Mitsubishi Tractor

Maintenance Manual

7530/7532

Mitsubishi Agricultural Machinery Co., Ltd.

Technical Service Dept. SVC7500C.

I INTRODUCTION

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Introduction

1 Introduction

This manual is prepared subject to the dealers for Cub Cadet Corporation and explains the procedures for repair and adjustment work with illustrations, service value, and specialized tools, etc. required for the work. The repair and adjustment procedures are described for all licensed service staff and inexperienced service staff.

This manual is complied based on the product as of December 2003. Prototype is used for contents of photos, etc. and may differ from the actual vehicle.

1.1 Cautionary Items for Safety

It is important to follow the correct service method and procedures for safe and reliable work and safety of vehicle and operators. This manual describes general cautionary items at maintenance and repair and effective method based on the actual work.

It is difficult to instruct or warn for everything which could occur during service of vehicle since procedures, techniques, tools, and skill levels of each staff vary depending on each case. Therefore, when working in a method or with tools not described in this manual, take cautions for safety of staff and not to damage the vehicle.

1.2 Meanings of Warning, Caution, and Reference

Signal words in this manual include warning, caution, and reference.

⚠ WARNING

Indicates an imminently hazardous situation, which if not avoided, may result in death or serious injury.

⚠ CAUTION

Indicates a hazardous situation, which if not avoided, may result in vehicle or parts damages.

Reference)Indicates referential information.

All dangers cannot be avoided by these warnings or cautions. Take caution for safety and do not overdo. Lack of attention will lead to a hazardous situation.

1.3 Spare Parts

Use genuine parts for spare parts at maintenance.

1.4 Usage of this Manual

This manual describes procedures and inspection items for maintenance and adjustment of 7530 and 7532.

Structure

This manual consists of groups and sections.

Group

A group categorizes the information by components of vehicle.

This manual is categorized into 4 groups.

1. Introduction
2. Chassis
3. Hydraulic System
4. Electrical Equipment

The group number is indicted at the left side of the section number.

Section

Each group is divided into sections.

A section is categorized by components or systems. The number following the group number indicates the categorized system.

Maintenance and Repair

Block-diagrams and illustrations of parts are used for easier understanding.

Required service value is indicated along the procedure to avoid troubles of referring to other sections.

Numbers are marked in the illustration for the parts with specific removal procedure to correspond to the procedure of the same number.

Only the repair procedures corresponding to one of the below conditions are described.

- In case of difficulty to identify the component or to start the work
- In case of requiring specialized tools for removal and installation
- In case of requiring special caution for safety or potential product damage during removal and installation
- In case of difficulty of understanding the removal/installation method
- In case of requiring a test or calibration after installation

The reason of no indication of repair procedures is due to one of the below conditions.

- In case of not corresponding to the above conditions. Complicated work or work requiring special caution for safety or potential product damage or specialized tools.
- In case of parts not repairable due to requiring special device for adjustment after repair.
- In case a replacement to new parts is recommended compared to parts overhaul for economical reason.
- In case of existing other maintenance reference issued by Cub Cadet Corporation due to its technical reasons

1.5 Cautions for Safety and Sanitation

Introduction

The majority of maintenance and repair work of the vehicle contains potential danger to health. In this section, cautionary items required for accident prevention for works with potential danger and related material and tools are described.

However, all the corresponding works and materials cannot be stated herein; therefore, please take cautions for safety and sanitation at all times at work.

Please make sure to refer to the information for safety of material issued by the manufacturer or supplier before using any products.

Acid and Alkali

Acid and Alkali are used for the battery and cleaning agent.

It may cause an irritation, inflammation, or even burn on your skin, eyes, nose, and throat. Regular protective clothes may not be sufficient.

Avoid adherence to the skin, eyes and clothes and use non-penetrative apron, gloves, and eye protectors. Do not inhale the vapor.

Provide eye-washing kit, tap water, and soaps in case for adherence to the skin, etc.

Warning label is posted.

Adhesive and Sealing Agent

Smoking is prohibited around these substances due to their high flammability, ignitability, and explosiveness.

Store it in safe place far from fire and tidy the work area at use.

Ex.) Cover the workbench with disposable paper or cover.

Use the applicator as much as possible.

Indicate the contents on the container.

Flux Based Adhesive and Sealing Agent

Follow the instruction by the manufacturer.

Water Based Adhesive and Sealing Agent

Water based adhesive and sealing agent may contain a small amount of volatile toxic substance or harmful chemical substance. Take cautions not to let it contact the skin or eyes and ventilate sufficiently.

Fiber Based Adhesive and Sealing Agent

Ex.) Epoxide, formaldehyde fiber based adhesive and sealing agent

It may generate harmful and toxic volatile chemical substance. Make sure to mix the agent only in a well-ventilated place.

If unsettled fiber or hardening agent adheres to your skin, it may cause an inflammation, or toxic substance may enter the body through the skin. Also, it may damage your eyes in case of entry.

Acrylic Cyanide and Acrylic Adhesive

The majority of these adhesives are harmful, causing inflammation on skin, eyes, and respiratory organs. Take cautions not to let it contact the skin or eyes and follow the instructions by the manufacturer.

Two-Agent Mixture Adhesive

People with asthma or allergy in respiratory organs shall not use these agents or work around these agents. Otherwise, it may generate allergic symptoms.

Contact with these agents for long period of time will cause an inflammation in eyes or respiratory organs. Drowsiness or losing conscious may be caused by the agents with high density. Inhalation of gasified agent for a long period of time may cause a adverse effect on human body. Also, its degreasing effect may cause an inflammation on the skin if exposed for a long period of time.

When working on spraying these kinds of agents, it is recommended to work in a well-ventilated and divided room with ventilation system with caution not to inhale the gasified or sprayed agents.

Use gloves, eye protectors, and mask at working with these agents.

Antifreeze Solution

Smoking is prohibited around these substances due to their high flammability, ignitability, and explosiveness.

It is used for cooling system, pneumatic of brake, and washer solution of the vehicle.

Antifreeze solution for cooling may generate vapor if heated. Do not inhale.

Antifreeze solution is harmful to human body only with small amount absorbed through the skin and may lead to a intoxication. Also, it is very dangerous if swallowed by accident. Please consult with a doctor immediately.

Do not use the antifreeze solution as industrial water or cooling water for facilities connected to the cooking or drinking water facilities.

Battery Solution

Gas which was generated during charging may explode. Do not approximate any fire to the battery on charge or immediate after charging.

Ventilate sufficiently during charging.

Chemical Substances

Take cautions at all times for handling and storing the chemical substances. (Solvent, sealing agent, adhesive, coating, fiber form, battery solution, antifreeze solution, brake fluid, fuel, oil, and grease, etc.) Some of these chemical substances are toxic, harmful, corrosive, irritating, flammable or may generate toxic gas or powder.

Some of the effects of being in contact with chemical substances for more than required amount of time may appear immediately or after a certain period of time. Also, the symptoms may be temporal, chronic, superficial, accumulative in the body or mortal.

Cautionary Items for Chemical Substances

- Read and follow the instructions in the label or instruction manual attached to the container.
- Remove the chemical substances immediately if attached to the skin or clothes. Clothes notably polluted with chemical substances shall be changed and cleaned.
- Review the working method and protective clothes and prevent the chemical substances from attaching to the skin or eyes and absorption of vapor, smoke, or powder, etc. Make sure to follow the cautionary items listed on the container to prevent the fore or explosion.
- Wash the hands before taking a break, eating and drinking, smoking, or using the restrooms when handling the chemical substances.
- Keep the working area tidy and do not spill the chemical substances on the floor.
- Follow the national or local regulations for storage of chemical substances.
- Store the chemical substances in the place unreachable by children.

Prohibited Items for Chemical Substances

- Do not mix without instruction by the manufacturer. Depending on mixing method, it may change to harmful and toxic substances, generate harmful and toxic gas, or contain explosiveness.
- Do not spray the chemical substances, especially solvent-based chemical substances, in a closed area.
- Do not heat or approximate the fire to the chemical substances without instruction by the manufacturer. Some chemical substances are high in flammability or may generate harmful and toxic gas.
- Do not leave the container uncovered. The amount of accumulated evaporated gas may reach to the point to be toxic, harmful, or explosive. The gas heavier than air in specific gravity will be accumulated in the pit, etc.
- Do not put the chemical substance into the unlabeled container.
- Do not clean the hand or clothes with chemical substances. Especially solvent and fuel will degrease the skin and cause an inflammation. Also, it may cause damage to human body by being absorbed through the skin or lead to intoxication.
- Do not sniff the chemical substances deliberately. Inhalation of high dense gas even for a short time is harmful to a human body.

Corrosion Protection Agent

Smoking is prohibited around these substances due to their high flammability, ignitability, and explosiveness.

Follow the instruction of the each manufacturer for agents containing solvent, fiber, or oil products. Take cautions not to let it get to the skin or eyes and spray it in a place with ventilation system.

Dust

Some of the dusts are irritating or harmful. Do not inhale the powdered chemical substances or dust generated by grinding. If the ventilation at work area is insufficient, use a dust-proof mask.

The dust generated from flammable substances may cause an explosion. Take caution not to accumulate them and not to approximate anything causing sparks.

Electrical Shock

Electrical shock occurs when faulty electric device is used or when misused.

Make sure to maintain the electric devices in good condition and perform the operation test frequently. Indicate the faulty device and remove it from the working area.

Make sure there are no wear disconnection, distortion, disconnection or cracks in the electrical wire, cable, plug and socket.

Do not let the electric devices in contact with water.

Make sure the electric devices are protected with appropriate volume of fuse.

Operate the electric devices properly and do not use any devices with failure. If the above items are not followed, it may cause a fatal accident.

Take caution not to damage the cable of movable electric devices by getting trapped by lift, etc.

Operators for electric devices must be trained for a basis first-aid.

In case of electrical shock accident;

- Turn off the power and approach to the victim.
- If unable to turn off the power, pull the victim away from the power source by using a dry non-conductive tool.
- Perform an artificial respiration if familiar.
- Call the medical staff.

Exhaust Gas

The exhaust gas contains suffocative harmful and toxic chemical substances and particles such as carbon monoxide, nitric oxide, aldehyde, lead and hydrogen oxide. When actuating the engine, avoid working in the closed area and work in a place with sufficient exhaustion and ventilation system.

Diesel Engine

When the gas reaches to the dangerous density, it will warn by soot, smell, and irritation.

Fire

Most of the parts and materials used for vehicle repair are high in flammability and may generate harmful and toxic gas by burning.

Make sure to follow the cautionary items on fire prevention for handling and storage of flammable part, materials, and solvents. Take special caution at working around electrical equipment.

Make sure the area is clear from danger of fire before using the electric devices.

Provide a fire extinguisher at using the electric devices.

First Aid

It is requested to fulfill the requirements regulated by law as well as train the staff with first aid treatment.

Wash the eye over 10 minutes with clean running water if any chemical substances enter.

Wash with water and soup if attached to the skin.

Immediately take a deep breath with fresh air outside when inhaled gas or vapor. If the condition does not improve, consult the doctor.

If swallowed the chemical substances by accident, show the chemical container or label to the doctor and consult. Unless not indicated in the container, do not vomit.

Fuel

Avoid physical contact and wash with soup and water if attached to the skin.

Diesel Oil

It is flammable.

Contact of large amount or long period with the oil of high boiling point will cause serious skin damage such as skin cancer.

Kerosene

It is used as heating fuel, solvent, and washing agent.

It is flammable. Smoking is prohibited around kerosene.

If swallowed by accident, it may cause an inflammation in the mouth or throat. If the swallowed kerosene enters the lung, it is very dangerous.

Kerosene may dry the skin and cause an inflammation. If entered eye, it may cause a slight irritation.

The volatility of kerosene is low, and does not generate toxic vapor in normal condition. However, Avoid the contact with vapor generated by heating the kerosene. (Vapor will be generated in the process of degreasing.) Take cautions not to let contact the skin or eyes and ventilate sufficiently while working.

General Tools and Devices

All the tools and devices shall be maintained in good condition and provided with safety device in required positions.

Do not use the tools and devices for other than their original purpose. Do not load on the jack, stand, and lift, etc. more than specified. The damage caused by overload may not appear immediately but cause a fatal accident at the next time of use.

Do not use any tools and devices with failure. Especially tools which rotate at high speed may be dismantled suddenly during operation and cause an accident resulting in injury or death.

Use the eye protectors when using the grinder, chisel, or sanding machine, etc.

Use the dust-proof mask when using the grinder, blasting, asbestos, or atomizer.

Ventilate sufficiently while working and take cautions not to fill with the dust, atomization, and gas.

High Pressure Air, Lubricant, and Oil Testing Equipment

Maintain the high-pressure equipment in good condition and perform a periodical maintenance and inspection. Especially pay attention to the joint and coupling.

Do not point the tip of high-voltage nozzle (diesel injector, etc.) at person. Sprayed fuel can penetrate into the subcutaneous tissues, resulting in serious fatal accident.

Lubricating Oil and Grease

The most of the lubricating oil and grease are irritating to the skin and eyes. Avoid a long term or repetitive contact with mineral oil.

Used engine oil

By long term or repetitive contact with mineral oil, the sebum will be taken, and the skin will be dried, resulting in inflammation. Also, the used engine oil contains pollutant which can cause a skin cancer. Provide a skin-protective measure and washing facility for handling.

Do not use the used engine oil as lubricating oil or apply to the area where may have a contact with the skin.

Cautionary Items for Health

- Avoid a long term or repetitive contact with oil, especially used engine oil.
- Use protective clothes. Use waterproof gloves if necessary.
- Do not insert the waste cloth containing oil into the pocket.
- Take caution not to pollute the clothes, especially the underclothes, with oil.
- Do not use clothes or shoes remarkably polluted with oil. Wash the working uniform periodically.
- Provide a first aid kit in case of injury.
- Apply the protective cream before working for easier removal of adhered oil on the skin.
- Wash the oil adhered to the skin with soup and water until it is completely washed out. (Skin cleaner and nailbrush may be useful.) Provide lost oil of the skin with cream containing lanoline.
- Do not use gasoline, kerosene, thinner, or solvent, etc. to clean the skin.
- If disorder of skin is worsened, consult the doctor immediately.
- Degrease the parts before handling the parts, if possible.
- Use the eye protectors or face shield, etc. in area with possibility that these solvents may enter the eyes.

Noise

Some types of works are performed in area with high noise, resulting in losing a hearing acuity. In such a case, use protective measure to the ears.

Coating

Smoking is prohibited around the coating due to its high flammability and ignitibility.

Solvents

It is contained in cleaning agent, degreasing agent, coating, plastic, fiber, and thinner, etc.

Some of them are high in flammability and ignitibility.

Its degreasing effect may cause an inflammation on the skin if exposed for a long period or repetitively.

If entered the eyes, it may cause a serious inflammation and loss of eyesight.

High dense vapor and atomization will cause an inflammation of eyes or throat, drowsiness, nausea, headache, or even loss of conscious at worst only by short-term contact.

Low dense vapor or atomization can result in a serious effect by long-term and repetitive contact due to un-posted warning.

If swallowed by accident, vomit the solvent swallowed. It is most dangerous to inhale into the lung.

Take cautions not to let it contact the skin or eyes and use gloves, eye protectors, and protective clothes, etc. as required.

Ventilate sufficiently while working and take cautions not to inhale the smoke, vapor, or atomization, etc. Seal up the container. Do not use it in closed area.

When spraying the coating and adhesive, etc. including solvent, use the forced ventilation and protective mask if ventilation is insufficient.

Do not use the heat or fire without specified and detailed instruction by the manufacturer.

Cautions at Using Lift and Hoist

⚠ CAUTION

- Do not make a lift for substitute.

It is very dangerous when lifting up or down the vehicle or parts. Do not work under the parts lifted without any support such as when lifting the engine.

