陕重汽汽车产品保修卡 SHACMAN vehicle product warranty card

质量保修凭证，请妥为保存 The warranty evidence, please keep it carefully

编号 Number：SQJCK - _____

车型号 Vehicle model：	车辆识别代码 VIN：
生产日期 Date of manufacture：	发动机型号/编号： Engine model/number：
销售时间 Sales date：	销售地点 Sales site：
销售商名称（盖章） Name of dealership：	
销售商联系人 Dealership contact person： 销售商电话 Dealership telephone:	
客户姓名（单位）Customer name(company)：	
客户地址/邮编 Customer address/postal code：	
客户电话： Customer phone number：	客户签名： Customer signature：

目录 CONTENT

一、强制保养与定期保养标准

Chapter I Mandatory Maintenance and Regular Maintenance

1.1 强制保养与定期保养定义 Definition of Mandatory Maintenance and Regular Maintenance

强制保养：为消除车辆运行初期磨损下来的颗粒、毛刺等有害杂质和初期运行引起的各种联接件的松动，消除故障隐患，提高车辆使用可靠性，使车辆处于最佳工作状态，延长产品使用寿命，维护客户的经济利益和SHACMAN产品声誉，新车走合期间，在限定的行驶里程内，要求客户到SHACMAN服务站按规定项目进行维护保养的措施。

定期保养：自新车强制保养后车辆每行驶一定里程到SHACMAN服务站按照定期保养项目对车辆实施保养，定期保养的主要内容是检查、维护、消除故障隐患，减少车辆故障。

1. Definition

1.1 Mandatory Maintenance: In order to eliminate the harmful impurities such as particles and burrs worn in the initial stage of the vehicle operation and the looseness of various coupling parts caused by the initial operation, eliminate the hidden troubles, improve the reliability of the vehicle, make the vehicle be in an optimal working state, extend the service life of the product, maintain customer's economic interests and SHACMAN product reputation, during the new vehicle time, during the limited driving range (or period), the customer is required to go to the SHACMAN service station for maintenance according to the specified items.

1.2 Regular Maintenance: After the mandatory maintenance of the new truck, the vehicle will be maintained at a certain distance in the SHACMAN service station according to the regular maintenance project. The main content of regular maintenance is to inspect, maintain, eliminate hidden troubles and reduce vehicle breakdown.

1.2 强制保养与定期保养规定 Mandatory maintenance and regular maintenance regulations

强制保养规定:新车在行驶一定里程或自购车之日起运行到规定的运行时间（以先到为准），必须按照强制保养作业项目对车辆进行强制保养，具体车辆总成保养周期及用油标准见下方《陕重汽海外汽车产品保养周期及用油标准规定》，新能源电动车保养周期及用油标准见下方《新能源电动车专用保养周期及用油标准》。

定期保养规定:车辆在强制保养之后，每行驶一定里程或达到规定的运行时间（以先到为准），必须按照定期保养作业项目对车辆进行保养，具体车辆总成保养周期及用油标准见下方《陕重汽海外汽车产品保养周期及用油标准规定》，新能源电动车保养周期及用油标准见下方《新能源电动车专用保养周期及用油标准》。

2. New Vehicle Mandatory Maintenance and Regular Maintenance Mileage Regulations

2.1 Mandatory Maintenance:When the new vehicle has reached a certain mileage or the prescribed operating time since its purchase (whichever comes first), it must be maintained in accordance with the mandatory maintenance work items. For the specific vehicle assembly maintenance cycle and oil standard, see the following “Maintenance Cycle and Oil Usage Standards for Overseas Automobile Products of SHACMAN”. The maintenance cycle and oil standard of new energy electric vehicles are listed below in the “ Special Maintenance Cycle and Oil Usage Standards for New Energy Electric Vehicles”.

2.2 Regular Maintenance:After the Mandatory maintenance of the vehicle,every time the vehicle drives a certain mileage or reaches the specified running time(whichever comes first), the vehicle must be maintained in accordance with the regular maintenance operation items. The maintenance cycle of specific vehicle assemblies and the oil usage standards can be found in the “Maintenance Cycle and Oil Usage Standards for Overseas Automobile Products of SHACMAN” below. The maintenance cycle and oil usage standards for new energy electric vehicles can be found in the “Special Maintenance Cycle and Oil Usage Standards for New Energy Electric Vehicles” below.

陕重汽海外汽车产品保养周期及用油标准规定

总成		型号	介质介绍	介质牌号及标准号	用量（L）	保养周期	备注
发动机	潍柴	潍柴 WP6	柴油机机油	欧VI使用 CK-4 欧 V 使用 CJ-4 及以上 欧 IV 使用 CI-4 及以上 欧 III 使用 CH-4 及以上 欧 II 使用 CF-4 及以上 20W-50（-15-50℃） 15W-40（-20-40℃） 10W-30（-25-30℃） 5W-30（-30～30℃） 0W-30（-35～30℃）	20	欧 III： 首次保养：牵引车、载货车，5000 km/1 个月；自卸车，5000km/1 个月；专用车，5000 km/1 个月。 定期保养：牵引车、载货车，30000km/6 个月；自卸车，10000km/2 个月；专用车，30000km/6 个月。 欧 V： 首次保养：牵引车、载货车，3000-6000km/3 个月；自卸车，2000-3000km/3 个月；专用车，3000-6000km/3 个月。 定期保养：牵引车、载货车，30000km/6 个月；自卸车，10000km/2 个月；专用车，30000km/6 个月。	1.WGI 类,使用条件恶劣(气候严寒或酷热，含尘量高，短距离运输，在工地使用，以及公共汽车，市政工作车，扫雪车，消防车）或汽车年行驶里程不到 20000km 或年工作不到 600h； 2.WGII 类，年行驶里程不到 60000km，短中距离运输； 3.WGIII 类,年行驶里程超过 60000km，长距离运输。 4.推荐使用潍柴专用或壳牌、美孚、道达尔、嘉实多等国际公认品牌机油。 5.潍柴 WP8、WP10、WP10H、WP10.5H、WP12、WP13、WP13H 发动机欧四、欧五、欧六机型，牵引车、载货车在使用长效滤芯的情况下定期保养周期按对应标准执行，如使用普通滤芯，则按定期保养周期减半执行。原装滤芯是否为长效滤芯，需营销区与前方潍柴办事处对发动机订货号进行确认。 6.全驱牵引车按专用车保养周期执行。 7.车辆超负荷运行或含尘量高的非公路工况，或使用硫含量超过 50ppm 的燃油，定期保养周期减半执行。
		潍柴 WP7			20	欧 III： 首次保养：WGI 类,1000-1500km/30-50h；WGII 类、WGIII 类,1500-2000km。 定期保养：WGI 类，5000km/150h；WGII 类，10000km；WGIII 类，15000km。 欧 V、欧VI： 首次保养：牵引车、载货车，3000-6000km/3 个月；自卸车，2000-3000km/3 个月；专用车，3000-6000km/3 个月。 定期保养：牵引车、载货车，30000km/6 个月；自卸车，10000km/2 个月；专用车，30000km/6 个月。	
		潍柴 WP8			20	欧 V、欧VI： 首次保养：牵引车、载货车，3000-6000km/3 个月；自卸车，2000-3000km/3 个月；专用车，3000-6000km/3 个月。 定期保养：牵引车、载货车，60000km/6 个月；自卸车，10000km/2 个月；专用车，30000km/6 个月。	
		潍柴 WP10			24	欧 II、欧 III： 首次保养：WGI 类，1000-1500km/30-50h；WGII 类、WGIII 类,1500-2000km。 定期保养：WGI 类，5000km/150h；WGII 类，10000km；WGIII 类,15000km。 欧 V： 首次保养：牵引车、载货车，3000-6000km/3 个月；自卸车，2000-3000km/3 个月；专用车，3000-6000km/3 个月。	

发动机	潍柴		柴油机机油	欧VI使用 CK-4 欧 V 使用 CJ-4 及以上 欧 IV 使用 CI-4 及以上 欧 III 使用 CH-4 及以上 欧 II 使用 CF-4 及以上 20W-50（-15-50°C） 15W-40（-20-40°C） 10W-30（-25-30°C） 5W-30（-30～30°C） 0W-30（-35～30°C）		定期保养：牵引车、载货车，60000km/6 个月，自卸车，10000km/2 个月；专用车，30000km/6 个月。 欧VI： 首次保养：牵引车、载货车，3000-6000km/3 个月；自卸车，2000-3000km/3 个月；专用车：环卫车 3000-6000km/3 个月、水泥搅拌车、消防车：5000km/100h/3 个月、起重类（随车吊、高空作业车、桥检车）：5000km/100h/3 个月。 定期保养：牵引车、载货车，60000km/6 个月；自卸车，10000km/2 个月；专用车：环卫车 30000km/6 个月、水泥搅拌车、消防车：20000km/500h/6 个月、起重类（随车吊、高空作业车、桥检车）：3000km/500h/6 个月。	1.WGI 类,使用条件恶劣(气候严寒或酷热，含尘量高，短距离运输，在工地使用，以及公共汽车，市政工作车，扫雪车，消防车）或汽车年行驶里程不到 20000km 或年工作不到 600h; 2.WGII 类，年行驶里程不到 60000km，短中距离运输； 3.WGIII 类,年行驶里程超过 60000km，长距离运输。 4.推荐使用潍柴专用或壳牌、美孚、道达尔、嘉实多等国际公认品牌机油。 5.潍柴 WP8、WP10、WP10H、WP10.5H、WP12、WP13、WP13H 发动机欧四、欧五、欧六机型，牵引车、载货车在使用长效滤芯的情况下定期保养周期按对应标准执行，如使用普通滤芯，则按定期保养周期减半执行。原装滤芯是否为长效滤芯，需营销区与前方潍柴办事处对发动机订货号进行确认。 6.全驱牵引车按专用车保养周期执行。 7.车辆超负荷运行或含尘量高的非公路工况，或使用硫含量超过 50ppm 的燃油，定期保养周期减半执行。
		潍柴 WP10H、WP10.5H			30	欧 V、欧VI： 首次保养：牵引车、载货车，3000-6000km/3 个月；自卸车，2000-3000km/3 个月；专用车，3000-6000km/3 个月。 定期保养：牵引车、载货车，60000km/6 个月，自卸车，10000km/2 个月；专用车，30000km/6 个月。	
		潍柴 WP12、WP13			27	欧 II、欧 III： 首次保养：WGI 类,1000-1500km/30-50h；WGII 类、WGIII 类,1500-2000km。 定期保养：WGI 类,5000km/150h；WGII 类，10000km；WGIII 类,15000km。 欧 IV、欧 V、欧VI： 首次保养：牵引车、载货车，3000-6000km/3 个月；自卸车，2000-3000km/3 个月；专用车，3000-6000km/3 个月。 定期保养：牵引车、载货车，60000km/6 个月；自卸车，10000km/2 个月；专用车，30000km/6 个月。	
		潍柴 WP13H	柴油机机油	CK-4 20W-50（-10-45°C） 15W-40（-15-40°C） 10W-30（-20-30°C） 5W-30（-30～30°C） 0W-30（-35～30°C）	38	欧 V、欧VI： 首次保养：牵引车、载货车，3000-6000km/3 个月。 定期保养：牵引车、载货车，60000km/6 个月。	

发动机		潍柴 WP10NG	天然气发动机专用油	20W-50（-10-45℃） 15W-40（-15-40℃） 10W-30（-20-30℃） 5W-30（-30～30℃） 0W-30（-35～30℃）	24	首次保养：牵引车、载货车，3000-6000km/3 个月，自卸车，2000-3000km/3 个月。 定期保养：牵引车、载货车，30000km/6 个月，自卸车，10000km/2 个月。	
		潍柴 WP12NG、WP13NG			34		
	杭发	杭发 WD415	柴油机机油	欧VI使用 CK-4 欧 V 使用 CJ-4 及以上 欧 IV 使用 CI-4 及以上 欧 III 使用 CH-4 及以上 欧 II 使用 CF-4 及以上 20W-50（-15-50℃） 15W-40（-20-40℃） 10W-30（-25-30℃） 5W-30（-30～30℃） 0W-30（-35～30℃）	19	首次保养：WGI 类,1000-1500km/30-50h；WGII 类、WGIII 类,1500-2000km。 定期保养：WGI 类,5000km/150h；WGII 类，10000km；WGIII 类,15000km。	WGI 类,使用条件恶劣（气候严寒或酷热，含尘量高，短距离运输，在工地使用，以及公共汽车，市政工作车，扫雪车，消防车）或汽车年行驶里程不到 20000km 或年工作不到 600h； WGII 类，年行驶里程不到 60000km，短中距离运输； WGIII 类,年行驶里程超过 60000km，长距离运输。
		杭发 WD615			20		
		杭发 D10			28		
		杭发 D12			37		
	玉柴	玉柴 YC6J			21	首次保养：3000-5000km/60-80h。 定期保养：YC I 类，10000km/165h； YC II 类，20000km/330h。	1.YC I 类：使用条件恶劣（最低气温低于 -20℃、或最高气温高于 35℃、或环境含尘量高的沙漠、矿区、工地、煤场等），运距短的矿用车及工程车、自卸车、客车等类型的商用车；或年行驶里程≤25000km（或年工作时间≤600 小时）的商用车； 2.YC II 类：年行驶里程≥25000km 的各种用途的商用车。
		玉柴 YC6A			22		
		玉柴 YC6L			26		
		ISD		使用满足康明斯 CES 标准的 CI-4 10W-30 机油	20	首次保养：牵引车，4000-6000km；自卸车，1000-2000km。 定期保养：牵引车，平均油耗≤40L/100Km，40000km/6 个月/1000h；平均油耗＞40L/100Km，20000km/6 个月/500h。自卸车，平均油耗≤40L/100Km，16000km/6 个月/720h；平均油耗＞40L/100Km，8000km/6 个月/360h。	
		ISL			28		
		ISZ			42		
		QSB			20	偏置码头车：发动机额定功率≤194KW，500h/6 个月；发动机额定功率＞194KW，250h/6 个月。	

发动机	康明斯	康明斯 ISM 11	柴油机机油	CH-4 15W-40 CI-4 15W-40 ACEA E4 10W-40	36	首次保养：牵引车，4000-6000km；自卸车，1000-2000km。 定期保养： 使用 CH-4 15W-40 机油：牵引车、载货车，16000km/6 个月，自卸车，7000km/3 个月。 使用 CI-4 15W-40 机油：牵引车、载货车，30000km/6 个月，自卸车，15000km/6 个月。 使用 ACEA E4 10W-40 机油：牵引车、载货车，60000km/12 个月。	1.使用非推荐机油或同级别但不符合康明斯 CES 工程标准的机油，不符合国标要求的燃油、尿素、冷却液或重载、恶劣工况下，保养周期减半执行； 2.定保周期中里程数/小时数/月，以先到为准； 3.客户需每日检查机油标尺，根据机油标尺检查结果补充机油，确保发动机机油液位高于机油标尺中刻度线以上； 4.整车及设备齿轮油、空滤更换按照厂家规定标准执行； 5.燃油要求：必须使用硫含量≤50ppm 的燃油，硫含量超过 50ppm 保养周期减半执行。
		康明斯 X12 大油底壳		牵引车：使用满足康明斯 CES 标准的 CK-4 10W-30 机油 自卸车：使用满足康明斯 CES 标准的 CK-4 15W-40 机油	43	首次保养：牵引车，4000-6000km。 定期保养：牵引车，平均油耗≤40L/100Km，120000km/18 个月/2000h；40L/100Km＜平均油耗≤50L/100Km，80000km/18 个月/2000h；平均油耗＞50L/100Km，60000km/18 个月/2000h。	
		康明斯 X12 小油底壳			34	首次保养：牵引车，4000-6000km；自卸车，1000-2000km。 定期保养：牵引车，平均油耗≤40L/100Km，60000km/12 个月/1200h；40L/100Km＜平均油耗≤50L/100Km，40000km/12 个月/1200h；平均油耗＞50L/100Km，30000km/12 个月/1200h。 自卸车，平均油耗≤65L/100Km，30000km/6 个月/720h；65L/100Km＜平均油耗≤100L/100Km，20000km/6 个月/540h；平均油耗＞100L/100Km，10000km/6 个月/360h。	
		康明斯 M10 大油底壳		使用满足康明斯 CES 标准的 CK-4 10W-30、CI-4 10W-30 机油	31	首次保养：牵引车，4000-6000km；自卸车，1000-2000km。 定期保养：使用 CK-4 10W-30 机油牵引车：平均油耗≤37L/100Km，80000km/12 个月/1500h；37L/100Km＜平均油耗≤47L/100Km，40000km/12 个月/1200h；平均油耗＞47L/100Km，20000km/12 个月/900h。 使用 CI-4 10W-30 机油牵引车：平均油耗≤37L/100Km，40000km/6 个月/1000h；37L/100Km＜平均油耗≤47L/100Km，20000km/6 个月/800h；平均油耗＞47L/100Km，10000km/12 个月/600h。	
		康明斯 M10 小油底壳			23	首次保养：牵引车，4000-6000km；自卸车，1000-2000km。 定期保养：使用 CI-4 10W-30 机油牵引车：平均油耗≤37L/100Km，30000km/6 个月/1000h；37L/100Km＜平均油耗≤47L/100Km，20000km/6 个月/800h；平均油耗＞47L/100Km，10000km/6 个月/600h。 使用 CI-4 10W-30 机油自卸车、搅拌车：平均油耗≤45L/100Km，20000km/6 个月/720h；45L/100Km＜平均油耗≤65L/100Km，10000km/6个月/540h，平均油耗＞65L/100Km ,8000km/6/个月360h.	

发动机	康明斯	康明斯 M13 大油底壳	柴油机机油	使用满足康明斯 CES 标准的 CK-4 10W-30、CI-4 10W-30 机油	40	首次保养：牵引车，4000-6000km；自卸车，1000-2000km。 定期保养：使用 CK-4 10W-30 机油牵引车：平均油耗≤37L/100Km，80000km/12 个月/1500h；37L/100Km＜平均油耗≤47L/100Km，40000km/12 个月/1200h；平均油耗＞47L/100Km，20000km/12 个月/900h。 使用 CI-4 10W-30 机油牵引车：平均油耗≤37L/100Km，40000km/6 个月/1000h；37L/100Km＜平均油耗≤47L/100Km，20000km/6 个月/800h；平均油耗＞47L/100Km，10000km/12 个月/600h。	1.使用非推荐机油或同级别但不符合康明斯 CES 工程标准的机油，不符合国标要求的燃油、尿素、冷却液或重载、恶劣工况下，保养周期减半执行； 2.定保周期中里程数/小时数/月，以先到为准； 3.客户需每日检查机油标尺，根据机油标尺检查结果补充机油，确保发动机机油液位高于机油标尺中刻度线以上； 4.整车及设备齿轮油、空滤更换按照厂家规定标准执行； 5.燃油要求：必须使用硫含量≤50ppm 的燃油，硫含量超过 50ppm 保养周期减半执行。
		康明斯 M13 小油底壳			34	首次保养：牵引车，4000-6000km；自卸车，1000-2000km。 定期保养：使用 CI-4 10W-30 机油牵引车：平均油耗≤37L/100Km，30000km/6 个月/1000h；37L/100Km＜平均油耗≤47L/100Km，15000km/6 个月/800h；平均油耗＞47L/100Km，10000km/6 个月/600h。 使用 CI-4 10W-30 机油自卸车：平均油耗≤45L/100Km，20000km/6 个月/720h；45L/100Km＜平均油耗≤65L/100Km，10000km/6 个月/540h；平均油耗＞65L/100Km，8000km/6 个月/360h。	
分动箱	株齿	VG1200、ZQC800、EQC1600	齿轮油	85W-90 GL-5 (-12℃以上地区) 80W-90 GL-5 (-26℃以上地区) 75W-90 GL-5 (-40℃以上地区)	4.5	首次保养：5000km。 定期保养：严酷条件，20000km/12 个月；越野条件，30000km/12 个月；公路条件，40000km/12 个月。	严酷条件：汽车使用环境很差，每年运行约 20000km。 越野条件：汽车使用环境差，每年运行约 40000km。 公路条件：汽车使用环境好，每年运行约 60000km。
		ZQC2000			8.4		
	铁马	LF200、LF200A			8		
		8JS85T、8JS85TE-C、8JS95TE-C	齿轮油	FL-01C 80W-90 FL-01D 80W-90	6		
		8JS118			13		
		9JS119T-B/119TA/135T-B/135TA			13		
		9JS119TB/135TB/135TC、RTD11509C			12.5		
		9JS150T-B/150TA-B/165T、9JSD165T			13		
		9JSD150TA-B			13.5		

变速箱	法士特MT	9JS200T/200TA/200TC、9JSD150T-B/200T	齿轮油	FL-01C 80W-90 FL-01D 80W-90	14	FL-01C： 首次保养：公路工况、综合工况，不需要；越野工况，2000-3000km/200h；严酷工况，1000-2000km/200h。 定期保养：公路工况，120000km/12个月；综合工况，60000km/12个月；越野工况，30000km/1000h/12个月；严酷工况，10000km/500h/12个月。 FL-01D -26-40℃（常规地区）： 首次保养：公路工况、综合工况，不需要；越野工况，2000-3000km/200h；严酷工况，1000-2000km/200h。 定期保养：公路工况，200000km/12个月；综合工况，100000km/12个月；越野工况，60000km/1000h/12个月；严酷工况，20000km/500h/12个月。 FL-01D >40℃（高热地区）： 首次保养：公路工况、综合工况，3000-5000km/200h；越野工况，1000-2000km/200h。 定期保养：公路工况，60000km/12个月；综合工况，30000km/2000h/12个月；越野工况，20000km/500h。	配装取力器的变速箱，前取力多加1L，后取力多加1～1.5L，底取力多加3～3.5L。带油冷器冷却装置的变速箱，需多加注1L。匹配QHG50C取力器的变速箱需多加0.5L. 1.油品更换周期中公里数和时间按先到先执行原则。 2.公路工况指满足以下多个条件的环境:车辆不超载且运行在良好铺装路面上、平均车速大于50km/h、长途运输(运距500～1000km，每年行驶里程超100，000km)、常用车速80km/h,极少停车(每次停车距离大于50km)等。如高速物流牵引车辆(常见的如6X4，6X2，4X2等)，厢式载货车等。 3.越野工况指具有以下一个或多个条件的环境:山区、恶劣路面，超载(车货总重≥50吨)、低速(平均车速≤50km/h)、经常停车(每次停车距离小于50km)、长时间停车工作(每次停车时间大于2小时)、短途运输（运距低于100km)等。如长时间越野工况运行的牵引车、载货车或者搅拌车，起重机等特种作业车。 4、严酷工况是指具有以下一个或多个条件的环境:连续在满载或者接近满载条件下运行、潮湿或者有灰尘的环境、连续在大于8%的坡度工作、极低速(平均车速≤20km/h)，如矿用车、渣土车等。 5.综合工况是指车辆不超载且介于公路工况和越野工况之间，具有以下一个或者多个条件的环境：区域运输(运距100-500km)，常用车速50 km/h, 路面一般或者粗糙。如载货车等。 6.车辆启动时变速箱池底壳的温度必须高于列表中油品所对应的最低温。 7.同级别其他品牌油品，按定期保养周期减半执行（法士特MT变速箱按FL-01C定期保养周期减半执行）。
		9JSD200TA、9JSS220T			14.5		
		10JSD120T/140T/160T/180T/200T/220T			12-15		
		10JSD120TA/140TA/160TA/180TA/200TA/220TA			12-15		
		10JSD120TB/140TB/160TAB/180TB/200TB/220TB			12-15		
		10JSD160T、10JSD180T			14		
		12JS160T、12JSD160T			14.5/15		
		12JS160TA、12JSD160TA			14.5/15		
		12JS180T/200T/240T			15/15.5		
		12JSD180T/200T/240T			15/15.5		
		12JS180TA/200TA/240TA			15/15.5		
		12JSD180TA/200TA/240TA			15/15.5		
		12JSDX220TA-B/220T-B/240K			16		
		12JSDX240T、12JSDX240TA			16.5		
		16JS180T/180TA/200T/200TA/240T/240TA			15		
		16JSD150T/180T、16JS200T/240T			15.5		
		16JSD150TA/180TA、16JS200TA/240TA			15.5		
		16JSDX240T、16JSDX240TA			16		
		6DZS180、10JZSD120			14.5		
		10JZSD160、10JZSD160A			15		
		12JZSD160、12JZSD160A			15.5		

变速箱	法士特 AMT	12JZSD200/200A/220/220A	齿轮油	变速箱输入扭矩≤2400Nm：FL-01E 75W-80 变速箱输入扭矩>2400Nm：FL-01F 75W-90	16	FL-01E、FL-01F： 首次保养：公路工况、综合工况，不需要；越野工况，2000-3000km/200h；严酷工况，1000-2000km/200h。 定期保养：公路工况，300000km/24 个月；综合工况，150000km/24 个月；越野工况，60000km/2000h/12 个月；严酷工况，30000km/1000h/12 个月。	
		12JZSDX240、12JZSDX240A			16		
		16JZSD200/200A/220/220A			16		
		16JZSDX240、16JZSDX240A			16		
		C16JZSDQXL220/250A/260			15.5		
		AMT 12 档			15		
		AMT 12 档，带缓速器			17		
		AMT 13 档、16 档			16		
		AMT 13 档、16 档，带缓速器			18		
	艾里逊	ALLSON MD3560 自动变速箱	齿轮油	TRANSYND TM DEXRON—III	25	不定期对油液检查，根据显示器提示进行保养： ①在驾驶员选择前进档之后，扳手标志点亮并持续两分钟时，则变速箱的油液需要更换。 ②在驾驶员选择前进档之后，扳手标志闪烁并持续两分钟时，则变速箱的滤芯需要更换。）	
		ALLSON 4430		TRANSYND 艾里逊变速箱专用油	45		
	采埃孚	ZF AMT 12 档	齿轮油	首次保养用油：ZF-Ecofluid M 02E/02V 定期保养用油：ZF-Ecofluid M 02E/02L/02V	13.5	ZF-Ecofluid M 02L/02V：长途运输，360000km/24 个月；短途、配送运输，240000km/24 个月；非公路作业，100000km/5000h/12 个月。 ZF-Ecofluid M 02E：长途运输，540000km/36 个月；短途、配送运输，360000km/36 个月；非公路作业，200000km/10000h/24 个月。	长途运输，平均速度 60km/h 以上。 短途、配送运输，重型作业，平均速度 20-60km/h。 非公路作业，例如：矿用，平均速度达 20km/h。
		ZF AMT 12 档，带缓速器			23		
		ZF AMT 16 档			15		
		ZF AMT 16 档，带缓速器			25		
	伊顿	伊顿 MT 13 档变速箱 ETO-20013	齿轮油	符合伊顿 PS-386 标准的合成润滑油	14	首次保养：2000-5000km。 定期保养：公路使用条件，100000km/一年；越野使用条件，1000h；严酷使用条件，500h。	如变速箱有机油冷却器应在发动机运转之后再增加 1.5 升左右的润滑油。 80,000-100,000km 取润滑油样品检查，抽取方法：用注射器从变速箱中部抽取适量油品，取样需在变速箱处于工作温度的情况下进行。
		伊顿 AMT 变速箱 FO-16E308LL 不带底取力			13	高速公路工况，500000km/60 个月；非公路工况，180000km/24 个月。无需首保换油。	
		伊顿 AMT 变速箱 FO-16E308LL 带底取力			14		
	赢动	赢动 AMT 变速箱 EHDM-26N112C	齿轮油	巴斯夫-MTF 7000	7.5-8.5	600000km/60 个月。	用量依据变速箱安装角度变化。

车桥	HDS 300 双级减速桥	第一前驱 主减速器	润滑油	HD-R04 专用润滑油 85W-90 (-12℃以上地区) 80W-90 (-26℃以上地区) 75W-90 (-40℃以上地区)	6	普通轮毂： 定期保养：牵引车、载货车，120000km/12 个月； 专用车、自卸车，30000km/12 个月。 免维护轮毂： 装配轮毂轴承单元结构，免维护。	放净车桥原齿轮油，定量加注，目测可观察到润滑油液面或手指伸进油堵孔可触摸到润滑油。 1.如使用非 HD-R04 专用润滑油，建议使用国际知名品牌油品，保养周期按标准减半执行。 2.车辆在使用环境恶劣、超载运行等情况下，保养周期按标准减半执行，如在此基础上使用非 HD-R04 专用润滑油，保养周期再减半（即原标准的四分之一）。 3.保养周期中里程与时间以先到为准。
		第二前驱 主减速器			8.3		
		前驱 轮边减速器			1(每边)		
		中桥主减速器			11		
		后桥主减速器			7		
		中后桥轮边减速器			2.5(每边)		
	HDZ 237 双级减速桥	第一前驱 主减速器			6		
		第二前驱 主减速器			7.5		
		前驱 轮边减速器			1.5〔每边〕		
		主销部位			4*16ml(每个)		
	HDM 300 双级减速桥	中桥主减速器			16		
		后桥主减速器			13		
		中后桥轮边减速器			3.5〔每边〕		
	HDZ 300 双级减速桥	中桥主减速器			13.5		
		后桥主减速器			12		
		中后桥轮边减速器			3.5〔每边〕		
	HD 425/ HDZ 469 单级减速桥	中桥主减速器			14		
		后桥主减速器			11.5		
		普通轮毂			1.1〔每边〕		
		轮毂轴承单元			免维护		
	HDM 485 单级减速桥	主减速器			14.3		
		普通轮毂			1.1〔每边〕		
		轮毂轴承单元			免维护		

车桥	HDZ 440 单级减速桥	中桥主减速器	润滑油	HD-R04 专用润滑油 85W-90 (-12℃以上地区) 80W-90 (-26℃以上地区) 75W-90 (-40℃以上地区)	15	普通轮毂： 定期保养：牵引车、载货车，120000km/12 个月； 专用车、自卸车，30000km/12 个月。 免维护轮毂： 装配轮毂轴承单元结构，免维护。	放净车桥原齿轮油，定量加注，目测可观察到润滑油液面或手指伸进油堵孔可触摸到润滑油。 1.如使用非 HD-R04 专用润滑油，建议使用国际知名品牌油品，保养周期按标准减半执行。 2.车辆在使用环境恶劣、超载运行等情况下，保养周期按标准减半执行，如在此基础上使用非 HD-R04 专用润滑油，保养周期再减半（即原标准的四分之一）。 3.保养周期中里程与时间以先到为准。
		后桥主减速器			13.5		
		轮毂轴承单元			免维护		
	HDZ 390 单级减速桥	中桥主减速器			8.8		
		后桥主减速器			8.4		
		轮毂轴承单元			免维护		
	HDZ 386 单级减速桥	主减速器			10		
		轮毂轴承单元			免维护		
前轴	HDZ 4.8T 转向前轴	普通轮毂	HD-R01 复合锂基润滑脂		外轴承 35-45g, 内轴承 55-65g (每边)	普通轮毂： 定期保养：牵引车、载货车，120000km/12 个月； 专用车、自卸车，30000km/12 个月。 免维护轮毂： 装配轮毂轴承单元结构，免维护。	1.如果用注脂机加注，定量加注； 2.如果用手涂抹，在轴承保持架与滚珠之间，在滚珠、滚道上充分、均匀涂抹润滑脂。 3.如使用非 HD-R01 复合锂基润滑脂，建议使用国际知名品牌润滑脂，保养周期按标准减半执行。 4.车辆在使用环境恶劣、超载运行等情况下，保养周期按标准减半执行，如在此基础上使用非 HD-R01 复合锂基润滑脂，保养周期再减半（即原标准的四分之一）。 5.保养周期中里程与时间以先到为准。
		轮毂轴承单元			免维护		
	HDZ 5.5T 转向前轴	普通轮毂			外轴承 45-55g, 内轴承 75-95g (每边)		
		轮毂轴承单元			免维护		
	HDM 7.5T 转向前轴	轮毂处			外轴承 55-65g, 内轴承 75-85g (每边)		
	HDS 6.5/8T 转向前轴				外轴承 55-65g, 内轴承 135-160g (每边)		
	HDZ 9.5T 转向前轴				外轴承 55-65g, 内轴承 85-105g (每边)		

