	CR600S-1004176	Connecting box Spindle	1
3	Q401B10	Flat washer	2	10	19931315（3-15-16）	Coupling box bearing	1
4	CR600S-1004178	Spindle Pressing Plate(front)	8	11	Q151B1235TF2	Hexagon Head Bolts	2
5	Q150B2080T	Hexagon Head Bolts	8	12	Q40312	Spring Washers	2
6	Q340B20T13	nuts	8	13	Q401B12	Flat washer	2
7	JTM02	Torque limiter	1	14	CR600S-1004179	Spindle Pressing Plate	1


8
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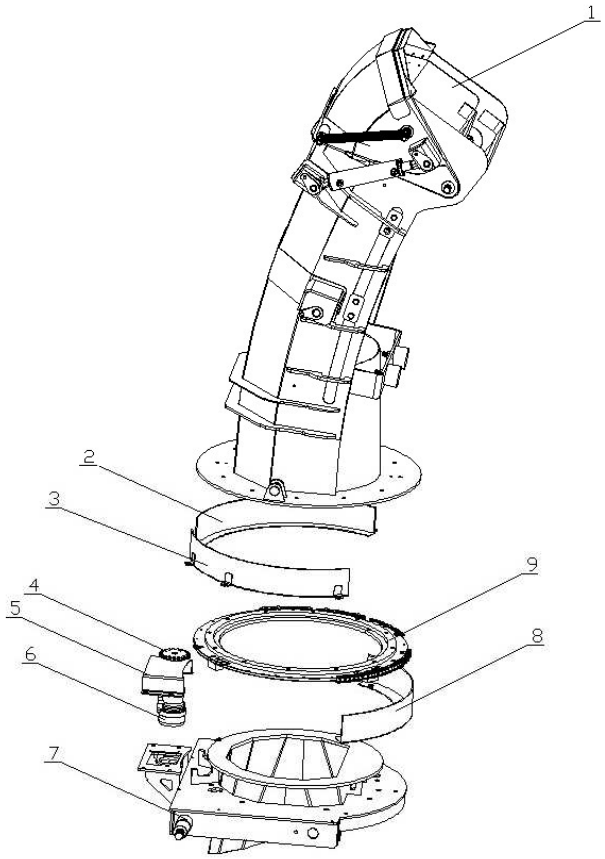
CR600S-1006200
The radiator installation assembly