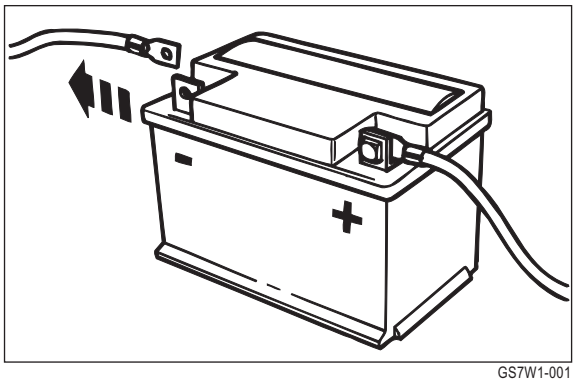
Make sure that the lift equipment such as jack, wheel stand, and cling are in an appropriate condition for work at all times and perform a periodical inspection.

1.6 Standard Maintenance

Handling Vehicle in Work Area

Take cautions for following items at handling vehicle in work area.

- Brake the parking brake so that the vehicle will not move forward and backward. Also, make a whirl-stop on slopes.
- Provide sufficient ventilation equipment for discharging the exhaust gas or exhaust duct when activating the engine.
- Secure sufficient space for work when removing the tire by jacking up the vehicle.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Battery Disconnection

When disconnecting the battery negative cable, make sure to stop the engine and insulate the battery positive cable. (Such as covering with appropriate cloth.)

If the below procedures are required for vehicle repair, make sure to disconnect the battery.

- Jack-up of vehicle
- Engine work
- Work under body
- Installation/removal of electrical equipment

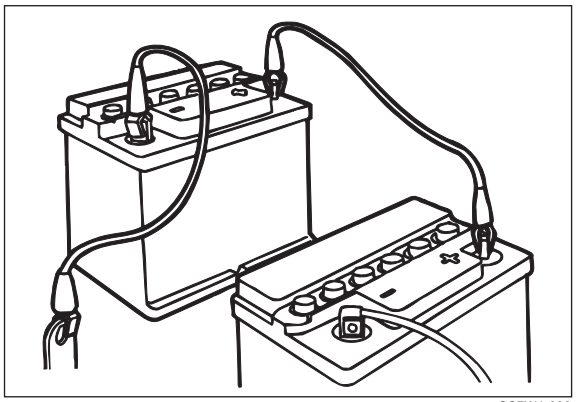
Reconnection of Battery

⚠WARNING

Battery on charge may generate explosive hydrogen gas. Take caution not to generate sparks and cover the vent plug or cover with moistened cloth accordingly.

Before reconnecting the battery, make sure that all the electrical system is off in order to prevent the generation of sparks and to protect the high sensitivity electrical equipment from the damage.

When reconnecting the battery, make sure to reconnect the battery terminal positive first after confirming that the electrical contact is satisfactory and the battery terminal is well fixed.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Connection of Booster Cable to Battery Down

⚠WARNING

When connecting the booster cable while generating hydrogen gas immediately after the battery charge is complete, the electric arc may generate and explode. Cover the vent plug or cover with moistened cloth.

CAUTION

Battery runs out because of short-circuit of the electric circuit. Therefore, when the battery is dead, there exist circuits with running electricity even with all the normal electric circuits off. If connecting the booster cable in such condition, the electric arc will generate.

Using a booster cable is the only way to start up the vehicle with battery down; however, it is not recommended. The consumed battery may not be reusable if not charged immediately after starting with the booster.

- Use the booster cable resistant to the large electric current.
- The capacity of the battery for starting vehicle and battery down must be the same. Connect the battery for the vehicle and battery down in parallel.
- Before connecting the booster cable, turn off all the switch type electric circuits. This will reduce the danger of generation of sparks.

WARNING

Take cautions for the cable terminals not to contact with each other and with body earth of the vehicle while the booster cable is connected to the battery. If short-circuiting the fully charged battery with the booster cable, the electric current of over 1,000 ampere will be discharged, and the intense electric arc and sudden temperature increase of the booster cable and battery terminal will occur, which may cause a battery explosion.

Make sure to follow the below procedures for connecting the booster cable.

- First, the terminal positive of battery down, then the terminal positive of starting vehicle.
- The terminal negative of battery down, then the earth point (engine lifting bracket, etc.) at over 300 mm away from the battery terminal for the starting vehicle.

Before disconnecting the booster cable, make sure to decelerate the engine speed to the idling speed.

Disconnect the booster cable in the reverse order of the connecting procedure and take caution not to short-circuit the both sides of the cable.

Parts Cleaning

In order to prevent the intrusion of foreign matters, remove the accumulated dust and grease before removing or disconnecting any parts or assemblies.

Clean the removed parts before inspection and reassembly.

Cleaning procedure

- Dry cleaning
- Remove the dust with soft brush or wire brush.
- Scrape the dust with metal piece or wood piece.
- Wipe with waste cloth.

⚠ CAUTION

Compressed air may contain water. Take caution when cleaning the hydraulic parts.

- Blow off the dust with compressed air. (Use the eye protectors when using the compressed air.)
- Remove the dry dust with vacuum device. Make sure to apply this procedure for removal of dust from asbestos.
- Clean with vapor.

⚠ WARNING

Some solvents are harmful to human body and require caution at handling. Refer to "Cautions for Safety and Sanitation" in this section and cautionary items at handling by the manufacturer.

Various kinds of solvents are used for cleaning of parts for vehicle. Make sure to use the specified solvent for cleaning the parts for hydraulic brake and electrical equipment. Refer to "Solvent, Adhesive, and sealing Agent" in this section.

Parts Inspection

Reference) Items listed in this section are general guideline for parts inspection.

Detailed information stated in each section of this manual shall have priority.

Parts inspection shall be performed in the process of repair and overhaul for the below objectives.

- Inspection of damages
- Measurement of degree of wear
- Assessment for ability of normal function of the parts until next inspection

Damages

Damage shall be assessed according to the below category.

Failure

Parts or the main part of the parts are damaged to the unusable or irreparable point.

Deflection

The parts are bent, twisted, dented or in unadjustable condition.

Cracks

Some parts are difficult to find their cracks. For example, the cracks generated in the cylinder head or cylinder block are open when the engine is in high temperature but closed once the engine cools down. In such cases, special methods such as dyestuff or magnetic flux inspection will be required to inspect the existence of cracks and their depth.

Corrosion and Pit

Deterioration of the surface of the parts as a result of chemical reaction

Chemical and Physical Reaction

Nonmetal parts suffer from hardening, softening, or cracks. For example, the rubber seal for the brake system may deteriorate by pollutant fluid, or the coated face of the body may be corroded by adhesion of fluid.

Breakage and Disconnection

Damages which occur in nonmetal parts such as oil seal and boots, etc.

Wear

The limit is important. The limit of wear is stated in "Specification" of the related section. Inspect the parts, if their limit is unstated, for existence of remarkable wear which may affect the function or operation of the parts by visual inspection.

Assessment of Usable Period of Parts

It is economical to change the part if the part is assessed to have wears, damages, or deterioration and to have short usable period after inspection.

If the parts affecting the safety of vehicle running such as brake or steering, etc. have remarkable wear, damage, or deterioration, etc. and are assessed to have short usable period after inspection, change the individual part or assembly.

Calibration of Main Measuring Instruments

⚠WARNING

If calibration of main measuring instruments is not performed properly, it may lead to a fatal accident or damage of the vehicle.

It is extremely important to calibrate the main measuring instruments such as torque wrench, multi-meter, and exhaust gas analyzer, etc. periodically, following the instructions by manufacturer.

2 Cautionary Items at Operation

⚠ CAUTION

Make sure to place the vehicle in level place, brake the parking brake, and stop the engine before staring disassembling or reassembling.

2.1 Cautionary Items at Operation

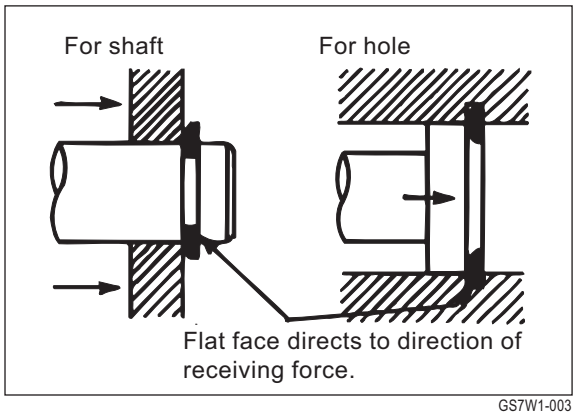
Disassembly and Removal

1. Use the corresponding tools and equipment. Use the specialized tools as specified, if required.
2. Provide the working bench and organizing table, etc for disassembled parts as required and disassemble according to the disassembling procedure.
3. Arrange the disassembled parts in good order to prevent the loss of parts.
   Organize each part in a clean place and take caution not to mix. Especially bolt and nut can be prevented their loss by mounting them in the original position.
4. Take caution for adherence or entry of the refuse or chips when disassembling the hydraulic equipment.
5. When disassembling the parts of hydraulic equipment, disconnect the battery negative cable beforehand.
6. Take caution for matching mark at disassembly and mark them if missing, accordingly.
7. Pay attention to the existence of unusualness at disassembly or washing and do not miss the unusualness which cannot be found after disassembly or washing.
8. Take caution for safety, especially for the balance of disassembled equipment or transfer of heavy equipment. (Use the jack or chain block as required.)

Reassembly and Installation

1. When washing the parts, use the general cleaning agent for industrial parts. Do not use the gas oil for ecological reason. Also, wash the hydraulic parts with specified operating oil.
2. When inspecting the parts, inspect after removing the oil or dirt.
3. When replacing the parts, make sure to use the genuine parts to maintain the performance of the vehicle and for safety.
4. Make sure to change with new packing and O-ring at installation. Also, slightly apply grease to the O-ring and oil seal, etc. before installation.
5. Use Threebond #1208D for liquid packing.

- When using the liquid packing, remove the old packing completely and apply the packing to the connecting face evenly without any gaps to the height of 1 to 2mm. Apply the packing in the center of flange between the boltholes and inner face for the bolt hole.
- Assemble within 10 minutes after application and lubricate the oil, etc. 30 minutes after assembly.



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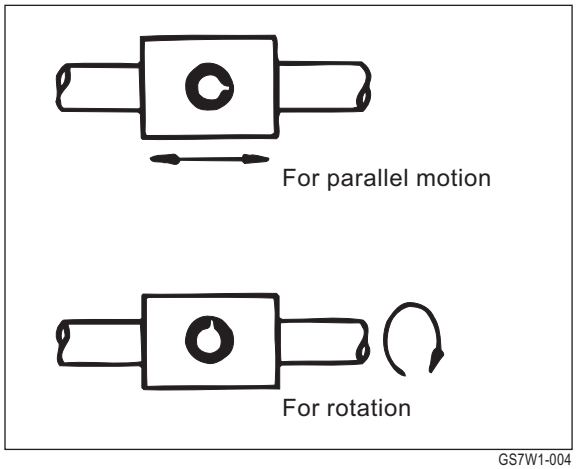
6. Mount C-rings for shaft and hole, as shown in the figure, toward the flat face of the C-rings to the same direction which the force is received.



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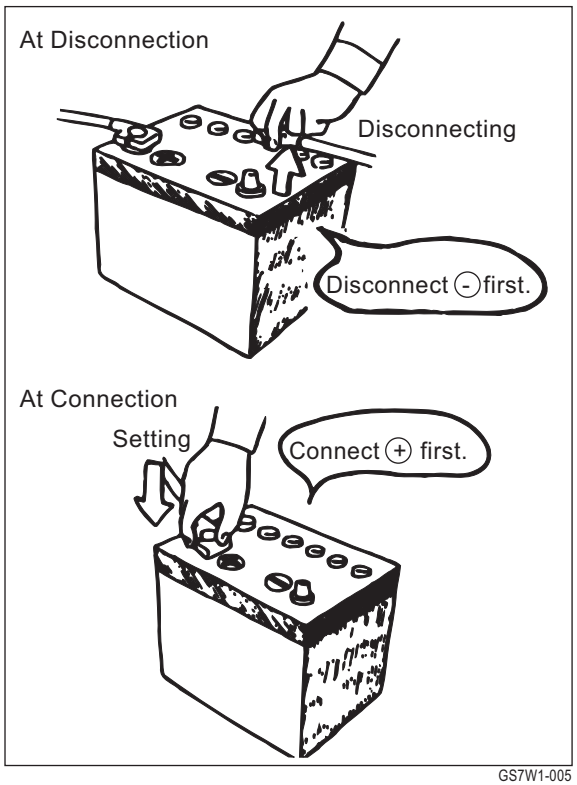
7. Drive the spring pins, as shown in the figure, toward the split (joint) to the same direction which the force is received.
8. Change with new split cotter pins and make sure split them completely to prevent from coming off.
9. Tighten with specified torque for the parts specified using the torque wrench.

   Reference) Refer to the list for tightening torque.



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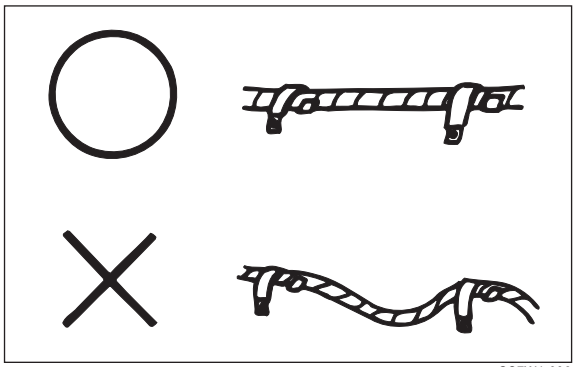
2.2 Cautionary Items at Handling Electrical Equipment and Electrical Wiring

Make sure the safety and take cautions for the below items at handling of electrical equipment and electrical wiring in order to prevent the equipment and peripheral equipment from damaging.

⚠WARNING

Make sure to turn off the starter switch and disconnect the battery negative cable before starting the inspection of junction.

- Disconnect the negative cable first when disconnecting the battery cable and connect the positive cable first when connecting.
- Inspect the electrical wiring for the damage or looseness of junction once a year.



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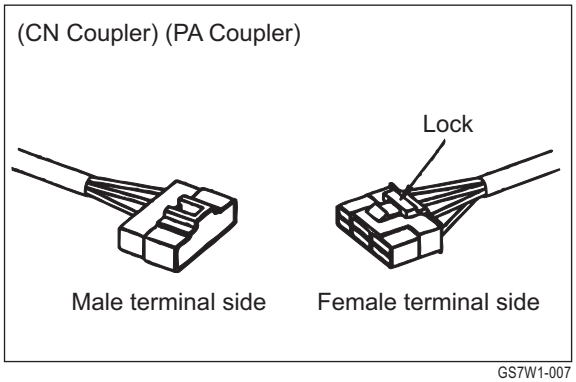
2.2.1 Wire

1. Tighten the wiring terminal securely.
2. Repair or change the damaged or deteriorated wire immediately.
3. Clamp securely and take caution not to damage the wire by clamping.
4. Take caution not to have the wire contact with dangerous part (rotating equipment, exhaust box, and corner with acute angle, etc.).
5. Set the grommet securely and take caution not to damage the wire.
6. Clamp the wire with no slack, twist, or forced pulling. However, it may require some slacks in moving part.
7. Take caution not to pinch the wire when installing the parts.
8. Connect the battery only after rechecking the terminal protection or clamp condition, etc. after wiring.
9. Use the fuse with specified capacity. It is strictly prohibited to substitute the metal wire or copper wire for the fuse.

2.2.2 Battery

1. Do not install the battery with capacity other than specified (Ah).
2. Apply some grease to the battery terminal after connecting the cable and cover with terminal cover.
3. Take caution not to accumulate the refuse or dust on the battery.
4. Remove the battery from the vehicle when charging the battery.



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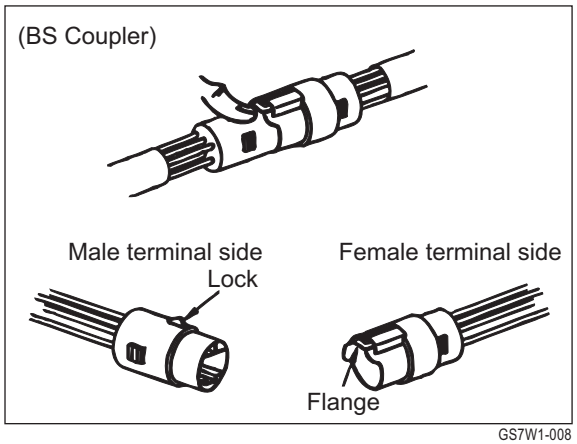
2.2.3 Coupler

1. When disconnecting the coupler and plug terminal, take caution not to pull the harness.
2. Press the lock and pull to disconnect the CN coupler and PA coupler.