支撑轴	HDZ 11T 可提升支撑轴	普通轮毂轴承	润滑油	HD-R04 专用润滑油 85W-90 (-12℃以上地区) 80W-90 (-26℃以上地区) 75W-90 (-40℃以上地区)	0.7（每边）		
		轮毂轴承单元			免维护		
	平衡轴支座				1.6（每边）		
	整桥油脂嘴处			2#极压锂基脂	注满		用黄油枪加注，润滑充分，润滑脂从结合面部位溢出。
缓速器	FH400B		SL 级别以上汽油机机油	通用：10W-40 寒区：0W-40	9	公路用车，100000km/12 个月； 非公路用车，70000km/12 个月。	
	FHB320B/360				6		
	FHB400				6.5		
	福伊特缓速器 VR115CN		福伊特液力缓速器专用油		6.6	换油间隔 60000km。	
	福伊特缓速器 VR116CT				6.4		
转向助力储油器	单前轴		转向液压油	冬季：HS-32 夏季：HV-32	3.6	牵引车、载货车、专用车，60000km/12 个月； 自卸车 30000km/12 个月。	
	双前轴				5.4		
驾驶室翻转装置	X6000		液压油	10#航空（地面用） 液压油 Q/SY YM 0024-2000	1.25（首次加注） 0.9（日常维护）	1.无漏油，驾驶室可正常翻转时，无需更换液压油； 2.仅在因液压油不足导致无法翻转时按需补充。	
	X3000,X5000				0.8（首次加注） 0.45（日常维护）		
	H3000、H3000S(燃油)				0.6（首次加注） 0.3（日常维护）		
	H3000、H3000S(天然气)				0.8（首次加注） 0.45（日常维护）		
	F3000(手动翻转)				0.55（首次加注） 0.3（日常维护）		
	F3000(电动翻转)				0.65（首次加注） 0.3（日常维护）		
	L3000,L5000				0.95（首次加注） 0.5（日常维护）		

离合器液压操纵	制动液	赛福特 909/DoT3	0.6	定期补加，最多两年更换一次。	
冷却系	冷却液	优先选用—35 号（也可选用陕汽指定品牌的其他牌号冷却液）	40	定期补加，最多两年更换一次。	具体根据实车情况加注，参考膨胀箱液位线。
特别注意： 1.此表中用油量为理论值，保养周期的公里数和时间以先到为准。 2.发动机保养更换机油量以油面位于发动机机油尺刻度线高油位线、低油位线之间为准；变速箱、分动箱保养换油以油面与观察口平齐为准，油面注至观察口处出现溢出即可。					

新能源电动车专用保养周期及用油标准

总成	型号	介质介绍	介质牌号及标准号	用量（L）	保养周期	备注
变速箱	法士特 AMT 6E95	齿轮油	壳法I 80W-90 GL-5 重负荷齿轮油	10	首次保养：5000km。 定期保养：I类，不推荐使用； II类，60000km/12 个月； III类，120000km/12 个月。	1.装配取力器增加 0.5L。 2.I类：使用条件恶劣(气候严寒或酷热，含尘量高，短距离运输，越野使用)或汽车年行驶里程不到 2 万公里。 II类：短、中距离运输，年行驶里程不到 6 万公里。 III类：远距离运输，年行驶里程超过 6 万公里。 3.同级别其他牌号油品，按定期保养周期减半执行。
	法士特 AMT 6E150			13		
	法士特 AMT 6E240			13.5		
	法士特 AMT 7 档			22		
	法士特 AMT 12 档			16		
	特百佳 AMT 4 挡		80W-90 GL-5	15	首次保养：5000km。 定期保养：公路车，60000km/6 个月；自卸车、专用车，20000km/6 个月。	
	伊顿 AMT 10 档		科宁合成润滑油 EAGAND2 979SAE 50	14.2	首次保养：5000km。 定期保养：高速公路工况，500000km/60 个月；非公路工况，180000km/24 个月。	加到和加油口螺堵观察孔平齐的位置。
	绿控 J4S-100		75W-90 GL-5	5	首次保养：5000km。 定期保养：公路车，50000km/24 个月；非公路工况，30000km/12 个月。	
	绿控 J4S-100 带取力器			6		
	绿控 J4S-240			7.8		
	绿控 J4S-240 带取力器			8.5		
电动空压机		润滑油	CH-4	2	首次保养：5000km。 定期保养：60000 公里/3 个月	以先到为准。
MAN 双级桥中桥	主减速器	GL-5 重负荷车辆齿轮油	85W-90 适用温度-12℃以上 80W-90 适用温度-26℃以上 75W-90 适用温度-40℃以上	13.5	定期保养： 自卸车/专用车/复合版、加强版牵引及载货车 30000km/12 个月；轻量化牵引车及载货车，60000km 或 12 个月。	1.上述加油量为参考值，加油量油面液位与加油口平齐。 2.单级减速桥轮边加油时，将加油口旋至水平方向上 30°，润滑油流出为止。 3.换油周期中里程或时间以先到为准。 4.允许高品质润滑油代替低品质润滑油；不同品质润滑油严禁混用。
	轮边减速器			3.5（每边）		
MAN 双级桥后桥	主减速器			12		
	轮边减速器			3.5（每边）		

后悬架系统	整体式平衡轴总成	齿轮油	85W-90 适用温度-12℃以上 75W-90 适用温度-40℃以上 85W-140 特殊要求车辆使用	1.6（每边）	首次保养：I类、II类，4000km，III类，5000km。 定期保养：I类、II类，1000km，III类，10000km。	平衡轴两端。
	脂润滑式平衡轴总成	润滑脂	3#锂基润滑脂-夏季 2#锂基润滑脂-冬季	0.5kg		
悬架系统	板簧销、减振器下支架	润滑脂	3#锂基润滑脂-夏季 2#锂基润滑脂-冬季	按需	首次保养：I类、II类，4000km，III类，5000km。 定期保养：每月。	正常溢出即可。
驾驶室翻转油泵		液压油	常规区域：HV-32 寒区：10#航空液压油	0.7	1.无漏油，驾驶室可正常翻转时，无需更换液压油； 2.仅在因液压油不足导致无法翻转时按需补充。	
转向系统	单前轴	液压油	HV-32	3.8	首次保养：5000km。 定期保养：公路工况，60000km/12个月；非公路工况，30000km/12个月。	以先到为准。
	双前轴			5.7		
空调		空调制冷剂	R134a	650g~800g	根据制冷效果进行补加。	M3000/L3000平台：650g； X3000/X5000/L6000平台：750g； X6000/H6000平台：800g。
换电车型电池冷却系统	618.24V/281.91kWh 换电电池系统总成（轻量化版框架）	冷却液	常规区域-35号 寒区使用-45号	15L±3%	最多2年更换一次。	膨胀箱 MIN 和 MAX 刻度线之间。 冷却液不能混加。
	换电式电池系统总成/618.24V/281.91kWh（匹配长寿命电池）			48L±3%		
	579.6V/350.07kWh换电式电池系统总成（轻量化版）			18L±3%		
	618.24V/281.91kWh换电式电池系统总成			48L±3%		
	换电系统/LFP/460Ah/618.24V/284.39kwh/JHQC/分离/含热管理机组/6K/（2/2C）/H驾驶室			30L±3%		

充电车型电池冷却系统	宁德时代 210kwh 动力电池	冷却液	常规区域-35 号 寒区使用-45 号	12±0.6L	最多 2 年更换一次。	膨胀箱 MIN 和 MAX 刻度线之间。 冷却液不能混加。
	宁德时代 242kwh 动力电池			13.7±0.42L		
	宁德时代 282kwh 动力电池			48.5±2.5L		
	宁德时代 350kwh 动力电池			52.6±2.6L		
	宁德时代 422kwh 动力电池			55.4±2.7L		
	亿纬锂能 282kwh 动力电池			32.5±1.6L		
	亿纬锂能 350kwh 动力电池			38.1±1.9L		
	亿纬锂能 422kwh 动力电池			46.4±2.3L		
电机冷却系统	TZ380XS010	冷却液	常规区域-35 号 寒区使用-45 号	21.5±0.6L	最多 2 年更换一次。	膨胀箱 MIN 和 MAX 刻度线之间。 冷却液不能混加。
	TZ400XS033			18.2±0.5L		
	TZ400XS023			18.2±0.5L		
L 平台电机冷却系统	绿控 160 驾驶室固定膨胀箱	冷却液	常规区域-35 号 寒区使用-45 号	19.8±1L	最多 2 年更换一次。	膨胀箱 MIN 和 MAX 刻度线之间。 冷却液不能混加。
	电驱桥 200 驾驶室固定膨胀箱			20.5±1L		
	电驱桥 200 电池框架后背膨胀箱			25±1.3L		
	智德 410 驾驶室固定膨胀箱			18.2±1.2L		
	智德 410 驾驶室后围固定膨胀箱			14.7±0.9L		
特别注意：此表中用油量为理论值，保养周期以先到为准。						

Maintenance Cycle and Oil Usage Standards for Overseas Automobile Products of SHACMAN

Assembly		Model	Medium introduce	Medium grade and standard number	Dosage（L）	Maintenance cycle	Comment
Engine	Wei Chai	Wei Chai WP6	Diesel engine oil	Euro VI uses CK-4 Euro V uses CJ-4 and above Euro IV uses CI-4 and above Euro III uses CH-4 and above Euro II uses CF-4 and above 20W-50（-15-50℃） 15W-40（-20-40℃） 10W-30（-25-30℃） 5W-30（-30～30℃） 0W-30（-35～30℃）	20	Euro III: Mandatory maintenance: Tractor,Cargo truck, 5000 Km/1 month; Dumper truck, 5000 Km/1 month; Special vehicle, 5000 Km/1 month. Regular maintenance: Tractor, Cargo truck, 30000 Km/6 months; Dumper truck, 10000 Km/2 months; Special vehicle, 30000 Km/6 months. Euro V: Mandatory maintenance: Tractor, Cargo truck, 3000-6000 Km/3 months; Dumper truck, 2000-3000 Km/3 months; Special vehicle, 3000-6000 Km/3 months. Regular maintenance: Tractor,Cargo truck, 30000 Km/6 months; Dumper truck, 10000 Km/2 months; Special vehicle, 30000 Km/6 months.	1.WGI, Working under severe conditions (extremely cold or hot; dusty; short distance transport; using in construction site; and city buses, municipal engineering vehicles, snow sweeper vehicles or fire trucks) or annual mileage is less than 20000 Km or annual working hours is less than 600h. 2.WGII, Annual mileage is less than 60000 Km; short and medium distance transport. 3.WGIII, Annual mileage is more than 60,000 Km; long distance transport. 4.Recommended Wei Chai special or Shell, Mobil, Total, Castrol and other internationally recognized gear oil. 5.Wei Chai WP8, WP10, WP10H, WP10.5H, WP12, WP13, WP13H engine Euro IV, Euro V, Euro VI series, Tractor and Cargo truck in the case of the use of long-term filter, the regular maintenance cycle is implemented according to the corresponding standard, if use ordinary filter, the regular maintenance cycle is implemented by half. Whether the original filter element is a long-term filter element needs to be confirmed the engine order number by the marketing area and the Wei Chai office . 6.The all-drive tractor is carried out according to the special vehicle maintenance cycle. 7.Vehicle overload operation or high dust content of working condition of the highway, or use the fuel sulfur content of 50 PPM or more, Regular maintenance cycle by half.
		Wei Chai WP7			20	Euro III: Mandatory maintenance: WGI, 1000-1500 Km/30-50 hours; WGII, WGIII, 1500-2000 Km. Regular maintenance: WGI, 5000 Km/150 hours; WGII, 10000 Km; WGIII, 15000 Km. Euro V,Euro VI: Mandatory maintenance: Tractor, Cargo truck, 3000-6000 Km/3 months; Dumper truck, 2000-3000 Km/3 months; Special vehicle, 3000-6000 Km/3 months. Regular maintenance: Tractor, Cargo truck, 30000 Km/6 months; Dumper truck,10000 Km/2 months; Special vehicle, 30000 Km/6 months.	
		Wei Chai WP8			20	Euro V, Euro VI: Mandatory maintenance: Tractor, Cargo truck, 3000-6000 Km/3 months; Dumper truck, 2000-3000 Km/3 months; Special vehicle, 3000-6000 Km/3 months. Regular maintenance: Tractor, Cargo truck, 60000 Km/6 months; Dumper truck, 10000 Km/2 months; Specialvehicle, 30000 Km/6 months.	

Engine	Wei Chai	Wei Chai WP10	Diesel engine oil	Euro VI uses CK-4 Euro V uses CJ-4 and above Euro IV uses CI-4 and above Euro III uses CH-4 and above Euro II uses CF-4 and above 20W-50（-15-50℃） 15W-40（-20-40℃） 10W-30（-25-30℃） 5W-30（-30～30℃） 0W-30（-35～30℃）	24	Euro II, Euro III: Mandatory maintenance: WGI, 1000-1500 Km/30-50 hours; WGII, WGIII, 1500-2000 Km. Regular maintenance: WGI, 5000 Km/150 hours; WGII, 10000 Km; WGIII, 15000 Km. Euro V: Mandatory maintenance: Tractor, Cargo truck, 3000-6000 Km/3 months; Dumper truck, 2000-3000 Km/3 months; Special vehicle, 3000-6000 Km/3 months. Regular maintenance: Tractor, Cargo truck, 60000 Km/6 months, Dumper truck, 10000 Km/2 months; Special vehicle, 30000 Km/6 months. EuroVI: Mandatory maintenance: Tractor, Cargo truck, 3000-6000 Km/3 months; Dumper truck, 2000-3000 Km/3 months; Special vehicle: Sanitation truck, 3000-6000 Km/3 months; Cement mixer, Fire truck, 5000 Km/100 hours/3 months; Crane class (Crane truck, High-altitude working truck, Bridge inspection truck) : 5000 Km/100 hours/3 months. Regular maintenance: Tractor, Cargo truck, 60000 Km/6 months; Dumper truck, 10000 Km/2 months; Special vehicle: Sanitation truck, 30000 Km/6 months; Cement mixer, Fire truck, 20000 Km/500 hours/6 months; Crane class (Crane truck, High-altitude working truck, Bridge inspection truck) : 3000 Km/500 hours/6 months.	1.WGI, Working under severe conditions (extremely cold or hot; dusty; short distance transport; using in construction site; and city buses, municipal engineering vehicles, snow sweeper vehicles or fire trucks) or annual mileage is less than 20000 Km or annual working hours is less than 600h. 2.WGII, Annual mileage is less than 60000 Km; short and medium distance transport. 3.WGIII, Annual mileage is more than 60,000 Km; long distance transport. 4.Recommended Wei Chai special or Shell, Mobil, Total, Castrol and other internationally recognized gear oil. 5.Wei Chai WP8, WP10, WP10H, WP10.5H, WP12, WP13, WP13H engine Euro IV, Euro V, Euro VI series, Tractor and Cargo truck in the case of the use of long-term filter, the regular maintenance cycle is implemented according to the corresponding standard, if use ordinary filter, the regular maintenance cycle is implemented by half. Whether the original filter element is a long-term filter element needs to be confirmed the engine order number by the marketing area and the Wei Chai office . 6.The all-drive tractor is carried out according to the special vehicle maintenance cycle. 7.Vehicle overload operation or high dust content of working condition of the highway, or use the fuel sulfur content of 50 PPM or more, Regular maintenance cycle by half.
		WP10H、WP10.5H			30	Euro V、EuroVI: Mandatory maintenance: Tractor, Cargo truck, 3000-6000 Km/3 months; Dumper truck, 2000-3000 Km/3 months; Special vehicle, 3000-6000 Km/3 months. Regular maintenance: Tractor, Cargo truck, 60000 Km/6 months, Dumper truck, 10000 Km/2 months; Special vehicle, 30000 Km/6 months.	
		Wei Chai WP12, WP13			27	Euro II, Euro III: Mandatory maintenance: WGI, 1000-1500 Km/30-50 hours; WGII, WGIII, 1500-2000 Km. Regular maintenance: WGI, 5000 Km/150 hours; WGII,	

Engine						10000 Km; WGIII, 15000 Km. Euro IV, Euro V, Euro VI: Mandatory maintenance: Tractor, Cargo truck, 3000-6000 Km/3 months; Dumper truck, 2000-3000 Km/3 months; Special vehicle, 3000-6000 Km/3 months. Regular maintenance: Tractor, Cargo truck, 60000 Km/6 months; Dumper truck, 10000 Km/2 months; Special vehicle, 30000 Km/6 months.	
		Wei Chai WP13H	Diesel engine oil	CK-4 20W-50（-10-45℃） 15W-40（-15-40℃） 10W-30（-20-30℃） 5W-30（-30～30℃） 0W-30（-35～30℃）	38	Euro V, Euro VI: Mandatory maintenance: Tractor, Cargo truck, 3000-6000 Km/3 months. Regular maintenance: Tractor, Cargo truck, 60000 Km/6 months.	
		Wei Chai WP 10 NG	Special oil for natural gas engine	20W-50（-10-45℃） 15W-40（-15-40℃） 10W-30（-20-30℃） 5W-30（-30～30℃） 0W-30（-35～30℃）	24	Mandatory maintenance: Tractor, Cargo truck, 3000-6000 Km/3 months; Dumper truck, 2000-3000 Km/3 months. Regular maintenance: Tractor, Cargo truck, 30000 Km/6 months; Dumper truck, 10000 Km/2 months.	
		Wei Chai WP 12 NG, WP13NG			34		
	Hang zhou Engine	Hang Zhou Engine WD415		Euro VI uses CK-4 Euro V uses CJ-4 and above Euro IV uses CI-4 and above Euro III uses CH-4 and above Euro II uses CF-4 and above 20W-50（-15-50℃） 15W-40（-20-40℃） 10W-30（-25-30℃） 5W-30（-30～30℃） 0W-30（-35～30℃）	19	Mandatory maintenance: WGI, 1000-1500 Km/30-50 hours; WGII, WGIII, 1500-2000 Km. Regular maintenance: WGI, 5000 Km/150 hours; WGII, 10000 Km; WGIII, 15000 Km.	1.WGI, Working under severe conditions (extremely cold or hot; dusty; short distance transport; using in construction site; and city buses, municipal engineering vehicles, snow sweeper vehicles or fire trucks) or annual mileage is less than 20000 Km or annual working hours is less than 600h. 2.WGII, Annual mileage is less than 60000 Km; short and medium distance transport. 3.WGIII, Annual mileage is more than 60,000 Km; long distance transport..
		Hang Zhou Engine WD615			20		
		Hang Zhou Engine D10			28		
		Hang Zhou Engine D12			37		
	Yu Chai	Yu Chai YC6J			21	Mandatory maintenance: 3000-5000 Km/60-80 hours. Regular maintenance: YC I, 10000 Km/165 hours; YC II, 20000 Km/330 hours.	1.YC I: Mineral vehicles, construction trucks, dump trucks, buses and other commercial vehicles with short haul-distances under severe service conditions and mining engines

Engine		Yu Chai YC6A	Diesel engine oil		22		(minimum temperature lower than -20°C or maximum temperature higher than -35°C or deserts, mining areas, construction sites and coal fields in environments with high dust content); Or commercial vehicles with the annual traveling mileage (And mining engines) less than 25000Km (or number of annual working hours less than 600). 2.YC II: Commercial vehicles of various purposes with the annual traveling mileage (And mining engines) more than 25000 Km (or number of annual working hours more than 600).
		Yu Chai YC6L			26		
		ISD		Use CI-4 10W-30 oil that meets Cummins CES standards	20	Mandatory maintenance: Tractor, 4000-6000 Km; Dumper truck, 1000-2000 Km. Regular maintenance: Tractor, Average fuel consumption ≤ 40 L/100 Km, 40000 Km/6 months/1000 hours; Average fuel consumption > 40 L/100 Km, 20000 Km/6 months/500 hours; Dumper truck, Average fuel consumption≤40 L/100 Km, 16000 Km/6 months/720 hours; Average fuel consumption > 40 L/100 Km, 8000 Km/6 months/360 hours.	
		ISL			28		
		ISZ			42		
		QSB			20	Side-cab port tractor: Engine power rating≤194 KW, 500 hours/6 months; Engine power rating > 194KW, 250 hours/6 months.	
		Cummins ISM 11		CH-4 15W-40 CI-4 15W-40 ACEA E4 10W-40	36	Mandatory maintenance: Tractor, 4000-6000 Km; Dumper truck, 1000-2000 Km. Regular maintenance: Uses CH-4 15W-40 Engine oil: Tractor, Cargo truck, 16000 Km/6 months, Dumper truck, 7000 Km/3 months. Uses CI-4 15W-40 Engine oil: Tractor, Cargo truck, 30000 Km/6 months, Dumper truck, 15000 Km/6 months. Uses ACEA E4 10W-40 Engine oil: Tractor, Cargo truck, 60000 Km/12 months.	

Engine	Cummins	Cummins X12 Large oil pan	Diesel engine oil	Tractor: Use CK-4 10W-30 oil that meets Cummins CES standards. Dumper truck: Use CK-4 15W-40 oil that meets Cummins CES standards.	43	Mandatory maintenance: Tractor, 4000-6000 Km. Regular maintenance: Tractor, Average fuel consumption≤40 L/100 Km, 120000 Km/18 months/2000 hours; 40 L/100 Km < Average fuel consumption≤50 L/100 Km, 80000 Km/18 months/2000 hours; Average fuel consumption > 50 L/100 Km, 60000 Km/18 months/2000 hours.	1.The engine oil that are not recommended to use or the same level but does not meet the Cummins CES standards, The fuel,urea and coolant that does not meet the requirements of national standards, or heavy load conditions, the regular maintenance cycle halved implementation. 2.Km/hour/month in the warranty period, whichever comes first. 3.The customer needs to check the engine oil scale every day, and replenish the oil according to the oil scale inspection results to ensure that the engine oil level is higher than the scale line in the oil scale. 4.Vehicle and equipment Gear oil, air filter replacement in accordance with the manufacturer's standards. 5.Fuel oil requirement: Fuel with sulfur content must less than 50 PPM, Sulfur content more than 50 PPM maintenance cycle is halved.
		Cummins X12 Small oil pan			34	Mandatory maintenance: Tractor, 4000-6000 Km; Dumper truck, 1000-2000 Km. Regular maintenance: Tractor, Average fuel consumption≤40 L/100 Km, 60000 Km/12 months/1200 hours; 40 L/100 Km < Average fuel consumption≤50 L/100 Km, 40000 Km/12 months/1200 hours; Average fuel consumption > 50 L/100 Km, 30000 Km/12 months/1200 hours. Dumper truck, Average fuel consumption≤65 L/100 Km, 30000 Km/6 months/720 hours; 65 L/100 Km < Average fuel consumption≤100 L/100 Km, 20000 Km/6 months/540 hours; Average fuel consumption > 100 L/100 Km, 10000 Km/6 months/360 hours.	
		Cummins M10 Large oil pan		Use CK-4 10W-30 or CI-4 10W-30 oil that meets Cummins CES standards.	31	Mandatory maintenance: Tractor, 4000-6000 Km; Dumper truck, 1000-2000 Km. Regular maintenance: Tractor uses CK-4 10W-30 Engine oil: Average fuel consumption≤37 L/100 Km, 80000 Km/12 months/1500 hours; 37 L/100 Km < Average fuel consumption≤47 L/100 Km, 40000 Km/12 months/1200 hours; Average fuel consumption > 47 L/100 Km, 20000 Km/12 months/900 hours. Tractor uses CI-4 10W-30 Engine oil: Average fuel consumption≤37 L/100 Km, 40000 Km/6 months/1000 hours; 37 L/100 Km < Average fuel consumption≤47 L/100 Km, 20000 Km/6 months/800 hours; Average fuel consumption > 47 L/100 Km, 10000 Km/12 months/600 hours.	
		Cummins M10 Small oil pan			23	Mandatory maintenance: Tractor, 4000-6000 Km; Dumper truck, 1000-2000 Km. Regular maintenance: Tractor uses CI-4 10W-30 Engine oil:	

Engine	Cummins		Diesel engine oil	Use CK-4 10W-30 or CI-4 10W-30 oil that meets Cummins CES standards.		Average fuel consumption≤37 L/100 Km, 30000 Km/6 months/1000 hours; 37 L/100 Km < Average fuel consumption≤47 L/100 Km, 20000 Km/6 months/800 hours; Average fuel consumption > 47 L/100 Km, 10000 Km/6 months/600 hours. Dumper truck, Mixer truck uses CI-4 10W-30 Engine oil: Average fuel consumption≤45 L/100 Km, 20000 Km/6 months/720 hours; 45 L/100 Km < Average fuel consumption≤65 L/100 Km, 10000 Km/6 months/540 hours; Average fuel consumption > 65 L/100 Km, 8000 Km/6 months/360 hours.	1.The engine oil that are not recommended to use or the same level but does not meet the Cummins CES standards, The fuel,urea and coolant that does not meet the requirements of national standards, or heavy load conditions, the regular maintenance cycle halved implementation. 2.Km/hour/month in the warranty period, whichever comes first. 3.The customer needs to check the engine oil scale every day, and replenish the oil according to the oil scale inspection results to ensure that the engine oil level is higher than the scale line in the oil scale. 4.Vehicle and equipment Gear oil, air filter replacement in accordance with the manufacturer's standards. 5.Fuel oil requirement: Fuel with sulfur content must less than 50 PPM, Sulfur content more than 50 PPM maintenance cycle is halved.
		Cummins M13 Large oil pan			40	Mandatory maintenance: Tractor, 4000-6000 Km; Dumper truck, 1000-2000 Km. Regular maintenance: Tractor uses CK-4 10W-30 Engine oil: Average fuel consumption≤37 L/100 Km, 80000 Km/12 months/1500 hours; 37 L/100 Km < Average fuel consumption≤47 L/100 Km, 40000 Km/12 months/1200 hours; Average fuel consumption > 47 L/100 Km, 20000 Km/12 months/900 hours. Tractor uses CI-4 10W-30 Engine oil: Average fuel consumption≤37 L/100 Km, 40000 Km/6 months/1000 hours; 37 L/100 Km < Average fuel consumption≤47 L/100 Km, 20000 Km/6 months/800 hours; Average fuel consumption > 47 L/100 Km, 10000 Km/12 months/600 hours.	
		Cummins M13 Small oil pan			34	Mandatory maintenance: Tractor, 4000-6000 Km; Dumper truck, 1000-2000 Km. Regular maintenance: Tractor uses CI-4 10W-30 Engine oil: Average fuel consumption≤37 L/100 Km, 30000 Km/6 months/1000 hours; 37 L/100 Km Average fuel consumption≤47 L/100 Km, 15000 Km/6 months/800 hours; Average fuel consumption > 47 L/100 Km, 10000 Km/6 months/600 hours. Dumper truck uses CI-4 10W-30 Engine oil: Average fuel consumption≤45 L/100 Km, 20000 Km/6 months/720 hours; 45 L/100 Km Average fuel consumption≤65 L/100 Km, 10000 Km/6 months/540 hours; Average fuel consumption 65 L/100 Km, 8000 Km/6 months/360 hours. > 65 L/100 Km, 8000 Km/6 months/360 hours.	