CR600S-1006200 The radiator installation assembly

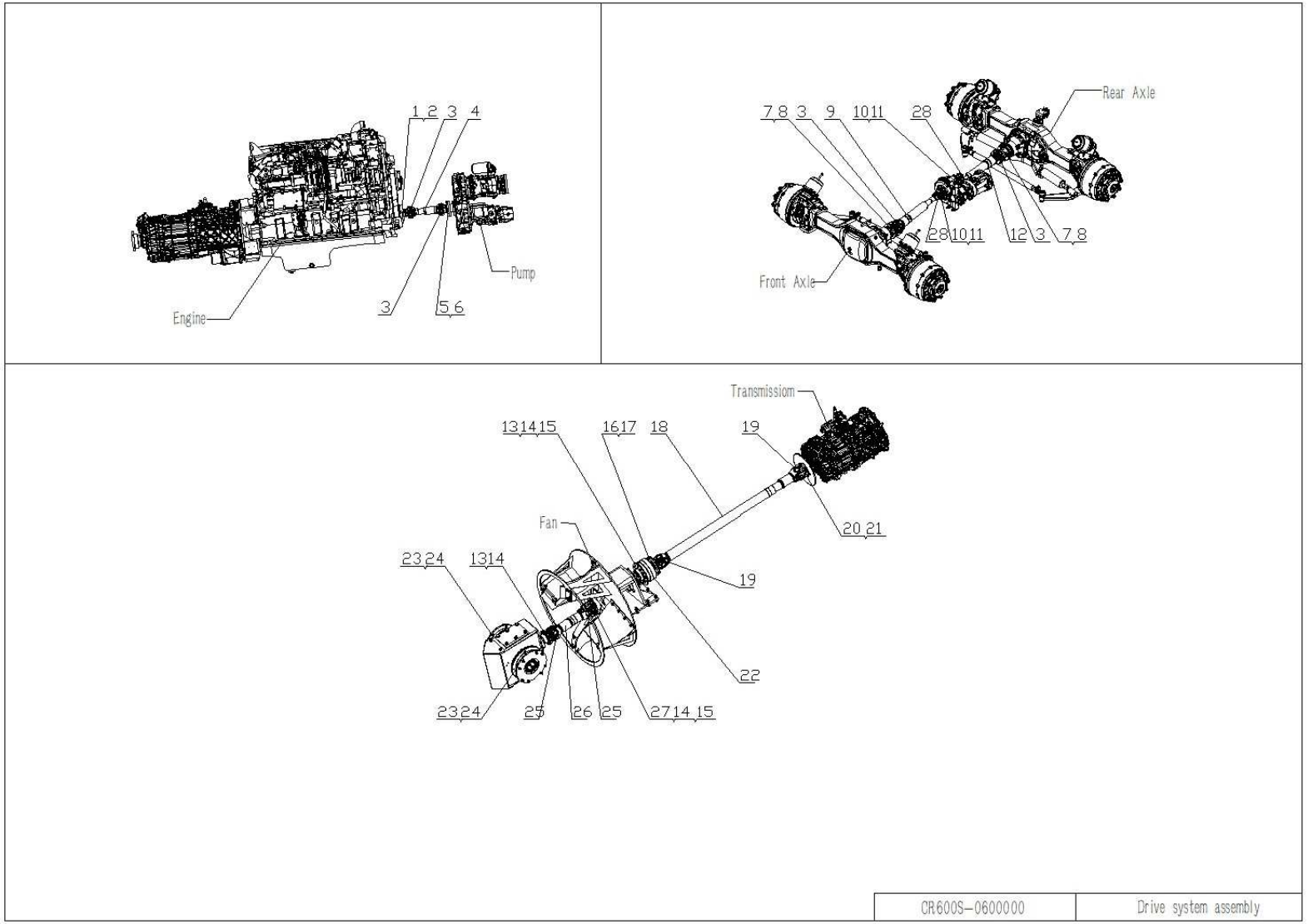
Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
1	CR600S-1006025	Annular side plate	4	5	Q1851445TF30	bolt	8
2	Q1841245TF3-P125	Flange face hexagon bolt	20	6	Q33014T13F3-P150	Spring pad ring	8
3	Q33012T13F3-P125	Flange hexagon nut	20	7	CR600S-1006030	Left Hank fixing assembly	1
4	CR600S-1006010	Hank housing assembly	1	8	CR600S-1006130	Skein blade assembly	4



