



中国驰名商标

Chinese Resound Brand

沐河 70 系列轮式拖拉机
Shuhe 70 Series of Wheeled Tractors

使用说明书
Use And Maintenance



山东常林道依茨法尔机械有限公司

Shandong Changlin Deutz-Fahr Machinery Co., Ltd

沭河 SH70 系列轮式拖拉机
Shuhe SH70 Series Wheeled Tractor
使用说明书
Use And Maintenance
SH600/SH604/SH650/SH654
SH700/SH704/SH750/SH754/SH800/SH804

山东常林道依茨法尔机械有限公司
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产品识别标志记录表
Product Identification Mark Record Sheet

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Product Identification Mark Record Sheet

| |
|---|
| 产品牌号: Product grade: |
| 产品型号: Product type: |
| 机器出厂编号: Machine manufacturing number: |
| 发动机出厂编号: Engine manufacturing number: |
| 底盘出厂编号: Chassis manufacturing number: |
| 供应商: Supplier: |
| 供货日期: Date of supply: |
| 制造厂名称: 山东常林道依茨法尔机械有限公司 Manufacturer name: Shandong Changlin DEUTZ-FAHR Machinery Co., Ltd. |
| 制造厂地址: 山东省临沭县经济开发区 Manufacturer address: Shandong Linshu Economic Development Zone |
| 制造厂电话: (0539) 6260626 6260622 Manufacturer telephone number: 0086-0539-6260626 0086-0539-6260622 |
| 售后服务电话: (0539) 6260622 After-sales service hotline: 0086-0539-6260622 |
| 用户或驾驶员: User or driver: |

注: 1、用户购机时应认真填写此表;

NOTE: 1. The user is recommended to carefully fill in the sheet upon purchasing;

2、表中的编号应记录完整(包括字母)。

The number in the sheet shall be completely recorded (including letters).

沭河 SH70 系列轮式拖拉机使用说明书
Shuhe SH70 Series Wheeled Tractor
Use And Maintenance

山东常林道依茨法尔机械有限公司 编

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用户须知
Instructions to the User

用户须知
Instructions to the User

尊敬的用户：

Dear user,

感谢您对我公司的信任，购买我公司生产的“沐河”牌 SH70 系列轮式拖拉机，为了您能正确、合理、高效地使用该拖拉机，请您注意以下重要信息：

Thank you for your trust of our company and procurement of our “Shuhe” SH70 series wheeled tractor. To correctly, rationally, and efficiently use the tractor, please pay attention to the following important information:

1. 使用本拖拉机之前，不管您以前有无驾驶经验，都应该认真阅读本说明书。这样将会有助于您更合理有效地操作该拖拉机。
Prior to using the tractor, please carefully read this Use And Maintenance no matter you are a new or experienced driver. By this way, you can operate the tractor more rationally and effectively.
2. 为了能给您创造更多的经济效益，延长拖拉机的使用寿命，请您在使用本产品之前，仔细阅读本说明书和与之配套的发动机及农机具使用说明书，并严格执行说明书中的规定，操作、维护、保养好拖拉机，以便于充分发挥拖拉机的性能。
To bring more economic benefits and extend the service life of the tractor, you are recommended to, prior to using the tractor, carefully read the Use And Maintenance and the Use And Maintenances of the accompanied engine and agricultural machinery as well as strictly perform corresponding stipulations to do well in the tractor operation, repair, and maintenance, so as to fully play its performance.
3. 请不要随意改装拖拉机，以免影响拖拉机性能和发生意外事故，同时将会造成难以履行“三包”服务的后果。
It is not allowed to randomly retrofit the tractor, so as to avoid affecting its performance and leading to accidents; in addition, it will also make it difficult to perform the “three-guarantee” service.
4. 本拖拉机只能由熟悉拖拉机特性并具有相关安全操作知识的人员操作、保养和维修。
The tractor can only be operated, maintained, and repaired by the staff familiar with the tractor characteristics and with the safe operation knowledge.
5. 驾驶员必须持有当地交通部门签发的农用车、拖拉机驾驶执照。
The driver shall bear the agricultural vehicle and tractor driving license issued by the local transportation department.
6. 任何时候都应遵守《中华人民共和国道路交通安全法》、《道路交通安全法实施条例》和其他安全规定以及道路交通规则，防止发生意外事故。
It is a must to always follow the *Road Traffic Safety Law of the People's Republic of China*, the *Regulation on the Implementation of the Road Traffic Safety Law of the People's Republic of China*, relevant safety stipulations, and road traffic rules, so as to avoid accidents.
7. 因各地农艺情况和土壤状况差异较大，本使用说明书中推荐的用途、参数和配套农机具及作业效率可能会有所不同，请用户根据实际情况进行选择。使用时不应超过使用说明书的规定，否则可能导致拖拉机性能下降或出现故障。
Due to different agricultural conditions and soil states, the purpose, parameters, supporting agricultural machinery, and working efficiency recommended in the Use And Maintenance may be different, and the user is recommended to make selections based on actual conditions. Upon use, the stipulations in the Use And Maintenance shall be strictly followed; or else, the tractor performance may be degraded or the malfunction may be caused.
8. 本使用说明书并非产品质量保证书，本书的数据、插图和说明等内容仅限于操作、保养和维修机器。
The Use And Maintenance is not same as the product quality guarantee, and the data, illustrations, and descriptions are only applicable for the tractor operation, maintenance, and repair.
9. 本系列拖拉机的执行标准为 GB/T 15370-2004《农业轮式和履带拖拉机 通用技术条件》和 GB/T15370.2《农业拖拉机 通用技术条件 第2部分：50~130kW 轮式拖拉机》。
The executive standards of the series tractor cover GB/T 15370-2004 *General Requirement of*

用户须知
Instructions to the User

Agricultural Wheeled Tractors and Crawler Tractors and GB/T15370.2 General Requirement of Agricultural Tractors - Part 2: 50 ~ 130 kW Wheeled Tractor.

10.本说明书主要依据出版时现行产品为基础进行编制，重点介绍通用型。为提升拖拉机的质量、提高使用性能和安全性能，我公司会持续适时改进变更，因此本说明书的内容、插图等可能有与实物不同的地方。若有更改，恕不另行通知，敬请谅解。

The Use And Maintenance is prepared mainly based on the product current at the date of publishing, which focuses on the general type introduction. To enhance the tractor quality and improve the service and safety performances, our company will continuously and timely make improvements and changes; thus, the content and illustrations in the Use And Maintenance may be different from the physical objects. It is subjected to changes without further notice.

11.用户如有三包维修及配件供应问题，请与我公司就近的销售网点联系。

For matters such as the “three-guarantee” repair and parts supply, please contact with the local sales dealer.

2004年“沐河”牌商标荣获中国驰名商标。

In 2004, “Shuhe” trademark won the Famous Trademark of China.

欢迎广大用户选购我公司产品，我公司以质量第一、信誉第一、用户至上为宗旨，竭诚为广大用户服务。

Welcome to buy our product, and we will try to serve all users wholeheartedly with the tenets of the “Quality First, Reputation First, and User Utmost”.

山东常林道依茨法尔机械有限公司
Shandong Changlin DEUTZ-FAHR Machinery Co., Ltd.

2012年1月
January 2012

前言 Foreword


前言 Foreword


沭河 SH70 系列轮式拖拉机是我公司以市场为导向，成功推出的又一主导产品，该系列机型结合欧美拖拉机的先进技术，集国内外同类机型技术之长，进行了优化设计。


Shuhe SH70 series wheeled tractor is our company's market-oriented leading product, which is optimally designed based on integrations of the advanced technologies of the European and American tractor as well as advantages of the similar models at home and abroad.

本使用说明书主要介绍了沭河 SH70 系列轮式拖拉机安全注意事项、产品标志、各部分的磨合、使用、技术保养、调整、故障和排除方法等，可供拖拉机驾驶和维修人员参考。


The Use And Maintenance mainly introduces the safety precautions, product mark, running-in, use, technical maintenance, adjustment, and troubleshooting method of Shuhe SH70 series wheeled tractor, which can be made as a reference for the tractor driver and repair staff.

在本说明书中，安全警戒符号“”提示重要的安全信息。当见到该符号时，应警戒可能产生的伤害，仔细阅读符号后面的信息，并告知其他操作者。

In the Use And Maintenance, the safety warning symbol “” hints the important safety information; when encountering such symbol, please be on the alert against the possible damages; carefully read the following information, and notify such information to other operators.

 警告：表示如果不避免，可能造成死亡或严重伤害的潜在危险情况。

WARNING: It means that potential dangers (death or serious injury) may be caused.

 注意：表示如果不避免，可能造成较低或中等程度伤害的潜在危险情况。

CAUTION: It means that potential dangers (low or medium injury) may be caused.

重要事项：用来说明一些涉及机器损坏的事项。

IMPORTANT: It is used to describe some matters related to tractor damages.

注：用来说明一些补充信息。

NOTE: It is used to describe some supplementary information.

本说明书为产品的重要组成部分，与拖拉机同时提供给用户，请用户妥善保管。

The Use And Maintenance is an important part of the tractor, which will be offered to the user together with the tractor, and the user is recommended to make proper storage.

由于本说明书涉及内容较多，编写过程中难免有不足之处，请多提宝贵意见。竭诚希望广大用户与我们合作，将您对产品品质、性能、结构方面的意见和使用方面的经验、建议反馈给我们，以便进一步改进产品和完善使用说明书。

As the Use And Maintenance covers a wide range of content, some shortcomings will be inevitable, thus, any suggestions will be warmly welcomed. We sincerely hope that you could cooperate with us, and feed back your opinions on the product quality, performance and structure as well as the service experience and suggestions to us, so that we could improve the product and perfect the Use And Maintenance.

预期用途 Intended Purpose

沭河 SH70 系列轮式拖拉机是一种多用途的农用轮式拖拉机，该机结构紧凑、操纵方便、转向灵活、牵引力大、用途广泛、维修保养方便。如配备适当农具，可进行耕、耙、播、收等作业；配备拖车可以进行农业用途的运输作业，挂拖质量比（挂车总质量与拖拉机整机质量的比值）应不大于 3；通过动力输出轴可与秸秆还田机连接进行秸秆还田作业，也可作为抽水机、脱粒机的原动力。请按本说明书的要求正确配套农机具，以获得最大的经济效益。

Shuhe SH70 series wheeled tractor is a kind of multi-purpose agricultural wheeled tractor, which features compacted structure, convenient control, flexible steering, large traction force, wide application range, and convenient repair and maintenance. If proper agricultural tools are equipped, the cultivation, harrowing, seeding, and harvesting can be done; if trailers are equipped, the agricultural transportation can be done, and the towed mass ratio (the ratio of the trailer total mass to the total mass of the tractor) shall not be larger than 3; through the power-take-off shaft, it can be connected with the field straw chopper for the straw returning, which can also be used as the motive power of the water pump and threshing machine. Please provide correct agricultural machinery in accordance with the requirements of the Use And Maintenance, so as to maximize economic benefits.

使用者应严格遵守制造厂规定的使用、保养和维修条件，以及预期用途的基本要求。本产品用于其它作业均与拖拉机预期用途相违背。

The user shall strictly follow the use, maintenance, repair, and intended purpose stipulations specified by the manufacturer. If the tractor is used for other purpose, it will go against the intended purpose.

如对本拖拉机进行擅自改制或用于与拖拉机预期用途相违背的作业，可能会导致机器可靠性降低、机器损坏、人身伤害或本机得不到保修等事项，谨请注意。

Please note that, if the tractor is remanufactured without permission or it is used for the purpose against its intended purpose, its reliability will be degraded; the tractor may be damaged; the personal injury may be caused, or the tractor will not be covered by warranty.

常用单位中英文对照表
Common Unit Contrast List (Chinese - English)

常用单位中英文对照表
Common Unit Contrast List (Chinese - English)

| 序号 No. | 单位类别 Unit Category | 国际单位 International Unit | 中文对照 English Meaning |
|-----------|-----------------------|----------------------------|--|
| 1 | 时间 Time | S | 秒 Second |
| 2 | | min | 分钟 Minute |
| 3 | | h | 小时 Hour |
| 4 | 长度 Length | mm | 毫米 Millimeter |
| 5 | | cm | 厘米 Centimeter |
| 6 | | m | 米 Meter |
| 7 | | km | 千米 Kilometer |
| 8 | 力 Force | N | 牛顿 Newton |
| 9 | | KN | 千牛 Kilonewton |
| 10 | 力矩 Torque | N·m | 牛顿·米 Newton · meter |
| 11 | 质量 Mass | kg | 千克 Kilogram |
| 12 | | g | 克 Gram |
| 13 | 压力 Pressure | Pa | 帕 Pascal |
| 14 | | kPa | 千帕 Kilopascal |
| 15 | | MPa | 兆帕 Megapascal |
| 16 | | kgf/cm ² | 千克力/平方厘米 Kilogram force / square centimeter |
| 17 | 温度 Temperature | ℃ | 摄氏度 Centigrade |
| 18 | 速度 Speed | km/h | 千米/小时 Kilometer / hour |

常用单位中英文对照表
Common Unit Contrast List (Chinese - English)

| | | | |
|----|-----------------------------------|--------|-------------------------------------|
| 19 | 转速 Rotation speed | r/min | 转/分钟 Rotation / minute |
| 20 | 电流 Current | A | 安培 Ampere |
| 21 | 电压 Voltage x | V | 伏 Volt |
| 22 | 容积 Capacity | L | 升 Liter |
| 23 | | ml | 毫升 Milliliter |
| 24 | 流量 Flow | L/min | 升、分钟 Liter per minute |
| 25 | 功率 Power | kW | 千瓦 Kilowatt |
| 26 | | PS | 马力 Horsepower |
| 27 | 油耗 Oil consumption | g/kW·h | 克 / 千瓦·小时 Gram / kilowatt · hour |
| 28 | 蓄电池容量 Storage battery capacity | A·h | 安培·小时 Ampere · hour |

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第一章 安全注意事项 Chapter I Safety Precautions

1.1 安全规则及使用注意事项

Safety Rules and Precautions for Use

为了作业时的安全，在使用本机之前，必须仔细阅读并充分理解使用说明书，在掌握使用方法后再进行实际操作，并且一定要遵守下述的注意事项，以及本书中“ 警告、 注意、重要事项、注”等有关安全事项。

For the safe working, prior to using the tractor, please carefully read and fully understand the Use And Maintenance; actual operation can be done after mastering the application methods; in addition, attention shall be paid to the following precautions and “ WARNING,  CAUTION, IMPORTANT, and NOTE” in the Use And Maintenance.

操作前必读

Read prior to operation

1. 驾驶员必须充分地阅读并理解使用保养说明书及安全警告标志。
The driver must fully read and understand the Operation and Maintenance Instruction and the safety warning mark.
2. 必须记住正确的操作及作业方法。
The correct operation and working methods must be remembered.



合格的操作者

Qualified operator

1. 驾驶员操作机器时,必须有足够的判断能力。
When the driver operates the tractor, he/she must have sufficient judgment ability.
2. 身体感觉不适、酒后、睡眠不足、孕妇、色盲及未满 18 岁的人不能操作机器。
The staff feeling bad and with insufficient sleep and color blindness, drunk staff, pregnant woman, and the underage staff are not allowed to operate the tractor.
3. 驾驶员应受过专门训练，取得驾驶执照并按时接受审验，道路行驶中应严格遵守交通规则。
The driver shall be specially trained, get the driving license and accept the audit and review duly; in addition, he/she shall strictly follow the traffic rules during driving.
4. 初次操作的人，在熟练之前，请低速运转。
The staff with initial operation shall drive the tractor at low speed before becoming proficient.



安全注意事项 Safety Precautions

驾驶员的服装

Driver's clothes

1. 驾驶员在作业时，应穿合适紧身的工作服，不许穿肥大的外套和衬衫，不许扎领带、围巾或项链等物品；女性驾驶员若留有长发，请盘起长发。

During working, the driver shall wear fit and tight work clothes; he/she is not allowed to wear loose coat and shirt or tie the necktie, scarf, or necklace. If the woman driver has long hair, please twist the long hair.



2. 在工作中的拖拉机或运转部件附近时，如果不按以上要求，可能导致严重的人身伤害。

If the driver is close to the working tractor or moving parts and he/she doesn't follow the above requirements, serious personal injury may be caused.

3. 请根据需要佩戴好安全帽、护目镜和手套，穿好安全鞋等保护装置。

Please wear the safety helmet, goggles, gloves, safety shoes, and other protective devices as required.

燃料的使用

Fuel use

1. 燃料为易燃物，使用时应严禁烟火。
The fuel is inflammable, smoke and fire shall be prohibited during use.

2. 燃油箱加油前，应将发动机熄火。
Before filling the fuel tank, the engine shall be stopped.

3. 加油和检修燃油系统时严禁吸烟或靠近火源。
Upon fuel filling and fuel system inspection, it is not allowed to smoke or get close to the fire source.

4. 保持机器上无聚集的污物、润滑脂、碎屑。燃料或机油溢出时，请用干净的抹布擦试干净。

Keep the tractor clean and free from accumulated dirt, lubricating grease, or scraps. Once the fuel or engine oil overflows, please use a piece of clean cloth to wipe it off.

5. 燃料和润滑油的品质严格按“附录”规定的要求执行。

The fuel and lubricating oil quality shall strictly follow the requirements specified in the "Appendixes".



安全注意事项 Safety Precautions

安全更换工作液体

Safe replacement of the working fluid

1. 工作液体具有危险性，会造成严重的人身伤害，如高压液压油、制动液、机油等。
The working fluid is dangerous, which will lead to serious personal injury, such as the high pressure hydraulic oil, brake fluid, engine oil, etc.
2. 在更换工作液体前应将发动机熄火，严禁烟火、吸烟；工作液体溢出时，请用干净的抹布擦拭干净。
Prior to replacing the working fluid, the engine shall be stopped; no fire and smoking is allowed. When the working fluid overflows, please use a piece of clean cloth to wipe it off.
3. 更换工作液体要按照规定的牌号进行更换。
The working fluid shall be replaced according to the specified grade.
4. 换下的工作液体属废弃油料，不能随意丢弃。
The replaced working fluid is a kind of waste, which can't be randomly discarded.

轮胎保养注意事项

Tyre maintenance precautions

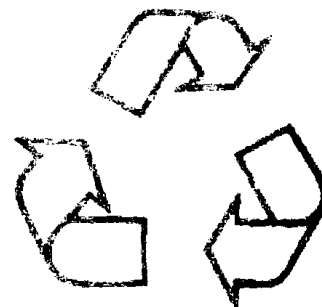
1. 安装、拆卸轮胎时，不按照规定程序操作，有可能产生爆炸，会引起严重伤亡；没有适当的设备及安全工作经验时，不要拆装轮胎。
When the specified regulations are not followed for mounting and disassembling the tyre, explosion and even the serious injury may be caused. The staff without proper equipment and safety work experience is not allowed to remove and refit the tyre.
2. 必须保持正确的轮胎充气压力；不要超过所规定的轮胎最大充气压力。超过最大压力时，会发生轮胎边缘裂纹，甚至发生爆炸。当已达到所推荐的充气压力时，如果轮胎的两侧边缘仍没有定位，要放气再重新固定轮胎，润滑轮胎边缘后再充气。
Correct tyre inflation pressure shall be kept, which shall not exceed the specified maximum tyre inflation pressure. When exceeding the maximum pressure, the tyre edge will be cracked and even the explosion will occur. When the recommended inflation pressure is reached and both edges of the tyre are not positioned, the tyre shall be re-fixed and then perform deflation; after that, the inflation shall be done after lubricating the tyre edges.
3. 定期检查、重新紧固前后轮辋的固定螺母和螺栓的拧紧力矩，以免机器工作时有可能因轮胎的脱落而导致翻车、操纵者的严重伤害以及机器的过度损坏。
Regularly check and re-fix the tightening torque of fixing nut and bolts of the front and rear wheels, so as to avoid turnover, serious injury of the operator, and excessive damage of the tractor due to peeled off tyre during tractor operation.

安全注意事项 Safety Precautions

废弃油液、废物的放置

Disposal of the waste oil and fluid and wastes

1. 废弃油液、废物等废弃物处理不当会威胁环境和生态。
Improper disposal of the waste oil and fluid and wastes will threaten the environment and ecology.
2. 排放废弃油液时，应使用防漏容器；禁止使用盛装食品、饮料的容器，以防他人误饮，造成意外伤害。
When discharging the waste oil and fluid, the leakage-proof container shall be used; it is forbidden to use the container for food and beverage, so as to avoid accidental damages due to mistaken drink by others.
3. 禁止将废弃物倒在地上、倒入下水道、排入其他水源中。
It is forbidden to discharge the wastes onto the ground or into the sewer or other water sources.
4. 具有潜在危害的废弃机油、燃油、制冷剂、制动液、滤芯或蓄电池，请不要随意丢弃；请咨询当地环保部门或回收中心，以正确的方式循环使用或处理废物。
It is not allowed to randomly discard the waste engine oil, fuel, refrigerant, brake fluid, filter core or storage battery with potential damage; please consult with the local environment department or recycling center for proper cycle use or treatment of the wastes.



通过生活、工业用电电缆线下方

Passing below the domestic and industrial power cables

1. 机器各部分确保固定牢固以防松动，防止电击。
The tractor shall be securely fixed to avoid looseness and electric shock.
2. 低速通过低悬的生活、工业用电电缆线下方时，确保机器最高点高度，符合电缆线所允许的安全高度，避免挂碰、防止电击。
When passing below the low hanging domestic and industrial power cables at low speed, ensure that the highest point height of the tractor meets the allowed safety height, so as to avoid scraping and electric shock.
3. 严禁机器在运输、工作和停机等状态下与高压电线相碰撞，以免发生触电危险。
It is not allowed to collide with the high-voltage wire when the tractor is in transportation, working, and stopping conditions, so as to avoid electric shock.

搭乘其他人员

Carrying other staff

1. 只允许驾驶员在机器上操作机器；无副座椅的机器不准搭乘其他人员，有副座椅的机器允许搭乘一名其他人员，但不得有干涉、影响、阻碍驾驶员操纵行为的情况。
Only the driver can sit in the tractor for operation; the tractor without the passenger seat can't be used to carry other staff, and the tractor with one passenger seat can be used to carry one other staff, but he/she is not allowed to interfere, affect, or hinder the driver's behaviors.
2. 机器启动、工作状态下，不允许人员上下、攀爬机器，应远离机器，避免受到伤害。
When the tractor is in starting and working conditions, no staff is allowed to get on/off or climb the tractor to avoid damages.

拖拉机的正确支撑

Correct support of the tractor

1. 要将部件或器具降至地面上，如果必须将拖拉机或其部件升起，要对其进行安全支撑。

When it is a must to lift the tractor or its parts when lowering the parts or appliance onto the ground, it shall be safely supported.

2. 不要用煤渣、（空心）砖、空心瓷砖或其它有可能在持续的压力下碎裂的支撑物支撑机器。

Don't use the coal cinder, (hollow) brick, hollow ceramic tile, or other support which may be cracked under continuous pressure to support the tractor.

3. 不要在仅被一个千斤顶支撑的拖拉机下工作。

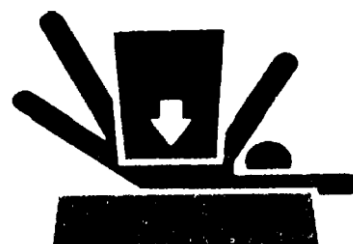
Don't work under the tractor which is supported only by one jack.

4. 在操作千斤顶之前，需阅读理解其使用说明书的全部内容，严禁超载使用，只有在硬质支撑面上方能使用，防止导致人身伤害或财产损失。

Prior to operating the jack, please read and understand all content in the Use And Maintenance. It is not allowed to use the overloaded tractor, which can only be used when on the hard supporting surface, so as to avoid personal injury or property loss.

5. 在使用千斤顶时，只能将其支撑在拖拉机后桥左右半轴壳体及前托架的正下方，其它部位不允许支撑。

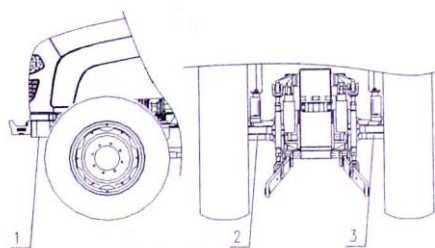
When using the jack, it can only be supported below the left and right half shaft housings and the front bracket of the tractor's rear axle, and it is not allowed to support other parts.



支撑危险

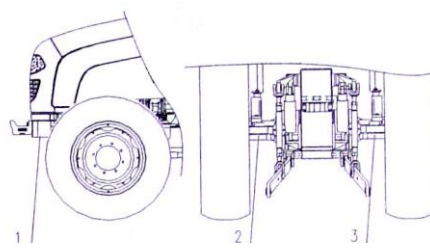


Support danger



千斤顶支撑部位

1. 前托架 2. 左半轴壳体 3. 右半轴壳体



Jack support part

1. Front bracket 2. Left half shaft housing
3. Right half shaft housing

避免接触运转部件

Avoid contacting the moving parts

1. 当机器运转时，不要进行润滑、保养、维修或调整机器；等到所有的旋转机器停止运动后，方可进行上述操作。

When the tractor is running, don't perform lubrication, maintenance, repair, or adjustment to it; the above operations can be done after all rotating machines stop movement.

2. 要使手、脚和衣服远离运动的传动部件。

Keep the hands, feet, and clothes away from the moving transmission parts.



安全注意事项 Safety Precautions

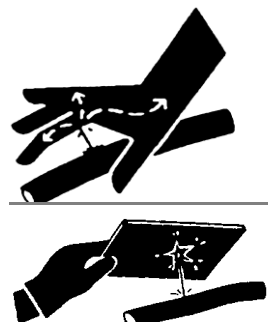
注意液压管路

Pay attention to the hydraulic pipeline

1. 高压液压油具有足够的力量，能穿透、击伤手、眼及皮肤，因此在检查、维修液压管路前，应解除液压系统压力，后用纸板或木板去检查可疑的泄漏处，使手和身体免于高压液体的损害。

The high pressure hydraulic oil has sufficient power, which can penetrate and injure the hands, eyes, and skin; accordingly, prior to the hydraulic

pipeline checking and repair, relieve the hydraulic system pressure firstly; after that, check the suspicious leakages with the paper boards or wooden boards, so as to ensure that the hands and bodies are free from the high pressure fluid damage.



2. 如果被泄漏的液压油伤害应立即去医院治疗，如果不及时进行必要的治疗，可能会引起严重的感染及反应。

If being injured by the leaky hydraulic oil, please go to the hospital immediately; if no timely treatment is given, serious infection and reaction may be caused.

3. 在有压力的液体管路附近加热会产生易燃的喷雾，对自己或旁观者造成严重的烧伤。不要在管路附近加热。在压力液体管路或其它易燃材料附近禁止使用电焊、气焊或焊炬进行加热，火焰以外的热辐射会意外的破坏管路。

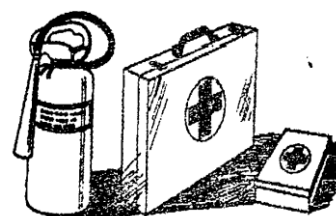
The inflammable mist will be generated when heating near the pressurized fluid pipeline, which will seriously burn the operator or bystanders. Don't perform heating near the pipeline. It is not allowed to use the electric welding machine, gas welding machine, or welding torque for heating near the pressure fluid pipeline or other inflammable materials, for the thermal radiation from the flame will accidentally damage the pipeline.

紧急事件的处置

Emergency treatment

1. 刹车失灵时，应稳住方向盘，到达安全的地方立即熄火，关闭发动机。
When the brake doesn't work, please firmly hold the steering wheel; when reaching a safe place, immediately shutdown the tractor and close the engine.

2. 方向盘失灵时，应立即刹车，然后熄火关闭发动机。
When the steering wheel doesn't work, please perform brake immediately; after that, shutdown the tractor and close the engine.



3. 身边要准备一个急救箱并备有急救中心、医院和消防部门的急救电话号码。发生安全事故后，应视情况立即拨打当地的急救中心、医院或消防部门的急救电话。

A portable first aid kit shall be prepared; in addition, a list of the emergency center, hospital, and fire department telephone numbers shall also be prepared. After the safety accident happens, a call shall be made to the local emergency center, hospital, or fire department based on the actual conditions.

4. 为了保证您和他人的人身安全，请不要冒险行驶或作业。在确保机器修理合格后，周围环境安全的情况下，操作人员再重新启动，缓慢起步。

For your and other's personal safety, please don't perform risky traveling or working. After ensuring that the tractor becomes normal after repair and the ambient environment is safe, the operator can restart the tractor at low speed.

5. 机器失火时，应立即熄灭关闭发动机。如备有灭火器，可用灭火器对准火焰的根部俯射；如无灭火器，可用沙子等进行灭火。

When the tractor is on fire, please immediately stop the engine. If the fire extinguisher is prepared, it can be used to spray at the flame root; if there is no fire extinguisher, sand can be used to put out a

安全注意事项
Safety Precautions

fire.

拖拉机与其他工作装置连接时或更换部件时

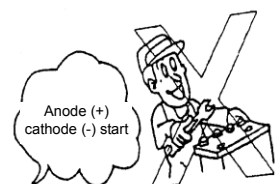
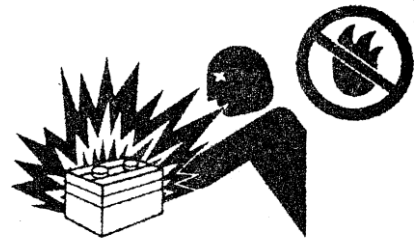
When connecting the tractor with other working devices or replacing the parts

1. 在换装部件时，必须关闭发动机，将拖拉机停至安全处进行更换，更换前请仔细阅读安全标志和使用说明书，必要时请专业人员进行更换。
Prior to replacing the parts, the engine shall be stopped and the tractor shall be parked in a safe place. Prior to replacement, please carefully read the safety mark and the Use And Maintenance; if necessary, professionals shall be invited for replacement.
2. 在拖拉机上连接其他装置时，如缺乏必要的经验，可能造成人身伤害，必要时请专业人员进连接。
If lack of necessary experience, when connecting other devices onto the tractor, personal injury may be caused. If necessary, professionals shall be invited for connection.

正确使用蓄电池

Correct use of the storage battery

1. 从蓄电池溢出的气体有爆炸的危险，所以蓄电池不能接近明火（火柴、打火机或香烟的火等）；不让电线短路，产生火花。
The gas from the storage battery has explosion danger; thus, the storage battery shall not be close to the open fire (match, lighter, or lit cigarette); don't short circuit the wire or generate spark.
2. 蓄电池只用来起动发动机，不要做其他用途。
The storage battery can only be used to start engine, which can't be used for other purposes.
3. 蓄电池充电、更换时，须阅读蓄电池的注意标签。
When charging or replacing the storage battery, please read its attention labels.
4. 取下蓄电池时，首先取下负极（-）搭铁线。装上蓄电池后，先装正极（+）电缆线。
When removing the storage battery, firstly remove the cathode (-) grounding wire. After mounting the storage battery, firstly mount the anode (+) cable conductor.
5. 蓄电池充电时，须从机器上取下来再充。
Prior to charging the storage battery, remove it from the tractor.
6. 充电前先检查蓄电池端盖通气孔是否畅通，周围空气是否畅通。
Prior to charging, firstly check the vent hole of the storage battery end cover for smoothness and the ambient air for ventilation.
7. 按蓄电池的额定容量合理选择充电电流。充电结束后应首先断开充电电源，再将电缆线与电瓶极柱脱离，以防止电打火引爆电瓶。
Rationally select the charging current based on the rated capacity of the storage battery. After charging, firstly disconnect the charging power supply; after that, disconnect the cable wire from the accumulator pole, so as to avoid explosion due to electric lighting.
8. 请勿使用机器指定以外的蓄电池。
Don't use the storage battery not specified for the tractor.



安全注意事项 Safety Precautions

9. 接触到电解液（稀硫酸）是很危险的。眼睛、皮肤、衣服若接触到电解液，应马上用清水冲洗；进入到眼睛时，充分用清水冲洗，再请医生治疗。避免其伤害要采取以下措施：

It is dangerous if contacting with the electrolyte (dilute sulphuric acid). If eyes, skin, and clothes contact with the electrolyte, please immediately rinse it with clean water; if electrolyte enters into eyes, fully rinse it with clean water, and go to the hospital afterwards. The following measures can be taken to avoid damages:

- ① 佩戴护目镜和橡胶手套；
Wear goggles and rubber gloves;
- ② 避免呼吸电解液产生的烟气；
Avoid breathing smoke from the electrolyte:
- ③ 防止电解液飞溅或滴漏；
Prevent splashing or dripping electrolyte;
- ④ 使用正确的并联起动规程。
Apply the correct parallel connection starting regulation.

保持防翻架正确安装

Keep correct mounting of the anti-rollover frame

如果因任何原因将防翻架松开或拆下，必须确保正确的重新安装其全部零部件。紧固固定螺栓至正确扭矩。如果防翻架结构有损伤，例如因翻车事故、弯曲等，其保护功能必将受影响，有损伤的防翻架必须进行更换，严禁继续使用。

If the anti-rollover frame is loosened or removed for any reason, it shall be ensured that all parts are correctly re-mounted. Tighten the fixing bolt till reaching the correct torque. If the anti-rollover frame structure has damages, such as overturn and bending, its protection functions will be affected; accordingly, the damaged anti-rollover frame shall be replaced, which can't be used any more.

正确使用可折叠防翻架和安全带

Correctly use the folding anti-rollover frame and safety belt

1. 如果拖拉机有可折叠的防翻架，必须保持防翻架在完全伸展和锁定位置。如果拖拉机的防翻架在折叠位置时工作，必须特别小心驾驶拖拉机。如果防翻架在折叠位置，严禁使用座椅安全带。

If the tractor has folding anti-rollover frame, the anti-rollover frame shall be kept in the fully extended and locking position. If the tractor's anti-rollover frame works at the folding position, the tractor shall be driven extremely carefully. If the anti-rollover frame is in the folding position, it is not allowed to use the seat safety belt.

2. 拖拉机返回正常工作条件时，必须立即将防翻架提升至完全伸展位置并将固定。防翻架在完全伸展或锁定位置时，必须使用安全带。

When the tractor returns to the normal working condition, it is a must to immediately lift the anti-rollover frame to the fully extended position and then fix it. When the anti-rollover frame is in the fully extended or locking position, the safety belt shall be used.

3. 如装配紧固件、扣环或收缩器出现损坏现象，必须更换整个安全带。

If damages occur when assembling the fastener, retaining ring, or contractor, the whole safety belt shall be replaced.

4. 应经常检查安全带及其装配紧固件。查看紧固件是否松动或安全带是否损坏，如切口、划伤、异常破损、磨损等。

The safety belt and its fastener shall be frequently checked to see if the fastener is loose or if the safety belt is damaged, such as the cut, scratch, abnormal damage, wear, etc.

安全注意事项 Safety Precautions

5. 如果没有防翻架或驾驶室，严禁使用安全带。
If there is no anti-rollover frame or cab, it is not allowed to use the safety belt.



警告：

WARNING:

1. 您的生命及财产安全，为了您亲人的幸福，请您安全操作。
For your personal and property safety and your family's happiness, please have a safe operation.
2. 拖拉机起步时，应注意道路上有无障碍物，在拖拉机和农具或拖车之间是否有人，并鸣笛警示，以防拖拉机突然起动，发生意外危险。
When starting the tractor, please check the road for obstacles and the part between the tractor and the agricultural tool or trailer for anybody; if yes, blow the whistle for warning, so as to avoid sudden tractor starting and accident.
3. 不要在离开驾驶座的位置去起动和操纵拖拉机，起动拖拉机时要确保各变速杆在空档位置，动力输出操纵手柄和前驱动操纵手柄置于分离状态，提升器操作手柄置于中立位置，以防拖拉机突然起动，发生意外危险。
Don't leave the driver's seat to start and control the tractor; when starting the tractor, ensure that all gear levers are turned to the neutral position; power-take-off control handle and front drive control handle are turned to the release state, and lifter operation handle is turned to the neutral position, so as to avoid sudden tractor starting and accident.
4. 不要用跨接短路线柱的方法起动发动机，否则，当变速箱挂着档时，拖拉机会自动行走失控，发生意外危险。
Don't start the engine by jumping the short circuit terminal; or else, when the transmission is engaged, the tractor will automatically run and can't be controlled, which will lead to the accident.
5. 各踏板的运动均不应受到阻碍，所有踏板必须能无阻碍地回复原位。地板上、踏板之下不可放置对踏板行程有妨碍的东西，不可放置在踩动踏板时会滚动或滑动的物品。踏板周围不可放置额外的脚毯或其它辅垫物，以免影响踏板动作发生意外危险。
The movement of all pedals shall be free from blockage; all pedals shall be able to smoothly return to the normal position. Nothing can be placed on the floor and below the pedal, so as to avoid hindering the pedal travel; in addition, the article which will roll or slide upon stepping down the pedal can't be placed. Extra foot pad or other bedding can't be placed around the pedal, so as not to affect pedal movement or avoid causing dangers.
6. 拖拉机行走时不允许有人上下拖拉机，发动机运转时不允许爬到拖拉机底下进行检查和修理，以防发生意外危险。
When the tractor runs, no one can get on/off the tractor; when the engine works, it is not allowed to climb to the tractor bottom for checking and repair, so as to avoid the accident.
7. 停车后，驾驶员从拖拉机上下来以前，一定要取出钥匙，将各变速杆拨到空档位置，并将驻车手柄锁紧，以防拖拉机突然起动，自行动作失控，发生意外危险。
After parking and before the driver gets on/off the tractor, the key shall be taken out, all gear levers shall be turned to the neutral position, and the parking handle shall be firmly locked, so as to avoid sudden tractor starting, uncontrolled movement, and accident.
8. 运输作业时，必须将左右制动踏板连锁在一起，合理控制速度，过涵洞、桥梁时，要充分注意是否超高，转向拐弯时要提前充分减速，避免意外情况发生，引起翻车、撞车。
During transportation, the left and right brake pedals shall be interlocked and the control speed shall be rationally controlled. When passing the culvert and bridge, it shall be noted for superelevation; during steering and turning, full deceleration shall be made in advance, so as to avoid overturn and traffic collision.
9. 上下坡行驶时，必须使用最低档位，并合理运用油门控制，拖拉机严禁挂空档或踩下离合器踏板滑行

安全注意事项 Safety Precautions

下坡，上下坡时严禁换挡，以免发生翻车危险。

When ascending and descending, the minimum gear shall be engaged, and the throttle shall also be properly applied. When descending, it is not allowed to turn the tractor to the neutral gear or step down the clutch pedal; it is not allowed to shift gears when ascending/descending, so as to avoid overturn.

10. 拖拉机高速行驶中不得急转弯，不能使用单边制动进行急转弯，以免发生翻车危险。
It is not allowed to make a sudden turning when tractor runs at high speed; it is not allowed to make a sudden turning with the unilateral brake, so as to avoid overturn.
11. 拖拉机在道路上行驶时应该注意交通标志，严格遵守交通法规，以免发生意外安全危险。
When the tractor is driven on road, please pay attention to the traffic marks; in addition, the traffic laws and regulations shall be strictly followed, so as to avoid accident.
12. 转移时，必须严格遵守交通规则，两车之间应保持行车间距至少 60m（米），以免引起撞车发生意外危险。
Upon transfer, it is a must to strictly obey the traffic rules; in addition, a distance of 60 m (meters) shall be kept between two tractors at the least, so as to avoid traffic collision and accident.
13. 沟、穴、堤坝等附近的路基较脆弱，拖拉机的重量可能使其崩溃，请绕开行驶，否则会发生意外危险。
The subgrade near the ditch, cave, and embankment is weak and the tractor may destroy it; on this account, please make a detour to avoid accident.
14. 拖拉机不得超载、超负荷使用，严禁超极限工作，以免机件过载，造成机器损坏甚至出现人身伤亡事故。
The overcharged and overloaded tractor can't be used; no overloaded work can be done, so as to avoid damages and personal injury and death.
15. 拖拉机夜间作业时，要有良好的照明设备，以免影响拖拉机的工作效果，发生意外危险事故。
When the tractor works at night, good lighting equipment must be prepared, so as not to affect the tractor working effect or avoid accident.
16. 拖拉机进行收割或场院作业时，须在排气管上安装火星消灭装置，以免发生意外危险事故。
When the tractor is used for harvesting or threshing ground work, the exhaust pipe shall be equipped with the spark extinguishing device, so as to avoid accident.
17. 雨雪天作业时，必须降低作业速度，避免道路、地面湿滑造成的翻车危险。
Upon working in rainy and snowy seasons, the speed shall be reduced, so as to avoid overturn due to wet and slippery roads and pavements.
18. 进行动力输出作业时，必须确保连接可靠，防护可靠，避免运动部件脱出伤人。
Upon the power-take-off working, reliable connection and reliable protection shall be ensured, so as to avoid personal injury due to loosen moving parts.
19. 挂接、牵引机具时，必须确保各销轴连接可靠、牢固，避免销轴脱落造成的撞车危险，脱开挂接、牵引机具时，应该保各销轴全部处于分离状态，避免分离不清造成破坏机器及造成人身安全的危险。
When hooking and pulling tools, it shall be ensured that all hinge pins are reliably and firmly connected, so as to avoid traffic collision. When releasing hooking and pulling tools, it shall be ensured that all hinge pins are in release conditions, so as to avoid tractor damages and personal injury due to incomplete release.
20. 提升时，必须注意发动机油门的控制，避免因提升速度太快，造成破坏机器及造成人身安全的危险。
Upon lifting, it is a must to note the engine throttle control, so as to avoid tractor damages and personal injury due to too quick lifting speed.
21. 蓄电池充电时，应保证注液塞的排气孔畅通，远离明火，充完电先断电源，以防引起爆炸。
Upon the storage battery charging, it shall be ensured that the filling plug vent hole is smooth; in addition, it shall be away from open fire and the power supply shall be cut off at first after charging, so as to avoid explosion.
22. 要严格遵守高压输电线路所允许的安全高度，以免发生意外危险事故！
The allowed safety height on the high-voltage transmission line shall be strictly followed, so as to

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avoid accident!

23. 当拖拉机从事田间收获、脱粒、运输易燃品等作业时应配备灭火器，以免发生意外火灾事故。
When the tractor is used for the field harvesting and threshing and inflammable transportation, the fire extinguisher shall be prepared to avoid fire accident.
- 拖拉机运输作业时，用户应配备故障警告标志牌。当拖拉机出现故障，需要进行维修时，将故障警告标志牌放置于故障车后 30m（米）以外位置，已警示其他车辆前方有车辆维修，防止发生危险。
Upon the tractor transportation, the user shall prepare the malfunction warning signs. When the tractor has malfunction and repair is needed, the malfunction warning signs shall be placed 30 m (meters) after the tractor with malfunction, so as to give warning to other automobiles and avoid accident.



注意：

CAUTION:

1. 各联接部位的螺栓螺母及易松零件，如前后驱动轮固定螺母处、转向拉杆连接螺母等处应经常检查，发现松动及时拧紧，以免发生意外危险事故。
The bolts, nuts, and loosening parts at all connecting positions, such as the fixing nuts of front and rear driving wheels and connecting nuts of the steering pull rod shall be frequently checked; if looseness is found, they shall be timely tightened, so as to avoid accident.
2. 拖拉机动力输出轴工作时，必须安装动力输出轴防护罩，严禁人员接近动力输出轴，动力输出轴带负荷时，拖拉机不能急转弯，以免损坏万向节或拖拉机动力输出轴；动力输出轴不用时应使手柄处于分离位置，以免发生意外危险事故。
When the tractor's power-take-off shaft works, the power-take-off shaft shroud shall be mounted, and nobody can get close to the power-take-off shaft. When the power-take-off shaft is loaded, the tractor can't perform sudden turning, so as to avoid damaging the universal joint or the power-take-off shaft of the tractor; when the power-take-off shaft is not used, the handle shall be turned to the release position, so as to avoid accident.
3. 停车后，在发动机没有熄火前，驾驶员不得离开拖拉机，以防拖拉机突然起动，自行动作失控，发生意外危险。
After stopping and before engine stop, the driver is not allowed to leave the tractor, so as to avoid sudden tractor starting, uncontrolled movement, and accident.
4. 不得已在斜坡停放车时，应使手制动手柄处于工作状态，使发动机熄火，挂上档（上坡位置挂前进档，下坡位置挂倒档），一定要使用驻车制动并用三角塞块将后轮塞住，以防拖拉机自行动作失控，发生意外危险。
When it has to park the tractor on the slope, the hand brake handle shall be turned to the working state to stop the engine and engage a gear (engaging the forward gear upon ascending, and engaging the reverse gear upon descending); the parking brake shall be used, and the triangle block shall be applied to block the rear wheels, so as to avoid uncontrolled movement of the tractor, and accident.
5. 轮胎的安装和调整只能由经验丰富的专业人员使用合适的专用工具进行，轮胎安装不正确会引起严重事故。
The tyre mounting and adjustment can only be done by the experienced professionals with proper and special tools; incorrect tyre mounting will lead to serious accident.
6. 清理水箱时，应先熄火关闭发动机并等水箱冷却后再进行清理，以免发生烫伤事故及损坏水箱。
Prior to cleaning the water tank, the engine shall be stopped and the water tank shall be cooled down, so as to avoid scalding accident and damaging the water tank.
7. 在选装部件、换装部件或挂接机具的安装使用前，请注意安全并仔细阅读安全标志和使用说明书。
Prior to mounting and application of the optional parts, replaced parts, or hooking tools, please pay attention to safety and carefully read the safety mark and the Use And Maintenance.

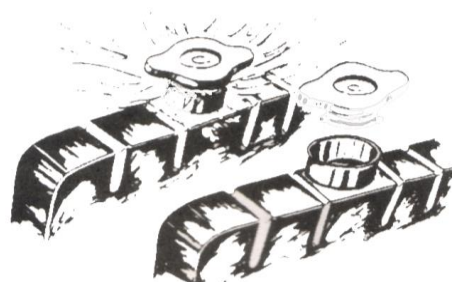
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拧开散热器盖

Open the radiator cover

发动机仍在热态时，拧开散热器盖要十分小心，怠速运转几分钟后，将发动机熄火冷却后，然后将散热器盖拧松到第一档位置，待减掉压力后再将盖拧下。

When the engine is still in the hot state, please be extremely carefully to open the radiator cover; after idle running for several minutes and engine stop and cooling, loosen the radiator cover to the first gear; after that, unscrew the cover after the pressure relief.



重要事项:

IMPORTANT:

1. 新出厂的或大修后的拖拉机，必须按拖拉机磨合要求进行磨合；以免影响拖拉机的正常使用寿命。
The new tractor or the tractor after overhaul shall be subject to the running-in based on the corresponding running-in requirements, so as to avoid affecting its normal service life.
2. 拖拉机应严格按照要求使用各种溶液。燃油必须经过至少 48h（小时）沉淀净化后，传动系润滑油必须经过与提升器吸油滤清器精度相同的滤油器过滤后，才能加注，以免影响相关零部件的使用寿命，影响拖拉机的作业功效。
The solutions for the tractor shall be strictly in accordance with the corresponding requirements. Before filling, the fuel shall be subject to 48 h (hours) sedimentation and purification, and the transmission system lubricating oil shall be filtered by the oil filter with the precision same as the oil filter of the lifter, so as to avoid affecting the service life of relevant parts and the working efficiency of the tractor.
3. 拖拉机起动前必须检查油路、电路、冷却水情况；起动后必须随时注意各仪表的读数和拖拉机各部件的正常工作。
Prior to starting the tractor, the oil circuit, electric circuit, and cooling water shall be checked; after starting, the instrument readings and working conditions of all tractor parts shall be frequently noted.
4. 使用动力输出轴驱动农具以前，检查拖拉机和驱动农具匹配合理性。耕作时，使动力输出轴与万向节传动轴的夹角不大于 15°（度）；液压操纵正常时，地头转弯提升农具后，动力输出轴及农具输入轴与传动轴夹角不大于 20°（度）；禁止在动力输出接通前先将旋耕机入土，这会导致旋耕机损坏及拖拉机离合器严重损坏[为提高作业效率，转弯时可不切断动力源，但必须机具提升高度在离地 200mm(毫米)左右]。
Prior to using the agricultural tool driven by the power-take-off shaft, the matching rationality between the tractor and the agricultural tool shall be checked. Upon cultivation, the angle between the power-take-off shaft and the universal joint transmission shaft shall not be larger than 15° (degrees); in case of the normal hydraulic control, after lifting the agricultural tool in case of turning in the field edges, the angle between the power-take-off shaft and agricultural tool input shaft and the transmission shaft shall not be larger than 20° (degrees). It is not allowed to insert the rotary tiller into soil prior to connecting the power-take-off, for it will damage the rotary tiller and seriously damage the tractor clutch [to improve the working efficiency, don't cut off the power source upon turning; however, the machines and tools shall be lifted approximately 200 mm (millimeters) above the ground].
5. 冬季气温低于 0℃（摄氏度）时，必须使用防冻液，以避免冻坏水箱、发动机等重要部件。
When the winter temperature is lower than 0℃ (centigrade), the antifreeze solution shall be used, so as to avoid damaging the water tank, engine, and other important parts.
6. 拖拉机前驱动桥只在农田作业和道路泥泞轮胎打滑时使用；其它情况下严禁使用，否则易造成轮胎及

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传动系早期磨损。

The front drive axle of the tractor can only be used when the tyre slips due to field work and muddy road; it can't be used under other conditions; or else, the tyre and transmission system will be prematurely worn out.

7. 拖拉机在行驶过程中，驾驶员的脚不允许放在制动器踏板或离合器踏板上，以免发生制动器或离合器早期损坏。

During the tractor running, the driver's feet can't be placed on the brake pedal or clutch pedal, so as to avoid the premature wear.

8. 拖拉机配带农机具进行道路转移时，将悬挂装置上拉杆调整到最短状态，并调整限位杆防止农机具左右摆动，同时必须将上拉杆及限位杆的锁紧螺母拧紧，确保行驶安全，避免由此带来的破坏机器和农机具的危险。

When the tractor with the agricultural machinery transfers on the road, the pull rod on the linkage device shall be adjusted to the shortest; in addition, the limit rod shall be adjusted to avoid left and right swing of the agricultural machinery; also, the locking nuts of the upper pull rod and the limit rod shall be tightened, so as to ensure safe traveling and avoid damaging the machine and the agricultural machinery.

9. 拖拉机悬挂农具转移时应将农具位置锁定；驾驶员离开拖拉机时一定要将农具降到地面，避免由此带来的破坏机器和农机具的危险。

When transferring the suspended agricultural tool of the tractor, it shall be locked; when the driver leaves the tractor, the agricultural tool shall be lowered down to the ground, so as to avoid damaging the machine and the agricultural machinery.

维修拖拉机，必须选用质量合格的零部件，以免影响拖拉机的正常使用寿命。

When repairing the tractor, the qualified parts shall be selected, so as to avoid affecting the tractor's normal service life.

进行电器部件维修时

When repairing the electric parts

1. 将电锁开关的钥匙拔下来。

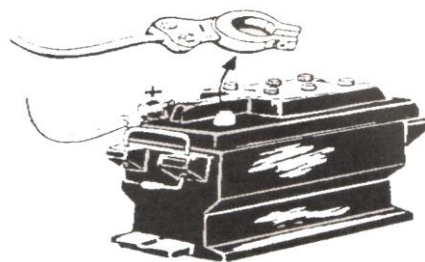
Pull down the key of the electric lock switch.

2. 将蓄电池搭铁线断开，才能进行电器维修。

The electric appliance can be repaired after disconnecting the storage battery grounding wire.

3. 拖拉机在使用电焊维修时，必须将蓄电池搭铁线断开、将发动机、液压部分计算机控制器（如果配备的话）的大接线插头拔下，否则容易造成蓄电池、控制器以及组合仪表的损坏。

When the tractor is applied with the electric welding machine for repair, the storage battery grounding wire shall be disconnected and the large wiring plug of the engine and hydraulic system computer controller (if equipped) shall be pulled down; or else, the storage battery, controller, and combination instrument will be damaged.



拖拉机出现异常现象时

When the tractor has abnormality

1. 不允许拖拉机“带病”工作，特别在无油压、油压过低、水温过高或出现异常响声和气味时，应及时停车检查，并排除故障。

It is not allowed to operate the “defective tractor”; especially in case of no oil pressure, too low oil pressure, too high water temperature, or abnormal sound and odor, the tractor shall be timely stopped for inspection and troubleshooting.

2. 进行润滑保养和田间调节时，应关闭发动机。

When performing lubrication maintenance and field adjustment, the engine shall be stopped.



拖拉机无人看管时的安全规则

Safety regulations for the unmanned tractor

1. 挂上空档并把液压操纵手柄移到中位。

Engage the neutral gear and turn the hydraulic control handle to the neutral position.

2. 提升装置或牵引挂接装置等放到最低位置。

Place the lifting device or pulling and hooking device to the lowest position.

3. 接合驻车制动器。

Engage the parking brake.

4. 取下发动机开关钥匙。

Take down the engine switch key.

5. 如果在斜坡停车，必须用三角塞块将后轮可靠塞住。

If the tractor is stopped on the slope, the triangle block shall be used to block the rear wheels.

1.2 安全警告标志

Safety Warning Mark



注意：

CAUTION:

1. 安全警告标志应保持清晰可见，变得脏污时，可用肥皂水来洗，以柔软抹布擦拭干净；

The safety warning mark shall be kept clear and visible; if becoming dirty, the soapy water and a piece of soft cloth shall be used for cleaning;

2. 安全标志丢失或不清晰时，需及时同经销部门或生产厂家联系进行更换；

When the safety mark is lost or unclear, the dealer or the manufacturer shall be timely contacted for replacement;

3. 若更换贴有安全警告标志的零件，在更换零件时，应同时更换安全警告标志；

When replacing the spare parts affixed with the safety warning mark, the safety warning mark shall be replaced as well;

4. 安全警告标志所提示的内容涉及到人身安全，必须严格执行。


The safety warning mark involved with the personal safety shall be strictly followed.