Transfer case	Zhu Zhou Gear	VG1200、ZQC800、EQC1600	Gear oil	85W-90 GL-5 (-12°C Above area) 80W-90 GL-5 (-26°C Above area) 75W-90 GL-5 (-40°C Above area)	4.5	Mandatory maintenance: 5000 Km. Regular maintenance: Bad working conditions, 20000 Km/12 months; Off-Road working conditions, 30000 Km/12 months; Road working conditions, 40000 Km/12 months.	Bad working conditions: The vehicle is used in a very poor environment and runs about 20000 Km per year. Off-road working conditions: The vehicle is used in a poor environment and runs about 40000 Km per year. Road working conditions:The vehicle is used in a good environment and runs about 60000 Km per year.
		ZQC2000			8.4		
	Tie Ma	LF200、LF200A			8		
Transmission	Fast MT	8JS85T、8JS85TE-C、8JS95TE-C	Gear oil	FL-01C 80W-90 FL-01D 80W-90	6	FL-01C: Mandatory maintenance: Road working conditions, Comprehensive working conditions, Don't need; Off-Road working conditions, 2000-3000 Km/200 hours; Bad working conditions, 1000-2000 Km/200 hours. Regular maintenance: Road working conditions, 120000 Km/12 months; Comprehensive working conditions, 60000 Km/12 months; Off-Road working conditions, 30000 Km/1000 hours/12 months; Bad working conditions, 10000 Km/500 hours/12 months. FL-01D -26-40°C (Conventional area) : Mandatory maintenance: Road working conditions, Comprehensive working conditions, Don't need; Off-Road working conditions, 2000-3000 Km/200 hours; Bad working conditions, 1000-2000 Km/200 hours. Regular maintenance: Road working conditions, 200000 Km/12 months; Comprehensive working conditions, 100000 Km/12 months; Off-Road working conditions, 60000	Equipped with power take-off, the front power take-off is about 1L, the rear power take-off is 1~1.5 L, and the bottom power take-off is 3~3.5 L. Transmissions with oil cooler cooling device need to be filled with 1L more. The transmission matching the QHG500C power take-off needs an extra 0.5L injection. 1.Km/hour/month in the warranty period, whichever comes first. 2.Road working conditions refers to the environment that meets the following conditions: the vehicle is not overloaded and runs on a good paved road, the average speed is greater than 50 Km/h, long-distance transportation (transport distance of 500 ~ 1000 Km, the annual mileage exceeds 1000000 Km), the speed of 80 Km/h, and rarely stops (each stopping distance is longer than 50 Km). Such as high-speed logistics Tractor (such as 6X4, 6X2, 4X2, etc.), van Cargo truck and so on. 3.Off-road working conditions refers to the environment with one or more of the following conditions: mountainous areas, bad
		8JS118			13		
		9JS119T-B/119TA/135T-B/135TA			13		
		9JS119TB/135TB/135TC、RTD11509C			12.5		
		9JS150T-B/150TA-B/165T、9JSD165T			13		
		9JSD150TA-B			13.5		
		9JS200T/200TA/200TC、9JSD150T-B/200T			14		
		9JSD200TA、9JSS220T			14.5		
		10JSD120T/140T/160T/180T/200T/220T			12-15		
		10JSD120TA/140TA/160TA/180TA/200TA/220TA			12-15		
		10JSD120TB/140TB/160TAB/180TB/200TB/220TB			12-15		
		10JSD160T、10JSD180T			14		
		12JS160T、12JSD160T			14.5/15		
		12JS160TA、12JSD160TA			14.5/15		

Transmission		12JS180T/200T/240T			15/15.5	Km/1000 hours/12 months; Bad working conditions, 20000 Km/500 hours/12 months. FL-01D >40°C (Hot area): Mandatory maintenance: Road working conditions, Comprehensive working conditions, 3000-5000 Km/200 hours; Off-Road working conditions, 1000-2000 Km/200 hours. Regular maintenance: Road working conditions, 60000 Km/12 months; Comprehensive working conditions, 30000 Km/2000 hours/12 months; Off-Road working conditions, 20000 Km/500 hours.	roads, overloading (total weight of vehicles and goods ≥ 50 tons), low speed (average speed ≤ 50 Km/h), frequent parking (each parking distance is less than 50 Km), long-term parking work (each parking time is more than 2 hours), short-distance transportation (transport distance less than 100 Km), etc. Such as tractors, Cargo trucks or mixer, cranes and other special operation vehicles that run for a long time off-road conditions. 4.Bad working conditions refer to the environment with one or more of the following conditions: continuous running under full load or near full load conditions, wet or dusty environment, continuous running at a slope greater than 8%, extremely low speed (average speed ≤ 20 Km/h), such as mining vehicles, muck vehicles, etc. 5.Comprehensive working conditions refer to the environment where the vehicle is not overloaded and is between road working conditions and off-road working conditions, and has one or more of the following conditions: regional transport (transport distance 100-500 Km), commonly used speed 50 Km/h, and the road surface is general or rough. Such as Cargo truck, etc. 6.The temperature of the bottom shell of the transmission tank when the vehicle is started must be higher than the lowest temperature corresponding to the oil in the list. 7.For other oil brands of the same level, the Regular maintenance period shall be halved (Fast MT, Follow the maintenance period of FL-01C shall be halved).
		12JSD180T/200T/240T			15/15.5		
		12JS180TA/200TA/240TA			15/15.5		
		12JSD180TA/200TA/240TA			15/15.5		
		12JSDX220TA-B/220T-B/240K			16		
		12JSDX240T、12JSDX240TA			16.5		
		16JS180T/180TA/200T/200TA/240T/240TA			15		
		16JSD150T/180T、16JS200T/240T			15.5		
		16JSD150TA/180TA、16JS200TA/240TA			15.5		
		16JSDX240T、16JSDX240TA			16		
	Fast AMT	6DZS180、10JZSD120	Gear oil	Transmission input torque ≤2400 Nm: FL-01E 75W-80 Transmission input torque >2400 Nm: FL-01F 75W-90	14.5	FL-01E, FL-01F: Mandatory maintenance: Road working conditions, Comprehensive working conditions, Don't need; Off-Road working conditions, 2000-3000 Km/200 hours; Bad working conditions, 1000-2000 Km/200 hours. Regular maintenance: Road working conditions, 300000 Km/24 months; Road working conditions, 150000 Km/24 months; Off-Road working conditions, 60000 Km/2000 hours/12 months; Off-Road working conditions, 30000 Km/1000 hours/12 months.	
		10JZSD160、10JZSD160A			15		
		12JZSD160、12JZSD160A			15.5		
		12JZSD200/200A/220/220A			16		
		12JZSDX240、12JZSDX240A			16		
		16JZSD200/200A/220/220A			16		
		16JZSDX240、16JZSDX240A			16		
		C16JZSDQXL220/250A/260			15.5		
		AMT 12 Gears			15		
		AMT 12 Gears, With retarder			17		
		AMT 13 Gears, 16 Gears			16		
		AMT 13 Gears, 16 Gears, With retarder			18		

Transmission	Allison	ALLSON MD3560 AMT	Gear oil	TRANSYND TM DEXRON—III	25	Check the oil from time to time and maintain it according to the prompt of the monitor: ①After the driver selects forward gear, the wrench flag is lit and lasts for two minutes, then the engine oil in the transmission needs to be changed. ②After the driver selects forward gear, the wrench sign flashes for two minutes the filter element of the transmission needs to be replaced.	
		ALLSON 4430		TRANSYND Allison transmission special engine oil	45		
	ZF	ZF AMT 12 Gears	Gear oil	Mandatory maintenance uses Engine oil: ZF-Ecofluid M 02E/02V Regular maintenance uses Engine oil: ZF-Ecofluid M 02E/02L/02V	13.5	ZF-Ecofluid M 02L/02V: Long distance transportation, 360000 Km/24 months; Short distance, distribution transportation, 240000 Km/24 months; Off-Road working conditions, 100000 Km/5000 hours/12 months. ZF-Ecofluid M 02E: Long distance transportation, 540000 Km/36 months; Short distance, distribution transportation, 360000 Km/36 months;Off-Road working conditions, 200000 Km/10000 hours/24 months.	Long-distance transportation, the average speed of 60 Km/h or more. Short-distance, distribution transportation, heavy duty working conditions, average speed 20-60 Km/h. Off-highway working conditions, such as mining, have an average speed of 20 Km/h.
		ZF AMT 12 Gears, With retarder			23		
		ZF AMT 16 Gears			15		
		ZF AMT 16 Gears, With retarder			25		
	Eton	Eton MT 13 Gears Transmission ETO-20013	Gear oil	Synthetic lubricants according to Eaton PS-386 standard	14	Mandatory maintenance: 2000-5000 Km. Regular maintenance: Road working conditions, 100000 Km/12 months; Off-Road working conditions, 1000 hours; Bad working conditions, 500 hours.	If the gearbox has an oil cooler, about 1.5 liters of lubricating oil should be added after the Engine runs. 80000-100000 Km, Take lubricating oil sample inspection, extraction method: use a syringe to extract an appropriate amount of oil from the middle of the transmission, and the sampling should be carried out under the working temperature of the transmission.
		Eton AMT Transmission FO-16E308LL without bottom power take-off			13	Highway working conditions, 500000 Km/60 months; Off-highway working conditions, 180000 Km/24 months. Mandatory maintenance no oil change required.	
		Eton AMT Transmission FO-16E308LL with bottom power take-off			14		
	Endurant	Endurant AMT Transmission EHDM-26N112C	Gear oil	BASF-MTF 7000	7.5-8.5	600000Km/60months.	The dosage varies according to the installation angle of the transmission.
	HDS 300 double stage reduction axle	First precursor main reducer		Maintenance-free	6		
		Second precursor main reducer			8.3		
		Precursor wheel reducer			1(Each side)		
		Middle axle main reducer			11		
		Rear axle main reducer			7		
		Middle and rear axle wheel reducer			2.5(Each side)		

Axle	HDZ 237 double stage reduction axle	First precursor main reducer	Lubricating oil		6	Ordinary wheel hub: Regular maintenance: Tractor, Cargo truck, 120000 Km/12 months; Special vehicle, Dumper truck, 30000 Km/12 months. Maintenance-free wheel hub: Assembly hub bearing unit structure, maintenance free.	Drain the original Gear oil of the axle and fill it quantitatively. The lubricating oil level can be observed by visual inspection or the lubricating oil can be touched by inserting the finger into the oil plugging hole. 1. If non-HD-R04 special lubricating oil is used, it is recommended to use international well-known brands of oil, and the maintenance period is halved according to the standard. 2. When the vehicle is used in bad working condition or overloaded condition, the maintenance period shall be halved according to the standard. If non-HD-R04 special lubricating oil is used, the maintenance period shall be halved again (that is one-fourth of the original standard). 3.Mileage and time in the maintenance period which comes first.
		Second precursor main reducer			7.5		
		Precursor wheel reducer			1.5（Each side）		
		King pin position			4*16ml(Each)		
	HDM 300 double stage reduction axle	Middle axle main reducer			16		
		Rear axle main reducer			13		
		Middle and rear axle wheel reducer			3.5（Each side）		
	HDZ 300 double stage reduction axle	Middle axle main reducer			13.5		
		Rear axle main reducer			12		
		Middle and rear axle wheel reducer			3.5（Each side）		
	HD 425/ HDZ 469 single stage reduction axle	Middle axle main reducer			14		
		Rear axle main reducer			11.5		
		Ordinary wheel hub			1.1（Each side）		
		Wheel hub bearing unit			Maintenance-free		
	HDM 485 single stage reduction axle	Main reducer			14.3		
		Ordinary wheel hub			1.1（Each side）		
		Wheel hub bearing unit			Maintenance-free		
	HDZ 440 single stage reduction axle	Middle axle main reducer			15		
		Rear axle main reducer			13.5		
		Wheel hub bearing unit			Maintenance-free		
	HDZ 390 single stage reduction axle	Middle axle main reducer			8.8		
		Rear axle main reducer			8.4		
		Wheel hub bearing unit			Maintenance-free		

Axle	HDZ 386 single stage reduction axle	Main reducer	Lubricating oil		10		
		Wheel hub bearing unit			Maintenance-free		
Front axle	HDZ 4.8T steering front axle	Ordinary wheel hub	HD-R01 Lithium Complex Grease		Outer bearing 35-45g, Inner bearing 55-65g (Each side)	Ordinary wheel hub: Regular maintenance: Tractor, Cargo truck, 120000 Km/12 months; Special vehicle, Dumper truck, 30000 Km/12 months. Maintenance-free wheel hub: Assembly hub bearing unit structure, maintenance free.	1.If the grease injection machine is used for filling, quantitative filling is required. 2.If applying by hand, apply grease fully and evenly on the balls and raceways between the bearing cage and the balls. 3.If non-HD-R01 Complex lithium base grease is used, it is recommended to use international well-known brands of grease, and the maintenance period is halved according to the standard. 4.When the vehicle is used in bad working condition or overloaded condition, the maintenance period shall be halved according to the standard. If non-HD-R01 special lubricating oil is used, the maintenance period shall be halved again (that is one-fourth of the original standard). 5.Mileage and time in the maintenance period which comes first.
		Wheel hub bearing unit			Maintenance-free		
	HDZ 5.5T steering front axle	Ordinary wheel hub			Outer bearing 45-55g, Inner bearing75-95g (Each side)		
		Wheel hub bearing unit			Maintenance-free		
	HDM 7.5T steering front axle	At the hub			Outer bearing 55-65g, Inner bearing 75-85g (Each side)		
	HDS 6.5/8T steering front axle	At the hub			Outer bearing 55-65g, Inner bearing 135-160g (Each side)		
	HDZ 9.5T steering front axle	At the hub			Outer bearing 55-65g, Inner bearing 85-105g (Each side)		
Support shaft	HDZ 11T can be improved	Ordinary wheel hub	Lubricating oil	HD-R04 special lubricating oil 85W-90 (-12°C Above area) 80W-90 (-26°C Above area) 75W-90 (-40°C Above area)	0.7（Each side）		
		Wheel hub bearing unit			Maintenance-free		
Balance shaft support					1.6（Each side）		

The grease nipple of the whole axle		2#Extreme Pressure Lithium Grease		Fill fully		Use a grease gun to fill it with sufficient lubrication, and the grease will overflow from the joint surface.
Retarder	FH400B	Gasoline engine oil above SF level	General purpose: 10W-40 Northeast and other cold areas: 0W-40	9	Highway vehicles, 100000 Km/12 months. Non-highway vehicles, 70000 Km/12 months.	
	FHB320B/360			6		
	FHB400			6.5		
	Voith retarder VR115CN	Voith hydraulic retarder special oil		6.6	Change the oil every 60000 Km.	
	Voith retarder VR116CT			6.4		
Power steering oil reservoir	Single front axle	Steering hydraulic oil	Winter: HS-32 Summer: HV-32	3.6	Tractor, Cargo truck, Special vehicle, 60000 Km/12 months; Dumper truck, 30000 Km/12 months.	
	Double front axle			5.4		
Cab turnover device	X6000	hydraulic oil	10# Aviation (Ground use) hydraulic oil Q/SY YM 0024-2000	1.25（First refill） 0.9 (daily maintenance)	1. No oil leakage, no need to replace hydraulic oil when the cab can be turned over normally. 2. Replenish as needed only when it is unable to reverse due to insufficient hydraulic oil.	
	X3000, X5000			0.8（First refill） 0.45（Daily maintenance）		
	H3000, H3000S (Fuel oil)			0.6（First refill） 0.3（Daily maintenance）		
	H3000, H3000S (Natural gas)			0.8（First refill） 0.45（daily maintenance）		
	F3000 (Manual flip)			0.55（First refill） 0.3（Daily maintenance）		
	F3000 (Electric flip)			0.65（First refill） 0.3（Daily maintenance）		
	L3000,L5000			0.95（First refill） 0.5（Daily maintenance）		

Clutch hydraulic operation	Brake fluid	Safed 909/DoT3	0.6	Refill regularly and replace at most once every two years.	
Cooling system	Coolant	Priority selection-No. 35 (Other brands of coolants designated by SHACMAN can also be used)	40	Refill regularly and replace at most once every two years.	Fill according to the actual situation of the vehicle, refer to the expansion tank liquid level line.

Note:

1.The oil consumption in this table is a theoretical value.

2.The oil level for engine maintenance and replacement is based on the oil level between the high and low oil level lines on the engine oil dipstick scale, the oil level for the transmission and transfer case maintenance is between the oil level and the oil level. The observation port is flush, and the oil surface is injected until the observation port overflows.

Special Maintenance Cycle and Oil Usage Standards for New Energy Electric Vehicles

Assembly	Model	Medium Introduce	Medium Grade and Standard Number	Dosage(L)	Maintenance Cycle	Comment
Transmission	Fast AMT 6E95	Gear oil	ShellI80 W-90 GL-5 Heavy load gear oil	10	Mandatory maintenance: 5000 km. Regular maintenance: Class I, not recommended. Class II, 60000 km/12 months. Class III, 120000km/12 months.	1.Add 0.5L more when assemble the power take-off. 2.Class I: Bad working conditions of use (cold or hot climate, high dust content, short distance transportation, off-road use) or the annual mileage of the truck is less than 20000 Km. Class II: Short and medium distance transportation, with an annual mileage of less than 60000 Km. Class III: Long-distance transportation, annual mileage of more than 60,000 Km. 3.For other oil brands of the same level, the Regular maintenance period shall be halved
	Fast AMT 6E150			13		
	Fast AMT 6E240			13.5		
	Fast AMT 7 Gears			22		
	Fast AMT 12 Gears			16		
	TBK AMT 4 Gears		80W-90 GL-5	15	Mandatory maintenance: 5000 km. Regular maintenance: Road vehicle, 60000 km/6 months; Dumper truck, Special vehicle, 20000 km/6 months.	
	Eton AMT 10 档		Cogins synthetic lubricating oil EAGAND2 979 SAE 50	14.2	Mandatory maintenance: 5000 km. Regular maintenance: Highway working conditions, 500000 km/60 month; Off-highway working conditions, 180000 km/24 months.	Add oil to the position level with the observation hole of the screw plug at the refueling port.
	Lvkon J4S-100		75W-90 GL-5	5	Mandatory maintenance: 5000 km. Regular maintenance: Highway working conditions, 50000 km/24 months; Off-highway working conditions, 30000 km/12 months.	
	Lvkon J4S-100 with power take-off			6		
	Lvkon J4S-240			7.8		
	Lvkon J4S-240 with power take-off			8.5		
Electric air compressor		lubricating oil	CH-4	2	Mandatory maintenance: 5000 km. Regular maintenance: 60000 Km/3 months.	Whichever comes first.

MAN Double stage middle axle	Main reducer	GL-5 Heavy load gear oil	85W-90 (-12°C and above) 80W-90 (-26°C and above) 75W-90 (-40°C and above)	13.5	Regular maintenance: Dump truck; Special vehicle; composite version, enhanced version tractor and cargo truck, 30000 km/12 months; Lightweight tractor and cargo truck, 60000 km/12 months.	1.The amount of refueling is the reference value, and the oil level of the refueling amount is flush with the refueling port. 2.When the wheel side of the single-stage reducer axle is refueling, the refueling port is rotated to 30° in the horizontal direction until the lubricating oil flows out. 3.The Km or months in the maintenance period, whichever comes first; 4.Allow high quality lubricants to replace low quality lubricants;Lubricating oils of different quality are strictly forbidden to be mixed.
	Wheel reducer			3.5 (Each side)		
MAN Double stage rear axle	Main reducer			12		
	Wheel reducer			3.5 (Each side)		
Rear suspension system	Integral balance shaft assembly	Gear oil	85W-90 (-12°C and above) 75W-90 (-40°C and above) 85W-140 Special request vehicle use	1.6 (Each side)	Mandatory maintenance: Class I, Class II, 4000 km; Class III, 5000 km. Regular maintenance: Class I, Class II, 1000 km; Class III, 10000 km.	1.Balance shaft at both ends. 2.Class I: Bad working conditions of use (cold or hot climate, high dust content, short distance transportation, off-road use) or the annual mileage of the truck is less than 20000 Km. Class II: Short and medium distance transportation, with an annual mileage of less than 60000 Km. Class III: Long-distance transportation, annual mileage of more than 60,000 Km. Normal overflow is enough.
	Grease lubricated balancing shaft assembly	Lubricating grease	3#lithium-base grease -Summer 2#lithium-base grease -Winter	0.5kg		
Suspension system	Plate spring pin, lower support of shock absorber	Lubricating grease	3#lithium-base grease -Summer 2#lithium-base grease -Winter	On need	Mandatory maintenance: Class I, Class II, 4000 km, Class III, 5000 km. Regular maintenance: Every month.	
Cab flip oil pump		Hydraulic oil	Regular areas: HV-32 Cold areas: 10# Aviation Hydraulic oil	0.7	1.No oil leakage, when the cab can be turned over normally, no need to replace the hydraulic oil. 2.Only replenish on demand when the hydraulic fluid is insufficient and cannot be turned over.	
Steering system	Single front axle	Hydraulic oil	HV-32	3.8	Mandatory maintenance: 5000 km. Regular maintenance: Road working conditions, 60000 km /12 months; Off-Road working conditions, 30000 km/12 months.	Whichever comes first.
	Double front axle			5.7		
Air conditioner		Air conditioning refrigerant	R134a	650g~800g	Replenish when insufficient.	M3000/L3000, 650g. X3000/X5000/L6000, 750g. X6000/H6000, 800g.

Battery cooling system for electric replacement models	618.24 V/281.91 kWh Replacement battery system assembly (Lightweight version)	Coolant	Regular areas, -35 Cold areas, -45	15L±3%	Replace the coolant once every 2 years at most.	Between the MIN and MAX marks of the expansion box. Coolant cannot be mixed.
	618.24 V/281.91 kWh Replacement battery system assembly (Matched with long life batteries)			48L±3%		
	579.6 V/350.07 kWh Replacement battery system assembly (Lightweight version)			18L±3%		
	618.24 V/281.91 kWh Replacement battery system assembly			48L±3%		
	Replacement battery system LFP/460 Ah/618.24 V/284.39 kWh JHQC/Separate/with thermal management unit /6K/(2/2C)/H cab			30L±3%		
Battery cooling system for rechargeable models	CATL 210kwh Power battery	Coolant	Regular areas, -35 Cold areas, -45	12±0.6L	Replace the coolant once every 2 years at most.	Between the MIN and MAX marks of the expansion box. Coolant cannot be mixed.
	CATL 242kwh Power battery			13.7±0.42L		
	CATL 282kwh Power battery			48.5±2.5L		
	CATL 350kwh Power battery			52.6±2.6L		
	CATL 422kwh Power battery			55.4±2.7L		
	EVE 282kwh Power battery			32.5±1.6L		
	EVE 350kwh Power battery			38.1±1.9L		
	EVE 422kwh Power battery			46.4±2.3L		

Electric motor cooling system	TZ380XS010	Coolant	Regular areas, -35 Cold areas, -45	21.5±0.6L	Replace the coolant once every 2 years at most.	Between the MIN and MAX marks of the expansion box. Coolant cannot be mixed.
	TZ400XS033			18.2±0.5L		
	TZ400XS023			18.2±0.5L		
Electric motor cooling system of L series	Lvkon 160 Cab fixed expansion box	Coolant	Regular areas, -35 Cold areas, -45	19.8±1L	Replace the coolant once every 2 years at most.	Between the MIN and MAX marks of the expansion box. Coolant cannot be mixed.
	Electric drive axle 200 Cab fixed expansion box			20.5±1L		
	Electric drive axle 200 Battery frame back expansion box			25±1.3L		
	ZD 410 Cab fixed expansion box			18.2±1.2L		
	ZD 410 Battery frame back expansion box			14.7±0.9L		
Note: The amount of oil in this table is the theoretical value, whichever comes first.						

定期保养原则 Principle of regular maintenance：

（1）任何非 SHACMAN 原厂的长效润滑油都不建议使用超过 12 个月；

Any long-term lubricating oil not originally manufactured by SHACMAN is not recommended to be used for more than 12 months;

（2）SHACMAN 推荐的定期保养周期，是在加注不低于原厂推荐油品质的润滑油情况下；

The regular maintenance cycle recommended by SHACMAN is that the condition of the lubricating oil is not lower than the original recommended oil quality;

（3）在不能确认润滑油品质的情况下，应首先确保润滑油牌号相符；

If the quality of lubricating oil cannot be confirmed, the brand of lubricating oil should be consistent；

（4）相同牌号非 SHACMAN 原厂推荐的长效润滑油建议按照 SHACMAN 推荐的定期保养周期减半执行。

It is recommended to halve the regular maintenance cycle if the lubricating oil used is the same brand other than the SHACMAN original recommended oil.

二、车辆定期保养规定
Regular maintenance standards

2.1强制保养项目Content of the first maintenance

发动机 Engine

首次保养内容 Content of the first maintenance	处理措施 Measures
更换油水分离器滤芯。 （Replace the filter element of oil-water separator）.	更换 Replace
更换燃油粗滤清器滤芯（长里程粗滤滤芯更换周期按说明执行）。 Replace the primary fuel filter element（The replacement cycle of long mileage primary filter element shall follow the instructions）.	更换 Replace
更换燃油精滤清器滤芯。 Replace the secondary fuel filter element.	更换 Replace
更换机油滤清器滤芯。 Replace the oil filter element.	更换 Replace
更换发动机机油。 Replace engine oil.	更换 Replace
清洁空气滤清器滤芯，检查滤芯应无破损现象。 Clean the filter element of the air filter and check whether the filter element is damaged.	吹净/检查 Clean / Check
检查调整发动机怠速。 Check and adjust engine idle speed.	检查/调整 Check/Adjust
排气管路卡箍、螺栓、排气管支撑，排气管路各卡箍无漏气、开裂等现象。排气管路及 EGR 螺栓有无松动、脱落，排气管各支撑无松动、缺失、损坏等现象。 Check the exhaust pipe clamps, bolts, exhaust pipe supports, and exhaust pipe clamps for air leakage, cracking, etc. Whether the exhaust pipeline and EGR bolts are loose or fall off, and whether the supports of the exhaust pipe are loose, missing or damaged.	检查 Check
紧固发动机各部位连接螺栓，检查各连接管路管夹及连接件是否松脱、干涉、磨损。 Tighten the connecting bolts at all parts of the engine, and check whether the connecting pipe clamps and connectors are loose, interfered and worn.	紧固 Fasten
检查是否有渗漏油现象。 Check whether there is oil leakage.	检查 Check
检查膨胀水箱盖是否通气。 Check whether the expansion tank cover is ventilated.	检查 Check
检查发动机支撑橡胶垫是否损坏。 Check the engine support rubber pad for damage.	检查 Check
检查发动机当前故障和历史故障。 Check the current and historical faults of the engine.	检查 Check
检查或清洗油气分离器。 Check or clean the oil-gas separator.	检查/清洗 Check/Clean

检查风扇连接螺栓；风扇与护风罩是否干涉及产生干涉的可能性。 Check the connecting bolts of the fan; Whether the fan interferes with the wind shield and the possibility of interference.	检查 Check
水泵润滑脂嘴加注润滑脂(黄油)。 Apply grease for water pump nozzle.	加注 Fill
检查机油、冷却液液面是否在正常刻度范围内。 Check whether the oil and coolant levels are within the normal scale range.	检查 Check
检查发动机线束、电器插接是否松脱、干涉、磨碰、损坏。 Check the engine harness and electrical connectors for looseness, interference, abrasion and damage.	检查 Check
检查各种仪表及指示灯是否正常。 Check whether various instruments and indicators are normal.	检查 Check
发动机寒区版电加热功能是否正常。 Whether the electric heating function of engine cold area version is normal.	检查 Check
检查导轮和风扇轴承有无卡滞，如有卡滞应予以排除。 Check whether the regulating wheel and fan bearing are stuck or not, if there is stuck, it should be eliminated.	调整 Adjust
检查皮带的涨紧度和使用情况，检查和调整皮带在同一平面上。 Check the tension and service condition of the belt, and check and adjust that the belt is on the same plane.	检查/调整 Check / Adjust
检查排气歧管和总管有无泄漏和损坏。 Check the exhaust manifold and manifold for leaks and damage.	检查/调整 Check/Adjust
检查机油压力和水温是否正常。 Check whether the oil pressure and water temperature are normal.	检查 Check
起动发动机，在怠速时检查外部螺栓是否松动，检查”三漏”，检查接插件是否接触良好。 Start engine, tighten the outside bolt, check the leakage of oil, gas, water, check whether the connector is in good contact.	检查 Check
检查和调整气门间隙。 Check and adjust valve clearance.	检查/调整 Check / Adjust
检查气缸盖扭紧力矩并紧固。 Check the tightening torque of cylinder head and tighten.	检查/紧固 Check / Tighten
国IV标准以上的发动机需检查后处理系统，补充添加车用尿素。 Engines above China IV standard need to check the after-treatment system and add urea for vehicles.	检查/添加 Check / Fill
清洗天然气管路上精滤清器滤芯。 Clean the fine filter element on the natural gas filter.	清洗/吹净 Clean / Blow
检查火花塞点火间隙,高压点火线束老化程度。 Check the spark plug ignition gap and the aging degree of high-voltage ignition harness.	检查 Check
检查燃气管路，管接头是否漏气。 Check whether the gas pipeline and pipe joint leak.	检查 Check

检查燃气压力表是否正常（CNG 车辆燃气压力需高于 3MPa,LNG 车辆燃气压力需高于 7Bar）。 Check whether the gas pressure gauge is normal (the gas pressure of CNG vehicles should be higher than 3Mpa and that of LNG vehicles should be higher than 7bar).	检查 Check
检查火花塞电极燃烧情况，清理电极头部杂质。 Check the combustion of spark plug electrode and clean the impurities at the electrode head.	检查 Check
检查更换废气控制阀芯。 Check and replace the exhaust gas control valve core.	检查 Check
检查高压线表面及接头端内外是否清洁。 Check whether the surface of the high-voltage line and the inside and outside of the connector end are clean.	检查 Check
检查清洗电子节气门、混合器、喷射阀。 Check and clean the electronic throttle, mixer and injection valve.	检查 Check
检查氧传感器线束、插接器，氧传感器线束是否可靠固定、远离排气管、是否与点火线圈固定在一起，接插件是否接触良好。 Check whether the oxygen sensor harness, connector and oxygen sensor harness are reliably fixed, away from the exhaust pipe, fixed with the ignition coil, and whether the connector is in good contact.	检查 Check
燃气气路，燃气管路、稳压器总成喷射阀等，主要检查燃气管路是否内漏气、结冰等问题。 Gas circuit, gas pipeline, pressurizer assembly, injection valve, etc. mainly check whether the gas pipeline has internal leakage, icing and other problems.	检查 Check

天然气供气系统

Gas Supply System of Natural Gas Vehicle

首次保养内容 Content of the first maintenance
CNG 气瓶固定装置检查与紧固：CNG 气瓶固定装置有无变形、损伤；紧固固定装置。 CNG cylinder fixing device inspection and tightening: Whether the CNG cylinder fixing device is deformed or damaged, tighten the fixing device.
CNG 气瓶阀门检查： 1.用漏气检测仪或检测液，检测多功能阀、充气阀是否泄漏，及时处理。 2.检查出气手动阀，应开关灵活，管接头应无泄漏。 3.检查充气阀及管接头与管路卡箍，应无松动、无泄漏。 Inspection on valve of CNG cylinder: 1.Use air leakage meter or detection liquid to check the multifunctional valve, gas inflation valve and deal with the problem in time. 2.Check the hand-operation gas releasing valve, the switch must be flexible, no leakage at the pipe connection. 3.Check the clamp of gas inflation and joint, no loose and no leakage.

系统各管路及接头检查： 1.管体无损伤、龟裂现象；用检测仪或检测液检查无泄漏。 2.管接头及阀门连接牢固无松动、无泄漏。 Inspection on pipe and joint: 1.There is no damage or crack on the pipe, use meter or detection liquid to check leakage. 2.Pipe joint and valve connection shall be sealed with no leakage.
减压器检查与紧固： 1.用检测仪或检测液检查减压器本体及接头有无泄漏。 2.检查装置支架有无松动，并予以紧固。 Inspection and tightening of decompression: 1.Use meter or detection liquid to check leakage. 2.Check the holder, it shall be tight.
减压器循环水管及接头检查： 1.检查水管有无污垢堵塞，如有，应予清除。 2.检查水管有无老化、龟裂、破损及泄漏，必要时更换。 3.检查管接头紧固情况，必要时予以紧固。 Inspection of water circle pipe and joint of decompression: 1.Check the warm pipe: no block. 2.Check the pipe: maturing, crack, fracture, replace if necessary. 3.Check the pipe joint, tighten if necessary.
电磁阀动作及安全检查： 1.检查各电磁阀动作是否正常、灵敏、可靠，有无泄漏，电源插接口是否稳固、接触良好。 2.检查并紧固电磁阀支架。 Inspection on movement and security of solenoid: 1.Check whether the solenoid works normally, it shall be sensitive, reliable and no leakage, the power connection must be stable and in good contact. 2.Check and tighten the holder.
检查电源系统：低压电路连接可靠，绝缘无损坏，接触良好，无短路、断路现象，保险盒的熔丝齐全、可靠，符合要求，无另搭接电线。 Check the power system: the circuit of low voltage shall be reliable in connection, the insulation shall be perfect, in good contact, no short circuit, open circuit, the fusion shall be complete and reliable and meet the requirement. There is no other self-designed circuit.
清洁、检查火花塞，检查高压线。 Clean, check spark plug, check the circuit of high voltage.