3. Push up the flange and pull out to disconnect the BS waterproof coupler.

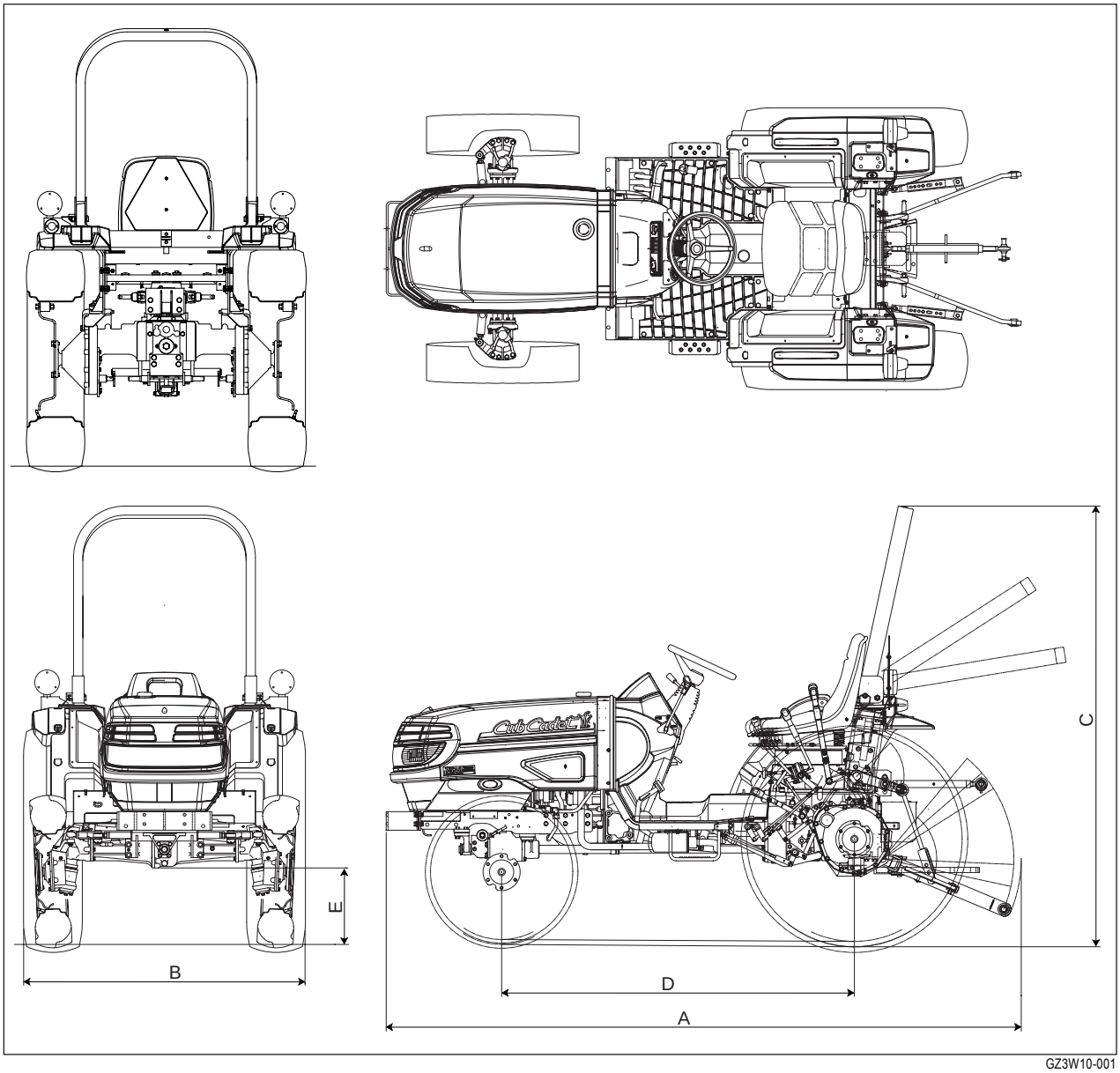
2.2.4 Washing

Do not dash the water directly to the electrical equipment such as main switch or alternator, etc.

2.2.5 Oil and Refuse

1. If spilt any flammable fluid such as fuel or lubricating oil, etc., wipe off with dry cloth and do not approximate fire.
2. Change the deteriorated fuel pipe.
3. Remove the accumulated refuse on the high heat part, wire harness, and battery, etc.

3 Tetrahedral Sketch Drawing



GZ3W10-001

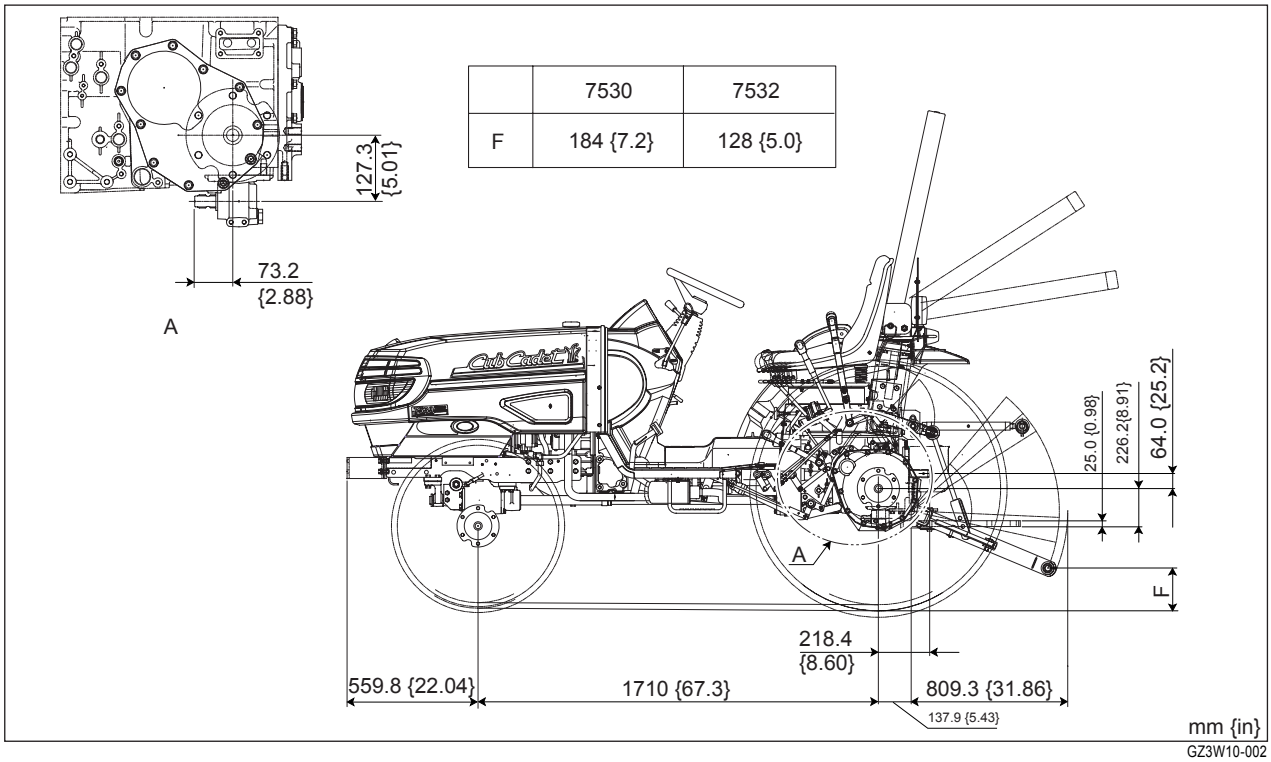
Vehicle Frame Dimension

(Unit : mm {in})

Item \ Model		7530	7532
A	Full Length (with 3P)	3070 {120.9}	
B	Full Width	1270 {50}	1330 {52.4}
C	Full Height (2 column frame)	2105 {82.9}	2130 {83.9}
D	Wheel Base	1710 {67.3}	
E	Road Clearance	337 {13.3}	364 {14.3}
	Weight (Machine) kg {lbs}	1050 {2315}	1110 {2447}

4 Dimension

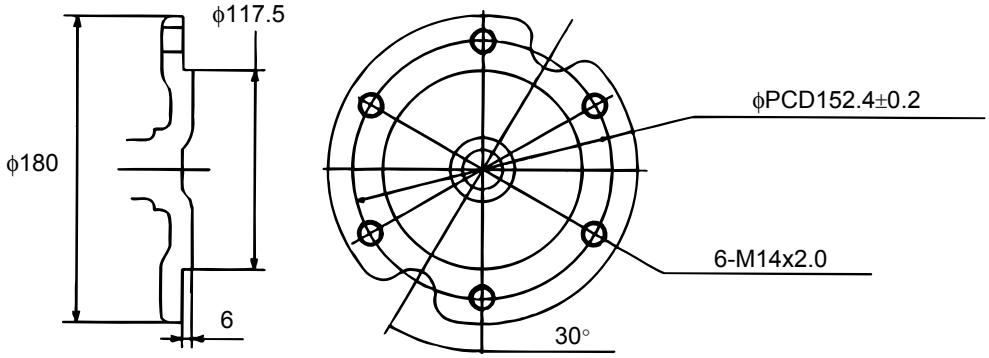
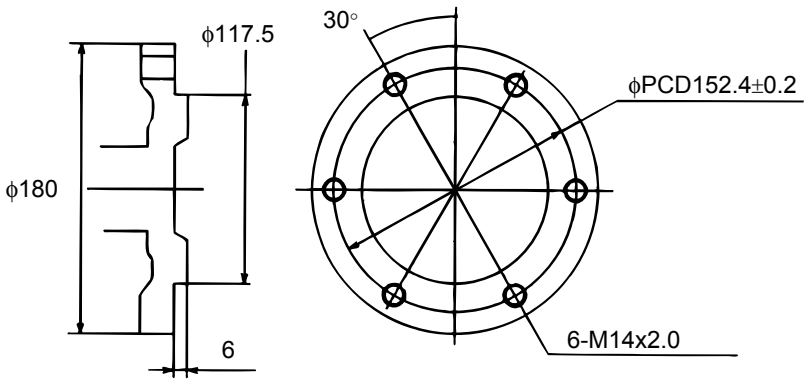
Mounting Dimension for Farm Working Machine



	7530	7532
F	184 {7.2}	128 {5.0}

GZ3W10-002

Axle Mounting Dimension

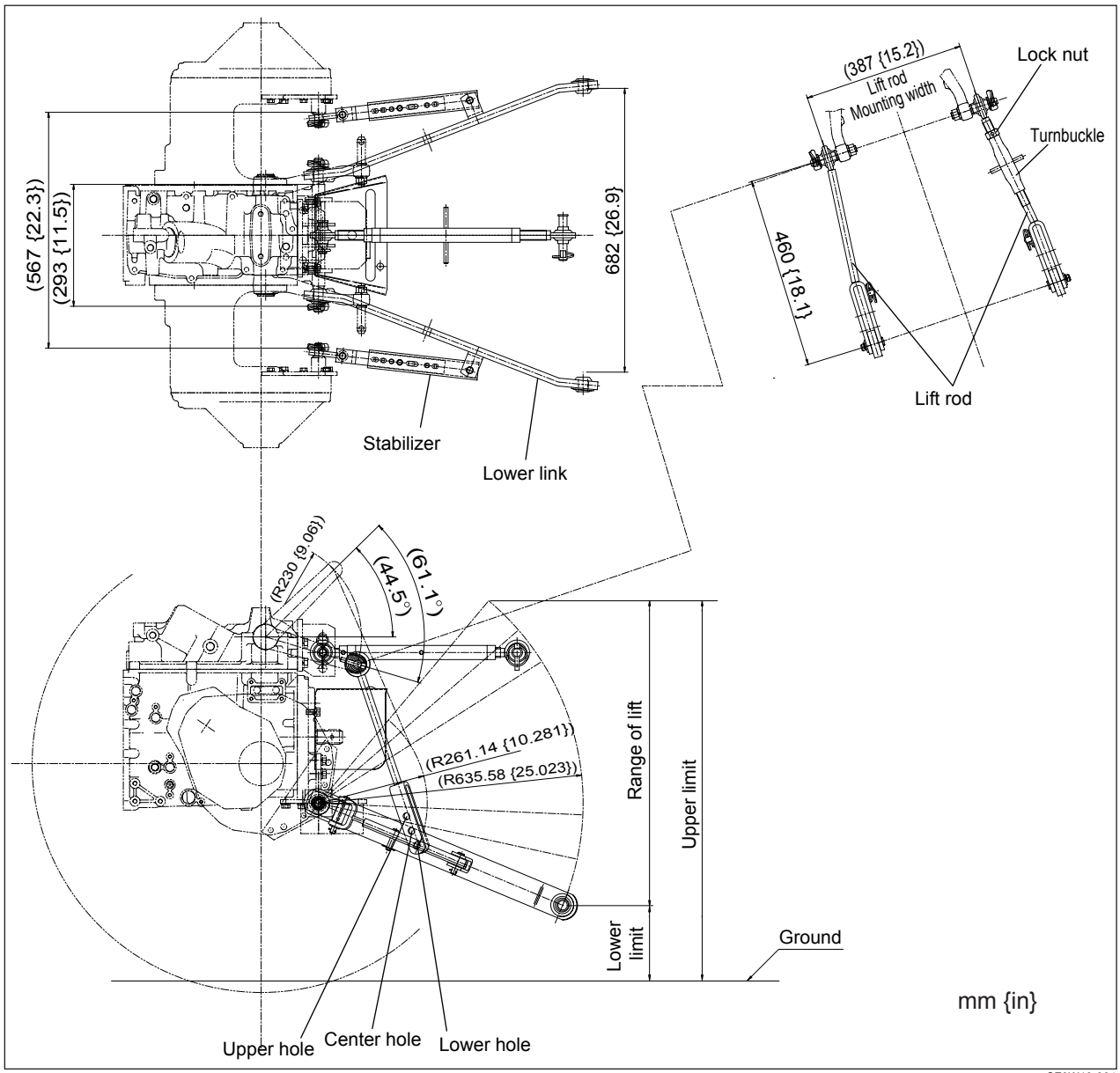
Model / Axle	7530/7532
Front Axle	
Rear Axle	

GZ3W10-003

Mounting Procedure for Three-Point Link

When mounting the implement to the 3-point link, set it the most appropriate position in accordance with the implement.