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|  | <p>含义：机器工作时请与机器热表面保持距离，以免造成人身伤害。 Meaning: Upon working, the machine shall be kept away from its thermal surface, so as to avoid personal injury.</p> <p>粘贴位置：消音器外侧、水箱侧面 Sticking position: Muffler outside and water tank side</p> |
|---|--|

| | |
|--|---|
|  | <p>含义：请与拖拉机保持安全距离，以免造成人身伤害； Meaning: Please keep a safe distance between the tractor, so as to avoid personal injury;</p> <p>粘贴位置：挡泥板后侧 Sticking position: Fender rear side</p> |
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|  | <p>含义：禁止乘坐在拖拉机非乘员位置上，以免妨碍驾驶员的视线，造成人身伤害； Meaning: It is forbidden to sit on the driver's seat, so as to avoid hindering the driver's sight and causing personal injury;</p> <p>粘贴位置：左后挡泥板前侧 Sticking position: Front side of left and right fenders</p> |
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|  <p>为防止火灾： 1. 禁止在作业现场及拖拉机运转时加油。 2. 加油时必须远离火种。 3. 油箱表面油迹擦拭干净。 4. 拖拉机配备背负式收割机时，禁止在作业现场及拖拉机上吸烟。</p> | <p>含义：见左图所示。 Meaning: It is shown in the left-side picture.</p> <p>粘贴位置：燃油箱加油口附近。 Sticking position: Near the fuel tank fuel filler.</p> |
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To prevent fire hazard:

1. It is not allowed to fill oil in the work site and upon the tractor operation.
2. When filling oil, it shall be kept away from the kindling material.
3. The oil tank surface oil stains shall be wiped off.
4. When the tractor is equipped with the backpack harvesting machine, it is not allowed to smoke in the work site and on the tractor.



含义：提升器工作时，请与机器保持距离。否则将发生压伤事故!

Meaning: When the lifter works, please keep a distance between the machine; or else, crush accident may be caused!

粘贴位置：挡泥板后侧
Sticking position: Fender rear side




吸油滤清器的保养

拖拉机累计工作125h进行首次清洗；此后工作累计每500h清洗一次，同时检查滤网、密封圈，若有损坏应及时更换。

含义：按要求对吸油滤清器进行清洗，并同时检查滤网、密封圈等易损件，若有损坏，应及时更换。

Meaning: Clean the oil filter as required, and simultaneously check the filter screen, seal ring, and other vulnerable parts. If damaged, timely replace them.

粘贴位置：吸油滤清器固定板上。
Sticking position: On the fixing plate of the oil filter.



Maintenance of the oil filter

When the tractor has been worked for 125 h, the initial cleaning can be done; after that, the cleaning will be done once per 500 h; in addition, the filter screen and seal ring will be simultaneously checked; replacement shall be done timely if damaged.

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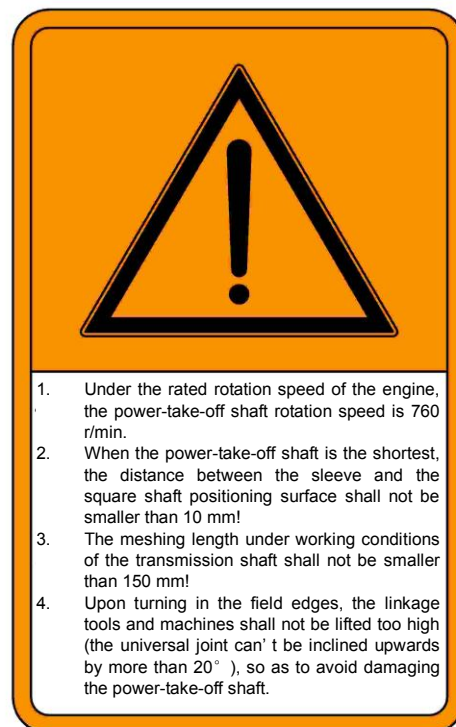


含义：动力输出警告标识

Meaning: Power-take-off warning mark

粘贴位置：后挡板后侧

Sticking position: Rear baffle rear side



注：以上标示配动力输出 760r/min 的机型！

NOTE: The above represents the machine type equipped with the power-take-off of 760 r/min!

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配带犁、耙作业时，限位销插在非限位孔上；配带旋耕机、割草机等作业时，限位销插在限位孔上。

含义：提醒限位销安装位置

Meaning: Prompting the limit pin mounting position

粘贴位置：后挡板后侧

Sticking position: Rear baffle rear side



When working with ploughs and rakes, the limit pin is inserted onto the non-limit hole; when working with rotary tiller and grass cutter, the limit pin is inserted onto the limit hole.



1、动力输出轴工作时，应远离动力源。
2、动力输出轴挂接农机具时，应停机操作。

含意：动力输出轴工作时，应远离动力源；动力输出轴挂接农机具时应停机操作。

Meaning: The working power-take-off shaft shall be away from the power source; when the power-take-off shaft is hooked with the agricultural machinery, it shall be stopped for operation.

粘贴位置：后挡板后侧

Sticking position: Rear baffle rear side



1. The working power-take-off shaft shall be away from the power source.
2. When the power-take-off shaft is hooked with the agricultural machinery, it shall be stopped for operation.

安全注意事项 Safety Precautions



含义：应定期检查位于后桥壳体端面的油尺高度，以避免润滑油液面低于油尺下限而造成传动系零部件损坏。

Meaning: The oil dipstick height at the end surface of the rear axle housing shall be regularly checked, so as to avoid damaging the transmission system parts owing to the fact that the lubricating oil level is lower than the lower limit of the oil dipstick.

粘贴位置：后桥壳体后端面

Sticking position: Rear end surface of the rear axle housing





含义：维修、保养、调整前，应关停发动机，并抽出启动钥匙，按照使用说明书要求操作，以免造成人身伤害；


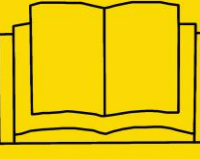
Meaning: Prior to repair, maintenance, and adjustment, the engine shall be stopped and the start key shall be pulled out; operations shall be performed in accordance with the requirements of the Use And Maintenance, so as to avoid personal injury;

粘贴位置：仪表台正面

Sticking position: Dashboard front side

安全注意事项
Safety Precautions

| | | |
|---|--|---|
|  | <p>为防止损坏电器元件或引起火灾，请严格按照要求规格插接保险丝。</p> | <p>含义：为防止损坏电器元件或引起火灾，请严格按照要求规格插接保险丝。 Meaning: To prevent damaging the electric elements or causing fire hazard, please plug the fuse in strict accordance with the required specifications. 粘贴位置：电器盒附近。 Sticking position: Near the electric box.</p> |
|  | <p>To prevent damaging the electric elements or causing fire hazard, please plug the fuse in strict accordance with the required specifications.</p> | |

| | |
|---|--|
|   | <p>含义：请阅读使用说明书，了解无文字安全标识的含义，以免造成人身伤害。 Meaning: Please read the Use And Maintenance to comprehend meanings of the safety marks without characters, so as to avoid personal injury. 粘贴位置：仪表台正面。 Sticking position: Dashboard front side.</p> |
|---|--|

安全注意事项
Safety Precautions



为防止人身伤害，此处禁止乘坐、脚踏。

含义;为防止人身伤害，此处禁止乘坐、脚踏。
Meaning: To prevent personal injury, it is not allowed to sit or stand on it.

粘贴位置：地板后横板。
Sticking position: Rear cross plate of the floor.



To prevent personal injury, it is not allowed to sit or stand on it.



为了避免拖拉机意外运动造成人身伤亡事故的发生：

- 1.拖拉机停车时使其处于制动状态；
- 2.拖拉机在坡地停车时，应挂档（上坡位置挂前进档，下坡位置挂倒档），防止拖拉机随坡下滑。

含义：拖拉机停车时使其处于制动状态，在坡地停车时，应挂档，防止拖拉机意外运动造成人身伤亡事故。

Meaning: When the tractor is stopped, it shall be in the brake state; when parking on the slope, a gear shall be engaged, so as to avoid personal injury and death due to accidental tractor movement.

粘贴位置：停车制动手柄处。
Sticking position: Parking brake handle.



To avoid personal injury and death due to accidental tractor movement:

1. When the tractor is stopped, it shall be in the brake state;
2. When parking the tractor on the slope, a gear shall be engaged (engaging the forward gear upon ascending, and engaging the reverse gear upon descending), so as to avoid sliding tractor.

安全注意事项
Safety Precautions



环境温度 $\leq 0^{\circ}\text{C}$ 长时间
停车时,应在发动机
怠速状态下将水排尽,
以免冻裂发动机和有
关零部件,否则应加
防冻液。

含义: 环境温度 $\leq 0^{\circ}\text{C}$ 时, 应将冷却水放净。

Meaning: When the ambient temperature $\leq 0^{\circ}\text{C}$, the cooling water shall be drained out completely.

粘贴位置: 散热器上。

Sticking position: On the radiator.



When the machine is
stopped for a long time
under the ambient
temperature $\leq 0^{\circ}\text{C}$, the
cooling water shall be
drained out completely
under an idle running
state, so as to avoid
breaking the engine and
relevant spare parts; or
else, the antifreeze
solution shall be filled.

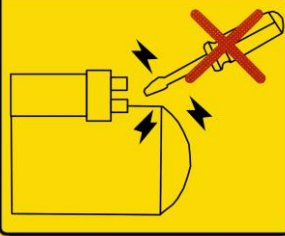


含义: 驾驶员必须在驾驶座位上起动发动机, 严禁在起动机处以短路的方式起
动发动机, 以免造成人身伤害。

Meaning: The driver must start the engine on the driver's seat; it is not
allowed to start the engine by short circuit method at the starter, so as to
avoid personal injury.

粘贴位置: 仪表台正面。

Sticking position: Dashboard front side.



安全注意事项 Safety Precautions



含义：发动机工作时，不要打开或拆下安全防护罩，且不要将手伸入工作区域，以免造成人身伤害。

Meaning: When the engine runs, don't open or remove the safety shroud; in addition, don't put hands into the working area, so as to avoid personal injury.

粘贴位置：发电机防护罩上，水箱风扇附近。

Sticking position: On the generator shroud and near the water tank fan.



含义：见左图所示。

Meaning: It is shown in the left-side picture.

粘贴位置：后挡板后侧。

Sticking position: Rear baffle rear side.

为防止人身伤害，
请在动力输出不工
作时，在动力输出
轴上安装防护罩。



To prevent personal
injury, please mount
the shroud on the
power-take-off shaft
when it doesn't work.

安全注意事项
Safety Precautions



为防止气制动系统失灵，
整机每工作50小时后，
打开放水阀将储气筒内
积水放掉。

含义：见左图所示。

Meaning: It is shown in the left-side picture.

粘贴位置：气制动储气罐表面。

Sticking position: Air brake reservoir surface.

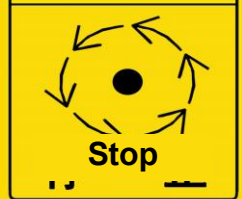


To prevent ineffective
air brake system, after
every 50 working
hours, the drain valve
shall be opened to
drain out accumulated
water in the air
reservoir.

含义：只有在机器的所有部件完全停止运转后，才能与其接触，以免造成人身伤害。
Meaning: The parts can be contacted after they completely stop, so as to avoid personal injury.

粘贴位置：PTO（动力输出轴）防护罩上。

Sticking position: On the PTO (power-take-off shaft) shroud.



安全注意事项
Safety Precautions



含义：蓄电池电解液具有腐蚀性。

Meaning: The storage battery electrolyte is corrosive.

粘贴位置：蓄电池附近。

Sticking position: Near the storage battery.



含义：作业前认真检查转向油箱存量。

Meaning: The oil quantity in the steering oil tank shall be carefully checked prior to working.

粘贴位置：转向油箱附近。

Sticking position: Near the steering oil tank.

为防止转向失灵，
作业前认真检查转
向油箱存油量，存
油量不足时请及时
添加。



To prevent ineffective
steering, the oil
quantity in the
steering oil tank shall
be carefully checked
prior to working; if
insufficient, oil shall
be timely filled.

第二章 产品标志 Chapter II Product Mark

产品铭牌

Product nameplate

产品铭牌是拖拉机的重要有效识别标志，其位置在拖拉机仪表台左侧。在接受服务时服务人员要查看产品铭牌，因此，请不要丢失产品铭牌，并要保持清晰。

The product nameplate is the tractor's important and valid identification mark, which is located in the left side of the tractor dashboard. When accepting the service, the service staff shall check the product nameplate; on this account, please hold the product nameplate and keep its clarity.



1. 产品铭牌

1. Product Nameplate

发动机信息

Engine information

发动机产品铭牌是拖拉机动力配套装置的重要有效识别标志，其位置在拖拉机机罩下面，发动机铭牌位于发动机上。在接受服务时服务人员要查看此铭牌，因此，请不要丢失铭牌，并要保持清晰。

The engine product nameplate is an important and valid identification mark of the supporting power device of the tractor, which is located below the tractor engine hood; the engine nameplate is located on the engine. When accepting the service, the service staff shall check the nameplate; on this account, please hold the nameplate and keep its clarity.



整机型号和出厂编号

Overall model and manufacturing number

拖拉机出厂时，整机型号和出厂编号打刻位置在变速箱壳体左侧，具体位置如图所示。

Upon delivery, the overall model and manufacturing number of the tractor is marked at the left side of the transmission housing, which is shown in the following figure.



图：出厂编号

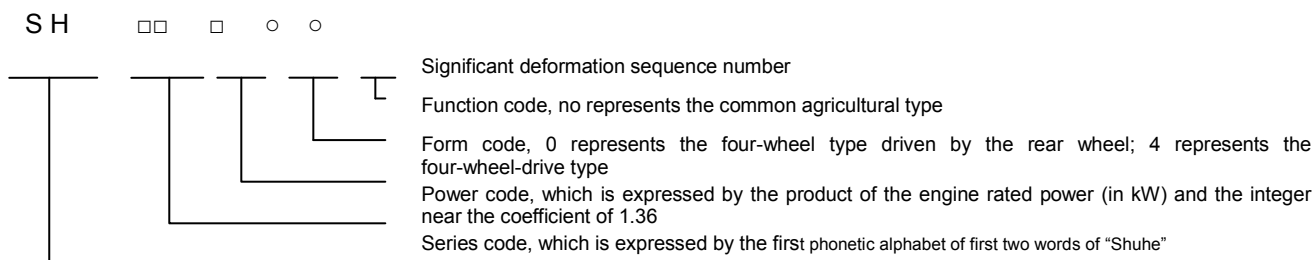
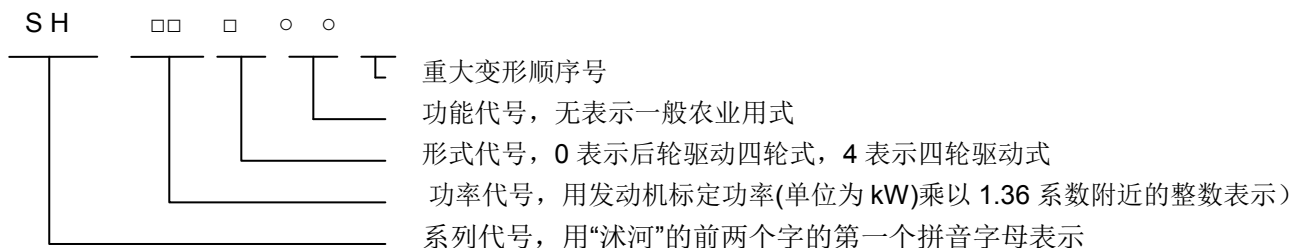
Figure: Manufacturing Number

第三章 拖拉机的主要技术规格 Chapter III Main Technical Specifications of the Tractor

3.1 产品型号 Product Model

沭河 SH 系列轮式拖拉机产品型号含义如下:

The product model meaning of Shuhe SH series wheeled tractor is as follows:



对应的功率如下:

The corresponding power is as follows:

产品型号对应的功率:

The corresponding power of the product model:

SH600 /SH604 轮式拖拉机 额定功率为 44.10KW (千瓦) [60 PS (马力)]

SH600/SH604 wheeled tractor rated power is 44.10 kW (kilowatts) [60 PS (horsepower)]

SH650/ SH654 轮式拖拉机 额定功率为 47.80KW (千瓦) [65 PS (马力)]

SH650/SH654 wheeled tractor rated power is 47.80 kW (kilowatts) [65 PS (horsepower)]

SH700 /SH704 轮式拖拉机 额定功率为 51.5KW (千瓦) [70 PS (马力)]

SH700/SH704 wheeled tractor rated power is 51.5 kW (kilowatts) [70 PS (horsepower)]

SH750 /SH754 轮式拖拉机 额定功率为 55KW (千瓦) [75 PS (马力)]

SH750/SH754 wheeled tractor rated power is 55 kW (kilowatts) [75 PS (horsepower)]

SH800/ SH804 轮式拖拉机 额定功率为 59KW (千瓦) [80 PS (马力)]

SH800/SH804 wheeled tractor rated power is 59 kW (kilowatts) [80 PS (horsepower)]

产品执行标准: GB/T 15370-2004 《农业轮式和履带拖拉机 通用技术条件》和 GB/T15370.2 《农业拖拉机 通用技术条件 第 2 部分: 50~130kW 轮式拖拉机》。

Product execution standards: GB/T 15370-2004 *General Requirement of Agricultural Wheeled Tractors and Crawler Tractors* and GB/T15370.2 *General Requirement of Agricultural Tractors - Part 2: 50 ~ 130 kW Wheeled Tractor*.

拖拉机主要技术规格
Main Technical Specifications of the Tractor

3.2 一般技术规格
General Technical Specifications

SH600/SH604/SH650/SH654/SH700/SH704
SH600/SH604/SH650/SH654/SH700/SH704

| 项目 Item | | 单位 Unit | SH600 | SH604 | SH650 | SH654 | SH700 | SH704 |
|--|---|-------------------------------|---|-------------------------------|---|-------------------------------|---|-------------------------------|
| 型式 Type | | — | 4×2 轮式 4×2 wheeled type | 4×4 轮式 4×4 wheeled type | 4×2 轮式 4×2 wheeled type | 4×4 轮式 4×4 wheeled type | 4×2 轮式 4×2 wheeled type | 4×4 轮式 4×4 wheeled type |
| 标定牵引力 Calibrated traction force | | kN (千牛) kN (kilonewton) | 11.0 | 12.5 | 13.0 | 14.0 | 13.5 | 14.8 |
| 外形尺寸 Overall dimensions | 长 (包括前配重、后悬挂) Length (including the front counterweight and rear linkage) | mm (毫米) mm (millimeter) | 4052 | | | | | |
| | 宽 (常用轮距、标准轮胎外侧) Width (common wheel track and standard tyre outside) | mm (毫米) mm (millimeter) | 1900 | | | | | |
| | 高 (至消音器顶、标准轮胎) Height (to the muffler top, standard tyre) | mm (毫米) mm (millimeter) | 2650 | | | | | |
| 轴距 Wheel base | | mm (毫米) mm (millimeter) | 2230 | 2260 | 2230 | 2260 | 2230 | 2260 |
| 轮距 (标准轮胎) Wheel track (standard tyre) | 前轮 Front wheel | mm (毫米) mm (millimeter) | 1400 1500 1600 1700 (常用 1500) (Frequently-used 1,500) | 1450 | 1400 1500 1600 1700 (常用 1500) (Frequently-used 1,500) | 1450 | 1400 1500 1600 1700 (常用 1500) (Frequently-used 1,500) | 1450 |

拖拉机主要技术规格
Main Technical Specifications of the Tractor

| 项目 Item | | 单位 Unit | SH600 | SH604 | SH650 | SH654 | SH700 | SH704 |
|---|--|-------------------------------|---|-------------------|-------------------------|-------------------|-------------------------|-------------------|
| | 前轮调整方式 Front wheel adjustment method | — | 有级可调 Step adjustable | 固定式 Fixed type | 有级可调 Step adjustable | 固定式 Fixed type | 有级可调 Step adjustable | 固定式 Fixed type |
| | 后轮 Rear wheel | mm (毫米) mm (millimeter) | 1430、1530、1630、1730、1830 (常用 1530) 1,430, 1,530, 1,630, 1,730, 1,830 (frequently-used 1,530) | | | | | |
| | 后轮调整方式 Rear wheel adjustment method | — | 有级可调 Step adjustable | | | | | |
| 离地间隙 Ground clearance | 最小离地间隙 Minimum ground clearance | mm (毫米) mm (millimeter) | 440 | 340 | 440 | 340 | 440 | 340 |
| | 农艺间隙 Agricultural clearance | mm (毫米) mm (millimeter) | 450 | 375 | 450 | 375 | 450 | 375 |
| 最小转向圆半径 Minimum steering circle radius | 使用单边制动 Applying the unilateral brake | m (米) m (meter) | 4.2±0.2 | 4.4±0.3 | 4.2±0.2 | 4.4±0.3 | 4.2±0.2 | 4.4±0.3 |
| | 不使用单边制动 Not applying the unilateral brake | m (米) m (meter) | 4.6±0.2 | 4.9±0.2 | 4.6±0.2 | 4.9±0.2 | 4.6±0.2 | 4.9±0.2 |
| 结构质量 Structural mass | | kg (千克) kg (kilogram) | 2630 | 2900 | 2630 | 2900 | 2630 | 2900 |
| 最小使用质量 Minimum service mass | | kg (千克) kg (kilogram) | 2740 | 3010 | 2740 | 3010 | 2740 | 3010 |
| 质量分配 Mass distribution | 前轮 Front wheel | kg (千克) kg (kilogram) | 1080 | 1210 | 1080 | 1210 | 1080 | 1210 |
| | 后轮 Rear wheel | kg (千克) kg (kilogram) | 1660 | 1800 | 1660 | 1800 | 1660 | 1800 |

拖拉机主要技术规格
Main Technical Specifications of the Tractor

| 项目 Item | | 单位 Unit | SH600 | SH604 | SH650 | SH654 | SH700 | SH704 | | |
|------------------------------|----------------------------|---------------------------|---|---|--------------------------------------|----------------------------------|--------------------------------------|----------------------------------|--------------------------------------|--|
| 配重 Counterweight | 前配重 Front counterweight | kg (千克) kg (kilogram) | 270 | | | | | | | |
| | 后配重 Rear counterweight | kg (千克) kg (kilogram) | 480 | | | | | | | |
| 传动系 Transmission system | 离合器 Clutch | — | 单片、干式、双作用离合器 Single plate, dry type, and double-action clutch | | | | | | | |
| | 变速箱 Transmission | — | 组成式、(4+1) × 2 挡, 啮合套换挡 Composition type, (4+1) × 2 gears, and collar shift | | | | | | | |
| | 后桥 Rear axle | 中央传动 Central drive | — | 螺旋圆锥齿轮副 Spiral bevel gear pair | | | | | | |
| | | 差速器 Differential | — | 四行星轮、闭式 Four planetary wheels, and closed type | | | | | | |
| | | 差速锁 Differential lock | — | 花键内啮合 Engaged spline | | | | | | |
| | | 后最终传动 Rear final drive | — | 外啮合、内置式 External and built-in type | | | | | | |
| | 前轴 Front shaft | 前轴 Front shaft | — | 伸缩套管式 Telescopic sleeve type | — | 伸缩套管式 Telescopic sleeve type | — | 伸缩套管式 Telescopic sleeve type | — | |
| | 前驱动桥 Front drive axle | 传动轴 Transmission shaft | — | — | 中置式传动轴 Central transmission shaft | — | 中置式传动轴 Central transmission shaft | — | 中置式传动轴 Central transmission shaft | |
| 前中央传动 Front central drive | | — | — | 封闭锥齿轮式 Closed bevel gear type | — | 封闭锥齿轮式 Closed bevel gear type | — | 封闭锥齿轮式 Closed bevel gear type | | |

拖拉机主要技术规格
Main Technical Specifications of the Tractor

| 项目 Item | | | 单位 Unit | SH600 | SH604 | SH650 | SH654 | SH700 | SH704 |
|-----------------------|----------------------------|-------------------|---------------------------------|---|---|---|---|---|---|
| | 前差速器 Front differential | | — | — | 闭式, 2 个行星锥齿轮 Closed type, and 2 planetary bevel gears | — | 闭式, 2 个行星锥齿轮 Closed type, and 2 planetary bevel gears | — | 闭式, 2 个行星锥齿轮 Closed type, and 2 planetary bevel gears |
| | 前最终传动 Front final drive | | — | — | 单级行星齿轮 Single-stage planetary gear | — | 单级行星齿轮 Single-stage planetary gear | — | 单级行星齿轮 Single-stage planetary gear |
| 行走系 Running system | 机架 Frame | | — | 无架式 Frameless | | | | | |
| | 轮胎气压 Tyre pressure | 前轮 Front wheel | kPa (千帕) kPa (kilopascal) | 167~186 (田间作业) /225~245 (运输作业) 167~186 (field work)/225~245 (transportation work) | 118~138 (田间作业) /167~176 (运输作业) 118~138 (field work)/167~176 (transportation work) | 167~186 (田间作业) /225~245 (运输作业) 167~186 (field work)/225~245 (transportation work) | 118~138 (田间作业) /167~176 (运输作业) 118~138 (field work)/167~176 (transportation work) | 167~186 (田间作业) /225~245 (运输作业) 167~186 (field work)/225~245 (transportation work) | 118~138 (田间作业) /167~176 (运输作业) 118~138 (field work)/167~176 (transportation work) |
| | | 后轮 Rear wheel | kPa (千帕) kPa (kilopascal) | 118~138 (田间作业) /167~176 (运输作业) 118~138 (field work)/167~176 (transportation work) | | | | | |
| | 轮胎规格 Tyre specification | 标准 Standard | 前轮 Front wheel | — | 6.5-20 | 8.3-24 | 6.5-20 | 8.3-24 | 6.5-20 |

拖拉机主要技术规格
Main Technical Specifications of the Tractor

| 项目 Item | | | 单位 Unit | SH600 | SH604 | SH650 | SH654 | SH700 | SH704 |
|---------------------------|---------------------------------|------------------------------|-------------------------------|---|-------|-------|-------|-------|-------|
| | ns | 后轮 Rear wheel | — | 14.9-30 | | | | | |
| 制动系 Brake system | 行车制动器 Service brake | | — | 干式、盘式制动器 Dry type, and disc brake | | | | | |
| | 停车制动 Parking brake | | — | 机械手制动 Robot arm brake | | | | | |
| | 挂车制动操纵 Trailer brake control | | — | 断气式、气压制动 Air cut-off type, and air brake | | | | | |
| 转向系 Steering system | 方式 Mode | | — | 前轮液压转向 Hydraulic steering of the front wheel | | | | | |
| | 转向器 Steering gear | | — | 摆线转阀式全液压转向器 Cycloid full hydraulic steering gear with rotary valve | | | | | |
| 工作装置 Working device | 液压系统型式 Hydraulic system type | | — | 开心、分置式 Open-center and split type | | | | | |
| | 液压油泵 Hydraulic oil pump | | — | 齿轮泵、CBN-F320 Gear pump, CBN-F320 | | | | | |
| | 分配器 Distributor | | — | 滑阀式 Slide valve type | | | | | |
| | 油缸 Oil cylinder | 直径 X 行程 Diameter X stroke | mm (毫米) mm (millimeter) | φ100×200 | | | | | |
| 型式 Type | | — | 双作用 Double-action | | | | | | |

拖拉机主要技术规格
Main Technical Specifications of the Tractor

| 项目 Item | | 单位 Unit | SH600 | SH604 | SH650 | SH654 | SH700 | SH704 |
|--|----------------------|---------------------------------|---|-------|-------|-------|-------|-------|
| 悬挂点尺寸 Linkage point dimensions | | mm (毫米) mm (millimeter) | 三点后悬挂: 2类 Three-point rear linkage: Class 2 连接孔×宽度: Connecting hole × width: 上悬挂点: φ22.4×45 Upper linkage point: φ22.4×45 下悬挂点: φ28.7×45 Lower linkage point: φ28.7×45 | | | | | |
| 耕深调节方式 Cultivation depth adjustment method | | — | 力位综合控制、浮动控制 Comprehensive force and position control, floating control | | | | | |
| 系统最大提升力【悬挂点后 610mm (毫米) 处】 Maximum lifting force of the system [610 mm (millimeter) behind the linkage point] | | kN (千牛) kN (kilonewton) | ≥15 | | | | | |
| 系统安全阀开启压力 System safety valve opening pressure | | MPa (兆帕) MPa (megapascal) | 16.0±0.5 | | | | | |
| 液压输出 Hydraulic output | 型式 Type | — | 液压输出(可选) Hydraulic output (optional) | | | | | |
| | 数量 Quantity | — | 2 | | | | | |
| | 规格 Specifications | — | M18X1.5 | | | | | |
| 动力输出轴 Power-take- | 型式 Type | — | 后置半独立式 Rear-mounted and semi-independent type | | | | | |

拖拉机主要技术规格
Main Technical Specifications of the Tractor

| 项目 Item | | 单位 Unit | SH600 | SH604 | SH650 | SH654 | SH700 | SH704 |
|--|--|--|---|---|-------|-------|-------|-------|
| off shaft | 规格 Specifications | — | 1 型 (φ35X6 齿或 φ38X8 齿) Type 1 (φ35 X 6 teeth or φ38 X 8 teeth) | | | | | |
| | 转速 Rotation speed | r/min (转/分) r/min (rotation / minute) | 540/760 | | | | | |
| | 动力输出轴标定功率下限 Lower limit of rated power of the power-take-off shaft | kW (千瓦) kW (kilowatt) | 37.5 | | 40.7 | | 43.8 | |
| 拖挂装置 Trailing device | 连接销直径 Connecting pin diameter | mm (毫米) mm (millimeter) | 40 | | | | | |
| | 连接销 Connecting pin | mm (毫米) mm (millimeter) | 215 | | | | | |
| 电器仪表系 统 Electric instrument system | 电气系统 Electric system | | — | 12V 负极搭铁双线制 12 V negative earth and double wire system | | | | |
| | 发电机 Generator | 型号 Model | — | JFZ1581A/ JFWZ1581A | | | | |
| | | 电压 Voltage | V (伏) V (volt) | 14 | | | | |
| | | 功率 Power | kW (千瓦) kW (kilowatt) | 0.7 | | | | |
| | 调节器 Regulator | 型号 Model | — | 包含在电器盒中 Included in the electric box | | | | |
| | | 调节电压 Regulating voltage | V (伏) V (volt) | 14 | | | | |

拖拉机主要技术规格
Main Technical Specifications of the Tractor

| 项目 Item | | 单位 Unit | SH600 | SH604 | SH650 | SH654 | SH700 | SH704 |
|------------|---------------------------------------|-----------------------------|---------------------------------------|--|-------|-------|-------|-------|
| | 起动机 Starter | 型号 Model | — | QDJ1407GM 或 QDJ1408GM QDJ1407GM or QDJ1408GM | | | | |
| | | 电压 Voltage | V (伏) V (volt) | 12 | | | | |
| | | 功率 Power | kW (千瓦) kW (kilowatt) | 3.7 | | | | |
| | 蓄电池 Storage battery | 型号 Model | — | 6-QW-120 | | | | |
| | | 电压 Voltage | V (伏) V (volt) | 12 | | | | |
| | | 容量 Capacity | A·h (安培·小时) A·h (Ampere · hour) | 120 | | | | |
| | | 数量 Quantity | — | 1 | | | | |
| | 照明及信号装置 Lighting and signal device | 前照灯 Headlamp | — | 12V (伏), 55/60W 组合式 12 V (volts), 55/60 W combined type | | | | |
| | | 前转向灯 Front steering lamp | — | 12V, 21W, 2 个 12 V, 21 W, 2 lamps in all | | | | |
| | | 前位置灯 Front position lamp | — | 12V, 5W, 2 个 12 V, 5 W, 2 lamps in all | | | | |

拖拉机主要技术规格
Main Technical Specifications of the Tractor

| 项目 Item | | 单位 Unit | SH600 | SH604 | SH650 | SH654 | SH700 | SH704 |
|--------------------------|--|--------------------|---|-------|-------|-------|-------|-------|
| | 后组合灯 Rear combination lamp | — | 示宽 10W, 转向 21W, 制动 21W, 反射器 (红) 左右各一个 Width lamp 10 W, steering lamp 21 W, brake lamp 21 W, reflector (red), one at left and right sides respectively | | | | | |
| | 后工作灯 Rear working lamp | — | 12V, 35W, 2 个 12 V, 35 W, 2 lamps in all | | | | | |
| | 挂车插座 Trailer socket | — | 七孔插座带插销 1 个 Seven-hole socket with one spigot | | | | | |
| | 组合仪表 Combination instrument | — | 带水温表, 油量表, 转速表 1 个 With 1 water thermometer, 1 fuel gauge, and 1 tachometer | | | | | |
| | 监控及警示装置 Monitoring and warning device | — | 1. 充电指示灯, 左右转向指示灯, 位置灯指示灯, 远光指示灯; 2. 气制动故障报警灯 (气制动机型选装), 机油压力低报警灯; 3. 反射器; 4. 安全警告标识。 1. Charging indicator lamp, left and right steering indicator lamp, position lamp indicator lamp, upper beam indicator lamp; 2. Air brake malfunction warning lamp (optional air brake model), low engine oil pressure warning lamp; 3. Reflector; 4. Safety warning mark. | | | | | |
| 灌注容量 Filling capacity | 散热器 Radiator | L (升) L (liter) | 15 | | | | | |
| | 发动机油底壳 Engine oil pan | L (升) L (liter) | 按发动机说明书 In accordance with the Engine Instruction | | | | | |
| | 燃油箱 Fuel tank | L (升) L (liter) | 78 | | | | | |
| | 油浴式空气滤清器 Oil-bath air cleaner | L (升) L (liter) | 按需加至规定油面 Filling to the specified oil level as required | | | | | |

拖拉机主要技术规格
Main Technical Specifications of the Tractor

| 项目 Item | | 单位 Unit | SH600 | SH604 | SH650 | SH654 | SH700 | SH704 |
|------------|----------------------------------|--------------------|-------|-------|-------|-------|-------|-------|
| | 液压转向用油 Hydraulic steering oil | L (升) L (liter) | 2.5 | | | | | |
| | 传动系用油 Transmission system oil | L (升) L (liter) | 50 | | | | | |
| | 提升器 Lifter | L (升) L (liter) | 21 | | | | | |
| | 前驱动桥 Front drive axle | L (升) L (liter) | 11.5 | | | | | |

SH750/SH754/SH800/SH804

SH750/SH754/SH800/SH804

| 项目 Item | | 单位 Unit | SH750 | SH754 | SH800 | SH804 |
|------------------------------------|--|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| 型式 Type | | — | 4×2 轮式 4×2 wheeled type | 4×4 轮式 4×4 wheeled type | 4×2 轮式 4×2 wheeled type | 4×4 轮式 4×4 wheeled type |
| 标定牵引力 Calibrated traction force | | kN (千牛) kN (kilonewton) | 14.6 | 17.3 | 15.5 | 18.6 |
| 外形尺寸 Overall dimensions | 长 (包括前配重、后悬挂) Length (including the front counterweight and rear linkage) | mm (毫米) mm (millimeter) | 4052 | | | |
| | 宽 (常用轮距、标准轮胎外侧) Width (common wheel track and standard tyre outside) | 1914 | 1900 | | | |
| | 高 (至消音器顶、标准轮胎) Height (to the muffler top, standard tyre) | mm (毫米) mm (millimeter) | 2650 | | | |
| 轴距 Wheel base | | mm (毫米) mm (millimeter) | 2230 | 2260 | 2230 | 2260 |
| 轮距 (标准轮胎) | 前轮 | mm (毫米) | 1400 | 1450 | 1400 | 1450 |

拖拉机主要技术规格
Main Technical Specifications of the Tractor

| | | | | | | |
|---|--|----------------------------|---|-------------------|--|-------------------|
| Wheel track (standard tyre) | Front wheel | mm (millimeter) | 1500 1600 1700 (常用 1500) (Frequently-used 1,500) | | 1500 1600 1700 (常用 1500) (Frequently-used 1,500) | |
| | 前轮调整方式 Front wheel adjustment method | — | 有级可调 Step adjustable | 固定式 Fixed type | 有级可调 Step adjustable | 固定式 Fixed type |
| | 后轮 Rear wheel | mm (毫米) mm (millimeter) | 1430、1530、1630、1730、1830 (常用 1530) 1,430, 1,530, 1,630, 1,730, 1,830 (frequently-used 1,530) | | | |
| | 后轮调整方式 Rear wheel adjustment method | — | 有级可调 Step adjustable | | | |
| 离地间隙 Ground clearance | 最小离地间隙 Minimum ground clearance | mm (毫米) mm (millimeter) | 440 | 340 | 440 | 340 |
| | 农艺间隙 Agricultural clearance | mm (毫米) mm (millimeter) | 450 | 375 | 450 | 375 |
| 最小转向圆半径 Minimum steering circle radius | 使用单边制动 Applying the unilateral brake | m (米) m (meter) | 4.2±0.2 | 4.4±0.3 | 4.2±0.2 | 4.4±0.3 |
| | 不使用单边制动 Not applying the unilateral brake | m (米) m (meter) | 4.6±0.2 | 4.9±0.2 | 4.6±0.2 | 4.9±0.2 |
| 结构质量 Structural mass | | kg (千克) kg (kilogram) | 2630 | 2900 | 2930 | 2900 |
| 最小使用质量 Minimum service mass | | kg (千克) kg (kilogram) | 2740 | 3010 | 2740 | 3010 |
| 质量分配 Mass distribution | 前轮 Front wheel | kg (千克) kg (kilogram) | 1080 | 1210 | 1080 | 1210 |
| | 后轮 Rear wheel | kg (千克) kg (kilogram) | 1660 | 1800 | 1660 | 1800 |
| 配重 Counterweight | 前配重 Front counterweight | kg (千克) kg (kilogram) | 270 | | | |

拖拉机主要技术规格
Main Technical Specifications of the Tractor

| | | | | | | | |
|----------------------------|---------------------------|------------------------------|---|---|--|---------------------------------|--|
| | 后配重 Rear counterweight | kg (千克) kg (kilogram) | 480 | | | | |
| 传动系 Transmission system | 离合器 Clutch | — | 单片、干式、双作用离合器 Single plate, dry type, and double-action clutch | | | | |
| | 变速箱 transmission | — | 组成式、(4+1)×2 挡, 啮合套换挡 Composition type, (4+1)×2 gears, and collar shift | | | | |
| | 后桥 Rear axle | 中央传动 Central drive | — | 螺旋圆锥齿轮副 Spiral bevel gear pair | | | |
| | | 差速器 Differential | — | 四行星轮、闭式 Four planetary wheels, and closed type | | | |
| | | 差速锁 Differential lock | — | 花键内啮合 Engaged spline | | | |
| | | 后最终传动 Rear final drive | — | 外啮合、内置式 External and built-in type | | | |
| | 前轴 Front shaft | 前轴 Front shaft | — | 伸缩套管式 Telescopic sleeve type | — | 伸缩套管式 Telescopic sleeve type | — |
| | 前驱动桥 Front axle drive | 传动轴 Transmission shaft | — | — | 中置式传动轴 Central transmission shaft | — | 中置式传动轴 Central transmission shaft |
| | | 前中央传动 Front central drive | — | — | 封闭锥齿轮式 Closed bevel gear type | — | 封闭锥齿轮式 Closed bevel gear type |
| | | 前差速器 Front differential | — | — | 闭式, 2 个行星锥齿轮 Closed type, and 2 planetary bevel gears | — | 闭式, 2 个行星锥齿轮 Closed type, and 2 planetary bevel gears |
| 前最终传动 | | — | — | 单级行星齿轮 Single-stage | — | 单级行星齿 | |

拖拉机主要技术规格
Main Technical Specifications of the Tractor

| | | Front final drive | | | planetary gear | | 轮 Single-stage planetary gear | |
|------------------------|---------------------------------|-------------------|------------------------------|---|---|---|---|--------|
| 行走系 Running system | 机架 Frame | | — | 无架式 Frameless | | | | |
| | 轮胎气压 Tyre pressure | 前轮 Front wheel | kPa (千帕) kPa (kilopascal) | 167~186(田间作业)/225~245(运输作业) 167~186 (field work)/225~245 (transportation work) | 118~138 (田间作业)/167~176 (运输作业) 118~138 (field work)/167~176 (transportation work) | 167~186(田间作业)/225~245(运输作业) 167~186 (field work)/225~245 (transportation work) | 118~138 (田间作业)/167~176 (运输作业) 118~138 (field work)/167~176 (transportation work) | |
| | | 后轮 Rear wheel | kPa (千帕) kPa (kilopascal) | 118~138 (田间作业)/167~176 (运输作业) 118~138 (field work)/167~176 (transportation work) | | | | |
| | 轮胎规格 Tyre specifications | 标准 Standard | 前轮 front wheel | — | 6.5-20 | 8.3-24 | 6.5-20 | 8.3-24 |
| | | | 后轮 rear wheel | — | 14.9-30 | | | |
| 制动系 Brake system | 行车制动器 Service brake | | — | 干式、盘式制动器 Dry type, and disc brake | | | | |
| | 停车制动 Parking brake | | — | 机械手制动 Robot arm brake | | | | |
| | 挂车制动操纵 Trailer brake control | | — | 断气式、气压制动 Air cut-off type, and air brake | | | | |
| 转向系 Steering system | 方式 Mode | | — | 前轮液压转向 Hydraulic steering of the front wheel | | | | |
| | 转向器 Steering gear | | — | 摆线转阀式全液压转向器 Cycloid full hydraulic steering gear with rotary valve | | | | |
| 工作装置 | 液压系统型式 | | — | 开心、分置式 | | | | |

拖拉机主要技术规格
Main Technical Specifications of the Tractor

| | | | | |
|--------------------------|--|------------------------------|--|--|
| Working device | Hydraulic system type | | | Open-center and split type |
| | 液压油泵 Hydraulic oil pump | | — | 齿轮泵、CBN-F320 Gear pump, CBN-F320 |
| | 分配器 Distributor | | — | 滑阀式 Slide valve type |
| | 油缸 Oil cylinder | 直径 X 行程 Diameter X stroke | mm (毫米) mm (millimeter) | φ100×200 |
| | | 型式 Type | — | 双作用 Double-action |
| | 悬挂点尺寸 Linkage point dimensions | | mm (毫米) mm (millimeter) | 三点后悬挂: 2 类 Three-point rear linkage: Class 2 连接孔×宽度: Connecting hole × width: 上悬挂点: φ22.4×45 Upper linkage point: φ22.4×45 下悬挂点: φ28.7×45 Lower linkage point: φ28.7×45 |
| | 耕深调节方式 Cultivation depth adjustment method | | — | 力位综合控制、浮动控制 Comprehensive force and position control, floating control |
| | 系统最大提升力【悬挂点后 610mm (毫米) 处】 Maximum lifting force of the system [610 mm (millimeter) behind the linkage point] | | kN (千牛) kN (kilonewton) | ≥15 |
| | 系统安全阀开启压力 System safety valve opening pressure | | MPa (兆帕) MPa (megapascal) | 16.0±0.5 |
| 液压输出 Hydraulic output | 型式 Type | — | 液压输出 (可选) Hydraulic output (optional) | |
| | 数量 | — | 2 | |

拖拉机主要技术规格
Main Technical Specifications of the Tractor

| | | Quantity | | | |
|--------------------------------------|---|---|---|---|--|
| | | 规格 Specifications | — | M18X1.5 | |
| 动力输出轴 Power-take-off shaft | 型式 Type | — | 后置半独立式 Rear-mounted and semi-independent type | | |
| | 规格 Specifications | — | 1 型 (φ35X6 齿或 φ38X8 齿) Type 1 (φ35 X 6 teeth or φ38 X 8 teeth) | | |
| | 转速 Rotation speed | r/min (转/分) r/min (rotation/minute) | 540/760 | | |
| | 动力输出轴标定功率下限 Lower limit of rated power of the power-take-off shaft | kW (千瓦) kW (kilowatt) | 46.8 | 50.2 | |
| 拖挂装置 Trailing device | 连接销直径 Connecting pin diameter | mm (毫米) mm (millimeter) | 40 | | |
| | 连接销 Connecting pin | mm (毫米) mm (millimeter) | 215 | | |
| 电器仪表系统 Electric instrument system | 电气系统 Electric system | — | 12V 负极搭铁双线制 12 V negative earth and double wire system | | |
| | 发电机 Generator | 型号 Model | — | JFZ1581A/ JFWZ1581A | |
| | | 电压 Voltage | V (伏) V (volt) | 14 | |
| | | 功率 Power | kW (千瓦) kW (kilowatt) | 0.7 | |
| | 调节器 Regulator | 型号 Model | — | 包含在电器盒中 Included in the electric box | |
| 调节电压 Regulating voltage | | V (伏) V (volt) | 14 | | |

拖拉机主要技术规格
Main Technical Specifications of the Tractor

| | | | | |
|--|---------------------------------------|-------------------------------|------------------------------------|--|
| | 起动机 Starter | 型号 Model | — | QDJ1407GM 或 QDJ1408GM QDJ1407GM or QDJ1408GM |
| | | 电压 Voltage | V (伏) V (volt) | 12 |
| | | 功率 Power | kW (千瓦) kW (kilowatt) | 3.7 |
| | 蓄电池 Storage battery | 型号 Model | — | 6-QW-120 |
| | | 电压 Voltage | V (伏) V (volt) | 12 |
| | | 容量 Capacity | A·h (安培·小时) A·h (Ampere · hour) | 120 |
| | | 数量 Quantity | — | 1 |
| | 照明及信号装置 Lighting and signal device | 前照灯 Headlamp | — | 12V (伏), 55/60W 组合式 12 V (volts), 55/60 W combined type |
| | | 前转向灯 Front steering lamp | — | 12V, 21W, 2 个 12 V, 21 W, 2 lamps in all |
| | | 前位置灯 Front position lamp | — | 12V, 5W, 2 个 12 V, 5 W, 2 lamps in all |
| | | 后组合灯 Rear combination lamp | — | 示宽 10W, 转向 21W, 制动 21W, 反射器 (红) 左右各一个 Width lamp 10 W, steering lamp 21 W, brake lamp 21 W, reflector (red), one at left and right sides respectively |
| | | 后工作灯 Rear working lamp | — | 12V, 35W, 2 个 12 V, 35 W, 2 lamps in all |

拖拉机主要技术规格
Main Technical Specifications of the Tractor

| | | | | |
|--------------------------|--|--------------------------------|--------------------|---|
| | | 挂车插座 Trailer socket | — | 七孔插座带插销 1 个 Seven-hole socket with one spigot |
| | 监控及警示装置 Monitoring and warning device | 组合仪表 Combination instrument | — | 带水温表, 油量表, 转速表 1 个 With 1 water thermometer, 1 fuel gauge, and 1 tachometer |
| | | 警示装置 Warning device | — | 1. 充电指示灯, 左右转向指示灯, 位置灯指示灯, 远光指示灯; 1. Charging indicator lamp, left and right steering indicator lamp, position lamp indicator lamp, upper beam indicator lamp; 2. 气制动故障报警灯 (气制动机型选装), 机油压力低报警灯; 2. Air brake malfunction warning lamp (optional air brake model), low engine oil pressure warning lamp; 3. 反射器; 4. 安全警告标识。 3. Reflector; 4. Safety warning mark. |
| 灌注容量 Filling capacity | 散热器 Radiator | | L (升) L (liter) | 15 |
| | 发动机油底壳 Engine oil pan | | L (升) L (liter) | 按发动机说明书 In accordance with the Engine Instruction |
| | 燃油箱 Fuel tank | | L (升) L (liter) | 78 |
| | 油浴式空气滤清器 Oil-bath air cleaner | | L (升) L (liter) | 按需加至规定油面 Filling to the specified oil level as required |
| | 液压转向用油 Hydraulic steering oil | | L (升) L (liter) | 2.5 |
| | 传动系用油 Transmission system oil | | L (升) L (liter) | 50 |
| | 提升器 Lifter | | L (升) L (liter) | 21 |
| | 前驱动桥 Front drive axle | | L (升) L (liter) | 11.5 |

拖拉机主要技术规格
Main Technical Specifications of the Tractor

3.3 发动机主要技术规格

Main Technical Specifications of the Engine

SH600/SH604/SH650/SH654/SH700/SH704
SH600/SH604/SH650/SH654/SH700/SH704

| 项目 Item | | 单位 Unit | SH600/ SH604 | SH650/SH654 | SH700/SH704 |
|---------------|---------------------------------|--|--|-------------|-------------|
| 发动机 Engine | 生产企业 Manufacturer | — | 一拖（洛阳）柴油机有限公司 YTO (Luoyang) Diesel Engine Co., Ltd. | | |
| | 商标与品牌 Trademark and brand | — | 东方红 Dongfanghong | | |
| | 型号 Model | — | YT4A2-22 | YT4B2-22 | YT4B3-22 |
| | 缸数 Cylinder number | — | 4 | 4 | 4 |
| | 缸径×行程 Cylinder bore × stroke | mm（毫米） mm (millimeter) | 105×120 | 108×120 | 108×125 |
| | 排量 Displacement | L（升） L (liter) | 4.156 | 4.4 | 4.58 |
| | 压缩比 Compression ratio | — | 18:1 | | |
| | 标定功率 Rated power | kW（千瓦） kW (kilowatt) | 44.1 | 47.8 | 51.5 |
| | 标定转速 Rated rotation speed | r/min（转/分） r/min (rotation/minute) | 2200 | 2200 | 2200 |

拖拉机主要技术规格
Main Technical Specifications of the Tractor

| 项目 Item | 单位 Unit | SH600/ SH604 | SH650/SH654 | SH700/SH704 |
|---|--|--|-------------------|-------------------|
| 最大扭矩/转速 Maximum torque/rotation speed | N·m/ r/min (牛·米/转/分) N·m/ r/min (newton · meter /rotation/minute) | 255~260/ ≤1650 | 270~275/ ≤1650 | 285~290/ ≤1650 |
| 额定工况燃油消耗率 Fuel consumption rate under rated working conditions | g/kW·h (克/千瓦·小时) g/kW·h | ≤242 | ≤242 | ≤242 |
| 额定工况机油消耗率 Engine oil consumption rate under rated working conditions | (gram/kilowatt·hour) | ≤1.63 | ≤1.63 | ≤1.63 |
| 润滑方式 Lubrication method | — | 强制、飞溅润滑 Forced and splash lubrication | | |
| 启动方式 Starting method | — | 电启动 Electric starting | | |
| 冷却方式 Cooling method | — | 强制水冷 Forced water cooling | | |
| 空气滤清器型式 Air cleaner type | — | 干式或湿式 Dry type or wet type | | |

拖拉机主要技术规格
Main Technical Specifications of the Tractor

SH750/SH754/SH800/SH804
SH750/SH754/SH800/SH804

| 项目 Item | | 单位 Unit | SH750/ SH754 | SH800/SH804 |
|---------------|---|--|--|---------------|
| 发动机 Engine | 生产企业 Manufacturer | — | 一拖（洛阳）柴油机有限公司 YTO (Luoyang) Diesel Engine Co., Ltd. | |
| | 商标与品牌 Trademark and brand | — | 东方红 Dongfanghong | |
| | 型号 Model | — | YT4B3-22 | YT4B4-22 |
| | 缸数 Cylinder number | — | 4 | |
| | 缸径×行程 Cylinder bore × stroke | mm (毫米) mm (millimeter) | 108×125 | 105×130 |
| | 排量 Displacement | L (升) L (liter) | 4.58 | 4.95 |
| | 压缩比 Compression ratio | — | 18:1 | |
| | 标定功率 Rated power | kW (千瓦) kW (kilowatt) | 55 | 59 |
| | 标定转速 Rated rotation speed | r/min (转/分) r/min (rotation/minute) | 2200 | |
| | 最大扭矩/转速 Maximum torque/rotation speed | N·m/ r/min (牛·米/转/分) N·m/ r/min (newton·meter/rotation/minute) | 300~305/≤1650 | 315~320/≤1650 |
| | 额定工况燃油消耗率 Fuel consumption rate under rated working conditions | g/kW·h (克/千瓦·小时) g/kW·h (gram/kilowatt·hour) | ≤242 | |
| | 额定工况机油消耗率 Engine oil consumption rate under rated working conditions | | ≤1.63 | |
| | 润滑方式 Lubrication method | — | 强制、飞溅润滑 Forced and splash lubrication | |

拖拉机主要技术规格
Main Technical Specifications of the Tractor

| 项目 Item | 单位 Unit | SH750/ SH754 | SH800/SH804 |
|-----------------------------|------------|-------------------------------|-------------|
| 启动方式 Starting method | — | 电起动 Electric starting | |
| 冷却方式 Cooling method | — | 强制水冷 Forced water cooling | |
| 空气滤清器型式 Air cleaner type | — | 干式或湿式 Dry type or wet type | |

注：技术规格表中参数均为标准配置下的数值。

NOTE: Parameters in the Technical Specifications all refer to values under the standard configuration.