离合器 Clutch

首次保养内容 Content of the first maintenance	处理措施 Measures
检查、调整推式离合器踏板自由行程，确保分离轴承间隙，确保推杆与活塞之间 0.5-1mm 间隙。 Check,adjust the free distant of push clutch pedal,the clearance of release bearing must be guaranteed,the clearance between handle and piston shall be 0.5-1mm.	检查调整 Check/Adjust

检查离合器分离是否彻底,结合是否平稳且不打滑。 Check whether the clutch releases completely,combines smoothly and do not slid.	检查 Check
检查离合器液压油（制动液），分泵行程。 Check the hydraulic oil（brake liquid）of clutch,distance of branched pump.	检查 Check

变速器 Transmission

首次保养作业内容 Content of the first maintenance	处理措施 Measures
检查润滑油液面高度，不足时补充。 Check the gear oil level and replenish it when insufficient.	检查 Check
润滑分离轴承。 Lubricate the release bearing.	润滑 Lubricate
润滑离合器拔叉轴。 Lubricate the fork shaft of transmission.	润滑 Lubricate
清洗空气滤清器滤芯(富勒变速器)。 Clean the core of air filter (Fuller transmission).	清洗 Check
紧固变速器固定螺栓。 Tighten the fasten bolt of transmission.	紧固 Tighten
检查和清洗变速器通气孔。 Check and clean the air-release nozzle on transmission.	检查 Check
检查变速器操纵机构是否正常。 Check whether the handle mechanism of transmission works normally.	检查 Check

驱动桥 Driving axle

首次保养作业内容 Content of the first maintenance	处理措施 Measures
检查驱动桥主减速器和轮边减速器润滑油。 Check the lubricating oil of the driving axle main reducer and wheel reducer.	检查 Check
润滑制动调整臂及凸轮轴。 Lubricate the brake handle and camshaft.	润滑 Lubricate
检查驱动桥通气孔并清洗。 Clean the air-release nozzle on the driving axle.	检查 Check
检查车桥外部各构件连接螺栓是否松动，并加以紧固。 Check whether the connecting bolts of the external components of the axle are loose and tighten them.	检查/复紧 Check/Tighten

前桥 Front axle

首次保养作业内容 Content of the first maintenance	处理措施 Measures
润滑转向主销、制动臂、调整臂及凸轮轴。 Lubricate pin,brake arm,adjust arm,camshaft.	润滑 Lubricate
检查和调整前轴前束，复紧卡箍螺栓、球头螺母。 Check and adjust the toe of the front axle,and tighten the clamp bolts and ball nuts.	检查/调整 Check/Adjust
将前轴支离地面，前后方向转动轮毂有无异常，如出现异响、卡滞等及时进行维修。 Keep the front axle off the ground,and turn the hub back and forth to see if there is any abnormality, such as abnormal noise, jamming, etc., and repair it in time.	检查 Check
检查车桥外部各构件连接螺栓是否松动，并加以紧固。 Check whether the connecting bolts of the external components of the axle are loose and tighten them.	检查/调整 Check/Adjust
检查、调整前桥的同步工况（双前桥）。 Check,adjust synchronize condition of steering axle（two steering axles）.	检查/调整 Check/Adjust

传动轴 Driving shaft

首次保养作业内容 Content of the first maintenance	处理措施 Solution
润滑传动轴十字轴伸缩套及传动轴吊架轴承。 Lubricate the flexible sleeve of cross driving shaft and hang-frame bearing.	润滑 Lubricate
紧固传动连接螺栓。 Tighten the transmission connection bolt.	紧固 Tighten

转向系统 Steering system

首次保养作业内容 Content of the first maintenance	处理措施 Solution
更换转向油罐滤芯、更换转向液压油。 Replace the filter element of the steering oil tank and replace the steering hydraulic oil.	更换 Replace
紧固各部位固定螺栓及卡箍。 Fasten fixing bolts and clamps at all parts.	紧固 Tighten
润滑球头、摇臂轴承。 Lubricate ball joint and rocker arm bearing.	润滑 Lubricate

制动系统 Braking system

首次保养作业内容 Content of the first maintenance	处理措施 Measures
检查、调整前、中、后桥制动蹄片间隙。 Check,adjust the brake plate's clearance of front,middle,rear axle.	检查调整 Check/Adjust
检查全车制动气压是否达到规定值。 Check whether the braking pressure meet the demand.	检查 Check
储气筒放水。 Release the water contained in the air tank.	拉圆环 Pull the ring
凸轮轴、调整臂、气室推杆回位情况。 Return of camshaft, adjusting arm and air chamber push rod.	检查 Check
调整臂、凸轮轴支座、制动底板润滑脂嘴处加注润滑脂。 Apply grease to adjusting arm, camshaft support and brake base plate.	润滑 Lubricate
检查行车、驻车气密性。 Check the air seal of driving,parking.	检查 Check

底盘 Chassis

首次保养作业内容 Content of the first maintenance	处理措施 Measures
润滑全车钢板弹簧销及衬套。 Lubricate all the pins and sleeve of sheet spring.	润滑 Lubricate
润滑变速器换档机构。 Lubricate the shift mechanism of transmission.	润滑 Lubricate
润滑平衡轴钢板弹簧与滑板接合部分。 Lubricate the connection between sheet spring of balance shaft and slid plate.	润滑 Lubricate
紧固前、后骑马螺栓，紧固中、后桥推力杆螺栓。 Tighten the front,rear horse-ride bolt,tighten push rod bolt of middle,rear axle.	紧固 Tighten
紧固车轮螺母。 Tighten the nuts on the wheel.	紧固 Tighten
检查各部位漏油漏气情况。 Check the all parts' leakage of oil,air.	检查 Check

电器系统 Electrical system

首次保养作业内容 Content of the first maintenance	处理措施 Measures
检查各部位线束是否有刮磨现象。 Check whether the harness of each part is scratched or abraded.	检查 Check
检查各线束、电器插接件连接是否正常。 Check whether the connection of wire,electricity joint are correct.	检查 Check
读取故障代码，检查是否存在故障。 Read the fault code and check whether there is a fault.	检查 Check
检查各灯光工作是否正常：包括小灯，远近光灯，前后雾灯，左右转向灯，危险报警指示灯，制动灯，倒车灯及蜂鸣器，示廓灯，标志灯，踏步灯，室内灯，后照灯，车速灯等。 Check whether the lights are working properly: including small lights, distance lights, front and rear fog lights, left and right turn signals, hazard warning lights, brake lights, reversing lights and buzzers, position lights, marker lights, step lights, Interior lights, rear lights, speed lights, etc.	检查 Check
检查熔断丝规格及容量大小。 Check the fuse size and capacity.	检查 Check
检查仪表中指示灯工作是否正常。 Check whether the indicator lights in the meter work normally.	检查 Check
检查雨刮系统是否工作正常。 Check whether the wiper system is working normally.	检查 Check
发动机电控系统自检。 Engine electronic control system self-check.	检查 Check
检查或更换内外循环过滤网，补加制冷剂。 Check or replace the inner and outer circulation filters,add refrigerant.	检查/加注 Check/Fill
检查暖风（包括独立热源）、空调是否正常工作。 Check whether the heater (including independent heat source) and air conditioner are working properly.	检查 Check
检查信息娱乐系统/收放机工作是否正常。 Check whether the infotainment system/receiver is working properly.	检查 Check
检查蓄电瓶电源线、搭铁线紧固情况。 Check the fasten of battery wire and ground lead.	检查 Check

驾驶室 Cab

首次保养作业内容 Content of the first maintenance	处理措施 Measures
紧固翻转机构螺栓。 Tighten the bolt of rotate mechanism.	紧固 Tighten
检查驾驶室翻转锁紧机构是否工作正常。 Check whether the mechanism of rotate lock works normally.	检查 Check
检查车门操纵机构是否正常。 Check whether the handle mechanism works normally.	检查 Check

检查各种视镜螺栓是否松动。 Check whether the bolts of various sight glasses are loose.	检查/复紧 Check/ Re-tighten

自卸车举升系统 Dump truck hydraulic system

首次保养作业内容 Content of the first maintenance	处理措施 Measures
紧固液压缸、泵、阀各管路接头,排除渗漏。 Tighten the connector of hydraulic cylinder,pump valve,repair the leakage.	紧固 Tighten
紧固副车架“U”形螺栓,连接螺栓,缸、泵、阀固定螺栓。 Tighten the U bolt in the frame,fasten bolt of cylinder,pump and valve.	紧固 Tighten
润滑相关机构、在加注点加注润滑脂。 Lubricate relevant mechanism and inject the grease at the injection site.	润滑 Lubricate

整车 Vehicle

首次保养作业内容 Content of the first maintenance	处理措施 Measures
以上各项工作完成后，保持车辆洁净。 After finishing all the items above,keep the vehicle clean.	清洗 Clean
检测、试验合格后交付给用户验收。 Test and deliver the qualified vehicle to users.	清洗 Clean
检查复紧整车连接件。 Check and tighten the connecting parts of the whole vehicle.	检查/紧固 Check/ Tighten
检查鞍座固定螺栓力矩，不足时紧固。 Check the torque of saddle fixing bolts and tighten them in case of insufficient torque.	检查/紧固 Check/ Tighten
特别说明：其它应调整、检修的项目根据《产品使用说明书》中的规定进行。 Special instructions: other items that should be adjusted and repaired should be carried out according to the provisions in the Product Operation Manual.	检查 Check

分动箱 Transfer case

更换分动箱齿轮油。	更换
Replace the transfer case gear oil.	Replace

新能源电动车强制保养项目

项目	强制保养内容	处理措施
电动空压机	清理空气滤清器滤芯：保持清洁、无堵塞。	清理
	清理消声器滤芯：保持清洁、无堵塞。	清理
	清理呼吸管、防止呼吸管口堵塞。	清理
	检查风扇、正常运转运行正常。	检查
动力电池箱体（换电车型只检查外观）	电池系统的高低压线束及连接器有无擦伤、破损、松动。	检查
	电池箱或高压箱是否存在污泥、裂缝、变形、异味、鼓胀。	检查
	电池箱的气压平衡阀或防爆阀外形有无损坏。	检查
动力电池固定装置	电池框架与车架之间连接螺栓紧固情况。	检查、紧固
	电池框架内部电池托架与支架连接螺栓紧固情况。	检查、紧固
	电池护罩及其他部位螺栓紧固情况。	检查、紧固
MSD 开关	检查 MSD 开关是否插接牢固、锁止是否安装到位，确保连接稳固。	检查、调整
PTC 暖风	检查制热、除霜等功能是否可正常开启。	检查
电机	检查 UVW 端子接线与屏蔽层接地情况。	检查
	检查电机三相输入线和接线盒。	检查
	检查电机表面灰尘情况。	检查
	检查低压插件固定是否完好。	检查
	检查冷却水管接头情况。	检查
	检查电机输出轴端法兰盘紧固情况、输出轴油封密封性、是否存在异物缠绕。	检查
	检查电机支架固定情况。	检查
电机控制器	检查 U、V、W 端子接线与屏蔽层接地情况（外屏蔽）。	检查
	检查电机三相输入线和接线盒。	检查
	检查低压插件固定是否完好 。	检查
	检查电机控制器接地线。	检查
	检查冷却水管接头情况。	检查
四合一	整机完整、无磕碰及损坏等迹象。	检查
	整机高低压线束连接处干燥、无灰尘，无过热变色等迹象。	检查
	排气阀周边无异物堆积及杂质。	检查
	冷却水路无漏水。	检查

冷却系统	检查电机和电池冷却管路、接头无损坏、老化，连接牢固，紧固电机和电池冷却管路卡箍（换电车型不做电池冷却管路检查）。	检查、清理
	清理防虫网。	检查、清理
变速箱	特百佳变速箱和绿控变速箱齿轮油。	更换
	法士特变速箱和伊顿变速箱齿轮油。	不更换
	检查和清洗变速箱通气孔。	检查
	检查变速箱固定螺栓、操纵机构是否正常。	检查
高压线束	检查高压线束波纹管是否龟裂、磨损。	检查
	检查高压线固定是否牢固。	检查
	清理高压线表面堆积的泥土、油渍等。	检查
	检查各高压插头插接是否牢固。	检查
	检查辅驱电机高压与低压线束衔接处有无打折、干涉、磨损。	检查
充电插座	检查充电座内部端子，清理端子表面堆积的泥土、铁屑、油渍。	检查
	检查充电座防护盖，保证防护盖关闭状态时，防护盖上的防水胶圈与充电座贴合牢固。	检查
	检查充电座内部防护胶圈，确保防护胶圈与充电座贴合牢固。	检查
	检查搭铁线连接，确保可靠。	检查

特别说明：

1、纯电动车辆保养必须由陕汽新能源专属保障站严格遵守安全操作规程进行，必须穿戴好安全护具。在清洗车辆时，请避开高压元件，严禁用水直接冲洗高压元件。保养完成后将各系统恢复原状，并将工具收好，严禁遗落在高压元件内，以免引起系统短路。

2、与同车型柴油车相同部件的检查、保养，按柴油车强保规定执行。

3、其它应调整、检修的项目根据《产品使用说明书》中的规定进行。

New Energy Electric Vehicle Mandatory Maintenance Item

Item	Mandatory maintenance content	Solution
Electric air compressor	Clean the air filter element: keep it clean and unblocked.	Clean
	Clean the muffler filter element: keep it clean and unblocked.	Clean
	Clean the breathing tube and prevent blockage at the mouth of the breathing tube.	Clean
	Check that the fan is running properly.	Check
Power battery box (replacement model only check appearance)	The high and low voltage wiring harnesses and connectors of the battery system are bruised, damaged, or loose.	Check
	Whether the battery box or high pressure box has sludge, cracks, deformation, odor, and swelling.	Check
	The appearance of the pressure balancing valve or explosion-proof valve of the battery box is damaged.	Check
Power battery fixtures	Fastening bolts between battery frame and vehicle frame.	Check, Tighten
	Fastening bolts between the battery bracket and the support in the battery frame.	Check, Tighten
	Bolt fastening of the battery shield and other parts.	Check, Tighten
MSD Switch	Check whether the MSD switch is securely plugged and the lock is installed in place to ensure that the connection is secure.	Check, Adjust
PTC Warm breeze	Check whether functions such as heating and defrosting can be started normally.	Check
Electric motor	Check the grounding between the U,V,W terminal and the shielding layer.	Check
	Check motor three-phase input line and junction box.	Check
	Check the dust on the motor surface.	Check
	Check whether the low voltage plug-in is properly fixed.	Check
	Check the cooling water pipe connector.	Check
	Check the motor output shaft end flange fastening, output shaft oil seal sealing, whether there is foreign body entanglement.	Check
	Check the fixing of the motor bracket.	Check
Electric motor controller	Check the grounding between the U,V,W terminals and the shielding layer (external shielding).	Check
	Check motor three-phase input line and junction box.	Check
	Check whether the low voltage plug-in is properly fixed.	Check
	Check the grounding cable of the motor controller.	Check
	Check the cooling water pipe connector.	Check

Four in one integrated controller	The whole machine is complete, no signs of bump and damage.	Check
	The high and low voltage wiring harness connection of the whole machine is dry, no dust, no signs of overheating and discoloration.	Check
	There is no accumulation of foreign bodies and impurities around the exhaust valve.	Check
	No water leakage in cooling waterway.	Check
Cooling system	Check that the motor and battery cooling pipes and joints are not damaged or aging, and the connection is firm, and tighten the motor and battery cooling pipe clamp (battery cooling pipe inspection is not performed on the power replacement model).	Check ,Clean
	Clean the insect nets.	Check, Clean
Transmission	TBK transmission and Lvkon transmission gear oil.	Replace
	FAST transmission and Eaton transmission gear oil.	Do not replace
	Check and clean the transmission vent.	Check
	Check whether the transmission fixing bolts and control mechanism are normal.	Check
High voltage wiring harness	Check whether the corrugated pipe of the high voltage wiring harness is cracked or worn.	Check
	Check whether the high voltage cable is securely fixed.	Check
	Clean the soil and oil stains accumulated on the surface of the high voltage harness.	Check
	Check whether the high voltage plugs are securely inserted.	Check
	Check whether there is discounting, interference and wear at the junction of high and low voltage wiring harness of auxiliary drive motor.	Check
power outlet	Check the internal terminals of the charging base, and clean the dirt, iron filings, and oil stains accumulated on the surface of the terminals.	Check
	Check the protective cover of the charging base and ensure that the waterproof rubber ring on the protective cover is firmly attached to the charging base when the protective cover is closed.	Check
	Check the protective rubber ring inside the charging seat to ensure that the protective rubber ring is firmly attached to the charging seat.	Check
	Check the cable connection to ensure reliability.	Check

Note:

1. The maintenance of pure electric vehicles must be carried out by SHACMAN New energy exclusive guarantee station in strict compliance with the safety operation procedures, and safety protective gear must be worn. When cleaning the vehicle, please avoid the high voltage components, do not directly flush the high voltage components with water. After the maintenance is completed, the system will be restored to its original state, and the tool is put away, it is strictly prohibited to leave in the high voltage element, so as not to cause short circuit of the system.
2. Inspection and maintenance of the same parts of diesel vehicles of the same model shall be carried out in accordance with the provisions of diesel vehicle mandatory maintenance.
3. Other items that should be adjusted and repaired shall be carried out according to the provisions of the Product Instruction Manual.

2.2 定期保养项目 Content of the regular maintenance

发动机 Engine

定期保养项目 Content of the regular maintenance	处理措施 Measures
更换燃油粗滤清器滤芯（长里程粗滤滤芯更换周期按说明执行）。 Replace the primary fuel filter element（The replacement cycle of long mileage primary filter element shall follow the instructions）.	更换 Replace
更换燃油精滤器滤芯。 Replace the secondary fuel filter element.	更换 Replace
更换机油滤清滤芯。 Replace the engine oil filter element.	更换 Replace
更换发动机机油。 Replace the engine oil.	更换 Replace
清洁或更换空气滤清器滤芯（空滤器滤芯过脏或破损时必须更换。 空滤阻塞报警灯点亮时，清洁空滤器主滤芯，主滤芯清洁 5 次后，普通空滤：必须更换整套空滤滤芯；油浴式空滤：更换全套滤芯同时补加机油； 直流式空滤：禁止清洁滤芯，到期直接更换，空滤阻塞报警灯点亮或者国道 4 万公里/高速 6 万公里，以先到为准）。 Clean or replace the air filter element：The air filter element must be replaced when it is dirty or damaged.Ordinary air filter: When the air filter blockage alarm light is on, clean the main filter element of the air filter. After the main filter element is cleaned 5 times, the whole set of air filter element must be replaced;Oil bath type air filter: replace the filter element and add oil at the same time; Direct flow air filter: It is forbidden to clean the filter element, replace it directly when it expires,the air filter blockage alarm light is on, or the national highway is 40,000 km/highway is 60,000 km, whichever comes first.	清洁/更换 Clean/ Replace
清洗空滤器的集尘杯（不包括自动排尘式）。 Clean the dust collecting cup of air filter (excluding automatic dust discharge type).	清洗 Clean
更换油水分离器滤芯。 Replace the filter element of oil-water separator.	更换 Replace

根据燃气质量，对天然气发动机高压燃气滤清器滤芯（CNG）进行清洗或更换，低压燃气滤清器滤芯（LNG）吹净或更换。 Clean or replace the high-pressure fuel gas filter element (CNG) of the natural gas engine according to the fuel gas quality, and purge or replace the low-pressure fuel gas filter element (LNG).	清洗、吹净或更换 Clean/ Replace
检查更换冷却液滤清器滤芯（康明斯发动机）。 Check and replace the coolant filter element(Cummins engine). 一般两次保养换一次水滤。 Generally, the water filter is replaced after two maintenance.	检查/更换 Check/ Replace
检查和调整气门间隙和发动机制动器间隙。 Check and adjust the valve clearance and engine brake clearance.	检查/调整 Check/ Adjust
检查各种仪表及指示灯是否正常。 Check whether various instruments and indicators are normal.	检查 Check
排气管路卡箍、螺栓、排气管支撑，排气管路各卡箍无漏气、开裂等现象。排气管路及 EGR 螺栓有无松动、脱落，排气管各支撑无松动、缺失、损坏等现象。 Exhaust pipe clamps, bolts, exhaust pipe supports, and exhaust pipe clamps shall be free of air leakage, cracking, etc. Check whether the exhaust pipe and EGR bolt are loose or fall off, and whether the supports of exhaust pipe are loose, missing or damaged.	检查/调整 Check/ Adjust
紧固发动机各部位连接螺栓及各连接管路管夹及连接件是否松脱、干涉、磨损。 Tighten the connecting bolts at all parts of the engine, and check whether the clamps and connectors of all connecting pipes are loose, interfered and worn.	检查/紧固 Check/ Fasten
检查是否有渗漏油现象。 Check for oil leakage.	检查 Check
检查膨胀水箱盖是否通气。 Check whether the expansion tank cover is ventilated.	检查 Check
检查发动机支撑橡胶垫是否损坏。 Check whether the engine support rubber pad is damaged.	检查 Check

检查发动机当前故障和历史故障。 Check the current and historical engine faults.	检查 Check
检查或清洗油气分离器。 Check or clean the oil-gas separator.	检查 Check
检查风扇连接螺栓；风扇与护风罩是否干涉及产生干涉的可能性。 Check the fan connecting bolts; Whether the fan interferes with the wind shield and the possibility of interference.	检查 Check
水泵润滑脂嘴加注润滑脂(黄油)。 Apply grease (grease) to the grease fitting of the water pump.	加注 Fill
检查机油、冷却液液面是否在正常刻度范围内。 Check whether the oil and coolant levels are within the normal range.	检查 Check
检查发动机线束、电器插接是否松脱、干涉、磨碰、损坏。 Check the engine harness and electrical connector for looseness, interference, rubbing and damage.	检查 Check
检查燃气管路，管接头是否漏气。 Check the gas pipeline and pipe joint for leakage.	检查 Check
检查燃气压力表是否正常（CNG 车辆燃气压力需高于 3MPa,LNG 车辆燃气压力需高于 0.7Mpa ）。 Check whether the gas pressure gauge is normal (the gas pressure of CNG vehicle shall be higher than 3MPa, and that of LNG vehicle shall be higher than 0.7Mpa).	检查 Check
检查高压线表面及接头端内外是否清洁。 Check whether the surface of the high-voltage line and the inside and outside of the connector end are clean.	检查 Check
检查氧传感器线束、插接器，氧传感器线束是否可靠固定、远离排气管、是否与点火线圈固定在一起，接插件是否接触良好。 Check the oxygen sensor harness, connector, and whether the oxygen sensor harness is reliably fixed, far away from the exhaust pipe, fixed with the ignition coil, and the connector is in good contact.	检查 Check
燃气气路，燃气管路、稳压器总成喷射阀等，主要检查燃气管路是否内漏气、结冰等问题。 Fuel gas pipeline, fuel gas pipeline, injection valve of pressurizer assembly, etc., mainly check whether the fuel gas pipeline leaks or freezes.	检查 Check

天然气发动机 Natural gas engine

定期保养项目 Content of the regular maintenance	处理措施 Measures
更换发动机油（六个月至少一次）。 Replace the engine oil (at least once per six months).	更换 Replace
检查调整气门间隙 Adjust the clearance of valve： ①WP6：进气门间隙 0.2mm ；排气门间隙 0.3mm。 WP6：input valve 0.2mm ;input valve 0.3mm. ②WP10、WP12：进气门间隙 0.3mm ;排气门间隙 0.4mm。 WP10,WP12：input valve 0.3mm ;output valve 0.4mm.	检查/调整 Check/Adjust
外观检查火花塞电极是否进水、腐蚀、损坏或烧焦，用塞尺检查火花塞间隙是否在正常范围；用万用表测量火花塞是否断路。若有异常，则更换。 Check the appearance：water immersing,corrosion,damage or burn,use plug gauge to check clearance;use multimeter to detect the plug. If find any abnormal, replace it. 火花塞安装扭矩：20-40 N.m；火花塞间隙：0.4-0.5mm。 Torque of installation：20-40 N.m;clearance：0.4-0.5mm.	检查/更换 Check/Replace
检查气缸盖上的火花塞安装孔，确保不带有脏物和油污等杂质。 Check the plug installation hole in the gas cylinder cover,keep it clean without any dirty things.	检查 Check
目视检查高压线是否有腐蚀生锈、断裂痕迹、磨损裸露或烧灼现象，用万用表检查高压线是否通断，若有则更换。 Check the appearance:corrosion,fracture,wear or burn,use multimeter to detect the circuit,replace if necessary.	检查 Check
用压缩空气将高压线表面及接头端内外面的灰尘吹净。 Use compressed air to blow the surface of wire and joint.	清洁 Clean

发动机热车时（水温在 60℃以上），用点火正时灯测量点火角度: WP6: 13+1°；WP10、WP12：14+1° When heat the engine （water temp is above 60 ℃ ）， use ignition light to measure the angle:WP6: 13+1 degree;WP10,WP12：14+1 degree. 若点火提前角过大或过小，需要通过转动信号发生器齿杯位置来调整点火角度。 If the angle is too more or less,use the gear cup which sends rotation signal to adjust the angle.	检查 Check
检查进气管、出水管是否老化有裂缝或穿孔，夹箍是否松动，如有发现应予以拧紧或更换，确保进气管、出水管密封性，防止泄漏。 Check the appearance:maturing,crack or hole,clamp,tighten or replace the clamp to keep the seal.	检查 Check
检查电气控制系统线路连接是否可靠、电气线路有无破损。 Check whether the circuit is reliable and there is damage on the circuit.	检查 Check
保持混合器喉管各气孔及十字叉气孔畅通。 Keep the flow at the throat and cross hole smoothly.	清洁 Clean
保持高压滤清器无杂质阻碍。高压滤清器的清洗或更换周期与所使用的天然气质量关系很大，当使用的气质含杂质较多时，须缩短清洗或更换周期。可根据以下现象进行判断：当气瓶压力值低于 6Mpa 时，发动机突然出现动力不足故障，此时需清洗或更换高压滤清器。 Keep the filter clean with no block.the cycle of replacing or cleaning the filter is associated with the using condition，for the gas of bad quality the cycle shall be relative short. Take the follow condition as references:when the cylinder pressure is lower than 6Mpa,engine happens to lose power. The solution is to clean the filter.	检查 Check

保持喷射阀各喷嘴清洁，喷射阀的清洗或更换周期与所使用的天然气质量、车辆运行的环境等都有很大关系。卡车清洗时间应在每使用 6 万公里左右，矿区作业者应在 3 万公里时清洗。 Keep the nozzle clean,the cycle of replacing or cleaning the valve is associated with the quality of gas,working condition of vehicle.Clean the vehicle every 60,000KM,but for mine district,clean the vehicle every 30,000km.	检查 Check
保持低压燃气管路畅通。 Keep the system smoothly.	检查 Check
检查增压器叶轮轴向和径向间隙是否正常。 Check the clearance of fan in axial and radial direction.	检查 Check

分动箱 Transfer case

更换分动箱齿轮油。(严酷条件，20000km/12 个月；越野条件，30000 km/12 个月； 公路条件， 40000 km/12 个月)	更换
Replace the transfer case gear oil. (Bad working conditions, 20000 Km/12 months; Off-Road working conditions, 30000 Km/12 months; Road working conditions, 40000 Km/12 months)	Replace

天然气发动机供气系统 Gas Supply System of Natural Gas engine Vehicle

定期保养项目 Content of the regular maintenance	处理措施 Measures
检查气瓶、电磁阀、压力调节器等部件安装支架的完好与紧固情况，紧固已松动的紧固件。 Check fasten of gas cylinder,solenoid,pressure adjust device's installation holder,tighten the loose fasten.	检查 Check
检查气量，接通全车电源，打开点火开关（不起动发动机），检查气量显示器指示的气量。 Check the amount of gas,turn on the battery,turn on the ignition（do not start the engine）,check the gas meter.	检查 Check
检查供气系统管路、接头组件等是否有泄漏（可通过周围环境是否有燃气泄漏异味进行判断）；对铰接式汽车，特别要重点检查铰接盘处的高压软管是否有擦伤痕迹，外表有无龟裂、老化等现象。如发现系统有泄漏现象，驾驶员不应擅自解体，应及时通知专业维修厂家派人员修理。 Check the leakage of pipe,joint in gas supply system（judge from the smell in the surrounding）. For hinged vehicle,especially check the pressure hose of hinged plate to see whether there is scratch,crack,maturing.If find the leakage,driver can not disassemble the pipe and inform the professional maintenance to repair the vehicle.	检查 Check
检查点火系统和发电机是否有漏电、跳火现象，如有应及时修理，检查线束和各传感器接插件是否松动。 Check the ignition and generator,if find any problem,check the wires and sensors and connection.	检查 Check
检查与紧固固定装置。 Check and tighten the fasten device.	检查 Check

气瓶阀门检查：Inspection on valve cylinder： 用漏气检测仪或检测液，检测多功能阀、充气阀是否泄漏，及时处理。 Use air leakage meter or detection liquid to check the multifunctional valve,gas inflation valve and deal with the problem in time. 检查出气手动阀，应开关灵活，管接头应无泄漏。 Check the hand-operation gas releasing valve,the switch must be flexible,no leakage at the pipe connection. 检查充气阀及管接头与管路卡箍，应无松动、无泄漏。 Check the charging valve, pipe joint and pipe clamp to ensure they are free of looseness and leakage.	检查 Check
管体无损伤、龟裂现象；用检测仪或检测液检查无泄漏。 There is no damage or crack on the pipe；use meter or detection liquid to check leakage.	检查 Check
管接头及阀门连接牢固无松动、无泄漏。 Pipe joint and valve connection shall be sealed with no leakage.	检查 Check
用检测仪或检测液检查减压器本体及接头有无泄漏。 Use meter or detection liquid to check leakage. 检查装置支架有无松动，并予以紧固。 Check whether the device support is loose and fasten it.	检查 Check
减压器循环水管及接头检查。 Inspection of water circle pipe and joint of decompression.	检查 Check
检查水管有无污垢堵塞，如有，应予清除。 Check the warm pipe:no block.	检查 Check
检查水管有无老化、龟裂、破损及泄漏，必要时更换。 Check the pipe:maturing,crack,fracture,replace if necessary. 检查管接头紧固情况，必要时予以紧固。 Check the fastening of pipe joints and tighten them if necessary.	检查 Check
检查各电磁阀动作是否正常、灵敏、可靠，有无泄漏，电源插接口是否稳固、接触良好。 Check whether the solenoid works normally,it shall be sensitive,reliable and no leakage,the power connection must be stable and in good contact.	检查 Check

检查电源系统：低压电路连接可靠，绝缘无损坏，接触良好，无短路、断路现象，保险盒的熔丝齐全、可靠，符合要求，无另搭接电线。 Check the power system:the circuit of low voltage shall be reliable in connection,the insulation shall be perfect,in good contact,no short circuit、open circuit,the fusion shall be complete and reliable and meet the requirement.There is no other self designed circuit.	检查 Check
清洁、检查火花塞，检查高压线。 Clean,check spark plug,check the circuit of high voltage.	检查/清洁 Check/Clean
CNG 过滤器清洁：①检查过滤器，清洁过滤器与滤芯；②装复后的过滤器及接头作泄漏检查。 Clean the CNG filter:①check the filter,clean the filter and its core;②check the leakage in the connection of filter.	检查 Check
点火系统：①点火线圈绝缘无破坏、无漏电跳火现象，支承紧固可靠；②火花塞间隙符合要求；更换达 15000 公里使用里程的火花塞（在没有更换长寿命火花塞前）。 Ignition system：①no damage and leakage on the coil of ignition,the holder shall be reliable;②the clearance of spark plug meet the demand;replace the spark plugs after 15000km (before replacing the spark plug first time).	检查/更换 Check/Replace
清洗混合器：保持混合器喉管各气孔畅通。 Clean the mixer：keep the flow at throat of mixer smoothly.	检查 Check

离合器 Clutch

定期保养项目 Content of the regular maintenance	处理措施 Measures
检查、调整离合器踏板自由行程，确保分离轴承间隙（确保推杆与活塞之间 0.5-1mm 间隙）。 Check and adjust the free stroke of the clutch pedal to ensure the clearance of the release bearing (ensure the 0.5-1mm clearance between the push rod and the piston).	检查/调整 Check/Adjust
检查离合器储液杯的液面（制动液），分泵行程。 Check the liquid level (brake fluid) of the clutch fluid cup and the stroke of the wheel cylinder. 制动液不清洁时必须按说明更换。 The brake fluid must be replaced according to the instructions when it is not clean.	更换 Replace

变速器 Transmission

定期保养项目 Content of the regular maintenance	处理措施 Measures
检查变速器油面。 Check the transmission oil level.	检查 Check
按照对应的车型及工况选择对应的保养周期进行换油。 Select the corresponding maintenance cycle according to the corresponding vehicle model and working condition to change the oil.	更换 Replace
清洗空气滤清调节器滤芯。 Clean the regulator filter cartridge of the air filter.	清洁 Clean
检查清洁变速器通气装置。 Check and clean ventilation device of the transmission.	检查/清洁 Check/Clean
检查变速器固定螺栓、操纵机构是否正常。 Check whether the transmission fixing bolts and operating mechanism are normal.	检查 Check

缓速器 Retarder

定期保养项目 Content of the regular maintenance	处理措施 Measures
检查并更换缓速器油（专用车、自卸车 6 万公里进行更换，载货车、牵引车每 12 万公里进行更换）。 Check and replace the retarder oil (special vehicles and dump truck every 60,000 km, and the lorry and tractor truck every 120,000 km).	更换 Replace

驱动桥 Driving axle

定期保养项目 Content of the regular maintenance	处理措施 Measures
按照车桥定期保养规定执行，轮边为轮毂单元轴承结构的，轮毂单元免维护。 According to the regular maintenance regulations of the axle, if the wheel edge is a hub unit bearing structure, the hub unit is free of maintenance.	更换 Replace
目测桥壳、减壳、过桥箱、过桥箱盖、轴承座、支架等外观件是否开裂，确保外观完整，无漏油。 Visually inspect the axle housing, reducer housing, bridge housing, bridge housing cover, bearing pedestal, support and other external parts for cracks to ensure that the appearance is complete and there is no oil leakage.	检查/调整 Check/Adjust
检查转动轮毂有无异响，确保轮毂轴承运转无卡滞、异响现象。 Check the rotating hub for abnormal noise, and ensure that the hub bearing operates without jamming and abnormal noise.	检查 Check
检查主减速器和轮边减速器油面隙。 Check the rotating hub for abnormal noise, and ensure that the hub bearing operates without jamming and abnormal noise.	检查 Check
检查集中润滑管路接口是否通畅，确保润滑管路无堵塞。 Check whether the interface of centralized lubrication pipeline is smooth and ensure that the lubrication pipeline is not blocked.	检查 Check
清洁通气装置。 Clean the ventilation device.	清洁 Clean
检查驱动桥通气孔并清洗。 Check and clean the driving axle air vent.	检查/清洁 Check/Clean
检查和调整制动间隙。 Check and adjust the brake clearance.	检查/调整 Check/Adjust
检查调整轮毂滚锥轴承间隙。 Check and adjust the taper roller bearing clearance of the wheel hub.	检查 Check