Range Adjustment of the Length for Lift Rod and Top Link



GZ3W10-004

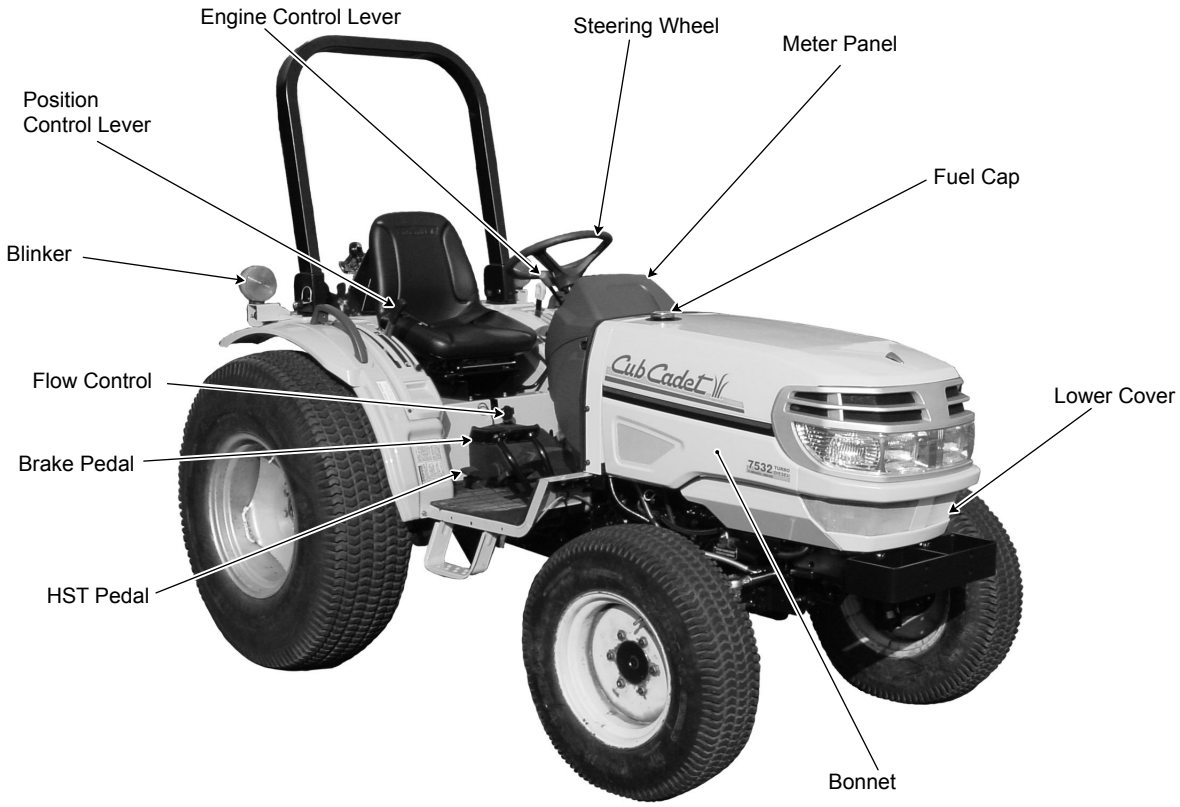
Road Clearance at Lower Link Hitch Point

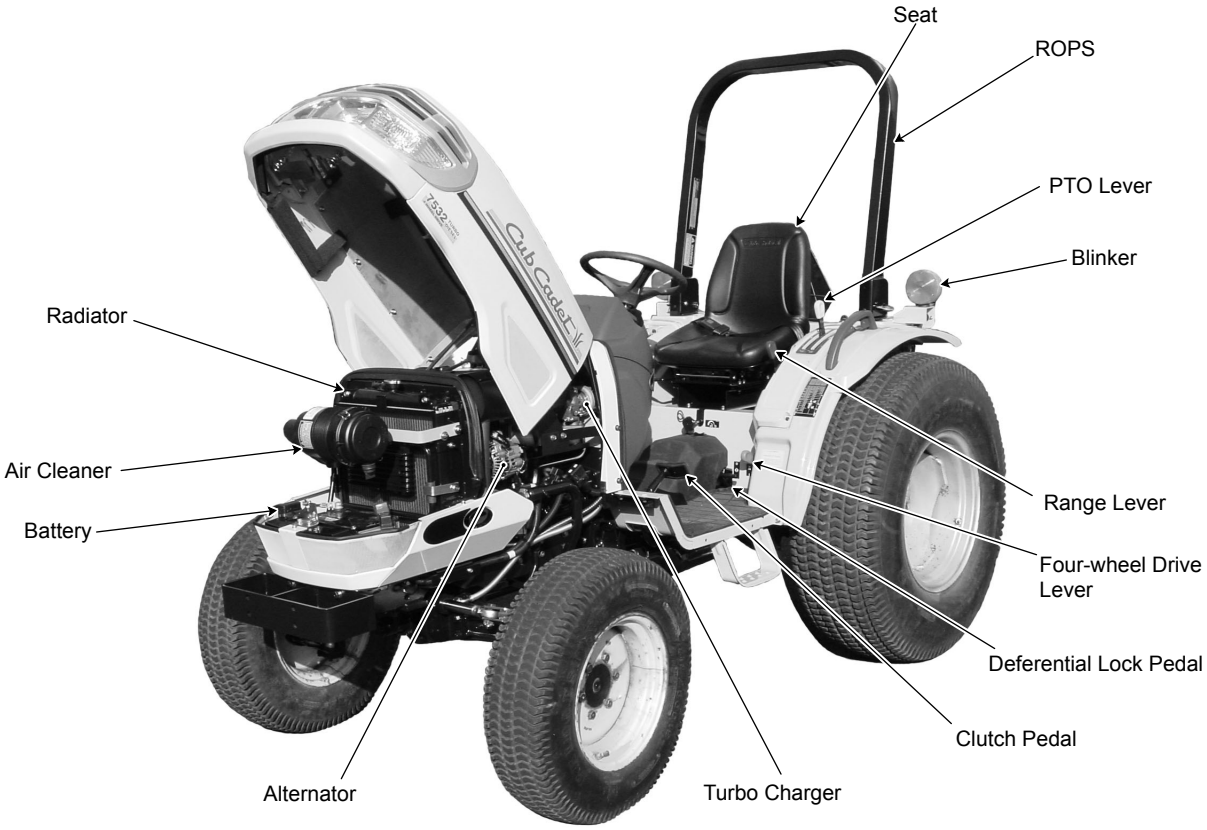
(Unit : mm {in})

Model	Lift Rod	Lower Hole	Center Hole	Upper Hole
7530	Upper Limit	769 {30.3}	845 {33.3}	915 {36.0}
F: 7 - 14 (ø 740 {ø 29.1})	Lower Limit	184 {7.2}	295 {11.6}	401 {15.8}
R: 9.5 - 24 (ø 1100 {ø 43.3})	Range of Lift	586 {23.1}	550 {21.7}	513 {20.2}
7532	Upper Limit	713 {28.1}	789 {31.1}	859 {33.8}
F: 25 × 8.50 - 14 (ø 635 {ø 25.0})	Lower Limit	128 {5.0}	239 {9.4}	345 {13.6}
R: 13.6 - 16 (ø 982 {ø 38.7 })	Range of Lift	586 {23.1}	550 {21.7}	513 {20.2}

5 Name of Each Part

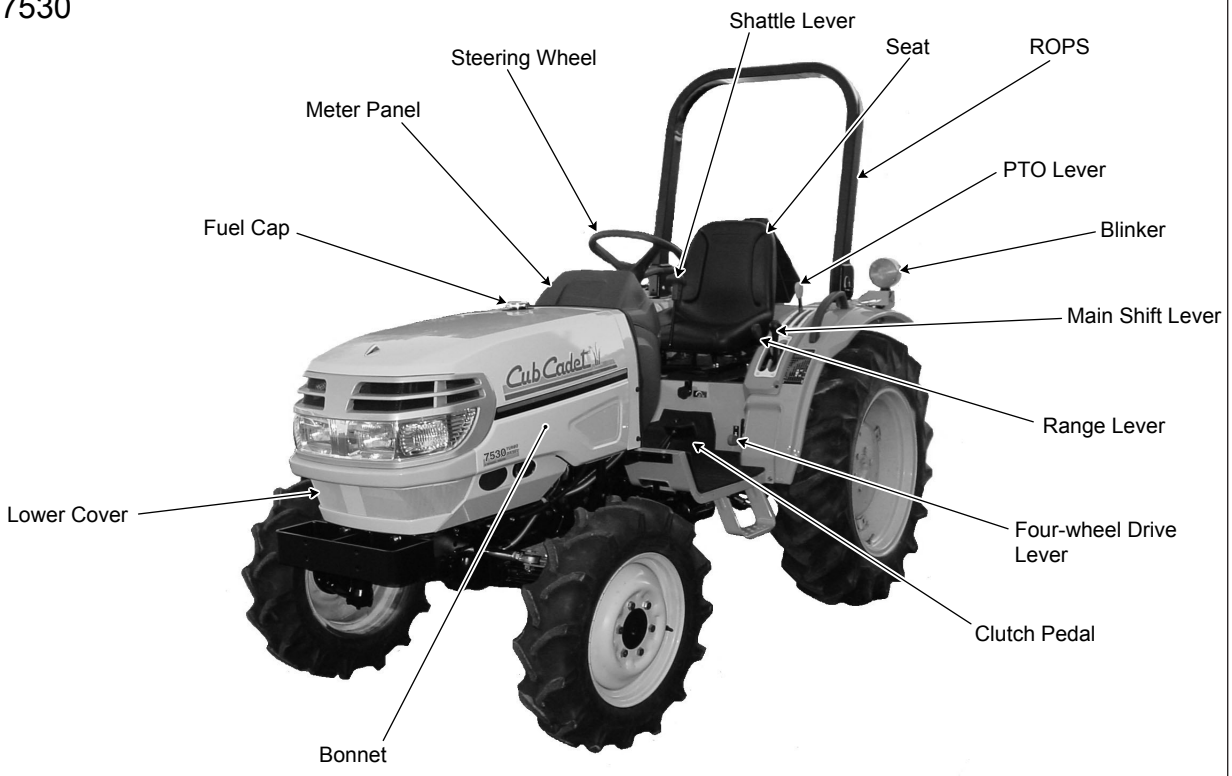
7532

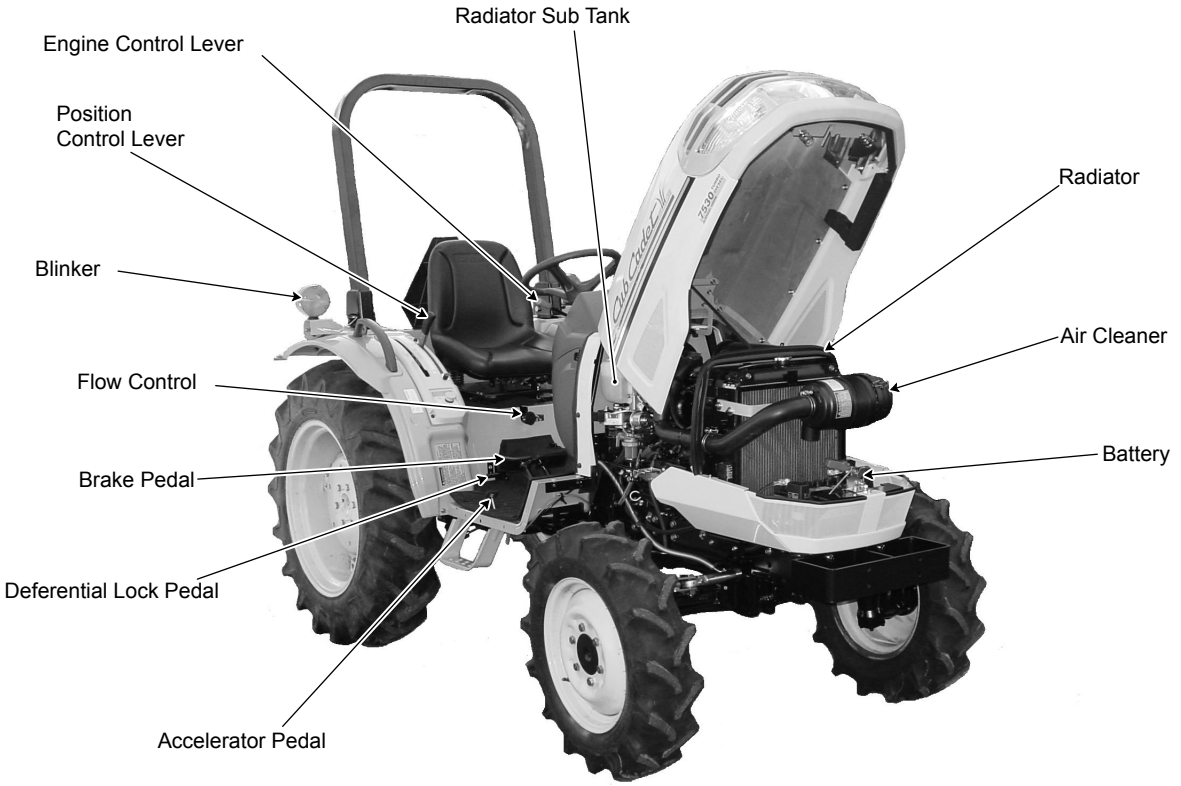




GZ3W10-005

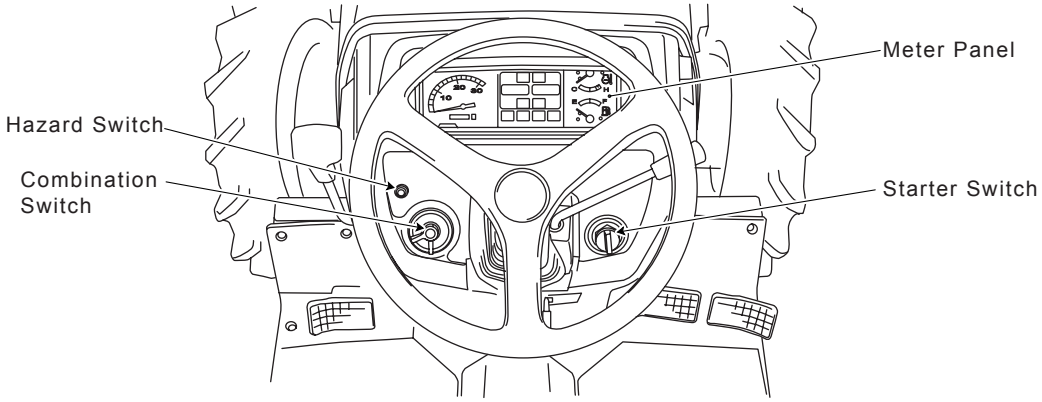
7530



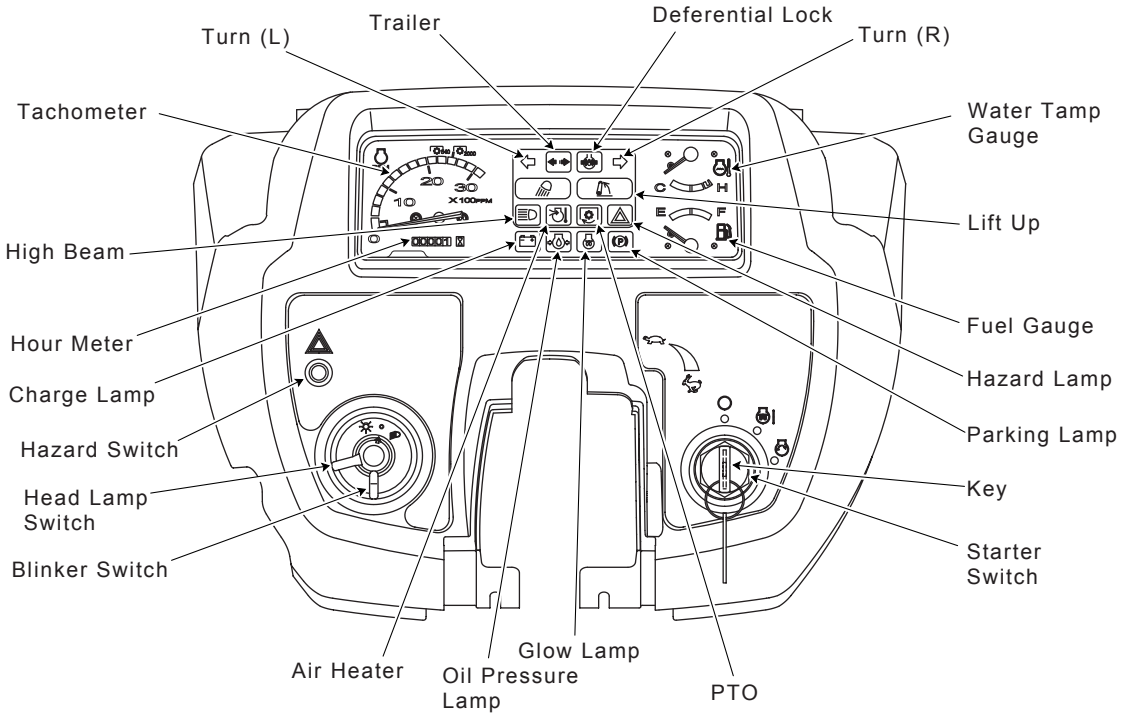


GZ3W10-006

Operation Arrangement Plan



Meter Panel Detail View



Shift Pattern

	Main shift-transmission	Shuttle	Range transmission	Four-Wheel Drive	Rear PTO	Mid PTO
7530	4 2 / N / 3 1	Forward / N / Reverse	Low Speed / N / High Speed	OFF / ON	OFF / ON	OFF / ON
7532	Forward / N(HST) / Reverse	NA	Low Speed / N / Medium Speed / N / High Speed			