3.4 拖拉机理论速度

Theoretical Speed of the Tractor

SH600/SH604/SH650/SH654/SH700/SH704 拖拉机理论速度 单位：km/h

Theoretical Speed of the Tractor (SH600/SH604/SH650/SH654/SH700/SH704) Unit: km/h

| 机型 Machine Model | SH600/SH354 | | SH650/SH654 | | SH450/SH454 | |
|---------------------|----------------|--------------------|---------------------|--------------------|---------------------|--------------------|
| 档位 Gear Position | 8F+2R | | | | | |
| | 低档 Low gear | 倒档 Reverse gear | 前进档 Forward gear | 倒档 Reverse gear | 前进档 Forward gear | 倒档 Reverse gear |
| 低 1 Low 1 | 3.04 | 3.44 | 低档 Low gear | 倒档 Reverse gear | 低档 Low gear | 倒档 Reverse gear |
| 低 2 Low 2 | 4.07 | 12.76 | 3.04 | 3.44 | 3.04 | 3.44 |
| 低 3 Low 3 | 6.45 | / | 4.07 | 12.76 | 4.07 | 12.76 |
| 低 4 Low 4 | 8.68 | / | 6.45 | / | 6.45 | / |
| 高 1 High 1 | 12.14 | / | 8.68 | / | 8.68 | / |
| 高 2 High 2 | 16.26 | / | 12.14 | / | 12.14 | / |
| 高 3 High 3 | 25.80 | / | 16.26 | / | 16.26 | / |
| 高 4 High 4 | 34.71 | / | 25.80 | / | 25.80 | / |

拖拉机主要技术规格
Main Technical Specifications of the Tractor

注：1.上表数值是以发动机 2200r/min（转/分）、标准后轮胎时的理论速度。

NOTE: 1. The value in the above table refers to the theoretical speed under conditions of the engine of 2,200 r/min (rotation/minute) and configuration of the standard rear tyre.

SH750/SH754/SH800/SH804 拖拉机理论速度

单位：km/h

Theoretical Speed of the Tractor (SH750/SH754/SH800/SH804)

Unit: km/h

| 机型 Machine Model | SH750/SH754/ | | SH800/SH804 | |
|---------------------|----------------|--------------------|---------------------|--------------------|
| 档位 Gear Position | 8F+2R | | | |
| | 低档 Low gear | 倒档 Reverse gear | 前进档 Forward gear | 倒档 Reverse gear |
| 低 1 Low 1 | 低档 Low gear | 倒档 Reverse gear | 低档 Low gear | 倒档 Reverse gear |
| 低 2 Low 2 | 3.04 | 3.44 | 3.04 | 3.44 |
| 低 3 Low 3 | 4.07 | 12.76 | 4.07 | 12.76 |
| 低 4 Low 4 | 6.45 | / | 6.45 | / |
| 高 1 High 1 | 8.68 | / | 8.68 | / |
| 高 2 High 2 | 12.14 | / | 12.14 | / |
| 高 3 High 3 | 16.26 | / | 16.26 | / |
| 高 4 High 4 | 25.80 | / | 25.80 | / |

注：1.上表数值是以发动机 2200r/min（转/分）、配标准后轮胎时的理论速度。

NOTE: 1. The value in the above table refers to the theoretical speed under conditions of the engine of 2,200 r/min (rotation/minute) and configuration of the standard rear tyre.

第四章 操作说明
Chapter IV Operation Instruction


 注意：正确地操作拖拉机，可以充分发挥拖拉机的效能，减少拖拉机的磨损和防止事故发生，保证操作者优质、高效、低耗、安全地完成田间及道路作业。
CAUTION: Correctly operating the tractor can fully develop the tractor efficiency; reduce the tractor wear; prevent the accident, and ensure that the operator can excellently, effectively and safely complete the field and road operations with low consumption.

表 4-1 常用标识符号
Table 4-1 Common Symbol and Mark

| 符号 Symbol | 含义 Meaning | 符号 Symbol | 含义 Meaning | 符号 Symbol | 含义 Meaning |
|---|---|---|---|---|---|
|  | 安全警戒符号 Safety warning symbol |  | 四轮驱动 Four-wheel-drive |  | 喇叭 Horn |
|  | 远光灯 Upper beam lamp |  | 近光灯 Low beam lamp |  | 快 Fast |
|  | 发动机机油压力 Engine oil pressure |  | 蓄电池充电状况 Storage battery charging state |  | 慢 Low |
|  | 转向灯指示 Steering lamp indication |  | 洗涤器 Washer |  | 位置灯 Position lamp |
|  | 发动机预热 Engine preheating |  | 后雨刮 Rear wiper |  | 雨刮器 Wiper |
|  | 空滤器堵塞报警 Air cleaner blockage warning |  | 液压油滤清器 Hydraulic oil filter |  | 气压制动失灵故障 Air brake failure malfunction |
|  | 发动机冷却液温度 Engine coolant temperature |  | 燃油油量 Fuel quantity |  | 驻车制动 Parking brake |
|  | 差速锁 Differential lock |  | 危险指示灯 Danger indicator lamp |  | 警报灯 Warning lamp |

4.1 拖拉机操纵控制装置及仪表

Operation and Control Device and Instrument of the Tractor

4.1.1 拖拉机操纵机构（见下图）

Tractor Control Mechanism (See the following figure)

操作说明
Operation Instruction

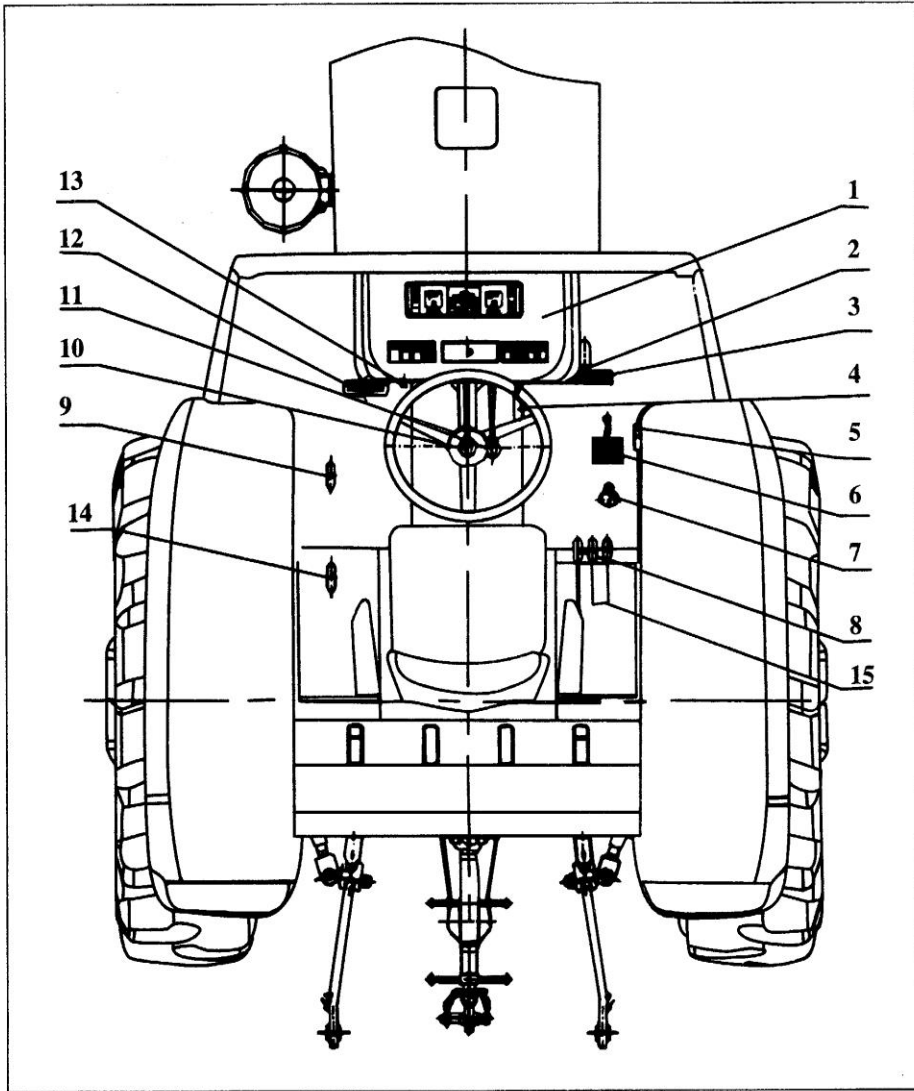


图 操纵机构

1- 仪表盘; 2- 制动踏板联锁板; 3- 左右制动踏板; 4- 驻车制动手柄; 5- 手油门操纵手柄; 6- 脚油门踏板; 7- 差速锁踏板; 8- 分配器操纵手柄; 9- 动力输出轴操纵手柄; 10- 主变速杆; 11- 副变速杆; 12- 离合器踏板; 13- 熄火拉线; 14- 前驱动桥操纵手柄 (选装); 15- 液压输出操纵手柄 (选装)

操作说明
Operation Instruction

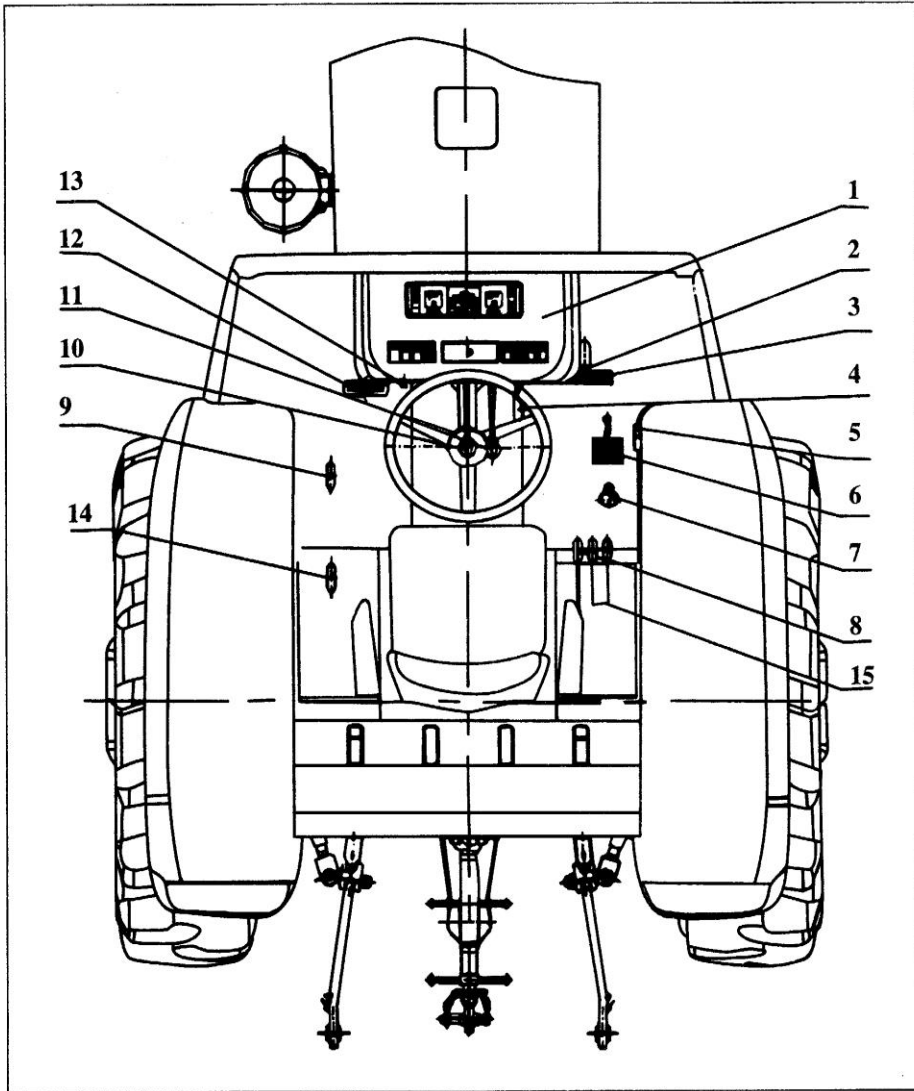


Figure Control Mechanism

1-Instrument panel; 2-Brake pedal interlocking plate; 3-Left and right brake pedal 4-Parking brake handle; 5-Hand throttle control handle; 6-Foot throttle pedal; 7-Differetnial lock pedal; 8-Distributor control handle; 9-Power-take-off shaft control handle; 8- Main gear lever; 11-Auxiliary gear lever; 12-Clutch pedal; 13-Flameout wire; 14-Front drive axle control handle (optional); 15-Hydraulic output control handle (optional)

4.1.2 拖拉机仪表及开关（见下图）

Tractor Instrument and Switch (See the following figure)

拖拉机仪表及开关

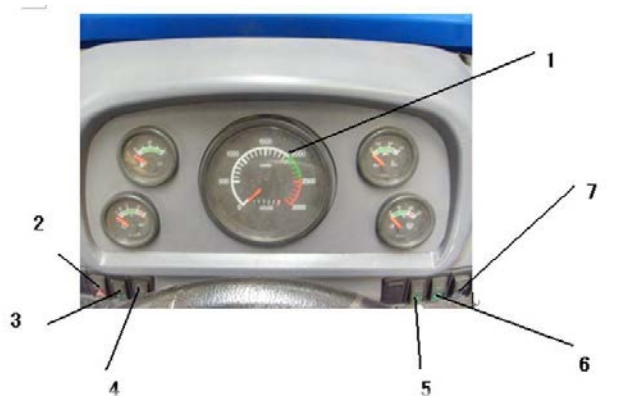
Tractor instrument and switch

该机型采用组合仪表及控制。

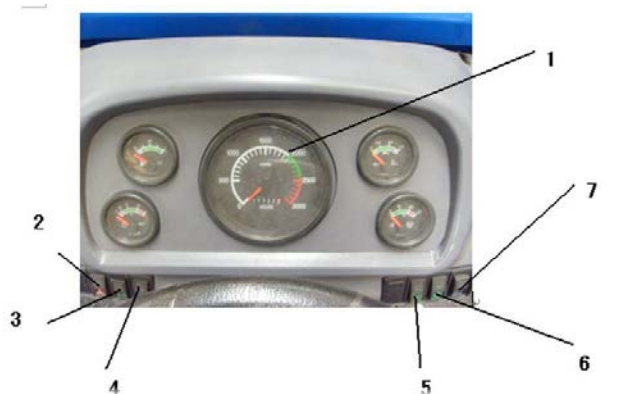
The tractor is applied with the combination instrument and control.

组合仪表包括下列仪表：水温表、油量表、发动机转速表，指示灯右转向指示灯、远光指示灯、位置指示灯、充电指示灯、机油压力报警灯和气压报警灯等。

The combination instrument includes the following instruments: water thermometer, fuel gauge, engine tachometer, right steering indicator lamp of the indicator lamp, upper beam indicator lamp, position indicator lamp, charging indicator lamp, engine oil pressure warning lamp, air pressure warning lamp, etc.



1-组合仪表总成 2-危险报警开关 3-转向开关 4-喇叭开关 5-顶后灯开关
6-灯光开关 7-变光开关



1-Combination instrument assembly 2-Danger warning switch 3-Steering switch 4-Horn switch 5-Roof lamp and back lamp switch 6-Lamp switch 7-Dimmer switch



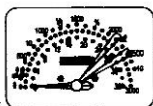
8 点火锁

8

操作说明 Operation Instruction

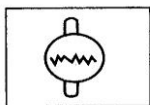


8 Ignition lock



发动机工作小时表：转速表和工作小时表组成。橙色数字为运输型拖拉机参考车速（备用）；黄色数字为拖拉机各档行驶时参考车速（km/h 表示公里/小时）；白色数字为发动机的转速（r/min 表示转/分钟）。

Engine hour meter: It is composed of the tachometer and hour meter. The orange figure refers to the reference speed (standby) of the transportation tractor; the yellow figure refers to the reference speed at different traveling gears of the tractor (km/h shows the kilometer/hour); the white figure refers to the engine rotation speed (r/min refers to the rotation/minute).

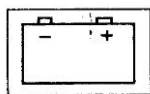


水温表：白色区温度为 40~60℃；绿色区温度为 60~100℃；红色区温度为 100~115℃。
Water thermometer: The white area temperature is 40~60℃; the green area temperature is 60~100℃; the red area temperature is 100~115℃.



油量表：油量表用色区表示油箱内的油量。指针指向右边的白色区；表示油箱内的油量不足 1/4。在使用拖拉机时，若发现无油或油量不足时，指针仍在最右边白色区，表明油量传感器出现短路故障；当油箱满时，指针仍在左边红色区不动，表明油量传感器出现断路故障，应检修。

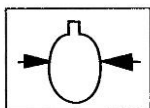
Fuel gauge: The fuel gauge indicates the oil quantity in the oil tank by different color areas. If the pointer points to the right-side white area, it means the oil quantity is less than 1/4. When using the tractor, there is no oil or the oil is insufficient while the pointer still points to the rightmost white area, it means the oil quantity sensor has the short circuit malfunction; when the oil tank is full and the pointer still points to the left-side red area, it means the oil quantity sensor has the open circuit malfunction, which is in need of overhaul.



电池充电报警灯（红色）：发电机启动后该灯应熄灭，表示蓄电池充电正常。

Storage battery charging warning lamp (red): It shall be off after starting the generator, which shows normal storage battery charging.

操作说明 Operation Instruction



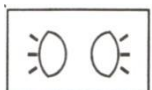
发动机油压报警灯（红色）：发动机启动后，该灯应熄灭表示润滑系统压力正常。发动机怠速时，该灯可能亮，这是因为怠速时润滑系统压力低，属正常现象。如果发动机在正常工作时，该灯自亮，应立即停机检查。

Engine oil pressure warning lamp (red): If the lamp is off after starting the engine, it means normal lubrication system pressure. When the engine runs idly, the lamp may be on, which is normal as the lubrication system pressure is low in idling conditions. If the lamp is on when the engine normally runs, the machine shall be immediately stopped for inspection.



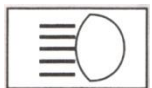
气压报警灯（红色）：当气刹系统气压低于 0.392MPa 时，该灯亮。表明制动气路有故障或气压报警器坏，应检修。

Air pressure warning lamp (red): When the air brake system pressure is lower than 0.392 MPa, the lamp will be on, which means that the brake air circuit has malfunction or the air pressure alarmer is broken and is in need of overhaul.



位置指示灯（绿色）：夜间在公路上行驶的拖拉机在停车时，为保证交通安全，提醒前后驾驶员注意，应将小灯打开，使灯光开关处于“1”位，位置指示灯的小灯全亮。

Position indicator lamp (green): When the tractor is stopped on the highway at night, the lamp shall be opened to remind and give warning to front and rear drivers for safe traffic. When the light switch is turned to the position “1”, all bulbs of the position indicator lamp will be on.



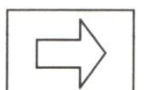
前照灯远光指示灯（蓝色）：灯光开关处于“2”位，变光开关处于“2”位时，该灯亮。表明此时前照灯为远光。

Upper beam indicator lamp of the headlamp (blue): The lamp will be on when the light switch and the dimmer switch are turned to the position “2”, which means that the headlamp sends out the upper beam.



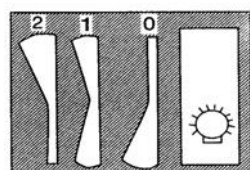
左转指示灯（绿色）：拖拉机左转时，接通左转向开关，该灯亮。

Left steering indicator lamp (green): When the tractor turns left, the left steering switch will be connected and the lamp will be on.



右转指示灯（绿色）：拖拉机右转时，接通右转向开关，该灯亮。

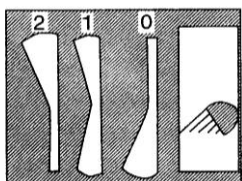
Right steering indicator lamp (green): When the tractor turns right, the right steering switch will be connected and the lamp will be on.



灯光开关：“0”位时切断电源。“1”位：位置指示灯亮。“2”位：控制前照灯电源，接通此位，即可用变光开关控制前照灯远近光转换。

Light switch: The power supply will be disconnected when it is at the position “0”. Position “1”: The position indicator lamp will be on. Position “2”: To control the power supply of the headlamp, connect the position, and the dimmer switch can be used to control changeover of upper and lower beams of the headlamp.

操作说明 Operation Instruction



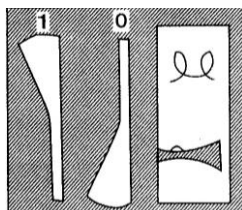
顶、后灯开关：“0”位：切断电源。“1”位：顶照灯亮（有驾驶室时用）。“2”位：后照灯亮。

Roof lamp and back lamp switch: Position “0”: The power supply will be disconnected. Position “1”: The roof lamp will be on (when the cab is equipped). Position “2”: The rear lamp will be on.



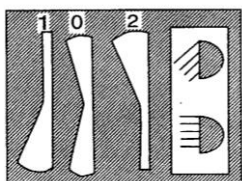
转向开关：“2”位：接通右转向灯。“0”位：切断电源。“1”位：接通左转向灯。

Steering switch: Position “2”: The right steering lamp will be connected. Position “0”: The power supply will be disconnected. Position “1”: The left steering lamp will be connected.



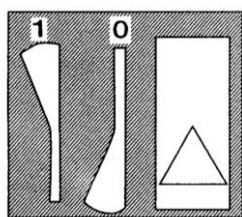
喇叭开关：翘板开关按至“1”位：接通喇叭电路；翘板开关按至“0”位，接通预热电路（备用）；手松开翘板开关处于“0”位（开关具有自动回复功能）。

Horn switch: When the rocker switch is turned to the position “1”, The horn circuit will be connected; when the rocker switch is turned to the position “0”, the preheating circuit (standby) will be connected; when releasing hands, the rocker switch will be turned to the position “0” (the switch has automatic reset functions).



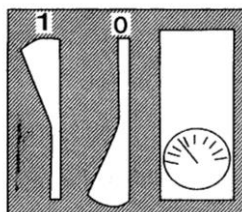
变光开关：“2”位：远光灯亮。“0”位：近光灯亮。“1”位：备用。远近光转换受灯光开关控制

Dimmer switch: Position “2”: The upper beam lamp will be on. Position “0”: The lower beam lamp will be on. Position “1”: Standby. The changeover of upper and lower beams is controlled by the light switch.



危险报警开关：“1”位：前后左右转向灯、仪表上的左右转向灯及危险报警开关上的指示灯均亮。当拖拉机因故障停在公路上或其他原因需要警告前后车辆和行人引起注意，以免发生事故时，使用此功能。

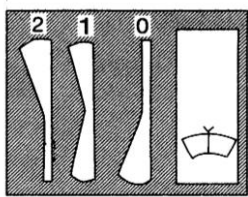
Danger warning switch: Position “1”: The front, rear, left, and right steering lamps, left and right steering lamp on the instrument, and the indicator lamp on the danger warning switch will be on. When the tractor is stopped on the highway due to malfunctions or other reasons, the function shall be used to remind and give warning to front and rear automobiles and passengers to avoid accidents.



夜间照明开关：“1”位：所有开关上的指示灯仪表照明灯全亮，“0”位：各指示灯灭。用于夜间行驶时，照明各开关。

Night lighting switch: Position “1”: The indicator lamps on all switches will be on; position “0”: All indicator lamps will be off. It will be used to light all switches during night driving.

操作说明 Operation Instruction



雨刮开关：“2”位雨刮快档工作，“1”位：雨刮满档工作：“0”位：雨刮复位停止工作。
Wiper switch: Position “2”: The wiper will work fast; position “1”: The wiper will work with a full range; position “0”: The wiper will reset and stop working.

4.2 发动机的启动 Engine Start

重要事项：

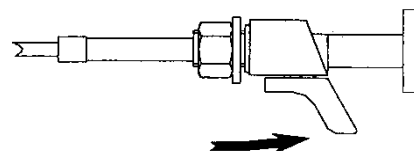
IMPORTANT:

1. 使用前，对拖拉机进行认真、全面的检查，可以消除隐患，有效地防止故障的发生。
Prior to use, the tractor shall be carefully and thoroughly checked, which can eliminate hidden troubles and effectively prevent malfunctions.
2. 应定期清理水箱网孔中的杂物，以免发动机因散热不良发生故障。
Impurities in the water tank meshes shall be regularly cleaned, so as to avoid engine malfunctions due to poor radiation.
3. 拖拉机安装背负式收割机后，在田间作业时散热条件恶劣，为保证发动机能够长时间连续作业，建议您在拖拉机适当部位安装辅助散热装置。
The tractor equipped with the backpack harvesting machine features poor radiation when being operated for the field work; to ensure that the engine can be continuously operated for a long time, you are recommended to mount the auxiliary radiator for the tractor properly.

4.2.1 发动机启动前的准备工作： Preparations Before the Engine Startup:

- a. 用油尺检查发动机的油底壳、拖拉机变速箱-后桥及液压系统的润滑油油面位置。水散热器内应加足冷却水。燃油箱中应有足够的燃油。

Check the lubricating oil level of the engine oil pan, tractor transmission-rear axle, and hydraulic system with the oil dipstick. The water radiator shall be filled with sufficient cooling water, and the fuel tank shall be full of fuel.



- b. 转向油箱应注意油面位置，不足时应添加（必须使转向油缸内充满油液）。
Pay attention to the oil level of the steering oil tank; if insufficient, oil shall be filled (it shall be ensured that the steering oil cylinder is full of oil).
- c. 打开燃油开关。
Open the fuel switch.
- d. 扳动熄火拉线锁紧装置，使熄火拉线松回，此时喷油泵处于供油状态。对于新的、经大修或长时间停用不用的拖拉机，起动前首先要排除油路中的空气，以保证柴油发动机顺利起动。方发如下：首先松开柴油滤清器的放气螺钉，用手压泵泵油将油箱至柴油滤清器一段油路中的空气放尽直放出的燃油无气泡为止。然后拧紧柴油滤清器的放气螺钉，松开喷油泵上的放气螺钉，用同样的方法放气直至放出的燃油无气泡为止。

Pull the locking device of the flameout wire to loosen the flameout wire; here, the fuel injection pump shall in a fuel supply state. For the new tractor, the tractor after overhaul or the tractor unused for a long time, its oil circuit shall be exhausted prior to starting, so as to ensure that the diesel engine can be smoothly started. The method is as follows: Firstly, loosen the bleed screw of the diesel filter, and

操作说明 Operation Instruction

pump the oil by the hand pump, and completely exhaust the oil circuit between the oil tank and the diesel filter till no fuel bubble appears; after that, screw down the bleed screw of the diesel filter; loosen the bleed screw on the fuel injection pump, and exhaust it till no fuel bubble appears with the same method.

- e. 手油门置于半开状态。
Turn the hand throttle to the semi-open state.
- f. 检查变速箱操纵杆、动力输出轴操纵手柄，使它们处于空档位置，液压操纵手柄置于下降位置。
Check the transmission control lever and the power-take-off shaft control handle; turn them to the neutral position and turn the hydraulic control handle to the descending position.
- g. 若拖拉机已长期不用或冷车启动时，应拧开高压油泵上的放气螺钉，用手压动输油泵手柄，待油路中空气排尽后，在拧紧放气螺钉。
If the tractor is unused for a long time or the cold starting is applied, it is a must to loosen the bleed screw on the high pressure oil pump and manually press the oil delivery pump handle; after the oil circuit is completely exhausted, screw down the bleed screw.

4.2.2 发动机起动： Engine Starting:

常温起动

Normal starting

常温起动（环境温度在-5℃（摄氏度）以上时）将钥匙插入电锁中，顺时针转动，起动电路接通（如右图）。ACC 档，辅助档，接通辅助电器元件，如：暖风，雨刮等；ON 档，点火档，接通整车线路的电源；ST 档，启动档，使整车启动工作，起动后返回 ON 档。

In case of normal starting (the ambient temperature is above -5℃ (centigrades)), insert the key into the electric lock and clockwise rotate it; after that, connect the starting circuit (as shown in the right-side figure). If turning to the ACC gear and auxiliary gear, the auxiliary electric elements (such as the heater, wiper, etc.) will be connected. If turning to the gear ON (ignition gear), the overall power supply will be connected; if turning to the gear ST (starting gear), the machine will be started and return to the gear ON afterwards.

低温起动

Cold starting

低温起动（环境温度在-5℃（摄氏度）以下时），发动机起动操作如下：

In case of cold starting (ambient temperature is below -5℃ (centigrades)), the engine shall be started as follows:

- 不带预热电路、未使用防冻液的拖拉机，在严寒天气起动发动机之前，向水箱内加入温度在 90℃（摄氏度）以上的热水，直到缸体放水阀处有热水流出时，关闭放水阀，然后将整个冷却系统加满热水。放出油底壳内的机油（最好在上次熄火时趁热放出），放在有盖的容器内力口热至（70-90）℃（摄氏度），再加入油底壳内，禁止用火烘烤油底壳。手油门置于大油门位置，将钥匙顺时针旋至 ST 档（启动档）起动发动机；发动机起动后立即松手，钥匙自动弹回 ON 档（点火档），将手油门再置于小油门位置。

For the tractor without the preheating circuit and antifreeze solution, prior to starting its engine in cold winters, the water tank shall be filled with hot water with a temperature higher than 90℃ (centigrades); close the drain valve till hot water flows out from it; after that, fill the whole cooling system with hot water. Drain out the engine oil in the oil pan (it is recommended to drain it out upon the last flameout); heat it to 70-90℃ (centigrades) at the internal force port of the cover container; after that, dump it into the oil pan. It is forbidden to bake the oil pan with fire. Turn the hand throttle to the large throttle position; clockwise turn the key to the gear ST (starting gear) to start the engine; loosen hands after starting the engine, and the key will automatically return to the gear ON (ignition gear), and then turn the hand throttle to the small throttle position.

- 带预热电路的拖拉机，发动机起动操作如下：

操作说明 Operation Instruction

For the tractor with the preheating circuit, its engine shall be started as follows:

手油门置于大油门位置，将钥匙顺时针旋至 H 档（预热档）位置停留(15~20)s（秒），再旋至 ST 档（起动档）起动发动机；发动机起动后立即松手，钥匙自动弹回 ON 档（点火档），将手油门再置于小油门位置。

Turn the hand throttle to the large throttle position; after that, clockwise turn the key to the gear H (preheating gear) and keep for 15~20 s (seconds), and then turn it to the gear ST (starting gear) to start the engine; immediately loosen hands after starting the engine, and the key will automatically return to the gear ON (ignition gear), and then turn the hand throttle to the small throttle position.

牵引起动:

Starting by traction:

利用牵引拖拉机起动时，被牵引拖拉机应使用高档的高 3 档或高 4 档，为保证安全，牵引拖拉机速度不应高于 15km/h（千米/小时）。

In case of starting the tractor by traction, the tractor shall be applied with the high gear 3 or high gear 4; to ensure the safety, the tractor speed shall not be higher than 15 km/h (kilometers/hour).

重要事项:

IMPORTANT:

a. 发动机一旦启动后，应立即松手让钥匙自动弹回到 ON 档（点火档）（见点火锁图片）。否则，启动后的发动机将反带起电动机致使起电动机损坏。

Once starting the engine, loosen the hands, and the key will automatically return to the gear ON (ignition gear) (see the figure of the ignition lock). Or else, the started engine will start and damage the motor.

b. 每次持续时间不得超过 5s(秒)，每两次起动间隔应不少于 15s（秒），为了维护蓄电池的充电性能，连续起动次数不得超过 3 次。若连续三次仍未能起动，应查明原因后再起动。

Each consecutive time shall not be longer than 5 s (seconds); the starting interval shall not be smaller than 15 s (seconds). To protect the charging performance of the storage battery, it shall not be consecutively started for three times. If starting fails after three consecutive starting, it shall be restarted after identifying the cause.

c. 发动机起动后，使其转速在 800r/min 左右空转数分钟，待油压指示灯灭、水温升高后，才允许拖拉机起步。

After starting the engine, make it idly run for several minutes at a speed of 800 r/min; it is allowed to start the tractor after the oil pressure indicator lamp is off and the water temperature rises.

d. 任何情况下机油压力不能低于 98kpa。否则，应及时查明原因并排除故障。

The engine oil pressure shall be kept higher than 98 kPa always. Or else, causes shall be identified and troubleshooting shall be done.

f. 利用牵引拖拉机起动时，一旦发动机运转，应立即踩下主离合踏板，并减小油门，以防发动机憋死熄火。

In case of starting the tractor by traction, once the engine runs, the main clutch pedal shall be immediately stepped down and the speed shall be reduced, so as to avoid the engine suppression and stop.

4.3 发动机运转

Engine Running

发动机起动后，应立即减小油门，使发动机处于怠速运转状态，检查此时的发动机机油压力，确保机油压力不低于 98kPa（千帕），此时发动机油压报警灯熄灭。

After starting the engine, the speed shall be reduced immediately and the engine shall be set to the idle state; check the current engine oil pressure, so as to ensure that the engine oil pressure is not lower than 98 kPa (kilopascals). Here, the engine oil pressure warning lamp shall be off.

1. 发动机起动后，不应立即进行全负荷运转，应当使发动机中速空载运转加热。当冷却液温度达 60℃（摄氏度）以上时，才允许提高到最高转速，投入满负荷工作。

After starting the engine, it is not recommended to make it run with full load, and heating shall be made under conditions of making the engine idly run with medium speed. When the coolant temperature is above 60℃ (centigrades), it is allowed to increase it to the highest rotation speed and make it run with full load.

2. 应缓慢增减发动机的转速和负荷，特别是对刚起动着的发动机，不允许猛“轰油门”高速运转。It is recommended to slowly increase or reduce the engine rotation speed and load; especially for the engine which has just been started, it is not allowed to suddenly “increase the speed” for high speed rotation.

3. 发动机运转时，应经常检查机油压力和冷却液温度，在发动机正常工作期间冷却温度一般在(85~95)℃（摄氏度）左右，机油压力应在(294~490) kPa（千帕）。

Upon the engine running, it is recommended to frequently check the engine oil pressure and the coolant temperature; during the normal work, the engine cooling temperature shall be kept at (85~95) °C (centigrade) and the engine oil pressure shall be kept at (294~490) kPa (kilopascals).

4.4 拖拉机起步

Tractor Startup

- 4.4.1 发动机处于低速状态，踩下离合器踏板，然后将变速箱换挡杆挂到所需的档位上。
When the engine is in a low speed state, step down the clutch pedal, and then engage the transmission shift lever to the required gear position.

- 4.4.2 鸣号并观察周围有无障碍。
Sound the horn and observe the surroundings for obstacles.

- 4.4.3 逐渐提高发动机转速，缓慢松开离合器踏板使拖拉机平顺起步。起步后则应迅速地松开离合器踏板，以免离合器滑磨。
Gradually increase the engine rotation speed, and slowly loosen the clutch pedal to smoothly start the tractor. After starting, it is recommended to quickly loosen the clutch pedal to avoid sliding clutch.

- 4.4.4 逐渐加大油门，使拖拉机达到所需的工作速度。
Gradually increase the speed, so as to make the tractor reach the required working speed.

重要事项：

IMPORTANT:

使用中不允许采用半接合离合器的方法来降低拖拉机的行驶速度。行驶中不得将脚一直放在离合器踏板上，以免加速分离杆及摩擦片的磨损和分离轴承的损坏。

During use, it is not allowed to apply the half clutch engagement method to reduce the tractor running speed. During running, it is not allowed to step down the clutch pedal always, so as to avoid accelerating the release lever and friction plate wears and the release bearing damages.

4.5 拖拉机转向 Tractor Steering

- 4.5.1 拖拉机在道路上转向时，若车速较高，应先减速，弯缓应早转慢打，少打少回。弯急应迟转快打，多打多回。
When steering the tractor on road, if the speed is higher, it shall be reduced firstly. In case of a slow turn, the steering wheel shall be turned moderately; in case of a sudden turn, the steering wheel shall be turned quickly.
- 4.5.2 拖拉机转小弯或在松软的土地上转弯时，由于前轮侧滑而是转向不灵，可在转动方向盘的同时，踏下相应一侧的制动器踏板，来帮助转向。
When the tractor makes a narrow turn or turns on the soft ground; with the front wheel sideslip, the corresponding brake pedal can be pressed together with turning the steering wheel, so as to facilitate steering.

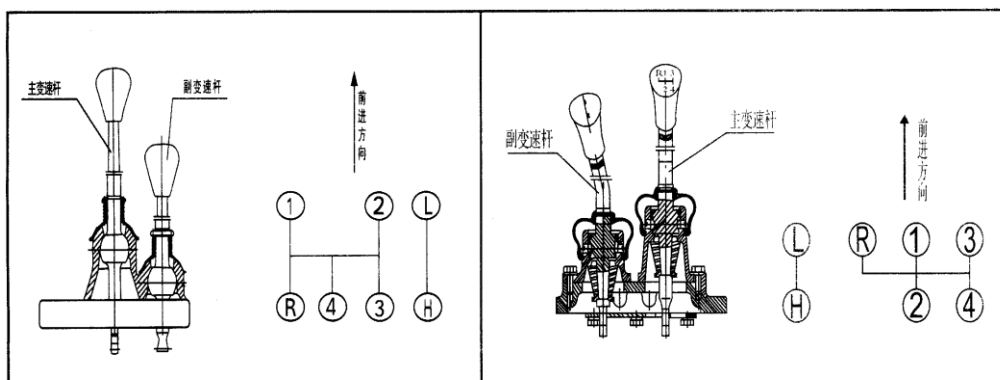


警告：

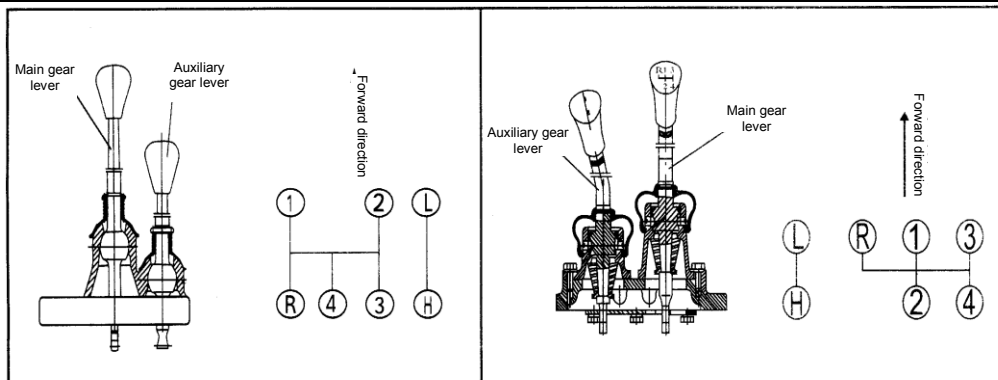
WARNING:

1. 拖拉机高速行驶时，且不可使用单边制动急转弯，当前轮大转角转弯时，若出现安全阀起作用时发出的吱吱声，此时方向盘应少许退回一些，避免液压转向系统长时间过载。
When the tractor runs at high speed, the unilateral brake can't be applied for a sudden turn; when the front wheel makes a big turn, if the safety valve sends out the squeak sound during working, the steering wheel shall be slightly turned, so as to avoid long-time overloading of the hydraulic steering system.
2. 田间作业中转弯或倒车之前，一定要使入土的农机工作部件升出地面，以免损坏农具或造成人员伤亡事故。
Prior to a moderate turn or reversing during the field work, the working parts of the inserted agricultural machinery shall be lifted to the ground, so as to avoid damaging the agricultural tool or causing the personal death and injury.

4.6 拖拉机的换档 Tractor Gearshift



操作说明 Operation Instruction



拖拉机换档时，应先踩下离合器踏板，使主离合器分离，将变速箱换档杆挂入所需的档位。（见上图）
During gearshift of the tractor, the clutch pedal shall be stepped down firstly, so as to release the main clutch and turn the transmission gear lever to the required gear position. (See the above figure)

换档时，都应踩下离合器，使主离合器分离彻底，以免挂档时齿轮产生冲击。换档时，换档杆不能用力过猛，否则容易使换档轴行程限位片折断而产生乱档现象。

During gearshift, the clutch shall be stepped down, so as to release the main clutch completely and avoid the gear impact. During gearshift, the gear lever couldn't be forcedly applied; or else, the gear position will be disordered due to broken stroke limit plate of the shift shaft.

4.7 差速锁的使用

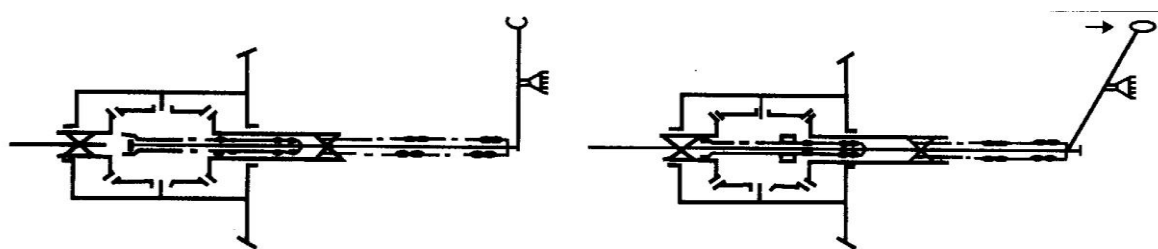
Use of the Differential Lock

4.7.1 差速锁的使用

Use of the Differential Lock

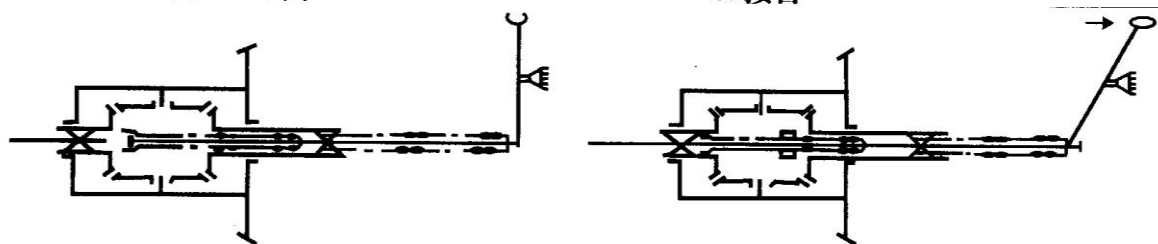
将差速锁踏板踩下，两半轴齿轮被刚性锁住，两后轮同时转动，能克服一侧后轮下陷打滑使拖拉机驶出打滑地段。之后应立即松开踏板即可自动回复。拖拉机转弯或高速行驶时严禁使用差速锁（见下图）。

When stepping down the differential lock pedal, the gears of two half shafts will be rigidly locked; in addition, two rear wheels will rotate simultaneously, which can overcome the sinking and slip rear wheel and smoothly drive the tractor. Afterwards, immediately loosen the pedal, and it can automatically return. During turning or high speed running, it is not allowed to use the differential lock of the tractor (as shown in the following figure).



a. 原位（分离）

b. 接合



a. Original position (release)

b. Engagement



注意：在拖拉机正常行驶中和转弯时，严禁使用差速锁，以免损坏机件和加速轮胎磨损。

CAUTION: During normal driving and turning, it is not allowed to use the differential lock, so as to avoid damaging the parts and accelerating the tyre wear.

4.7.2 动力输出轴的操纵和使用

Control and Use of the Power-take-off Shaft

4.7.2.1 将离合器踏板踩到底，副离合器被分离，动力输出轴停止转动。

Completely step down the clutch pedal, so as to release the auxiliary clutch and stop the power-take-off shaft.

4.7.2.2 拖拉机动力输出轴转速 1000r/min，选装 760r/min。

The rotation speed of the tractor's power-take-off shaft is 1,000 r/min, and that of the optional one is 760 r/min.

4.7.2.1 配置单速动力输出轴，将动力输出轴操纵杆向下压，动力输出轴接合。将动力输出轴操纵杆向上提，动力输出轴分离。

The single speed power-take-off shaft is configured; if pressing down the power-take-off shaft control lever, the power-take-off shaft can be engaged; when lifting the power-take-off shaft control lever upwards, the power-take-off shaft can be released.



注意：严禁高、低混合使用，以免损坏拖拉机和配套农机具。

CAUTION: It is not allowed to apply the high speed and low speed simultaneously, so as to avoid damaging the tractor and the supporting agricultural machinery.

4.7.3 旋耕时，控制发动机转速在 1800r/min 并尽量用低 I 档速度行驶。

During rotary tillage, it is recommended to control the engine rotation speed at 1,800 r/min, and try to drive the machine at the low gear I.



警告：动力输出轴结合时，禁止非工作人员靠近农机具，确保人身安全。

WARNING: When engaging the power-take-off shaft, the irrelevant staff are not allowed to get close to the agricultural machinery to ensure personal safety.

4.8 前驱动桥的使用

Use of the Front Drive Axle

四轮驱动拖拉机在田间重负荷作业或在潮湿松软土壤上工作，只靠后轮驱动，拖拉机在牵引性能呈现不足时，挂接前驱动桥可以增大拖拉机的牵引力，降低打滑率，从而提高拖拉机的作业适应性，为了便于接合和分离前驱动桥，应遵循下列操纵程序。

操作说明 Operation Instruction

When the four-wheel-drive tractor is applied for the heavy-duty field work or operated on the humid and soft soil, it can only be driven by the rear wheel. When the tractor has insufficient traction performance, the front drive axle can be hooked to increase the tractor's traction force, reduce the slip ratio, and improve the working adaptability of the tractor. For the convenient engagement and release of the front drive axle, the following control procedures shall be obeyed.

当拖拉机进行田间重负荷作业或在潮湿松软土壤上或在水田做作业时，为了改善拖拉机附着性能，可以挂接前驱动桥工作。这时应向上拉动前驱动桥操纵手柄，使用前驱动桥接合，若发生困难，应握住手柄缓慢向上拉动，同时操纵拖拉机使挂接两齿轮发生稍微的相对的运动。往下推动操纵手柄，前驱动桥即行分离。When the tractor is applied for the heavy-duty field work or operated on the humid and soft soil or paddy field, to improve the tractor adhesion property, the front drive axle can be hooked. Here, just pull the front drive axle control handle upwards to engage the front drive axle; if difficult, slowly pull up the handle and simultaneously control the tractor, so as to make two engaged gears perform relative movement slightly. By pushing the control handle downwards, the front drive axle can be released.

挂接前驱动桥时，拖拉机应处于非牵引，沿直线低速行驶状态。

When hooking the front drive axle, the tractor shall be in a non-traction state and run at low speed in a straight line.



注意：1. 拖拉机在干硬路面做一般运输作业或干硬地面上作业时，不允许接合前驱动桥，否则会引起前轮轮胎早期磨损。只有当雨雪天气，路面较滑，上大坡后轮容易打滑时才能接合前驱动桥。当拖拉机行驶出困难路段后，应将前驱动桥分离。

CAUTION: 1. When the tractor is used for the common transportation work or operated on the dry and hard pavement, it is not allowed to engage the front drive axle; or else, the front tyre will be prematurely worn out. The front drive axle can only be engaged in the following conditions: rainy and snowy seasons, slippery pavement, and ascending sharp slope. When the tractor is driven out of the difficult road section, the front drive axle shall be released.

2. 拖拉机运输作业时。前轮胎磨损较快且轮胎花纹左右两侧磨损不均匀时，可根据情况将左右轮胎调换使用。

When the tractor is used for the transportation work and the front tyre is quickly worn out and the left and right treads are unevenly worn out, the left and right tyres can be exchanged in accordance with specific conditions.

3. 为了防止轮胎过早磨损，一定要保证轮胎的充气压力符合规定要求。

To prevent premature wear of the tyre, it shall be ensured that the tyre inflation pressure is up to the specified requirements.

4.9 拖拉机的制动 Tractor Brake

4.9.1 一般情况下，应先减小油门，踩下离合器踏板，然后根据情况逐渐踩下制动器踏板使拖拉机平稳停住。

Generally, the speed shall be reduced firstly; after that, step down the clutch pedal, and then stably stop the tractor by gradually stepping down the brake pedal according to the actual conditions.

4.9.2 紧急停车时，应同时踩下离合器和制动器踏板，不能单独踩下制动器踏板，以免制动器摩擦片极具磨损和发动机熄火。

In case of emergent stop, the clutch pedal and the brake pedal shall be stepped down simultaneously; it is not allowed to step down the brake pedal only, so as to avoid bringing a worn-out brake friction plate and stopping the engine.

4.9.3 拖拉机在道路行驶时，切不可用单边制动进行转弯，应用连锁杆将左右制动踏板锁在一起。

操作说明 Operation Instruction

When the tractor runs on the road, it is not allowed to make a turn with the unilateral brake; it is recommended to lock the left and right brake pedals with the locking lever.



警告：每次出车前，都应检查制动器作用是否正常。拖拉机在道路行驶时，一定要把左右制动器踏板联锁起来，以免制动时拖拉机偏跑甚至翻车。

WARNING: Prior to each driving, the brake shall be checked for normality. When the tractor runs on the road, the left and right brake pedals shall be interlocked, so as to avoid the tractor deviation or overturn.

4.10 拖拉机停车和发动机熄火 Tractor Parking and Engine Stop

4.10.1 减小油门、降低拖拉机行驶速度。

Reduce the speed and reduce the tractor running speed.

4.10.2 踩下离合器踏板，再踩下制动器踏板，当拖拉机停下后，将变速箱换档杆置于空档位置。

Step down the clutch pedal, and then step down the brake pedal. When the tractor is stopped, turn the transmission gear lever to the neutral position.

4.10.3 松开离合器、制动器踏板，减小油门使发动机怠速运转。

Loosen the clutch and brake pedals, and reduce the speed to make the engine idly run.

4.10.4 将熄火拉杆向后拉，油泵停止供油，发动机立即熄火，随后退回至供油位置。

Pull the flameout pull rod backwards, the oil pump will stop working and the engine will immediately stop; afterwards, it will return to the oil supply position.



注意：停车后，在发动机没有熄火前，驾驶员不得离开机车，不得已在坡地停放车时，应挂上档（上坡位置挂前进档，下坡位置挂倒档）。如冬季气温低于 0℃时，未使用防冻液的拖拉机必须在发动机怠速状态下放尽冷却水，然后熄火停机，以免冷却水放不尽，冻坏机体和水箱。

CAUTION: After the tractor stop and before the engine stop, the driver is not allowed to leave the tractor; when it is forced to stop the tractor on the slope, it is a must to engage a gear (engaging the forward gear upon ascending, and engaging the reverse gear upon descending). If the winter temperature is below 0℃, the cooling water in the tractor not applying the antifreeze solution shall be completely drained out with an idling engine; after that, the tractor shall be stopped, so as to avoid damaging the body and water tank due to the residual cooling water.

4.11 轮距的调整 Wheel Track Adjustment

拖拉机前轮外胎上有条形花纹，可以防止拖拉机侧滑。

The outer tyre of the tractor front wheel has strip treads, which can prevent the tractor sideslip.

4.11.1 轮距的调节 Wheel Track Adjustment

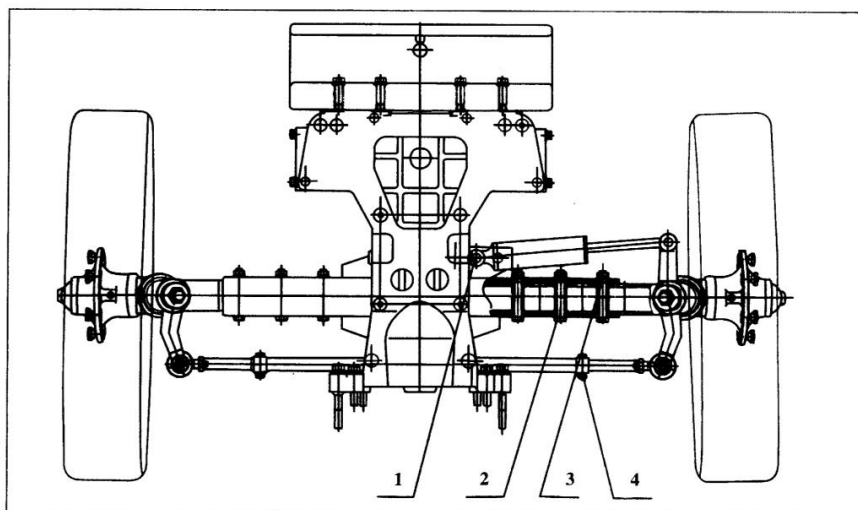
a. 前轮轮距调节

操作说明
Operation Instruction

Adjustment of the front wheel track

调整方法:用千斤顶将拖拉机前轴支起,是前轮离地,松开螺母 3,拔出螺栓 2,拆下油缸销轴 1,调整油缸位置,松开横拉杆调节螺栓。然后把导向轮支架移至所需要的轮距,再把螺栓插入螺母拧紧,横拉杆调整至相应的长度后,拧紧横拉杆调螺栓;拧紧油箱销轴,并插入开口销锁好螺母。(见下图)

Adjustment method: Support the front shaft of the tractor with the jack to make the front wheel be off the ground; after that, loosen the nut 3 and pull out the bolt 2; remove the oil cylinder hinge pin 1; adjust the oil cylinder position, and loosen the adjusting bolt of the tie rod. Afterwards, move the guide wheel bracket to the required wheel track, and then insert the bolt into the nut and lock them; after adjusting the tie rod to the corresponding length, screw down the adjusting bolt of the tie rod. Consequently, screw down the oil tank hinge pin, and insert the cotter pin and lock the nut. (As shown in the following figure)



1-油缸销轴 2-螺栓 3-螺母 4-横拉杆调节螺栓
1-Oil cylinder hinge pin 2-Bolt 3-Nut 4-Adjusting bolt of the tie rod

前轮轮距调节范围 (mm) : 1400、1500 (常用)、1600、1700。

Front wheel track adjustment range (mm): 1,400, 1,500 (frequently-used), 1,600, and 1,700.