传动轴 Driving shaft

定期保养项目 Content of the regular maintenance	处理措施 Measures
检查、紧固传动轴螺栓。 Check and fasten the drive shaft bolts.	紧固 Fasten
润滑传动轴十字轴伸缩套及传动轴吊架轴承。 Lubricate the driven shaft spider expansion sleeve and driven shaft hanger bearing.	润滑 Lubricate
目检传动轴的连接和磨损。 Visually check the joint and abrasion of the drive axle.	检查 Check

前轴 Front axle

定期保养项目 Content of the regular maintenance	处理措施 Measures
润滑转向主销和制动臂调整臂及凸轮轴。 Lubricate the steering kingpin, brake arm adjusting arm and camshaft.	润滑 Lubricate
按照车桥定期保养规定执行，保养轮毂轴承，更换轮毂轴承润滑脂，轴承润滑脂充分，预紧力达到标准（装配轮毂轴承单元，免维护）。 Maintain the hub bearing and replace the hub bearing grease according to the regular maintenance regulations of the axle. The bearing grease is sufficient and the preload reaches the standard（Assembling hub bearing unit, maintenance free）.	检查/润滑 Check/ Lubricate
检查和调整制动间隙。 Check and adjust the brake clearance.	检查/调整 Check/Adjust
检查转动轮毂有无异响，确保轮毂轴承运转无卡滞、异响现象。 Check the rotating hub for abnormal noise, and ensure that the hub bearing operates without jamming and abnormal noise.	检查 Check
检查、调整前桥的同步工况（双前桥）。 Check and adjust the synchronous working condition of front axle (double front axle).	检查/调整 Check/Adjust

驾驶室 Cab

定期保养项目 Content of the regular maintenance	处理措施 Measures
检查刮水器的动作。 Check the wiper.	检查 Check
检查驾驶室翻转手油泵油面。 Check the oil level of the manual oil pump for overturning the cab.	检查 Check
更换驾驶室翻转液压油。 Check the oil level of the manual oil pump for overturning the cab.	更换 Replace
重新紧固发动机罩。 Re-fasten the engine cover.	紧固 Fasten
检查举升柱塞的调整情况。 Check the adjustment of the lifting plunger piston.	检查 Check
检查牵引钩的固定和动作。 Check the fastening condition and the action of the trailing hook.	检查 Check
紧固横梁螺栓。 Fasten the beam bolts.	紧固 Fasten
紧固前、后钢板弹簧骑马螺栓和支架。 Fasten the U-bolts and supporting frame of the front and rear steel plate spring.	紧固 Fasten
紧固中、后桥推力杆螺栓。 Tighten the front,rear horse-ride bolt，tighten push rod bolt of middle,rear axle.	紧固 Tighten
检查备胎的固定机钩。 Check the fixed mechanism of the spare tire.	检查 Check
检查调整钢板弹簧侧挡板间隙。 Check and adjust the side damper clearance of the steel plate spring.	检查 Check

检查车轮螺母的固定。 Check the fixation of the wheel nuts.	检查 Check
检查蓄电池的固定。 Check the fixation of the rechargeable battery.	检查 Check
检查燃油箱的固定。 Check the fixation of the fuel tank.	检查 Check

制动系 Braking system

定期保养项目 Content of the regular maintenance	处理措施 Measures
贮气筒放水。 Discharge the water in the air reservoir.	拉圆环 Pull the ring
更换空气干燥器的干燥筒（载货车、牵引车、专用车自强保之后每 6 万公里，自卸车自强保之后每 3 万公里，非公路宽体矿用自卸车自强保之后每 0.5 万公里）。 Replace the drying cylinder of the air dryer (every 60000 km after the first maintenance for lorry, tractor and special vehicles, every 30000 km after the first maintenance of dump truck, and every 5000 km after the first maintenance of off-road wide body mining dump trucks).	更换 Replace
检查制动鼓、制动盘外表面磨损、开裂情况。 Check the outer surface of the brake drum and brake disc for wear and cracking.	检查 Check
检测摩擦片、摩擦块磨损情况：鼓式摩擦片台阶面不小于 8mm； 盘式摩擦块带副板厚度不小于 12mm。 Check the wear of friction plate and friction block: the step surface of drum friction plate shall not be less than 8mm; The thickness of disc friction block with auxiliary plate shall not be less than 12mm.	检查 Check
调整：调整蹄鼓制动间隙至 0.7-1.2mm 之间（塞尺测量）。 Adjustment: adjust the brake clearance of shoe drum to 0.7-1.2mm (measured with feeler gauge).	检查/调整 Check/Adjust
检查凸轮轴、调整臂、气室推杆回位情况。 Check the return of camshaft, adjusting arm and air chamber push rod.	检查 Check
检查制动钳橡胶密封件是否丢失。滑销润滑是否充分，卡钳是否滑动灵活。	检查

Check whether the brake caliper rubber seal is missing. Whether the sliding pin is fully lubricated and whether the caliper slides flexibly.	Check
盘式制动器：用螺丝刀抵在凸轮臂的球窝槽里，用力顶到凸轮臂最大行程后，观察自调机构调节六角头是否顺时针转动。 Disc brake: use a screwdriver to stand in the ball groove of the cam arm, and push it to the maximum stroke of the cam arm, then observe whether the adjusting hexagon of the self-adjusting mechanism rotates clockwise.	检查/调整 Check/Adjust
检查气压系统密封性（气压表检查）。 Check the tightness of the pressure system (use the air gauge).	检查 Check
清洗油水分离器中的调压阀滤网。 Clean the filter screen of the pressure regulating valve in the oil-water separator.	清洁 Clean
检查制动摩擦片厚度，调整制动器间隙。 Check the thickness of the brake friction plate and adjust the brake clearance.	检查 Check
清洁车轮制动器。 Clean the wheel brake.	清洁 Clean
检查制动管路和软管易擦伤的部件。 Check the easily bruised parts of the brake pipe line sand flexible pipes.	检查 Check
检查制动室的功能。 Check the function of the brake chamber.	检查 Check
检查脚制动、手制动和排气制动的效能（在试车时进行）。 Check the performance of the footbrake, manual brake and exhaust brake (during the commissioning period).	检查 Check

转向系 Steering system

定期保养项目 Content of the regular maintenance	处理措施 Measures
检查转向油罐油面高度。 Check the oil level of the steering oil tank.	检查 Check
更换转向机液压油（自卸车 3 万公里，其他车型 6 万公里）。 Replace the steering engine oil system，(every 30000 km for dump trucks, every 60000 km for other models).	更换 Replace

更换转向油罐滤芯（自卸车 3 万公里，其他车型 6 万公里）。 Replace the oil filter of the steering oil tank，(every 30000 km for dump trucks, every 60000 km for other models).	更换 Replace
检查转向系统的功能。 Check the functions of the steering system.	检查 Check
检查转向杆件的螺栓、接头和锁紧件。 Check the bolts,joints and locking fastener of the steering lever.	检查 Check
检查并润滑转向拉杆球头。 Check and lubricate the steering rod ball joint.	检查 Check

悬架系统 Suspension system

定期保养项目 Content of the regular maintenance	处理措施 Measures
检查发动机、变速箱悬架螺栓力矩，不足时紧固。 Check the torque of the suspension bolts of the engine and transmission, and tighten them in case of insufficient torque.	检查/紧固 Check/Fasten
检查动力转向机连接螺栓力矩，不足时紧固。 Check the torque of the power steering gear link bolt and tighten them in case of insufficient torque.	检查/紧固 Check/Fasten
检查前转向桥 U 型螺栓力矩、检查前桥板簧中心螺栓力矩，不足时紧固。 Check the torque of the U-bolt of the front steering axle and the central bolt of the front axle leaf spring, and tighten them in case of insufficient torque.	检查/紧固 Check/Fasten
检查双联驱动桥 U 型螺栓力矩、检查双联驱动桥板簧中心螺栓力矩，不足时紧固。 Check the torque of the U-bolt of the double drive axle and the central bolt of the leaf spring of the double driving axle, and tighten them in case of insufficient torque.	检查/紧固 Check/Fasten
检查鞍座固定螺栓力矩，不足时紧固。 Check the torque of saddle fixing bolts and tighten them in case of insufficient torque.	检查/紧固 Check/Fasten

电器系统 Electrical system

定期保养项目 Content of the regular maintenance	处理措施 Measures
读取车辆故障代码，检查是否存在故障。 Read the vehicle fault code and check whether there is a fault.	检查 Check
检查灯光、雨刮、多媒体等电气设备功能是否正常。 Check whether electrical equipment such as lights, wipers, multimedia, etc. function normally.	检查 Check
检查各线束、电器插接件连接是否正常。 Check whether the connection of wire,electricity joint are correct.	检查 Check
检查各部线束是否有刮磨现象。 Check the wear of wires.	检查 Check
检查蓄电瓶电源线、搭铁线紧固情况。 Check the fastening of the power cord and ground wire of the battery.	检查 Check
检查各灯光工作是否正常：包括小灯，远近关灯，前后雾灯，左右转向灯，危险报警指示灯，制动灯，倒车灯及蜂鸣器，示廓灯，标志灯，踏步灯，室内灯，后照灯，车速灯等。 Check whether all lights work normally, including small lights, near and far off lights, front and rear fog lights, left and right steering lights, hazard warning indicators, brake lights, reversing lights and buzzers, clearance lights, marker lights, step lights, indoor lights, rear lights, speed lights, etc.	检查 Check
检查仪表中指示灯工作是否正常。 Check whether the indicator in the instrument works normally.	检查 Check

检查雨刮系统是否工作正常。 Check whether the wiper system works normally.	检查 Check
发动机电控系统自检。 Self inspection of engine electronic control system.	检查 Check
检查或更换内外循环过滤网，补加制冷剂（夏季）。 Check or replace the internal and external circulating filter screen, and add refrigerant (in summer).	检查/加注 Check/Fill
检查暖风、独立暖风、空调、驻车空调是否正常工作（冬季）。 Check whether the heating, independent heating, air conditioner and parking air conditioner work normally (winter).	检查 Check
检查逆变电源及插座工作是否正常。 Check whether the inverter power supply and socket work normally.	检查 Check

后处理系统 Exhaust reprocessing system

定期保养项目 Content of the regular maintenance	处理措施 Measures
取出尿素泵进液管接头内部滤网，清理直至滤网无杂质，若滤网破损，则需更换进液管接头。 Take out the filter screen inside the liquid inlet pipe joint of the urea pump and clean it until it is free of impurities. If the filter screen is damaged, replace the liquid inlet pipe joint.	检查/清理/更换 Check/Clean/Replace
更换尿素泵主滤芯（更换周期与发动机定期保养周期一致）。 Replace the main filter element of the urea pump (consistent with the regular maintenance cycle of the engine).	更换 Replace
尿素箱液位传感器滤网 20 万公里/2 年清洗 1 次。 Clean the filter screen of the urea tank level sensor once every 200,000 km / 2 years.	清洗 Clean
尿素箱加注口滤网 12 万公里/1 年至少要拆出来清洗 1 次。 The filter screen at the filling port of the urea tank should be removed and cleaned at least once a year for 120,000 km / 1 year.	清洗 Clean
检查清洗尿素箱（12 万公里/1 年至少放空清洗 1 次）。 Check and clean the urea tank (at least once every 120,000 km/ 1 year).	检查/清洗 Check/Clean

整车 Whole vehicle

定期保养项目 Content of the regular maintenance	处理措施 Measures
检查复紧各种视镜连接螺栓。 Check and retighten the connecting bolts of various mirrors.	检查/复紧 Check/Fasten
检查复紧整车连接件。 Check and retighten the vehicle connector.	检查/紧固 Check/Fasten
注：其它应调整、检修的项目根据《产品使用说明书》中的规定进行。 Note: Other items that should be adjusted and overhauled should be carried out according to the provisions in the Product Operation Manual.	清洗 Clean
紧固副车架“U”形螺栓,连接螺栓,缸、泵、阀固定螺栓。 Tighten the U-bolt in the frame,fasten bolt of cylinder,pump and valve.	紧固 Tighten

润滑 Lubrication

定期保养项目 Content of the regular maintenance	处理措施 Measures
水泵 Water pump	润滑 Lubricate
离合器拨叉轴 Clutch fork shaft	润滑 Lubricate
离合器踏板轴 Clutch pedal shaft	润滑 Lubricate

离合器分离轴承 Clutch release bearing	润滑 Lubricate
万向节和传动轴中间支承 Universal joint and intermediate support of the drive axle	润滑 Lubricate
转向主销前轴 Steering master pin front axle	润滑 Lubricate
钢板弹簧销 Steel plate spring pin	润滑 Lubricate
减震器下支架 Lower supporting frame of the reducer	润滑 Lubricate
变速器换档杆支座 Supporting seat of the transmission gear shift lever	润滑 Lubricate
制动凸轮轴及制动臂 Brake camshaft and brake arm	润滑 Lubricate
牵引钩 Trailing hook	润滑 Lubricate
鞍座 Saddle	润滑 Lubricate
驾驶室车门铰链 Vehicle door hinge of the cab	润滑 Lubricate
按计划对驾驶室重新进行防锈处理 Rust-proof treatment for the cab according to the plan	润滑 Lubricate

新能源电动车定期保养项目

项目	定期保养工作内容	处理措施	备注
空压机	更换机油、机油滤芯、空气滤清器滤芯、消声器滤芯。	更换	每半年或3万公里（恶劣工况减半）
	清理整机表面、清理呼吸管、整机表面无灰尘、泥泞堆积，呼吸管通气通畅。	检查、清理	
	检查空压机与整车安装、支架的固定螺栓：锁紧正常，无松动。	检查、清理	
	检查减震垫、安全阀、风扇、低压线束和接插件、减震热表面无裂痕、安全阀无开启、风扇正常运转、低压线束无破损，接插件无松动。	检查、清理	
电机和控制器	检查复紧U、V、W接线端子固定螺丝。	检查	每半年
	清除控制器接线盒灰尘、接线端子氧化层。	检查	
	电机和控制器绝缘性能检测。	检查	
电池箱体	检查动力电池系统高低压线束及连接器有无擦伤、破损、松动。	检查	每1年（换电车型只检查外观，不做拆卸处理）
	动力电池箱或高压箱是否存在污泥、裂缝、变形、异味、鼓胀。	检查	
	动力电池箱的气压平衡阀或防爆阀外形有无损坏。	检查	
电池固定装置	动力电池框架与车架之间连接螺栓是否松动。	检查、紧固	每半年或3万公里
	动力电池框架内部电池托架与支架连接螺栓是否松动。	检查、紧固	
	动力电池护罩及其他部位螺栓是否松动。	检查、紧固	
高压线束	高压线束波纹管是否龟裂、磨损。	检查	每半年或3万公里
	高压线固定是否牢固。	检查	
	高压线表面堆积的泥土、油渍等。	清理	
	各高压插头插接是否牢固。	检查	
充电座	充电座内部端子，清理端子表面堆积的泥土、铁屑、油渍。	检查	每1年
	充电座防护盖，保证防护盖关闭状态时，防护盖上的防水胶圈与充电座贴合牢固。	检查	
	充电座内部防护胶圈，确保防护胶圈与充电座贴合牢固。	检查	
	检查搭铁线连接，确保可靠。	检查	
电池	一、维护均衡： 1.调整SOC电量在25%~40%区间（若低于25%~40%则充电至25%~40%，若高于25%~40%则行车放电，或开启空调、PTC暖风等用电设备，放电至25%~40%）。 2.车辆停稳，档位切换至空挡，拉起手刹或电子手刹（EPB）。 3.关闭钥匙电源（钥匙拧至OFF档)，关闭电源总开关（低压蓄电瓶开关至off档）。 4.开启电源总开关（低压蓄电瓶开关至on档），启动钥匙电源（钥匙拧至ON档），检查车上所有的用电设备，确保处于关闭状态。	保养	每3个月（久放不用）/每1年（正常使用）

	5.保持车辆通电(钥匙保持 ON 挡)状态 12~15 小时。(此项作用为“电池均衡”，若无法一次满足静置均衡时间要求，可在 1 个月之内拆分为 2~3 次执行，确保累计静置时间符合要求 ）。 二、充电： 完成通电时长达标（“电池均衡”）后，进行一次满充电，然后放电 SOC 至 40%~80%存放（如需继续存放）。具体流程为： 1.对充电设备外观检查及车辆充电口检查，使用符合国家标准的充电机，确保充电安全。 2.关闭整车钥匙电源。 3.等待 3-5 分钟。 4.插入充电枪（充电枪完全插入充电口并锁紧后方可开始充电作业，禁止充电过程中带载插拔充电枪）。 5.开启充电设备的电源，进行充电。 6.充电完成（100%充满电）后，先关闭充电机电源，再拔下充电枪，再关闭好充电插座的舱盖与保护盖。 7.如果需要继续存放车辆，则先要运行车辆，或开启空调、PTC 暖风等车内用电设备放电 SOC 至 40%~80%再存放。		
冷却系统	更换冷却液。	更换	每两年
	检查膨胀水箱的液位是否正常（应保持在 2/3 以上液位），若不足需补液，再通电查看水路循环是否正常。	检查	每年夏季来临需对水冷机组做一次检查
	检查机组风道入口处是否堵塞，若发现异物需及时清理。	检查	
变速箱	按照变速箱定期保养周期执行。	换油	
	绿控 J4S-240 每 20 万公里更换滤清器滤芯。	更换	
	检查和清洗变速箱通气孔。	检查	
	检查变速箱固定螺栓、操纵机构是否正常。	检查	
特别说明： 1、纯电动车辆保养必须由陕汽新能源专属保障站严格遵守安全操作规程进行，必须穿戴好安全护具。在清洗车辆时，请避开高压元件，严禁用水直接冲洗高压元件。保养完成后将各系统恢复原状，并将工具收好，严禁遗落在高压元件内，以免引起系统短路。 2、与同车型柴油车相同部件的检查、保养，按柴油车强保规定执行。 3、其它应调整、检修的项目根据《产品使用说明书》中的规定进行。			

New Energy Electric Vehicle Regular Maintenance Item

item	Regular maintenance work content	Solution	remark
Air compressor	Replace the oil, oil filter, air filter, muffler filter.	Replace	Every 6 months or 30,000 km (Bad working Conditions be halved)
	Clean the surface of the whole machine and clean the breathing tube. No dust and mud accumulate on the surface of the whole machine, and the breathing tube is smooth.	Check, Clean	
	Check the fixing bolts of the air compressor and the vehicle installation and support: they are locked properly and not loose.	Check, Clean	
	Check that the shock pad, safety valve, fan, low-voltage cable harnesses and connectors, the shock absorbing hot surface is not cracked, the safety valve is not opened, the fan is running properly, the low-voltage cable harnesses are not damaged, and the connectors are not loose.	Check, Clean	
Motors and controllers	Check the fastening screws for U,V,W terminals.	Check	Every 6 months
	Remove dust from the controller terminal box and the oxidation layer of wiring terminals.	Check	
	Motor and controller insulation performance testing.	Check	
Battery box	Check the power battery system high and low voltage wiring harness and connectors for scratches, damage, loose.	Check	Every 1 year (electric replacement models only check the appearance, do not disassemble)
	Power battery box or high voltage box whether there is sludge, cracks, deformation, odor, swelling.	Check	
	The shape of the pressure balance valve or explosion-proof valve of the power battery box is damaged.	Check	
Power battery fixtures	The connection bolts between the power battery frame and the frame are loose.	Check, Tighten	Every six months or 30000 km
	The bolts connecting the battery bracket and support inside the power battery frame are loose.	Check, Tighten	
	Bolts on the power battery cover and other parts are loose.	Check, Tighten	
High voltage harness	Check whether the corrugated pipe of the high voltage wire harness is cracked or worn.	Check	Every 6 months or 30000 km
	Whether the high voltage cable is fixed firmly.	Check	
	High voltage line surface accumulation of dirt, oil stains, etc.	Clean	
	Whether the high voltage plugs are securely inserted.	Check	
Charging base	Clean the dirt, iron filings and oil stains accumulated on the surface of the terminal inside the charging base.	Check	Every year

	When the protective cover is closed, ensure that the waterproof rubber ring on the protective cover is firmly attached to the charging base.	Check	
	The protective rubber ring inside the charging seat ensures that the protective rubber ring fits firmly with the charging seat.	Check	
	Check the cable connection to ensure reliability.	Check	
battery	First, Maintain balance: Adjust SOC power in the range of 25% to 40% (if it is lower than 25% to 40%, charge to 25% to 40%, if it is higher than 25% to 40%, discharge, or turn on air conditioning, PTC warm air and other electrical equipment, discharge to 25% to 40%). The vehicle stops, the gear shifts to neutral, and pull the handbrake or electronic handbrake (EPB). Turn off the key power supply (turn the key to off), turn off the main power switch (low voltage battery switch to OFF). Turn on the main power switch (low-voltage battery switch to ON), start the key power supply (turn the key to ON), check all the electrical equipment on the truck, and ensure that it is in the closed state. 5. Keep the vehicle powered on (keep the key on) for 12-15 hours. (This function is “battery equalization”. If the static equalization time cannot be met at one time, it can be split into 2 or 3 times within 1 month to ensure that the accumulated static time meets the requirements.) Second, Charging: After the completion of the power supply time reaches the standard (battery balance), carry out a full charge, and then discharge the SOC to 40%~80% storage (if necessary, continue to store). The specific process is as follows: 1. Check the appearance of the charging equipment and the charging port of the vehicle, and use the charging machine that meets the national standards to ensure the charging safety. 2. Turn off the Truck key power. 3. Wait 3-5 minutes. 4. Insert the charging gun (The charging gun can be fully inserted into the charging port and locked before charging. Do not insert or remove the charging gun with load during charging). 5. Turn on the power to charge the device. 6. After charging is complete (100% full charge), turn off the charging machine first, then unplug the charging gun,	Maintenance	Every 3 months (long term use)/every 1 year (normal use)

	and then close the hatch cover and protection cover of the charging socket. 7. If you need to continue to store the vehicle, run the vehicle first, or turn on the air conditioning, PTC warm air and other electrical equipment in the truck to discharge SOC to 40%~80% before storage.		
Cooling system	Replace the coolant.	Replace	Every 2 years
	Check whether the liquid level of the expansion tank is normal (it should be maintained at more than 2/3 of the liquid level). If it is insufficient, the liquid needs to be replenished, and then the power is used to check whether the waterway circulation is normal.	Check	The water cooling unit needs to be checked once a year in summer
	Check whether the air duct entrance of the unit is blocked. If foreign bodies are found, clean them up in time.	Check	
Transmission	Follow the regular transmission maintenance cycle.	Change oil	
	Lvkon J4S-240 replace filter element every 200,000 km.	Replace	
	Check and clean the transmission vent.	Check	
	Check whether the transmission fixing bolts and control mechanism are normal.	Check	

Note:

1. The maintenance of pure electric vehicles must be carried out by SHACMAN New energy exclusive guarantee station in strict compliance with the safety operation procedures, and safety protective gear must be worn. When cleaning the vehicle, please avoid the high pressure components, do not directly flush the high pressure components with water. After the maintenance is completed, the system will be restored to its original state, and the tool is put away, it is strictly prohibited to leave in the high voltage element, so as not to cause short circuit of the system.
2. Inspection and maintenance of the same parts of diesel vehicles of the same model shall be carried out in accordance with the provisions of diesel vehicle strong protection.
3. Other items that should be adjusted and repaired shall be carried out according to the provisions of the Product Instruction Manual.

2.3 汉德车桥日常保养项目 HANDE axle daily maintenance items

汉德车桥在首保定保基础上，还需按照《汉德车桥日常保养项目》进行日常检查、维护和保养。

On the basis of the first and regular maintenance,the HANDE axle also needs to carried out daily inspection, maintenance and maintenance in accordance with the “HANDE axle daily maintenance items”.

序号 No.	项目 Item	日常保养工作内容 Daily maintenance work content	处理措施 Resolution	备注 Comment
1	车轮螺栓、螺母 Wheel bolts and nuts	每天出车前、收车前检查车轮螺母是否松动、缺失车辆每次拆卸轮胎后，必须在行驶 50km 后对轮胎再次拧紧。 Check whether the wheel nuts are loose or missing before leaving the vehicle and before closing the vehicle every day every time the vehicle has removed the tires, the tires must be re-tightened and adjusted again after driving 50km.	检查复紧 Check and re-tighten	螺栓、螺母齐全，螺母紧固。 The bolts and nuts are complete, and the nuts are fastened.
2	报警线 Alarm line	车辆收车前检查仪表盘刹车报警线、ABS 线是否损坏。 Check whether the instrument panel brake alarm cable and ABS cable are damaged before stopping the vehicle.	检查 Check	报警线完整，信号正常。 The alarm line is complete and the signal is normal.
3	轮边漏油 Oil leaking of the wheel	车辆运行前、收车前检查前轴轮边有无漏油现象。 Check whether there is oil leakage on the front axle wheel before the vehicle is running and before closing.	检查 Check	轮边无漏油问题。 No oil leakage around the wheel.

4	制动性能 Braking performance	每天出车前、收车前试车检查车辆制动性能，如果刹车性能不良或拖刹、车轮扒劲、制动异响，请及时检查维修。 Test the braking performance of the vehicle before leaving and closing the vehicle every day. If the performance of the vehicle is poor or the brake drag, wheel squeezing, or abnormal brake noise, please check it in time and maintenance.	检查调整 Check and adjust	制动性能良好，无拖刹问题。 The braking performance is good, and there is no drag brake problem.
5	轮毂轴承 Hub bearing	收车前，车辆运行中耳听轮毂运转有无异响。 Before stopping the vehicle, listen to the wheel hub for abnormal noise during the operation of the vehicle.	检查 Check	轮毂轴承运转无卡滞、异响现象。 There is no jamming and abnormal noise in the operation of the hub bearing.
6	横拉杆 Tie rod	车辆每运行 15 天，用手晃动横拉杆，检查球头有无松旷，卡箍有无松动，目测防尘罩有无脱落。 Every 15 days the vehicle runs, shake the tie rod by hand to check whether the ball head is loose or not. whether the clamp is loose or not, visually check whether the dust cover has fallen off.	检查 Check	横拉杆无松旷，卡箍有无松动，防尘罩完好。 The tie rods are not loose, the clamps are loose, and the dust cover is intact.
7	滑脂嘴处加注润滑脂 Fill the grease nipple with grease	车辆运行每 15 天对转向前轴主销、调整臂、凸轮轴支座、制动底板滑脂嘴处加注润滑脂。（备注：如果黄油嘴处润滑脂打不进去，请首先检查是否黄油嘴问题或油枪与黄油嘴不匹配，检查无问题后再拆卸维修）。 Every 15 days when the vehicle is running, the front steering axle kingpin, adjusting arm, camshaft support grease the grease nipple of the seat and brake	检查 Check	润滑充分，润滑脂从结合面部位溢出。 The lubrication is sufficient, and the grease overflows from the joint surface.

7	滑脂嘴处加注润滑脂 Fill the grease nipple with grease	bottom plate. (Remarks: If yellow grease can't get in the grease nipple, please check if there is a grease nipple problem first or the grease gun does not match the grease nipple, check that there is no problem before disassembling and repairing).	检查 Check	润滑充分，润滑脂从结合面部位溢出。 The lubrication is sufficient, and the grease overflows from the joint surface.
8	连接螺栓 Connecting bolt	车辆每运行 15 天，检查转向节臂、梯形臂及连接螺栓有无损坏或松动。 Check the steering knuckle arms, trapezoidal arms and connecting bolts every 15 days when the vehicle runs whether it is damaged or loose.	检查 Check	零部件表面无裂纹，螺栓齐全无松动。 There are no cracks on the surface of the parts, and the bolts are complete and no loose.
9	车桥漏油 Axle leaking	收车前检查车桥主减输入和输出端，桥壳、减壳、过桥箱、过桥箱盖、轴承座结合面、轮边（外观）有无漏油。 Check the main input and output terminals of the axle reduction, axle housing, reduction housing, and bridge box, bridge box cover, bearing seat joint surface, wheel edge (appearance) oil spill.	检查 Check	车桥无漏油问题。 No oil leakage from the axle.
10	通气孔 Vent	车辆每运行 15 天，清洁车桥通气孔。 Every 15 days the vehicle runs, clean the drive axle vents.	检查 清洁 Check and clean	通气孔无阻塞。 No clogging of air vents.