GZ3W10-007

6 Specification

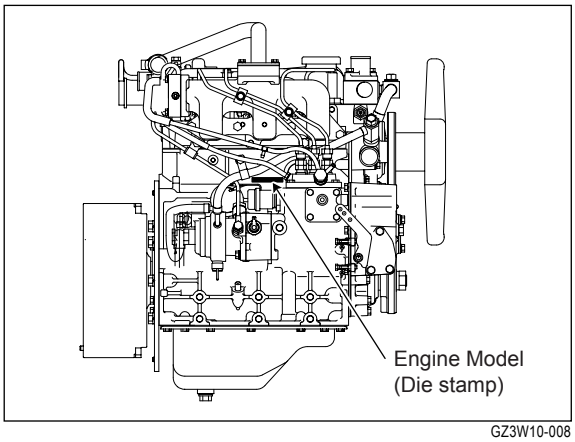
Model			30hp GEAR	32hp HST
Engine	Model		K3M - DT	
	Type		Water Cooling 4-Cycle Diesel	
	Type of Injection		Direct Injection Type	
	Rated Output (Gross Value)	KW {HP}	22.4 {30}	23.9 {32}
	Rated Output (Net Value)	KW {HP}	-	
	PTO Output Gear Specification	KW {HP}	19.1 {26}	-
	PTO Output HST Specification	KW {HP}	-	19.1 {26}
	Rated Engine Speed	rpm	2500	
	Number of Cylinder		3	
	Gross Displacement	cc {in^3}	1496 {91.3}	
	Boa × Stroke	mm {in}	84 × 90{3.31 × 3.54 }	
	Oil Filter		Cartridge Type	
	Air Filter		Double Dry Type	
	Fuel Tank Capacity	L {USgal}	27 {7.1}	
	Reserve Tank		Standard	
	Generation Capacity	A	40	
Body Dimension			With AG Tire	With AG Tire
	Full Length 3 - PH	mm {in}	3070 {120.9}	
	Full Width (Min. Tread)	mm {in}	1270 {50}	1330 {52.4}
	Full Height (2-column Frame)	mm {in}	2105 {82.9}	2130 {83.9}
	Wheel Base	mm {in}	1710 {67.3}	
	Min. Under Clearance	mm {in}	337 {13.3}	364 {14.3}
	Wheel Base Front Wheel	mm {in}	1070 {42.1}	
	Wheel Base Rear Wheel	mm {in}	1080 {42.5}	
	Turning Radius (with Brake)	m {in}	2.4 {94.5}	
	Vehicle Gross Weight	kg {lbs}	1050 {2315}	1110 {2447}
	Shared Load Front Wheel	kg {lbs}	460 {1014}	-
	Shared Load Rear Wheel	kg {lbs}	535 {1180}	-
Power Transmission Drive	Main Change Gear		Constant-Mesh (Main)	-
	Number of Gearing Stage		Drive: 8, Rev-drive: 8	-
	Shuttle (Drive & Reverse Drive)		Synchro	-
	HST No. of Gearing Stage		-	3 Stages
	HST Driving Control		-	Standard
	Rated of March	km/h	1.4 to 18.1 (9.5 to 24)	0 to 20.6(355/80D20)
	Creep Rate (Gear)		-	-
	Final Drive		Spur	
	Brake Brake		Wet Disc	
	Brake Parking Brake		Ratchet	
	Clutch (Disc Diameter)	mm {in}	Dry Type Single Plate (ø 215{8.464})	
	Four-Wheel Drive		Standard	
	Gear Ratio (Front Wheel/Rear Wheel)		1.527	1.532

Model				30hp GEAR	32hp HST
PTO	Rear PTO	Engine Speed	rpm	540	
		Type		Independent (G)	Combined (H)
		Shaft Size		1 to 3/8	
	Mid PTO	Engine Speed	rpm	2000 (Option)	
		Type		Independent (G)	Combined (H)
		Shaft Size		SAE 1in-12teeth	
		Option Type		-	-
Hydraulic System	Pump Model			Multiple Gear	
	Discharge		L/min {gal/min}	27.3 {7.2}	
	Max. Discharge Pressure		MPa {kgf/cm^2, psi}	15.2 { 155, 2205}	
	Steering Pump Discharge		L/min {gal/min}	9.6 {2.5}	
	Steering Pump Max. Discharge Pressure		MPa {kgf/cm^2, psi}	10.3 { 105, 1493}	
	Max. Dynamic Lift (Ball End Side)		N {kgf, lbs}	10149 {1035, 2282}	
	Max. Dynamic Lift (24in Backward)		N {kgf, lbs}	7649 {780, 1719}	
	Dynamic Lift Control Type Standard			Position	
	Option			Draft	
	Auxiliary Valve			Option (1)	
	Hydraulic Press. Extracting Block			Standard (Chassis Side)	
3P Link	Type of Link			1	
	Expanding Stabilizer			Standard	
	Adjustment of Right-side Lift Rod			Turn Buckle	
Capacity	Cooling Water	Radiator	L {gal}	5.5 {1.5}	
		Sub Tank	L {gal}	0.33 {0.09}	
	Engine Oil		L {gal}	4.2 {1.1}	
	Transmission Oil		L {gal}	29 {7.7}	32 {8.5}
	Front Axle Oil		L {gal}	4.0 {1.1}	
	Fuel		L {gal}	27 {7.1}	
Option	Deck Type			Semi Flat Deck	
	Pedal Type			Floor Mounting	
	Seat			Cub Cadet	
	Steering Device			Hydraulic Power Steering	
	Tilt Steering			Standard (3 Stages)	
	Protection Guard			Standard	
Tire	AG Tire (Front Wheel/Rear Wheel)			7 to 14/9.5 to 24	7 to 16/11.2 to 24
	Tire for Lawn (Front/Rear Wheel)			25 × 8.50 to 14/ 13.6 to 16	212/80D15/355/80D20
	Industrial Tire (Front/Rear Wheel)			-	

Model				30hp GEAR	32hp HST
Fittings	Load Weight		kg {lbs}	408 {900}	
	Vehicle Gross Weight		kg {lbs}	2200 {4850}	
	Shared Load	Front Wheel	kg {lbs}	1350 {2975}	
		Rear Wheel	kg {lbs}	1350 {2975}	
Electrical Equipment	Battery			Cub Cadet	
	Panel	Fuel Meter		Standard	
		Hour/Tachometer		Standard	
		Heat Indicator		Standard	
		Charge Lamp		Standard	
		Oil Lamp		Standard	
	Power Key Interception			Standard	
	Horn			Option	
	Head Lamp			Standard	
	Tail Lamp			Standard	
	Direction Indicator (Hazard Lamp)			Standard	
	Reflector			Standard	
	Rear Working Lamp			Option	
	Glow System			Standard	
	7-Pole Connector			N/A	
Others	Engine Hand Throttle			Standard	
	Accelerator Pedal			Standard	N/A
	Exhaust Box			Inner Side Cover	
	Seat			Cub Cadet	
	Seat with Suspension			Cub Cadet	
	Seat Belt			Standard	
	Tools			N/A	
	Tool Box			N/A	
	SMV Emblem			N/A (Bracket Only)	
Running Speed			km/h	9.5 to 24	355/80D20
	Drive - 1 / Reverse-Drive - 1			1.4 {0.9}/1.2 {0.8}	L Range
	2 /	2		2.1 {1.3}/1.7 {1.1}	0 to 4.7 {2.9}/0 to 2.4 {1.5}
	3 /	3		3.1{1.9 }/2.6 {1.6}	
	4 /	4		4.7 {2.9}/3.9 {2.4}	M Range
	5 /	5		5.2 {3.2}/4.3 {2.7}	0 to 8.6 {5.3}/0 to 4.3 {2.7}
	6 /	6		7.3 {4.6}/6.1 {3.8}	
	7 /	7		11.1 {6.9}/9.3 {5.8}	H Range
	8 /	8		16.8 {10.4}/14.0 {8.7}	0 to19.2 {11.9}/0 to9.6 {6.0}
	Max. /	Max.		18.1{11.3 }/15.2 {9.4}	0 to 20.6 {12.8}/0 to 0.3 {6.4}

* This specification is subject to be revised in accordance with modification.

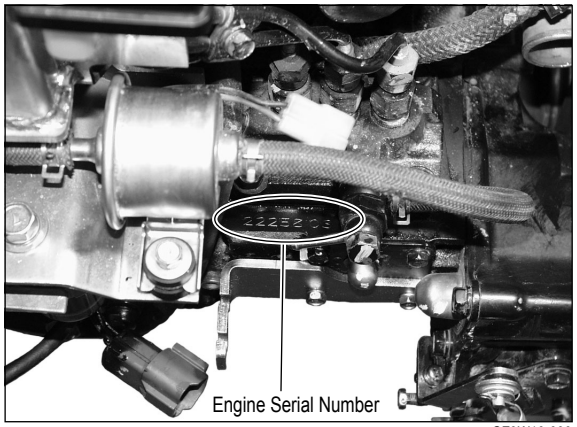
7 Outline



GZ3W10-008

7.1 Engine Model

Engine model is die stamped on the side face of mounting part for injection pump, located on the right side of the cylinder block.



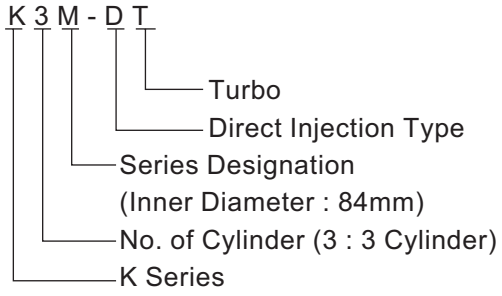
GZ3W10-009

7.2 Engine Serial Number

Engine Serial Number is engraved on the mounting face for injection pump of the cylinder block.

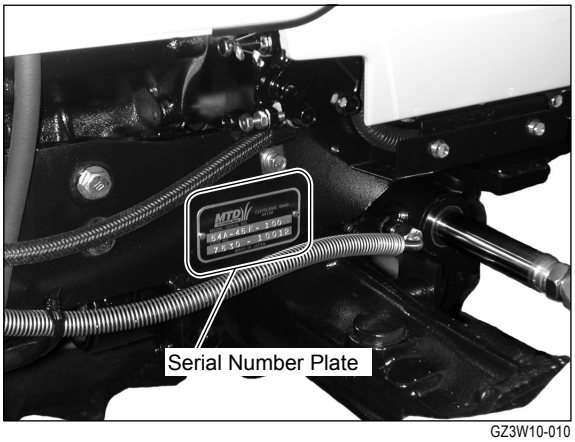
Model Designation	Total Cylinder Capacity
K3M-DT (7530)	1496 {91.3} (3 × ø 84 × 90 {3 × ø 3.15 × 3.54})
K3M-DT (7532)	1496 {91.3} (3 × ø 84 × 90 {3 × ø 3.15 × 3.54})

- Model Designation
  (Ex.)



7.3 Chassis Serial Number

Chassis Serial Number is indicated on the chassis on the right side wheel.



GZ3W10-010

8 Periodical Inspection and Maintenance List

- Refer to "Periodical Inspection and Maintenance List" and perform the inspection and maintenance in order to maintain the proper function and safety of the machine.
- "Periodical Inspection and Maintenance List" is a reference. Perform the inspection and maintenance as required.

Classification	Inspecting and Maintenance Item	Inspecting Details	Inspecting/Maintenance Period					Remarks
			Pre-Op	50hrs	100hrs	200hrs	300hrs	
Engine Related	Fuel tank	Inspection, refilling, and cleaning of tank	○				◎	Gas oil 27L{7.1gal}
	Fuel filter	Inspection, cleaning, and change		◎		●		Element
	Deterioration and leakage of fuel hose	Inspection and change	○			●		Change every 2 years
	Engine oil	Inspection, refilling, and change	○	● (1st time)	●			4.2L{1.1gal} of multi STOU oil or diesel oil over class CD
	Engine oil filter	Change		● (1st time)	●			Filter
	Radiator (Cooling water)	Inspection, refilling, cleaning, and change	○					Change once a year 5.5L{1.5gal} of spring water or antifreeze solution (long life coolant).
	Radiator screen	Inspection and cleaning		◎				Before operation in dusty area
	Air cleaner element	Inspection and cleaning		◎				Before operation in dusty area
	Fan belt	Inspection and adjustment		◎				Press belt center 10 to 13mm. {0.39 to 0.51in}
Elec. Equipment	Battery	Inspection and refilling	○					
	Electric wiring (Wiring, looseness of junction, and damage)	Inspection and correction	○					Change if damaged.
	Meters	Inspection	○					
Engine Related	Hydraulic oil filter	Change			● (1st time))		●	
	HST oil filter	Change			● (1st time)		●	

Classification	Inspecting and Maintenance Item	Inspecting Details	Inspecting/Maintenance Period					Remarks
			Pre-Op	50hrs	100hrs	200hrs	300hrs	
Engine Related	Transmission oil	Inspection, refilling, and change		◎	● (1st time)	●		GEAR : 29L{7.7gal} HST :32L {8.5gal} of genuine oil or over API.GL - class 4, SAE 80W (for wet brake)
	Front axle oil	Inspection, refilling, and change		◎	● (1st time)	●		4.0L{1.1gal} of genuine oil or over API.GL - class 4, SAE 80W
	Tie rod (left/right), Rod end	Inspection and refilling		◎				Grease
	Brake link	Inspection and refilling		◎				Grease
	Differential locking device pedal	Inspection and refilling		◎				Grease
	Clutch pedal	Inspection and adjustment	○					Backlash : 20 to 30mm {0.79 to 1.18in}
	Brake pedal	Inspection and adjustment	○					Backlash : 35 to 45mm {1.38 to 1.77in}
	Actuation of each lever	Inspection	○					
	Looseness of bolt and nut	Inspection	○					
	Air pressure of tire	Inspection	○					FR : 0.147MPa{1.5 kgf/cm^2}, RR : 0.098MPa{1.0 kgf/ cm^2}
	Toe-in	Inspection and adjustment					◎	0 to 5mm {0 to 0.39in}
	Power steering cylinder hydraulic hose	Inspection and change						Change every 2 years.
	Steering Wheel	Inspection	○					Backlash : 20 to 50mm {0.79 to 1.97in}

- Description of symbols

○ .....Perform maintenance work such as inspect, adjust, refill, or clean before operation of the tractor.

◎ .....Perform maintenance work such as inspect, adjust, refill, or clean periodically.

● .....Change periodically.

9 List of Refueling, Lubrication, and Water/Oil Supply

No.	Item	Kind	Classification		Capacity (L)	Replacing Period
			API Service	SAE Viscosity No.		
1	Engine Crank Case	Engine oil	Over class CD	10W-30	4.2 {1.1}	Inspect pre-operation and change every 100 hrs. (Change after 50 hrs at 1st inspection.)
2	Fuel Tank	Gas oil	-	-	27 {7.1}	Inspect pre-operation. (Supply accordingly.)
3	Radiator	Cooling water (incl. antifreeze solution 40 to 45%)	-	-	5.5 {1.5}	Inspect pre-operation. (Supply accordingly.)
4	Transmission Case	Gear oil (Multi STOU oil)	GL-4	80W (10W-30)	GEAR : 29L{7.7gal} HST : 32L{8.5gal}	Change after 100hrs 1st time and every 200 hrs after.
5	Front Axle Case	Gear oil (Multi STOU oil)	GL-4	80W (10W-30)	4.0 {1.1}	Change after 100hrs 1st time and every 200 hrs after.
6	Brake Link (Left/Right)	Grease	-	-	Properly	Lubricate before operation and every 50 hrs.
7	Rod End 4 Points	Grease	-	-	Properly	Lubricate before operation and every 50 hrs.
8	Front Axle Fulcrum Shaft	Grease	-	-	Properly	Lubricate before operation and every 50 hrs.
9	Differential Locking Device Pedal Fulcrum Shaft	Grease	-	-	Properly	Lubricate before operation and every 50 hrs.