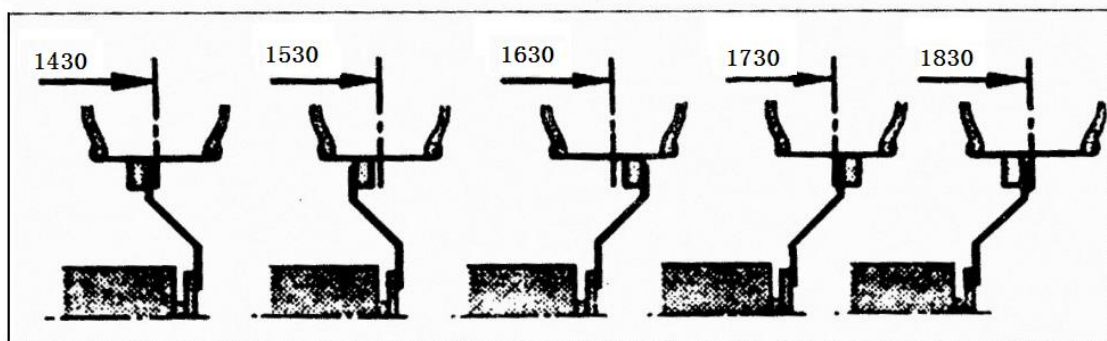
b. 后轮轮距调节

Adjustment of the rear wheel track

后轮轮距的调整方法: 通过改变轮辋与辐板的不同装配和将左右轮对换来调整轮距, 见下图。调整时请注意轮胎的旋转方向标记和拖拉机前进时车轮的旋转方向一致。

Rear wheel track adjustment method: By changing the rim and spoke plate assembling methods and exchanging left and right wheels, the wheel track can be adjusted, which is shown in the following figure. Upon adjustment, please note that the tyre rotation direction mark shall be consistent with the wheel rotation direction in case of forwarding.

操作说明
Operation Instruction



后轮轮距调节范围 (mm) : 1430、1530 (常用)、1630、1730、1830。

Rear wheel track adjustment range (mm): 1,430, 1,530 (frequently-used), 1,630, 1,730, and 1,830.

4.12 轮胎的使用及拆装

Use, Removal and Refitting of the Tyre

4.12.1 轮胎的使用和保养

Use and Maintenance of the Tyre

- a. 轮胎的气压应符合规定：导向轮气压为 167~186kPa (田间作业) /225~245kPa (运输作业)，驱动轮气压为 118~138kPa (田间作业) /167~186kPa (运输作业)。
The tyre pressure shall meet the following stipulations: The guide wheel pressure is 167~186 kPa (field work)/225~245 kPa (transportation work); the driving wheel pressure is 118~138 kPa (field work)/167~186 kPa (transportation work).
- b. 驱动轮严重打滑时，不允许拖拉机继续工作。
When the driving wheel seriously slips, the tractor shall be stopped.
- c. 不要在不平坦的道路上高速行驶，也不要高速越过碎石瓦块和煤渣，尽可能不用紧急刹车。
Don't drive the tractor at a high speed on the bumpy road or crossing macadam, broken tiles and coal cinder; try to not use the emergency brake.
- d. 轮胎花纹磨损不均匀时，应左右轮胎对换使用。
When the tyre treads are unevenly worn out, the left and right tyres shall be exchanged.
- e. 轮胎上不要沾上燃油、润滑油或其它污物，如沾上应用水冲洗或擦净。
The tyre shall not be stained with the fuel, lubricating oil, or other dirt; if yes, it shall be washed or wiped off with water.
- f. 拖拉机长期不工作时，需将拖拉机顶起，使轮胎不承受压力。
If the tractor is not used for a long time, it shall be jacked up to make the tyre bear no pressure.

4.12.2 轮胎的拆装

Removal and Refitting of the Tyre

a. 轮胎的拆卸:

Removal of the tyre:

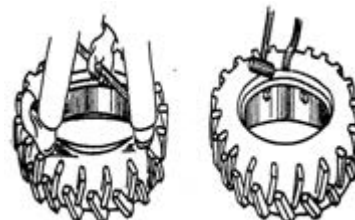
- 1) 放出内胎的空气。
Exhaust the inner tyre.
- 2) 把外胎边由钢圈平面压入钢圈中间凹槽内。
Press the outer tyre edge into the middle groove of the steel ring from its plane.
- 3) 把撬棍伸进钢圈内，将气嘴附近出的外胎边用撬棍撬出钢圈外，然后两根撬棍交替进行，直到整个外胎全部撬出钢圈。
Extend the crowbar into the steel ring; pry out the outer tyre edge near the valve from the steel ring with the crowbar; after that, completely pry out the whole outer tyre from the steel ring with two crowbars alternatively.
- 4) 从钢圈的气孔中，将内胎气嘴取出，再将内胎从钢圈和外胎取出。
Take out the inner tyre valve from the steel ring hole, and then take out the inner tyre from the steel ring and the outer tyre.
- 5) 把外胎的另一面的一边压入钢圈凹槽内，从另一边用撬棒将外胎取出。
Press one side of the outer tyre into the steel ring groove, and take out the outer tyre from another side with the crowbar.
- 6) 使用撬棒时，注意不要把内胎撬破。
When using the crowbar, please don't damage the inner tyre.



b. 轮胎的安装

Refitting of the tyre

- 1) 将外胎内部和内胎外部涂上一层薄的滑石粉。
Coat the outer tyre insides and the inner tyre outside with a thin layer of talcum powder.
- 2) 把钢圈放平（装气嘴的一面朝上），然后用撬棒将外胎撬入钢圈内或锤子敲入钢圈内。
Flatly place the steel ring (with the side with the valve facing upwards), and then press the outer tyre into the steel ring with the crowbar or the hammer.
- 3) 把轮胎和钢圈提起来，把外胎推向一边，然后把内胎放入外胎内（注意可以先把嘴穿过钢圈气嘴空内，拧上气嘴帽及用铅丝扎牢）。
Lift the tyre and the steel ring; push the outer tyre to one side, and then place the inner tyre into the outer tyre (note that the valve can firstly cross through the steel ring valve hole, and then screw down the valve cap and firmly bind them with the galvanized wire).
- 4) 把钢圈推向半面，两脚踏在另一半面外胎上，用脚把外胎压入钢圈中间凹槽内，然后用撬棒伸进钢圈内，把外胎边用撬棒撬进钢圈内。
Push the steel ring to one side, and step down the outer tyre at another side; after that, press the outer tyre into the middle groove of the steel ring with feet, and then extend the crowbar into the steel ring, and pry the outer tyre edge into the steel ring with the crowbar.



4.13 配重的使用

Use of the Counterweight

4.13.1 后配重（选装）

Rear Counterweight (Optional)

为增加拖拉机牵引力，在后轮辐板上安装铸铁配重。后配重最大为 480kg。

To increase the tractor traction force, the rear wheel spoke plate is mounted with the cast-iron counterweight. The maximum mass of the rear counterweight is 480 kg.

4.13.2 前配重（选装）

Front Counterweight (Optional)

前配重架质量（45kg）。

Front counterweight rack mass (45 kg).

拖拉机前配重最大为 270kg。

Maximum mass of the front counterweight of the tractor is 270 kg.

4.14 驾驶座的调整

Adjustment of the Driver's Seat

驾驶座的工作行程及刚度是可调整的（见右下图）。为了保证安全，座位不能调整得太软，尤其是在高低不平的路面上行驶时更要注意。

The working stroke and rigidity of the driver's seat is adjustable (see the right figure). To ensure the safety, the seat can't be adjusted too soft; especially, when driving on the bumpy road, attention shall be given.

1) 前后调节

Front-rear adjustment

松动螺栓 1，根据操纵员身高前后调节座椅，调整好，拧紧螺栓 1。

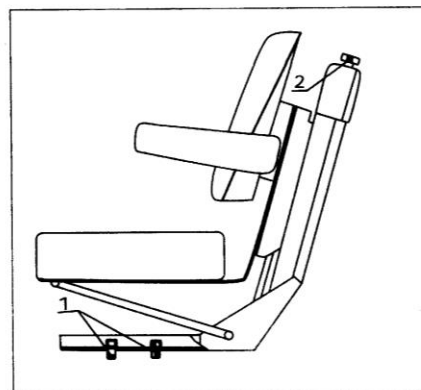
Loosen the bolt 1; after adjusting the seat according to the operator's height, screw down the bolt 1.

2) 刚度调节

Rigidity adjustment

根据操纵者的身高、体重调整调节手轮 2。

Based on the operator's height and weight, adjust the adjusting handwheel 2.



4.15 拖拉机覆盖件

Covering Parts of the Tractor

拖拉机覆盖件主要包括：机罩、仪表台、驾驶室、前挡泥板、后挡泥板、底板及附件等。

The covering parts of the tractor mainly include: Engine hood, dashboard, cab, front fender, rear fender, bottom plate, accessories, etc.

4.15.1 机罩：

Engine Hood:

拖拉机的发动机机罩采用美观大方的流线型钣金结构。

The tractor's engine hood is applied with the pleasant streamline sheet metal structure.

机罩开启：拉动仪表台左下方拉线头，机罩锁打开，然后抓住机罩拉手轻轻向上提起，机罩即在左右两根

气弹簧的推动下自动打开。

Engine hood opening: Pull the left lower wire of the dashboard and unlock the engine hood lock, and then slightly lift the engine hood handle, and the engine hood will be automatically opened after being pushed by left and right air springs.

机罩关闭: 向下拉动机罩拉手, 机罩下降到一定角度时机罩锁自动关闭锁紧。

Engine hood closing: Pull the engine hood handle downwards; when the engine hood descends to certain degree, the engine hood lock will be locked automatically.

4.15.2 仪表台:

Dashboard:

沭河拖拉机的电气控制开关和组合仪表全部安装在仪表台上, 仪表板主要器控制开关支架和装饰密封作用。

The electric control switch and the combination instrument of Shuhe tractor are mounted on the dashboard; the instrument panel is mainly used to control the switch bracket and act as the decoration and sealing component.

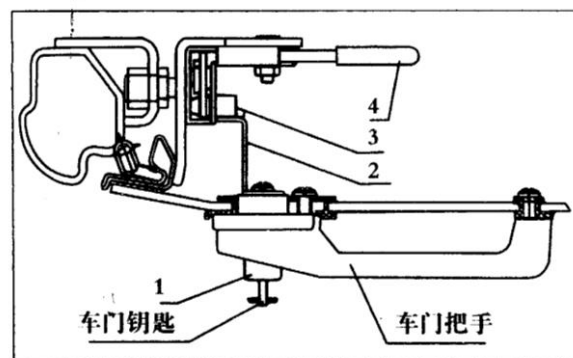
4.15.3 驾驶室 (选装):

Cab (Optional):

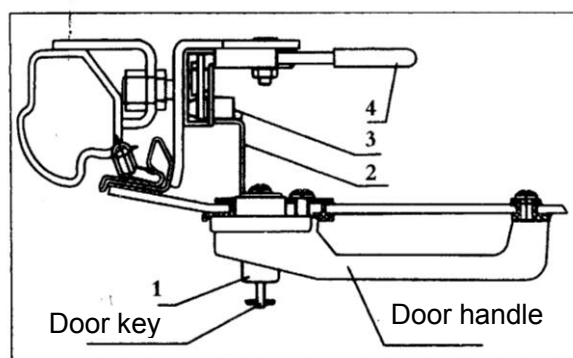
拖拉机的驾驶室是由管状异型材焊接成框架, 并镶以大面积的空间曲面玻璃。

The tractor cab is a kind of frame structure composed of the tubular profiled bars, which is decorated with the large space curved surface glass.

a 车门: 车门采用异型材门框, 内镶整块曲面玻璃, 与整个流线型驾驶室融为一体, 既衬托出宽敞舒适的驾驶空间, 又使整车美观大大提高。车间开启时, (见右图) 顺时针转动车门钥匙 90 度, 取下钥匙后, 用手抓住车门把手, 大拇指向里推压件 1, 车门锁即被打开, 同时向外拉动把手, 车门即打开。关闭车门时, 反向操作即可将车门锁上。



Door: The door is composed of the profiled bar frame, which is decorated with the curved surface glass and integrated with the streamline cab; thus, it can set off the spacious and comfortable driving space and largely improve the tractor appearance. When the door is opened, (see the right-side figure) clockwise rotate the door key for 90 degrees; after that, remove the key and hold the door handle by hand, and then push the casting die 1 inwards with the thumb, and the door can be unlocked. In addition, pull the handle outwards, and the door can be opened. When closing the door, the door can be locked in a reverse way.



1-锁体 2-推片 3-推块 4-内开门把手

1-Lock body 2-Pushing plate 3-Pushing block 4-Inward opening handle

b 左右侧窗: 左右侧窗采用全玻璃结构, 开启时 (见右图), 提起锁起手把, 同时向外推动, 直到卡住时轻轻再向上提一下锁止手把, 即可使侧窗打开并限位, 侧窗最大开启距离为锁止手把的有效长度。

Left and right side windows: The left and right side windows are applied with the all-glass structures; upon opening (see the right-side figure), lift the locking handle and push the window outwards; when being locked, slightly lift the locking handle and the side windows can be opened and limited. The maximum opening distance of the side window means the effective length of the locking handle.

操作说明 Operation Instruction

- c 后窗：拖拉机后窗为整块 6mm 厚钢化玻璃结构，采用向上半自动式，开启状态分通常状态和最大状态两种（见右下图）。
- Rear window: The tractor's rear window is a 6 mm-thick toughened glass structure, which is applied with the upward semi-automatic type. And, its opening state covers the normal state and maximum state (see the right figure).

- 1) 通常状态：旋转手柄 1，当手柄前部突出滑出卡槽后，向外推动手柄 1，直到手柄后部凸起达到槽位置时，再次反向旋转手柄 1 使后部凸起滑入卡槽即可使后窗打开并保持一定角度。

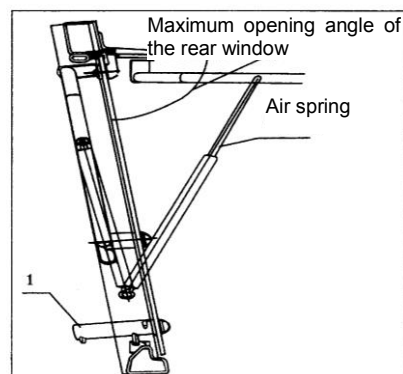
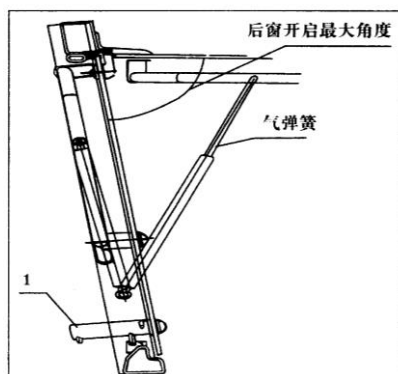
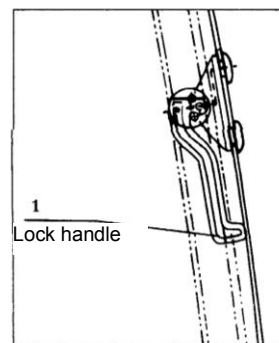
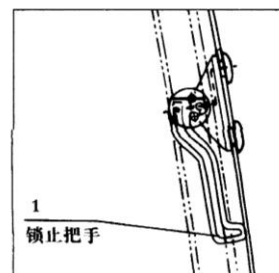
Normal state: Rotate the handle 1; when the handle front part extrudes and slides out from the trough; push the handle 1 outwards till its rear part protrudes and reaches the trough. After that, rotate the handle 1 in opposite direction, when its rear part protrudes and slides into the trough, the rear window can be opened and kept a certain angle.

关闭时，反向操作即可。

Upon closing, operate it in a reverse way.

- 2) 最大状态：旋转手柄 1，当手柄前部凸起滑出卡柄后，向外推动手柄 1，直到克服气弹簧后，气弹簧即由“拉”的状态转变为向外“推”的状态，后窗自动打开到如图 12 所示的最大位置。

Maximum state: Rotate the handle 1; when the handle front part extrudes and slides out from the handle; push the handle 1 outwards till the air spring is overcome; here, the air spring will change to the outward “pushing” state from the original “pulling” state, and the rear window will automatically open to the maximum position shown in Figure 12.



关闭时，向里拉动手柄，克服气弹簧的“推”力后，气弹簧即由向外“推”的状态转变为向里“拉”的状态，后窗将自动回到关闭状态，再将手柄旋转，使前部凸起滑入卡槽处于锁死状态即可。

Upon closing, pull the handle inwards till the “pushing” force of the air spring is overcome; here, the air spring will change to the inward “pulling” state from the original outward “pushing” state, and the rear window will automatically return to the closing state. After that, rotate the handle to slide the protruded front part into the trough and lock it.

- d 顶窗，顶窗为玻璃钢结构，开启时，握住手把，同时用拇指按动顶窗锁按钮，锁将自动弹开。轻轻向外推顶窗，在左右两根气弹簧的作用下，顶窗将自动打开。

Skylight window: The skylight window is a glass-reinforced plastic structure; when opening, hold the handle and simultaneously press the skylight window lock pressing head with the thumb, and it will be unlocked automatically. Slightly push the skylight window outwards; driven by left and right air springs, the skylight window will be opened automatically.

关闭时反向操作即可。

Upon closing, operate it in a reverse way.

4.15.4 附件（选装） **Accessories (Optional)**

拖拉机附件主要包括暖风机，内饰件，地板垫等。

The tractor accessories mainly cover the heater, interior trim, floor mat, etc.

- a 暖风机（选装）：暖风机装在驾驶室内前上部，暖风机开关布置在暖风机上，打开电源，即可使暖风机工作，保证驾驶室内舒适的工作温度。当驾驶室内需要通风时，只需关闭发动机上供暖风机的热循环水出水阀之后，打开暖风机即可。

Heater (optional): The heater is mounted on the upper front part in the cab; the heater switch is arranged on the heater. When connecting the power supply, the heater can begin working and ensure comfortable working temperature in the cab. When the cab is in need of ventilation, just close the hot circulating water drain valve of the heater on the engine, and open the heater.

- b 地板垫（选装）：采用松软舒适的橡胶模制成型，整个地板包括五大块，厚 10mm，全部用塑料扣钉紧扣在地板上，当需要拆下时，先用螺丝刀将扣钉轻轻撬起，即可将相应的地板垫取下，当要重新铺垫时，只要将原来的扣钉在扣好即可。

Floor mat (optional): It is molded by the soft and comfortable rubber, and the whole bottom plate is composed of five blocks, with a thickness of 10 mm. The mat is firmly attached on the floor with plastic buckles; when it shall be removed, slightly pry them up with the screwdriver firstly; after that, take down the corresponding floor mat. When it shall be paved again, just mount the original buckles.

- c 挡泥板垫（选装）：采用 PVC 发泡表面吸附面料，模制成型，整块挡泥板垫用塑料扣钉紧扣在左右挡泥板上，通常不必拆下。

Fender pad (optional): It is molded with the PVC foaming adsorption fabrics, and the whole fender pad is mounted on left and right fenders with plastic buckles, and no removal is required.

注：选用暖风机的拖拉机，冬季必须使用防冻液。

NOTE: The tractor with the heater must be applied with the antifreeze solution in the winter.

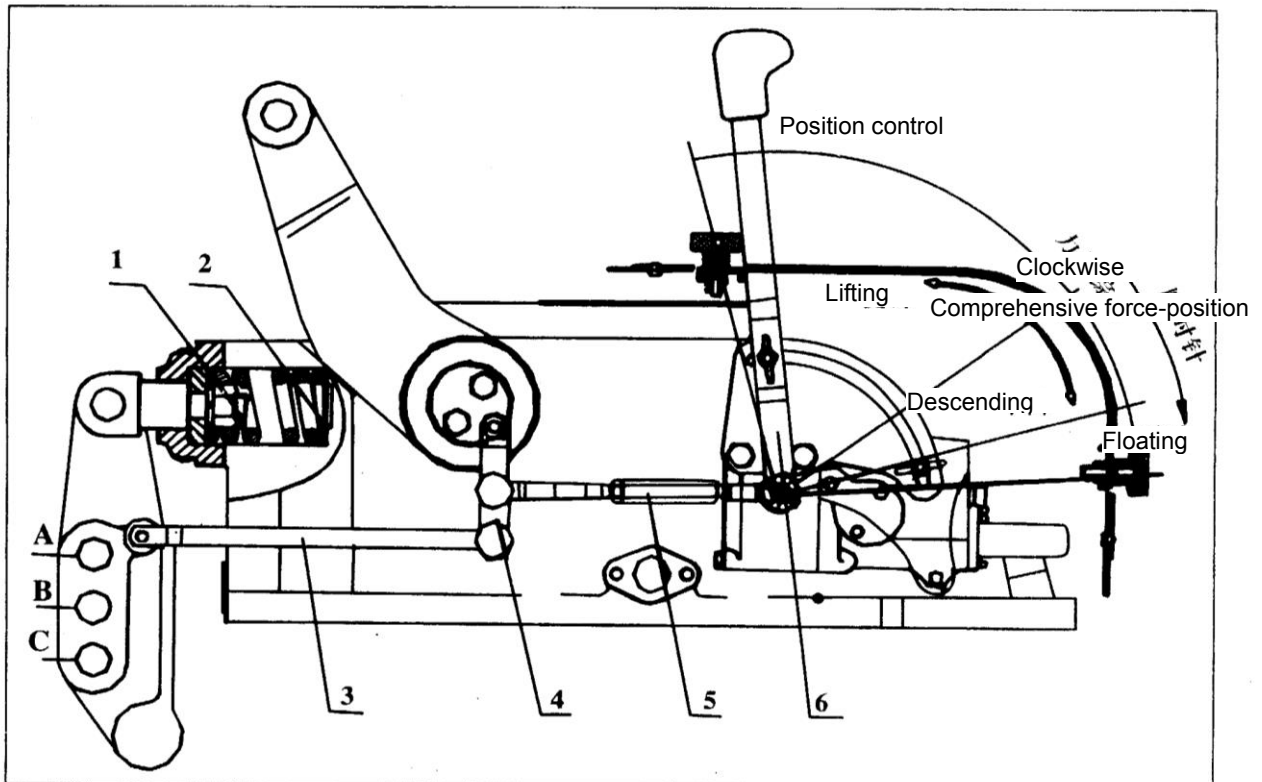
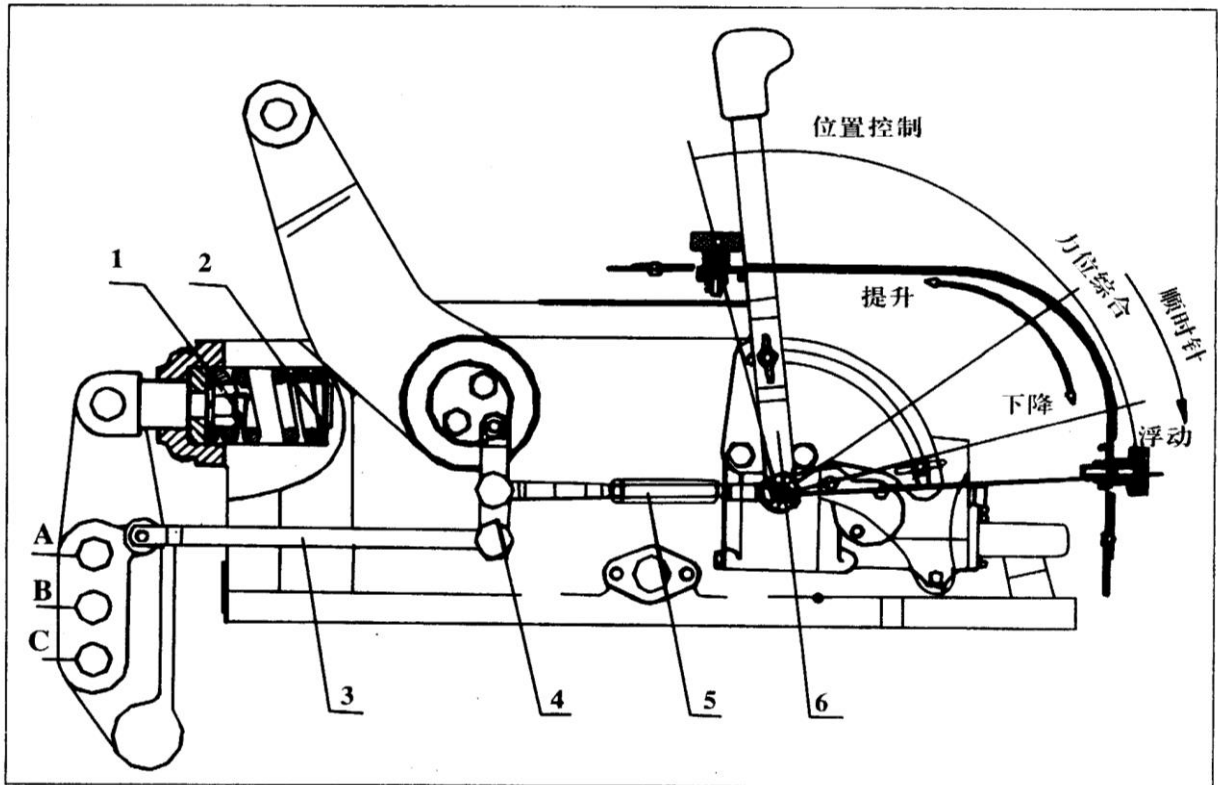
4.16 液压悬挂系统的操纵和使用 **Control and Use of the Hydraulic Linkage System**

4.16.1 液压提升器的原理及操纵 **Principle and Control of the Hydraulic Lifter**

半分置式的液压提升器带有力位综合操纵手柄（见下图）。可实现位调节、力位综合控制和浮动控制（高度调节）功能。

The half-split hydraulic lifter has the comprehensive force-position control handle (see the following figure), which can realize the position adjustment, comprehensive force-position control, and floating control (height adjustment).

操作说明
Operation Instruction



1-力调节弹簧 2-调节垫片 3-力调节杆 4-位调节杆 5-调节螺母 6-操纵手柄
1-Force adjustment spring 2-Adjusting gasket 3-Force adjustment lever 4-Force adjustment lever
5-Adjusting nut 6-Control handle

a 液压提升器的工作原理
Working principles of the hydraulic lifter

液压提升器的工作原理如上图所示，操纵手柄 6 用来升降农具，控制耕深。

操作说明 Operation Instruction

The working principles of the hydraulic lifter are shown in the above figure, and the control handle 6 is used to lift and descend the agricultural tool as well as control the cultivation depth.

b 提升器操纵手柄（右图）的使用

Use of the lifter control handle (right-side figure)

(1) 力、位综合控制

Comprehensive force-position control

耕地作业使用力、位综合控制。耕深是由操纵手柄移动不同的位置来实现的。操纵手柄在综合控制范围内愈下移，耕深愈深。当调节到要求的耕深后，拧紧手柄限位块的蝶型螺母，保证每次农具后使操纵手柄与限位块相碰，以达到保持耕深大致不变。

The cultivation is applied with the comprehensive force-position control. And, the cultivation depth is realized by moving the control handle to different positions. Within the comprehensive control range, the lower position of the control handle will bring the deeper cultivation depth. When adjusting the required cultivation depth, screw down the butterfly nut of the limit block of the handle, so as to ensure that the control handle contacts with the limit block and keep an approximately unchanged cultivation depth.

(2) 位控制

Position control

当带农具进行旋耕、割草收割等作业时，悬挂提升杆受拉力，力控制弹簧不起作用。这时综合控制只能起位控制作用，在位控制范围内，手柄向下推移愈多，则农具下降愈多。

When the agricultural tool is applied for the rotary tillage, mowing and harvesting, the lifting rod doesn't work due to linkage and the force control spring will be inactivated as well. Here, the comprehensive control can only be used for position control; within the position control range, the lower handle will bring a lower agricultural tool.

(3) 浮动控制

Floating control

当使用带地轮的农具时，可以采用浮动控制。操纵手柄放在浮动控制范围内，这时农具随着地轮仿形地表形状而起伏。

When the agricultural tool with the land wheel is applied, the floating control can be applied. Place the control handle in the floating control range, and the agricultural tool will fluctuate along with the fluctuated surface.

4.16.2 农具下降速度控制

Descending Speed Control of the Agricultural Tool

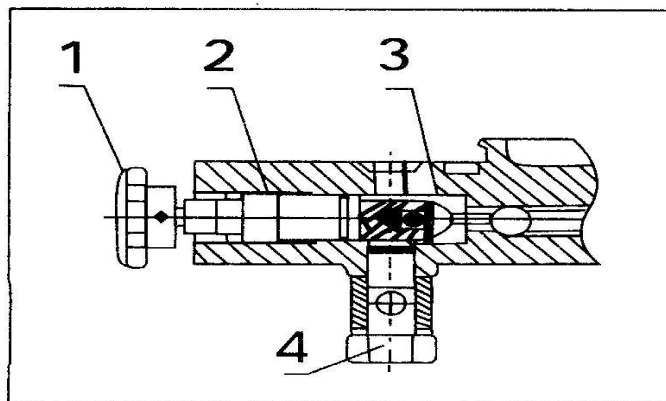
调节下降速度控制手轮，可改变农具下降速度的快慢（如下图）。保持合适的下降速度，可防止农具因下降速度过快，与地面激烈的冲击而损坏。

By adjusting the descending speed control handwheel, the agricultural tool descending speed can be changed (as shown in the following figure). Keeping a proper descending speed can avoid damaging the agricultural tool due to too high descending speed and fierce ground impact.

下降速度控制手轮直接控制缸头上的下降速度控制阀，顺时针旋进下降速度控制手轮，农机具下降速度加快，反之，则减慢。

The descending speed control handwheel can be used to directly control the descending speed control valve on the cylinder head. By clockwise rotating the descending speed control handwheel, the agricultural machinery descending speed will be increased; otherwise, it will be reduced.

操作说明
Operation Instruction



1-下降速度控制手轮 2-缸头 3-下降速度控制阀 4-液压输出口堵塞

1-Descending speed control handwheel 2-Cylinder head 3-Descending speed control valve 4-Hydraulic outlet plug

拖拉机带农具长距离转移时，将下降速度控制手轮逆时针旋出，以达到拖拉机机组安全转移之目的。

When transferring the tractor with the agricultural tool for a long distance, anticlockwise rotate the descending speed control handwheel, so as to safely transfer the tractor.

4.16.3 简单的液压输出

Simple Hydraulic Output

需要压力油输出时，可将缸头上部的液压输出口上堵塞头取下，接上高压油管。同时将提升器壳体上的回油堵塞取下，接上回油管，以实现液压输出。使用时，应把悬挂杆件放在最下面位置，再把下降速度控制手轮顺时针拧死。然后将操纵手柄置于“提升”位置，压力油即可输入所需的液压装置。将操纵手柄向下推移，液压油泵的来由就流回油池。液压装置的回油经回油管流回油池。

When requiring the pressure oil output, remove the plug head on the hydraulic outlet on the cylinder head and connect the high pressure oil pipe. In addition, remove the oil return plug on the lifter housing and connect the oil return pipe, so as to hit hydraulic output. During use, the linkage rod shall be placed at the downmost position; after that, clockwise rotate the descending speed control handwheel. Consequently, place the control handle to the “lifting” position, and the pressure oil can be outputted to the required hydraulic device. Move the control handle downwards, and the oil from the hydraulic oil pump can return to the oil pool. And, the oil in the hydraulic device will return to the oil pool via the oil return pipe.

4.16.4 悬机构的使用

Use of the Linkage Mechanism

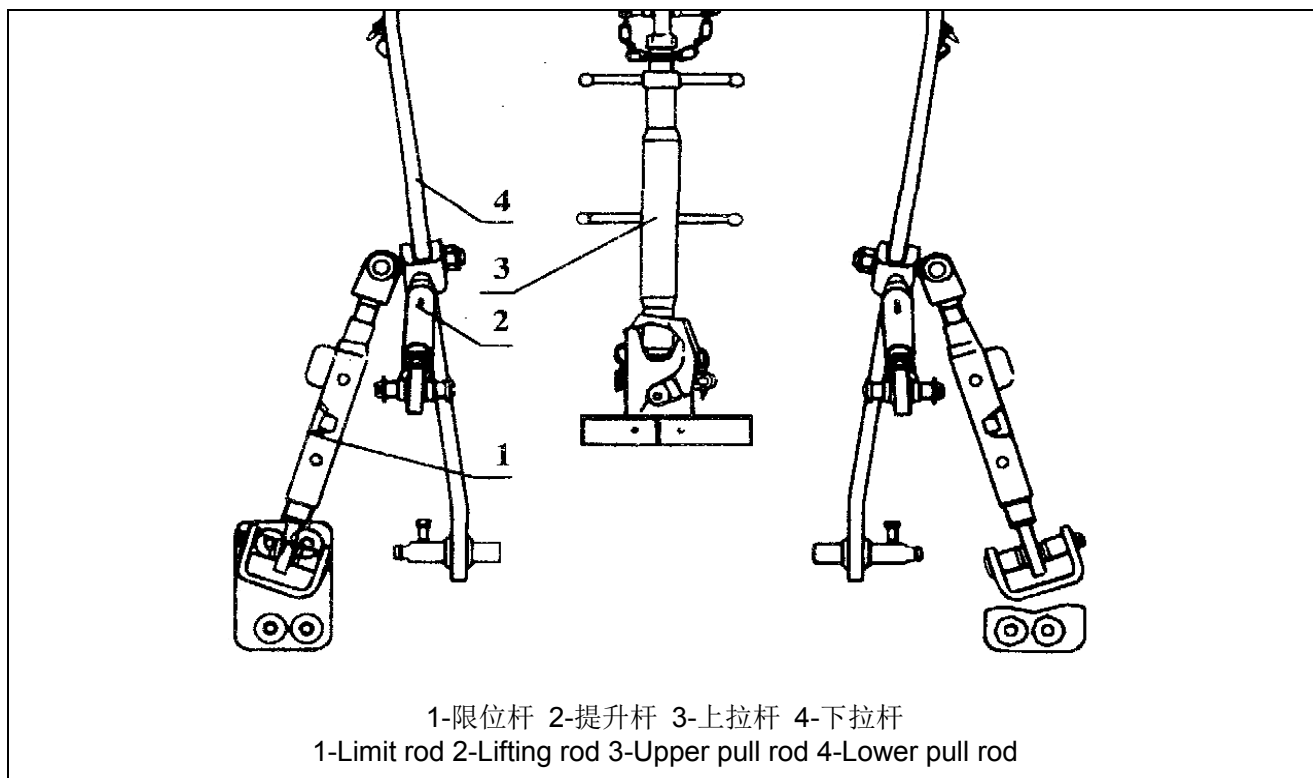
沭河 60 系列拖拉机采用 3 点悬挂装置与农机具挂接，提升杆的高度通过调节提升杆 2 的外套筒，改变提升杆的长度来控制下拉杆的提升高度（见下图示）。

Shuhe 60 series tractor is applied with the 3-point linkage device and agricultural machinery for hooking; the lifting rod height can be adjusted through the outer socket of the lifting rod 2; furthermore, by changing the lifting rod length, the lifting height of the lower pull rod can be controlled (as shown in the following figure).

力调节弹簧摇臂上有三个上拉杆的挂接孔，用力、位综合控制时，正常情况下用中间孔 B，土壤比阻大时用孔 A。用力控制时，用下孔 C；见 4.14.1 液压提升器的工作原理图。

The force adjustment spring rocker arm has three hooking holes of the upper pull rod; when the comprehensive force-position control is applied, the intermediate hole B will be used in normal conditions, the upper hole A will be used in case of large soil specific resistance, and the lower hole C will be used in case of position control. See Figure 4.14.1 Working Principles of the Hydraulic Lifter.

操作说明
Operation Instruction



4.16.5 农具的挂接

Hooking of the Agricultural Tool

将操纵手柄置于最下面位置，拖拉机倒退慢慢接近农具，先左后右最后连接上拉杆，并用锁销锁住。

Place the control handle at the downmost position; reverse the tractor to make it slowly approach to the agricultural tool; connect the left pull rod, and then the right pull rod and upper pull rod, and lock them with the lock pin.

4.16.6 旋耕机的使用

Use of the Rotary Tiller

a. 旋耕深度的调节:

Rotary tillage depth adjustment:

- 1) 缓慢向上移动手柄，旋耕机慢慢向上升起，手柄移动到最高位置，旋耕机提升最高；
Slowly move the handle upwards, and the rotary tiller will be slowly lifted. Move the handle to the highest position and lift the rotary tiller to the top;
- 2) 操纵手柄缓慢下移，旋耕机从最高位置慢慢下降，当刀齿距地面 10cm 时，集合动力，旋耕机刀齿旋转。旋耕刀齿切入土壤后，就进入旋耕作业状态，若手柄继续下移，耕深亦增大，直到达到要求耕深。然后用扇形板下面的定位手轮挡在手柄杆的下面，把手轮锁紧。
Slowly move the control handle downwards, and the rotary tiller will slowly descend from the highest position. When the distance between the cutter tooth and the ground is 10 cm, apply the power and rotate the rotary tiller cutter tooth. After inserting the rotary tiller cutter tooth into soil, it will enter into the working state; if the handle continues moving downwards, the cultivation depth will be increased till reaching the required cultivation depth. After that, keep the lower positioning handwheel below the sector plate out of the handle, and lock the handwheel firmly.

- b 旋耕机的操作使用
Operation and use of the rotary tiller

地头转弯时，要先断开动力的传递，然后再提起旋耕机（以避免损坏机器）进行地头转弯。

Upon turning in the field edges, firstly disconnect the power transmission, and then lift the rotary tiller (to avoid damaging the machine) for turning in the field edges.

4.16.7 犁的作业方式选择和操纵 **Selection and Control of the Plough Working Mode**

- a 高度调节作业方式
Height adjustment working mode

用犁上所配带的地轮控制耕深的方式就称为高度调节。操纵手柄向上移到最高位置，犁提升到最高位置。操纵手柄向下移动到最低位置，犁下降，犁的下降高度由地轮控制，与手柄下降位置无关。

The method of controlling the cultivation depth with the land wheel on the plough is called the height adjustment. When moving the control handle upwards to the highest position, the plough will be lifted to the top. When moving the control handle downwards to the lowest position, the plough will descend. The plough descending height is controlled by the land wheel, which is irrelevant with the handle descending position.

- b 综合调节作业方式
Comprehensive adjustment working mode

去掉犁上的地轮，将操纵手柄向下移动到一定位置，犁就下降一个位置，耕作深度由操纵手柄所处力位综合调节的位置不同而改变的方式称为综合调节。

When removing the land wheel on the plough and moving down the control handle to a certain position, the plough will be descended by one position. The method of changing the cultivation depth by the comprehensive force-position adjustment position of the control handle is called the comprehensive adjustment.

在确定好犁耕深度（即手柄所处位置）后，可用车身地板上的定位手轮，控制手柄移动的位置，以保证每个耕作循环中具有相同的耕深。

After determining the plough cultivation depth (namely, the handle position), the floor positioning handwheel can be used to control the moving position of the handle, so as to ensure that each cultivation circulation has the same cultivation depth.



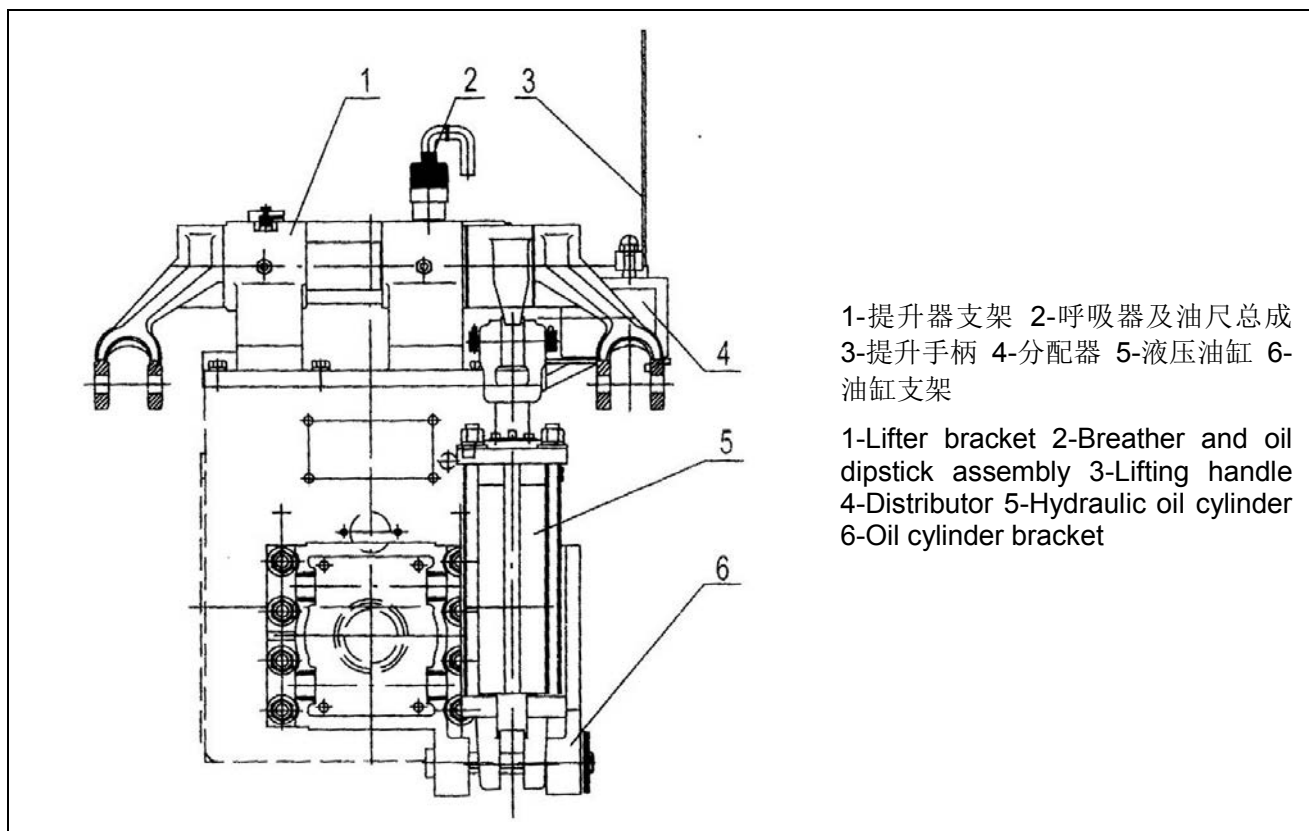
警告：在挂接了重型农具时，操纵手柄应缓慢上移，以免拖拉机翻倾。

WARNING: When connecting with the heavy-duty agricultural tool, the control handle shall be slowly moved upwards to avoid the tractor overturn.

4.16.8 外置液压提升装置（选装） **External Hydraulic Lifting Device (Optional)**

外置液压提升装置的操纵同样带有浮动、下降、中立、提升功能（见左图示），其工作原理可参考 4.14.1。

The control of the external hydraulic lifting device also has the floating, descending, neutral, and lifting functions (as shown in the left-side figure), and its working principles are shown in 4.14.1.



1-提升器支架 2-呼吸器及油尺总成
3-提升手柄 4-分配器 5-液压油缸 6-油缸支架

1-Lifter bracket 2-Breather and oil dipstick assembly 3-Lifting handle 4-Distributor 5-Hydraulic oil cylinder 6-Oil cylinder bracket

4.17 拖拉机的磨合规程 Running-in Regulation of the Tractor

新拖拉机或经过大修的拖拉机，在开始使用前，都必须进行磨合，因为零件经过加工后，在表面上总会存在不同程度的刀痕，如果不经磨合就在大负荷下使用拖拉机，将会增加机件的磨损，甚至造成机件的卡住和损坏，从而缩短拖拉机的使用寿命。

Prior to using the new tractor or the tractor after overhaul, it shall be subject to the running-in. As the spare parts are processed and their surfaces will have different tool marks; if no running-in is made and the tractor is used under the large load, the wear will be accelerated; the parts will be seized and damaged, and the tractor service life will be shortened.

4.17.1 磨合前的准备工作 Preparations Before Running-in

- 4.17.1.1 检查拖拉机外部螺栓、螺母，若有松动时应及时拧紧。
Check the external bolt and nut of the tractor; if loose, they shall be timely screwed down.
- 4.17.1.2 按润滑表对各润滑点加注润滑脂。
Fill the lubricating points with the lubricating grease based on the lubrication schedule.
- 4.17.1.3 检查发动机油底壳、变速箱-后桥、提升器、前桥、转向油箱、转向器、空气滤清器的油面位置，按润滑表规定对润滑部位加注润滑脂或润滑油。
Check the oil level of the engine oil pan, transmission-rear axle, lifter, front axle, steering oil tank, steering gear, and air cleaner, and fill the lubricating parts with the lubricating grease or lubricating oil based on the lubrication schedule.
- 4.17.1.4 加注燃油和冷却水。
Fill the fuel and cooling water.

操作说明 Operation Instruction

- 4.17.1.5 检查轮胎气压。
Check the tyre pressure.
- 4.17.1.6 检查电气线路联接情况。
Check connections of the electric circuit.
- 4.17.1.7 换挡杆处于空档位置，手油门处于怠速位置，液压手柄处于下降位置。
The gear lever shall be in the neutral position; the hand throttle shall be in the idle position, and the hydraulic handle shall be in the descending position.

4.17.2 发动机空转磨合（15min） Idle Running-in of the Engine (15 min)

按发动机说明书规定顺序启动发动机。启动后，使发动机怠速运转 5min，观察发动机运转是否正常，然后将转速逐渐提高到标定转速进行空运转。

Start the engine in accordance with the sequence specified in the Engine Instruction. After starting, idly run the engine for 5 min and observe the engine running for normality; after that, increase the rotation speed gradually to the rated rotation speed for idle running.

在发动机空转磨合过程中，应仔细倾听发动机有无异常声音，检查发动机有无漏水、漏油和漏气现象。观察各仪表读数是否正常，如有故障应立即停车排除。

During the idle running-in of the engine, please carefully listen to the engine for abnormal sound and check the engine for water, oil, and air leakage. Observe the instrument readings for normality; if malfunction occurs, stop the tractor for troubleshooting.

发动机空转磨合时间为 15min。

The idle running-in time of the engine is 15 min.

4.17.3 液压系统的磨合 Running-in of the Hydraulic System

启动发动机，操纵提升器手柄，使悬挂机构提升下降数次，观察液压系统有无顶卡吸空现象，然后挂上重量小于 500kg 的农具或重块，在发动机标定转速下，操纵提升器手柄，时农具平稳的提升或下降，其次数不少于 50 次。

Start the engine; control the lifter handle; lift and descend the linkage mechanism for several times, and observe the hydraulic system for jacking, seizing, and suction. After that, hook the agricultural tool or weight less than 500 kg; with the rated rotation speed of the engine, control the lifter handle, and stably lift and descend the agricultural tool for 50 times at the least.

在拖拉机静止情况下，发动机以低、中、高速转动，平稳地向左及向右操纵方向盘各 10 次，观察拖拉机前轮左右转向的随动情况，声音是否正常，操纵方向盘是否轻便、平稳。

When the tractor is stopped, rotate the engine at low, medium, and high speed, and stably control the steering wheel leftwards and rightwards for 10 times, and observe if the left and right steering of the tractor's front wheel is normal, if the sound is normal, and if the steering wheel can be conveniently and stably controlled.

磨合过程中若发现故障，须及时分析原因并排除。

If malfunction occurs during running-in, causes shall be timely analyzed and troubleshooting shall be done.

4.17.4 拖拉机的空驶是磨合（5h） No-load Running-in of the Tractor (5 h)

操作说明 Operation Instruction

在空驶磨合过程中（见表 10），发动机转速控制在 1500r/min 左右，同时应注意下列情况：
During the no-load running-in (see Table 10), the engine rotation speed shall be controlled at 1,500 r/min, and pay attention to the following conditions:

- 4.17.4.1 观察各仪表读数是否正常。
Observe if the instrument readings are normal.
- 4.17.4.2 离合器结合是否平顺，分离是否彻底。
Observe if the clutch is smoothly engaged and completely released.
- 4.17.4.3 变速箱换挡是否轻便、灵活、有无自动脱档现象。
Observe if the transmission gearshift is convenient and flexible and without automatic spontaneous out-of-gear.
- 4.17.4.4 差速锁能否结合和分离。
Observe if the differential lock can be engaged and released.
- 4.17.4.5 拖拉机的操纵性和制动性。
Observe if the tractor has good control and brake ability.

当发现故障时，应排除后方能继续磨合。

When malfunction occurs, the running-in shall be continued after troubleshooting.

4.17.5 拖拉机的负载磨合（50h） Loaded Running-in of the Tractor (50 h)

拖拉机的负载磨合（见表 11）是带上一定负荷进行运转，负荷必须由小到大逐步增加，速度必须由低到高逐档进行，注意事项同 4.15.4.

The tractor's loaded running-in (see Table 11) refers to the running with certain load; both the load and the speed shall be gradually increased, and the precaution is the same as 4.15.4.