2.4陕重汽汽车产品车辆保养记录表 SHACMAN vehicle product maintenance record list

首次保养 The 1st maintenance

车辆信息 Vehicle Information		
保养日期 Date:	车辆公里数 Mileage: KM	VIN:
服务站信息 Service station information		
服务站名称： Service station name:	服务站联系电话： Service station contact number:	服务站负责人签名（盖单位章）： Service station signature(seal):
用户对服务站首次保养车辆的评价 The user's evaluation of the service provider's first maintenance of the vehicle		
用户评价： Customer opinion:	☐非常满意 Very satisfied ☐满意 Satisfied ☐不满意 Dissatisfied	
用户名称： Customer name:	用户联系电话： Customer contact number:	用户签名： Customer signature:

第 2 次保养 The 2nd maintenance

车辆信息 Vehicle Information		
保养日期 Date:	车辆公里数 Mileage: KM	VIN:
服务站信息 Service station information		
服务站名称： Service station name:	服务站联系电话： Service station contact number:	服务站负责人签名（盖单位章）： Service station signature(seal):
用户对服务站本次保养车辆的评价 The user's evaluation of the service provider's first maintenance of the vehicle		
用户评价： Customer opinion:	☐非常满意 Very satisfied ☐满意 Satisfied ☐不满意 Dissatisfied	
用户名称： Customer name:	用户联系电话： Customer contact number:	用户签名： Customer signature:

第 3 次保养 The 3rd maintenance

车辆信息 Vehicle Information		
保养日期 Date:	车辆公里数 Mileage: KM	VIN:
服务站信息 Service station information		
服务站名称： Service station name:	服务站联系电话： Service station contact number:	服务站负责人签名（盖单位章）： Service station signature(seal):
用户对服务站本次保养车辆的评价 The user's evaluation of the service provider's first maintenance of the vehicle		
用户评价： Customer opinion:	☐非常满意 Very satisfied ☐满意 Satisfied ☐不满意 Dissatisfied	
用户名称： Customer name:	用户联系电话： Customer contact number:	用户签名： Customer signature:

第 4 次保养 The 4th maintenance

车辆信息 Vehicle Information		
保养日期 Date:	车辆公里数 Mileage: KM	VIN:
服务站信息 Service station information		
服务站名称： Service station name:	服务站联系电话： Service station contact number:	服务站负责人签名（盖单位章）： Service station signature(seal):
用户对服务站本次保养车辆的评价 The user's evaluation of the service provider's first maintenance of the vehicle		
用户评价： Customer opinion:	☐非常满意 Very satisfied ☐满意 Satisfied ☐不满意 Dissatisfied	
用户名称： Customer name:	用户联系电话： Customer contact number:	用户签名： Customer signature:

第 5 次保养 The 5th maintenance

车辆信息 Vehicle Information		
保养日期 Date:	车辆公里数 Mileage: KM	VIN:
服务站信息 Service station information		
服务站名称： Service station name:	服务站联系电话： Service station contact number:	服务站负责人签名（盖单位章）： Service station signature(seal):
用户对服务站本次保养车辆的评价 The user's evaluation of the service provider's first maintenance of the vehicle		
用户评价： Customer opinion:	☐非常满意 Very satisfied ☐满意 Satisfied ☐不满意 Dissatisfied	
用户名称： Customer name:	用户联系电话： Customer contact number:	用户签名： Customer signature:

第 6 次保养 The 6th maintenance

车辆信息 Vehicle Information		
保养日期 Date:	车辆公里数 Mileage: KM	VIN:
服务站信息 Service station information		
服务站名称： Service station name:	服务站联系电话： Service station contact number:	服务站负责人签名（盖单位章）： Service station signature(seal):
用户对服务站本次保养车辆的评价 The user's evaluation of the service provider's first maintenance of the vehicle		
用户评价： Customer opinion:	☐非常满意 Very satisfied ☐满意 Satisfied ☐不满意 Dissatisfied	
用户名称： Customer name:	用户联系电话： Customer contact number:	用户签名： Customer signature:

第 7 次保养 The 7th maintenance

车辆信息 Vehicle Information		
保养日期 Date:	车辆公里数 Mileage: KM	VIN:
服务站信息 Service station information		
服务站名称： Service station name:	服务站联系电话： Service station contact number:	服务站负责人签名（盖单位章）： Service station signature(seal):
用户对服务站本次保养车辆的评价 The user's evaluation of the service provider's first maintenance of the vehicle		
用户评价： Customer opinion:	☐非常满意 Very satisfied ☐满意 Satisfied ☐不满意 Dissatisfied	
用户名称： Customer name:	用户联系电话： Customer contact number:	用户签名： Customer signature:

第 8 次保养 The 8th maintenance

车辆信息 Vehicle Information		
保养日期 Date:	车辆公里数 Mileage: KM	VIN:
服务站信息 Service station information		
服务站名称： Service station name:	服务站联系电话： Service station contact number:	服务站负责人签名（盖单位章）： Service station signature(seal):
用户对服务站本次保养车辆的评价 The user's evaluation of the service provider's first maintenance of the vehicle		
用户评价： Customer opinion:	☐非常满意 Very satisfied ☐满意 Satisfied ☐不满意 Dissatisfied	
用户名称： Customer name:	用户联系电话： Customer contact number:	用户签名： Customer signature:

第 9 次保养 The 9th maintenance

车辆信息 Vehicle Information		
保养日期 Date:	车辆公里数 Mileage: KM	VIN:
服务站信息 Service station information		
服务站名称： Service station name:	服务站联系电话： Service station contact number:	服务站负责人签名（盖单位章）： Service station signature(seal):
用户对服务站本次保养车辆的评价 The user's evaluation of the service provider's first maintenance of the vehicle		
用户评价： Customer opinion:	☐非常满意 Very satisfied ☐满意 Satisfied ☐不满意 Dissatisfied	
用户名称： Customer name:	用户联系电话： Customer contact number:	用户签名： Customer signature:

第 10 次保养 The 10th maintenance

车辆信息 Vehicle Information		
保养日期 Date:	车辆公里数 Mileage: KM	VIN:
服务站信息 Service station information		
服务站名称： Service station name:	服务站联系电话： Service station contact number:	服务站负责人签名（盖单位章）： Service station signature(seal):
用户对服务站本次保养车辆的评价 The user's evaluation of the service provider's first maintenance of the vehicle		
用户评价： Customer opinion:	☐非常满意 Very satisfied ☐满意 Satisfied ☐不满意 Dissatisfied	
用户名称： Customer name:	用户联系电话： Customer contact number:	用户签名： Customer signature:

第 11 次保养 The 11th maintenance

车辆信息 Vehicle Information		
保养日期 Date:	车辆公里数 Mileage: KM	VIN:
服务站信息 Service station information		
服务站名称: Service station name:	服务站联系电话: Service station contact number:	服务站负责人签名（盖单位章）: Service station signature(seal):
用户对服务站本次保养车辆的评价 The user's evaluation of the service provider's first maintenance of the vehicle		
用户评价: Customer opinion:	☐非常满意 Very satisfied ☐满意 Satisfied ☐不满意 Dissatisfied	
用户名称: Customer name:	用户联系电话: Customer contact number:	用户签名: Customer signature:

第 12 次保养 The 12th maintenance

车辆信息 Vehicle Information		
保养日期 Date:	车辆公里数 Mileage: KM	VIN:
服务站信息 Service station information		
服务站名称： Service station name:	服务站联系电话： Service station contact number:	服务站负责人签名（盖单位章）： Service station signature(seal):
用户对服务站本次保养车辆的评价 The user's evaluation of the service provider's first maintenance of the vehicle		
用户评价： Customer opinion:	☐非常满意 Very satisfied ☐满意 Satisfied ☐不满意 Dissatisfied	
用户名称： Customer name:	用户联系电话： Customer contact number:	用户签名： Customer signature:

第 13 次保养 The 13th maintenance

车辆信息 Vehicle Information		
保养日期 Date:	车辆公里数 Mileage: KM	VIN:
服务站信息 Service station information		
服务站名称： Service station name:	服务站联系电话： Service station contact number:	服务站负责人签名（盖单位章）： Service station signature(seal):
用户对服务站本次保养车辆的评价 The user's evaluation of the service provider's first maintenance of the vehicle		
用户评价： Customer opinion:	☐非常满意 Very satisfied ☐满意 Satisfied ☐不满意 Dissatisfied	
用户名称： Customer name:	用户联系电话： Customer contact number:	用户签名： Customer signature:

第 14 次保养 The 14th maintenance

车辆信息 Vehicle Information		
保养日期 Date:	车辆公里数 Mileage: KM	VIN:
服务站信息 Service station information		
服务站名称: Service station name:	服务站联系电话: Service station contact number:	服务站负责人签名（盖单位章）: Service station signature(seal):
用户对服务站本次保养车辆的评价 The user's evaluation of the service provider's first maintenance of the vehicle		
用户评价: Customer opinion:	☐非常满意 Very satisfied ☐满意 Satisfied ☐不满意 Dissatisfied	
用户名称: Customer name:	用户联系电话: Customer contact number:	用户签名: Customer signature:

第 15 次保养 The 15th maintenance

车辆信息 Vehicle Information		
保养日期 Date:	车辆公里数 Mileage: KM	VIN:
服务站信息 Service station information		
服务站名称： Service station name:	服务站联系电话： Service station contact number:	服务站负责人签名（盖单位章）： Service station signature(seal):
用户对服务站本次保养车辆的评价 The user's evaluation of the service provider's first maintenance of the vehicle		
用户评价： Customer opinion:	☐非常满意 Very satisfied ☐满意 Satisfied ☐不满意 Dissatisfied	
用户名称： Customer name:	用户联系电话： Customer contact number:	用户签名： Customer signature:

3.保养作业不到位责任划分
Division of responsibility for maintenance operations not in place

发动机 Engine

作业内容 Content	用户未首/定保，下列故障不予保修 If the user does not take the first and regular maintenance, these conditions are not included in warranty	服务站首/定保不到位承担下列责任 If the service station fails to supply maintenance the service station shall be responsible for these troubles
1.清洁空气滤清器滤芯，检查空滤器（包括报警器）及其管路连接气密性 Clean the core of air filter,check the air filter（including warning lamp） and seal of pipe connection	发动机早期磨损 Wear of engine in early stage	——
2.清洗燃油粗滤器 Clean the fuel coarse filter	高压油泵柱塞、出油阀早期磨损、喷油器滴油、拉瓦、拉缸、烧瓦和发动机早期磨损 Piston of high-pressure oil pump、wear of oil output、leakage of oil injector、wear of bearing and cylinder、burn of bearing,wear of engine in early	高压油泵柱塞、出油阀早期磨损、喷油器滴油、拉瓦、拉缸、烧瓦和发动机早期磨损 Piston of high-pressure oil pump、wear of oil output、leakage of oil injector、wear of bearing and cylinder、burn of bearing,wear of engine in early
3.更换燃油精滤清器滤芯 Replace the core of fuel fine filter		
4.更换机油滤清器。 Replace the filter of engine oil.		
5.更换发动机机油 Replace the engine oil		
6.紧固发动机各部位连接螺栓及各连接管路管夹及连接件 Tighten the bolt,connection pipe,pipe clamp and joint of engine	螺栓松动及后果 Loose bolt and its consequence	500 公里以内螺栓松动及后果 Loose bolt and its consequence in 500km
7.水泵润滑脂嘴注润滑脂(黄油) Inject the lubricant（grease） to water pump	水泵轴承损坏及后果 The bearing of water pump is broken and its consequence	2000 公里以内轴承损坏及后果 The bearing of water pump is broken and its consequence in 2000km

离合器 Clutch

作业内容 Content	用户未首强/定保，下列故障不予保修 If the user does not take the first and regular maintenance, these conditions are not included in warranty	服务站首/定保不到位承担下列责任 If the service station fails to supply maintenance the service station shall be responsible for these troubles
1.检查、调整离合器踏板自由行程,确保分离轴承间隙 Check,adjust the free distant of clutch pedal,the clearance of release bearing must be guaranteed	离合器打滑、分离不彻底及后果（如离合器相关零部件烧蚀） Clutch sild or releasein completely and consequence	2000 公里内离合器打滑、分离不彻底及后果 Clutch sild or release incompletely and consequence in 2000 km
2.检查离合器分离是否彻底,结合是否平稳且不打滑 Check whether the clutch releases completely,combines smoothly and do not slid		
3.检查离合器液压油,分泵行程 Check the hydraulic oil of clutch,distance of branched pump		

变速器 Transmission

作业内容 Content	用户未首/定保，下列故障不予保修 If the user does not take the first and regular maintenance, these conditions are not included in warranty	服务站首/定保不到位承担下列责任 If the service station fails to supply maintenance the service station shall be responsible for these troubles
1.更换变速器润滑油 Replace the oil of transmission	齿轮、轴、轴承、同步器烧损、油堵松动 Gear,shaft,bearing,burn of synchronizer,oil block loose	2000 公里内齿轮、轴、轴承、同步器烧损、油堵松动 Gear,shaft,bearing,burn of synchronizer,oil block loose in 2000km
2.润滑分离轴承 Lubricate the release bearing	缺油烧损 Burn because of lacking oil	2000 公里内缺油烧损 Burn because of lacking oil in 2000km
3.润滑离合器拔叉轴 Lubricate the folk shaft	缺油烧损 Burn because of lacking oil	
4.紧固变速器固定螺栓 Tighten the fasten bolt	螺栓松动、脱落及后果 Bolt loose,drop and consequence	2000 公里以内螺栓松动、脱落及后果 Bolt loose,drop and consequence in 2000km
5.检查和清洗变速器通气孔 Check and clean the air nozzle	油封漏油 Leakage of oil seal	2000 公里以内油封漏油 Leakage of oil seal in 2000km

驱动桥 Driving axle

作业内容 Content	用户未首/定保，下列故障不予保修 If the user does not take the first and regular maintenance, these conditions are not included in warranty	服务站首/定保不到位承担下列责任 If the service station fails to supply maintenance the service station shall be responsible for these troubles
1.更换主减速器和轮边减速器润滑油（或 485 桥轮毂润滑油） Replace the lubricate oil of driven axle’s main reducer and wheel reducer（or 485 lubricate oil of rim）	齿轮、轴承早期磨损、油堵松动 Wear of gear,bearing,oil block loose	2000 公里以内齿轮、轴承早期磨损、油堵松动 Wear of gear, bearing, oil block loose in 2000km
2.润滑制动调整臂及凸轮轴 Lubricate the adjust arm and camshaft of braking	调整臂、凸轮轴不回位，油封漏油 Adjust arm,camshaft can not back,leakage of oil seal	1000 公里内调整臂、凸轮轴不回位 Adjust arm, camshaft can not back in 1000km
3.检查驱动桥通气孔并清洗 Check and clean air nozzle of driving shaft	——	1000 公里内油封漏油 Oil leakage in 1000km
4.检查或润滑轮毂轴承 Check or lubricate bearing of rim	轴承烧蚀、螺母松动、脱落及后果 Burn of bearing,nut loose,drop and consequence	2000 公里以内轴承烧蚀、螺母松动、脱落及后果 Burn of bearing,nut loose, drop and consequence in 2000km

转向桥 Steering axle

作业内容 Content	用户未首/定保，下列故障不予保修 If the user does not take the first and regular maintenance, these conditions are not included in warranty	服务站首/定保不到位承担下列责任 If the service station fails to supply maintenance the service station shall be responsible for these troubles
1.润滑转向主销和制动调整臂及凸轮轴 Lubricate pin of steering,brake arm,adjust arm,camshaft	主销磨损，衬套松旷，止推轴承磨损 Wear of pin,sleeve loose,thrust bearing	1000 公里内主销磨损，衬套松旷，止推轴承磨损 Wear of pin, sleeve loose, thrust bearing in 1000km
2.检查和调整前轮前束 Check and adjust the constrain of front wheel	轮胎吃胎 Wear of tire	2000 公里内轮胎吃胎 Wear of tire in 2000km
3.检查和调整双前轮同步情况 Check,adjust synchronize condition of two front wheel	轮胎吃胎 Wear of tire	2000 公里内轮胎吃胎 Wear of tire in 2000km
4.检查或润滑轮毂轴承 Check or lubricate the bearing of rim	轴承烧蚀、螺母松动、脱落及后果 Bearing burn,nut loose,drop and consequence	1000 公里以内轴承烧蚀、螺母松动、脱落及后果 Bearing burn, nut loose, drop and consequence in 1000km

浮动桥 Float axle

作业内容 Content	用户未首/定保，下列故障不予保修 If the user does not take the first and regular maintenance, these conditions are not included in warranty	服务站首/定保不到位承担下列责任 If the service station fails to supply maintenance the service station shall be responsible for these troubles
1.润滑转向主销和制动调整臂及凸轮轴 Lubricate pin,brake adjust arm,camshaft	主销衬套松旷、止推轴承磨损 Pin sleeve looses、thrust bearing wears	1000 公里以内主销衬套松旷、止推轴承磨损 Pin sleeve looses, thrust bearing wears in 1000km
2.检查和调整前束 Check and adjust front restraint	轮胎吃胎 Wear of tire	2000 公里内轮胎吃胎 Wear of tire in 2000km
3.检查转向阻尼减震器工作是否正常 Check whether the steering damper works normally	轮胎吃胎 Wear of tire	2000 公里内轮胎吃胎 Wear of tire in 2000km
4.检查浮桥升降是否正常及转动随动性 Check whether float axle raises normally and flexible of turning	轮胎吃胎 Wear of tire	2000 公里内轮胎吃胎 Wear of tire in 2000km
5.检查或润滑轮毂轴承 Check or lubricate the bearing of rim	轴承烧蚀、螺母松动、脱落及后果 Bearings burn、nuts loose、drop and its consequence	1000 公里以内轴承烧蚀、螺母松动、脱落 Bearings burn, nuts loose, drop and its consequence in 1000km

传动轴 Shaft

作业内容 Content	用户未首/定保，下列故障不予保修 If the user does not take the first and regular maintenance, these conditions are not included in warranty	服务站首/定保不到位承担下列责任 If the service station fails to supply maintenance the service station shall be responsible for these troubles
1.检查、润滑传动轴伸缩花键套及传动轴中间支撑轴承 Check,lubricate flexible spline sleeve and middle support bearing	传动轴、十字轴、各衬套早期磨损 Wear of transmission shaft,cross shaft, sleeve	传动轴、十字轴、各衬套早期磨损 Wear of transmission shaft, cross shaft, sleeve
2.紧固传动联接螺栓 Tighten the transmission connecting bolts	螺栓松动造成的问题 Problems caused by loose bolts	2000 公里内螺栓松动造成的问题 Problems caused by loose bolts within 2000km

转向系统 Steering system

作业内容 Content	用户未首/定保，下列故障不予保修 If the user does not take the first and regular maintenance, these conditions are not included in warranty	服务站首/定保不到位承担下列责任 If the service station fails to supply maintenance the service station shall be responsible for these troubles
1.检查转向液压油面，清洁滤网 Check the level of oil,clean the filter net	缺油或油质差造成的转向沉重等故障 Troubles caused by lacking oil or bad quality of oil	2000 公里以内缺油或油质差造成的故障 Troubles caused by lacking oil or bad quality of oil in 2000km

2.紧固各部位固定螺栓 Tighten all the fasten bolts	转向失常的损失 Damage caused by steering failure	2000 公里以内转向失常造成的损失 Damage caused by steering failure in 2000km
3.对转向各拉杆球头进行润滑 Lubricate all the ball-heads of pull rod in steering system	球头早期磨损 Wear of ball-head	1500 公里内球头磨损 Wear of ball-head in 1500km

制动系统 Braking system

作业内容 Content	用户未首/定保，下列故障不予保修 If the user does not take the first and regular maintenance, these conditions are not included in warranty	服务站首/定保不到位承担下列责任 If the service station fails to supply maintenance the service station shall be responsible for these troubles
1.检查、调整前、中、后、浮桥制动蹄片间隙 Check,adjust front,middle,rear,clearance between braking plate of float axle	制动失常及后果 Fail to brake and its consequence	500 公里以内制动失常及后果 Fail to brake and its consequence in 500km
2.检查全车制动气压是否达到规定值，检查行车、驻车状态气密性是否合格 Check whether the braking pressure is beyond limits,whether the air seal of driving,parking is up to standard	气压不准导致的制动异常 Brake abnormally caused by unstable air pressure	气压不准导致的制动异常 Abnormal braking caused by inaccurate air pressure

底盘 Chassis

作业内容 Content	用户未首/定保，下列故障不予保修 If the user does not take the first and regular maintenance, these conditions are not included in warranty	服务站首/定保不到位承担下列责任 If the service station fails to supply maintenance the service station shall be responsible for these troubles
1.润滑全车钢板弹簧销及衬套 lubricate all the sheet spring pins and sleeve	早期异常磨损 Abnormal wear	1000 公里以内的异常磨损 Abnormal wear in 1000km
2.润滑变速器换档机构 lubricate gear-shift mechanism	换档发卡 Jams during shifting gear	1000 公里以内换档发卡 Jams during shifting gear in 1000km
3.润滑钢板弹簧与滑板，车桥滑板、车架导向板接合部分 Lubricate the connection between sheet spring of balance shaft and slid plate	滑板、导向板早期磨损 Wear of slide plate, deflector	2000 公里以内滑板、导向板早期磨损 Wear of slide plate, deflector in 2000km
4.紧固 U 型螺栓 Tighten the U bolt	U 型螺栓松动、脱落、断裂，板簧错位 Loose,drop,fracture of U bolt, Sheet spring dismatched	1000 公里以内 U 型螺栓松动、脱落、断裂，板簧错位引起的故障 Loosen, drop, fracture of U bolt, sheet spring dismatch in 1000km
5.紧固推力杆螺栓 Tighten the bolt of thrust rod	螺栓松动、脱落及后果 Loose,drop of bolt and its consequence	2000 以公里以内螺栓松动、脱落引起的后果 Loose, drop of bolt and its consequence in 2000km

6.紧固车轮螺母 Tighten the nut of rim	轮辋、螺栓损坏及后果 Rim,bolt damage and its consequence	500 以公里内因螺母松动造成轮辋、螺栓损坏及后果 Rim, bolt damage and its consequence in 500km
7.检查外露连接螺栓紧固情况 Check the fasten of exposure bolt	螺栓损坏及后果 Bolt damage and its consequence	500 公里以内螺栓的损坏及后果 Bolt damage and its consequence in 500km

驾驶室 Cab

作业内容 Content	用户未首/定保，下列故障不予保修 If the user does not take the first and regular maintenance, these conditions are not included in warranty	服务站首/定保不到位承担下列责任 If the service station fails to supply maintenance the service station shall be responsible for these troubles
1.紧固翻转机构螺栓 Tighten the bolt of rotate mechanism	螺栓松动、脱落及损失 Bolt loosen,drop and its consequence	1000 公里以内螺栓松动、脱落及损失 Loose, falling and loss of bolts within 1000 km
2.检查锁紧机构是否可靠 Check whether the mechanism of rotate lock works normally		
3.检查方向盘及转向传动机构是否工作正常 Check whether the handle mechanism works normally	方向失常及损失 Turning fail and loss	1000 公里以内方向失常及损失 Directional aberration and loss within 1000 km

自卸车举升系统 Dump truck hydraulic system

作业内容 Content	用户未首/定保，下列故障不予保修 If the user does not take the first and regular maintenance, these conditions are not included in warranty	服务站首/定保不到位承担下列责任 If the service station fails to supply maintenance the service station shall be responsible for these troubles
1.紧固副车架"U"形螺栓,连接螺栓,缸、泵、阀固定螺栓 Tighten the U bolt,connection bolt,fasten of cylinder,pump valve	螺栓松动造成的问题 Troubles caused by loosen bolt	1000 公里以内螺栓松动造成的问题 Troubles caused by loosen bolt in 1000km
2.润滑各润滑脂加注点 Lubricate every grease injection site	传动轴、十字轴、各衬套早期磨损 Wear of shaft,cross shaft,sleeve	传动轴、十字轴、各衬套早期磨损 Wear of shaft,cross shaft,sleeve

电器部分 Electrical system

作业内容 Content	用户未首/定保，下列故障不予保修 If the user does not take the first and regular maintenance, these conditions are not included in warranty	服务站首/定保不到位承担下列责任 If the service station fails to supply maintenance the service station shall be responsible for these troubles
1.检查各部线束是否有刮磨现象 Check the wear of wires	线束摩擦、短路烧损问题 Wire friction, short circuit and burn	1000 公里以内线束摩擦、短路、烧损问题 Wire friction, short-circuit and burn in 1000km
2.读取发动机故障代码，检查是否存在故障 Read the engine fault code and check if it exists fault	报故障码后持续行驶导致的车辆故障 Vehicle failure caused by continuous driving after reporting the fault code	故障码未检出，用户持续行驶导致的车辆故障 The fault code is not detected, and the vehicle malf-unctions caused by the user's continuous driving
3.读取 SCR 故障代码，检查是否存在故障 Read the SCR fault code and check whether there is a fault barrier	报故障码后持续行驶导致的车辆故障 Vehicle failure caused by continuous driving after reporting the fault code	故障码未检出，用户持续行驶导致的车辆故障 The fault code is not detected, and the vehicle malfunc-tions caused by the user's continuous driving
4.检查各线束、电器插接件连接是否正常 Check whether the wiring harnesses and electrical connectors are connected properly often	插接件接触不良、脱落 Poor contact or falling off of the connector	1000 公里以内插接件接触不良、脱落 Poor contact or falling off of connectors within 1000km
5.检查蓄电瓶电源线、搭铁线紧固情况 Check the tightness of the battery power cord and ground wire	电瓶电源线、搭铁线松动导致的故障 Fault caused by loose battery power cord and ground wire	1000 公里内出现电瓶电源线、搭铁线松动导致的故障 Faults caused by loose battery power cords and grounding wires within 1000km.

6.检查各灯光工作是否正常：包括小灯，远近光灯，前后雾灯，左右转向灯，危险报警指示灯，制动灯，倒车灯及蜂鸣器，示廓灯，标志灯，踏步灯，室内灯，后照灯，车速灯等 Check whether the lights are working properly: including small lights, near and far lights, front and rear fog lights, left and right turn signals, hazard warning lights, brake lights, reversing lights and buzzers, marker lights, marker lights, step lights, interior lights, rear lights, speed lights, etc.	各种照明不能正常工作的 All kinds of lighting can't work properly	1000 公里内出现的灯不亮的 The lights that appear within 1000km do not turn on
7.检查熔断丝规格及型号 Check the specification and model of the fuse wire	出现熔断丝烧断的 Blown fuse	1000 公里内出现熔断丝烧断的情况 The fuse wire is blown within 1000km
8.检查仪表中指示灯工作是否正常 Check whether the indicator lights in the meter work normally	仪表不能正常工作 The meter does not work properly	1000 公里内出现仪表不能正常工作 The meter does not work normally within 1000km
9.检查雨刮系统是否工作正常 Check whether the wiper system is working properly	雨刮系统不能正常工作 The wiper system is not working properly	1000 公里内出现雨刮系统不能正常工作 Wiper system does not work normally within 1000km
10.发动机电控系统故障 Engine electronic control system failure	发动机电控系统故障 Engine electronic control system failure	1000 公里内出现发动机电控系统故障 Engine electronic control system failure within 1000km
11.检查暖风(包括独立热源)、空调是否正常工作 Check whether the heater (including independent heat source) and air conditioner are Whether it works normally;	暖风、空调不能正常工作 The heater and air conditioner are not working properly	1000 公里内暖风、空调不能正常工作 The heater and air conditioner cannot work normally within 1000km

12.检查或更换内外循环过滤网，补加制冷剂 Check or replace the inner and outer circulating filter screens, and add them to the system Refrigerant	空调过滤网损坏或制冷效果差 The air conditioner filter is damaged or the cooling effect is poor	1000 公里内出现空调过滤网损坏或制冷效果差 Damage to the air-conditioning filter or poor cooling effect within 1000km
13.检查各插接件连接情况 Check the connection of each connector	插接件接触不良、脱落 Poor contact or falling off of the connector	1000 公里以内插接件接触不良、脱落等问题 Poor contact, falling off and other problems of connectors within 1000km

新能源电动车强制保养与定期保养作业不到位责任划分。

项目	作业内容	用户未作强/定保下列故障不予保修	服务站强/定保作业不到位承担下列责任
电动空压机	1.更换机油、机油滤芯、空气滤清器滤芯、消声器滤芯。 2.清理整机表面、清理呼吸管：整机表面无灰尘、泥泞堆积，呼吸管通气通畅。 3.检查空压机与整车安装、支架的固定螺栓：锁紧正常，无松动。 4.检查减震垫、安全阀、风扇、低压线束和接插件：减震热表面无裂痕、安全阀无开启、风扇正常运转、低压线束无破损，接插件无松动。	空压机工作异常；电动转向系统部件松动、异响、转向沉重	1000 公里以内空压机工作异常；电动转向系统部件松动、异响、转向沉重
动力电池	电池保养，每三个月（久放不用）/每年（正常使用），具体操作如下： （1）维护均衡： 1.调整 SOC 电量在 25%~40%区间（若低于 25%~40%则充电至 25%~40%，若高于 25%~40%则行车放电，或开启空调、PTC 暖风等用电设备，放电至 25%~40%）。 2.车辆停稳，档位切换至空挡，拉起手刹或电子手刹（EPB）。 3.关闭钥匙电源（钥匙拧至 OFF 档)，关闭电源总开关（低压蓄电瓶开关至 off 档）。 4.开启电源总开关（低压蓄电瓶开关至 on 档），启动钥匙电源（钥匙拧至 ON 档），检查车上所有的用电设备，确保处于关闭状态。 5.保持车辆通电(钥匙保持 ON 挡)状态 12~15 小时。（此项作用为“电池均衡”，若无法一次满足静置均衡时间要求，可在 1 个月之内拆分为 2~3 次执行，确保累计静置时间符合要求）。 （2）充电： 完成通电时长达标（“电池均衡”）后，进行一次满充电，然后放电 SOC 至 40%~80%存放（如需继续存放）。具体流程为： 1.对充电设备外观检查及车辆充电口检查，使用符合国家标准的充电机，确保充电安全。 2.关闭整车钥匙电源。 3.等待 3-5 分钟。 4.插入充电枪（充电枪完全插入充电口并锁紧后方可开始充电作业，禁止充电过程中带载插拔充电枪）。 5.开启充电设备的电源，进行充电。 6.充电完成（100%充满电）后，先关闭充电机电源，再拔下充电枪，再关闭好充电插座的舱盖与保护盖。 7.如果需要继续存放车辆，则先要运行车辆，或开启空调、PTC 暖风等车内用电设备放电 SOC 至 40%~80%再存放。	动力电池工作异常	2000 公里以内动力电池工作异常

动力电池箱体	1.电池箱是否存在污泥、裂缝、变形、异味、鼓胀。 2.电池箱的气压平衡阀或防爆阀外形有无损坏。	电池箱出现裂缝、变形、鼓胀	1500 公里以内电池箱出现裂缝、变形、鼓胀
动力电池固定装置	1.电池框架与车架之间连接螺栓需定期进行复紧。 2.电池框架内部电池托架与支架连接螺栓需定期复紧。 3.电池护罩及其他部位螺栓定期检查。	电池框架、护罩松动	1000 公里以内电池框架、护罩松动
电动车电机	1.检查 UVW 端子接线与屏蔽层接地情况。 2.检查电机三相输入线和接线盒。 3.检查电机表面灰尘情况。 4.检查低压插件固定是否完好。 5.检查电机输出轴端法兰盘紧固情况、输出轴油封密封性、是否存在异物缠绕。 6.检查冷却水管接头情况。 7.检查电机支架固定情况。	电机松动、漏水、功能异常	2000 公里以内电机松动、漏水、功能异常
电动车电机控制器	1.检查 U、V、W 端子接线与屏蔽层接地情况（外屏蔽）。 2.检查电机三相输入线和接线盒。 3.检查低压插件固定是否完好。 4.检查电机控制器接地线。 5.检查冷却水管接头情况。	电机控制器失效	500 公里以内电机控制器失效
电动车四合一	1.整机完整、无磕碰及损坏等迹象。 2.排气阀周边无异物堆积及杂质。 3.冷却水路无漏水。	整机磕碰、杂质堆积、损坏；冷却水路漏水	1000 公里以内整机磕碰、杂质堆积、损坏，冷却水路 漏水整机损坏、冷却水路漏水
电动车冷却系统	电机冷却： 1.检查冷却管路、接头无损坏、老化，连接牢固，紧固冷却管路卡箍。 2.清理防虫网。 电池冷却： 1.检查冷却管路、接头无损坏、老化，连接牢固，紧固冷却管路卡箍。 2.清理防虫网，每两年更换一次冷却系统冷却液。	电机或电池冷却管路松动、漏液，防虫网失效	1000 公里以内电机或电池冷却管路松动、漏液，防虫网失效
MSD 开关	检查 MSD 开关是否插接牢固、锁止是否安装到位，确保连接稳固。	MSD 开关松动，造成车辆高压上电异常等	500 公里以内 MSD 开关松动，造成车辆高压上电异常等
PTC 暖风	检查制热、除霜等功能是否可正常开启。	PTC 功能异常、失效	500 公里以内 PTC 功能异常、失效
电动车高压线束	1.检查高压线束波纹管是否龟裂、磨损。 2.检查高压线固定是否牢固。 3.清理高压线表面堆积的泥土、油渍等。 4.检查各高压插头插接是否牢固。 5.检查辅驱电机高压与低压线束衔接处有无打折、干涉、磨损。	高压线束故障或因线束问题导致车辆故障	1000 公里以内高压线束故障或因线束问题导致车辆故障
夏季水冷机组保养	1.检查膨胀水箱的液位是否正常（应保持在 2/3 以上液位），若不足需补液，再通电查看水路循环是否正常。 2.检查机组风道入口处是否堵塞，若发现异物需及时清理。	水路循环异常、风道堵塞	1000 公里以内水路循环异常、风道堵塞

电动车 AMT 自动变速箱	1.根据不同 AMT 变速箱型号强定保里程或时间要求换油。 2.检查和清洗变速箱通气孔。 3.检查变速箱固定螺栓、操纵机构是否正常。	变速箱系统故障	2000 公里以内变速箱系统故障
电动车充电插座	1.检查充电座内部端子，清理端子表面堆积的泥土、铁屑、油渍。 2.检查充电座防护盖，保证防护盖关闭状态时，防护盖上的防水胶圈与充电座贴合牢固。 3.检查充电座内部防护胶圈，确保防护胶圈与充电座贴合牢固。	污染物堵塞；无法正常充电	500 公里以内污染物堵塞，无法正常充电
特别说明： **电动车与同车型柴油车相同部件的，未按时保养或保养不到位造成相关故障的责任划分，按柴油车规定执行。**			

Responsibility Classification Standard of New Energy Electric Vehicle Mandatory Maintenance and Regular Maintenance.