- Engine oil ..... Multi STOU oil or better than diesel engine oil API classified, class CD, SAE 10W - 30.
- Fuel ..... Diesel gas oil

  A.P.I. specific gravity (min.) 34
  Inflammation point (min.) ..... 60 ºC
  Clouding point (Wax appearing point) (max.) ..... -20.6 ºC
  Pour point (max.) ..... -26 ºC
  Distillation temperature, at point 90% ..... from 282 to 338 ºC
  Viscosity : at 38 ºC
  Centistokes ..... from 2.0 to 4.3
  Saybolt second universal ..... from 32 to 40
  Cetane number (min.) ..... 43 (high lat. in winter: from 45 to 55)
  Capacitance ratio of water and sediment (max.) 0.05%
  Weight ratio of sulfur (max.) 0.50%
  Corrosion of copper strip (max.) No.2
  Weight ratio of ash residue (max.) 0.01%
- Gear Oil ..... Genuine oil or API classified GL - class 4, SAE, 80W

II CHASSIS

CHASSIS

1 Maintenance Standard

1.1 List of Maintenance Standard

(Unit : mm {in})

Item		Standard Value	Limit Value	Remarks
Clutch				
Free play for clutch pedal		20 to 30 {0.79 to 1.18}		
Rivet countersink amount		1.3 to 1.9 {0.051 to 0.075}	0.20 {0.008}	
Backlash		0.05 to 0.15 {0.002 to 0.006}	0.30 {0.012}	
Clearance bet. release shaft and bush		0.04 to 0.12 {0.0016 to 0.005}	0.30 {0.012}	
Clearance bet. shaft and bush		0.04 to 0.12 {0.0016 to 0.005}	0.50 {0.020}	
HST				
Free play for speed control lever		25 to 30 {0.98 to 1.18}		
Transmission				
Rod length of main gearing	Speed (1 to 2)	351 {13.8}		
	Speed (3 to 4)	385 {5.2}		
Shuttle rod length		412 {6.2}		
PTO drive shaft	Endplay for bearing and case	0.05 to 0.20 {0.002 to 0.008}		
Rear PTO shaft	Endplay for bearing and liner B	0.05 to 0.20 {0.002 to 0.008}		
Sub shaft	Endplay for bearing and case	0.05 to 0.20 {0.002 to 0.008}		
4WD Shift	Endplay for bearing and case	0.05 to 0.20 {0.002 to 0.008}		
Shaft	Endplay for bearing and case	0.05 to 0.20 {0.002 to 0.008}		
Main shift	Endplay for bearing and case	0.05 to 0.20 {0.002 to 0.008}		

(Unit : mm{in})

Item			Standard Value	Limit Value	Remarks
Clearance of shift fork	Clearance bet. main gearing fork and gear gap		0.35 to 0.65 {0.014 to 0.026}	1.00 {0.039}	
	Clearance bet. sub gearing fork and gear gap		0.35 to 0.65 {0.014 to 0.026}	1.00 {0.039}	
	Clearance bet. shift piece 2WD ⇔ 4WD and gear gap		0.20 to 0.40 {0.008 to 0.016}	1.00 {0.039}	
	Clearance bet. PTO fork and gear gap		0.35 to 0.65 {0.014 to 0.026}	1.00 {0.039}	
	Clearance bet. shuttle fork and gear gap		0.35 to 0.65 {0.014 to 0.026}	1.00 {0.039}	
Backlash for transmission spur gear			0.10 to 0.30 {0.004 to 0.012}	0.35 {0.014}	
Rear Axle Brake					
Backlash	Backlash for pinion gear and side gear		0.25 to 0.35 {0.01 to 0.014}		
	Backlash for pinion shaft and deferential ring gear		0.10 to 0.30 {0.004 to 0.012}		
	Lateral clearance of deferential assembly		0 to 0.10 {0 to 0.004}		
	Endplay of rear axle shaft and case		0.15 to 0.35 {0.006 to 0.014}		
	Backlash for deferential shaft and final gear		0.10 to 0.30 {0.004 to 0.012}	0.50 {0.020}	
Clearance bet. axle case and shifter			0.20 to 0.60 {0.008 to 0.024}		
Free play for brake pedal			35 to 45 {1.38 to 1.77}		Difference in left/right : below 3.0 {0.12}
Thickness of Brake Disc			2.8{0.11}	2.2{0.087}	
Brake pedal		Clearance bet. bush and shaft	0.04 to 0.12 {0.0016 to 0.005}	0.50 {0.020}	
Front Axle					
Backlash	Backlash for pinion gear and side gear		0.10 to 0.30 {0.004 to 0.012}		
	Backlash for pinion shaft and deferential gear		0.25 to 0.35 {0.01 to 0.014}		
	Lateral clearance of deferential assembly		0 to 0.10 {0 to 0.004}		
	Backlash for deferential shaft bevel gear 14T and kingpin shaft bevel gear 18T (upper)		0.20 to 0.40 {0.008 to 0.016}		
	Backlash for axle shaft bevel gear 32T and kingpin shaft bevel gear 12T (lower)		0.20 to 0.40 {0.008 to 0.016}		

(Unit : mm {in})

Item			Standard Value	Limit Value	Remarks
Assembly of axle shaft		Backlash for axle shaft bevel gear 12T and 32T	0.20 to 0.40 {0.008 to 0.016}		
Clearance bet. front axle shaft bearing and ring			0 to 0.20 {0 to 0.008}		
Assembly of knuckle arm		Clearance bet. knuckle arm and holder	0.05 to 0.20 {0.002 to 0.008}		
Clearance of bush	Clearance bet. holder and front bracket		0.03 to 0.065 {0.0012 to 0.0026}	0.20 {0.008}	
	Clearance bet. holder and rear bracket		0.03 to 0.08 {0.0012 to 0.003}	0.20 {0.008}	
	Clearance bet. kingpin case and bush		0.03 to 0.08 {0.0012 to 0.003}	0.20 {0.008}	
	Clearance bet. holder and bush		0.03 to 0.06 {0.0012 to 0.002}	0.20 {0.008}	
	Clearance bet. holder and knuckle arm		0.05 to 0.20 {0.002 to 0.008}	0.20 {0.008}	
Steering					
Toe-in (A to B)			0 to 10.0 {0 to 0.39}		
Free play for steering wheel			20 to 50 {0.79 to 1.97}		Circumference
Cutting angle of final case		Inner angle	$60°\ ^{0}_{-2°}$		
		Outer angle	$53°\ ^{0}_{-2°}$		
Angle of kingpin			10°		
Camber			2°30'		
Caster			3°	3°	

1.2 List of Standard Torque

Hexagon Head Bolt and Nut

Unit : (N•m {kgf•cm, lbf•ft})

Strength Classification / Designation	4T	7T	8T	9T	11T
M3	0.3 to 0.5 {3 to 5, 0.22 to 0.36}	-	-	-	-
M4	0.8 to 1.0 {8 to 10, 0.58 to 0.72}	-	-	-	-
M5	2.5 to 3.4 {25 to 35, 1.81 to 2.53}	5.4 to 6.4 {55 to 65, 3.98 to 4.7}	6.4 to 7.4 {65 to 75, 4.7 to 5.42}	6.4 to 7.4 {65 to 75, 4.7 to 5.42}	8.8 to 9.81 {90 to 100, 6.51 to 7.23}
M6	5.0 to 6.9 {50 to 70, 3.62 to 5.06}	9.8 to 11.8 {100 to 120, 7.23 to 8.7}	11.8 to 13.7 {120 to 140, 8.68 to 10.1}	11.8 to 13.7 {120 to 140, 8.68 to 10.1}	14.7 to 16.7 {150 to 170, 10.85 to 12.3}
M8	11.8 to 16.7 {120 to 170, 8.68 to 12.3}	24.5 to 29.4 {250 to 300, 18.1 to 21.7}	29.4 to 34.3 {300 to 350, 21.7 to 25.3}	29.4 to 34.3 {300 to 350, 21.7 to 25.3}	36.3 to 41.2 {370 to 420, 26.8 to 30.4}
M10	20.6 to 29.4 {210 to 300, 15.19 to 21.7}	39.2 to 44.1 {400 to 450, 28.9 to 32.5}	49 to 53.9 {500 to 550, 36.2 to 39.8}	49 to 53.9 {500 to 550, 36.2 to 39.8}	72.6 to 82.4 {740 to 840, 53.5 to 60.7}
M12	44.1 to 53.9 {450 to 550, 32.5 to 39.8}	83.4 to 93.2 {850 to 950, 61.5 to 68.7}	93.2 to 108 {950 to 1100, 68.7 to 79.6}	93.2 to 108 {950 to 1100, 68.7 to 79.6}	123 to 137 {1250 to 1400, 90.4 to 101.2}
M14	63.7 to 78.5 {650 to 800, 47 to 57.9}	118 to 132 {1200 to 1350, 86.8 to 97.6}	132 to 147 {1350 to 1500, 97.6 to 108.5}	147 to 167 {1500 to 1700, 108 to 123}	206 to 226 {2100 to 2300, 152 to 166}
M16	88.3 to 107.9 {900 to 1100, 65.1 to 79.6}	152 to 172 {1550 to 1750, 112 to 127}	177 to 196 {1800 to 2000, 130 to 145}	216 to 245 {2200 to 2500, 159 to 181}	314 to 343 {3200 to 3500, 231 to 253}
M18	118 to 137 {1200 to 1400, 86.8 to 101.2}	206 to 235 {2100 to 2400, 152 to 174}	245 to 275 {2500 to 2800, 181 to 202}	314 to 343 {3200 to 3500, 231 to 253}	441 to 471 {4500 to 4800, 325 to 347}
M20	147 to 167 {1500 to 1700, 108 to 123}	235 to 275 {2400 to 2800, 174 to 202}	314 to 353 {3200 to 3600, 231 to 260}	441 to 481 {4500 to 4900, 325 to 354}	618 to 657 {6300 to 6700, 456 to 485}
M22	177 to 206 {1800 to 2100, 130 to 152}	422 to 451 {4300 to 4600, 311 to 333}	539 to 579 {5500 to 5900, 398 to 427}	608 to 647 {6200 to 6600, 448 to 477}	843 to 883 {8600 to 9000, 622 to 651}
M24	235 to 265 {2400 to 2700, 174 to 195}	539 to 569 {5500 to 5800, 398 to 419}	706 to 745 {7200 to 7600, 521 to 550}	785 to 824 {8000 to 8400, 579 to 607}	1098 to 1138 {11200 to 11600, 810 to 839}

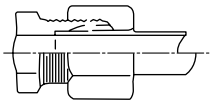
Flange Nut

Unit : (N•m {kgf•cm, lbf•ft})

Designation/Type \ Strength Classification for Bolt		4T	7T
M4	Without slotted	1.5 to 2.0 {15 to 20, 1.08 to 1.45}	-
M5	Without slotted	3.9 to 4.4 {40 to 45, 2.89 to 3.25}	6.9 to 7.9 {70 to 80, 5.06 to 5.79}
	With slotted	2.9 to 3.4 {30 to 35, 2.17 to 2.53}	5.4 to 6.4 {55 to 65, 3.98 to 4.7}
M6	Without slotted	6.4 to 8.4 {65 to 85, 4.7 to 6.15}	13.7 to 15.7 {140 to 160, 10.12 to 11.6}
	With slotted	4.9 to 6.9 {50 to 70, 3.62 to 5.06}	10.8 to 12.7 {110 to 130, 7.96 to 9.4}
M8	Without slotted	16.7 to 21.6 {170 to 220, 12.29 to 15.9 }	26.5 to 31.4 {270 to 320, 19.5 to 23.1}
	With slotted	12.3 to 17.2 {125 to 175, 9.04 to 12.7}	20.6 to 25.5 {210 to 260, 15.19 to 18.8 }
M10	Without slotted	34.3 to 39.2 {350 to 400, 25.3 to 28.9}	50 to 54.9 {510 to 560, 36.9 to 40.5}
	With slotted	33.3 to 38.2 {340 to 390, 24.6 to 28.2}	48.1 to 53 {490 to 540, 35.4 to 39.1}

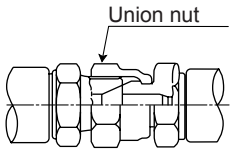
Bite Type Pipe Joint

Unit : (N•m {kgf•cm, lbf•ft})

Pipe Size (in {mm})		Temp. Tightening (1st)	Tightening (2nd)	Schematic Drawing
External Diameter	Thickness			
8 {0.315}	1 to 1.5 {0.039 to 0.059}	29 to 34 {3 to 3.5, 21.7 to 25.3}	29 to 34 {3 to 3.5, 21.7 to 25.3}	 GZ3W20-001
10 {0.394}	1 to 1.5{0.039 to 0.059}	29 to 39 {3 to 4, 21.7 to 28.9}	34 to 49 {3.5 to 5, 25.3 to 36.2}	
12 {0.472}	1 to 2.5{0.039 to 0.098}	44 to 59 {4.5 to 6, 32.5 to 43.4}	49 to 69 {5 to 7, 36.2 to 50.6}	
15 {0.591}	1 to 2.5 {0.039 to 0.098}	69 to 98 {7 to 10, 50.6 to 72.3}	88 to 118 {9 to 12, 65.1 to 86.8}	
18 {0.709}	1.5 to 2 {0.059 to 0.079}	118 to 147 {12 to 15, 86.8 to 108.5}	147 to 167 {15 to 17, 108.5 to 122.9}	
20 {0.787}	2 to 3 {0.079 to 0.118}	147 to 177 {15 to 18, 108.5 to 130.2}	167 to 206 {17 to 21, 122.9 to 151.9}	
22 {0.866}	2 {0.079}	177 to 206 {18 to 21, 130.2 to 151.9}	196 to 235 {20 to 24, 144.6 to 173.6}	
27.2 {1.071}	2.8 {0.11}	323 to 343 {33 to 35, 238.7 to 253.1}	343 to 373 {35 to 38, 253.1 to 274.8}	

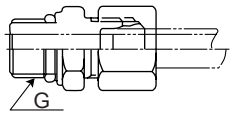
Hose Joint

Unit : (N•m {kgf•cm, lbf•ft})

Designation of Thread		Schematic Drawing
G1/8	15 {1.5, 11}	 GZ3W20-002
G1/4	25 {2.6, 19}	
G3/8	49{5, 36}	
G1/2	59 {6, 43}	
G3/4	118 {12, 87}	

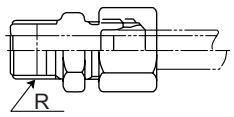
Parallel Thread Joint for Pipe

Unit : (N•m {kgf•cm, lbf•ft})

Designation of Thread		Schematic Drawing
G1/8	20 to 25 {2 to 2.5, 14 to 18}	 GZ3W20-003
G1/4	39 to 49 {4 to 5, 28.9 to 36.2}	
G3/8	49 to 59 {5 to 6, 36.2 to 43.4}	
G1/2	59 to 69 {6 to 7, 43.4 to 50.6}	
G3/4	118 to 127 {12 to 13, 86.8 to 94}	

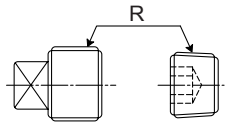
Taper Thread Joint for Pipe

Unit : (N•m {kgf•cm, lbf•ft})

Designation of Thread		Schematic Drawing
R1/8	13 to 18 {1.3 to 1.8, 9 to 13}	 GZ3W20-004
R1/4	21 to 29 {2.1 to 3.0, 15 to 22}	
R3/8	29 to 39 {3.0 to 4.0, 21.7 to 28.9}	
R1/2	39 to 49 {4.0 to 5.0, 28.9 to 36.2}	

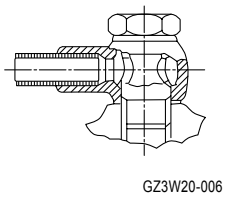
Taper Thread Pipe Plug

Unit : (N•m {kgf•cm, lbf•ft})