4.17.6 磨合完毕后的保养 Maintenance After Running-in

拖拉机经过磨合后，在传动系统、润滑系统和液压系统中会有一些金属末或脏物混在润滑油中，因此必须进行清洗并更换全部的润滑油和液压系统的油。做完必要的技术保养后，才能转入正常使用。技术保养内容如下：

After the running-in of the tractor, some metal chips or dirt will be mixed into the lubricating oil from the transmission system, lubrication system, and hydraulic system; on this account, they shall be cleaned and the lubricating oil and oil in the hydraulic system shall be completely replaced. The tractor can be put into normal use after the necessary technical maintenance is done. The technical maintenance content is as follows:

- 4.17.6.1 停机后趁热放出发动机油底壳中的润滑油，清洗柴油滤清器、机油滤清器和空器滤清器，然后注入新的润滑油。
After stop, drain out the hot lubricating oil in the engine oil pan; clean the diesel filter, engine oil filter, and air cleaner; after that, fill in the new lubricating oil.
- 4.17.6.2 按柴油机说明书对柴油机进行保养、调整。
Perform maintenance and adjustment to the diesel engine in accordance with the Diesel Engine Instruction.
- 4.17.6.3 趁热放出变速箱-后桥壳中的润滑油，并加入适量的轻柴油，用 II 档形式 2~5min，停车后立即将轻柴油放出，并按规定加入润滑油。
Drain out the hot lubricating oil in the transmission-rear axle housing, and properly fill in the light diesel. Run the tractor at gear II for 2~5 min; immediately drain out the light diesel

操作说明
Operation Instruction

| | |
|----------|--|
| | after stop, and fill in the lubricating oil as specified. |
| 4.17.6.4 | 趁热放出液压提升器的转向油箱中的液压油, 清洗它们各自的滤清器, 然后注入新的液压油。 Drain out the hot hydraulic oil in the steering oil tank of the hydraulic lifter; clean the filters, and fill in the new hydraulic oil. |
| 4.17.6.5 | 更换冷却水。 Replace the cooling water. |
| 4.17.6.6 | 按润滑表对各润滑点加注润滑脂。 Fill the lubricating points with the lubricating grease based on the lubrication schedule. |
| 4.17.6.7 | 检查前轮前束和离合器、制动器踏板自由行程, 必要时调整。 Check the front wheel toe-in and the free stroke of the clutch and brake pedal; if necessary, make adjustment. |
| 4.17.6.8 | 检查并拧紧所有外部紧固螺栓和螺母。 Check and screw down all external fastening bolts and nuts. |

表 10 拖拉机档次和时间空驶磨合对照表

Table 10 Comparison of the Tractor's Gear Position and Time for No-load Running-in

| 档次 Gear Position | I | II | III | IV | V | VI | VII | VIII | 倒 I Reverse I | 倒 II Reverse II |
|---|----|----|-----|----|----|----|-----|------|---------------------|-----------------------|
| 磨合时间 (min) Running-in time (min) | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |

表 11 拖拉机负荷、油门开度、档次和时间负载磨合对照表

Table 11 Comparison of the Tractor's Load, Throttle Opening, Gear Position, and Time for Loaded Running-in

| 负荷 Load | 油门开度 Throttle Opening | 各档磨合时间 (h) Running-in Time of Different Gears (h) | | | | | 合计 (h) Total (h) |
|---|-----------------------------|---|----|-----|----|---|---------------------|
| | | I | II | III | IV | V | |
| 挂拖车装 3 吨重量 Hooking the trailer with 3 t | 3/4 | 2 | 2 | 3 | 3 | 4 | 14 |
| 挂拖车装 6 吨重量 Hooking the trailer with 6 t | 全开 Full opening | 4 | 4 | 4 | 4 | | 16 |
| 挂犁 (耕深 16~20cm) Hooking the plough (cultivation depth of 16~20 cm) | 全开 Full opening | 4 | 4 | 6 | 6 | | 20 |

4.18 拖拉机常见故障及排除方法

Common Malfunction and Troubleshooting Method of the Tractor

4.18.1 离合器常见故障及排除方法

Common Malfunction and Troubleshooting Method of the Clutch

操作说明
Operation Instruction

| 故障现象 Malfunction | 故障原因 Malfunction Cause | 排除方法 Troubleshooting Method |
|---|--|--|
| 1. 离合器打滑 Clutch slipping | 1) 摩擦片沾油 The friction plate is stained with oil 2) 摩擦片磨损过大, 铆钉头漏出 The friction plate is worn out, and the rivet head appears 3) 膜片弹簧压力降低 The diaphragm spring pressure is reduced 4) 从动盘翘曲 The driven disc is warped 5) 踏板自由行程消失 The pedal free stroke disappears | 1) 用汽油清洗 Clean it with gasoline 2) 更换 Replace it 3) 更换 Replace it 4) 修理或更换 Repair or replace it 5) 按规定调整 Adjust it as specified |
| 2. 分离不清, 挂档响 Unclear release and noisy engagement | 1) 踏板自由行程太大 The pedal free stroke is too large 2) 从动盘翘曲过大 The driven disc has too large warps 3) 从动盘花键太紧 The driven disc spline is too tight 4) 三个分离杆头部不在同一平面上 Three release lever heads are not in the same plane | 1) 按规定调整 Adjust it as specified 2) 更换 Replace it 3) 修去花键毛刺 Remove the spline burr 4) 重新调整 Readjust it |
| 3. 离合器发生颤抖 Jittering clutch | 1) 摩擦片破裂 The friction plate is broken 2) 从动盘翘曲 The driven disc is warped 3) 三个分离杆头部不在同一平面上 Three release lever heads are not in the same plane | 1) 更换 Replace it 2) 更换 Replace it 3) 重新调整 Readjust it |
| 4. 分离主离合器时, 动力输出轴停止转动 When releasing the main clutch, the power-take-off shaft stops rotating | 主压板上分离螺钉头部与副压板凸耳间间隙太小 The clearance between the release screw head on the main pressure plate and the auxiliary pressure plate lug is too small | 按规定调整 Adjust it as specified |
| 5. 离合器踏板踩到底时, 动力输出轴仍不能停止转动 When stepping down the clutch pedal fully, the power-take-off shaft can't stop rotating | 1) 主压板上分离螺钉头部与副压板凸耳间间隙太小 The clearance between the release screw head on the main pressure plate and the auxiliary pressure plate lug is too small 2) 离合器盖三个安放副压板凸耳的槽浅 Three grooves for the auxiliary pressure plate lug of the clutch cover are shallow | 1) 按规定调整 Adjust it as specified 2) 适当增加调整垫片 Properly add the adjusting shim |

4.18.2 变速箱常见故障及排除方法

Common Malfunction and Troubleshooting Method of the Transmission

| 故障现象 Malfunction | 故障原因 Malfunction Cause | 排除方法 Troubleshooting Method |
|----------------------|---|--------------------------------|
| 1. 自动脱档 Automatic | 1) 换档轴自锁弹簧压力不足 The self-lock spring of the shift shaft has | 1) 更换弹簧 Replace the spring |

操作说明
Operation Instruction

| | | |
|--|--|---|
| spontaneous out-of-gear | insufficient pressure 2) 齿轮花键孔有锥度产生轴向力或间隙太大 The gear spline hole is tapered, and the axial force is produced or the clearance is too large 3) 挂档后, 主、从动齿轮没有全齿啮合 After gear engagement, the driving gear and the driven gear are incompletely meshed 4) 齿向不对或齿面磨损不均匀 The gear direction is incorrect or the gear surface is unevenly worn | 2) 更换齿轮 Replace the gear 3) 检查换档行程及齿轮位置 Check the shift stroke and gear position 4) 更换齿轮 Replace the gear |
| 2. 乱档 Disordered gear | 换档轴行程限制片断裂 The shift shaft stroke limit plate is broken | 调换 Exchange it |
| 3. 挂档困难或挂不上 Difficult or failed gear engagement | 1) 主离合器分离不彻底 The main clutch incompletely releases 2) 齿轮端面倒圆处磨损或打坏 The fillet of the gear end face is worn out or damaged 3) 滑动齿轮和花键轴配合过紧 The sliding gear and the spline shaft fit too tightly | 1) 调整 Adjust it 2) 更换齿轮 Replace the gear 3) 用油石修磨使配合适中 Polish it with the oilstone to bring a proper fit |
| 4. 变速箱有异常声音 The transmission has abnormal sound | 1) 润滑油不足 The lubricating oil is insufficient 2) 轴承、齿轮磨损严重 The bearing and gear are worn out 3) 齿面有毛刺或硬点 The gear surface has burrs or hard spots | 1) 添加至规定油面 Fill it to the specified oil level 2) 更换齿轮、轴承 Replace the gear and bearing 3) 用油石去除 Remove it with the oilstone |
| 5. 变速箱体离合器室进油 Oil enters into the transmission clutch chamber | 1) 发动机曲轴后油封失效 The rear oil seal of the engine crankshaft fails 2) 变速箱第一轴承座、功率主动轴内油封失效 The first bearing seat of the transmission and the inner oil seal of the power driving shaft fail | 1) 更换 Replace it 2) 更换 Replace it |

4.18.3 后桥常见故障及排除方法

Common Malfunction and Troubleshooting Method of the Rear Axle

| 故障现象 Malfunction | 故障原因 Malfunction Cause | 排除方法 Troubleshooting Method |
|--|---|---|
| 1. 中央传动有异常声音 The central drive has abnormal sound | 1) 中央传动齿轮啮合不正常 The central drive gear abnormally meshes 2) 主动弧齿锥齿轮和差速器轴承间隙过小 The clearance between the bevel gear of the driving arc tooth and the differential bearing is too small | 1) 调整齿轮副啮合印痕及侧隙 Adjust the meshing mark and backlash of the gear pair 2) 调整间隙 Adjust the clearance |
| 2. 后桥壳过热 The rear axle housing is too | 1) 油面过低 The oil level is too low 2) 轴承或齿轮间隙过小 | 1) 添加到规定油面高度 Fill it to the specified oil level |

操作说明
Operation Instruction

| | | |
|---|--|--|
| hot | The bearing or gear backlash is too small | 2) 重新调整 Readjust it |
| 3. 差速锁手柄不能回位 The differential lock handle can't return | 1) 差速锁回位弹簧失效 The return spring of the differential lock fails 2) 差速锁推杆卡住 The differential lock push rod is seized | 1) 更换 Replace it 2) 拆卸、清洗、修去毛刺 Remove, clean, and clear burrs |

4.18.4 制动器常见故障及排除方法

Common Malfunction and Troubleshooting Method of the Brake

| 故障现象 Malfunction | 故障原因 Malfunction Cause | 排除方法 Troubleshooting Method |
|---|---|--|
| 1. 制动失灵 The brake fails | 1) 制动摩擦片沾油 The brake friction plate is stained with oil 2) 制动摩擦片磨损过大 The brake friction plate is worn out 3) 制动踏板自由行程过大 The brake pedal free stroke is too large | 1) 汽油清洗 Clean it with gasoline 2) 更换 Replace it 3) 重新调整 Readjust it |
| 2 制动时拖拉机发生偏转 The tractor deflects upon brake | 1) 左右制动踏板行程不一致 The stroke of the left and right brake pedals is inconsistent 2) 一侧制动器内进油 Oil enters into one brake | 1) 重新调整 Readjust it 2) 拆下清洗 Remove and clean it |
| 3. 制动器分离不清、发热 The brake has incomplete release and becomes hot | 1) 制动踏板自由行程太小 The brake pedal free stroke is too small 2) 制动压盘回位弹簧失效 The return spring of the brake pressure plate fails 3) 制动摩擦片间隙太小 The brake friction plate clearance is too small 4) 制动踏板不能回位 The brake pedal can't return | 1) 重新调整 Readjust it 2) 更换 Replace it 3) 重新调整 Readjust it 4) 检查回位弹簧是否失效 Check if the return spring fails |

4.18.5 行走转向系常见故障及排除方法

Common Malfunction and Troubleshooting Method of the Running and Steering System

| 故障现象 Malfunction | 故障原因 Malfunction Cause | 排除方法 Troubleshooting Method |
|----------------------------------|--|--|
| 1 前轮摆动 The front wheel swings | 1) 向轮支架衬套磨损 The steering gear bracket bushing wears 2) 转向横拉杆球头销或球头座磨损 The steering tie rod ball pin or ball seat wears 3) 前轴支架垫片磨损 The front shaft bracket gasket wears 4) 前束调整不符合要求 The toe-in adjustment doesn't meet the requirements 5) 前轮轮辋本身偏摆 | 1) 更换 Replace it 2) 更换 Replace it 3) 调整或更换 Adjust or replace it 4) 重新调整 Readjust it 5) 校正或更换 |

操作说明
Operation Instruction

| | | |
|---|---|---|
| | <p>The front wheel rim deflects</p> <p>6) 转向油缸进气 The air enters into the steering oil cylinder</p> | <p>Correct or replace it</p> <p>6) 检查转向油缸的油面高度、排气 Check the oil level and exhaust of the steering oil cylinder</p> |
| 2 前轮早期磨损 The front wheel prematurely wears | <p>1) 前束调整不符合要求 The toe-in adjustment doesn't meet the requirements</p> <p>2) 前轮气压不足 The front wheel pressure is insufficient</p> | <p>1) 重新调整 Readjust it</p> <p>2) 按规定气压充气 Inflate it according to the specified pressure</p> |
| 3 液压转向漏油 Oil leaks in case of hydraulic steering | <p>1) 各管道接头处胶圈损坏或螺栓松动 Rubber rings at the pipeline connectors are damaged or the bolts are loose</p> <p>2) 液压转向器阀体、隔盘、定子及后盖结合面胶圈损坏 The hydraulic steering gear valve body, separation disc, stator, and rubber ring at the rear cover junction surface are damaged</p> <p>3) 轴颈处胶圈损坏 The journal rubber ring is damaged</p> <p>4) 转向器结合部位螺栓松动 The steering gear junction part bolts are loose</p> | <p>1) 更换胶圈或拧紧螺栓 Replace the rubber ring or screw down the bolt</p> <p>2) 清洗更换胶圈 Clean and replace the rubber ring</p> <p>3) 更换胶圈 Replace the rubber ring</p> <p>4) 拧紧螺栓 Screw down the bolt</p> |
| 4 液压转向沉重 The hydraulic steering is heavy | <p>1) 齿轮油泵供油量不足, 齿轮油泵内漏或转向邮箱内滤网堵塞, 慢转轻, 快转重 The gear oil pump has insufficient oil supply; the gear oil pump has internal leakage or the filter screen of the steering oil tank is blocked, which is light and heavy in case of slow rotation and fast rotation</p> <p>2) 转向系统有空气, 转动方向盘, 而油缸时动时不动 There is air in the steering system; when rotating the steering wheel, the oil cylinder sometimes works and sometimes doesn't work</p> <p>3) 转向邮箱油位不足 The steering oil tank has low oil level</p> <p>4) 安全阀弹簧力变弱, 或钢球不密封, 轻负荷转向轻, 增加负荷转向沉 The safety valve spring force is reduced or the steel ball is unsealed; the steering is light in case of light load, which becomes heavy when the load is added</p> <p>5) 油液粘度太大 The oil has low viscosity</p> <p>6) 阀体内钢球单向阀失效, 快转也慢转方向盘沉重, 并且转向无力 The steel ball one-way valve of the valve body fails; it is heavy to fast and slowly rotate the steering wheel, which also has powerless steering</p> <p>7) 转向系漏油, 包括内漏(油缸)、外漏</p> | <p>1) 检查齿轮油泵是否正常, 清洗滤网 Check if the gear oil pump works normally, and clean the filter screen</p> <p>2) 排除系统中空气, 并检查吸油管路是否进气 Exhaust the system, and check if there is air in the oil suction pipeline</p> <p>3) 加油至规定液面高度 Fill oil to the specified liquid level</p> <p>4) 清洗安全阀并调整安全阀弹簧压力 Clean the safety valve, and adjust the safety valve spring pressure</p> <p>5) 使用规定的油液 Use the specified oil</p> <p>6) 清洗、保养或更换 Clean, maintain, or replace it</p> <p>7) 检查并排出漏油点 Check and find out the oil leakage point</p> |

操作说明
Operation Instruction

| | | |
|---|---|--|
| | The steering system has oil leakage, including internal leakage (oil cylinder) and external leakage | |
| 5 液压转向失灵 The hydraulic steering fails | <ol style="list-style-type: none"> 1) 拨销折断或变形 The toggle pin is broken or deformed 2) 联动轴开口折断或变形 The universal driving shaft opening is broken or deformed 3) 转子与联动轴相互位置装错 The rotor and the universal driving shaft are mounted reversely 4) 转向油缸活塞或活塞密封圈损坏 The steering oil cylinder piston or the piston seal ring is damaged | <ol style="list-style-type: none"> 1) 更换拨销 Replace the toggle pin 2) 更换联动轴 Replace the universal driving shaft 3) 重新装配 Re-assemble it 4) 更换活塞或密封圈 Replace the piston or seal ring |
| 6 液压转向时方向盘不能自动回到中立位置 Upon hydraulic steering, the steering wheel fails to automatically return to the neutral position | <ol style="list-style-type: none"> 1) 弹簧片折断 The spring piece is broken 2) 转向轴与转向立柱套管不同心，转动阻力大 The steering shaft is eccentric to the steering column sleeve, and the rotation resistance is large 3) 转向轴轴向顶死阀芯 The steering shaft jacks up the valve element axially 4) 中立位置压力降过大或方向盘停止转动时转向器不卸荷（易跑偏） When the pressure at the neutral position largely drops or the steering wheel stops rotating, the steering gear doesn't unload (easy off tracking) 5) 转向轴与阀芯不同心 The steering shaft is eccentric to the valve element | <ol style="list-style-type: none"> 1) 更换弹簧片 Replace the spring piece 2) 修理或更换 Repair or replace it 3) 修理 Repair it 4) 修理或更换 Repair or replace it 5) 重新安装调整 Re-mount and adjust it |
| 7 液压转向无人力转向 The hydraulic steering has no manual steering | <ol style="list-style-type: none"> 1) 转子与定子间隙过大 The clearance between the rotor and the stator is too large 2) 油缸活塞密封性太差，动力转向时油缸活塞到极端位置而驾驶员终点感不明显；力转向时，方向盘转动、油缸不动 The oil cylinder piston has poor sealability; upon power steering, the oil cylinder piston reaches the extreme position while the driver can't feel it; upon power steering, the steering wheel rotates while the oil cylinder keeps still | <ol style="list-style-type: none"> 1) 更换转子和定子 Replace the rotor and stator 2) 更换活塞密封圈 Replace the piston seal ring |

4.18.6 液压悬挂系统常见故障及排除方法

Common Malfunction and Troubleshooting Method of the Hydraulic Linkage System

| 故障现象 Malfunction | 故障原因 Malfunction Cause | 排除方法 Troubleshooting Method |
|---------------------|---------------------------|--------------------------------|
| 1 空负荷能提升, | 1) 吸油滤网堵塞 | 1) 清洗滤网 |

操作说明
Operation Instruction

| | | |
|--|--|---|
| <p>有负荷不能提升，或提升缓慢 It can be lifted under no load; it can't be lifted or the lifting is slow under loaded conditions</p> | <p>The oil suction filter screen is blocked 2) 油缸漏油严重 The oil cylinder leaks oil seriously 3) 安全阀漏油 The safety valve leaks oil</p> | <p>Clean the filter screen 2) 更换或塞上密封圈 Replace the oil cylinder or mount the seal ring 3) 校正压力或更正 Correct or change the pressure</p> |
| <p>2 农具不能提升 The agricultural tool can't be lifted</p> | <p>1) 油泵损坏 The oil pump is damaged 2) 分配器传感杠杆松动 The distributor sensing lever becomes loose 3) 安全阀漏油 The safety valve leaks oil 4) 油缸漏油严重 The oil cylinder leaks oil seriously 5) 吸油滤网堵塞 The oil suction filter screen is blocked 6) 农具太重或入土太深 The agricultural tool is too heavy or inserted in the soil too deep</p> | <p>1) 更换油泵 Replace the oil pump 2) 重新调整 Readjust it 3) 校正压力或更换 Correct the pressure or replace the safety valve 4) 更换活塞上密封圈 Replace the piston seal ring 5) 清洗滤网 Clean the filter screen 6) 选用合适农具和耕深 Select the proper agricultural tool and cultivation depth</p> |
| <p>3 农具无限上升 The agricultural tool rises without limits</p> | <p>1) 提升发卡在提升位置 The lifting is seized in the lifting position 2) 传感杠杆松动 The sensing lever becomes loose</p> | <p>1) 更换控制密封油垫圈偶件 Replace the control seal oil gasket coupling 2) 重新调整 Readjust it</p> |
| <p>4 农具上升有颤动现象 The agricultural tool rises tremblingly</p> | <p>1) 油管松动 The oil pipe becomes loose 2) 油管中有空气 There is air in the oil pipe</p> | <p>1) 拧紧接头固定位 Screw down the connector and fix it 2) 排放空气 Exhaust the air</p> |

4.18.7 电气系统常见故障及排除方法

Common Malfunction and Troubleshooting Method of the Electric System

4.18.7.1 起动电动机常见故障及排除方法

Common Malfunction and Troubleshooting Method of the Starter Motor

| 故障现象 Malfunction | 故障原因 Malfunction Cause | 排除方法 Troubleshooting Method |
|---|--|--|
| <p>1 起动电动机不运转 The starter motor doesn't run</p> | <p>1) 电池容量不足 The storage battery capacity is insufficient 2) 桩太脏、电缆松动 The pile is too dirty and the cable is loose 3) 缆线接头松动、搭铁线采购员锈蚀 The cable connector is loose and the grounding wire is rusty</p> | <p>1) 按规定充电 Charge it as specified 2) 清除脏物，紧固连接 Clean the dirt and firmly connect it 3) 紧固接头，连接可靠 Fasten the connector and</p> |

操作说明
Operation Instruction

| | | |
|---|--|--|
| | <p>4) 等控制电路断路 The dispatch control circuit has open circuit</p> <p>5) 与整流子接触不良 The contact with the commutator is poor</p> <p>6) 机内部断路、短路或搭铁 The machine inside has open circuit, short circuit or grounding</p> | <p>reliably connect it</p> <p>4) 检查电路, 连接可靠 Check the circuit and reliably connect it</p> <p>5) 维护、调整、清洗 Maintain, adjust, and clean it</p> <p>6) 检修起动电动机 Inspect and repair the starter motor</p> |
| <p>2 起动电动机起动无力,不能启动发动机 The starter motor starts powerlessly or the engine can't be started</p> | <p>1) 蓄电池容量不足 The storage battery capacity is insufficient</p> <p>2) 电缆线接触不良 The cable wire has poor contact</p> <p>3) 整流子表面烧损或有油污 The commutator surface is burnt or stained with oil</p> <p>4) 碳刷磨损过多或碳刷弹簧压力不足使其与整流子接触不良 The carbon brush is worn out or it has a poor contact with the commutator due to insufficient spring pressure of the carbon brush</p> <p>5) 电磁开关触点烧蚀 The electromagnetic switch contact is ablated</p> <p>6) 轴承严重磨损 The bearing is worn out</p> | <p>1) 向蓄电池充电 Charge the storage battery</p> <p>2) 调整 Adjust it</p> <p>3) 磨光整流子表面, 清除油污 Polish the commutator surface and clean the oil stain</p> <p>4) 更换或调整 Replace or adjust it</p> <p>5) 保养磨光 Maintain and polish it</p> <p>6) 更换轴承 Replace the bearing</p> |
| <p>3 松开启动开关, 起动电动机继续旋转 When loosing the starting switch, the starter motor continues rotating</p> | <p>开关主触点粘死 The main contact of the switch is stuck</p> | <p>检查开关内部主触点, 挫平、砂光其表面烧毛不平处 Check the interior main contact of the switch; file and polish the rough parts on its surface</p> |

4.18.7.2 发电机常见故障及排除方法

Common Malfunction and Troubleshooting Method of the Generator

| 故障现象 Malfunction | 故障原因 Malfunction Cause | 排除方法 Troubleshooting Method |
|--|--|--|
| <p>1 发电机不发电 The generator doesn't work</p> | <p>1) 接线错, 接线断, 接触不良 The wire is wrong and broken and the contact is poor</p> <p>2) 转子线圈断路 The rotor coil has open circuit</p> <p>3) 整流二极管损坏 The commutation diode is damaged</p> <p>4) 碳刷接触不良</p> | <p>1) 检修电路 Inspect the circuit</p> <p>2) 检修或更换发电机总成 Inspect and repair or replace the generator assembly</p> <p>3) 更换二极管 Replace the diode</p> |

操作说明
Operation Instruction

| | | |
|--|---|---|
| | <p>The carbon brush has poor contact</p> <p>5) 调节器损坏 The regulator is damaged</p> | <p>4) 清除脏污, 更换碳刷 Clean the dirt and replace the carbon brush</p> <p>5) 更换调节器 Replace the regulator</p> |
| <p>2 电机充电不足 The generator is undercharged</p> | <p>1) 三角带松弛 The triangle belt becomes loose</p> <p>2) 碳刷接触不良、滑环有油污 The carbon brush has poor contact and the sliding ring is stained with oil</p> <p>3) 调节器损坏 The regulator is damaged</p> <p>4) 蓄电池电解液太少或硫化严重, 过于陈旧 The storage battery electrolyte is too little or the vulcanization is serious and the storage battery is too old</p> | <p>1) 按要求调整胶带张紧度 Adjust the belt tension as required</p> <p>2) 调整清洗 Adjust and clean it</p> <p>3) 更换调节器 Replace the regulator</p> <p>4) 按要求调整电解液面至规定高度, 硫化严重不能恢复容量的蓄电池应予以更换 Adjust the electrolyte level to the specified level as required, and replace the storage battery which is seriously vulcanized and can't be recovered</p> |
| <p>3 发电机充电电流过大, 易烧灯泡 The generator has too high charging current and burns the bulb easily</p> | <p>1) 调节器调节电压过高 The regulator has too high adjusting voltage</p> <p>2) 调节器磁化线圈脱焊, 失去作用 The regulator's magnetic coil has loose weld and doesn't work</p> | <p>1) 按规定调整电压至合适值 Adjust the adjusting voltage to the standard value as specified</p> <p>2) 检修磁化线圈, 重新焊牢焊接点 Inspect and repair the magnetic coil, and weld the welding point again</p> |

4.18.7.3 蓄电池常见故障及排除方法

Common Malfunction and Troubleshooting Method of the Storage Battery

| 故障现象 Malfunction | 故障原因 Malfunction Cause | 排除方法 Troubleshooting Method |
|---|---|--|
| <p>1 蓄电池容量不足 The storage battery capacity is insufficient</p> | <p>1) 极板硫化 (长期充电不足, 蓄电池电解液面太低, 电解液比重过高或不纯) The electrode plate has vulcanization (due to long-time undercharging, too low storage battery electrolyte level, too high electrolyte proportion or impure electrolyte)</p> <p>2) 线路接头接触不良, 极柱上氧化物过多, 充电不足 The wire connector has poor contact; there</p> | <p>1) 经常使蓄电池保持完全充电状态, 电解液面高于极板 10~15mm, 不足时应添加蒸馏水, 电解液应合乎要求 Frequently keep the storage battery in a full charging state and keep the electrolyte level 10~15 mm higher than the electrode plate; if insufficient, fill the distilled water and the electrolyte shall meet the requirements</p> <p>2) 连接紧固, 清除氧化物, 桩头上涂一层凡士林</p> |

操作说明
Operation Instruction

| | | |
|---|---|---|
| | are too many oxides on the pole, and it is undercharged | Firmly connect, clean the oxide, and coat a layer of Vaseline on the pile head |
| 2 自放电过大 The self discharge is too high | <p>1) 电解液中含有杂质 The electrolyte is impure</p> <p>2) 蓄电池外部导线有短路处 The external wire of the storage battery has short circuit</p> <p>3) 蓄电池表面有电解液溢出, 使正、负极桩短路 The storage battery surface has overflowing electrolyte and brings a short-circuited positive and negative poles</p> <p>4) 将金属工具或杆件放在正、负极桩间造成严重短路 The serious short circuit is caused owing to the fact that the metal tool or rod piece is placed between the positive and negative poles</p> <p>5) 极板活性物质脱落, 沉积过多使极板短路; 隔板损坏使极板短路; 极板翘曲使正、负极短路 The active substances of the electrode plate peel off and excessively deposit and bring a short-circuited electrode plate; the damaged separator brings a short-circuited electrode plate; the warped electrode plate brings a short-circuited positive and negative poles</p> | <p>1) 按规定加注用化学纯净硫酸和蒸馏水配制的电解液, 使用中须加注蒸馏水 Fill in the electrolyte composed of the chemical pure sulfuric acid and distilled water as specified; upon use, note that the distilled water shall be filled</p> <p>2) 检查短路部位, 排除故障 Check the short circuit part, and do troubleshooting</p> <p>3) 用碱水或温水擦洗蓄电池表面及桩头, 使其外部清洁 (注意: 碱水或水不能漏进蓄电池内部) Wipe off the storage battery surface and pile head with alkaline water or warm water to clean its outside (CAUTION: The alkaline water or water can't enter into the storage battery)</p> <p>4) 禁止在蓄电池表面摆放金属杆件或工具 It is forbidden to place the metal rod piece or tool on the storage battery surface</p> <p>5) 更换蓄电池或修理部门修理 Replace the storage battery or ask the department responsible for repair to repair it</p> |
| 3 活性物质严重脱落, 充电时电解液中有褐色物质, 蓄电池容量不足 The active substances seriously peel off; upon charging, the electrolyte has brown substances, and the storage | <p>1) 蓄电池接通起动电动机时间过长 The storage battery is connected to the starter motor too long</p> <p>2) 充电电流过大或充电时间过长, 使极板翘曲 The charging current is too high or the charging time is too long and brings a warped electrode plate</p> <p>3) 电解液比重过大 The electrolyte proportion is too high</p> <p>4) 蓄电池固定不牢, 极板受到剧烈振动 The storage battery is not fixed firmly, and</p> | <p>1) 每次接通起动电动机的时间应严格执行使用规定, 不允许长时间、大电流放电 The time connecting to the starter motor shall be strictly in accordance with the regulations; it is not allowed to perform the high current discharging for a long time</p> <p>2) 严格执行补充充电规定 The supplementary charging regulations shall be strictly followed</p> |

操作说明
Operation Instruction

| | | |
|----------------------------------|--|---|
| battery capacity is insufficient | the electrode plate is subject to violent vibration | 3) 加入规定比重的电解液 Fill the electrolyte according to the specified proportion 4) 拧紧蓄电池固定螺栓 Screw down the fixing bolt of the storage battery |
| 4 外壳破裂 The housing is broken | 1) 通气孔堵塞, 充电时产生的气体不能排出, 蓄电池内部压力升高 The vent hole is blocked, the exhaust fails upon charging and the interior pressure of the storage battery rises 2) 蓄电池急剧放电, 电解液温度急骤升高, 电解液和气体迅速膨胀 The storage battery sharply discharges; the electrolyte temperature sharply rises, and the electrolyte and gas quickly expands 3) 蓄电池固定不牢, 拖拉机行驶中振动过大 The storage battery is not fixed firmly, and the tractor largely vibrates during driving | 1) 检查通气孔, 并保持通气孔畅通 Check the vent hole and keep a smooth vent hole 2) 检查并排除外部线路的短路故障 Check and do troubleshooting to the short-circuited external lines 3) 将蓄电池固定牢固 Firmly fix the storage battery |

4.18.7.4 组合仪表常见故障及排除方法

Common Malfunction and Troubleshooting Method of the Combination Instrument

| 故障现象 Malfunction | 故障原因 Malfunction Cause | 排除方法 Troubleshooting Method |
|--|---|--|
| 1 水温表总指低温 The water thermometer always points to the low temperature | 1) 线路出现断路, 插接件连接处接触不良 There is an open circuit, and the plug connectors have poor contact 2) 水温传感器坏 The water temperature sensor is damaged | 1) 检查将线路接通, 清除插接件中的泥沙 Check and connect the circuit, and clean mud and sand in the plug connector 2) 更换水温传感器 Replace the water temperature sensor |
| 2 水温表总指高温 The water thermometer always points to the high temperature | 1) 水温传感器短路, 损坏 The water temperature sensor is short-circuited and damaged 2) 线路中有短路 There is a short circuit | 1) 更换水温传感器 Replace the water temperature sensor 2) 检修线路, 排除短路故障 Check and repair the circuit and do troubleshooting |
| 3 油量表指示不正常 The fuel gauge has abnormal indication | 1) 线路有短路、断路处 There is a short circuit or an open circuit 2) 油量传感器有短路、断路、接触不良 The oil quantity sensor has short circuit, open circuit, and poor contact | 1) 检修排除 Inspect it and do troubleshooting 2) 检修或更换传感器 Inspect and repair or replace the sensor |

操作说明
Operation Instruction

4.18.7.5 灯光常见故障及排除方法
Common Malfunction and Troubleshooting Method of the Light

| 故障现象 Malfunction | 故障原因 Malfunction Cause | 排除方法 Troubleshooting Method |
|--|--|---|
| 1 前照灯无远近光 The headlamp has no upper and lower beams | 1) 线路断路; 短路保险丝烧断 There is an open circuit; the short-circuited fuse is burnt 2) 灯光开关、变光开关接触不良、损坏 The light switch and dimmer switch have poor contact and damages 3) 灯泡烧断, 质量差 The bulb is burnt and has poor quality | 1) 检修接通 Inspect, repair and connect it 2) 检修, 更换 Inspect, repair and replace it 3) 更换质量好的灯泡 Replace it with the high quality bulb |
| 2 后灯不亮 The rear lamp doesn't work | 1) 线路断路; 短路保险丝烧断 There is an open circuit; the short-circuited fuse is burnt 2) 后灯开关接触不良、有损坏 The rear lamp switch has poor contact and damages | 1) 检修电路, 排除短路、断路故障 Inspect and repair the circuit and do troubleshooting to the short circuit and open circuit 2) 检修或更换 Inspect and repair or replace it |

4.18.7.6 前桥常见故障及排除方法
Common Malfunction and Troubleshooting Method of the Front Axle

| 故障现象 Malfunction | 故障原因 Malfunction Cause | 排除方法 Troubleshooting Method |
|--|--|---|
| 噪声大 The noise is loud | 1) 中央传动齿轮啮合印痕不好 The meshing mark of the central drive gear is poor 2) 中央传动轴承间隙过大或损坏 The central transmission bearing has too large clearance or damages 3) 差速器轴磨损或咬死 The differential shaft is worn or seized 4) 行星齿轮或垫片磨损 The planetary gear or gasket is worn 5) 最终传动齿轮副啮合不好 The final drive gear pair has poor meshing | 1) 新调整齿轮啮合印痕 Readjust the gear meshing mark 2) 调整或根换 Adjust or replace it 3) 更换差速器轴 Replace the differential shaft 4) 更换行星齿轮或垫片 Replace the planetary gear or the gasket 5) 调整最终传动齿轮 Adjust the final drive gear |
| 传动轴发热 The transmission shaft is hot | 1) 传动轴严重弯曲变形 The transmission shaft is seriously bent and deformed 2) 中间支承轴承座松动 | 1) 校正或更换传动轴 Correct or replace the transmission shaft 2) 拧紧轴承座 |

操作说明
Operation Instruction

| | | |
|---------------------------------------|--|---|
| | The intermediate support bearing seat is loose | Screw down the bearing seat |
| 前轮胎磨损严重 The front tyre is worn out | 1) 轮辋和辐板严重变形 The wheel rim and spoke plate are seriously deformed 2) 前束调整不当 The toe-in is improperly adjusted 3) 转向节及油缸两销轴严重磨损 The steering knuckle and two hinge pins of the oil cylinder are worn out 4) 运输作业轮胎气压不足 The transportation tyre has insufficient pressure 5) 运输作业时前驱动桥未脱开 Upon transportation work, the front drive axle doesn't disconnect | 1) 前轮轮辋和辐板 Replace the front wheel rim and the spoke plate 2) 调整前束 Adjust the toe-in 3) 更换销轴 Replace the hinge pin 4) 按规定充气 Inflate it as specified 5) 运输作业时脱开前驱动桥 Upon transportation work, disconnect the front drive axle |

4.18.7.7 液压输出装置的常见故障及排除方法
Common Malfunction and Troubleshooting Method of the Hydraulic Output Device

| 故障现象 Malfunction | 故障原因 Malfunction Cause | 排除方法 Troubleshooting Method |
|--|---|---|
| 负载油缸提升速度慢或不动作 The load oil cylinder has low lifting speed or doesn't work | 1) 全阀内漏 The whole valve has internal leakage 2) 油泵效率低 The oil pump has low efficiency | 1) 清洗安全阀、排除异物、重新调整压力或更换 Clean the safety valve; clean impurities; readjust the pressure or replace it 2) 更换油泵 Replace the oil pump |
| 负载油缸突然无压力 The load oil cylinder has no pressure suddenly | 1) 工作油液被污染, 使安全阀芯卡在开启状态 The working oil is polluted, which makes the safety valve element be stuck in the opening state 2) 系统漏油 The system has oil leakage 3) 油泵损坏 The oil pump is damaged | 1) 更换工作液体, 或更换安全阀总成 Replace the working fluid or replace the safety valve assembly 2) 检查系统 Check the system 3) 重新调整或更换油泵 Readjust it or replace the oil pump |
| 负载油缸提升无压力 The load oil cylinder has no pressure upon lifting | 1) 安全阀压力低 The safety valve has low pressure 2) 油泵效率低 The oil pump has low | 1) 更换安全阀 Replace the safety valve 2) 更换油泵 Replace the oil pump |

操作说明
Operation Instruction

| | | |
|---|---|--------------------------------|
| | efficiency 3) 系统压力低 The system has low pressure | 3) 检查系统 Check the system |
| 发片之间、前后盖连接处漏油、其它情况外漏 The parts between slices and connections between the front and rear covers have oil leakage and external leakage under other conditions | 密封圈损坏 The seal ring is damaged | 更换密封圈 Replace the seal ring |

第五章 备件、工具及易损件 Chapter V Spare Parts, Tools, and Vulnerable Parts

5.1 随机工具清单

List of Accompanied Tools

| 序号 No. | 名称 Name | 代号 Code | 数量 Qty. | 备注 Remarks |
|-----------|--|------------|--------------|------------------|
| 1 | 套筒扳手 Socket spanner | GB3390.1 | 1 套 1 set | |
| | 套筒 10×12.5L Socket 10×12.5 L | GB3390.1 | 1 | |
| | 套筒 13×12.5L Socket 13×12.5 L | GB3390.1 | 1 | |
| | 套筒 16×12.5L Socket 16×12.5 L | GB3390.1 | 1 | |
| | 套筒 18×12.5L Socket 18×12.5 L | GB3390.1 | 1 | |
| | 套筒 21×12.5L Socket 21×12.5 L | GB3390.1 | 1 | |
| | 套筒 24×12.5L Socket 24×12.5 L | GB3390.1 | 1 | |
| | 套筒 27×12.5L Socket 27×12.5 L | GB3390.1 | 1 | |
| | 套筒 30×12.5L Socket 30×12.5 L | GB3390.1 | 1 | |
| | 滑头手柄 H12.5 Sliding head handle H12.5 | GB/T3390.3 | 1 | |
| | 接杆 5G12.5×125 Connecting rod 5G12.5×125 | GB/T3390.3 | 1 | |
| 2 | 双头呆扳手 8×10 Double-end spanner 8×10 | GB/T4388 | 1 | 短型 Short type |
| 3 | 双头呆扳手 13×16 Double-end spanner 13×16 | GB/T4388 | 1 | 短型 Short type |
| 4 | 双头呆扳手 18×21 Double-end spanner 18×21 | GB/T4388 | 1 | 短型 Short type |
| 5 | 双头呆扳手 24×27 Double-end spanner 24×27 | GB/T4388 | 1 | 短型 Short type |
| 6 | 双头呆扳手 30×34 Double-end spanner 30×34 | GB/T4388 | 1 | 短型 Short type |
| 7 | 双头呆扳手 36×41 Double-end spanner 36×41 | GB/T4388 | 1 | 短型 Short type |
| 8 | 鳄鱼钳 165mm Crocodile squeezer 165 mm | GB4953 | 1 | |
| 9 | 十字槽螺钉旋具 11003B Philips driver 11003B | GB10640 | 1 | |

备件、工具及易损件
Spare Parts, Tools, and Vulnerable Parts

| | | | | |
|----|--|----------|---|-------------------------------------|
| 10 | 一字槽螺钉旋具 75×0.6×41-1P Screwdriver for the slotted head screw 75×0.6×41-1P | GB10639 | 1 | |
| 11 | 油枪 A200 或 A400 Oil gun A200 or A400 | GB/T1164 | 1 | |
| 12 | 内六角扳手 8mmR Inner hexagon spanner 8 mm R | GB/T5356 | 1 | |
| 13 | 发动机随机工具 Accompanied tools of the engine | | 1 | 来自配套厂 From the assorted plant |

5.2 随机备件清单

List of Accompanied Spare Parts

| 序号 No. | 代号 Code | 名称与规格 Name and Specification | 单位 Unit | 数量 Qty. | 备注 Remarks |
|-----------|---------------|---|------------|------------|-------------------------------------|
| 1 | | 发动机随机备件 Accompanied spare parts of the engine | 套 Set | 1 | 来自配套厂 From the assorted plant |
| 2 | DJ101 | 后挂车插销 Rear trailer plug pin | 个 Piece | 1 | |
| 3 | | 保险丝 10A Fuse 10 A | 个 Piece | 5 | |
| | | 保险丝 15A Fuse 15 A | 个 Piece | 2 | |
| | | 保险丝 20A Fuse 20 A | 个 Piece | 1 | |
| 4 | 8Q/JBMH4-1991 | 快换阳接头 Quick-change male connector | 个 Piece | 4 | |


5.3 随机文件清单

List of Accompanied Documents

| 序号 No. | 名称 Name | 数量 Qty. | 备注 Remarks |
|-----------|--|------------|---------------|
| 1 | 拖拉机使用说明书 Use And Maintenance of the Tractor | 1 | |
| 2 | 发动机随机技术文件 Accompanied technical document of the engine | 1 | |
| 3 | 产品合格证 Product Qualification Certificate | 1 | |

备件、工具及易损件
Spare Parts, Tools, and Vulnerable Parts

| | | | |
|---|---|---|--|
| 4 | 三包服务卡 Three-guarantee service card | 1 | |
| 5 | 随机物品装箱清单 Packing list of accompanied items | 1 | |

 **注意：**1) 发动机随机工具、随机备件、随机文件请按柴油机装箱清单验收。
CAUTION: 1) The acceptance shall be made to the accompanied tools, spare parts, and documents of the engine in accordance with the diesel engine packing list.

2) 随机工具、随机备件仅供参考，更改恕不通知。
The accompanied tools and spare parts are for reference only, which will be subject to changes without further notice.

5.4 其他易损件清单
List of Other Vulnerable Parts

| 序号 No. | 代号 Code | 名称 Name | 数量/台 Qty. / Piece | 备注 Remarks |
|-----------|------------|-------------------------------------|-------------------------|---------------|
| 1 | | 左侧窗玻璃 Left side window | 1 | |
| 2 | | 右侧窗玻璃 Right side window | 1 | |
| 3 | | 前挡风玻璃 Front windshield | 1 | |
| 4 | | 前挡风玻璃 Front windshield | 1 | |
| 5 | | 左前下窗玻璃 LF lower window glass | 1 | |
| 6 | | 右前下方玻璃 RF lower window glass | 1 | |
| 7 | | 后窗玻璃 Rear window glass | 1 | |
| 8 | | 左车门玻璃 Left door window | 1 | |
| 9 | | 右车门玻璃 Right door window | 1 | |
| 10 | | 后下窗玻璃 Rear lower window glass | 1 | |

备件、工具及易损件
Spare Parts, Tools, and Vulnerable Parts

| | | | | |
|----|--|--|---|-----------------------------------|
| 11 | | 保险丝 10A Fuse 10 A | 5 | |
| 12 | | 保险丝 15A Fuse 15 A | 2 | |
| 13 | | 保险丝 20A Fuse 20 A | 1 | |
| 14 | | 远近光双丝灯泡 Upper and lower beam twin-wire bulb | | |
| 15 | | 转向灯泡 Steering bulb | | |
| 16 | | 位置灯泡 Position bulb | | |
| 17 | | 后工作灯泡 Rear working bulb | | |
| 18 | | 顶工作灯泡 Top working bulb | | |
| 19 | | 制动灯泡 Brake bulb | | |
| 20 | | 发动机风扇皮带 Engine fan belt | 1 | 洛阳发动机机型 Luoyang engine type |



注意：若不使用“附录”中 12.3 表和 12.4 表中所列的配件，有可能降低配件的使用寿命并给您带来不必要的麻烦。易损件清单不仅包括表 12.4 中的所有轴承和表 12.3 中的所有油封、密封圈，还有表 5.4 的内容。

CAUTION: If accessories listed in Table 12.3 and Table 12.4 in the “Appendixes” are not used, the service life of the parts may be shortened and bring inconvenience. The list of the vulnerable parts covers all bearings in the Table 12.4, all oil seals and seal rings in the Table 12.3, and all items in the Table 5.4.

第六章 拖拉机的维护保养 Chapter VI Maintenance of the Tractor

维护保养说明

Maintenance Instruction

为了使拖拉机正常工作和延长使用寿命，必须严格的执行技术保养规程。本机的技术保养规程按照拖拉机累计负荷工作小时划分如下：

To make the tractor normally work and extend its service life, the Technical Maintenance Regulation shall be strictly followed. The Technical Maintenance Regulation is classified as follows based on the accumulated load working hours of the tractor:

1. 每班技术保养；
Technical maintenance of each shift;
2. 累计工作 125h 后的技术保养；
Technical maintenance after 125 working hours;
3. 累计工作 500h 后的技术保养；
Technical maintenance after 500 working hours;
4. 累计工作 1000h 后的技术保养；
Technical maintenance after 1,000 working hours;
5. 冬季特殊维护保养；
Special maintenance in winters;

6.1 技术保养规程

Technical Maintenance Regulation

6.1.1 每班技术保养

Technical Maintenance of Each Shift

- 1 清除拖拉机上的尘土和污泥；
Clean dirt and mud on the tractor;
- 2 检查水箱、燃油箱内的液面高度，不足时应加注；
Check the liquid level in the water tank and fuel tank; if insufficient, fill it;
- 3 检查前后轮壳螺母是否松动；
Check the front rear wheel housing nut for looseness;
- 4 检查前后轮气压；
Check the front rear wheel pressure;
- 5 进行水田作业时，（旱地作业可隔班进行）按润滑表对各润滑点加注润滑脂（加注润滑脂要挤出全部泥和水，直到清洁润滑脂出现为止）；
Upon the paddy field work, (the dryland work can be conducted every other shift) all lubricating points shall be filled with the lubricating grease based on the lubrication schedule (when filling the lubricating grease, mud and water shall be completely cleaned till the lubricating grease becomes clean);
- 6 按柴油机说明书中日常技术保养的要求对柴油机进行保养。
Perform the maintenance to the diesel engine based on the daily technical maintenance requirements specified in the Diesel Engine Instruction.

6.1.2 累计工作 125h 后的技术保养 **Technical Maintenance After 125 Working Hours**

- 1 完成每班技术保养的全部项目;
Complete all technical maintenance items of each shift;
- 2 检查变速箱-后桥、转向油箱或转向器、及液压油箱的油面高度, 不足时添加;
Check the transmission-rear axle, steering oil tank or steering gear, and hydraulic oil tank for the oil level; if insufficient, fill it;
- 3 检查并调整离合器和制动器踏板的自由行程;
Check and adjust the free stroke of the clutch and brake pedals;
- 4 检查并调整前轮前束;
Check and adjust the front wheel toe-in;
- 5 按柴油机说明书中累计 125h 后的技术保养要求对柴油机进行保养。
Perform the maintenance to the diesel engine based on the technical maintenance requirements after 125 working hours specified in the Diesel Engine Instruction.

6.1.3 累计工作 500h 后的技术保养 **Technical Maintenance After 500 Working Hours**

- 1 完成累计工作 125h 后的技术保养的全部项目。
Complete all items for the technical maintenance after 125 working hours.
- 2 将变速箱-后桥、转向油箱及液压油箱内、油缸内润滑油及液压油放出, 清洗变速箱-后桥壳体、提升器壳体、转向器壳体, 将放出的润滑油、液压油经清洁处理后重新加入, 不足时应添加;
Drain out the lubricating oil and hydraulic oil in the transmission-rear axle, steering oil tank, hydraulic oil tank, and oil cylinder; clean the transmission-rear axle housing, lifter housing, and steering gear housing; refill the cleaned lubricating oil and hydraulic oil; if insufficient, fill it;
- 3 清洗液压系统中滤清器的滤网和转向油箱中的滤网;
Clean the filter screens of the hydraulic system and the steering oil tank;
- 4 检查并调整方向盘自由行程;
Check and adjust the steering wheel free stroke;
- 5 检查并调整安全阀压力;
Check and adjust the safety valve pressure;
- 6 检查前轮轴承松紧情况, 必要时调整;
Check the fastness of the front wheel bearing; if necessary, adjust it;
- 7 检查三个离合器压盘分离杆头部是否在同一平面上, 误差应不大于 0.2mm, 必要时调整;
Check if the heads of three clutch pressure plate release levers are on the same plane and the error shall not be larger than 0.2 mm; if necessary, adjust it;
- 8 检查电气线路各接头紧固情况, 并清除油污和锈斑;
Check the fastness of the electric lines and connectors, and clean the oil stain and rust spot;
- 9 检查摇摆轴端面垫片及固定法兰盖的磨损情况, 必要时调整;
Check the wear conditions of the rocker shaft end gasket and fixing flange cover; if necessary, adjust it;
- 10 按柴油机说明书中累计 500h 后的技术保养要求对柴油机进行保养;
Perform the maintenance to the diesel engine based on the technical maintenance requirements after 500 working hours specified in the Diesel Engine Instruction;

拖拉机的维护保养
Maintenance of the Tractor

6.1.4 累计工作 1000h 后的技术保养
Technical Maintenance After 1,000 Working Hours

- 1 完成累计工作 500h 后的技术保养的全部项目；
Complete all items for the technical maintenance after 500 working hours;
- 2 更换变速箱-后桥、转向油箱或转向器、液压系统的润滑油、液压油；
Replace the lubricating oil and hydraulic oil in the transmission-rear axle, steering oil tank or steering gear, and hydraulic system;
- 3 清除排气管消音器中的积碳；
Clean carbon deposit in the exhaust pipe muffler;
- 4 检查前轮磨损情况，必要时将左、右前轮对调；
Check the wear conditions of the front wheel; if necessary, exchange left and right front wheels;
- 5 清除冷却系统内的水垢；
Clean the scale deposit in the cooling system;
- 6 检查并调整中央传动齿轮副轴承的间隙；
Check and adjust the clearance between bearings of the central drive gear pair;
- 7 按柴油机说明书中累计 1000h 后的技术保养要求对柴油机进行保养。
Perform the maintenance to the diesel engine based on the technical maintenance requirements after 1,000 working hours specified in the Diesel Engine Instruction.

6.1.5 冬季特殊维护保养
Special Maintenance in Winters

- 1 换用冬季润滑油和燃油；
Use the winter lubricating oil and fuel;
- 2 冬季长期停车期间，在冷却水中加入防冻液，如无防冻液，应将冷却水放尽；
In case of long-term parking in winters, fill the antifreeze solution into the cooling water; if there is no antifreeze solution, the cooling water shall be completely drained out;
- 3 每班工作开始，应按发动机冬季启动要求进行启动；
Upon the each shift working, the winter starting requirements of the engine shall be followed;
- 4 蓄电池放电率冬季不得超过 25%，应经常保持较高的充电率；
The winter discharging rate of the storage battery shall not be higher than 25%; higher charging rate shall be kept;
- 5 拖拉机作业结束后，应停放在避风保暖的暖棚里；
After working, the tractor shall be parked in a sheltered and warm shed;

表 6-1-1 拖拉机的润滑脂的检查
Table 6-1-1 Checking of the Tractor's Lubricating Grease

| 序号 No. | 维护保养润滑部位 Maintenance and Lubrication Part | 操作内容 Operation Content | 点数 Point Number | 保养时间 (h) Maintenance Time (h) | 备注 Remarks |
|-----------|---|---|-----------------------|-------------------------------------|---------------|
| 1 | 前轮轮毂 Front wheel hub | 加注润滑脂 Fill the lubricating grease | 2 | 每班 Each shift | |

拖拉机的维护保养
Maintenance of the Tractor

| | | | | | |
|----|---|--------------------------------------|---|------------------|-------------------------------|
| 2 | 摇摆轴（前后衬套） Rocker shaft (front and rear bushings) | 加注润滑脂 Fill the lubricating grease | 2 | 每班 Each shift | |
| 3 | 发动机水泵轴 Engine water pump shaft | 加注润滑脂 Fill the lubricating grease | 1 | 每班 Each shift | |
| 4 | 发动机油底壳 Engine oil pan | 检查液面高度 Check the liquid level | 1 | 每班 Each shift | |
| 5 | 油浴式空气滤清器 Oil-bath air cleaner | 检查液面高度 Check the liquid level | 1 | 每班 Each shift | 必要时 If necessary |
| 6 | 离合器及制动踏板轴 Clutch and brake pedal shaft | 加注润滑脂 Fill the lubricating grease | 2 | 每班 Each shift | 必要时 If necessary |
| 7 | 转向盘止推轴承 Steering wheel thrust bearing | 加注润滑脂 Fill the lubricating grease | 2 | 每班 Each shift | |
| 8 | 后轮轮毂 Rear wheel hub | 加注润滑脂 Fill the lubricating grease | 2 | 每班 Each shift | |
| 9 | 左、右升降杆 Left and front lifting rods | 加注润滑脂 Fill the lubricating grease | 2 | 每班 Each shift | |
| 10 | 蓄电池 Storage battery | 检查液面高度 Check the liquid level | 1 | 每班 Each shift | |
| 11 | 前轴主销（上下衬套） Front shaft king pin (upper and lower bushings) | 加注润滑脂 Fill the lubricating grease | 4 | 每班 Each shift | |
| 12 | 转向纵拉杆球销 Steering link rod ball stud | 加注润滑脂 Fill the lubricating grease | 2 | 每班 Each shift | |
| 13 | 转向横拉杆球销 Steering tie rod ball stud | 加注润滑脂 Fill the lubricating grease | 2 | 每班 Each shift | |
| 14 | 散热器 Radiator | 检查液面高度 Check the liquid level | 1 | 每班 Each shift | |
| 15 | 提示器 Prompter | 检查液面高度 Check the liquid level | 1 | 每班 Each shift | 需要时加注 Filling if necessary |
| 16 | 变速箱-后桥 Transmission - rear axle | 检查液面高度 Check the liquid level | 1 | 每班 Each shift | 需要时加注 Filling if necessary |
| 17 | 液压转向油箱 Hydraulic steering oil tank | 检查液面高度 Check the liquid level | 1 | 每班 Each shift | 必要时 If necessary |

拖拉机的维护保养
Maintenance of the Tractor

| | | | | | |
|----|---------------------------------------|---|---|--|--|
| 18 | 转向油缸 Steering oil cylinder | 加注润滑脂 Fill the lubricating grease | 2 | 每班 Each shift | |
| 19 | 风扇 V 型带 Fan V-belt | 检查涨紧度 Check the tensity | 1 | 每工作 125h Every 125 working hours | |
| 20 | 旋转式机油滤清器 Rotary engine oil filter | 更换滤清器 Replace the filter | 1 | 每工作 125h Every 125 working hours | |
| 21 | 柴油滤清器 Diesel filter | 更换滤芯 Replace the filter core | 1 | 每工作 125h Every 125 working hours | |
| 22 | 提升器机油滤清器 Lifter engine oil filter | 清洗或更换滤芯 Clean or replace the filter core | 1 | 每工作 125h Every 125 working hours | |
| 23 | 发动机油底壳 Engine oil pan | 更换润滑油 Replace the lubricating oil | 1 | 每工作 125h Every 125 working hours | |
| 24 | 油浴式空气滤清器 Oil-bath air cleaner | 保养并清洗 Maintain and clean it | 1 | 每工作 125h Every 125 working hours | |
| 25 | 前轮轮毂 Front wheel hub | 更换润滑脂 Replace the lubricating grease | 2 | 每工作 500h Every 500 working hours | |
| 26 | 液压转向油箱 Hydraulic steering oil tank | 更换液压油 Replace the hydraulic oil | 1 | 每工作 500h Every 500 working hours | |
| 27 | 提升器 Lifter | 更换液压油 Replace the hydraulic oil | 1 | 每工作 500h Every 500 working hours | |
| 28 | 变速箱-后桥 Transmission - rear axle | 更换润滑油 Replace the lubricating oil | 1 | 每工作 500h Every 500 working hours | |
| 29 | 散热器 Radiator | 保养并清洗 Maintain and clean it | 1 | 每工作 1000h Every 1,000 working hours | |
| 30 | 燃油箱 Fuel tank | 保养并清洗 Maintain and clean it | 1 | 每工作 1000h Every 1,000 working hours | |

表 6-1-2 沭河 SH70 系列拖拉机的维护与保养
Table 6-1-2 Maintenance of Shuhe SH70 Series Tractor

| 序号 No. | 维护保养润滑部位 Maintenance and Lubrication Part | 操作内容 Operation Content | 点数 Point Number | 保养时间 (h) Maintenance Time (h) | 备注 Remarks |
|-----------|--|---------------------------|--------------------|----------------------------------|---------------|
|-----------|--|---------------------------|--------------------|----------------------------------|---------------|

拖拉机的维护保养
Maintenance of the Tractor

| | | | | | |
|----|--|--------------------------------------|----|-------------------------------------|-------------------------------|
| 1 | 发动机水泵轴 Engine water pump shaft | 加注润滑油 Fill the lubricating oil | 1 | 每班 Each shift | |
| 2 | 发动机油底壳 Engine oil pan | 检查液面高度 Check the liquid level | 1 | 每班 Each shift | |
| 3 | 油浴式空气滤清器 Oil-bath air cleaner | 检查液面高度 Check the liquid level | 1 | 每班 Each shift | 必要时 If necessary |
| 4 | 离合器及制动器踏板 Clutch and brake pedals | 加注润滑脂 Fill the lubricating grease | 2 | 每班 Each shift | 必要时 If necessary |
| 5 | 转向盘止推轴承 Steering wheel thrust bearing | 加注润滑脂 Fill the lubricating grease | 2 | 每班 Each shift | |
| 6 | 后轮轮毂 Rear wheel hub | 加注润滑脂 Fill the lubricating grease | 2 | 每班 Each shift | |
| 7 | 左、右升降杆 Left and right lifting rods | 加注润滑脂 Fill the lubricating grease | 2 | 每班 Each shift | |
| 8 | 转向横拉杆球销 Steering tie rod ball stud | 加注润滑脂 Fill the lubricating grease | 2 | 每班 Each shift | |
| 9 | 四轮驱动前桥摆轴 Oscillating bar of the four-wheel-drive front axle | 加注润滑脂 Fill the lubricating grease | 2 | 每班 Each shift | |
| 10 | 转向油缸 Steering oil cylinder | 加注润滑脂 Fill the lubricating grease | 2 | 每班 Each shift | |
| 11 | 蓄电池 Storage battery | 检查液面高度 Check the liquid level | 1 | 每班 Each shift | |
| 12 | 液压转向油箱 Hydraulic steering oil tank | 检查液面高度 Check the liquid level | 1 | 每班 Each shift | 必要时 If necessary |
| 13 | 散热器 Radiator | 检查液面高度 Check the liquid level | 1 | 每班 Each shift | |
| 14 | 提升器 Lifter | 检查液面高度 Check the liquid level | 11 | 每班 Each shift | 需要时加注 Filling if necessary |
| 15 | 变速箱-后桥 Transmission - rear axle | 检查液面高度 Check the liquid level | 1 | 每工作 125h Every 125 working hours | 需要时加注 Filling if necessary |
| 16 | 风扇 V 型带 Fan V-belt | 检查涨紧度 Check the tensity | 1 | 每工作 125h Every 125 working hours | |

拖拉机的维护保养
Maintenance of the Tractor

| | | | | | |
|----|--|---|---|--|-------------------------------|
| 17 | 旋转式机油滤清器 Rotary engine oil filter | 更换滤清器 Replace the filter | 1 | 每工作 125h Every 125 working hours | |
| 18 | 发动机油底壳 Engine oil pan | 更换润滑油 Replace the lubricating oil | 1 | 每工作 125h Every 125 working hours | |
| 19 | 柴油滤清器 Diesel filter | 更换滤芯 Replace the filter core | 1 | 每工作 125h Every 125 working hours | |
| 20 | 油浴式空气滤清器 Oil-bath air cleaner | 保养并清洗 Maintain and clean it | 1 | 每工作 125h Every 125 working hours | |
| 21 | 提升器机油滤清器 Lifter engine oil filter | 清洗或更换滤芯 Clean or replace the filter core | 1 | 每工作 125h Every 125 working hours | |
| 22 | 前驱动桥末端传动 Final drive of the front drive axle | 检查液面高度 Check the liquid level | 2 | 每工作 500h Every 500 working hours | 需要时加注 Filling if necessary |
| 23 | 四轮驱动主销油杯 Oil cup of the four-wheel-drive master pin | 加注润滑脂 Fill the lubricating grease | 2 | 每工作 500h Every 500 working hours | |
| 24 | 前驱动桥中央传动 Front drive axle central drive | 检查液面高度 Check the liquid level | 2 | 每工作 500h Every 500 working hours | |
| 25 | 液压转向油箱 Hydraulic steering oil tank | 更换液压油 Replace the hydraulic oil | 1 | 每工作 500h Every 500 working hours | |
| 26 | 提升器 Lifter | 更换液压油 Replace the hydraulic oil | 1 | 每工作 500h Every 500 working hours | |
| 27 | 变速箱-后桥 Transmission - rear axle | 更换润滑油 Replace the lubricating oil | 1 | 每工作 500h Every 500 working hours | |
| 28 | 燃油箱 Fuel tank | 保养并清洗 Maintain and clean it | 1 | 每工作 1000h Every 1,000 working hours | |
| 29 | 前驱动桥末端传动 Final drive of the front drive axle | 更换润滑油 Replace the lubricating oil | 2 | 每工作 1000h Every 1,000 working hours | |
| 30 | 前驱动桥中央传动 Central drive of the front drive axle | 更换润滑油 Replace the lubricating oil | 1 | 每工作 1000h Every 1,000 working hours | |
| 31 | 散热器 Radiator | 保养并清洗 Maintain and clean it | 1 | 每工作 1000h Every 1,000 working hours | |

6.2 技术维护保养操作 Technical Maintenance Operation

6.2.1 拖拉机的维护保养 Tractor Maintenance

沭河 SH70 系列拖拉机的维护保养部位、操作内容、保养周期见表 5-1

The maintenance part, operation content, and maintenance period of Shuhe SH70 series tractor are shown in the Table 5-1

6.2.2 免维护保养操作 Maintenance-free Operation

6.2.2.1 免维护蓄电池的维护 Maintenance of the Maintenance-free Storage Battery

- 蓄电池的状态检查
Storage battery state checking

免维护蓄电池平时不需要特殊维护。观察液体比重计观察孔显示：绿色：电池电量充足；黑色：白色：电池基本无电（图 5-1）。

The maintenance-free storage battery is in no need of special maintenance at ordinary times. If the observation port of the specific gravity hydrometer displays green, it means the storage battery power is enough; if it displays black and white, it means the storage battery runs out (Figure 5-1).