CR600S-0106000	Guide slot assembly

CR600S-1006000 Guide slot assembly

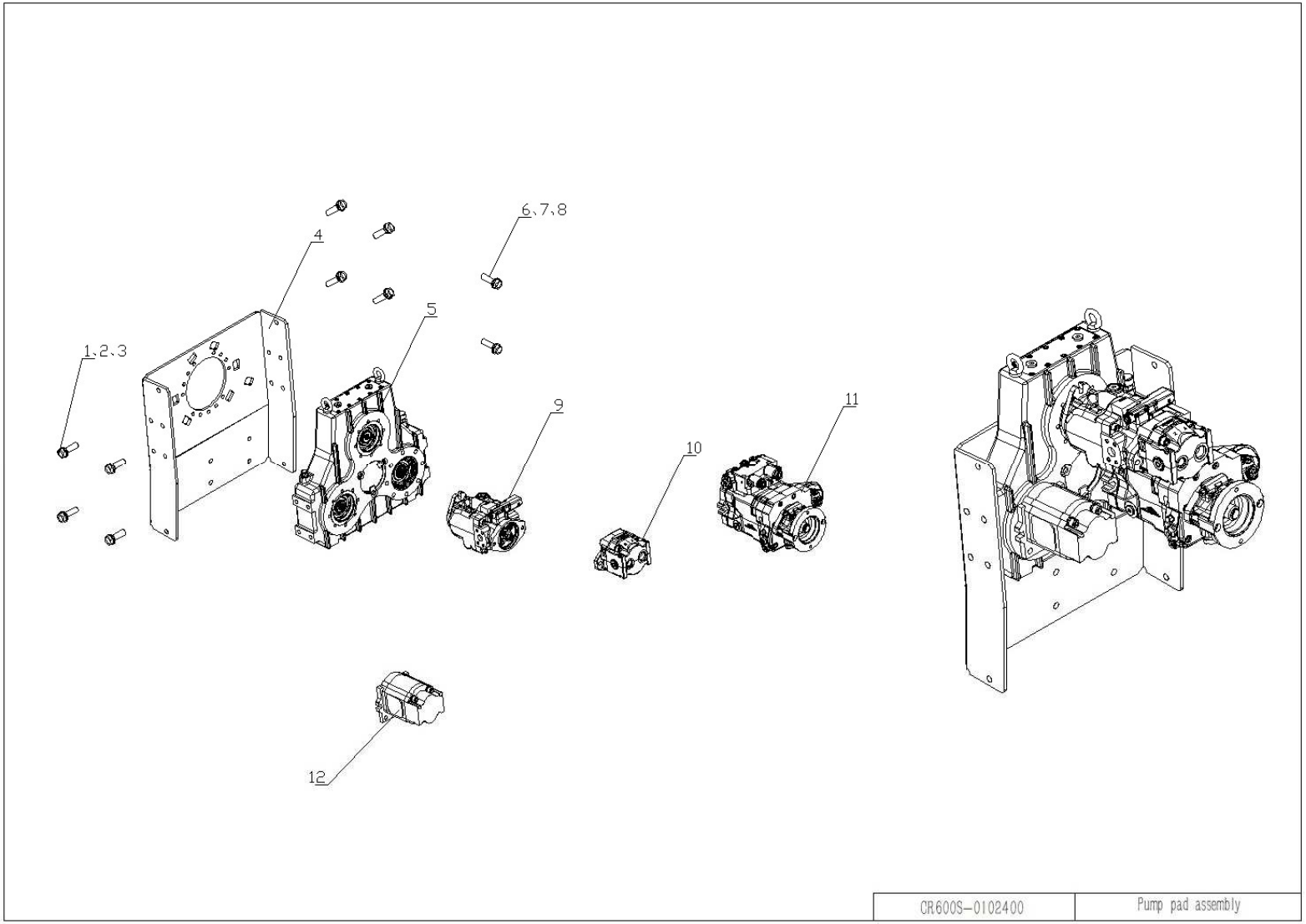
Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
1	CR600S-1002100	capper	1	6	1185570	Hydraulic motor	1
2	CR600S-1006800C	Chain guard A	1	7	CR600S-1002200B	Spot chute base	1
3	CR600S-1006800B	Chain guard B	1	8	CR600S-0301002P	Base guard	1
4	AK03997	Chain gear	1	9	CR600S-1006600B	Guide slot adapter assembly	1
5	CR600S-1006600B	Motor cover	1				


1 2 3 4
Pump
Engine
3
5 6
7 8 3 9 10 11 28
Rear Axle
Front Axle
28 10 11 12 3 7 8
Transmission
13 14 15 16 17 18 19
20 21
Fan
23 24 13 14
19
22
23 24 25 26 25 27 14 15
CR600S-0600000
Drive system assembly