Designation of Thread		Schematic Drawing
R1/8	5 to 7 {0.5 to 0.7, 4 to 5}	 GZ3W20-005
R1/4	13 to 18 {1.3 to 1.8, 9 to 13}	
R3/8	21 to 29 {2.1 to 3.0, 15 to 22}	
R1/2	29 to 39 {3.0 to 4.0, 21.7 to 28.9}	

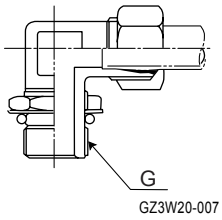
Taper Thread Pipe Plug

Unit : (N•m {kgf•cm, lbf•ft})

Designation of Thread	No. of Oil Hole		Schematic Drawing
G1/4	2	39 to 44 {4.0 to 4.5, 28.9 to 32.5}	 GZ3W20-006
G3/8	2	47 to 54 {4.8 to 5.5, 34.7 to 39.8}	
	4	39 to 44 {4.0 to 4.5, 28.9 to 32.5}	
G1/2	4	47 to 54 {4.8 to 5.5, 34.7 to 39.8}	
G3/4	4	59 to 69 {6.0 to 7.0, 43.4 to 50.6}	
M12	2	20 to 27{2.0 to 2.8, 14.0 to 20.0 }	
M14	2	34 to 39 {3.5 to 4.0, 25.3 to 28.9}	
	4	29 to 34 {3.0 to 3.5, 21.7 to 25.3}	
M16	2	49 to 59 {5.0 to 6.0, 36.2 to 43.4}	
	4	39 to 44 {4.0 to 4.5, 28.9 to 32.5}	

Parallel Thread Elbow

Unit : (N•m {kgf•cm, lbf•ft})

Designation of Thread		Schematic Drawing
G1/4	49 to 59 {5 to 6, 36.2 to 43.4}	 GZ3W20-007
G3/8	59 to 69 {6 to 7, 43.4 to 50.6}	
G1/2	78 to 88 {8 to 9, 57.9 to 65.1}	

1.3 List of Torque

Unit : (N•m {kgf•cm, lbf•ft})

Tightened Parts	Torque
Double nut for engine control lever	0.78 to 0.98 {8 to 10, 0.58 to 0.72}
Mounting bolt for front axle bracket	(Engine left/right) 93.2 to 108 {950 to 1100, 68.7 to 79.6} (Engine forepart) 118 to 132 {1200 to 1350, 86.8 to 97.6}
Drain plug for front axle case	20.6 to 29.4 {210 to 300, 15.2 to 21.7}
Air plug for front axle	11.8 to 16.7 {120 to 170, 8.68 to 12.3}
Drain plug front axle	11.8 to 16.7 {120 to 170, 8.68 to 12.3}
Drain plug for front axle center case	39.2 to 49.0 {400 to 500, 28.9 to 36.2}
Mounting bolt for kingpin case	58.8 to 68.6 {600 to 700, 43.4 to 50.6}
Mounting bolt for front axle center case	49 to 58.8 {500 to 600, 36.2 to 43.4}
Locking bolt for tie rod	Temp. tightening : 147 to 167 {1500 to 1700, 108 to 123} Tightening : 9.8 {100, 7.23}
Locking nut for tie rod end	Temp. tightening : 44.1 to 53.9 {450 to 550, 32.5 to 39.8} Tightening : 9.8 {100, 7.23}
Lock nut for tie rod end (Toe-in adjustment)	147 to 167 {1500 to 1700, 108 to 123}
Power steering hose	29.4 to 39.2 {300 to 400, 21.7 to 28.9}
Mounting joint for power steering	24.5 to 29.4 {250 to 300, 18.1 to 21.7}
Steering unit joint	24.5 to 29.4 {250 to 300, 18.1 to 21.7}

1.4 List of Sealing Compound

Item	Sealing Compound	Mating Parts	Applicable Parts
Clutch			
Clutch housing assembly	Threebond #1208D	Engine rear plate	Clutch housing
	Lithium grease	-	Inside diameter of release hub
			Release lever
			Rotating part of release shaft
Grip	Threebond #1782	Accelerator lever	Lever
Accelerator lever	Lithium grease	-	Lever
Clutch assembly	Non-luster	Flywheel	Mounting face of clutch
HST			
HST case	Threebond #1208D	Clutch housing	Mating face
HST pedal	Lithium grease	-	Pedal
Speed control lever	Lithium grease	-	Lever
Speed control device	Lithium grease	Clutch housing	Brake arm
			Lock arm
Transmission			
Transmission	Threebond #1208D	Clutch housing, center case, mission case, and 4WD case, etc.	Mating face
	Lithium grease	Shuttle shaft	Oil seal
		Rear PTO shaft	Oil seal
		MID PTO shaft	Oil seal
		4WD shaft	Oil seal
4WD shaft	Lithium grease	-	Spline
Rear axle case	Threebond #1208D	Transmission case	Mating face
Rear axle cover	Threebond #1208D	Rear axle case	Mating face
	Lithium grease	Axle shaft	Oil seal
Shuttle lever	Lithium grease	Lever holder	Lever
Lock pedal	Lithium grease	-	Bush
Brake pedal	Lithium grease	Link, arm	Bush
PTO lever	Lithium grease	Link, arm	Bush
Sub gearing lever	Lithium grease	Link, arm	Bush
Main gearing lever	Lithium grease	Link, arm	Bush
Front Axle			
Front axle assembly	Lithium grease	Front and rear bracket	Bush
Breather pipe	Alteco CN4	Center case	Mating face
Wheel shaft cover	Lithium grease	Wheel shaft	Oil seal
	Threebond #1208D	Final case	Mating face
Kingpin case	Threebond #1208D	Holder	Mating face
Final case	Threebond #1208D	Holder	Mating face
	Lithium grease	Kingpin case	Oil seal
	Threebond #1782	-	Oil seal
Axle housing	Lithium grease	Center case	O-ring
Knuckle arm	Lithium grease	-	Bush

Item	Sealing Compound	Mating Parts	Applicable Parts
Steering			
Steering shaft	Lithium grease	Steering column	Column bush
Grip	Threebond #1782	Tilt steering lock lever	Lever

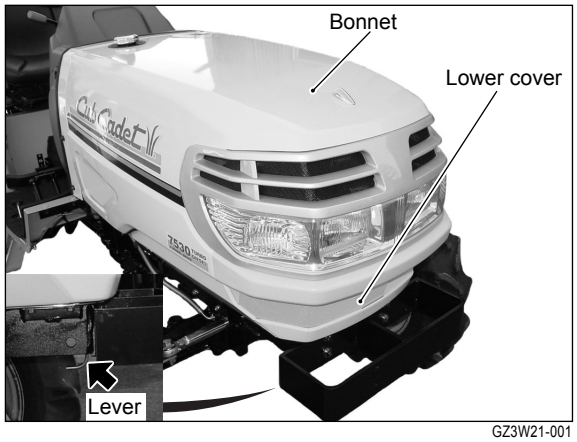
2 Installation and Removal of Engine Parts

2.1 Removal and Disassembly of Engine Assembly

Follow the below procedure for removal and disassembly of engine parts. (This procedure is based on the HST specification.)

⚠ CAUTION

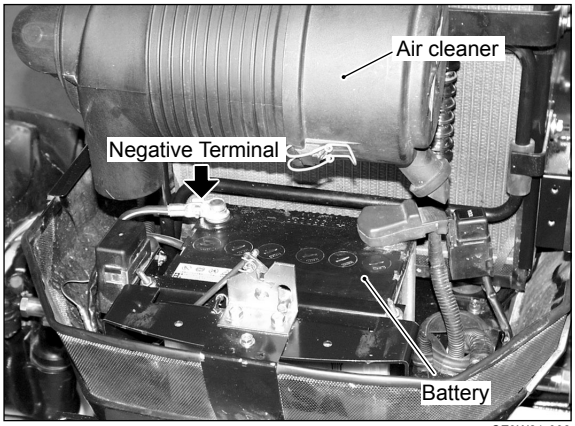
Remove and disassemble the engine parts while engine is cool. Otherwise, it may cause a burn.



GZ3W21-001

1 Removal of Engine Assembly

1. Open the bonnet.

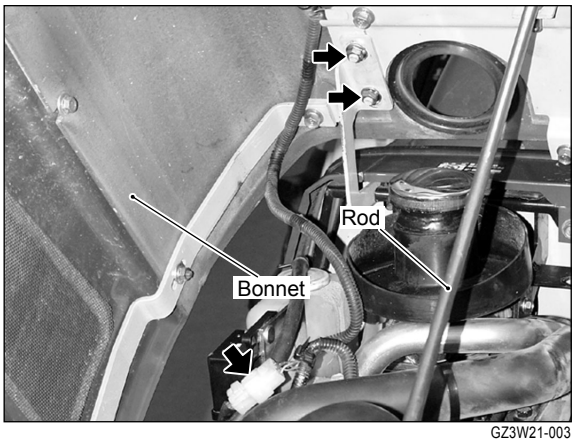


GZ3W21-002

2. Disconnect negative terminal of the battery cable.

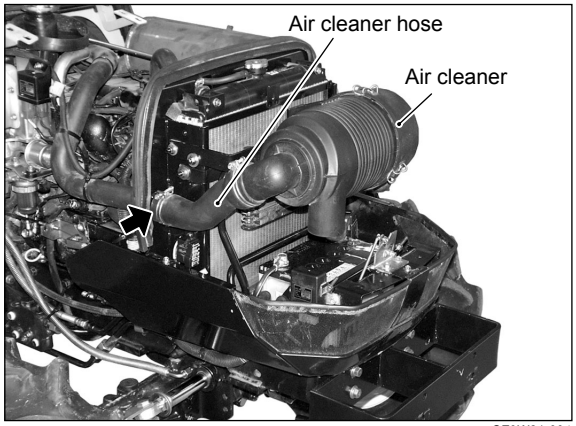
⚠ CAUTION

When checking or connecting the wiring, make sure to disconnect the negative terminal of the battery cable.



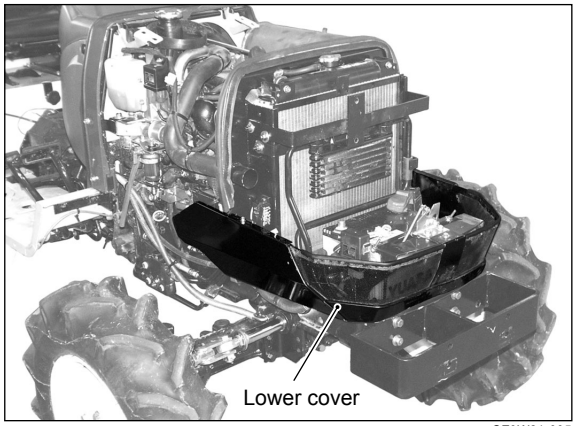
GZ3W21-003

3. Disconnect the head lamp harness from harness E and remove the bonnet.



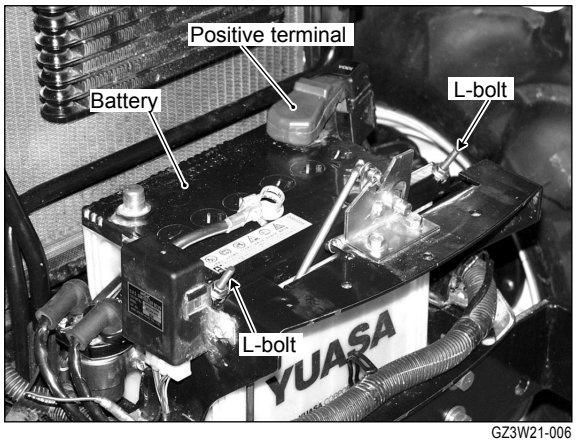
GZ3W21-004

4. Remove the air cleaner hose and air cleaner.



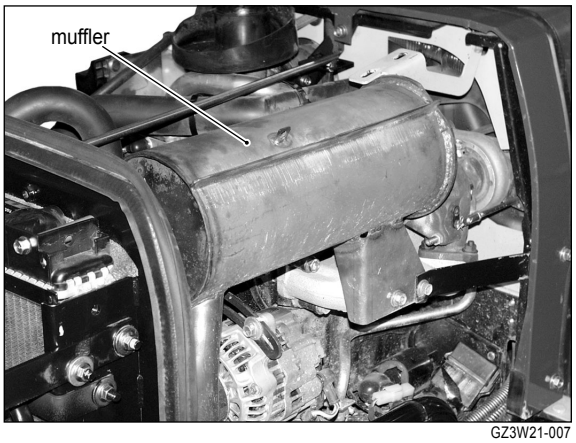
GZ3W21-005

5. Remove the lower cover.



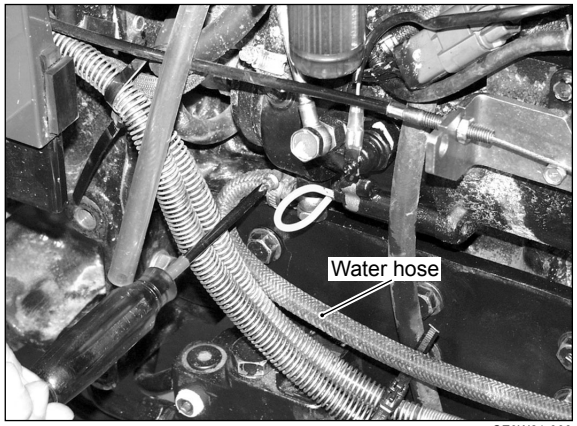
GZ3W21-006

6. Remove the battery.
- Disconnect the positive terminal of the battery cable
- Remove the fixing L-bolt from battery



GZ3W21-007

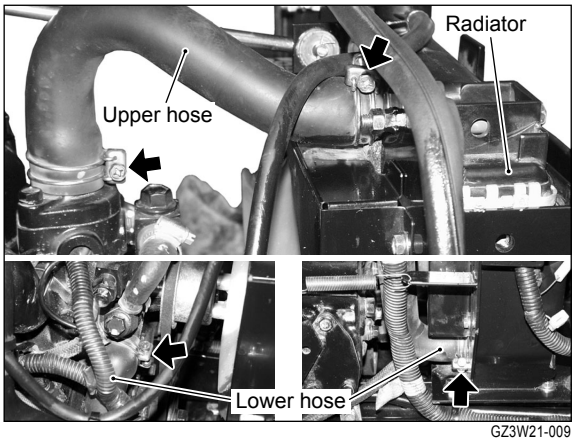
7. Remove the muffler.



GZ3W21-008

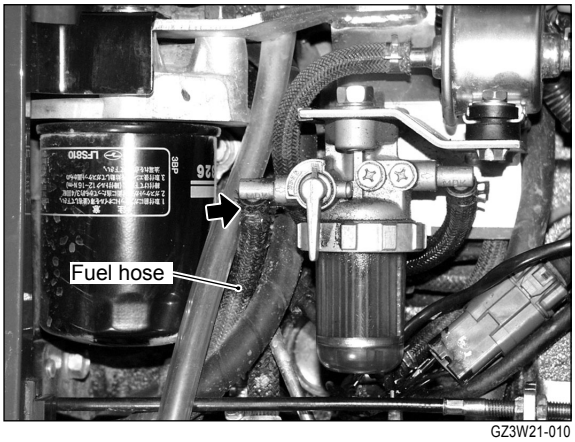
8. Remove the water hose and drain the coolant from the radiator.

   Capacity : 5.5 L {1.5 gal}



GZ3W21-009

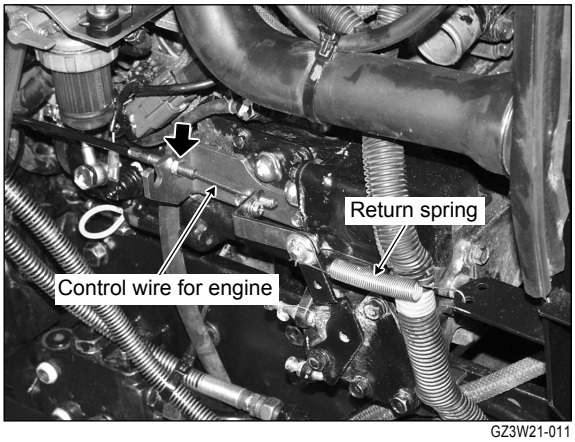
9. Remove the upper and lower hoses from the radiator and engine block.