Item	Content	If the user does not take mandatory and regular maintenance, these conditions are not included in warranty	If the service station fails to mandatory and regular maintenance, bear the following responsibilities
Electric air compressor	1. Replace the oil, oil filter, air filter, and muffler filter. 2. Clean the surface of the whole machine and clean the breathing tube: there is no dust and mud accumulation on the surface of the whole machine, and the ventilation of the breathing tube is smooth. 3. Check the fixing bolts between the air compressor installation bracket and the whole vehicle: the locking is normal and there is no looseness. 4. Check the shock absorbing pads, safety valves, fans, low-voltage wiring harnesses and connectors: there are no cracks on the shock-absorbing hot surface, the safety valve is not opened, the fan is running normally, the low-voltage wiring harness is not damaged, and the connectors are not loose.	The air compressor works abnormally; Electric steering system components loose, abnormal noise, heavy steering.	The air compressor works abnormally within 1000 km; Electric steering system components loose, abnormal noise, heavy steering.
Power battery	Battery maintenance, every 3 months (not used for a long time) / every year (normal use), the specific operation is as follows: 1. Maintain balance: (1) Adjust the SOC power in the range of 25%~40% (if it is lower than 25%~40%, it will be charged to 25%~40%, if it is higher than 25%~40%, it will be discharged, or the air conditioner, PTC heater and other electrical equipment will be turned on and discharged to 25%~40%). (2) The vehicle stops, shifts to neutral, and pulls up the handbrake or electronic parking brake (EPB). (3) Turn off the power of the key (the key is screwed to the OFF gear), and turn off the main switch of the power supply (the low-voltage battery switch is turned to the OFF gear). (4) Turn on the main power switch (low-voltage	The power battery works abnormally	The power battery within 2000 kilometers works abnormally

	battery switch to ON gear), start the key power (key screw to ON gear), check all electrical equipment on the truck to ensure that it is turned off. (5) Keep the vehicle powered on (key keep ON block) state for 12~15 hours. (This function is "battery balancing", if it cannot meet the requirements of static balancing time at one time, it can be split into 2~3 times within 1 month to ensure that the cumulative static time meets the requirements). 2. Charging: After the power-on time reaches the standard ("battery balancing"), a full charge is performed, and then the SOC is discharged to 40%~80% for storage (if you need to continue storage). The specific process is as follows: (1) Check the appearance of the charging equipment and the vehicle charging port, and use the charger that meets the national standards to ensure the safety of charging. (2) Turn off the power of the vehicle key. (3) Wait 3-5 minutes. (4) Insert the charging gun (the charging gun can only start charging after it is fully inserted into the charging port and locked, and it is forbidden to plug and unplug the charging gun with load during the charging process). (5) Turn on the power of the charging device and charge it. (6) After the charging is completed (100% fully charged), turn off the power of the charger first, then unplug the charging cable, and then close the hatch cover and protective cover of the charging socket. (7) If you need to continue to store the vehicle, you should first run the vehicle, or turn on the air conditioner, PTC heater and other electrical equipment in the vehicle to discharge SOC to 40%~80% before storage.		
Power battery box	1. Whether the battery box has sludge, cracks, deformation, odor, or swelling. 2. Whether the appearance of the pressure balance valve or explosion-proof valve of the battery box is damaged.	The battery box is cracked, deformed, and swelling.	Within 1500 kilometers, the battery box has cracks,deformed, and swelling.

Power battery fixtures	1. The connecting bolts between the battery frame and the frame need to be re-tightened regularly. 2. The connecting bolts between the battery bracket and the bracket inside the battery frame need to be re-tightened regularly. 3. Check the bolts of the battery shield and other parts regularly.	The battery frame and shield are loose.	The battery frame and shield are loose within 1000 km.
Electric vehicle motor	1. Check the grounding of the U,V,W terminal wiring and the shield. 2. Check the motor three-phase input line and junction box. 3. Check the dust on the surface of the motor. 4. Check whether the low-voltage plug-in is in good condition. 5. Check the fastening of the flange at the end of the output shaft of the motor, whether the oil seal of the output shaft is good, and whether there is any foreign body winding. 6. Check the cooling water pipe joints. 7. Check the fixing of the motor bracket.	Motor loose, water leakage, abnormal function.	Within 2000 km, the motor is loose, water leakage, and abnormal function.
Electric vehicle motor controllers	1. Check the wiring of U, V, W terminals and the grounding of the shield layer (outer shielding). 2. Check the motor three-phase input line and junction box. 3. Check whether the low-voltage plug-in is in good condition. 4. Check the motor controller grounding wire. 5. Check the cooling water pipe joints.	The motor controller fails.	The motor controller fails within 500 km.
Four in one integrated controller for electric vehicle	1. The whole machine is complete, without signs of bumps and damage. 2. There is no accumulation of foreign matter and impurities around the exhaust valve. 3. There is no water leakage in the cooling water channel.	The whole Machine bump, accumulation of impurities, damage; Cooling water leakage.	Within 1000 kilometers the whole machine bump, accumulation of impurities, damage, cooling water leakage.

Cooling system for electric vehicle	Motor cooling: 1. Check that the cooling pipeline and joint are not damaged or aged, the connection is firm, and the cooling pipeline clamp is tightened. 2. Clean the insect net. Battery Cooling: 1. Check that the cooling pipeline and joint are not damaged or aged, the connection is firm, and the cooling pipeline clamp is tightened. 2. Clean the insect net and replace the coolant of the cooling system every two years.	The cooling pipeline of the motor or battery is loose and leaking, and the insect net fails.	Within 1000 kilometers, the motor or battery cooling pipeline is loose and leaking, and the insect net fails.
MSD switch	Check whether the MSD switch is plugged in securely and whether the lock is installed in place to ensure that the connection is secure.	The MSD switch is loose, resulting in abnormal high-voltage power-on of the vehicle.	The MSD switch is loose within 500 kilometers, resulting in abnormal high-voltage power-on of the vehicle.
PTC heater	Check whether the heating, defrosting and other functions can be turned on normally.	The PTC function is abnormal or invalid.	The PTC is abnormal or invalid within 500 km.
High-voltage wiring harness for electric vehicles	1. Check whether the corrugated pipe of the high-voltage wire harness is cracked and worn. 2. Check whether the high-voltage line is firmly fixed. 3. Clean up the mud and oil stains accumulated on the surface of the high-voltage line. 4. Check whether the high-voltage plugs are firmly plugged in. 5. Check whether there is discount, interference and wear at the junction of the high-voltage and low-voltage wiring harness of the auxiliary drive motor.	High-voltage wiring harness failure or vehicle failure due to wiring harness problems.	Within 1000 km, high-voltage wiring harness failure or vehicle failure due to wiring harness problems.
Maintenance of water cooling units in summer	1.Check whether the liquid level of the expansion tank is normal (it should be maintained at more than 2/3 of the liquid level). If it is insufficient, the liquid needs to be replenished, and then the power is used to check whether the waterway circulation is normal. 2.Check whether the air duct entrance of the unit is blocked. If foreign bodies are found, clean them up in time.	The circulation of the waterway is abnormal and the air duct is blocked.	Within 1,000 kilometers, the waterway circulation is abnormal and the air duct is blocked.

AMT automatic transmission for electric vehicles	1.Change the oil according to the mileage or time requirements of different AMT transmission models. 2.Check and clean the air-release nozzle on transmission. 3.Check whether the handle mechanism of transmission works normally and Tighten the fasten bolt of transmission.	Transmission system failure.	Transmission system failure within 2000 km.
Electric vehicle charging sockets	1.Check the internal terminals of the charging base, and clean the dirt, iron filings, and oil stains accumulated on the surface of the terminals. 2.Check the protective cover of the charging base and ensure that the waterproof rubber ring on the protective cover is firmly attached to the charging base when the protective cover is closed. 3.Check the protective rubber ring inside the charging seat to ensure that the protective rubber ring is firmly attached to the charging seat.	Clogging of pollutants; unable to charge properly.	Pollutants are clogged within 500 kilometers and cannot be charged normally.
Note: **If the electric vehicle has the same parts as the diesel vehicle of the same type, the responsibility for the related faults caused by the failure to maintain on time or not in place shall be divided according to the provisions of the diesel vehicle.**			

4. 产品保修服务规定 Product warranty service regulations

4.1 保修服务范围 Range of warranty service

凡陕重汽生产销售的商用汽车（含该车配装的所有总成及零部件），用户在严格按照相关产品使用说明的要求进行正确的使用和维护，并按《陕重汽车辆日常检查和保养规定》进行保养的前提下，在产品保修期限内，产品因设计、制造、装配及材料等质量问题造成的各类故障或零部件损坏（丧失使用功能，下同）经陕重汽服务机构（含陕重汽特约服务机构）鉴定确认的，陕重汽给予保修服务，以确保用户车辆正常使用。保修服务对用户是一种免费或部分免费的服务。

SHACMAN provides warranty service to ensure the normal use of the user's vehicle under below conditions: commercial vehicles manufactured and sold by SHACMAN (Includes all parts and assemblies of the vehicle) are properly used and maintained in strict accordance with the requirements of the relevant product use instructions, and are subject to maintenance in accordance with the Vehicle daily inspection and maintenance regulations, within the product warranty period, all kinds of faults or parts damage caused by quality problems such as design, manufacture, assembly and materials (lose use function, the same below) and are confirmed and approved by SHACMAN service organization (including SHACMAN Special Service Agency) . Warranty service is a free or partial free service to users.

4.2 不在保修服务范围内条款说明 Warranty service does not include

4.2.1 用户不能提供有效的产品保修凭证原件，或保修凭证原始记录与实际车辆不符，或保修凭证原始记录被涂改的车辆,或被查实保修凭证为伪造的假证件的车辆；

The user cannot provide the original product warranty certificate, or the original record of the warranty certificate does not match the actual vehicle, or the original document of warranty certificate is altered, or the warranty certificate is verified to be fake documents.

4.2.2 未按《陕重汽车辆日常检查和保养规定》进行保养的车辆，不到 SHACMAN 特约服务站进行定期保养（以服务站签字盖章的服务记录为准）；

Vehicles that have not been maintained in accordance with the "Vehicle daily inspection and maintenance regulations", fails to do be regularly maintained in SHACMAN designated service station (Subject to the service record signed and stamped by the service station).

4.2.3 未经 SHACMAN 服务部同意，用户自行在 SHACMAN 服务机构以外的单位对车辆进行拆卸、修理过的零部件；

Disassemble and repair parts of the vehicle by the user outside the SHACMAN service organization without the permission of SHACMAN Service Department.

4.2.4 不按相关产品使用说明的规定进行调整、维护而引发的各类故障及零部件损坏；

Various types of faults and component damage caused by adjustments and maintenance those are not in accordance with the relevant product use instructions.

4.2.5 不按产品使用说明规定使用燃油、润滑油、润滑脂、冷却液而造成的各类故障及零部件损坏，如给铝制散热器加注不合格防冻液或水；

Various types of faults and component damage caused by improper use of fuel, lubricating oil, grease, coolant that are not in accordance with the relevant product use instructions, such as filling the aluminum radiator with unqualified antifreeze or water.

4.2.6 不按相关产品使用说明的规定及相关交通法规操作，或人为造成车辆故障或交通事故的各类损坏；

Operations not in accordance with the relevant product use instructions and traffic regulations, or human-induced damage to vehicles or traffic accidents.

4.2.7 车辆出现故障后，不及时排除故障而强行行驶的续发性故障及零部件损坏；

The continuous trouble and component damage caused by deliberate usage of vehicles after the problems are being found without timely troubleshooting.

4.2.8 车辆因超载，或车桥、轴超出规定载荷而引发的零部件损坏；

Damage of vehicles and axles that are caused by overload.

4.2.9 车辆维修时私自装用未经过服务部或各地服务经理（服务负责人）认可的非原厂配件而导致的故障及零部件损坏；

Troubles and parts damage caused by non-original parts that are not approved by the service department or local service manager (service director) during vehicle maintenance.

4.2.10 售后车辆未经 SHACMAN 产品研发部门书面许可，用户私自改装的，或虽经许可但自行设计、改装不合理而导致的故障及零部件损坏；

To refit the vehicle privately without the written permission by SHACMAN product R&D department, or the fault and damage of the parts caused by the unreasonable design and refitting of the product by users.

4.2.11 车辆出现故障后，可能与产品质量相关但未经 SHACMAN 服务站鉴定，用户单方面处理的车辆；

Users unilaterally handled the troubles of vehicle that may relate to product quality without being identified by the SHACMAN service station.

4.2.12 不符合零部件、总成保修服务规定的零部件、总成；

Parts and assemblies that do not meet the requirements for parts and assemblies warranty service.

4.2.13 无法确定是否超过保修期限的车辆，以车辆生产出厂日期为准，超出保修期的车辆或零部件；

For vehicles that unable to know whether the vehicle are in warranty period or not, the warranty period shall be subject to the date of manufacture of the vehicle. And the vehicles or parts that are out of warranty period.

4.2.14 由于服务站维修不当造成的二次故障（由责任服务站承担）；

Secondary failure due to improper maintenance of the service station (Service station shall bear the responsibility）

4.2.15 因不可抗力因素造成的损坏或故障等。如战争、自然灾害等。

Damage or malfunction caused by force majeure such as war, natural disasters, etc.

4.3 保修维修的实施原则 Implementing principles of warranty service

4.3.1 一般故障或零部件损坏，以检、修为主；

General failure or damage of parts shall be settled mainly by inspection and repair.

4.3.2 不可修复或修复成本明显偏高的、修复时限不能达到服务标准要求的，可按规定更换零部件或总成；

If it is unrepairable and the time limit cannot meet the service standard requirements, the parts or assembly may be replaced as required.

4.3.3 未达到更换零部件或总成条件的，客户要求更换零部件或总成需要承担相应费用。

If the parts or assembly conditions doesn't meet the requirements for replacement, the replacement of those parts shall be paid according to the actual situation.

4.4 用户购车日期的确认 Confirm the user's purchase date

（1）原则上以车辆交付终端用户日期为准，具体操作以所在国的购车发票或者车辆相关行驶手续上的日期为准，不能提供有效手续说明购车日期的，按生产日期计算。

In principle, take the date of delivery to user as the reference, such as the date of purchase invoice or relevant driving license. For those who can`t supply valid purchase date, we take the date of production as the reference.

（2）进出口公司直接销售给终端用户的车辆（含中资外建公司），整车生产销售在 9 个月内的，按 4 .4 执行；生产销售时间超过 9 个月的，保修起始时间按生产日期延长 9 个月计算保修起算时间。

For vehicles that SHACMAN directly sells to end-user (Include Chinese-funded overseas company), term 5.4 is applicable to those sold within 9 months after production. If the time between production and sales exceeds 9 months, the warranty time shall be extended by 9 months according to the production date.

（3）对于 SHACMAN 海外特约经销商或国内授权经销商销售给终端用户的车辆，整车生产销售在 12 个月内的，按 4 .4 执行；生产销售时间超过 12 个月的，保修起始时间按生产日期延长 12 个月计算保修起算时间。

For vehicles that sold by SHACMAN authorized dealership or domestic authorized dealership to end-users, the term 5.4 is applicable to those sold within 12 months after production. If the time between production and sales exceeds 12 months, the warranty time shall be extended by 12 months according to the production date.

5. 车辆主动安全检查
Vehicle active safety inspection standard

5.1 车辆运行过程中主动安全检查里程标准 Active safety inspection mileage standard during vehicle operation

5.1.1 一般情况下，在车辆两次保养中间里程点上下 1000 公里区间对车辆进行安全检查（特殊、超负荷运行工况安全检查里程适当缩短）；

Under normal circumstances, the vehicle safety inspection shall be carried out in the interval of 1000km above and below the intermediate mileage point of the vehicle maintenance (Special and overload operating conditions safety inspection mileage shall be appropriately shortened).

5.1.2 如两次保养间隔周期较长，则须根据实际情况增加安全检查次数，要求车辆保养与安全检查的间隔不得高于以下标准：公路用车每行驶 8000–10000 公里，非公路用车每行驶 4000–5000 公里（特殊、超负荷运行工况安全检查里程适当缩短）。

If the interval between two maintenance is long, the frequency of safety inspections must be increased according to the actual situation, and the interval between vehicle maintenance and safety inspection shall not be longer than the following standards: 8000-10000km for road vehicles, and 4000-5000km for non-highway vehicles. (Special and overload operating conditions safety inspection mileage should be appropriately shortened).

5.2 主动安全检查项目 Active safety inspection project

（1）车辆安全检查项目标准 Item standard of vehicle security inspection

项目	售后车辆维护检查作业内容	服务站维护作业不到位造成下列故障由服务站承担责任	牵引	载货	自卸	专用
发动机	1.检查发动机机油加注量是否标准，牵引车、载货车、公路运输车、搅拌车更换发动机机油滤清器。（费用由用户承担）； 2.检查发动机各部位连接螺栓及各连接管路管夹及连接件是否有松动情况； 3.检查电器插接件是否有松动、损坏； 4.检查张紧轮、导轮和风扇轴承有无卡滞，如有卡滞应以排除； 5.检查皮带的松紧度和使用情况，检查和调整皮带在同一平面； 6.检查空滤及发动机进气系统连接管路有无干涉破损和密封不严； 7.检查发动机冷却系统有无渗漏，管路有无打折和异常磨损； 8.检查燃油系统有无渗漏，管路固定是否可靠，有无打折和干涉磨损情况； 9.发动机风扇与护风圈间隙的检查调整； 10.检查发动机支撑有无损坏及固定螺栓有无松动情况； 11.检查发动机各传感器是否牢固，如电磁离合器风扇、水温传感器、机油压力传感器。	因油量不符合标准而造成的故障； 500 公里内由于螺栓松动而造成的后果； 500 公里内由于发动机支撑损坏及螺栓松动损坏造成的风扇叶及护风圈、散热器损坏； 500 公里内由于电路接触不良而造成的线路烧损。	●	●	●	
离合器	1.检查调整离合器踏板自由行程，确保分离轴承间隙;确保推杆与活塞 0.5–1mm 间隙； 2.检查分离是否彻底,结合是否平稳不打滑； 3.检查离合器液压油（制动液）,分泵行程； 4.检查离合器储液杯液面是否在标准值，管路有无渗漏现象； 5.分泵压缩空气进气管有无打折磨损。	500 公里内离合器打滑、分离不彻底及后果。	●	●	●	

变速器	1.检查变速器齿轮油加注量是否正常、通气孔是否畅通； 2.检查操纵机构是否正常，档位是否齐全； 3.变速箱固定支撑有无松动，减震胶块有无变形破损现象； 4.检查空挡倒档开关及线束固定是否牢靠； 5.检查变速箱气管路有无漏气、打折现象； 6.检查高低档转换是否灵活，有无发卡和转换滞后现象； 7.检查换挡操纵机构连接螺栓是否有松动； 8.检查高低档转换气管路是否在换挡杆上固定牢靠，避免与增压器距离过近。	500 公里内因缺齿轮油而造成的变速箱烧损。 500 公里内的换挡发卡。 500 公里内螺栓松动、脱落及后果。 500 公里内油封漏油。 500 公里内气管被排气管烘烤造成的后果。	●	●	●
驱动桥	1.各油堵有无渗漏，主减速与轮边减速器齿轮油加注量是否符合标准； 2.驱动桥通气管是否顺畅，有无打折现象； 3.制动摇臂及凸轮轴有无回位卡滞； 4.制动蹄间隙检查孔是否缺堵盖； 5.检查调整制动蹄与制动鼓间隙； 6.轮胎固定螺母有无松动； 7.检查驱动桥总成有无漏油、异响现象。	500 公里内齿轮、轴承早期磨损、油堵而造成的后果。 500 公里内油封漏油、通气管不通及引发故障。 500 公里内制动摇臂及凸轮轴不回位而造成的后果。	●	●	●
转向轴	1.检查转向定位螺栓有无变形松动； 2.左右转向轮在打死后有无干涉现象； 3.轮胎固定螺母有无松动； 4.转向拉杆固定夹有无松动； 5.双转向轴转向摇臂固定螺母及开口销是否牢靠，螺母有无随动现象； 6.转向系统润滑是否到位； 7.检查轮胎胎面有无异常磨损； 8.检查转向轴轮边是否有漏油、异响现象。	500 公里内造成的部件磨损、轴承烧损、轮胎异常磨损。	●	●	●

传动轴	1.检查传动轴十字轴伸缩轴润滑是否到位，有无松旷及早期磨损现象； 2.检查传动轴连接是否紧固，螺栓有无变形； 3.检查过桥支撑固定有无松动、歪斜，轴承润滑是否到位，轴承有无松旷现象。	500 公里内螺栓松动造成的部件损坏，传动轴、十字轴各衬套的早期磨损。	●	●	●
转向系统	1.转向油的检查，油量是否达到标准，有无乳化及过脏现象； 2.转向液压油路有无渗漏现象； 3.转向油管有无干涉打折，固定是否牢靠； 4.转向机摇臂及横直拉杆连接牢靠，拉杆轴销润滑是否到位，有无松动及早磨现象。	500 公里内由于缺油或油质差而造成的故障。 500 公里内球头的早期磨损 。	●	●	●
制动系	1.检查行车、驻车气密性； 2.制动管路有无干涉打折现象； 3.制动灯开关调整是否符合标准； 4.检查制动气室与制动摇臂，保证工作正常； 5.检查驻车制动是否工作正常，工作时有无滞后； 6.检查排气制动系统（包括各排气管），管路有无打折漏气现象，工作时有无异响、密封不严及发卡现象，挠性软管有无损坏； 7.检查调整前、中、后桥制动蹄片间隙； 8.检查全车制动气压是否达到规定值； 9.储气筒放水。	500 公里内制动失常而造成的后果。	●	●	●

底盘	1.整车气管路及线束固定是否牢靠、捆扎合理，消除干涉部位避免磨损且远离热源； 2.对骑马螺栓及推力杆固定螺栓进行公斤力复紧； 3.检查各部位漏油漏气情况； 4.检查板簧及支撑座有无裂纹； 5.紧固板簧中心螺母、紧固 U 型螺栓； 6.检查平衡轴有无漏油现象； 7.备胎固定是否牢靠； 8.紧固车轮螺母； 9.润滑全车钢板弹簧销及衬套； 10.润滑变速器换档机构； 11.平衡轴钢板弹簧与滑板接合部分润滑情况的检查； 12.检查燃油箱支架及紧固带螺栓是否松动，燃油箱防护垫是否有移位等情况，检查燃油箱有无漏油现象。	500 公里内造成的螺栓松动、断裂、板簧错位。 500 公里内板簧支撑、座断裂，U 型螺栓松动、脱落、断裂，板簧错位及后果。 500 公里内钢板销由于润滑造成的早期磨损。 500 公里内燃油箱因防护垫移位或损坏造成油箱磨损漏油。	●	●	●
电器系统	1.系统检查全车灯光； 2.室内仪表及夜显照明工作是否正常； 3.各电器控制单元翘板开关工作是否正常可靠； 4.检查蓄电瓶电源线、搭铁线紧固情况； 5.空调、暖风、 ABS 、电摇、雨刮等电器功能功能是否可靠； 6.检查各部线束是否有刮磨现象； 7.检查各线束、电器插接件连接是否正常； 8.检查蓄电池电压是否正常，电解液加注是否标准。	500 公里内搭铁不良、接线柱烧损及引发的后果。 500 公里内线束摩擦短路烧损问题。 500 公里内插接件接触不良脱落及后果。	●	●	●

驾驶室	1.翻转机构工作正常，管路走向顺畅，无漏油现象； 2.驾驶室底部及两侧与发动机及其它部件干涉现象； 3.左右车门锁内外工作是否可靠； 4.检查前面罩与面罩内部件是否干涉磨损； 5.转向盘喇叭触点接触是否良好，底座牢靠，无随动； 6.换挡杆与驾驶室密封紧密，消除密封不严； 7.左右摇窗机工作正常，无沉重发卡现象； 8.驾驶室举升液压手动油泵液压油加注量是否标准，有无漏油情况。	500 公里内螺栓松动、脱落及引发的损失。 500 公里内因驾驶室两侧与发动机干涉而磨损的损失。	●	●	●
整车	1.以上各项工作完成后，保持车辆洁净； 2.检测、试验合格后交付给用户验收。	因车辆脏引发的后果。	●	●	●
自卸车举升系	1.举升油路有无漏油、油管有无干涉现象； 2.上装电路、气路连接是否符合标准； 3.举升泵、举升缸工作是否正常； 4.紧固副车架 U 型螺栓、连接螺栓和缸、泵、阀的固定螺栓； 5.各润滑点进行润滑如传动轴、十字轴。	500 公里内因漏油及造成后果。 500 公里内螺栓松动及造成问题。 500 公里内传动轴、十字轴、各衬套的早期磨损。	—	•	—
牵引车	1.鞍座摆动是否正常，操作杆操作是否顺畅，锁钩是否已涂抹润滑脂，运作是否正常； 2.鞍座安装板及鞍座紧固状态。	500 公里内螺栓松动及造成问题。	●	—	—
专用车	1.检查取力器结合面是否有渗漏现象； 2.检查上装各机构润滑情况； 3.上装与底盘连接处，固定螺栓紧固状态是否可靠。	500 公里内螺栓松动造成问题。	—	—	●

天然气	1.CNG、LNG 气瓶固定装置检查与紧固，气瓶有无变形、损伤； 2.检查燃气开关、管接头、管路、仪表有无泄漏； 3.检查燃气热交换器、增压器水管有无泄漏、堵塞； 4.检查燃气压力是否符合要求。	由于未检查或修复造成的后果。	○	○	○
1.表中”●”代表车型对应的项目为必做检查项；”○”代表车型装配对应零部件、总成时该项为必做检查项；”—”代表车型未装配对应零部件、总成，此项不必做检查； 2.服务站对车辆安全检查过程中若发现车辆存在故障隐患，可按照保修期内车辆对车辆进行保修服务，排除故障隐患。					

Item	Maintenance content of vehicle after sale	The service station shall undertake the expense if the service station does not fulfill the responsibility	Tractor Lorry	Dumper	Special Vehicle
Engine	1.Check the engine oil to see whether it meet the demand, replace the oil filter of tractor, lorry, highway transportation, mixer. (User shall bear the expense) 2.Check all the connection bolt and clamp of the connection pipe 3.Check the connector to see whether the connector is broken or damaged 4.Check the bearing of tighten wheel, directional wheel and fan to see whether there is jam 5.Check the belt and its use condition, adjust the belt on the same flat 6.Check the air filter and air input connection system to see whether there is interference or leakage 7.Check the cooler system to see whether there is leakage or abnormal wear of pipe or bending 8.Check the fuel system to see whether the pipeline is fixed reliably and there is leakage, bending and interference 9.Adjust the clearance between engine fan and protector. 10.Check the supporter of engine to see whether it is broken or the fasten bolt is loose 11.Check all the fasten of sensor, such as clutch fan, water temperature sensor, engine oil pressure sensor	Troubles caused by unqualified oil Troubles caused by bolt loosening in 500km Damage of fan, protector, cooler caused by loose bolt or damage of engine supporter in 500km The burn of wire caused by poor contact in 500km	•	•	•

Clutch	1.Check the free distance of pedal, the clearance of releasing bearing must be guaranteed, clearance between push handle and piston must be within the range from 0.5 to 1mm 2.Check whether the clutch releases completely and combine stablely without sliding. 3.Check the amount of hydraulic oil (braking liquid) and moving distance of branch pump 4.Check the level of oil container to see whether it meet the demand, or whether there is leakage in the pipe 5.Check the air input pipe of branch pump to see whether there is bending or wear.	Slip or release incompletely in 500km	•	•	•

Transmission	1.Inspect the amount of gear oil and whether the air nozzle is open 2.Check whether the handle is normal or the gear is complete 3.Whether the solid supporter of transmission is tight or deformation of damper rubber happen 4.Check the switch of reverse and empty and the fasten of wires 5.Check all the air pipe to see whether there is bending 6.Check gear shifting to see whether there is flexible and whether it is jam and lag 7.Check the connection bolt of shifting mechanism to see whether it is tight 8.Whether the air pipe of exchange between fast gear and low gear is fixed on the handle and it shall not be close to the compressor.	Damage of transmission caused by lacking gear oil in 500km Jam when shift the gear in 500km Bolt loosen, drop and its consequence in 500km Leakage of oil seal in 500km The air pipe deforms because of heated by exhaust pipe in 500 km	•	•	•
Driven axle	1.No leakage of oil block, whether the oil injection amount of main reducer and wheel reducer meet the demand 2.Whether the air pipe is smooth without bending 3.No jam when braking rocker and camshaft returns 4.Whether the watch hole of brake hoof lacks cover 5.Adjust the clearance between brake hoofs 6.Whether the nuts on the wheels loosen 7.Check whether there is leakage or abnormal noise	Wear of gear, bearing in early stage and its consequence in 500km Leakage of oil seal in 500km The brake rocker and camshaft can not return back and its consequence in 500km	•	•	•

Steering shaft	1.Check whether the locational bolts deform or loosen 2.Interference between left and right steering wheels when they block 3.Whether the fasten nuts in tires loosen 4.Whether the fasten clamp of steering pull rod loosens 5.Whether the fasten nuts and pin of steering rocker in double turning shaft is stable, whether the nuts loosen 6.Whether it is lubricated completely 7.Check the tires: abnormal wear or not 8.Check whether there is leakage or noise of wheel	Wear of component, burn of bearing and abnormal wear of tires in 500km	•	•	•
Transmission shaft	1.Check whether the cross shaft is well lubricated or there is wear in early stage 2.Whether the connection of shaft is solid or the bolt deform 3.Check whether the supporter across the axle loosen or incline. Whether the bearing is well lubricated and loose	Damage of component, wear of sleeve caused by bolt loosening in 500km	•	•	•
Steering system	1.Check the amount and state of oil whether it meet the demand and whether the oil is too dirty or emulsified 2.Whether there is leakage in hydraulic oil system 3.Whether the interference between pipes happen, whether the fasten is reliable 4.Whether the connection between rocker and horizontal straight is reliable, whether the pull rod pin is well lubricated and loosen	Troubles caused by lacking oil or bad quality oil in 500km Wear of ball-head in 500km	•	•	•

Braking system	1.Check the seal of driving parking 2.Whether there is interference and bending in the pipe 3.Whether the adjustment of switch of braking light meet the demand 4.Check the power chamber and braking rocker, keep it working normally 5.Check whether parking brake works normally, there is no delay 6.Check the exhaust braking system (including exhaust pipe) there is no bending in the pipe, no abnormal noise and jam, the hose is perfect with no damage 7.Check, adjust clearance between braking hoofs front, middle, rear axle 8.Check the whole vehicle air pressure 9.Release water from gas container	Troubles caused by braking abnormally in 500km	•	•	•

Chassis	1.Whether the fasten of air pipe and wires is reliable and reasonable, eliminate the interference and keep it away from heat source 2.Tighten the horse-ride bolt and fasten bolt of traction bar 3.Check the leakage of air, oil 4.Check the sheet spring and its holder 5.Tighten the central nut and U bolt 6.Check the leakage of oil on the balance shaft 7.The spare tire shall be fixed well 8.Tighten the nuts in the wheel 9.Lubricate all the sheet springs and its sleeves 10.Lubricate the mechanism of gear shifting 11.Check the lubrication of connection between balance shaft's sheet spring and sild plate 12.Check the tank supporter and fasten belt bolt, whether the tank's protection pad moves or broken, check the leakage of tank	Bolt loosen, fracture and spring dismatch in 500km Fracture of spring supporter, base, U bolt loosen, drop, fracture, spring dismatch in 500km Early wear of spring pin in 500km Wear or leakage of oil tank caused in 500km	•	•	•
Electrical system	1.Check all the lights 2.Whether the inner meter and night light work normally 3.All the rocker switches work normally and reliably 4.Check the power wire of battery and fasten of ground wire 5.Whether air condition, heat fan, ABS, electrical rocker, wiper works normally 6.Whether the wear of wire happens 7.Check the wire and connector to see whether they are correct 8.Check the voltage of battery to see whether it is normal and the electrolyte is enough	The ground wire is in poor contact and burn of post in 500km Burn of wire caused by wire friction in 500km Connector in poor contact and drop in 500km	•	•	•

Cab	1.The rotate mechanism works normally; the pipe arrangement is correct and there is no oil leakage 2.Interference at the bottom and two sides associated with engine 3.Whether the door lock is reliable 4.Check the interference between front face and inner parts 5.Whether trumpet touch is in good condition, whether the base is reliable with no follow-up 6.The shifting handle shall be close to cab with no clearance 7.Whether the window lifter on both sides works normally 8.Whether the amount of hydraulic oil in manual oil pump of cab raising is enough, whether there is oil leakage	Bolt loosen, drop and its loss in 500km Troubles caused by interference between cab and engine in 500km	•	•	•
Whole vehicle	1.After finishing all the items, keep the vehicle clean 2.Test, deliver the qualified vehicle to customer to check	Troubles caused by untidy vehicle	•	•	•
Dumper lifter system	1.Whether there is oil leakage or interference in the pipe system 2.Whether the electricity and air connection of the up device are correct 3.Whether the lifter pump, cylinder works normally 4.Check the U bolt of accessory frame, connection bolt and fasten bolt of cylinder, pump, valve 5.Lubricate at every necessary site	Troubles caused by leakage in 500km Troubles caused by bolt loosen in 500km Wear of shaft, cross shaft, sleeve in 500km	-	•	-
Tractor	1.Whether it swings normally, handle bar is smooth and soft, latch hook is lubricated by grease and works normally 2.Saddle mount plate and fasten of saddle	Troubles caused by bolt loosen in 500km	•	-	-

Dedicated vehicle	1.Check the leakage on the power takeoff surface 2.Check the lubrication of each up device 3.Check the fasten of tighten bolt at the connection between up device and chassis	Troubles caused by bolt loosen in 500km	-	-	●
Natural gas	1.Check fasten device of CNG, LNG gas cylinder, whether the cylinder deforms or broken 2.Check the leakage of gas switch, connector, pipe and meter 3.Check the block of heat transfer and compressor 4.Check the pressure of gas	Consequence caused by miss check or fail to repair	○	○	○

1.The "●" stands for the necessary items for corresponding vehicle "○" stands for the necessary items for corresponding vehicle equipped with corresponding component, assembly, "—" stands for unnecessary items for vehicle without corresponding component, assembly

2.The service station can eliminate the troubles and supply warranty service for vehicle which is still within the warranty period while finding the hidden troubles during the inspection of vehicle.