CR600S-0600000 Drive system assembly

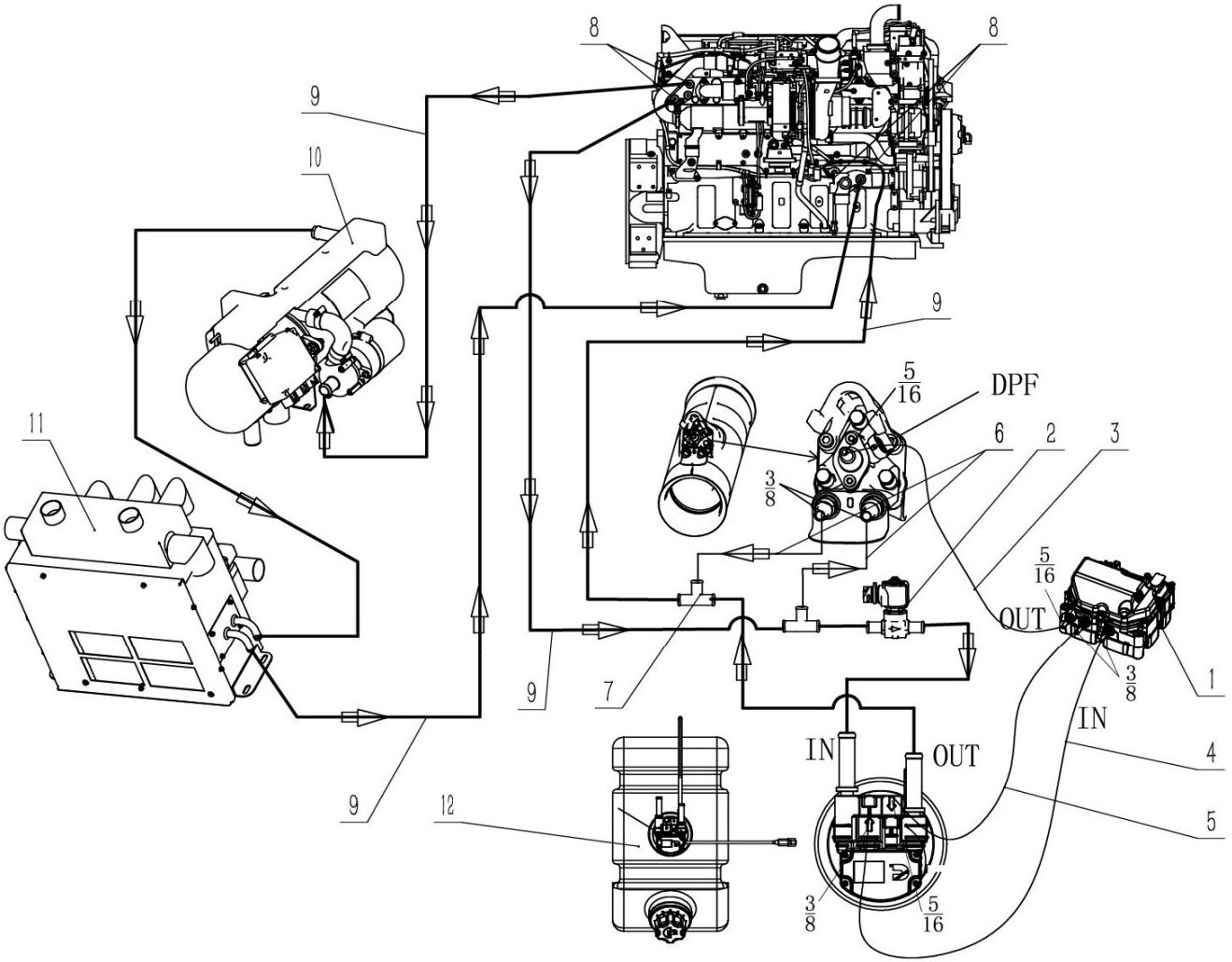
Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
1	1/2-20=L45	American hex head bolts	4	15	Q403B16	M16 flat pad	28
2	1/2	American spring	4	16	Q151B1655TF3	M16*1.5*55 Hexagon head bolt	88
3	Φ35*98	Cross shaft	4	17	Q32316	M16*1.5 self-locking nut	18
4	NJ130-385	Drive shaft assembly	1	18	395-(1990~2140)	Throw head drive shaft assembly	1
5	Q151B1445TF3-P150	M10*1.5X45 hex head bolts	8	19	Φ57*152	Cross shaft	2
6	FTF6175PTM10X1.5-10F3	M10*1.5 self-locking nut	8	20	Q18501470TF30-P150	M14*1.5*70 Flanged bolts	4
7	Q151B1645TF3	M16*2X45hex head bolts	16	21	Q334B14	M14*1.5 self-locking nut	4
8	Q334B16	M16*2 self-locking nuts	16	22	BNM3-SP-TL1336	Torque limiter	1
9	NJ130-895	Front axle drive shaft total	1	23	K00002	M16*1.75-45 Cut the bolt	4

Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
10	Q18501040TF3-P150	M10*1.5X40 flange face bolts	8	24	Q32316	M16*1.75 self-locking nut	4
11	Q32310	M10*1.5X45 Hexagon head self-locking nuts	8	25	Φ57*144	Cross	2
12	NJ130-840	Rear axle drive shaft total	1	26	0082-675	Stranding cage drive shaft assembly	1
13	Q151B1645TF3	M16*1.5X45 hex head bolts	20	27	Q151B1640TF3	M16*1.5*40 hexagon head bolts	8
14	Q40316	M16 spring washer	28	28	Q151B1640TF3	Cross shaft	2


1、2、3
4
5
6、7、8
9
10
11
12
CR600S-0102400
Pump pad assembly

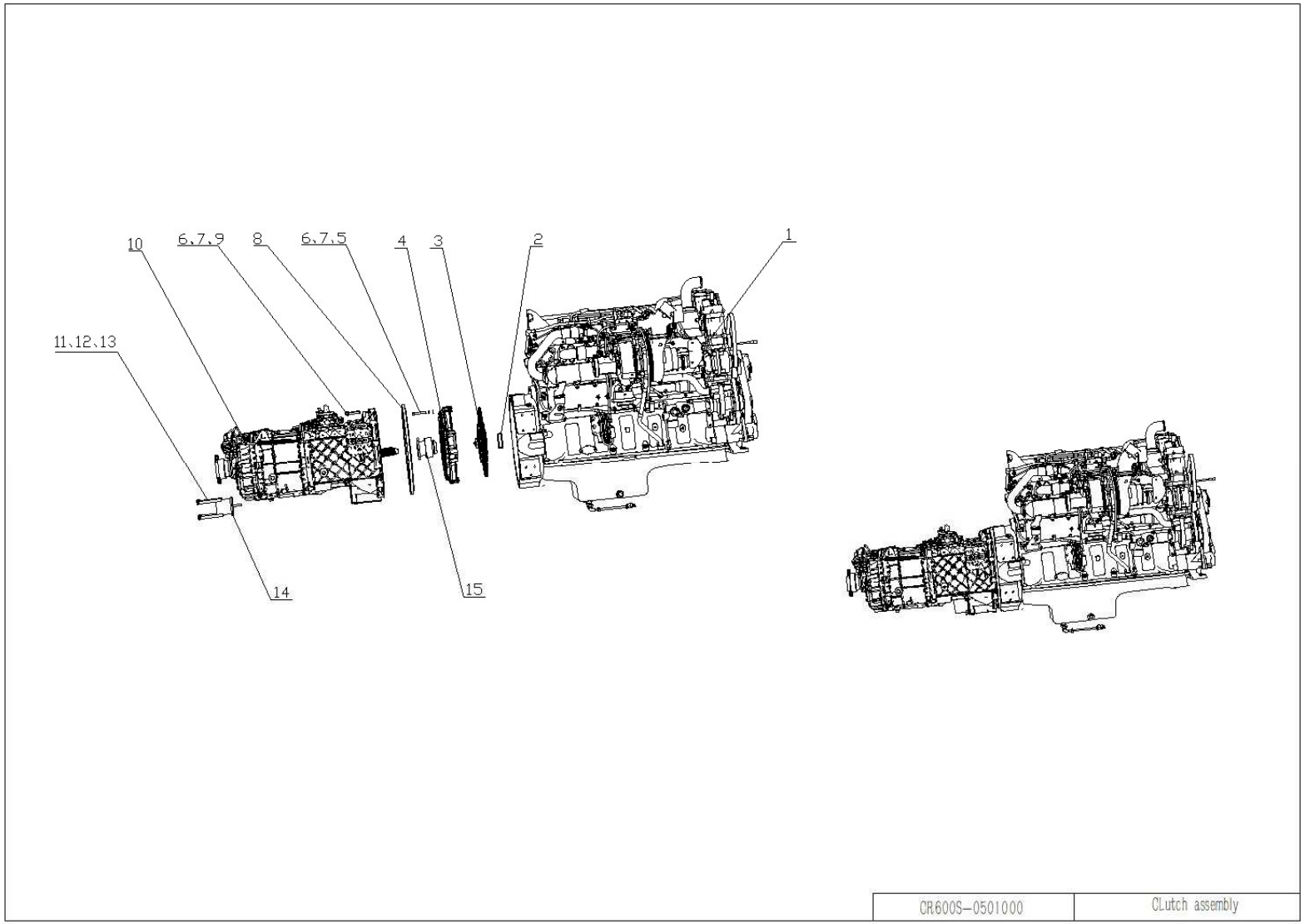
CR600S-0102400 Pump pad assembly

Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
1	Q150B1650TF	hex bolts	8	7	Q40116	flat washer	4
2	Q40316	Spring washer	8	8	Q40310	Spring washer	4
3	Q40116	Flat washer	8	9	MVP48	Working pump	1
4	CR640S-0102410B	Transfer case support	1	10	KP30	Steering pump	1
5	3168-2301	Transfer case	1	11	HPV02-105	Drive pump	1
6	Q150B1045TF2	hex bolts	4	12	CBHB-F	Radiator driven pump	1