- 蓄电池观察孔出现黑色显示时需进行补充充电；观察孔出现白色显示时，需要更换蓄电池。
When the storage battery observation port displays black, it means charging is required; when the observation port displays white, it means the storage battery shall be replaced.

- 蓄电池的维护保养
Maintenance of the storage battery

- 蓄电池应贮存在清洁、干燥、通风的库房内，温度在(0~40)℃（摄氏度）之间。搬运时应轻放，防止碰撞，切勿倒置；1

The storage battery shall be stored in the clean, dry and ventilated storeroom with a temperature of (0~40) °C (centigrade). During handling, it shall be gently treated to avoid knock, and it is forbidden to place it upside down; 1

- 蓄电池端子与电源接头应连接牢固，以防起动时熔化腐蚀，应在图 6-1 接线端子外涂凡士林；

The storage battery terminal shall be firmly connected with the power connector, so as to avoid melting corrosion upon starting; the wiring terminal shown in the Figure 6-1 shall be coated with the vaseline;

- 保护蓄电池外部端子清洁； 1、液体比重计观察孔

The external terminal of the storage battery shall be kept clean; 1. Observation port of the specific gravity hydrometer

- 定期检查发电机输出电压是否符合标准，电压为(14. 2±0. 25)V（伏）。

Periodically check if the generator output voltage is up to the standard, the voltage is (14.2±0.25) V volts).



注意：

CAUTION:

1. 充电时，保证室内空气畅通，远离明火，不可将电解液溅到人体或衣物上，以免造成意外伤害危险；
1. Upon charging, it shall be ensured that the indoor air is ventilated and it is kept away from open fire; it is forbidden to splash the electrolyte onto the human body and clothes, so as to avoid

accidental injury;

2. 充电过程中电解液温度不得高于 45℃（摄氏度），如到此温度，为防止意外危险发生，应将充电电流减半或停止充电以达到降温的目的，但须相应延长充电时间；
During charging, the electrolyte temperature shall not be higher than 45℃ (centigrades); if such temperature is reached, to prevent accidental injury, the charging current shall be reduced by half or charging shall be stopped for temperature reduction; however, the charging time shall be extended correspondingly;
3. 充电结束时应首先断开电源，方可使电源与极柱断开，以防擦火引起火灾或爆炸。
After charging, the power supply shall be disconnected firstly to disconnect the power supply from the pole, so as to avoid fire or explosion.

6.2.2.2 液压转向油箱的检查和维护

Checking and Maintenance of the Hydraulic Steering Oil Tank

液压转向油箱放置于发动机机罩内的右侧。打开油箱盖（带油尺）观察油尺上是否有油痕，如无油痕，说明转向油箱内油量不足，应检查找出漏油原因，然后补充加油至油尺的中间刻线，再装回原位。检查时应系统查验液压转向油缸、油管及接头各处均不得漏油，否则易造成转向不灵，油箱内滤网应定期清洗或更换。

The hydraulic steering oil tank is placed at the right side in the engine hood. Open the oil tank cap (with the oil dipstick) to observe the oil dipstick for the oil mark; if no, it means that the steering oil tank has insufficient oil. The oil leakage cause shall be found out; after that, oil shall be filled to the middle scale on the oil dipstick, and then mount it. Upon checking, the hydraulic steering oil cylinder, oil pipe, and connector shall be systematically checked, which shall have no oil leakage; or else, the steering will become inflexible. The filter screen in the oil tank shall be periodically cleaned or replaced.

在检查油面时，应同时检查油箱盖上面中心位置的通气阀（如铆钉状）起落是否灵活，如有油污影响起落应清洗干净。

When checking the oil level, the upper central vent valve (a rivet type) of the oil tank cap shall be simultaneously checked for flexible movement; the oil stain affecting its movement shall be cleaned.

6.2.2.3 油浴式空气滤清器的保养

Maintenance of the Oil-bath Air Cleaner

打开滤清器下部搭钩，将底部油盆拆下，倒掉脏油，并用煤油或柴油清洗干净，同时清洗滤芯，再加入新的机油至油面高度，然后重新安装好。

Open the lower hook of the cleaner; remove the bottom oil basin to drain out the dirty oil; after that, clean it with the kerosene or diesel and clean the filter core; afterwards, fill in the new engine oil to the oil level, and remount the cleaner.

6.2.2.4 干式空滤器的使用与保养

Use and Maintenance of the Dry Air Cleaner

- 干式滤清器使用说明
Use instruction of the dry air cleaner

在工作环境灰尘较多的情况下，每 10h（小时）或每班次需对主滤芯进行保养；

When the working environment is too dirty, the primary filter core shall be maintained every 10 h (hours) or by each shift;

当主滤芯上的尘土经保养后无法清除干净或主滤芯有破损时，应更换滤芯。

When the primary filter core can't be cleaned after the maintenance or the primary filter core is damaged, the filter core shall be replaced.

拖拉机的维护保养 Maintenance of the Tractor

● 干式滤清器保养方法

Maintenance method of the dry air cleaner

取出滤芯，用毛刷对空滤器内壳进行清扫，并排出橡胶除尘袋中的尘土；

Take out the filter core; clean the air cleaner housing with the brush, and clean the rubber dust bag;

一面转动滤芯，一面用小于 500kPa（千帕）的压缩空气从滤芯内部向外吹尽尘土；

When rotating the filter core, simultaneously clean the inside of the filter core with the compressed air smaller than 500 kPa (kilopascals);

重新装配滤芯。

Re-assemble the filter core.

重要事项：禁止用油水冲洗滤芯。空气滤清器的正确使用保养直接关系到发动机的使用寿命，因而必须始终保持其清洁。在农田作业时，每班作业都要检查清洗换油。拖拉机在配套收割机时，加高一级滤清器的位置使用效果更好。

IMPORTANT: It is forbidden to clean the filter core with the oily water. The correct use and maintenance of the air cleaner will directly affect the engine's service life; accordingly, it shall be kept clean always. During the farmland work, the oil shall be checked and cleaned by each shift. When the tractor is equipped with the harvesting machine, the filter shall be lifted higher for good service effect.

6.2.2.5 风扇胶带张紧度的调整

Adjustment of the Fan Belt Tensity

用大拇指下压风扇胶带中间部位，施加的力为(29.4~49.0)N（牛顿），其下压距离为(15±3)mm（毫米）。如不符合此要求，应进行调整，其方法如下：

Press down the middle of the fan belt with the thumb with force of (29.4~49.0) N (newtons) and the pressing distance of (15±3) mm (millimeters). If it is not up to the requirements, adjustment shall be done, and the method is as follows:

松开发电机调节支架上的固定螺母，向外侧扳动发电机，使胶带张紧，再拧紧发电机支架上的固定螺母。

Loosen the fixing nut on the adjusting bracket of the generator; pull the generator outside to tension the belt, and then screw down the fixing nut on the generator bracket.

6.2.2.6 发动机油底壳油量的检查及换油

Oil Quantity Checking and Replacement of the Engine Oil Pan

拔出位于发动机油底壳左前方的油尺，检查油面高度是否在上下刻线之间。若油面达不到下刻线，则应取下发动机正时齿轮室盖上的加油口盖进行加油。

Pull out the oil dipstick left front to the engine oil pan, and check if the oil level is between the upper and lower scales. If the oil level doesn't reach the lower scale, take down the oil filler cover on the engine timing gear chamber cover for oil filling.

换油时，应拧下油底壳下部的放油螺塞，放尽脏油并清洗干净，然后重新加注新油。

Upon oil replacement, loosen the lower drain plug of the oil pan; drain out the dirty oil completely and clean it, and then refill the new oil.

6.2.2.7 前桥的保养

Maintenance of the Front Axle

按维护保养要求对主销套管、前桥中央摆销套管、转向油缸两端球形接头及横拉杆球头处加注润滑脂，检

拖拉机的维护保养 Maintenance of the Tractor

查横拉杆球销螺母及油缸两端销钉螺母是否松动。

Based on the maintenance requirements, fill the lubricating grease to the master pin sleeve, central oscillating pin sleeve of the front axle, both ball joints of the steering oil cylinder, and tie rod ball joint, and check the tie rod ball pin nut and the both dowels and nuts of the oil cylinder for looseness.

6.2.2.8 滤清器的保养

Maintenance of the Filter

提升器机油滤清器位于发动机右侧下方。保养按技术要求进行。方法如下：旋开机油滤清器后端盖，取出网式滤芯，用汽油清洗干净并用压缩空气吹净。当滤芯难以清洗干净或损坏时，应更换滤芯。

The lifter engine oil filter is located at the lower right part of the engine, and the maintenance shall be done in accordance with the technical requirements. The method is as follows: Loosen the rear cover of the engine oil filter; take out the screen filter core, and clean it with gasoline and wipe it off with the compressed air. When it is hard to clean the filter core or the filter core is damaged, replace it.

6.2.2.9 传动系的保养

Maintenance of the Transmission System

检查油面时，要将拖拉机停放在水平地面上，将发动机熄火，将位于提升器前部、后桥壳体上方的油尺拧出，擦拭干净，然后插入油尺，如果油面低于油尺的下刻线，应补加传动油至油尺上下刻线之间[应在加机油 5min（分钟）后测量]。更换润滑油时，卸掉位于传动箱底部的放油螺塞，放尽脏油，并用柴油清洗，然后把放油螺塞拧紧，加注新机油。

When checking the oil level, park the tractor on the level ground and stop the engine. Take out the oil dipstick at the front of the lifter and the upper part of the rear axle housing; wipe it off and insert the oil dipstick. If the oil level is lower than the lower scale of the oil dipstick, fill the transmission oil to the level between the upper and lower scales of the oil dipstick [measurement shall be done within 5 min (minutes) after filling the engine oil]. When replacing the lubricating oil, remove the drain plug at the bottom of the transmission case; drain out the dirty oil; clean it with the diesel, and then screw down the drain plug and fill the new engine oil.

6.2.2.10 提升器的保养

Maintenance of the Lifter

将拖拉机停放在水平地面上，将提升臂下降至最低位置，发动机熄火，拧大提升器上盖上的油尺，检查油面高度，如果低于下刻线应补充加油至上下刻线之间。更换液压油时应将螺塞卸掉放尽脏油，然后，按要求加注新机油。

Park the tractor on the level ground; descend the lifting arm to the lowest position; stop the engine, and screw down the oil dipstick on the upper cover of the lifter to check the oil level. If the oil level is lower than the lower scale, fill oil to the level between the upper and lower scales. When replacing the hydraulic oil, remove the screw plug and drain out the dirty oil; after that, fill the new engine oil as required.

6.2.2.11 燃油箱的保养

Maintenance of the Fuel Tank

将拖拉机停放在水平地面上，发动机熄火，卸掉燃油箱下面的放油螺塞，放出油箱底部的沉积物。油箱具有贮存油料、沉淀水分和杂质的作用，使用中应定期进行清洗，清除污物。

Park the tractor on the level ground; stop the engine, and remove the lower drain plug of the fuel tank to drain out deposits at the bottom of the oil tank. The oil tank can be used for oil storage and water content and impurity deposit; it shall be periodically cleaned to remove the dirt.

6.2.2.12 发动机冷却系统的保养 Maintenance of the Engine Cooling System

发动机用冷却液可以是煮沸的自来水，也可以是防冻液。防冻液的有效期为 2 年或 1600h（小时）超过此期更换并冲洗冷却系统，然后再加入新的防冻液。

The engine coolant can be boiled running water and the antifreeze solution. The antifreeze solution can be used for 2 years or 1,600 h (hours), which shall be replaced and the cooling system shall be cleaned after such period, and then fill the new antifreeze solution.

冷却系统水垢的清洗：在保养前一班，以每 10L（升）水中加 7509（克）苛性钠和 1509（克）煤油的溶液加满冷却系统。发动机以中速运转(5~10) min（分钟），将溶液停留(10~12)h（小时）（冬季必须保温以防冻结），然后重新启动发动机以中速运转 20min（分钟）后，停机放出清洗液。待发动机冷却后把水箱底部的放水阀打开，将水管插入水箱进行冲洗，并定期检验水箱减振块是否老化，若老化应及时更换以免影响水箱使用寿命。清洗后关上放水阀，并加水让发动机运转数分钟后再把水放尽。待发动机冷却后，再按规定添加新的防冻液或冷却水。

Method to clean the cooling system scale deposit: Prior to the maintenance, the shift shall fill the cooling system with the solution containing 7,509 (grams) caustic soda and 1,509 (grams) kerosene/10 L (liters). Run the engine at the intermediate speed for (5~10) min (minutes); remain the solution for (10~12) h (hours) (warm it up in winter to avoid freezing), and then restart the engine and run it at the intermediate speed for 20 min (minutes), and drain out the cleaning solution after stop. After the engine is cooled down, open the bottom drain valve of the water tank, and insert the water pipe into the water tank for cleaning. Periodically inspect the water tank damper block for aging; if yes, timely replace it to avoid affecting the service life of the water tank. After cleaning, close the drain valve; fill water and run the engine for several minutes, and drain out the water completely afterwards. After the engine is cooled down, fill the new antifreeze solution or cooling water as specified.

6.2.2.13 燃油系统的排气 Fuel System Exhaust

如果拖拉机长期停用或在更换柴油滤清器芯，以及油箱放空的情况下，空气都可能进入燃油管路。燃油系统中的空气会使发动机起动困难。应在加满油箱，油路开关处于接通位置时，按以下步骤排除：先松开燃油滤清器放气螺钉，上、下掀动输油泵手压泵拉钮，直至柴油从放气螺钉孔中流出而无气泡为止，再拧紧放气螺钉，然后松开喷油泵放气螺钉，上、下掀动输油泵手压泵拉钮，直到柴油从放气螺钉孔中流出而无气泡为止，再拧紧放气螺钉。

If the tractor is not used for a long time, the diesel filter element is replaced, and the oil tank is emptied, air may enter into the fuel pipeline. And, the air in the fuel system may bring a difficult engine starting. The exhaust shall be done according to the following steps when the oil tank is full and the oil circuit switch is connected: Firstly, loosen the bleed screw of the fuel filter; after that, lift the hand pump draw knob of the oil delivering pump upwards and downwards till the diesel from the bleed screw hole has no bubbles; afterwards, screw down the bleed screw.

6.2.2.14 发电机的保养 Maintenance of the Generator

1. 发电机每使用 1000h（小时）保养一次，保养方法如下：
The generator shall be maintained once every 1,000 working hours, with the method as follows:
2. 经常检查起动电动机的安装螺栓是否牢固，导线绝缘有无损坏，导线联接是否良好、可靠。
Frequently check if the mounting bolt of the starter motor is firm, if the wire insulation is sound, and if the wire connection is good and reliable.
3. 拖拉机每工作 1000h（小时）检查一次换向器和电刷，如果换向器表面烧蚀严重，可用细砂纸磨光。

拖拉机的维护保养 Maintenance of the Tractor

电刷磨损过多或碎裂时应更换。对轴套等活动部位要加注润滑油。

The commutator and electric brush of the tractor shall be checked once every 1,000 hours; if the commutator surface is ablated, it can be polished by the fine sand paper. If the electric brush is worn out or has excessive fractures, it shall be replaced. The shaft sleeve and other moveable parts shall be filled with the lubricating oil.

重要事项:

IMPORTANT:

1. 在冬季, 应根据气温条件经常检查防冻液的浓度, 如不合适就要立即恢复正常浓度。对于未使用防冻液的拖拉机待水温下降至 700C (摄氏度) 以下时, 在发动机怠速运转情况下应把水放尽, 以免冷却水结冰将机体冻裂。

In the winter, the antifreeze solution concentration shall be frequently checked based on the actual temperature; if improper, it shall be recovered to the normal concentration. For the tractor without the antifreeze solution, after the water temperature drops to below 700°C (centigrades), the water shall be completely drained out with an idle engine to avoid fractures due to freezing cooling water.

2. 发动机必须使用符合规格的优质轻柴油, 一般夏季用 0 号轻柴油, 冬季用-10 号轻柴油。柴油必须纯净, 使用前必须经过至少 48h (小时) 沉淀净化。

The engine shall be filled with the high quality light diesel up to the specifications; generally, the 0# light diesel will be applied in the summer and the -10# light diesel will be applied in the winter. The diesel shall be pure, which shall be subject to 48 h (hours) sedimentation and purification at least prior to use.

3. 对 ZHB 型喷油泵应经常检查润滑油面, 润滑油不足时应及时添加到刻线位置, 发动机每工作 200h (小时) 更换 1 次润滑油。喷油泵所用润滑油牌号与柴油发动机所用润滑油牌号相同。

The lubricating oil level of the type ZHB fuel injection pump shall be frequently checked; if insufficient, it shall be timely filled until reaching the scale. The lubricating oil shall be replaced once every 200 working hours of the engine. The grade of the lubricating oil for the fuel injection pump is the same as that of the lubricating oil for the diesel engine.

重要事项:

IMPORTANT:

1. 起动前, 首先检查散热器中冷却水是否已经加满, 有无漏水。散热器盖是否扣紧。
Prior to starting, firstly check if the radiator is filled with the cooling water, if there is water leakage, and if the radiator cover is fastened.

2. 经常检查散热器芯体部位有无杂草、灰尘、油污等堵塞, 并进行清除。
Frequently check the radiator core for weeds, dust, and oil stain; if yes, clean it.

3. 定期清除冷却系统中的水垢, 以保证换热表面的散热作用。
Periodically clean the scale deposit in the cooling system, so as to guarantee the radiation effect of the heat exchange surface.

4. 按时检查节温器性能是否良好, 否则会影响冷却水的循环, 而降低冷却效果。
Regularly check if the thermostat has good performance; otherwise, the cooling water circulation will be affected and the cooling effect will be reduced.

6.3 拖拉机底盘的调整及保养

Adjustment and Maintenance of the Tractor Chassis

6.3.1 离合器的调整及保养

Adjustment and Maintenance of the Clutch

6.3.1.1 离合器及操纵系统的调整

Adjustment of the Clutch and Control System

a 离合器踏板自由行程的调整

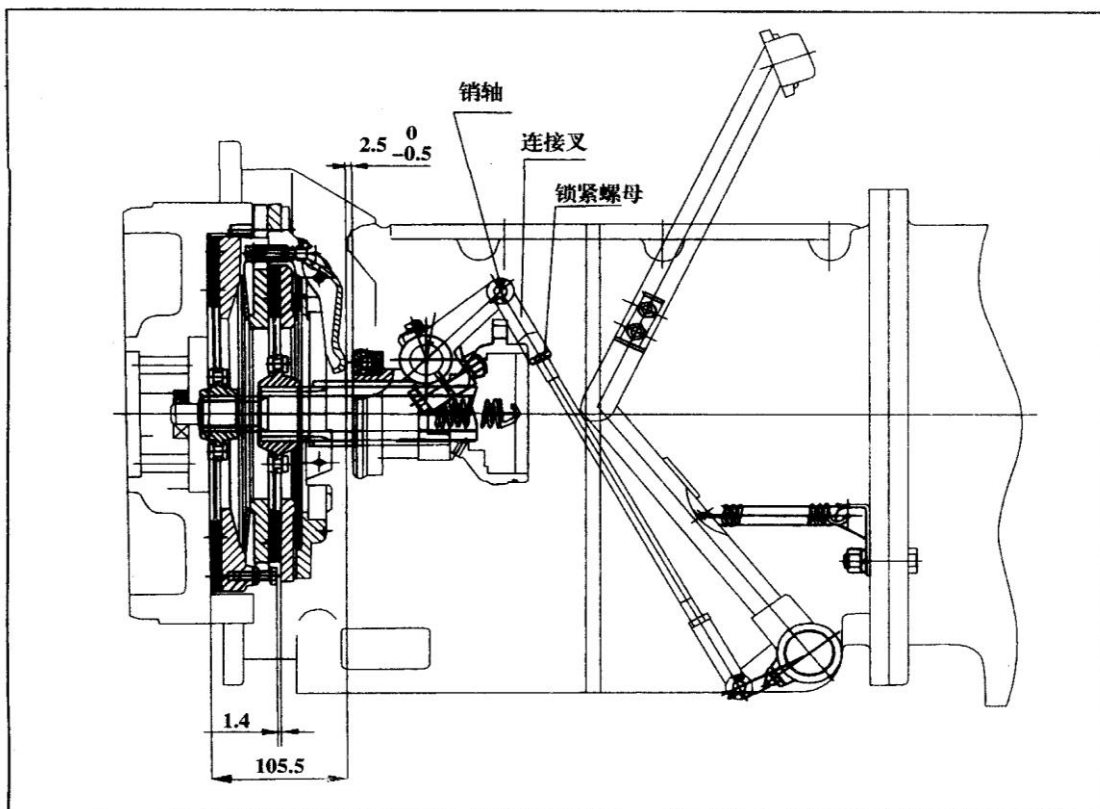
Adjustment of the Clutch Pedal Free Stroke

离合器在使用过程中，由于摩擦片及压盘的磨损，使离合器压盘分离杆头部与分离轴承端面的间隙逐渐减少（正常间隙 2~2.5mm），有时甚至造成离合器压盘分离杆头部与分离轴承端面接触，造成离合器打滑，踏板自由行程消失。在这种情况下，必须对操纵系统进行检查调整。调整方法如下：

During use, due to wears of the friction plate and pressure plate, the clearance between the head of the clutch pressure plate release lever and the release bearing end face will be gradually reduced (with the normal clearance of 2~2.5 mm), sometimes, the head of the clutch pressure plate release lever will contact the release bearing end face; the clutch will slip, and the pedal free stroke will disappear. In such case, the control system shall be checked and adjusted, and the adjustment method is as follows:

拆下销轴，松开锁紧螺母，逆时针方向，旋转连接叉调整离合器踏板自由行程为 40~45mm（相应离合器压盘分离杆头部和分离轴承间隙为 2~2.5mm）然后将螺母拼紧（见图 a）。

Remove the hinge pin; loosen the locking nut anticlockwise; rotate the yoke; adjust the clutch pedal free stroke to 40~45 mm (the clearance between the corresponding head of the clutch pressure plate release lever and the release bearing is 2~2.5 mm), and then lock the nut (see Figure a).



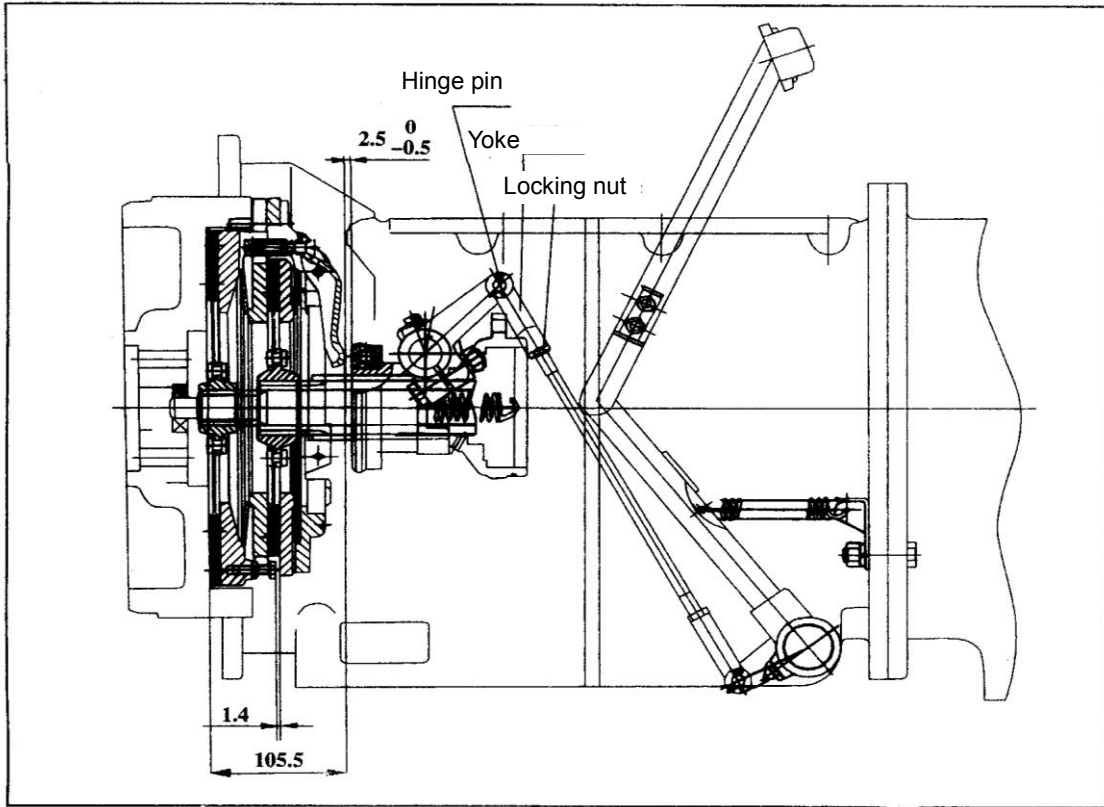


图 a
Figure a

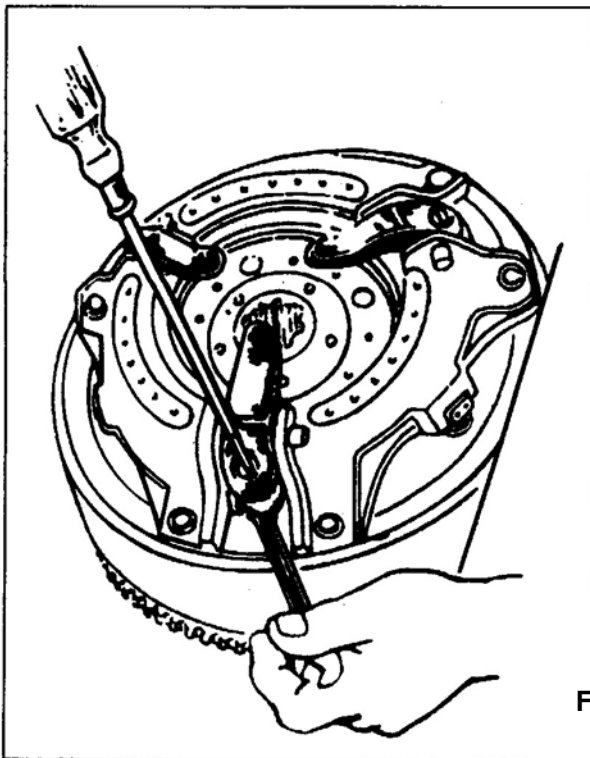
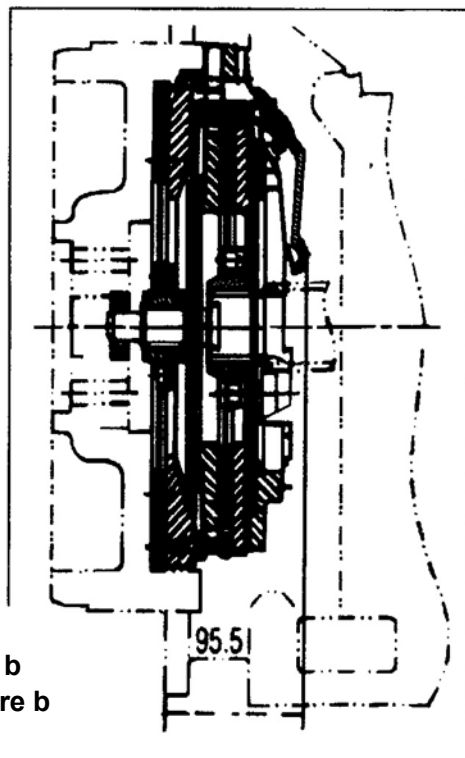


图 b
Figure b



Adjustment of the clutch pressure plate release lever

当上述调整方法达不到 40~45mm 自由行程时,说明分离轴承座后移,以和第一轴承座肩靠住,此时应将发动机的变速箱分开,松开螺母,用螺丝刀转动分离杆调整螺钉,使三个离合器压盘分离杆头部和发动机飞轮壳后端距离为 95.5mm。三个离合器压盘分离杆应在同一面,误差应不大于 0.2mm。调整完毕后,将螺母拼紧。然后将发动机和变速箱合拢,再检查踏板自由行程是否在 40~45mm 的范围内(见图 b)。

When the above adjustment method can't make the free stroke reach 40~45 mm, it means that the release bearing seat moves backwards and leans against the first bearing seat shoulder; in such case, release the engine transmission; loosen the nut, and rotate the adjusting screw of the release lever with the screwdriver to make the distance between the heads of three clutch pressure plate release levers and the rear end of the engine flywheel housing be 95.5 mm. Three clutch pressure plate release levers shall be in the same plane, with the error not larger than 0.2 mm. After adjustment, fasten the nut, and then fold the engine and transmission, and check if the pedal free stroke is within 40~45 mm (see Figure b).

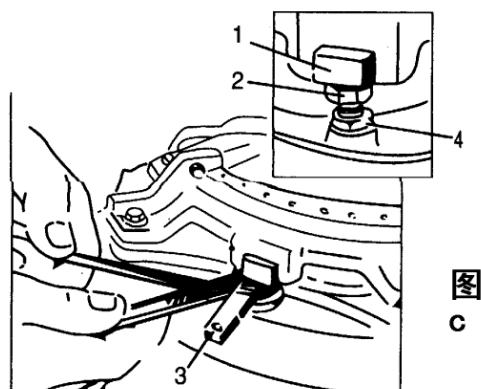


图 c

c 主离合器分离行程的调整

Adjustment of the main clutch release stroke

从主离合器分离到副离合器分离之间应有合适的踏板行程,以免发生副离合器过早分离或不能分离。为了获得合适的行程,应使离合器主压板上三个调整螺钉 2 头端面和副摩擦片压板三个凸耳 1 之间的间隙为 1.4mm。调整时,松开锁紧螺母 4,转动调整螺钉,用塞尺使调整螺钉头端面和副摩擦片压板凸耳之间的间隙为 1.4mm,调整完毕后,将螺母拼紧。(图 c)

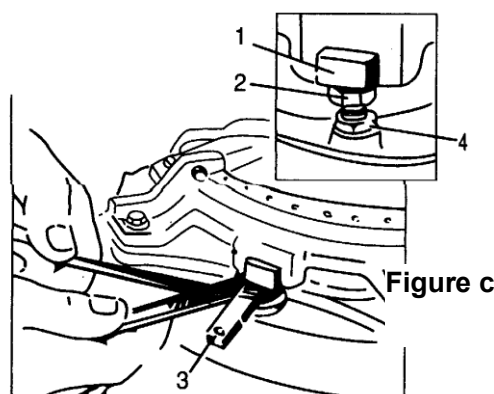


Figure c

There shall be a proper pedal stroke between the main clutch release and the auxiliary clutch release, so as to avoid premature release or release failure of the auxiliary clutch. To get a proper stroke, the clearance between the end faces of three adjusting screws 2 on the main pressure plate of the clutch and three lugs 1 of the pressure plate of the auxiliary friction plate shall be 1.4 mm. During adjustment, loosen the locking nut 4; rotate the adjusting screw, and make the clearance between the end face of the adjusting screw and the pressure plate lug of the auxiliary friction plate be 1.4 mm. After adjustment, lock the nut. (Figure c)

6.3.1.2 离合器的使用保养

Use and Maintenance of the Clutch

a. 应经常检查变速箱底部的开口销孔中是否有油渗出或漏出,若油渗出或漏出时,应及时检查发动机曲轴后油封或变速箱第一轴、功率主动轴油封。

The cotter pin hole at the bottom of the transmission shall be frequently checked for oil seepage or leakage; if yes, the rear oil seal of the engine crankshaft or the primary shaft of the transmission, and the oil seal of the power driving shaft shall be timely checked.

b. 分离轴承 9688213 平时不需加注黄油,若缺油时应将分离轴承清洗干净,然后用专用工具将清洁的黄油注入轴承内。

Generally, the release bearing 9688213 is in no need of grease filling; if the oil is insufficient, the release bearing shall be cleaned, and the clean grease shall be filled in the bearing with special

tools.

- c. 在安装离合器总成时，应将离合器总成装在专用芯轴上，然后插入飞轮轴承孔内，使主、副离合器摩擦片总成的花键孔同心，便于发动机和变速箱的连接安装。

When mounting the clutch assembly, it shall be mounted onto the special spindle; after that, it shall be inserted into the flywheel bearing hole, so as to bring concentric spline holes of the main and auxiliary clutch friction plate assemblies as well as lead to a convenient connection and mounting of the engine and transmission.

- d. 发动机飞轮和副摩擦片衬板之间，副摩擦片衬板和离合器盖之间各有一组月牙形调整垫片，在拖拉机大修时，如发现主副摩擦片磨损较大时可抽去适当数量的调整垫片，以保证碟形弹簧有足够的压力。

There is a group of crescent adjusting shims between the engine flywheel and the auxiliary friction liner, and the auxiliary friction plate liner and the clutch cover respectively; during the tractor overhaul, if it is found out that the main and auxiliary friction plates are worn out, the adjusting shims shall be removed properly, so as to ensure that the disc spring has enough pressure.

6.3.2 变速箱的调整及保养

Adjustment and Maintenance of the Transmission

变速箱具有八个前进档和两个倒退档。在使用过程中，一般不需要调整，但在使用和保养过程中应注意：
The transmission has eight forward gears and two reverse gears. During use, no adjustment is needed; however, during use and maintenance, attention shall be paid to the followings:

变速箱的润滑油与后桥润滑油相通，加油口在提升器壳体上，放油时，应分别拧开变速箱和后桥放油螺栓，并将螺栓塞上吸附的铁屑清洗干净。

The transmission lubricating oil shall be connected with the rear axle lubricating oil; the oil filler is on the lifter housing; upon oil draining, the drain bolts of the transmission and the rear axle shall be loosened, and iron scraps on the bolt plug shall be cleaned.

用油尺检查润滑油液面的高度。

Check the lubricating oil level with the oil dipstick.

6.3.3 后桥的调整及保养

Adjustment and Maintenance of the Rear Axle

后桥由中央传动、差速器、差速锁、最终传动、左右半轴、动力输出轴及操纵机构等构成。

The rear axle is composed of the central drive, differential, differential lock, final drive, left and right half shafts, power-take-off shaft, and control mechanism.

6.3.3.1 中央传动弧齿锥齿轮的调整

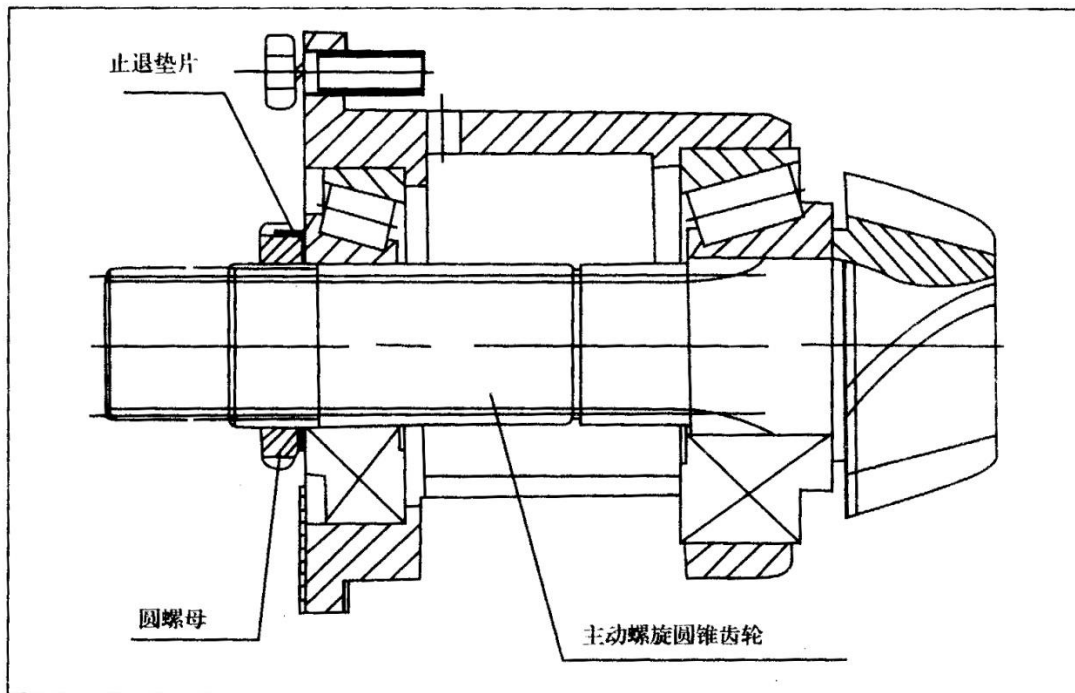
Adjustment of the Central Drive Spiral Bevel Gear

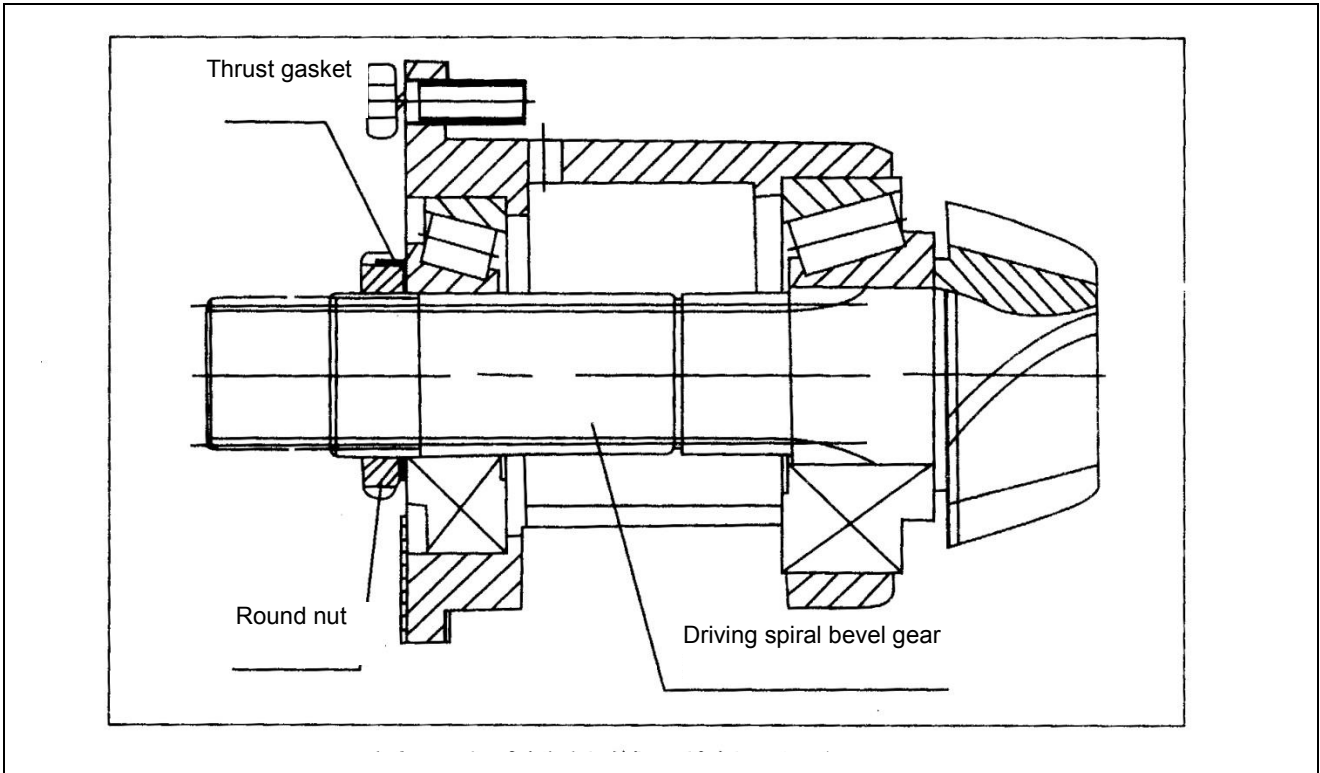
a) 主动弧锥齿轮轴承 30309、32310 间隙调整。

Clearance adjustment of the driving spiral bevel gear bearing 30309 and 32310.

当轴承 30309、32310 有轴向间隙时，可松开止推垫片，拧紧圆螺母，直至单独转动主动弧锥齿轮时产生 0.75-1.50N·m 的预紧力矩，然后将止推垫片预紧（如下图）

When the bearing 30309 and 32310 has axial clearance, the thrust gasket can be loosened and the round nut shall be screwed down till the pretightening torque of 0.75-1.50 N·m can be produced when separately rotating the driving spiral bevel gear; after that, pre-tighten the thrust gasket (see the following figure)

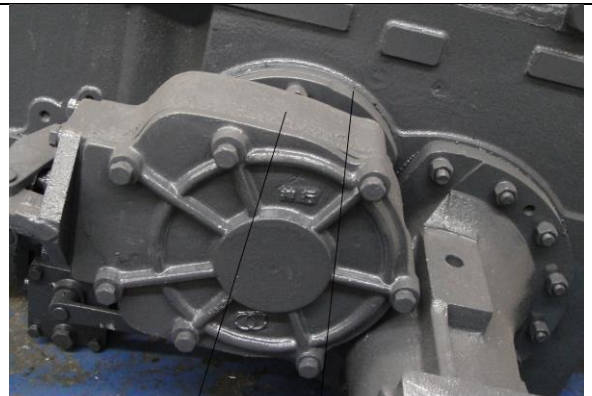




b) 差速器总成轴承 30215 的间隙调整 (见右图)
Clearance adjustment of the differential assembly bearing 30215 (see the right-side figure)

当差速器总成轴承 30215 有轴向间隙时, 应同时抽掉左右短半轴轴承座 1 相等厚度的垫片 2, 然后将固定左右短半轴轴承座的螺栓拧紧。用手扳动从动弧齿锥齿轮 (拆除主动弧齿圆锥齿轮及两侧最终减速大齿轮以稍用力转动为宜)。

When the differential assembly bearing 30215 has the axial clearance, simultaneously remove the gaskets 2 with the same thickness of the left and right short half shaft bearing seats 1; after that, screw down the bolt to fix the left and right short half shaft bearing seats. Pull the driven spiral bevel gear (remove the driving spiral bevel gear and both final reduction gear wheels) by hands; it is recommended to rotate it slightly.



1 2

1-短半轴轴承座 2-垫片
1-Short half shaft bearing seat 2-Gasket

c) 差速器轴承 30215 的预紧和调整
Pretightening and adjustment of the differential bearing 30215

- 1) 将差速器总成放入后桥壳体中, 在轴承和齿面上图上润滑油, 然后在左右短半轴总成内压入轴承 (NJ311E) 外圈到位, 并将该两总成 (都不带调整垫片) 装入箱体孔中, 支托起差速器总成。先拧紧左边的两个沉头螺钉, 并将 5 个专用 M12×25 螺钉以 60N·m 力矩拧紧。
Place the differential assembly into the rear axle housing; coat the bearing and tooth surface with the lubricating oil, and then press the outer ring of the bearing (NJ311E) into the left and right short

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half shaft assemblies, and mount these two assemblies (without the adjusting shim) into the box hole, and finally support the differential assembly. Firstly, screw down two left sunk screws, and then tighten the 5 special M12×25 screws with the torque of 60 N·m.

- 2) 在右半轴总成均匀拧入 5 个专用螺钉 M12×25,使差速器上产生摩擦阻力矩 (含主动锥齿轮的阻力矩) 5.5-8N·m, 亦可将细绳索缠在差速器壳上, 用弹簧秤测得拉力为 70-100N。
Uniformly screw down 5 special screws M12×25 on the right half shaft assembly, so as to make the friction resistance torque (including the resistance torque of the driving bevel gear) on the differential reach 5.5-8 N·m; in addition, the thin rope can also be twisted on the differential housing, and the tension measured by the spring balance shall be 70-100 N.

d) 齿侧间隙的测量 Backlash measurement

中央传动齿轮副的啮合法向间隙为 0.2-0.47mm, 其中测量方法有两种: 第一种方法, 将千分尺表触头置于从动弧齿锥齿轮大端齿面上 (触头运动方向应与齿面垂直), 固定住主动弧齿锥齿轮, 按旋转方向摇动从动弧齿锥齿轮, 此时千分表的读数即为啮合间隙。另一种方法是用长 15-20mm 厚 0.5mm 的铅片放在拖拉机前进受力面之间 (主动弧齿锥齿轮的凹面, 从动弧齿锥齿轮的凸面) 转动齿轮, 则铅片在靠大端处被挤压后的厚度即为该处的啮合法向间隙。无论采用何种方法检查, 起测量点数应不少于三点, 且应均匀分布在齿轮圆周上。

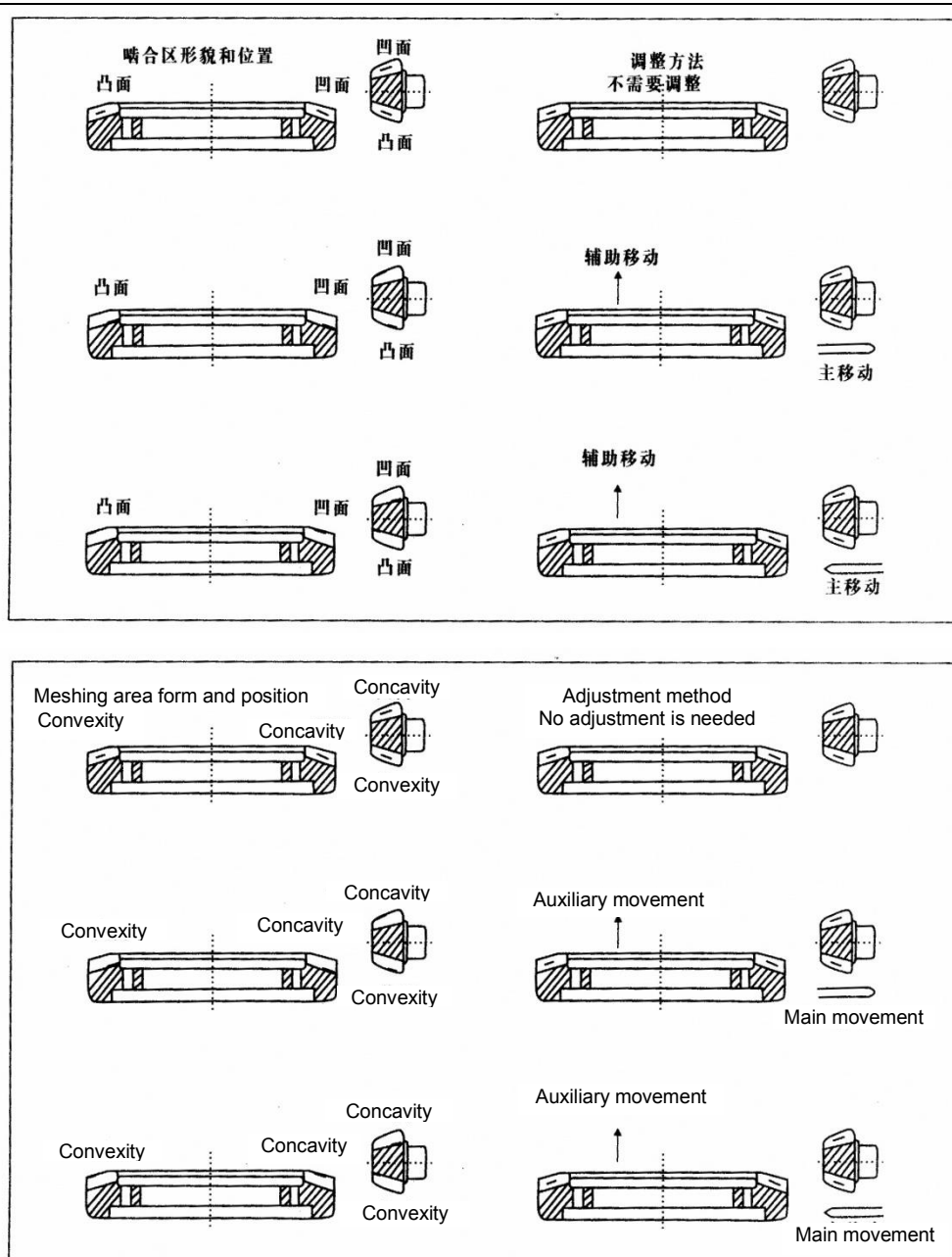
The normal meshing clearance of the central drive gear pair is 0.2-0.47 mm, and there are two measurement methods: The first method is to place the micrometer contact at the big-end tooth surface of the driven spiral bevel gear (the contact movement direction shall be vertical to the tooth surface); after that, fix the driving spiral bevel gear, and shake the driven spiral gear along the rotation direction; in such case, the micrometer reading is the meshing clearance; another method is to place the lead sheet with a length of 15-20 mm and thickness of 0.5 mm between the forward driving surfaces (concavity of the driving spiral bevel gear and the convexity of the driven spiral bevel gear) of the tractor to rotate gear, and the thickness of the squeezed lead sheet at the big end is the corresponding normal meshing clearance. No matter which method is applied, the minimum number of the measurement points shall not be smaller than three, and such points shall be uniformly distributed on the gear circumference.

e) 啮合区的检查和调整 Checking and adjustment of the meshing area

在从动弧齿锥齿轮轮齿两面上涂上一层薄而均匀的红铅油, 整个齿轮等分 4 处, 每一处 3-4 牙, 正反转动齿轮数圈, 这时粘贴在主动弧齿锥齿轮上的印痕即为啮合印痕。轮齿两齿面齿长方向接触区均应不少于 45% 齿长, 齿高方向接触区应不小于 50% 齿高, 但距端边不得于 5mm。调整方法见下图

Coat a thin layer of red lead oil on two tooth surfaces of the driven spiral bevel gear uniformly, and the whole gear is distributed into four parts, with 3-4 teeth for each. Rotate the gear forwards and reversely for several circles; in such case, the mark on the driving spiral bevel gear is the meshing mark. The contact area along the tooth length direction shall not be shorter than 45% tooth length, and the contact area along the tooth height direction shall not be shorter than 50% tooth height; however, the distance between the edge shall not be smaller than 5 mm. The adjustment method is shown in the following figure

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f) 齿侧间隙的调整 Backlash adjustment

调整齿侧间隙，是增减被动弧齿锥齿轮轴承座调整垫片来实现，最终使侧隙在 0.2-0.4mm。
The backlash adjustment can be hit by adding or reducing the adjusting shim of the driven spiral bevel gear bearing seat, and the final backlash shall be 0.2-0.4 mm.