（2）新能源电动车安全检查项目

新能源电动车在两次保养中间里程点上下 1000 公里区间对车辆进行安全检查（特殊、超负荷运行工况，安全检查里程缩短）。服务站按照《安全检查项目》对用户车辆进行安全检查，检查费用由用户承担。

项目	安全检查检修项目	载货	牵引	专用	自卸
整车系统	1.全车低压系统检测，要求各系统程序版本是最新版本（VCU、PDU、MCU、数据采集终端）。（使用专用工具） 2.VDI 读取数据，无故障码信息，如有历史故障给予消除并不再复现。	●	●	●	●
动力电池系统	1.检测动力电池单体压差，要求在 0.3V 范围内。（使用专用工具） 2.检查动力电池 BMS 版本，要求为最新版本。（使用专用工具） 3.检查动力电池绝缘阻值，要求大于 500 兆欧。 4.检查动力电池外观，要求无磕碰、无破损。 5.检查动力电池高、低压插接件，要求高压插接件完全连接到位、低压插接 件无锈蚀、进水、损坏。	●	●	●	●
低压电器	1.检测低压蓄电池性能，用专用测试仪测试低压蓄电池内阻是否正常。 2.检查 DC-DC 工作状态，测量 DC 输出电压不低于 27.5V。 3.低压蓄电池极桩，要求正、负极桩头无腐蚀及禁锢。 4.检查灯光及喇叭是否工作正常。 5.检测车辆静态放电电流，要求车辆关闭锁车 15 分钟后静态放电电流不大于 30mA。（使用专用工具）	●	●	●	●
多合一	1.检查多合一外观有无磕碰是否破损，完整度良好。 2.测量四合一壳体是否带电。 3.检查各插接口链接是否正常。 4.水冷系统是否漏液	●	●	●	●
空调系统	1.检查鼓风机工作状态是否正常。 2.检查冷暖切换模式和出风模式，确认模式电机正常，无异响。 3.检查 PTC 制热工作是否正常。（使用专用工具） 4.检查压缩机工作状态是否正常、有无异响、制冷效果是否正常。 5.检查空调控制器，确保程序为最新版本。 6.检查冷凝器有误泄露、磕碰变形，固定是否牢固。 7.检查空调管路，确保高、低压管路接口无泄漏，管路无变形、安装无干涉、 破损和泄漏。	●	●	●	●

高压线束	检查高压线束和插接件及保护层，确保无磨损、破裂，高压线束。	●	●	●	●
驱动电机系统	1.检查电机控制器，确保软件是最新版本、电机控制器低压插件 无锈蚀,插件端子接触充实。 2.驱动电机状态确认，确保驱动电机插件无锈蚀、连接紧固、无漏水。	●	●	●	●
快充系统	检查车辆是否正常快充，确保快充线束、搭铁线、低压连接线束连接正常， 无破损、歪针、退针现象。	●	●	●	●
变速箱	1.检查变速箱齿轮油加注量是否正常、通气孔是否畅通。 2.检查变速箱操纵机构是否正常。 3.变速箱固定支撑有无松动，减震胶块有无变形破损现象。 4.检查变速箱气管路有无漏气打折现象。	●	●	●	●
驱动桥	1.各油堵有无渗漏，主减速与轮边减速器齿轮油加注量是否符合标准。 2.驱动桥通气管是否顺畅，有无打折现象。 3.制动摇臂及凸轮轴工作是否正常，有无回位卡滞现象。 4.制动蹄间隙检查孔（制动鼓防尘罩）是否缺堵盖。 5.检查调整制动蹄与制动鼓间隙。 6.轮胎固定螺母有无松动。 7.检查驱动桥总成有无漏油、异响现象。 8.检查转动轮毂有无异响，确保轮毂轴承运转无卡滞、异响现象。 9.检查车桥外部各构件连接螺栓是否松动，并加以紧固。	●	●	●	●
转向轴	1.检查转向定位螺栓有无变形松动。 2.左右转向轮在打死后有无干涉现象。 3.轮胎固定螺母有无松动。 4.转向拉杆固定夹有无松动。 5.双转向轴转向摇臂固定螺母及开口销是否牢靠，螺母有无随动现象。 6.转向系统润滑是否到位。 7.检查轮胎胎面有无异常磨损。 8.检查转向轴轮边是否有漏油、异响现象。 9.检查转动轮毂有无异响，确保轮毂轴承运转无卡滞、异响现象。	●	●	●	●
传动轴	1.检查传动轴、十字轴、伸缩轴润滑是否到位，有无松旷及早期磨损现象。 2.检查传动轴连接是否坚固，螺栓有无变形。 3.检查传动轴中间吊架固定有无松动，歪斜。轴承润滑是否到位，轴承有无松旷现象。	●	●	●	●
转向系统	1.转向油的检查，油量是否达到标准，有无乳化及过脏现象。 2.转向液压油路有无渗漏现象。 3.转向液压系统油管有无干涉打折现象，固定是否牢靠。	●	●	●	●

	4.转向机摇臂及横直拉杆连接牢靠，拉杆轴销润滑是否到位，有松动及早磨 现象。				
制动系统	1.检查行车、驻车气密性。 2.制动管路有无干涉打折现象。 3.制动灯开关调整是否符合标准。 4.检查全车制动气室与制动摇臂，保证其工作正常。 5.检查驻车制动系统工作正常，工作时无滞后现象。 6.检查排气制动系统（包括各排气管），管路无打折漏气现象，工作时无异 响密封不严及发卡现象，挠性软管有无损坏。 7.检查、调整前、中、后桥制动蹄片间隙。 8.检查全车制动气压是否达到规定值。 9.贮气筒放水。 10.制动鼓、制动盘有无裂纹。 11.检查摩擦片、摩擦块磨损情况。	●	●	●	●
底盘	1.整车气管路及线束固定是否牢靠、捆扎合理，消除干涉部位避免磨损且远 离热源。 2.对骑马螺栓及推力杆固定螺栓进行公斤力复紧。 3.检查各部位漏油漏气情况。 4.检查板簧及支撑、座有无裂纹。 5.紧固板簧中心螺母、紧固 U 型螺栓。 6.检查平衡轴有无漏油现象。 7.备胎固定牢靠。 8.紧固车轮螺母。 9.润滑全车钢板弹簧销及衬套。 10.润滑变速箱换档机构。 11.平衡轴钢板弹簧与滑板接合部分润滑情况的检查。	●	●	●	●
电气系统	1.系统检查全车灯光。 2.室内仪表及夜显照明工作正常。 3.各电器控制单元翘板开关工作正常可靠。 4.检查蓄电池电源线、搭铁线紧固情况。 5.ABS 、电摇、雨刮等电器功能可靠。 6.检查各部线束是否有刮磨现象。 7.检查各线束、电器插接件连接是否正常。 8.检查蓄电池电压是否正常，电解液加注是否标准。 9.动力电池 SOC 电量是否充足，高压上电是否正常，无绝缘、电池、档位等故障信息。	●	●	●	●
驾驶室	1.翻转机构工作正常，管路走向顺畅，无漏油现象。 2.驾驶室底部及两侧与其它部件干涉现象。 3.左右车门锁内外工作是否可靠。 4.检查前面罩与面罩内部件是否有干涉磨损现象。 5.转向盘喇叭触点接触是否良好，底座牢靠，无随动。 6.换挡杆与驾驶室密封紧密。消除密封不严。 7.左右摇窗机工作正常，无沉重发卡现象。	●	●	●	●

	8.驾驶室举升液压手动油泵液压油加注量是否标准，有无漏油情况。				
自卸车	1.举升油路有无漏油、油管有无干涉现象。 2.上装电路、气路连接是否符合标准。 3.举升泵、缸工作是否正常。 4.紧固副车架 U 型螺栓，连接螺栓，缸、泵、阀固定螺栓。 5.各润滑点进行润滑如传动轴。十字轴。	-	-	-	●
牵引车	1.摆动是否正常，操作杆操作是否顺畅，锁钩是否已涂抹润滑脂，运作是否正常。 2.鞍座安装板及鞍座紧固状态。	-	●	-	-
专用车	1.检查取力器结合面是否有渗漏现象。 2.检查上装各机构润滑情况。 3.上装与底盘连接处，固定螺栓紧固状态是否可靠。	-	-	●	-
整车	1.以上各项工作完成后，保持车辆洁净。 2.检测、试验合格后交付给用户验收。	●	●	●	●
1.表中“●”代表车型对应的项目为必做检查项；“-”代表车型未装配对应零部件、总成，此项不必做检查。 2.服务站对车辆安全检查过程中若发现车辆存在故障隐患，可按照保修期内车辆对车辆进行保修服务，排除故障隐患。					

（2）New Energy Electric Vehicle Safety Inspection Item

For new energy electric vehicles, vehicle security inspection should be carried out on the vehicle in the middle of two maintenance sessions and it cannot go up or down more than 1000 km(special or bad working conditions, vehicle security inspection mileage is shortened).The service station shall conduct vehicle security inspection of the user's vehicle in accordance with the "Vehicle security Inspection Items", and the inspection fee shall be borne by the user.

Item	Vehicle security inspection and maintenance items	Cargo truck	Tractor	Dumper truck	Special vehicle
Whole vehicle system	1.The whole vehicle low-voltage system test requires that each system program version is the latest version(VCU, PDU, MCU, Data acquisition terminal). (Use specialized tools) 2.VDI reads data without fault code information. If there is a historical fault, it shall be eliminated and shall not repeat.	●	●	●	●
Power battery system	1.To detect the voltage difference of single power battery, it is required to be within the range of 0.3V. (Use specialized tools) 2.Check the BMS version of the power battery and ensure that it is the latest version. (Use specialized tools) 3.Check the insulation resistance of the power battery. The value must be greater than 500 Megohm. 4.Check the appearance of the power battery, requiring no bump or damage. 5.Check the high-voltage and low-voltage power battery connectors. Ensure that the high-voltage connectors are fully connected, and the low-voltage connectors are free from corrosion, water, or damage.	●	●	●	●

Low-voltage electrical apparatus	1.Test the performance of low-voltage battery, and use a specialized tester to test whether the internal resistance of low-voltage battery is normal. 2.Check the working status of the DC-DC and ensure that the DC output voltage is not lower than 27.5V. 3.Check low-voltage battery pole pile, positive and negative pile heads are required to be free of corrosion and imprisonment. 4.Check that the lights and horns are working properly. 5.To detect the static discharge current of the vehicle.It is required to be no more than 30 mA after the vehicle is turned off and locked for 15 minutes. (Use specialized tools)	●	●	●	●
Integrated controller	1.Check whether the appearance of the integrated controller is damaged or not, and the integrity is good. 2.Measure whether the Four modules integrated controller housing is charged。 3.Check whether interfaces are properly connected. 4.Whether the water cooling system is leaking.	●	●	●	●
Air conditioning system	1.Check whether the blower works normally. 2.Check the heating and cooling switching mode and the air outlet mode, and confirm that the mode motor is normal and no noise is detected. 3.Check whether PTC heating works properly. (Use specialized tools) 4.Check whether the compressor is working normally, has no abnormal sound, and the cooling effect is normal. 5.Check the air conditioning controller to make sure the program is up to date. 6. Check whether the condenser is leaked, bumped and deformed, and fixed firmly. 7. Check the air conditioner pipes to ensure that the connectors of the high and low	●	●	●	●

	pressure pipes are free from leakage, distortion, interference, damage, or leakage.				
High voltage harness	Check the high voltage wiring harness, connectors and protective layer to ensure that there is no wear, crack, high voltage wiring harness.	●	●	●	●
Drive motor system	1. Check the motor controller to ensure that the software is the latest version, the low-voltage plug-in of the motor controller is not corroded, and the plug-in terminal contact is full. 2. Confirm the status of the drive motor to ensure that the plug-in of the drive motor is free of rust, tight connection and water leakage.	●	●	●	●
Fast charge system	Check whether the fast charge is normal. Ensure that the fast charge harness, bond wire, and low-voltage connection harness are properly connected and no damage, distorted needle, needle out phenomenon.	●	●	●	●
Transmission	1. Check whether the transmission gear oil filling amount is normal and the ventilation hole is smooth. 2. Check whether the transmission control mechanism is normal. 3. The fixed support of the gearbox is loose, and the shock-absorbing rubber block is deformed and damaged. 4. Check whether the gas pipe of the gearbox is leaking and discounting.	●	●	●	●
Driven axle	1.No leakage of oil block, whether the oil injection amount of main reducer and wheel reducer meet the demand. 2.Whether the air pipe is smooth without bending. 3.No jam when braking rocker and camshaft returns. 4.Whether the watch hole of brake hoof(Brake drum dust cover) lacks cover. 5.Adjust the clearance between brake hoofs. 6.Whether the nuts on the wheels loosen. 7.Check the drive axle assembly for oil	●	●	●	●

	leakage and abnormal sound. 8. Check that there is no abnormal sound in the rotating wheel hub to ensure that the wheel hub bearing runs without stuck and abnormal sound. 9. Check whether the connection bolts of the external components of the axle are loose and tightened.				
Steering shaft	1.Check whether the steering bolts are deformed and loose. 2.Interference between left and right steering wheels when they block. 3.Whether the fasten nuts in tires loosen. 4.Whether the fasten clamp of steering pull rod loosens. 5.Whether the fasten nuts and pin of steering rocker in double turning shaft is stable, whether the nuts loosen. 6.Whether it is lubricated completely. 7.Check the tires: abnormal wear or not. 8.Check whether there is leakage or noise of wheel. 9. Check that there is no abnormal sound in the rotating wheel hub to ensure that the wheel hub bearing runs without stuck and abnormal sound.	●	●	●	●
Transmission shaft	1.Check whether the cross shaft is well lubricated or there is wear in early stage. 2.Whether the connection of shaft is solid or the bolt deform. 3.Check whether the supporter across the axle loosen or incline. Whether the bearing is well lubricated and loose.	●	●	●	●
Steering system	1.Check the amount and state of oil whether it meet the demand and whether the oil is too dirty or emulsified. 2.Whether there is leakage in hydraulic oil system. 3.Whether the interference between pipes happen, whether the fasten is reliable. 4.Whether the connection between rocker and horizontal straight is reliable, whether the pull rod pin is well lubricated and loosen.	●	●	●	●

Brake system	1.Check the seal of driving parking. 2.Whether there is interference and bending in the pipe. 3.Whether the adjustment of switch of braking light meet the demand. 4.Check the power chamber and braking rocker, keep it working normally Check whether parking brake works normally, there is no delay. 5.Check that the parking brake system is working properly and there is no hysteresis during operation. 6.Check the exhaust braking system (including exhaust pipe) there is no bending in the pipe, no abnormal noise and jam, the hose is perfect with no damage. 7.Check, adjust clearance between braking hoofs front, middle, rear axle. 8.Check the whole vehicle air pressure. 9.Release water from gas container. 10. Brake drum and brake disc have cracks. 11. Check the wear of the friction plate and friction block.	●	●	●	●
Chassis	1.Whether the fasten of air pipe and wires is reliable and reasonable, eliminate the interference and keep it away from heat source. 2.Tighten the horse-ride bolt and fasten bolt of traction bar. 3.Check the leakage of air, oil. 4.Check the sheet spring and its holder. 5.Tighten the central nut and U bolt. 6.Check the leakage of oil on the balance shaft. 7.The spare tire shall be fixed well. 8.Tighten the nuts in the wheel. 9.Lubricate all the sheet springs and its sleeves. 10.Lubricate the mechanism of gear shifting. 11.Check lubrication of balance shaft leaf spring and slide joint.	●	●	●	●
Electrical system	1.Check all the lights. 2.Whether the inner meter and night lightwork normally.	●	●	●	●

	3.All the rocker switches work normally and reliably. 4.Check the power wire of battery and fasten of ground wire. 5.Whether ABS, electrical rocker, wiper works normally. 6.Whether the wear of wire happens. 7.Check the wire and connector to see whether they are correct. 8.Check the voltage of battery to see whether it is normal and the electrolyte is enough. 9.Whether the SOC of the power battery is sufficient, whether the high voltage power-on is normal, and no fault information such as insulation, battery, and gear is available.				
Cab	1.The rotate mechanism works normally; the pipe arrangement is correct and there is no oil leakage. 2.Interference at the bottom and two sides associated with engine. 3.Whether the door lock is reliable. 4.Check the interference between front face and inner parts. 5.Whether trumpet touch is in good condition, whether the base is reliable with no follow-up. 6.The shifting handle shall be close to cab with no clearance. 7.Whether the window lifter on both sides works normally. 8.Whether the amount of hydraulic oil in manual oil pump of cab raising is enough, whether there is oil leakage.	●	●	●	●
Dumper truck	1.Whether there is oil leakage or interference in the pipe system. 2.Whether the electricity and air connection of the up device are correct. 3.Whether the lifter pump, cylinder works normally. 4.Check the U bolt of accessory frame, connection bolt and fasten bolt of cylinder, pump, valve.	-	-	-	●

	5.Lubricate at every necessary site.				
Tractor	1.Whether it swings normally, handle bar is smooth and soft, latch hook is lubricated by grease and works normally. 2.Saddle mount plate and fasten of saddle.	-	●	-	-
Special vehicle	1.Check the leakage on the power takeoff surface. 2.Check the lubrication of each up device. 3.Check the fasten of tighten bolt at the connection between up device and chassis.	-	-	●	-
Whole vehicle	1.After finishing all the items, keep the vehicle clean. 2.Test, deliver the qualified vehicle to customer to check.	●	●	●	●
1.The "●" stands for the necessary items for corresponding vehicle , "-" stands for unnecessary items for vehicle without corresponding component, assembly. 2.The service station can eliminate the troubles and supply warranty service for vehicle which is still within the warranty period while finding the hidden troubles during the inspection of vehicle.					

5.3 车辆关键部位螺栓定期复紧表 The form of periodic retightening of bolts at key parts of vehicle

车辆各关键部位螺栓紧固周期、拧紧力矩、使用工具等信息，参见《车辆关键部位螺栓定期复紧表》。

Bolt tightening cycle, tightening torque, tools and other information at key parts of the vehicle, please reference to "Periodic Retightening of Bolts at Key Parts of Vehicle Form".

序号	关键部位	螺母规格	规格/结构	使用工具	拧紧力矩（N·m）	复紧周期	特别说明
1	轮胎螺栓螺母	M22	钢制轮辋	①扭力扳手(200-760)N· m ②延长杆 300mm ③套筒 S34	605 ± 55	提新车或更换轮胎后行驶100 公里进行复紧，后期每间隔 5000 公里检查复紧。	①车辆超负荷运行或工况恶劣情况下须适当缩短复紧周期。 ②每次更换轮胎后，必须按复紧时间和拧紧力矩要求检查复紧。
			铝合金轮辋		645 ± 35		
		M20	钢制轮辋	①扭力扳手(200-760)N· m ②延长杆 300mm ③套筒 S30	525 ± 25		
2	牵引车鞍座连接螺栓	M16	瓦楞板形式(螺栓等级 8.8)	①力矩扳手(200-760) N·m ②套筒 S24 ③延长杆 300mm	182 ~ 222	自卸半挂、专用车每行驶 7500 ~ 9000 公里，或行驶时间不超过 6 个月。 载货车、牵引车每行驶 15000 ~ 18000 公里，或行驶时间不超过 6 个月。 偏置码头车每行驶 2000 ~ 3000 公里，或行驶时间不超过 6 个月。 矿用自卸半挂每行驶 4000 ~ 5000 公里，或行驶时间不超过 6 个月。	车辆超负荷运行或工况恶劣情况下须适当缩短复紧周期。
			瓦楞板形式(螺栓等级 10.9)		247 ~ 790		
		M20	平板形式(螺栓等级 8.8)	①力矩扳手(200-760) N·m ②套筒 S30 ③延长杆 300mm	389 ~ 456		
			平板形式(螺栓等级 10.9)		486 ~ 548		

3	前板簧骑马螺栓	MI8*1.5	190003888626 自锁螺母 06.11289. 0003 台肩螺母 SZ952000867DTF 六角凸缘螺母	①力矩扳手 (200-760) N・m ②延长杆 300mm ③套筒 S27	270 ± 27	首次复紧在车辆强保的时候进行，后期每行驶8000-10000 公里或行驶时间不超过 6 个月时检查复紧。	车辆超负荷运行或工况恶劣情况下须适当缩短复紧周期。
	后板簧骑马螺栓	M24*2	1.06. 11289. 0005 六角自锁螺母 2.SZ952000922DTF 六角凸缘螺母 3.190003888630 自锁螺母 4.DZ91259528024 螺母 5.81.90685.0400 螺母 6.DZ91259527024 螺母 7.190003888749 螺母	①扭力扳手 (200-760)N・m ②延长杆 300mm ③套筒 S36	1.680 ± 68 2.550 ± 55 3.470 ± 47 4.840 ± 84 5.700 ± 70 6.550 ± 55 7.510 ± 51	首次复紧在车辆强保的时候进行，后期每行驶8000-10000 公里或行驶时间不超过 6 个月时检查复紧。	车辆超负荷运行或工况恶劣情况下须适当缩短复紧周期。
4	上下推力杆紧固螺栓	M20	STR 双后桥悬架	①扭力扳手 (200-680) N・m ②延长杆 300mm ③套筒 S30	530 ± 53	①自卸车、专用车每行驶7500 ~ 9000 公里，或行驶时间不超过 6 个月。 ②载货车、牵引车每行驶15000 ~ 18000 公里，或行驶时间不超过 6 个月。 ③偏置码头车每行驶2000 ~ 3000 公里，或行驶	车辆超负荷运行或工况恶劣情况下须适当缩短复紧周期。
		M18	MAN 双后桥悬架(上推力杆)	①扭力扳手 (200-680) N・m ②延长杆 300mm ③套筒 S27	560 ± 56		
			MAN 双后桥悬架(下推力杆)		390 ± 39		

5	传动轴吊架螺栓	M10	传动轴吊架	套筒 S16 或 16*18 双头扳手	无力矩要求，须紧固到位	时间不超过 6 个月。 ④矿用自卸车每行驶 4000～5000 公里，或行驶时间不超过 6 个月。	
6	上装副梁连接螺栓	M16/M18	双螺母结构/单螺母结构/紧固 U 型螺栓两侧螺母/紧固焊接角架连接螺母	套筒 S24/S27，22/24 梅花扳手	160-180		车辆超负荷运行或工况恶劣情况下须适当缩短复紧周期。

No.	Key parts	Nut size	Structure/ rim material/ bolt performance rating	Tools	Tightening torque (N·m)	Re-tightening period	Special instructions
1	Wheel bolts and nuts	M22	Steel	①Torque wrench (200- 760) N · m ②Extension rod300mm ③Sleeve S34	605±55	After picking up a new vehicle or replacing a tire, the vehicle will be re-tightened after driving for 100km. And re-tighten it every 5000km mileage.	①Re-tightening period shall be shortened properly in case of overload operation or severe working conditions. ②After tires are replaced, check tightness according to the requirements of re-tightening period and re-tightening torque.
			Aluminum alloy		645±35		
		M20	Steel	①Torque wrench (200- 760) N · m ②Extension rod300mm ③Sleeve S30	525±25		
2	Tractor fifth wheel bolts	M16	Corrugated board (Bolt performance rating 8.8)	①Torque wrench (200- 760) N · m ②Extension rod 300mm ③Sleeve S24	182 ~ 222	①Every 7500-9000km or less than 6 months for dump Dump semitrailer or special vehicle. ②Every 15000-18000km or less than 6 months for lorries and tractors. ③Every 2000-3000km or less than 6 months for side-cab port tractor. ④Every 4000-5000km or less than 6 months for the	Re-tightening period shall be shortened properly in case of overload operation or severe wo-rking conditions.
			Corrugated board (Bolt performance rating 10.9)		247 ~ 790		
		M20	Flat (Bolt performance rating 8.8)	①Torque wrench (200- 760) N · m ②Extension rod 300mm ③Sleeve S30	389 ~ 456		

2	Tractor fifth wheel bolts	M20	Flat (Bolt performance rating 10.9)		486 ~ 548	mining Dump semitrailer.	
3	Front leaf spring u-bolts	MI8*1.5	190003888626 Self-locking nut 06.11289. 0003 Shoulder nut SZ952000867DTF Hexagon collar nut	①Torque wrench (200- 760) N · m ②Extension rod 300mm ③Sleeve S27	270±27	The first re-tightening should be carried out during the First maintenance of the vehicle, and the re-tightening period is every 8000-10000km or less than 6 months.	Repetitive tightening period shall be shortened properly in case of overload operation or severe working conditions.
	Rear leaf spring u-bolts	M24*2	1.06. 11289. 0005 Hex self-locking nut 2.SZ952000922DTF Hexagon collar nut 3.190003888630 Self-locking nut 4.DZ91259528024nut 5.81.90685.0400nut 6.DZ91259527024nut 7.190003888749nut	①Torque wrench (200-760) N · m ②Extension rod 300mm ③Sleeve S36	1.680±68 2.550±55 3.470±47 4.840±84 5.700±70 6.550±55 7.510±51	The first re-tightening should be carried out during the First maintenance of the vehicle, and the re-tightening period is every 8000-10000km or less than 6 months.	Repetitive tightening period shall be shortened properly in case of overload operation or severe working conditions.

4	Fastening bolts for upper and lower thrust rods	M20	STR double rear axle suspension	①Torque wrench (200-680) N·m ②Extension rod 300mm ③SleeveS30	530±53	① Every 7500-9000km or less than 6 months for dump truck or special vehicle. ② Every 15000-18000km or less than 6 months for lorries and tractors. ③ Every 2000-3000km or less than 6 months for side-cab port tractor. ④Every 4000-5000km or less than 6 months for the mining dump truck.	Repetitive tightening period shall be shortened properly in case of overload operation or severe working conditions.
		M18	MAN double rear axle suspension (Upper thrust rod)	①Torque wrench (200-680) N·m ②Extension rod 300mm ③Sleeve S27	560±56		
			MAN double rear axle suspension (Lower thrust rod)		390±39		
5	Drive shaft hanger bolt	M10	Drive shaft hanger	Sleeve S16 or 16*18 double end wrench.	There is no torque requirement, but it must be tightened in place.		
6	Bolts on connecting plate	M16/M18	Double nut structure /Single nut structure /Tighten the nuts on both sides of the U-bolt /Tighten the nuts of the welding angle bracket	Sleeve S24/S27, 22/24 ring wrench	160-180		Repetitive tightening period shall be shortened properly in case of overload operation or severe working conditions.

6.运输、存储环节蓄电池维护管理说明
Description of storage battery management process

6.1 车辆较长时间不启动时 When the vehicle does not start for a long time

（1）当存放时间≤7 天时，关闭电源总开关；

When the storage time is ≤ 7 days, turn off the main power switch.

（2）当存放时间＞7 天时，拆除蓄电池负极连接线，并将拆卸的连接线固定好；

When the storage time is > 7 days, remove the negative connecting wire of the battery and fix the removed connecting wire.

（3）当存放时间＞30 天时，每 30 天进行一次 30 分钟的着车，给蓄电池补充电；

When the storage time is > 30 days, start the vehicle for 30 minutes every 30 days to recharge the battery.

（4）当存放时间＞90 天时，每 30 天进行一次 30 分钟的着车，每隔 90 天进行一次检测，单体蓄电池端电压≥12.5V 即为正常，否则应及时补充电；

When the storage time is more than 90 days, the vehicle shall be parked for 30 minutes every 30 days and tested every 90 days. If the terminal voltage of single battery is ≥ 12.5V, it is normal, otherwise it shall be supplemented in time.

（5）-10℃左右环境，当车辆超过 7 天不启动时，建议将蓄电池拆下存放于室内；

- 10 ℃. When the vehicle does not start for more than 7 days, it is recommended to remove the battery and store it indoors.

（6）-20℃左右及以下环境，车辆在存储、托运过程中，须将蓄电池拆下，存放于室内；

In the environment of - 20 ℃ and below, the battery must be removed and stored indoors during the storage and consignment of the vehicle.

6.2 其它维护管理要求说明 Description of other maintenance management requirements

（1）拆下的蓄电池严禁露天存放，避免雨、雪天气导致蓄电池的外部损坏及短路；

The removed battery shall not be stored in the open air to avoid external damage and short circuit of the battery caused by rain and snow.

（2）蓄电池拆卸时必须单独标识，避免安装时，不同状态的蓄电池装在同一辆车上；

The battery must be identified separately during disassembly to avoid installing batteries in different states on the same vehicle during installation.

（3）委改环节，严禁收放机、灯光、仪表、空调、暖风等长时间工作；

It is forbidden to work for a long time, such as radio, light, instrument, air conditioner and warm air.

（4）委改环节，对于亏电严重的车型，委改单位应配备充电设施以便于随时进行补充电；

In the process of entrusted reform, for the models with serious power loss, the entrusted reform unit shall be equipped with charging facilities to supplement power at any time.

（5）存储环节，入库时必须对蓄电池状态进行检查，蓄电池亏电（单体电压低于

12.5V）时，必须充电后，才能入库；

During storage, the state of the battery must be checked. When the battery loses power (the single voltage is lower than 12.5V), it must be charged before storage.

（6）在车辆改装或维修过程中，使用电焊、切割等设备时，必须断开蓄电池负极搭铁线，避免造成蓄电池及相关部件损坏；

In the process of vehicle modification or maintenance, when using electric welding, cutting and other equipment, the negative grounding wire of the battery must be disconnected to avoid damage to the battery and related components.

（7）蓄电池单独运输属于危险品运输，运输过程中，应做好固定及防护措施，同时遵守目的地国家相关法律法规要求；

The separate transportation of storage battery belongs to the transportation of dangerous goods. During the transportation, fixation and protective measures shall be taken, and the requirements of relevant laws and regulations of the country of destination shall be observed.

6.3 责任声明 Statement of Liability

经销商必须严格进行库存车辆售前维护和管理，因经销商检查维护不到位而造成的车辆故障，陕汽进出口公司不承担任何责任和费用。

The distributors must carry out the maintenance and management of the inventory vehicles. The SHACMAN shall not bear any responsibility and expenses for the vehicle failure caused by the distributor's inspection or maintenance failure.