8
8
9
10
9
11
5/16
DPF
6
2
3
3/8
5/16
OUT
9
7
3/8
1
IN
IN
OUT
4
9
12
5
3/8
5/16

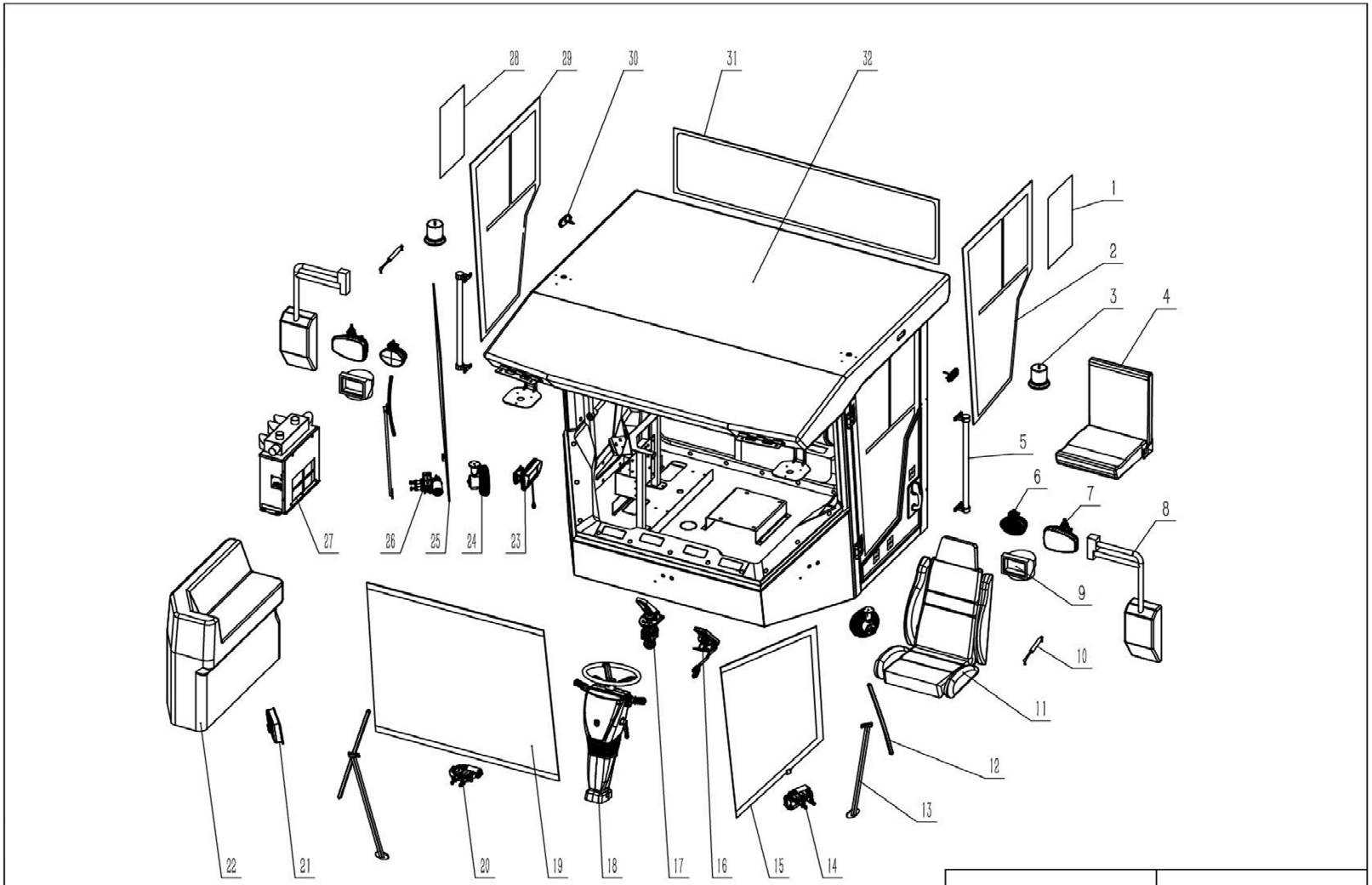
CR600S-0502000-1 takeover diagram

Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
1	A066Y351	UL2 Supply Module	1	7	Φ16-Φ16-Φ10mm	tee joint	2
2	A073D664	Coolant control valve	1	8	C2874497	Connecting valve	4
3	A073V321	pressure line	1	9	Φ16mm-L=30m	hose	1
4	A073D252	Suction line	1	10	YJH-Q15A,24	heater	1
5	A073D238	return line	1	11	LZYL-1	evaporator assembly	1
6	Φ10mm-L=20m	hose	1	12	A072S768	DEF Tank	1