6.3.3.2 后桥的使用和保养 Use and Maintenance of the Rear Axle

- a) 中央传动主动，从动弧齿锥齿轮副必须成对调换使用。
The driving and driven spiral bevel gear pairs of the central drive shall be exchanged in pairs.
- b) 使用差速锁时，拖拉机要保持直线行驶状态，不能转动方向盘，否则会引起机件的损坏。
When using the differential lock, the tractor shall be kept in a straight driving state and the steering wheel can't be rotated; or else, the parts will be damaged.

- c) 拖拉机倒车时，动力输出轴操纵手柄应放在空档位置，以避免引起农具损坏，或者发生意外的事故。
When reversing the tractor, the power-take-off shaft control handle shall be turned to the neutral position, so as to avoid damaging the agricultural tool or leading to the accident.

6.3.4 制动器的调整及保养 Adjustment and Maintenance of the Brake

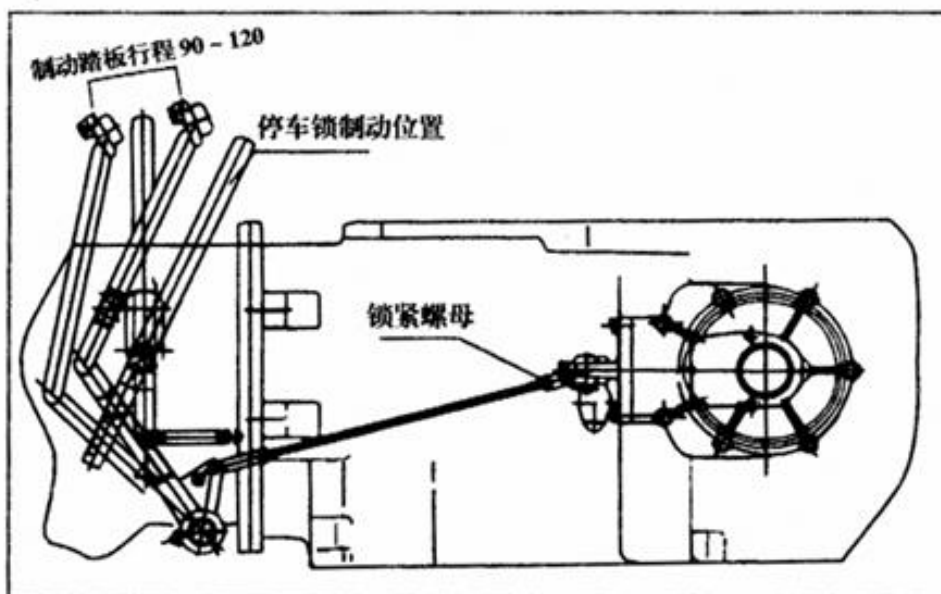
拖拉机上两只盘式制动器，对称安装在后桥壳两侧左右短半轴上，并和制动器操纵机构相连接。
The tractor has two disc brakes, which are symmetrically mounted on left and right short half shafts at both sides of the rear axle housing and connected with the brake control mechanism.

6.3.4.1 制动器及操纵机构的调整 Adjustment of the Brake and Control Mechanism

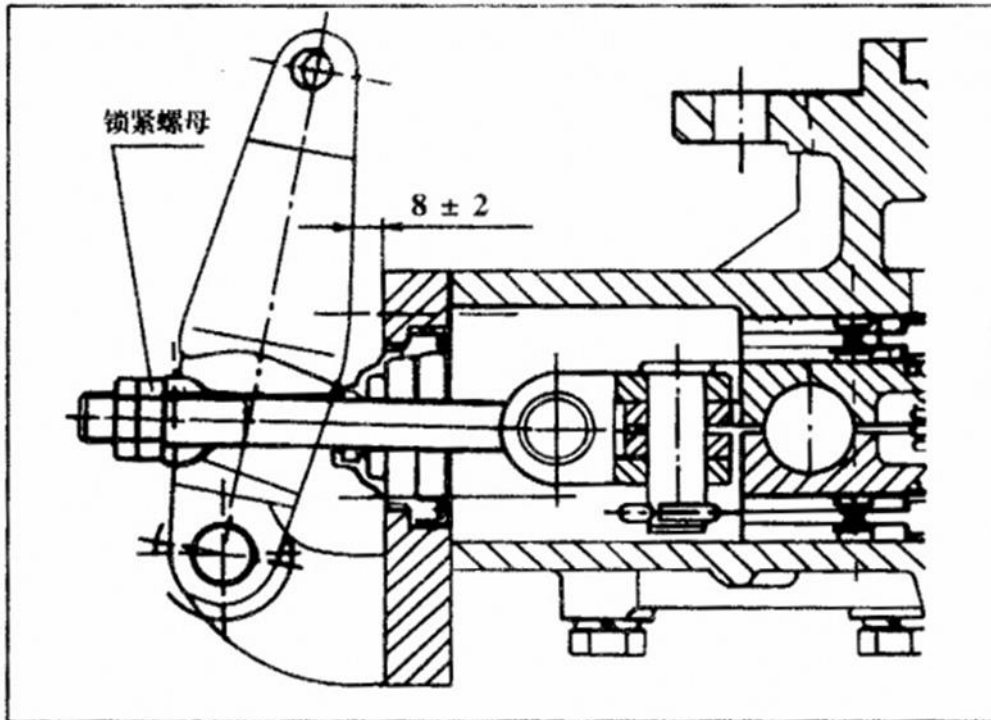
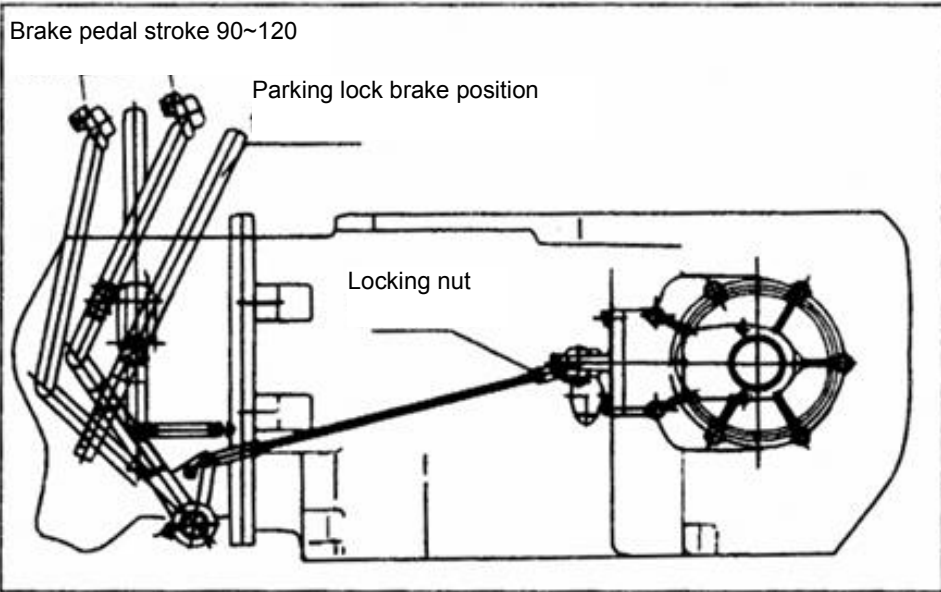
a. 制动踏板自由行程的调整 Adjustment of the brake pedal free stroke

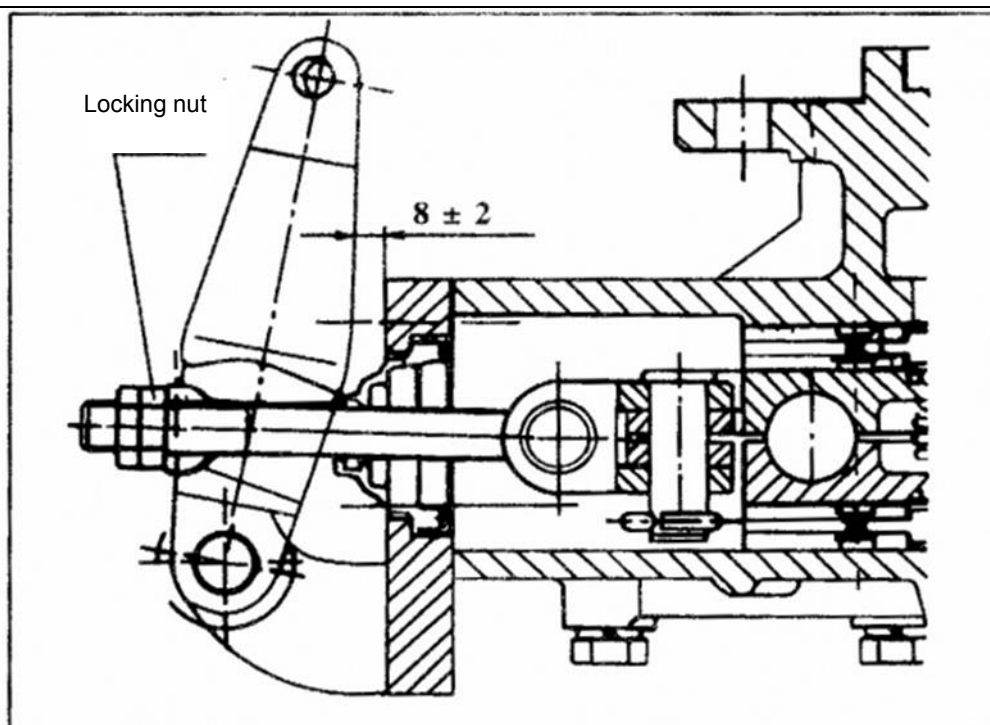
制动摩擦片总成和制动压盘在非制动状态时，相对表面总间隙在 1~1.4mm 之间，相应制动踏板自由行程为 90~120mm。当制动摩擦片磨损后，制动踏板的自由行程就会增大，制动效果不良。此时必须对制动踏板的自由行程进行调整。调整方法如下：松开制动盘拉杆上的锁紧螺母，然后顺时针方向转动螺母，则制动踏板行程减少，反之增大。调整时应使左右踏板自由行程一致，且保证制动摇臂支座间的间隙为 $8\pm 2\text{mm}$ ，调好后应将螺母拧紧（见下图）。

In non-brake conditions, the total relative surface clearance of the brake friction plate assembly and the brake pressure plate is between 1~1.4 mm, and the corresponding brake pedal free stroke is 90~120 mm. After the brake friction plate is worn, the brake pedal free stroke will be increased and the brake effect will become poor. In such case, the brake pedal free stroke shall be adjusted. The adjustment method is as follows: Loosen the locking nut on the brake disc pull rod; after that, clockwise rotate the nut; in such case, the brake pedal stroke will be reduced; otherwise, it will be increased. During adjustment, the free stroke of left and right pedals shall be consistent, and the clearance between the brake rocker arm supports shall be $8\pm 2\text{ mm}$; after adjustment, the nut shall be screwed down (see the following figure).



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- b) 左、右制动器摩擦片间总间隙的调整，当左、右制动器摩擦片间总间隙不相同且相差过大时上述调整可能达不到要求，此时可以增减制动器盖调整垫片，待总间隙调整好以后在进行上述调整。

Adjustment of the total clearance between friction plates of left and right brakes: When the total clearance between friction plates of left and right brakes is largely different, the above adjustment may not reach the requirements; in such case, the adjusting shim of the brake cover can be added or reduced, and the above adjustment can be made after the total clearance adjustment is done.

- c) 左、右制动器制动效果要保持一致，一般在水泥路面上紧急制动时看轮胎拖印的长度，调整方法是调整制动盘拉杆上两锁紧螺母的位置，然后将该两螺母拧紧。

The brake effect of left and right brakes shall be kept consistent, which can be checked by observing the tyre dragging length on the cement pavement in the emergency brake. The adjustment method is to adjust positions of two locking nuts on the brake disc pull rod; after that, screw down these two nuts.

6.4.2 制动器的使用及保养

Use and Maintenance of the Brake

- a) 当发现制动摩擦片表面有油污时，应用汽油洗净晾干后，再装车使用。
When it is found out that the brake friction plate surface has oil stain, it shall be used after being cleaned by gasoline and dried.

- b) 经常检查制动器壳和上盖的油封的密封性，如有失效应及时更换。
Frequently check the sealability of the oil seal of the brake housing and upper cover; if failed, they shall be timely replaced.



注意：拖拉机左右踏板的自由行程必须调整一致，否则在紧急制动时，拖拉机将会向一边急偏转，造成事故。

CAUTION: The free stroke of the tractor's left and right pedals shall be consistent; or else, in the emergency brake, the tractor will deflect to one side and cause the accident.

6.3.5 转向系的调整及保养 Adjustment and Maintenance of the Steering System

6.3.5.1 全液压转向 Full Hydraulic Steering

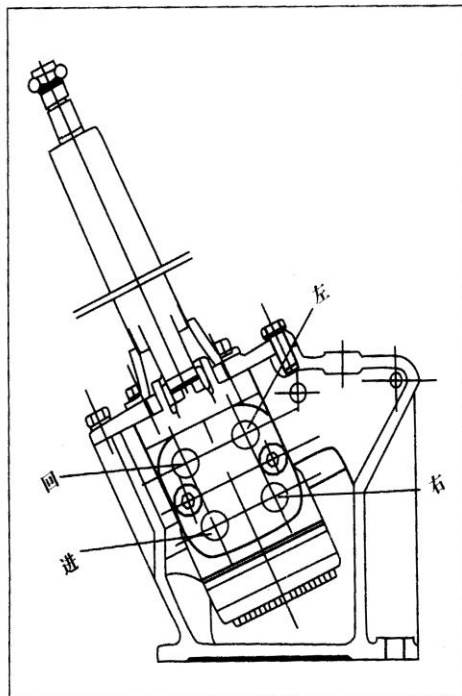
沭河 SH70 系列轮式拖拉机采用分置式全液压转向，由摆线转阀式全液压转向器、转向油缸、油箱、横拉杆、恒流溢流泵及油管等组成，转向油缸安装在前桥右侧。有油管接头见下图左部分，液压转向原理见下图右部分。在使用时通常不需要作调整，但在使用保养时要做到以下几点：

Shuhe SH70 series wheeled tractor is applied with the split type full hydraulic steering, which is composed of the cycloid full hydraulic steering gear with rotary valve, steering oil cylinder, oil tank, tie rod, overflow pump with constant flow, and oil pipe, and the steering oil cylinder is mounted on the right side of the front axle. The oil pipe connector is shown in the left part of the following figure, and the hydraulic steering principle is shown in the right part of the following figure. During use, no adjustment is needed; however, attention shall be paid to the followings during use and maintenance:

- a. 检查转向油箱中的油面（重新添加时应使转向油缸和管路充满油液），不足时应及时添加。
Check the oil level of the steering oil tank (upon refilling, the steering oil cylinder and the pipeline shall be filled with oil); if insufficient, oil shall be timely filled.

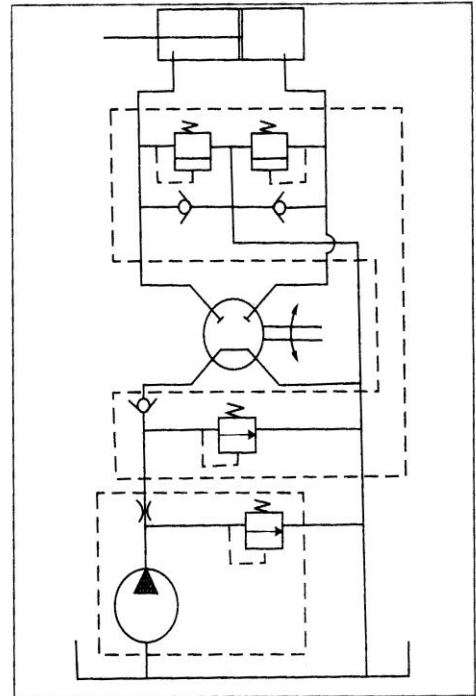
- b. 恒流溢流泵、油箱、转向油缸及转向器的进出油口和油管各接头连接处应拧紧，防止渗油，若有渗油现象，应及时检查垫片或密封圈是否损坏，若有损坏应及时更换。
The oil inlets and outlets of the overflow pump with constant flow, oil tank, steering oil cylinder, and steering gear as well as the oil pipe connectors shall be screwed down, so as to prevent oil seepage. If yes, the gasket or seal ring shall be timely checked for damages; if yes, timely replace them.

- c. 经常检查转向油缸活塞杆处是否渗油，发现渗油应及时检查油封是否失效，若有失效应及时更换。
Frequently check the steering oil cylinder piston rod for oil seepage; if yes, the oil seal shall be timely checked for normal use; if failed, it shall be timely replaced.



- d. 转向横拉杆球销和转向油缸两端的插销是否松动，一经发现应及时更换损坏零件。

Check the steering tie rod ball stud and the cross pins at both ends of the steering oil cylinder for looseness; if yes, the damaged spare parts shall be timely replaced.



6.3.6 前轴（桥）的调整和保养 Adjustment and Maintenance of the Front Shaft (Axle)

前轴用来安装前轮，又是拖拉机的前支撑，它通过前轮承受拖拉机前部的质量。

The front shaft is used to mount the front wheel, which can also be used as the front support of the tractor and bear the front mass of the tractor by the front wheel.

6.3.6.1 前轮约束的调整

Adjustment of the Front Wheel Constraint

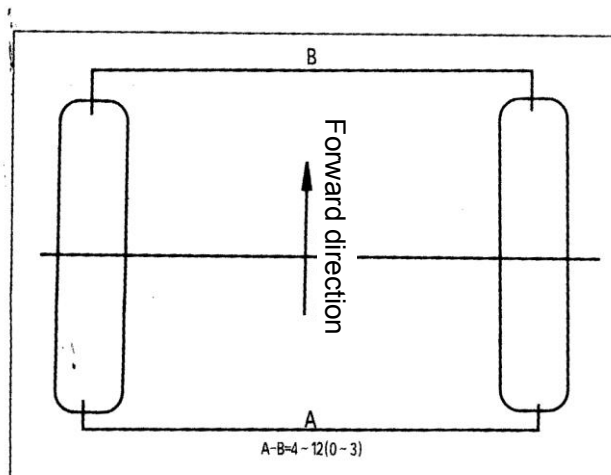
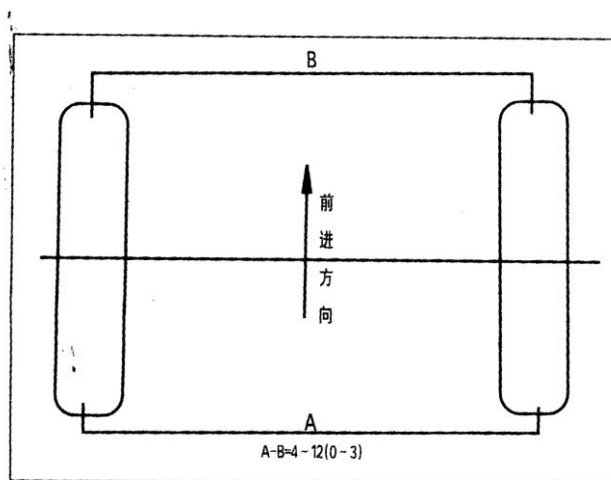
为了减少前轮轮胎的磨损，必须定期检查与调整前轮前束（见右图）。

To reduce the front tyre wear, the front wheel toe-in shall be periodically checked and adjusted (see the right-side figure).

调整方法如下：

The adjustment method is as follows:

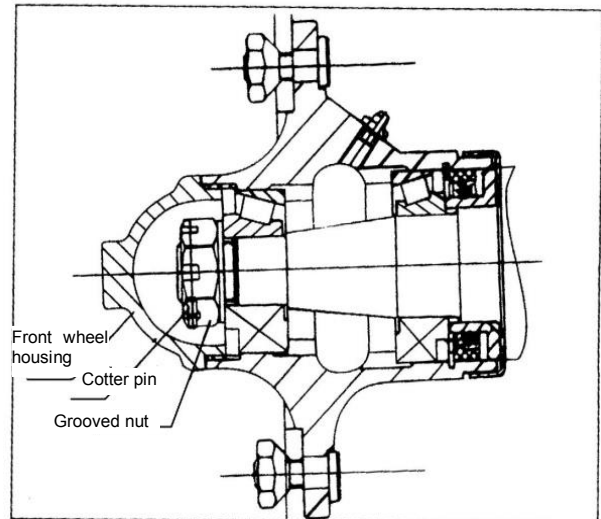
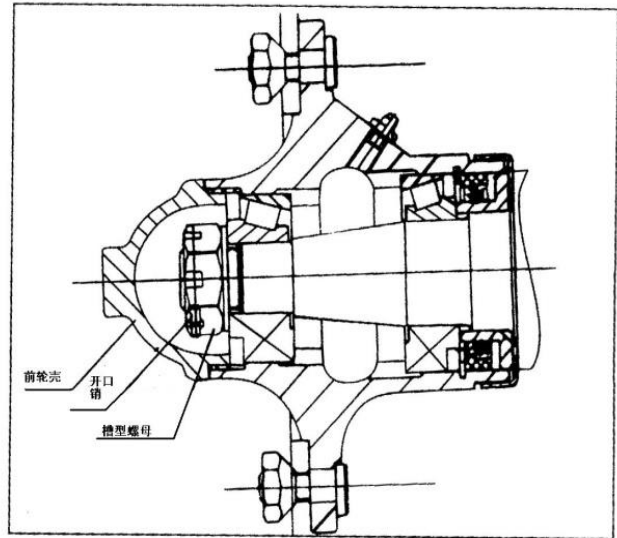
- 将导向轮对直向前；
Set the guide wheel to the forward direction;
- 在通过导向轮中心同一水平高度上，测量两个导向轮之间的前端和后端的距离。
On the same level of the guide wheel center, measure the distance between the front and rear ends of two guide wheels.
- 拧动横拉杆，使前端距离比后端距离小4~12（0~3）mm。
Screw the tie rod to make the distance of the front end be 4~12 (0~3) mm shorter than that of the rear end.
- 拧紧横拉杆两端的螺母。
Screw down nuts at both ends of the tie rod.



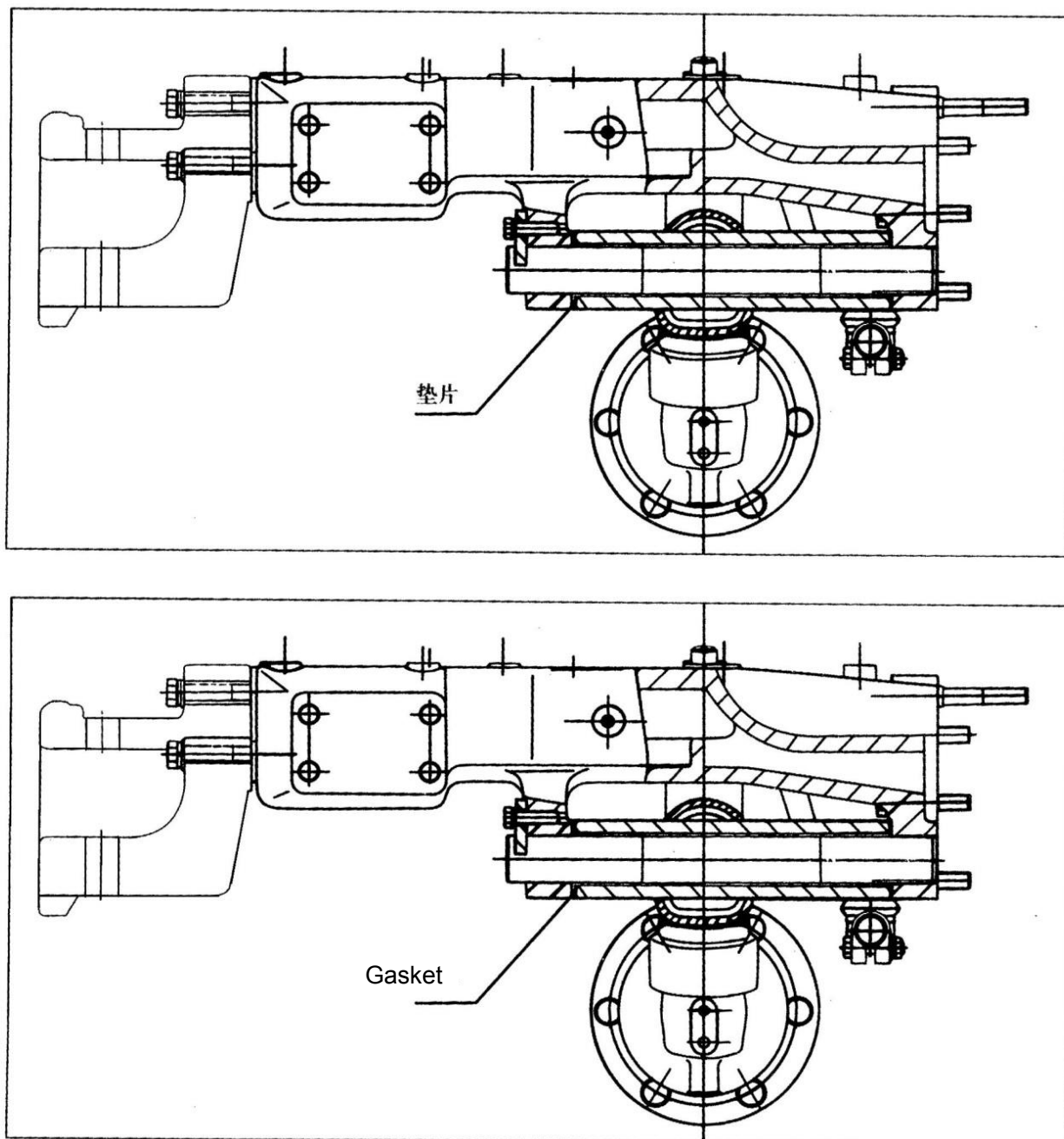
6.3.6.2 前轮轴承间隙的调整 Adjustment of the Front Wheel Bearing Clearance

在使用过程中，因前轮轴承磨损，间隙增大，如不及时调整间隙，则轴承容易损坏。调整时，应将前轴支起，使前轮轴承不受负荷，然后拆下轮壳盖，拔下开口销，将一槽形螺母拧紧，然后退回 $1/10 \sim 1/30$ 圈，最后装好开口销和前轮轮壳盖（见右图示）。

During use, the front wheel bearing will be worn and the clearance will be increased; if the clearance is not timely adjusted, the bearing will be easily damaged. During adjustment, the front shaft shall be supported to make the front wheel bearing be free from load; after that, remove the wheel cover and the cotter pin; screw down the grooved nut and return it by $1/10 \sim 1/30$ circles, and finally mount the cotter pin and the front wheel cover (see the right-side figure).



6.3.6.3 摇摆轴套两端面和前轴支架间隙调整（见下图）：
Clearance Adjustment of Two End Faces of the Rocker Shaft Sleeve and Front Shaft Bracket (See the following figure):



在使用过程中，摇摆轴套两端垫片磨损，间隙增大，导致产生冲击载荷，因此必须及时调整。
During use, gaskets at both ends of the rocker shaft sleeve will be worn, the clearance will be increased, and the impact load will be generated; on this account, timely adjustment shall be done.

调整的方法是：抽取摇摆轴座和前轴支架之间的垫片，使外套管组件摆动灵活，且无明显的轴向间隙为宜。
The adjustment method is to remove the gasket between the rocker shaft seat and the front shaft bracket to bring flexibly swinging sleeve parts and no obvious axial clearance.

6.3.6.4 四轮驱动前桥润滑油的添加

Lubricating Oil Filling of the Four-wheel-drive Front Axle

SH70 系列四驱拖拉机前桥共分为 3 个油室。

SH70 series four-wheel-drive tractor front axle has 3 oil chambers in all.

中央油室在拖拉机前桥，应定期从前桥左前的加油口检查油面，当油面有明显降低时，应加注润滑油至加油口位置。更换机油时，应拧出前桥底部的放油螺塞，放净污油，再拧紧放油螺塞，从加油口处加油至加油口位置，拧紧加油口螺塞。

The central oil chamber is in the tractor front axle, and the oil level shall be periodically checked by the left front oil filler of the front axle; when the oil level is significantly lowered down, the lubricating oil shall be filled to the oil filler position. When replacing the engine oil, the bottom drain plug of the front axle shall be loosened to drain out the dirty oil; after that, screw down the drain plug; fill the oil to the oil filler position, and screw down the oil filler screw plug.

在检查两侧末端传动油面时，应转动轮胎，使螺塞与前轮中心连线处于水平位置，拧紧出油塞，油面应达到螺塞孔处，否则应加注机油，更换机油时，应转动前轮，使螺塞处于最低位置，拧下螺塞，放净污油。在转动轮胎，使螺塞与前轮中心连线处于水平位置，加注新加油至螺塞口，拧上螺塞。

When checking the oil level of final drives at both ends, rotate the tyre to make the connection of the screw plug and the front wheel center be in a horizontal position; screw down the oil drain plug, and the oil level shall reach the screw plug hole; or else, the engine oil shall be filled. When replacing the engine oil, rotate the front wheel to make the screw plug reach the lowest position; loosen the screw plug to completely drain out the dirty oil. When rotating the tyre, make the connection of the screw plug and the front wheel center be in a horizontal position; fill the new oil to the screw plug port, and screw down the screw plug.

6.3.6.5 前桥润滑脂的加贮

Lubricating Grease Filling of the Front Axle

按维护保养要求向前驱动桥中央摆销处加注润滑脂。

Fill the lubricating grease to the central oscillating pin of the front drive axle based on the maintenance requirements.

前驱动桥每侧有 2 个润滑主销的油杯要加注润滑脂，每年至少加注两次。

Fill the lubricating grease to the oil cup of 2 lubricating master pins at both sides of the front drive axle, which shall be filled twice per year at the least.

6.3.7 分动箱的调整和保养

Adjustment and Maintenance of the Transfer Case

如果您购买的拖拉机是四轮驱动型拖拉机，那么传动系的放油螺塞在分动箱的侧面，这时，只有从这里才能放净传动系油污，加油位置不变。

If your tractor is a kind of four-wheel-drive tractor, the transmission system drain plug is at the side of the transfer case; in such case, the dirty oil from the transmission system can only be drained out from here, and the oil filling position is unchanged.

6.3.8 车轮的调整及保养

Adjustment and Maintenance of the Wheel

拖拉机前轮外胎上有条形花纹，可以防止拖拉机侧滑。

The outer tyre of the tractor front wheel has strip treads, which can prevent the tractor sideslip.

6.3.8.1 轮距的调节

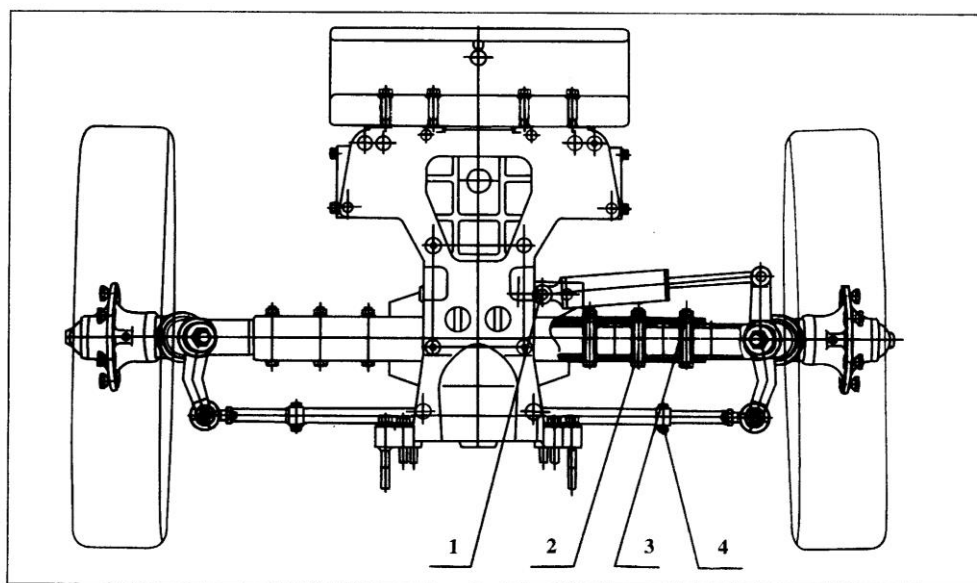
Wheel Track Adjustment

a. 前轮轮距调节

Front wheel track adjustment

调整方法:用千斤顶将拖拉机前轴支起,是前轮离地,松开螺母 3,拔出螺栓 2,拆下油缸销轴 1,调整油缸位置,松开横拉杆调节螺栓。然后把导向轮支架移至所需要的轮距,再把螺栓插入螺母拧紧,横拉杆调整至相应的长度后,拧紧横拉杆调螺栓;拧紧油箱销轴,并插入开口销锁好螺母。(见下图)

Adjustment method: Support the front shaft of the tractor with the jack to make the front wheel be off the ground; after that, loosen the nut 3 and pull out the bolt 2; remove the oil cylinder hinge pin 1; adjust the oil cylinder position, and loosen the adjusting bolt of the tie rod. Afterwards, move the guide wheel bracket to the required wheel track, and then insert the bolt into the nut and lock them; after adjusting the tie rod to the corresponding length, screw down the adjusting bolt of the tie rod. Consequently, screw down the oil tank hinge pin, and insert the cotter pin and lock the nut. (As shown in the following figure)



1-油缸销轴 2-螺栓 3-螺母 4-横拉杆调节螺栓

1-Oil cylinder hinge pin 2-Bolt 3-Nut 4-Adjusting bolt of the tie rod

前轮轮距调节范围 (mm): 1450 (常用)、1350, 1550、1650。

Front wheel track adjustment range (mm): 1,450 (frequently-used), 1,350, 1,550, and 1,650.

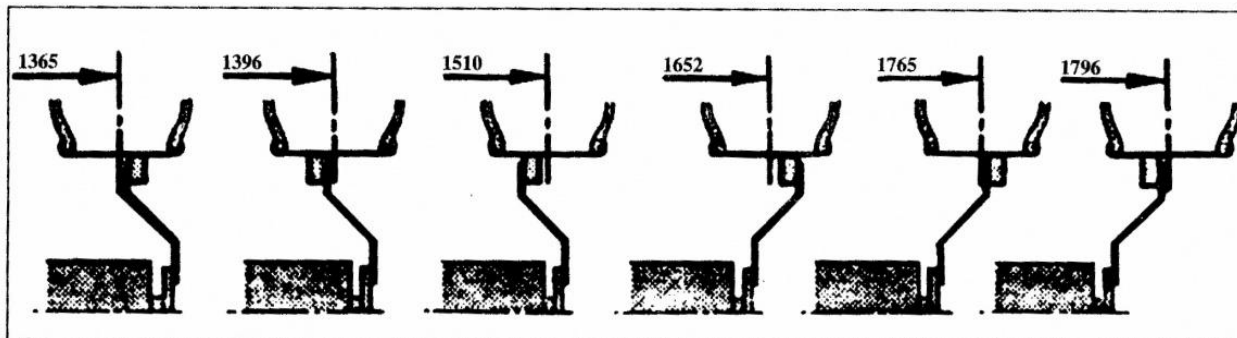
b. 后轮轮距调节

Rear wheel track adjustment

后轮轮距的调整方法:通过改变轮辋与辐板的不同装配和将左右轮对换来调整轮距,见右图.调整时请注意轮胎的旋转方向标记和拖拉机前进时车轮的旋转方向一致。

Rear wheel track adjustment method: By changing the rim and spoke plate assembling methods and exchanging left and right wheels, the wheel track can be adjusted, which is shown in the right-side figure. Upon adjustment, please note that the tyre rotation direction mark shall be consistent with the wheel rotation direction in case of forwarding.

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后轮轮距调节范围 (mm) : 1510 (常用)、1365、1396、1652、1765、1796。

Rear wheel track adjustment range (mm): 1,510 (frequently-used), 1,365, 1,396, 1,652, 1,765, and 1,796.

6.3.8.2 轮胎的使用和保养

Use and Maintenance of the Tyre

- a. 轮胎的气压应符合规定：导向轮气压为 200~250Kpa,驱动轮气压为 118~137MPa。
The tyre pressure shall meet the following stipulations: The guide wheel pressure is 200~250 kPa; the driving wheel pressure is 118~137 MPa.
- b. 驱动轮严重打滑时，不允许拖拉机继续工作。
When the driving wheel seriously slips, the tractor shall be stopped.
- c. 不要在不平坦的道路上高速行驶，也不要高速越过碎石瓦块和煤渣，尽可能不用紧急刹车。
Don't drive the tractor at a high speed on the bumpy road or crossing macadam, broken tiles and coal cinder; try to not use the emergency brake.
- d. 轮胎花纹磨损不均匀时，应左右轮胎对换使用。
When the tyre treads are unevenly worn out, the left and right tyres shall be exchanged.
- e. 轮胎上不要沾上燃油、润滑油或其它污物，如沾上应用水冲洗或擦净。
The tyre shall not be stained with the fuel, lubricating oil, or other dirt; if yes, it shall be washed with water or wiped off.
- f. 拖拉机长期不工作时，需将拖拉机顶起，使轮胎不承受压力。
If the tractor is not used for a long time, it shall be jacked up to make the tyre bear no pressure.

6.3.8.3 轮胎的拆装

Removal and Refitting of the Tyre

- a. 轮胎的拆卸：
Removal of the tyre:
 - 1) 放出内胎的空气。
Exhaust the inner tyre.
 - 2) 把外胎边由钢圈平面压入钢圈中间凹槽内。
Press the outer tyre edge into the middle groove of the steel ring from its plane.
 - 3) 把撬棍伸进钢圈内，将气嘴附近出的外胎边用撬棍撬出钢圈外，然后两根撬棍交替进行，直到整个外胎全部撬出钢圈。
Extend the crowbar into the steel ring; pry out the outer tyre edge near the valve from the steel ring with the crowbar; after that, completely pry out the whole outer tyre from the steel ring with two

拖拉机的维护保养 Maintenance of the Tractor

crowbars alternatively.

- 4) 从钢圈的气孔中，将内胎气嘴取出，再将内胎从钢圈和外胎取出。
Take out the inner tyre valve from the steel ring hole, and then take out the inner tyre from the steel ring and the outer tyre.
- 5) 把外胎的另一面的一边压入钢圈凹槽内，从另一边用撬棒将外胎取出。
Press one side of the outer tyre into the steel ring groove, and take out the outer tyre from another side with the crowbar.
- 6) 使用撬棒时，注意不要把内胎撬破。
When using the crowbar, please don't damage the inner tyre.

b. 轮胎的安装

Refitting of the tyre

- 1) 将外胎内部和内胎外部涂上一层薄的滑石粉。
Coat the outer tyre inside and the inner tyre outside with a thin layer of talcum powder.
- 2) 把钢圈放平（装气嘴的一面向上），然后用撬棒将外胎撬入钢圈内或锤子敲入钢圈内。
Flatly place the steel ring (with the side with the valve facing upwards), and then press the outer tyre into the steel ring with the crowbar or the hammer.
- 3) 把轮胎和钢圈提起来，把外胎推向一边，然后把内胎放入外胎内（注意可以先把嘴穿过钢圈气嘴空内，拧上气嘴帽及用铅丝扎牢）。
Lift the tyre and the steel ring; push the outer tyre to one side, and then place the inner tyre into the outer tyre (note that the valve can firstly cross through the steel ring valve hole, and then screw down the valve cap and firmly bind them with the galvanized wire).
- 4) 把钢圈推向半面，两脚踏在另一半面外胎上，用脚把外胎压入钢圈中间凹槽内，然后用撬棒伸进钢圈内，把外胎边用撬棒撬进钢圈内。
Push the steel ring to one side, and step down the outer tyre at another side; after that, press the outer tyre into the middle groove of the steel ring with feet, and then extend the crowbar into the steel ring, and pry the outer tyre edge into the steel ring with the crowbar.

6.3.9 电器系统的调整及保养

Adjustment and Maintenance of the Electric System

本拖拉机电器系统采用电压 12V，硅整流发电机伏击搭铁单线制。由发电机启动设备及照明信号装置组成。
The tractor's electric system is applied with the 12 V voltage and the single wire grounding system of the silicon rectification generator, which is composed of the generator starting equipment and lighting and signal device.

电器线路原理见图

The electric wire principle is shown in the figure

发电机启动设备包括启动电机、充电发电机、蓄电池、点火开关，以上设备的使用及保养详见柴油机说明书。

The generator starting equipment includes the starter motor, charging generator, storage battery, and ignition switch, and the use and maintenance of the above equipment is shown in the Diesel Engine Instruction.

照明及信号装置包括前照灯、前组合等（见下图）、后照灯（见下图）、带驾驶室时装顶灯（见下图）、扶手灯（转向、位置）、后尾灯总成（转向、位置、刹车）（见图 36）、组合仪表、喇叭、保险丝盒等组成。

The lighting and signal device includes the headlamp, front combination, etc. (see the following figure), rear lamp (see the following figure); when the cab is equipped, it includes the roof lamp (see the following figure), armrest lamp (steering and position), tail lamp assembly (steering, position, and brake) (see Figure 36), combination instrument, horn, fuse box, etc.

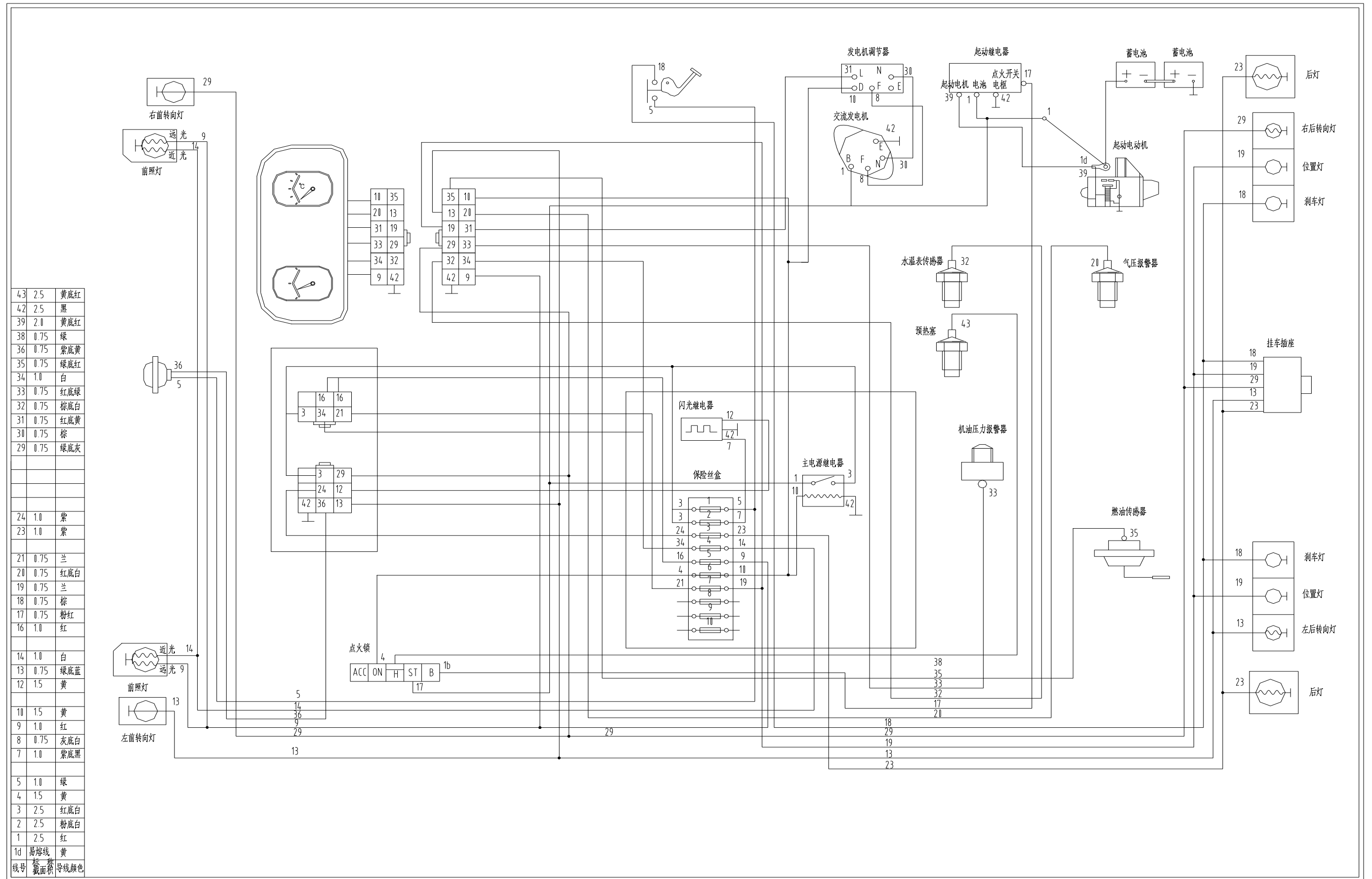
拖拉机的维护保养 Maintenance of the Tractor

照明及信号装置的使用方法如下：

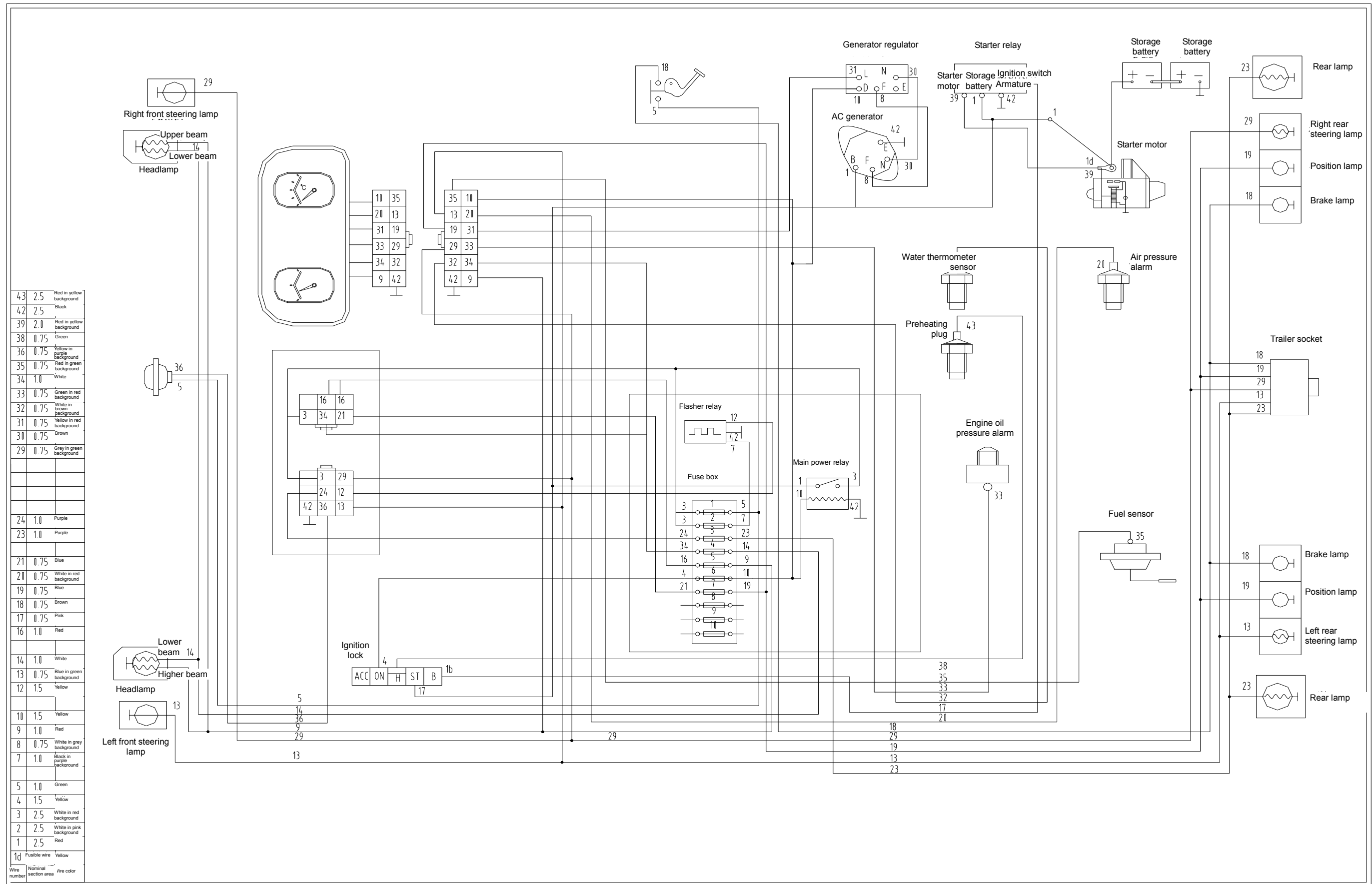
The application method of the lighting and signal device is as follows:



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6.3.9.1 前照灯配光调整:

Light Distribution Adjustment of the Headlamp:

如图下图所示, 配光曲线使用于右行制, 如果需要检查和调整前照灯配光性, 按下列步骤进行:

As shown in the following figure, the light distribution curve is applied for the right brake; if the headlamp light distribution shall be checked and adjusted, the following steps shall be observed:

- 先检查轮胎气压, 使之符合规定, 并将拖拉机 (空车) 置于水平地面上, 面对光洁平整的墙壁。
Firstly, check the tyre pressure to make it meet the stipulations; in addition, park the tractor (noload) on the level ground and make it face to the smooth and flat wall.
- 对应前照灯的中心线在墙上划两个“十”字。
Mark two “crosses” on the wall based on the headlamp centerline.
- 拖拉机距离墙壁 5m, 并打开近光开关。
Make the tractor 5 m away from the wall, and open the lower beam switch.



- 参考点 P-P (见上图) 位于墙壁上所划“十”字标记的下方 5cm。
Locate the reference point P-P (see the above figure) 5 cm below the “cross” on the wall.
- 旋转前照灯调整螺钉, 以调整前照灯的配光曲线。
Rotate the adjusting screw of the headlamp, so as to adjust the light distribution curve of the headlamp.

6.3.9.2 带驾驶室

With the Cab

带驾驶室时, 装配有顶照灯, 可根据工作时需要左右转动顶照灯灯体, 达到改变光照方向的需要。

When the cab is equipped, the roof lamp will be applied; the roof lamp can be rotated leftwards and rightwards according to the actual working demands to reach the required beam direction.

6.3.9.3 保险盒的保养维护

Maintenance of the Fuse Box

保险盒内有十路保险丝片, 各档的工作电流及所保护的电器见下表 1, 电器元件断路时, 首先要检查保险盒内保险丝, 如有保险丝损坏, 立刻从电路板上取下一块备用同电流保险金丝 (忌用铜丝代替) 换上, 以保证电器元件不受损坏。

The fuse box has the crossed fuse strip, and the working current of different gears and the protected electric appliance are shown in the following Table 1. When the electric element has open circuit, the fuse shall be checked firstly; if the fuse is damaged, a standby fuse with the same current shall be taken down from the circuit board (it is forbidden to use the copper wire), so as to ensure that the electric elements will not be damaged.

6.3.9.4 组合仪表

Combination Instrument

采用组合仪表，它包括下列仪表：水温表、燃油表、转速表，还有转向指示灯、远近光信号装置、位置指示灯、充电指示灯及机油压力报警装置和气压报警装置等

The combination instrument is applied, which includes the following instruments: Water thermometer, fuel gauge, tachometer, steering indicator lamp, upper and lower beam signal device, position indicator lamp, charging indicator lamp, engine oil pressure warning device, air pressure warning device, etc.