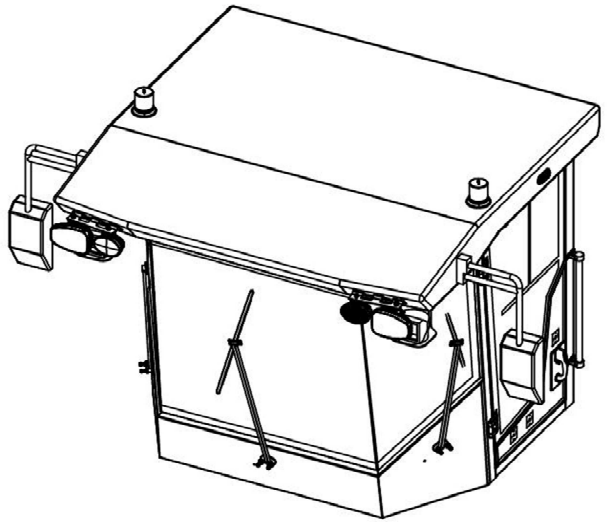

10
6,7,9
8
6,7,5
4
3
2
1
11,12,13
14
15
CR600S-0501000
CLutch assembly

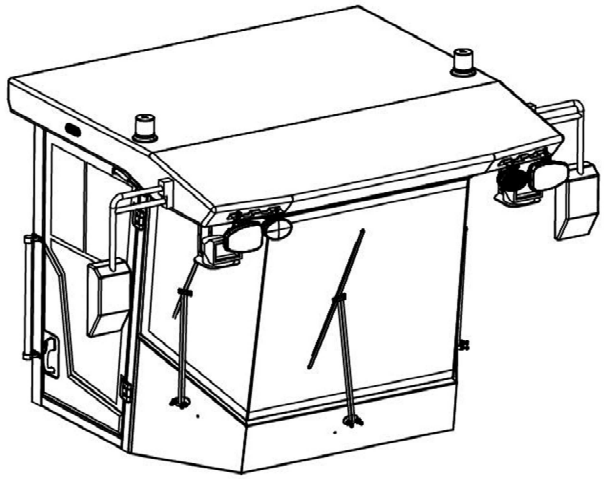
CR600S-0501000 CLutch assembly

Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
1	X15	Engine	1	9	7/16-14-UNC-2B	Bolts(L=76mm)	12
2	TM6306E/25DDUCM	Bearing	1	10	C12JSDQXL320TA	Gearbox	1
3	FEA1281133	Driven disc assembly	1	11	M8*35	nuts	4
4	FEC170011-44	Pressure plate	1	12	M8	Spring washer	4
5	7/16-14-UNC-2B	Bolts(L=69mm)	12	13	M8	Flat gasket	4
6	M12	Flat gasket	24	14	WG9725230042	Clutch booster cylinder	1
7	M12	Spring washer	24	15	125831	Separation shaft	1
8	Y150084	Transition flange	1				



K01649-1A	Cab Assembly





K01649-1A	Cab Assembly

K01649-1A Cab Assembly

Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
1	KODIAK028	Left door observation glass	1	17	351571	Accelerator Pedal	1
2	KODIAK029	Left door glass	1	18	C031-0005	Column Streeing	1
3	LTL1300	Circular Strobe	2	19	KODIAK031	Front Glass	1
4	520x420-B	Folding Seats	1	20	11195BG30I0	Front wiper motor	1
5	KODIAK036	Armrest	2	21	CR9042	Display	1
6	LML-3263	Work Lights	2	22	KODIAK017	Interior	1
7	LML-WH9102	Front combination headlights	2	23	TM70LC	Display	1
8	HY-0169	Rosco Side Mirror	2	24	KODIAK037	Small fan	2
9	BC-XK013	Beacon	2	25	KODIAK032	Right Front Glass	1

Num	Part Num.	Description	Quantity	Num	Part Num.	Description	Quantity
10	85-259-350N	Gas Spring	2	26	11195BH30I0	Right wiper motor	1
11	AZ1662511011	Seats	1	27	TY46G15AB-ZGZQ-09	Heat Exchanger	1
12	136.2265.GA.04	Wiper Blade	3	28	KODIAK033	Right door observation glass	1
13	127.3204.GA.D4	Wiper Arm	3	29	KODIAK034	Right door glass	1
14	11195BH30D0	Left wiper motor	1	30	SM7009	Side-Lamp	2
15	KODIAK030	Left Front Glass	1	31	KODIAK035	Back Glass	1
16	4613170230	Brake Pedal	1	32	K01649-1	Cab	1