表 1 各档的工作电流及所保护的电器

Table 1 Working Current of Different Gears and the Protected Electric Appliance

| 保险盒档别 Fuse Box Gear Position | 一 I | 二 II | 三 III | 四 IV | 五 V | 六 VI | 七 VII | 八 VIII |
|--|--|--|--------------|---|---|--|-------------------------|---------------------|
| 额定工作电流 (A) Rated working current (A) | 10 | 10 | 15 | 10 | 10 | 15 | 10 | 20 |
| 被保护的电器 Protected electric appliance | 刹车灯 和喇叭 Brake lamp and horn | 左右转向 灯 Left and right steering lamp | 暖风 Heater | 大灯近光 Lower beam of the headlamp | 大灯远光 Upper beam of the headlamp | 仪表电源 Instrument power supply 蜂鸣器 Buzzer 主电源继电器 Main power relay 发电机调节器 Generator regulator | 位置灯 Position lamp | 顶照灯 Roof lamp |

6.3.10 挂车气制动装置的调整及保养

Adjustment and Maintenance of the Trailer Air Brake Device

6.3.10.1 挂车气制动装置的用途

Purpose of the Trailer Air Brake Device

本气制动装置主要用于拖拉机挂车上，供拖拉机挂车在运输作业中作制动之用，以保证拖拉机安全行驶。

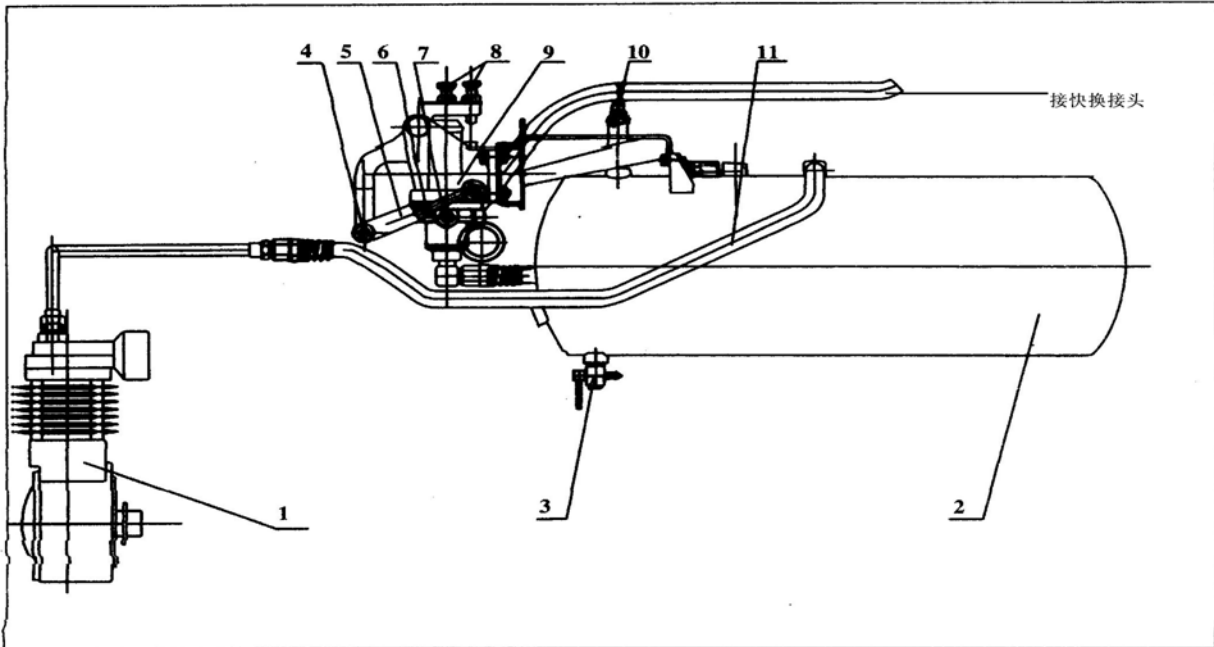
The air brake device is mainly used on the tractor trailer, which is used as the brake during the transportation work, so as to ensure the tractor's safe driving.

6.3.10.2 挂车气制动装置的组成 (如下图示)

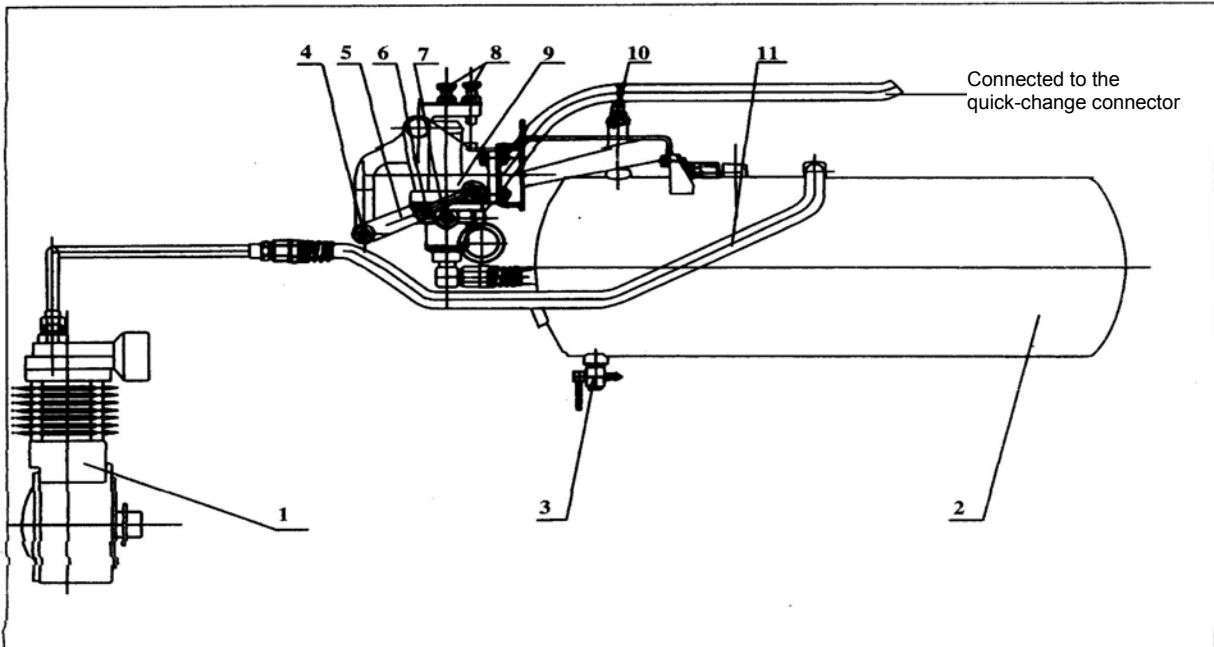
Composition of the Trailer Air Brake Device (See the following figure)

挂车气制动装置由空压机 1, 贮气筒 2, 制动阀 9, 气管 11 及操纵机构等组成。

The trailer air brake device is composed of the air compressor 1, air reservoir 2, brake valve 9, air pipe 11, control mechanism, etc.



1-空压机; 2-贮气筒; 3-放水阀; 4-销轴; 5-连接叉; 6-锁紧螺母;
7-制动阀杆; 8-调整螺钉; 9-制动阀; 10-安全阀; 11-气管



1-Air compressor; 2-Air reservoir; 3-Drain valve; 4-Hinge pin; 5-Yoke; 6-Locking nut;
7-Brake valve stem; 8-Adjusting screw; 9-Brake valve; 10-Safety valve; 11-Air pipe

6.3.10.3 气制动装置的调整及保养:

Adjustment and Maintenance of the Air Brake Device:

- a. 气路系统应无漏气及阻滞现象, 可用毛刷蘸浓肥皂水(中性)涂在气路各管接头处查看。
The air circuit system shall be free from air leakage and blockage, which can be checked by coating the concentrated soapy water (neutral) at all pipe joints of the air circuit with the brush.
- b. 当发动机在额定转速时, 空压机工作 2min 系统压力应达到 0.54MPa, 工作 8min 系统压力应达到 0.7MPa 以上, 若达不到此压力应检查空压机进排气阀及活塞环的密封性。
When the engine rotates at the rated speed and the air compressor works for 2 min, the system pressure shall reach 0.54 MPa; when the air compressor works for 8 min, the system pressure shall be higher than 0.7 MPa; if failed, the sealability of the inlet and exhaust valves of the air compressor and the piston ring shall be checked.
- c. 当压力超过 0.8 ± 0.05 MPa 时, 安全阀 10 应打开。
When the pressure is over 0.8 ± 0.05 MPa, the safety valve 10 shall be opened.
- d. 气制动系统在 0.8MPa 压力作用下, 将发动机熄火, 保持 5min, 气压下降量不得超过 0.1MPa。
Under the effect of the 0.8 MPa pressure, the air brake system will stop the engine and keep 5 min; in such case, the pressure drop shall not be larger than 0.1 MPa.
- e. 机组在正常行驶过程中, 气压表的压力不低于 0.4Mpa。
During the normal driving, the pressure reading of the pressure gauge shall not be smaller than 0.4 MPa.
- f. 机组行驶前应首先试车, 检查气制动装置各部分工作是否灵活可靠。
Prior to driving, the trial run shall be performed, so as to check if all parts of the air brake device can flexibly and reliably work.
- g. 每天工作完毕后, 打开放水阀 3, 将贮气筒 2 内积水放掉。
After daily work, the drain valve 3 shall be opened to drain out accumulated water in the air reservoir 2.
- h. 拖拉机田间作业时, 应将制动阀 9、贮气筒 2 及气管 11 拆掉。
During the tractor's field work, the brake valve 9, air reservoir 2, and air pipe 11 shall be removed.
- i. 拖拉机挂车机组的制动调整: 必须使挂车比主机提前 0.3~0.8 秒制动, 以保证机组在制动时挂车不撞击主机, 调整方法如下:
The brake adjustment of the tractor trailer: The trailer's brake shall be 0.3~0.8 s ahead of that of the main engine, so as to ensure that the trailer will not knock at the main engine during brake. The adjustment method is as follows:

松开锁紧螺母 6, 拆下连接叉 5 及销轴 4, 然后将制动阀推杆 7 旋出(即放长)或旋进(即缩短), 则挂车的制动就可提前或滞后, 调节好以后, 将锁紧螺母拼紧。

Loosen the locking nut 6 and remove the yoke 5 and hinge pin 4; after that, lengthen or shorten the brake valve push rod 7; thus the trailer's brake can be advanced or delayed. After adjustment, screw down the locking nut.

- j. 制动阀拉臂上的两个调整螺钉 8 出厂时在专用试验台上已调整好, 并涂有红色标记, 一般不得随意拧动。

Two adjusting screws 8 of the brake valve draw arm has been adjusted on the special test bed and coated with the red mark upon delivery, which can't be changed randomly.



注意: 不按上述要求调整将造成严重安全事故。

CAUTION: If the adjustment is not made based on the above requirements, serious safety accidents will be caused.

6.3.11 液压悬挂系统使用保养

Use and Maintenance of the Hydraulic Linkage System

提升器的调整

Adjustment of the lifter

6.3.11.1 力调节弹簧总成的调整

Adjustment of the Force Regulating Spring Assembly

力调节弹簧总成装配时，利用调整垫片调整，使调节弹簧在装配后，既无变形也无间隙。

Upon assembling the force regulating spring assembly, the adjusting shim can be adjusted, so as to ensure that the regulating spring will have no deformation or clearance after assembling.

6.3.11.2 操纵手柄与反馈杠杆的调整

Adjustment of the Control Handle and Reaction Lever

- a. 提升器装于拖拉机上，联接好管路，加入液压油。
Mount the lifter onto the tractor; connect the pipeline, and fill the hydraulic oil.
- b. 把悬挂杆件装好，并在下悬挂点处悬挂适当的重物（约 200~300kg）；
Mount the suspended rod piece, and suspend proper weights (about 200~300 kg) at the lower linkage point;
- c. 将操纵手柄放在最下面位置；
Place the control handle at the downmost position;
- d. 启动发动机，油门置于中位；
Start the engine, and turn the throttle to the neutral position;
- e. 将操纵手柄缓慢的向上移动，这时提升臂和重物缓慢向上提升，当手柄移动到最高位置时，提升臂与水平面夹角应为 53° 为正常。若提升臂与水平面夹角小于 53° ，则应调整反馈杠杆上的调节螺套，增加反馈杠杆的长度（S），直到复合 53° 要求为止。否则，达不到拉升行程。
Slowly move the control handle upwards; in such case, the lifting arm and the weights shall be slowly lifted; when the handle is moved to the highest position, the angle between the lifting arm and the plane shall be 53° . If the angle between the lifting arm and the plane is smaller than 53° , the adjusting screw sleeve on the reaction lever shall be adjusted and the reaction lever (S) shall be lengthened, till the angle is up to 53° . Or else, the pull-up stroke can't be reached.
- f. 调整后锁紧有关螺母
Lock relevant nuts after adjustment

6.11.3 液压悬挂系统用油和保养

Hydraulic Linkage System Oil and Maintenance

- a. 提升器壳体是液压悬挂系统的油箱，使用 N100 号传动液压两用油，不得使用其他油品。
The lifter housing is the oil tank of the hydraulic linkage system; only the N100# hydraulic and transmission oil can be used, and it is forbidden to use other oil.
- b. 每 50h 应检查提升器壳体中的油面高度是否在油尺范围内。
Every 50 h, the oil level in the lifter housing shall be checked to see if it is in the oil dipstick range.
- c. 新拖拉机工作 100h 后，应检查滤油器（见下图），并清洗滤芯。
After 100 working hours of the new tractor, the oil filter shall be checked (see the following figure), and the filter core shall be cleaned as well.

拖拉机的维护保养
Maintenance of the Tractor



第七章 存放 Chapter VII Storage

拖拉机在完成农田作业以后，或因某种原因需要较长时间（超过 1 个月）停放时，必须妥善保管和封存。拖拉机应保管在良好的环境内（避免雨淋、避免潮湿、遮阳通风、空气清新），以防止机件锈蚀老化、变形。

After the farmland work or the tractor is not used for a long time (over 1 month), it shall be properly kept and sealed for safekeeping. The tractor shall be kept in good environment (avoid rain, damp, sunshine and keep ventilated and air fresh), so as to avoid rust, aging, and deformation.

拖拉机封存前，必须经过彻底的清洗、调整并紧固各连接件，按工作时间完成规定的技术保养，使拖拉机处于良好的技术状态。

Prior to being sealed for safekeeping, the tractor shall be thoroughly cleaned; all connecting pieces shall be adjusted and fastened, and the specified technical maintenance shall be completed as specified, so as to ensure that the tractor is in a good technical state.

重要事项：拖拉机长期停用期间对其进行科学的保管和专门的维护保养非常重要。否则，拖拉机技术状态的恶化速度比工作期还要快。

IMPORTANT: If the tractor is unused for a long time, it is important to perform the scientific keeping and special maintenance. Or else, its technical state will be deteriorated quicker than that in its working period.

7.1 拖拉机存放期损坏的原因

Damage Cause of the Tractor During the Storage Period

- 拖拉机存放期间损坏的主要原因如下：
The damage of the tractor during its storage period is mainly caused by the followings:
- 锈蚀：在停放期间，空气中的灰尘和水气容易由缝隙、孔口等处浸入机器内部，使零件受到污染和锈蚀；相对运动的表面如活塞、气门、轴承、齿轮等，由于长期在某一位置静止不动，失去流动且具有压力的保护，产生蚀损、锈斑、胶结阻塞或卡滞，以致报废；
Rust: During stop, air dust and moisture will easily enter into the tractor from gaps and holes, which will pollute and rust the spare parts; in addition, the surfaces with relative movement (such as the piston, valve, bearing, and gear) is parked for a long time, it will become damaged, rusty, cemented, blocked, or seized due to pressure protection and lead to rejection;
- 老化：橡胶 塑料等零件在阳光照射下，由于紫外线的作用，会老化、变质、变脆，失去作用或腐蚀破烂；
Aging: In the sunlight, the rubber, plastics, and other spare parts will become aged, deteriorated, and crispy, useless, rusty, or worn-out due to the ultraviolet rays:
- 变形：传动胶带、轮胎等零件长时间受力，产生塑性变形；
Deformation: Due to long time stress, the transmission belt, tyre, and other spare parts will have plastic deformations;
- 其他：电器零件受潮、蓄电池自行放电等。
Others: The electric spare parts will become damp and the storage battery will automatically discharge.

7.2 拖拉机封存

Tractor Sealing for Safekeeping

存放 Storage

- 封存前，认真检查拖拉机，消除存在故障，保持技术状况良好。将拖拉机外表清洗洁净；
Prior to being sealed for safekeeping, carefully check the tractor; eliminate malfunctions, and keep a good technical state. Clean the tractor surface;
- 放净散热器、气缸体及水泵中的防冻液、传动系统内的润滑油，液压系统内的液压油；
Drain out the antifreeze solution in the radiator, air cylinder, and water pump, the lubricating oil in the transmission system and the hydraulic oil in the hydraulic system;
- 拆下蓄电池，其极桩上涂上润滑脂，存放在避光、通风、温度不低于 10℃（摄氏度）的室内；
Remove the storage battery and coat its pole with the lubricating grease; after that, store it in the shady and ventilated room with the temperature not lower than 10℃ (centigrades);
- 趁热放尽发动机内的机油，加注新机油，并让发动机小油门运行几分钟，使机油均匀地附着在各运动部件地表面；
Drain out the hot engine oil in the engine; fill the new engine oil, and run the engine throttle for several minutes, so as to make the engine oil uniformly adhere to the surface of all moveable parts;
- 向各润滑点中注润滑脂；
Fill the lubricating grease in all lubricating points;
- 用脱水凡士林[加热至 100~ 200) °C（摄氏度）]涂抹电器触点、接头及未经油漆的金属零件表面；
Coat the electric contact, connector, and unpainted metal part surface with the dehydrated vaseline [heat it up to 100~200) °C (centigrades)];
- 松开发动机风扇皮带，必要时将皮带取下，包好单独存放，将皮带轮槽内喷涂防锈剂。拖拉机表面脱漆的部位应补漆；
Loosen the engine fan belt; if necessary, take down the belt and separately keep it, and coat the belt pulley groove with the antirust agent. The depainting surface of the tractor shall be painted again;
- 放净柴油箱内的柴油并清洗油箱；
Completely drain out the diesel in the diesel tank and clean it;
- 用防护材料（如帆布、防水布或油纸等）将发动机未封闭的管口，如进、排气口，应作封口处理 防止异物、灰尘、水分进入；
Seal the unsealed pipe orifices (such as the inlet and exhaust port) of the engine with protection materials (such as the canvas, waterproof cloth, or oilpaper), so as to avoid entry of foreign matters, dust, and moisture;
- 将所有操作手柄放在空档位置（包括电气系统开关），将拖拉机前轮放正，悬挂杆件放在最低位置。
Turn all operating handles to the neutral position (including electric system switch); place the tractor's front wheel in place, and place the suspended rod piece to the lowest position.

- 用木架将拖拉机支起，使轮胎卸掉载荷。并定期检查轮胎气压；
Support the tractor with the wooden support and discharge the tyre load. Periodically check the tyre pressure;
- 拖拉机应停放在机库或车棚内，环境应通风干燥。严禁与具有腐蚀性的物品、气体一起存放。如果条件不具备露天停放时，必须选择地势较高而干燥的平台，并用防雨布盖好；
The tractor shall be parked in the garage or shed, which shall be with ventilated and dry environment. It is forbidden to park the tractor together with corrosive articles and gas. If the conditions are unavailable for the outdoor parking, a dry platform with higher topography shall be selected, and the tractor shall be covered with the rainproof cloth;
- 由拖拉机上拆下的零件和随机工具，应清洗干净包好，保存在干燥的库房内。
The spare parts and accompanied tools removed from the tractor shall be cleaned and wrapped and kept in the dry storeroom.

7.3 拖拉机封存期间的保养

Maintenance of the Tractor During the Period of Sealing for Safekeeping

重要事项：如果用户不具备防锈处理的条件，且拖拉机需要闲置几个月或更长的时间，至少应换机油、机油滤清器，并每隔 1 个月时间启动拖拉机 1 次，低速行使(20~30) min (分钟)，检查各部位有无不正常现象。并保持拖拉机外部清洁、干燥。

IMPORTANT: If the user can't perform the rustproof treatment and the tractor shall be parked for several months or longer, the engine oil and engine oil filter shall be replaced and the tractor shall be started once and driven at the low speed for (20~30) min (minutes) with an interval of 1 month to check the parts for abnormality; in addition, the tractor outside shall be kept clean and dry.

7.4 拖拉机启封

Tractor Unsealing

- 清除防锈用的油脂；
Clean the rustproof grease;
- 将封闭的各管口打开。清洁拖拉机；
Open all closed pipe orifices and clean the tractor;
- 按规定加入冷却液、机油、柴油，向各润滑点加注润滑脂；
Fill the coolant, engine oil, and diesel as specified; fill all lubricating points with the lubricating grease;
- 按“蓄电池使用说明书”要求检查蓄电池的观察孔的颜色；
Based on the requirements of the “Storage Battery Instruction”, check the color of the storage battery's observation port;
- 清除风扇皮带轮槽内的防锈剂，安装皮带。按技术要求调整传动皮带松紧度（见发动机使用保养说明书）；
Clean the rustproof agent in the fan belt pulley groove, and mount the belt. Based on the technical requirements, adjust the transmission belt tension (see the Engine Operation and Maintenance Instruction);
- 安装蓄电池，并在接线柱上涂上凡士林；
Mount the storage battery, and coat the terminal with the vaseline;
- 检查各电路、管路的紧固情况；
Check the fastness of all circuits and pipelines;
- 按说明书要求操纵拖拉机。
Control the tractor based on the requirements of the Use And Maintenance.

蓄电池即使不使用也会自行放电，每月应对蓄电池补充充电 1 次。

The storage battery will automatically discharge even not used; on this account the storage battery shall be charged once per month.



注意：有关发动机的封存与启封，详见“发动机使用保养说明书”。

CAUTION: For details of sealing and unsealing of the engine, please see the “Engine Operation and Maintenance Instruction”.

第八章 交货、验收、运送 Chapter VIII Delivery, Acceptance, and Transportation

8.1 交货、验收 Delivery and Acceptance

用户购买拖拉机时，应对所购买的机器进行验收，着重检查以下几个方面：

When purchasing the tractor, the user is recommended to make acceptance, and the attention shall be paid to the followings;

- **随机文件是否齐全**
If the accompanied documents are complete

随机文件包括：《拖拉机使用说明书》、《产品合格证》、《三包服务凭证》、《随机物品装箱清单》和“发动机随机技术文件”，（来自发动机配套厂家）、《拖拉机零部件图册》。核对《产品合格证》、《三包服务凭证》及“发动机随机技术文件”上的相应编号与实物是否吻合。

The accompanied documents include: *Tractor Use And Maintenance*, *Product Qualification Certificate*, *Three-guarantee Service Credential*, *Packing List of the Accompanied Articles*, “accompanied technical documents of the engine” (from the supporting engine manufacturer), and *Drawing Volume of the Tractor Parts*. Check if the corresponding number on the *Product Qualification Certificate*, *Three-guarantee Service Credential*, and “accompanied technical documents of the engine” match with the actual object.

- **随机物品是否齐全**
If the accompanied articles are complete

按照《随机物品装箱清单》对拖拉机随机物品进行清点，随机物品包括随机备件和随机工具。发动机随机物品以“发动机随机技术文件”中的规定为准（如有疑问可与经销商联系）。

Based on the *Packing List of the Accompanied Articles*, check the accompanied articles of the tractor, which cover the accompanied spare parts and tools. The accompanied articles of the engine will follow the stipulations in the “accompanied technical documents of the engine” (for any question, please contact with the dealer).

- **机器状态是否良好**
If the machine state is good

机器经过托运或开运，技术状态有可能发生变化，用户购买时可对机器状态进一步进行确定。

After shipment or transportation, the machine's technical state may change; the user can further determine the machine state upon purchasing.

8.2 运输 Transportation

拖拉机进行转移时，若自走转移，应严格遵守交通规则，且两车之间应保持行车间距至少 60m（米），避免意外情况发生引起撞车；若采用装车运输的方式，应做到以下几点：

Upon the self-propelled transfer of the tractor, the traffic rules shall be strictly followed and the distance between two automobiles shall be 60 m (meters) at the least, so as to avoid traffic jam. If the load transportation is applied, the followings shall be observed:

- 装卸拖拉机时，应选择平坦的地方进行。
Upon loading and unloading the tractor, a flat place shall be selected.
- 装卸车时应借助专用卸车台。
Upon loading and unloading, the special unloading deck shall be used.
- 必须有助手在现场引导，且不要让无关人员靠近。

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The assistant shall be dispatched for site guidance, and no irrelevant staff can get close to it.

- 装车后将悬挂杆件放至最低位置，拉上手制动，挂上倒档，拔出启动钥匙，锁上车门，关闭电源总开关。
After loading, lower down the suspended rod piece to the lowest position and apply the hand brake. After that, engage the reverse gear; pull out the starting key; lock the door, and close the main power switch.
- 用铁丝将四个轮胎前后“八”字固定，轮胎前后用楔块可靠堰牢，并将后桥梁用铁丝拉住。
Fix four front and rear tyres in a splayed type with the iron wire; block the front and rear tyres with the wedge block, and pull the rear axle with the iron wire.
- 将后视镜尽可能往里扳，必要时可将其取下。
Pull the rear-view mirror inwards; if necessary, take it down.
- 过涵洞、桥梁时，要充分注意是否超高，拐弯时要充分减速。
When passing the culvert and bridge, please check if it is superelevated; upon turning, please make full deceleration.
- 卸车时应先解除手制动，挂上前进档，用最低速度缓慢开下。
Upon unloading, release the hand brake firstly, and then engage the forward gear, and slowly drive off with the lowest speed.

▲ 注意：1. 装卸拖拉机时，装运卡车的停车刹应刹紧，前后轮可靠堰牢，以免因卡车突然起动导致拖拉机和操作者倾翻或跌落的危险。

CAUTION: 1. Upon loading and unloading the tractor, the brake of the transportation truck shall be firmly engaged and front and rear wheels shall be reliably blocked, so as to avoid the tractor overturn or dropping and operator injury due to sudden truck starting.

2. 装卸车时，拖拉机均用最低速度行驶，以免速度过高导致拖拉机倾翻或跌落的危险。

Upon loading and unloading, the tractor shall be driven at the lowest speed, so as to avoid tractor overturn or dropping due to too high speed.


第九章 拆散和处置 Chapter IX Knockdown and Disposal

当整个机器使用寿命期到期后，为了您的人身安全及保护社会环境，请将机器交给有专业许可拆解的回收公司处理。

When reaching the tractor's service life, for your safety and social environment protection, the tractor shall be delivered to the professional recycling company for treatment.

拆散时请按从上到下、先外后内的顺序进行各个零部件及总成的拆解，在拆解大体积物体或重物时，必须使用专业吊具。蓄电池请交给专业蓄电池回收公司，废机油等请集中妥善处置，不得随意乱倒，以免污染环境。

The parts and assembly shall be knocked down in the sequence of "from top to bottom and from outside to inside"; during the large object or weight knockdown, the professional spread shall be used. In addition, the storage battery shall be delivered to the professional recycling company for treatment and the waste engine oil shall be disposed in a concentrated and proper way, which can't be randomly thrown to avoid environment pollution.

 **警告：** 1. 蓄电池电解液具有腐蚀性，不可溅入眼睛及皮肤、衣服上，若溅到酸液必须立即用清水洗净，并尽快到医院医治。


WARNING: 1. The storage battery electrolyte is corrosive, which can't be splashed onto the skin, eyes and clothes; if the skin and eyes are stained with acid liquor, please immediately clean the skin and eyes with clean water and go to the hospital as soon as possible.

2. 燃料为易燃物，处理时应严禁烟火！

The fuel is combustible, and open flames are not allowed during treatment!

本公司提醒您，在没有专业的拆散工具及实际的操作经验下，拆散时及拆散后不妥善放置可能造成人身伤害。

We remind you that, if there are no professional knockdown tools and actual operating experience, improper placement upon and after the knockdown may lead to the personal injury.

 **警告：** 拆解大体积物体或重物时，必须使用专业吊具，注意人身安全，

WARNING: During the large object or weight knockdown, the professional spread shall be used and the attention shall be given to personal safety.

重要事项： 1. 换下的蓄电池酸液会污染环境，不能随意乱倒。

IMPORTANT: 1. The acid liquor from the replaced storage battery will pollute the environment, which can't be randomly thrown.

2. 换下的机油属废弃油料，不能随意丢弃！

The replaced engine oil is a kind of waste, which can't be randomly thrown!

第十章 保修事项 Chapter X Warranty Issues

10.1 产品保修的依据 Product Warranty Basis

沭河 SH70 系列 SH600/SH604/SH650/SH654/SH700/SH704/SH750/SH754/SH800/SH804 轮式拖拉机依据下列文件及法规进行保修。

The warranty of Shuhe SH70 series SH600/SH604/SH650/SH654/SH700/SH704/SH750/SH754/SH800/SH804 wheeled tractor will observe the following documents and regulations.

《农业机械产品修理、更换、退货责任规定》2010年6月1日起实施
Provisions on the Warranties for the Repair, Replacement and Return of Agricultural Machinery Products as of June 1, 2010

《中华人民共和国产品质量法》
Product Quality Law of the People's Republic of China

《中华人民共和国消费者权益保护法》
Law of the People's Republic of China on the Protection of the Rights and Interests of Consumers

10.2 不实行保修的情况 Conditions Unavailable for Warranty

根据相关法规，在有些情况下将不实行保修。详见《三包服务凭证》。
According to relevant regulations, the warranty will be inapplicable in some cases. See the *Three-guarantee Service Credential* for details.



注意：某些行为可能会使保修条件失效。详见《三包服务凭证》。

CAUTION: Some behaviors may lead to invalid warranty conditions. See the *Three-guarantee Service Credential* for details.



注意：如果用户自行改装拖拉机或用于使用说明书规定外的用途的话，将不在厂家的保修范围内，请务必注意。

CAUTION: Please note that, if the user retrofits the tractor or uses the tractor for other purposes not specified in the Use And Maintenance without permission, it may lead to uncovered warranty.

第十一章 附录 Chapter XI Appendixes

11.1 拖拉机的用油和溶液 Oil and Solution for the Tractor

拖拉机用的燃油、润滑油和溶液应符合下表规定

The tractor fuel, lubricating oil, and solution shall meet stipulations in the following table.

表 11-1 拖拉机的用油和溶液
Table 11-1 Oil and Solution for the Tractor

| 用油、溶液部位 Part Applied with Oil and Solution | 油和溶液 Oil and Solution | | | | | |
|--|---|-----------------------|------------------|--------------------|----------------------|------------------------|
| 燃油箱 Fuel tank | 经过滤和沉淀的轻柴油，符合 GB252-87 Filtered and deposited light diesel, meeting GB252-87 | 20℃以上 Above 20℃ | 4℃~20℃ 4℃~20℃ | -5℃~-4℃ -5℃~-4℃ | -14℃~-5℃ -14℃~-5℃ | -29℃~-14℃ -29℃~-14℃ |
| | | 10 号 10# | 0 号 0# | -10 号 -10# | -20 号 -20# | -35 号 -35# |
| 发动机油底壳 Engine oil pan | 30 号或 20/20Wcc 级柴油机油，符合 GB11122-89 30# or grade 20/20Wcc diesel engine oil, meeting GB11122-89 | | | | | |
| 水散热器 Water radiator | 自来水或清洁软水，建议采用防冻液 Running water or clean soft water, and antifreeze solution is recommended | | | | | |
| 变速箱-后桥 Transmission-rear axle | 85W/90 (GL-3) 85W/90 (GL-3) | | | | | |
| 液压提升器油 Hydraulic lifter oil | N100 号传动液压两用油 N100# transmission and hydraulic oil | | | | | |
| 油杯 Oil cup | 3 号合成钙基润滑油，符合 GB7324-88 3# synthetic calcium base lubricating oil, meeting GB7324-88 | | | | | |
| 转向油箱 Steering oil tank | HJ-20 (20 号机械油) 或 L-HM32 HJ-20 (20# mechanical oil) or L-HM32 | | | | | |
| 转向器 Steering gear | 14 号柴油机油润滑油 Lubricating oil of 14# diesel engine oil | | | | | |



注意：1. 传动液压两用油必须经过至少 48h 沉淀后，才能加入使用。

CAUTION: 1. The transmission and hydraulic oil can be put into use after 48 h deposit at the least.

2. 严禁不同牌号、不同生产厂家的柴油机油混用!

It is not allowed to mixedly use the diesel engine oil with different grades from different manufacturers!

3. 选用暖风机的拖拉机，冬季必须使用防冻液。|

The tractor with the heater must be applied with the antifreeze solution in winter.

11.2 主要螺栓、螺母拧紧力矩表
Table of Tightening Torque of Main Bolts and Nuts

表 11-2 主要螺栓、螺母拧紧力矩表
Table 11-2 Table of Tightening Torque of Main Bolts and Nuts

| 序号 No. | 部位 Position | 拧紧力矩 (N·m) Tightening Torque (N·m) |
|-----------|--|--|
| 1 | 变速箱和后桥连接螺栓 Connecting bolt of the transmission and rear axle | 60~80 |
| | 发动机和变速箱连接螺栓 Connecting bolt of the engine and transmission | |
| | 半轴套管和后桥连接螺栓 Connecting bolt of the half shaft sleeve and rear axle | |
| | 转向节臂与法兰轴连接螺栓 Connecting bolt of the steering knuckle arm and flange shaft | |
| | 横拉杆与转向节臂连接螺栓 Connecting bolt of the tie rod and steering knuckle arm | |
| | 差速器支座与前桥壳连接螺栓 Connecting bolt of the differential support and front axle housing | |
| | 差速器支座与主动圆锥齿轮轴承座连接螺栓 Connecting bolt of the differential support and driving bevel gear bearing seat | |
| | 前轴内外套管连接螺栓 Connecting bolt of the inner and outer sleeves of the front shaft | |
| 2 | 提升器壳和后桥连接螺栓 Connecting bolt of the lifter housing and rear axle | 90~120 |
| | 前摇摆轴与前桥壳连接螺栓 Connecting bolt of the front rocker shaft and front axle housing | |
| | 行星架与轮毂连接螺栓 Connecting bolt of the planet carrier and wheel hub | |
| | 前轴（桥）支架和发动机连接螺栓 Connecting bolt of the front shaft (axle) bracket and engine | |
| | 牵引架连接螺栓 Connecting bolt of the traction frame | |
| | 摇摆轴轴座和前桥支架连接螺栓 Connecting bolt of the rocker shaft seat and front axle bracket | |
| 3 | 前轮毂和前轮辐板连接螺栓 Connecting bolt of the front wheel hub and front wheel spoke plate | 100~140 |
| 4 | 后桥辐板连接螺栓 Connecting bolt of the rear axle spoke plate | 120~140 |
| | 后桥差速器壳和从动圆锥齿轮连接螺栓 Connecting bolt of the rear axle differential housing and driven bevel gear | |

附录
Appendixes

| | | |
|---|---|---------|
| 5 | 长半轴与辐板连接螺栓 Connecting bolt of the long half shaft and spoke plate | 140~150 |
| 6 | 提升臂与摇臂轴压板连接螺栓 Connecting bolt of the lifting arm and rocker arm shaft pressure plate | 150~160 |
| 7 | 提升油缸固定螺栓 Fixing bolt of the lifting oil cylinder | 160~170 |

11.3 拖拉机用油封、密封圈规格
Specifications of the Oil Seal and Seal Ring for the Tractor

表 11-3 拖拉机用油封、密封圈规格
Table 11-3 Specifications of the Oil Seal and Seal Ring for the Tractor

| 序号 No. | 标准代号 Standard Code | 名称型及型号 Name and Model | 安装位置 Mounting Position | 数量 Qty. |
|-----------|-----------------------|--------------------------------------|---|------------|
| 1 | GB/T9877.1-19*88 | 油封 29.5×40×10 Oil seal 29.5×40×10 | 变速箱功率半轴 Transmission power half shaft | 1 |
| | | 油封 40×62×8 Oil seal 40×62×8 | 右制动器盖 Right brake cover | 1 |
| | | 油封 45×62×8 Oil seal 45×62×8 | 变速箱第一轴承 First bearing of the transmission | 1 |
| | | 油封 50×72×8 Oil seal 50×72×8 | 后桥功率输出轴 1 (766r/min) Power output shaft 1 of the rear axle (766 r/min) | 1 |
| | | 油封 55×85×12 Oil seal 55×85×12 | 左右制动器 Left and right brakes | 4 |
| | | 油封 60×90×8 Oil seal 60×90×8 | 后桥长半轴 Long half shaft of the rear axle | 4 |
| | | 油封 75×100×8 Oil seal 75×100×8 | 后桥长半轴 Long half shaft of the rear axle | 4 |
| | | 油封 60×85×14 Oil seal 60×85×14 | 前轮轮毂、主轴外套管内 Front wheel hub and in the outer sleeve of the main shaft | 2 |
| 2 | GB3452.1-1992 | O 形密封圈 19×2.65 O-ring 19×2.65 | 全液压转向出油管接头出 Connector of the full hydraulic steering oil drain pipe | 1 |
| | | O 形密封圈 13.2×2.65 O-ring 13.2×2.65 | 功率输出拨叉轴 Power output selector rod | 2 |
| | | O 形密封圈 20×3.55 O-ring 20×3.55 | 差速锁操纵轴 Differential lock operating shaft | 1 |
| | | O 形密封圈 25×2.65 O-ring 25×2.65 | 差速锁推杆 Differential lock push rod | 2 |
| | | O 形密封圈 92×5.3 O-ring 92×5.3 | 功率输出轴轴承座 Bearing seat of the power output shaft | 1 |

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|--|--|-------------------------------------|--|---|
| | | ○形密封圈 15×2.65 O-ring 15×2.65 | 压力油管与泵连接处 Part connecting the pressure oil pipe and the pump | 1 |
| | | ○形密封圈 19×2.65 O-ring 19×2.65 | 吸油软管与泵连接处 Part connecting the oil suction hose and the pump | 1 |
| | | | 提升器油缸盖安全阀座处 Safety valve seat of the lifter oil cylinder head | 1 |
| | | ○形密封圈 31.5×2.65 O-ring 31.5×2.65 | 滤油器与吸油短管连接处 Part connecting the oil filter and the short oil suction pipe | 1 |
| | | ○形密封圈 21.2×2.65 O-ring 21.2×2.65 | 吸油长管与提升器连接处 Part connecting the long oil suction pipe and the lifter | 1 |
| | | ○形密封圈 11.8×2.65 O-ring 11.8×2.65 | 压力油长管与提升器连接处 Part connecting the long pressure oil pipe and the lifter | 1 |
| | | ○形密封圈 103×3.55 O-ring 103×3.55 | 提升器油缸盖 Lifter oil cylinder head | 1 |
| | | ○形密封圈 118×3.55 O-ring 118×3.55 | 提升器油缸 Lifter oil cylinder | 1 |
| | | ○形密封圈 55×5.3 O-ring 55×5.3 | 提升器提升臂轴 Lifter lifting arm shaft | 2 |
| | | ○形密封圈 100×5.3 O-ring 100×5.3 | 提升器油缸活塞 Lifter oil cylinder piston | 1 |
| | | ○形密封圈 12.5×2.65 O-ring 12.5×2.65 | 提升器油缸盖进、出油口 Oil inlet and outlet of the lifter oil cylinder | 2 |
| | | ○形密封圈 16×2.65 O-ring 16×2.65 | 提升器油缸盖下降速度调节阀 Descending speed regulating valve of the lifter oil cylinder head | 1 |
| | | ○形密封圈 23.6×2.65 O-ring 23.6×2.65 | 提升器油缸盖安全阀 Lifter oil cylinder head safety valve | 1 |

11.4 拖拉机用滚动轴承、滚针轴承和钢球规格
Specifications of the Rolling Bearing, Needle Bearing, and Steel Ball for the Tractor

表 11-4 拖拉机用滚动轴承、滚针轴承和钢球规格

Table 11-4 Specifications of the Rolling Bearing, Needle Bearing, and Steel Ball for the Tractor

| 序号 No. | 标准代号 Standard Code | 名称型及型号 Name and Model | 安装位置 Mounting Position | 数量 Qty. |
|-----------|-----------------------|--------------------------|-------------------------------|------------|
| 1 | GB276-1994 | 轴承 6211 Bearing 6211 | 动力输出轴 Power-take-off shaft | 1 |

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|---|----------------|---------------------------------|--|---|
| | | 轴承 6211-Z Bearing 6211-Z | 变速箱功率输出轴前端 Front end of the transmission power output shaft | 1 |
| | | 轴承 6214 Bearing 6214 | 后桥长半轴靠近后轮处 Part close to the rear wheel of the long half shaft of the rear axle | 2 |
| | | 轴承 6313 Bearing 6313 | 后桥长半轴内侧外端 Outer end of the inside of the long half shaft of the rear axle | 2 |
| | | 轴承 6410 Bearing 6410 | 后桥长半轴内侧内端 Inner end of the inside of the long half shaft of the rear axle | 2 |
| | | 轴承 6211N Bearing 6211N | 变速箱第二轴后端 Rear end of the second shaft of the transmission | 1 |
| | | 轴承 6207 Bearing 6207 | 后桥双联轮 Double wheel of the rear axle | 2 |
| | | 轴承 6309 Bearing 6309 | 后桥功率输出轴后端 (760r/min) Rear end of the power output shaft of the rear axle (760 r/min) | 1 |
| | | 轴承 6308 Bearing 6308 | 后桥功率输出轴后端 (540/1000r/min) Rear end of the power output shaft of the rear axle (540/1,000 r/min) | 1 |
| 2 | GB/T278-1989 | 轴承 60203 Bearing 60203 | 发动机飞轮孔内 In the engine flywheel hole | 1 |
| | | | 水泵轴 Water pump shaft | 2 |
| 3 | GB/T283-1994 | 轴承 NJ211E Bearing NJ211E | 功率主动轴齿轮、功率输出轴前端 Power driving shaft gear and front end of the power output shaft | 4 |
| | | 轴承 NJ311E Bearing NJ311E | 左右短半轴两端 Both ends of the left and right short half shafts | 1 |
| | | 轴承 NU211E Bearing NU211E | 变速箱第一轴 First shaft of the transmission | |
| 4 | GB/T5801-1994 | 轴承 NK125/20 Bearing NK125/20 | 变速箱传动轴 Transmission shaft of the transmission | 1 |
| 5 | GB/T12764-1991 | 轴承 HK3524 Bearing HK3524 | 变速箱功率主动轴和功率输出轴 Transmission power driving shaft and power output shaft | 6 |
| | | | 后桥功率输出轴 Power output shaft of the rear axle | 1 |
| | | 轴承 HK2020 Bearing HK2020 | 变速箱传动轴, 后功率输出轴 Transmission shaft of the transmission, rear power output shaft | |

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|---|--------------|---------------------------------|--|---|
| 6 | GB/T297-1994 | 轴承 30215 Bearing 30215 | 后桥差速器 Rear axle differential | 2 |
| | | 轴承 30309 Bearing 30309 | 后桥主动螺旋圆锥齿轮 Driving spiral bevel gear of the rear axle | 1 |
| | | 轴承 7509E Bearing 7509E | 前轮壳 Front wheel housing | 2 |
| | | 轴承 7606E Bearing 7606E | 前轮壳 Front wheel housing | 2 |
| | | 轴承 30310 Bearing 30310 | 后桥主动螺旋圆锥齿轮 Driving spiral bevel gear of the rear axle | 1 |
| | | 轴承 2007106E Bearing 2007106E | 前驱动桥转向节销 Steering knuckle pin of the front drive axle | 4 |
| | | 轴承 2007112E Bearing 2007112E | 前驱动桥前轮毂 Front wheel hub of the front drive axle | 2 |
| | | 轴承 2007113E Bearing 2007113E | 前驱动桥前轮毂 Front wheel hub of the front drive axle | 2 |
| | | 轴承 30209 Bearing 30209 | 前驱动桥差速器 Front drive axle differential | 2 |
| | | 轴承 32207 Bearing 32207 | 前驱动桥小锥齿轮轴 Bevel pinion shaft of the front drive axle | 1 |
| | | 轴承 30308 Bearing 30308 | 前驱动桥小锥齿轮轴 Bevel pinion shaft of the front drive axle | 1 |
| | | 轴承 6006 Bearing 6006 | 前驱动桥万向节传动轴 Transmission shaft of the front drive axle universal joint | 2 |
| 7 | GB/T301-1995 | 轴承 8109 Bearing 8109 | 前轴导向轮支架 Guide wheel bracket of the front shaft | 2 |
| | | 轴承 8204 Bearing 8204 | 悬挂机构升降齿轮盒 Lifting gear box of the linkage mechanism | 1 |
| 8 | | 钢球 12 Steel ball 12 | 变速箱换挡轴 Transmission shift shaft | 6 |
| | | | 机滤座孔内 In the engine oil filter seat hole | 1 |
| | | | 后桥动力输出轴操纵手柄 Control handle of the power-take-off shaft of the rear axle | 1 |
| | | 钢球 15 Steel ball 15 | 机滤座孔内 In the engine oil filter seat hole | 1 |

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|----|------------------|---|---|-----|
| | | 钢球 5 Steel ball 5 | 前桥后摆轴轴承座 Bearing seat of the rear oscillating Shaft of the front axle | 1 |
| | | 钢球 7/8" Steel ball 7/8" | 制动压盘 Brake pressure plate | 10 |
| 9 | GB/T309-84 | 滚针 $\phi 3.5 \times 29.8$ Needle $\phi 3.5 \times 29.8$ | 变速行星齿轮 Transmission planetary gear | 61 |
| 10 | GB/T5801-1994 | NK125/20 | 变速箱第一轴 First shaft of the transmission | 4 |
| 11 | GB/T7918-1997 | 轴承 K25 \times 31 \times 20 Bearing K25 \times 31 \times 20 | 变速箱倒档齿轮 Reverse gear of the transmission | 2 |
| 12 | 定制 Customized | 推力轴承 996713 Thrust bearing 996713 | 离合器推力轴承座 Clutch thrust bearing seat | 1 |
| 13 | GB/T309-84 | 滚针 $\phi 5 \times 25.8$ Needle $\phi 5 \times 25.8$ | 前驱动桥行星轴 Planet shaft of the front drive axle | 102 |

11.5 拖拉机配套农具明细表

List of Supporting Agricultural Machinery of the Tractor

表 11-5 拖拉机配套农具明细表

Table 11-5 List of Supporting Agricultural Machinery of the Tractor

| 类别 Classification | 农具名称型号 Name and Model of the Agricultural Tool | 主要参数 Main Parameters | 机具生产厂家 Tool Manufacturer |
|----------------------------------|--|---|---|
| 耕地机械 Cultivation machinery | 悬挂四铧犁 IL425 Four-share mounted plow IL425 | 中等以下土壤：比阻为 $\leq 50 \text{ kPa}$ ，耕深 16-22cm Soil below medium grade: specific resistance ≤ 50 kPa, cultivation depth of 16-22 cm | 保定农机厂 Baoding Agricultural Machinery Plant 德州农机厂 Dezhou Agricultural Machinery Plant 张掖农机厂 Zhangye Agricultural Machinery Plant |
| | 悬挂三铧犁 IL335 Three-share mounted plow IL335 | 轻质土壤：比阻为 $\leq 35 \text{ kPa}$ ， 耕深 22-28cm Light soil: specific resistance ≤ 35 kPa, cultivation depth of 22-28 cm | |
| | 悬挂四铧犁 IL430 Four-share mounted plow IL430 | 中等以下土壤：比阻 $\leq 50 \text{ kPa}$ ， 耕深 22-26cm Soil below medium grade: specific resistance ≤ 50 kPa, cultivation depth of 22-26 cm | |
| | 悬挂五铧犁 ILQ525 Five-share mounted plow ILQ525 | 轻质土壤：比阻为 $\leq 35 \text{ kPa}$ ， 耕深 16-22cm Light soil: specific resistance $\leq 35 \text{ kPa}$ ， cultivation depth of 16-22 cm | |

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| | IGQN-200 旋耕机 IGQN-200 rotary tiller | 耕深 12-16cm Cultivation depth of 12-16 cm 耕宽 200cm Cultivation width of 200 cm | 南昌旋耕机厂 Nanchang Rotary Tiller Plant 连云港旋耕机厂 Lianyungang Rotary Tiller Plant 德州农机厂 Dezhou Agricultural Machinery Plant |
| 整地机械 Scarification equipment | IBJX-2.0 18 片悬挂中耙 18-teeth medium mounted harrow | 耕深 10-14cm Cultivation depth of 10-14 cm 耕幅 200/220cm Cultivation amplitude of 200/220 cm | 徐州农机厂 Xuzhou Agricultural Machinery Plant 北方农机厂 North Agricultural Machinery Plant |
| | IBJX-2.2 20 片悬挂中耙 20-teeth medium mounted harrow | | |
| | IBJB-2.5 24 片半悬挂中耙 24-teeth medium semi-mounted harrow | 耕深 10-14cm Cultivation depth of 10-14 cm 耕幅 250cm Cultivation amplitude of 250 cm | 驻马店农机 Zhumadian Agricultural Machinery Plant 北方机械厂 North Machinery Plant |
| | IBZK-1.8 16 片重耙 16-teeth heavy-duty harrow | | |
| 播种施肥机械 Seeding and fertilizer machinery | 气吸式精密播种中耕机 2BQ-6D 型 Pneumatic precision seeding and inter-cultivation machine (type 2BQ-6D) | 播种、中耕行数: 6/7, 行距: 50-70cm; 工作幅宽: 360-420cm; 作业速度: 6-8Km/h Seeding and inter-cultivation row number: 6/7, line spacing: 50-70 cm; working width: 360-420 cm; working speed: 6-8 km/h | 辽宁省瓦房店精量播种机械制造有限公司 Liaoning Wafangdian Precision Seeding Machinery Manufacturing Co., Ltd. |
| | 气吸式免耕覆盖精量播种机 2BQ-6D 型 Pneumatic precision seeding machine featured by no-tillage with mulch (type 2BQ-6D) | 播种行数: 6, 行距: 60-70cm; 工作幅宽: 360-420cm; 作业速度: 5-7Km/h Seeding row number: 6, line spacing: 60-70 cm; working width: 360-420 cm; working speed: 5-7 km/h | |
| 秸秆还田 Straw turnover | “布谷”4Q-1.5 秸秆切碎还田机 “Bugu” 4Q-1.5 straw shredding and returning machine | 工作幅宽: 150cm, 抛洒幅宽 150-200cm, 留茬 2-8cm Working width: 150 cm, seedling-throwing width: 150-200 cm, and stubble of 2-8 cm | 石家庄农机股份有限公司 Shijiazhuang Agricultural Machinery Co., Ltd. |

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| | <p>“布谷”4J-180 秸秆切碎还田机 “Bugu” 4J-180 straw shredding and returning machine</p> | <p>工作幅宽: 180cm, 抛洒幅宽 180-230cm, 留茬 2-8cm Working width: 180 cm, seedling-throwing width: 180-230 cm, and stubble of 2-8 cm</p> | <p>山东德州华北农机厂 Shandong Dezhou North China Agricultural Machinery Plant</p> |
| | <p>“布谷”4J-150 秸秆切碎还田机 “Bugu” 4J-150 straw shredding and returning machine</p> | <p>工作幅宽: 150cm, 抛洒幅宽 150-200cm, 留茬 2-8cm Working width: 150 cm, seedling-throwing width: 150-200 cm, and stubble of 2-8 cm</p> | |

用户信息反馈单
User Information Feedback Sheet

亲爱的用户：

Dear user,

非常感谢你的惠顾，选购、使用沭河 SH70 系列轮式拖拉机，我们愿意竭诚为您服务，及时有效地解决您在使用中出现的问题，最大限度地满足您的要求，做好用户服务工作。

Thank you for purchasing and using Shuhe SH70 series wheeled tractor; we will serve you warm-heartedly and timely, effectively solve all problems, try to meet your requirements furthest, and do well in the user service.

现将“用户信息反馈单”随同说明书发给您，请您用正楷字填写，用挂号信寄至山东省临沭县常林西大街 112 号山东常林道依茨法尔机械有限公司三包服务部，邮政编码：276715。公司将把您的《用户信息反馈单》输入电脑贮存，以便为您实行“三包”服务。

The “User Information Feedback Sheet” is sent to you along with the Use And Maintenance, please fill in it in block letters and send it to the followings (address: 112# Changlinxi Avenue, Linshu County, Shandong Province; Three-guarantee Service Department of Shandong Changlin DEUTZ-FAHR Machinery Co., Ltd.; postal code: 276715) with the registered mail. We will input your *User Information Feedback Sheet* into the computer for convenient “three-guarantee” service.

对您的配合和大力支持，我们表示衷心的感谢！

We express our gratitude to your cooperation and great support!

用户信息反馈单
User Information Feedback Sheet

用户信息反馈单
User Information Feedback Sheet

| | | | | | | | |
|--|--|---|--|-----------------------------------|-----------------------------------|-------------------------------|--|
| 产品型号 Product Model | | 拖拉机出厂编号 Tractor Manufacturing Number | | | 发动机生产厂家 Engine Manufacturer | | |
| 发动机编号 Engine Number | | 出厂日期 Delivery Date | | | 购买日期 Purchasing Date | | |
| 用户姓名 User's Name | | 年龄 Age | | 文化程度 Educational Background | | 驾驶工龄 Driving Experience | |
| 家庭住址 Home Address | | | | 电话号码 Telephone Number | | 邮政编码 Postal Code | |
| 购机主要用途 Main Purchasing Intention | | | | 拖拉机 负荷 Tractor Load | | | |
| 出现的故障时间及原因 Malfunction Time and Cause | | | | | | | |
| 损坏零件的名称及状况 Name and State of the Damaged Spare Parts | | | | | | | |
| 改进意见及建议 Improvement Opinions and Suggestions | | | | | | | |



注意：此反馈单由机主(或机手)如实填写，以便了解拖拉机使用情况，做好用户服务工作。用户信息反馈单复印后填写有效。

CAUTION: The feedback sheet shall be filled in by the tractor owner (or tractor operator) faithfully, so as to comprehend the tractor service conditions and do well in the user service. It is effective to fill in the copy of the User Information Feedback Sheet.



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