GZ3W21-010

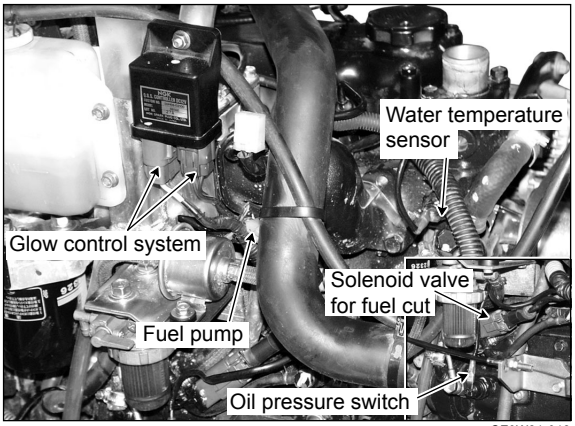
10. Remove the fuel hose and drain the fuel.

    Capacity :27 L {7.1 gal}



GZ3W21-011

11. Remove the control wire for the engine and return spring.



GZ3W21-012

12. Disconnect the harness E from the following engine parts.

    From engine right side

    • Water temperature sensor

    • Solenoid valve for fuel cut

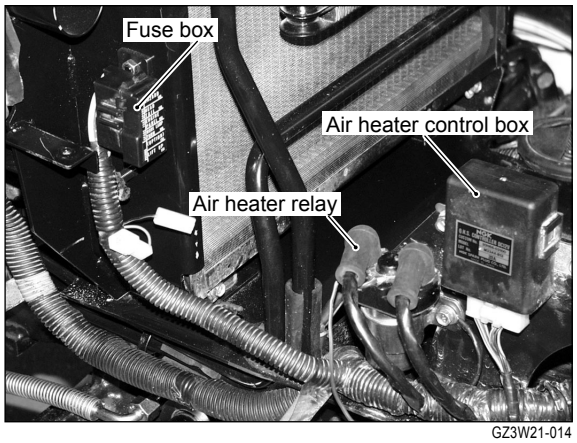
    • Glow control system

    • Fuel pump

    • Oil pressure switch

GZ3W21-013

13. Remove the air intake hose.



GZ3W21-014

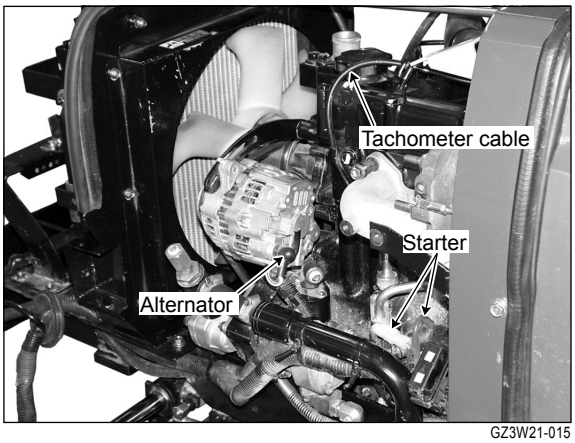
14. Disconnect the harness E from the following engine parts.

    From engine front side

    • Fuse box

    • Air heater relay

    • Air heater control box



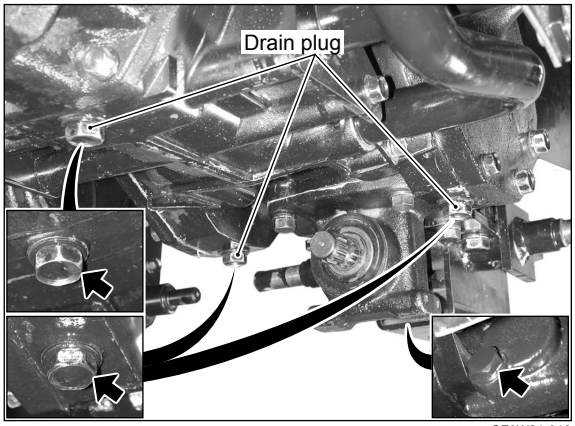
GZ3W21-015

    From engine left side

    • Starter

    • Alternator

    • Tachometer cable



GZ3W21-016

15. Loosen the drain plug and drain the transmission oil.

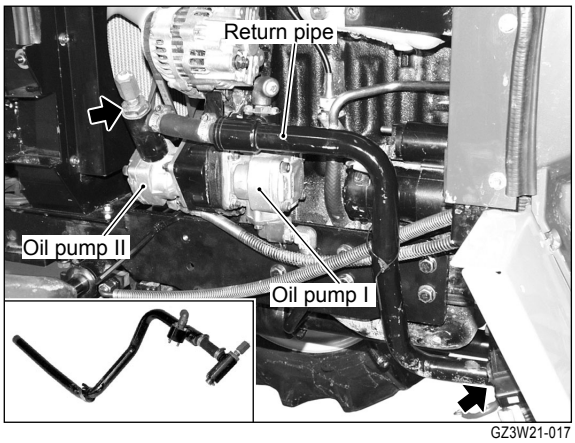
Capacity

Manual transmission specification :

29 L {7.7 gal}

HST specification :

32 L {8.5 gal}

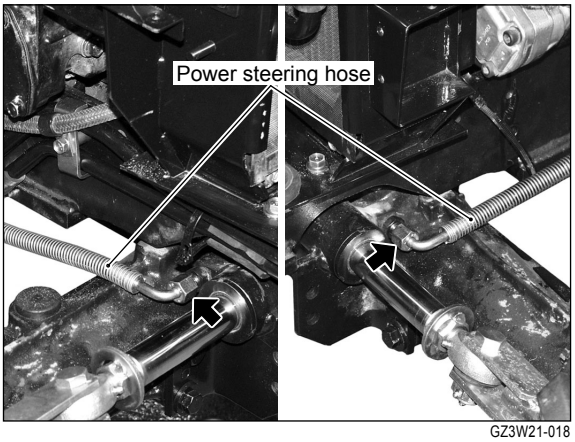


GZ3W21-017

16. Remove the return pipe from the oil pump II and I.

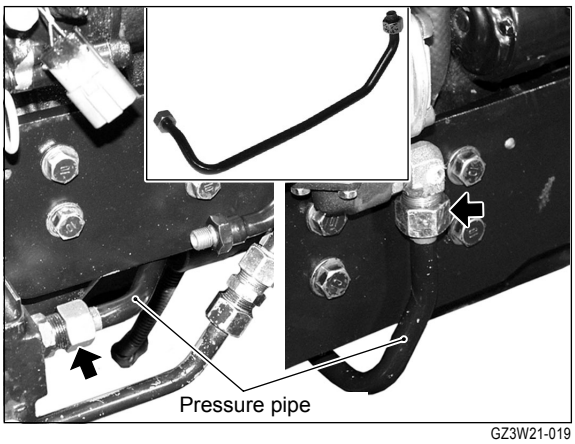
⚠ CAUTION

Take cautions not to drop the O-ring and gasket.



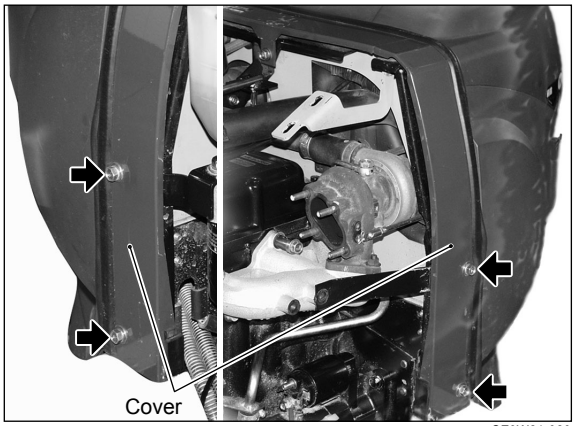
GZ3W21-018

17. Remove the power steering hose.



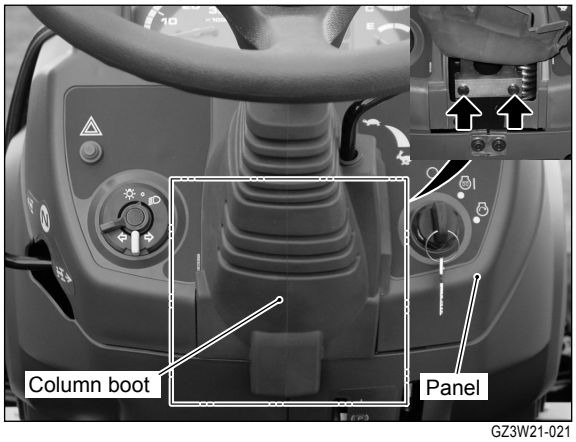
GZ3W21-019

18. Remove the pressure pipe.



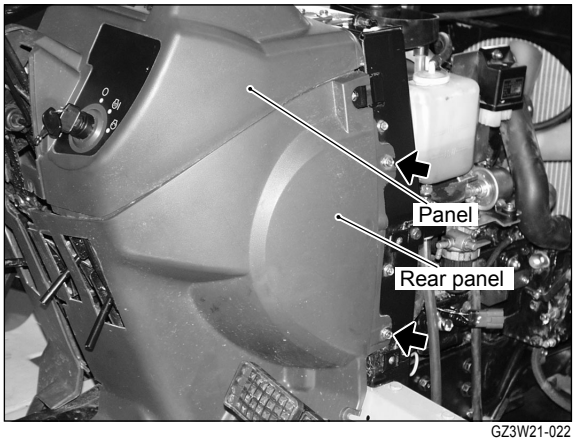
GZ3W21-020

19. Remove the cover.



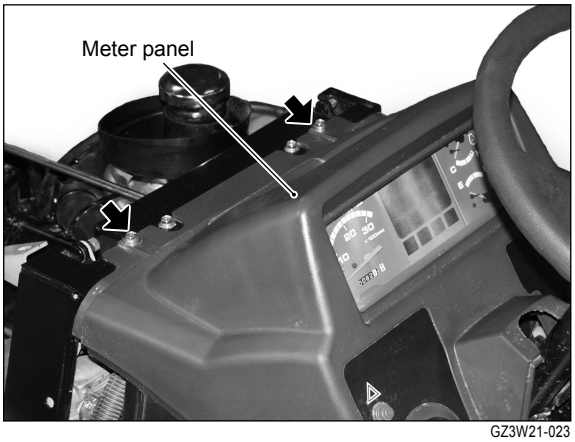
GZ3W21-021

20. Remove the column boot.



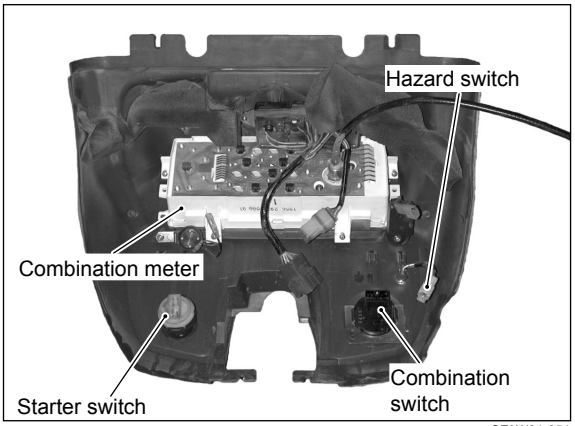
GZ3W21-022

21. Remove the rear panels PH and LH.

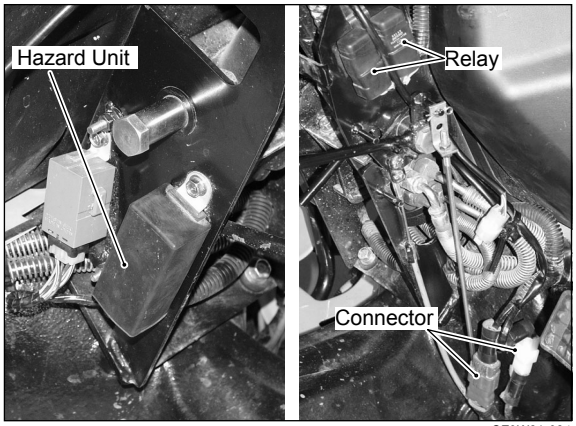


GZ3W21-023

22. Remove the meter panel.
    - Disconnect the connectors for harness E and harness B.
    - Remove the tachometer.

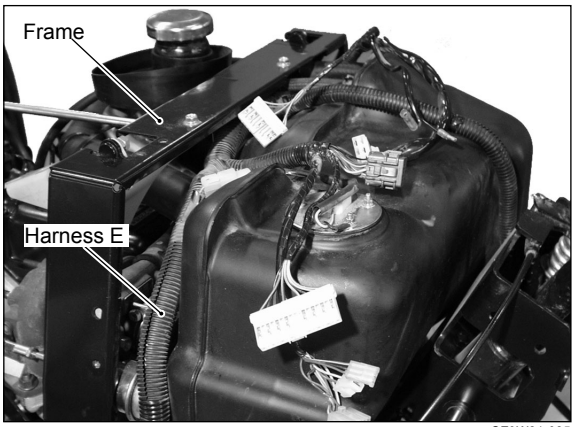


GZ3W21-051



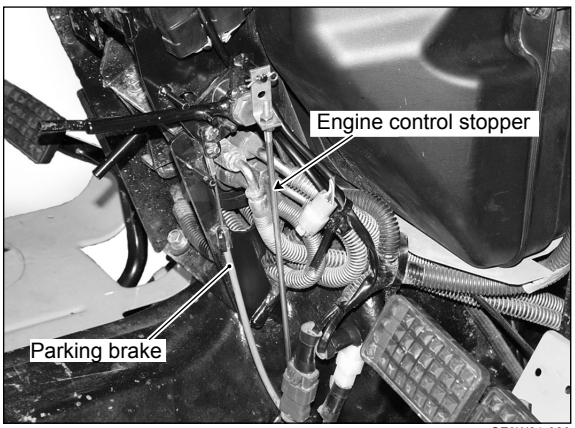
GZ3W21-024

23. Disconnect the harness E from the following frame parts.
    - Connector
    - Hazard Unit



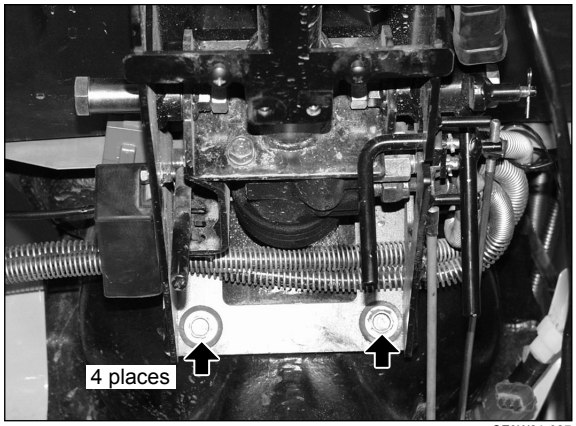
GZ3W21-025

24. Remove the harness E from the frame.



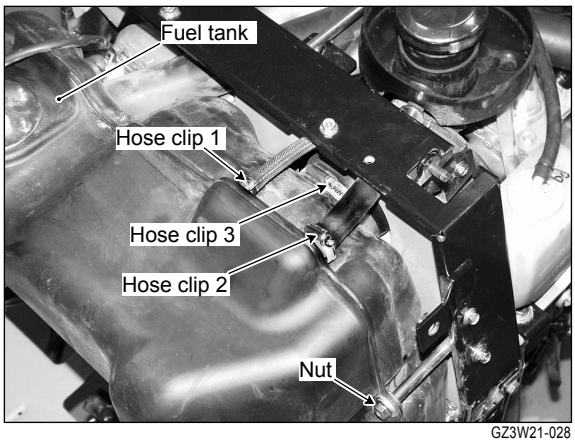
GZ3W21-026

25. Remove the following linkage.
    - Engine control stopper
    - Parking brake



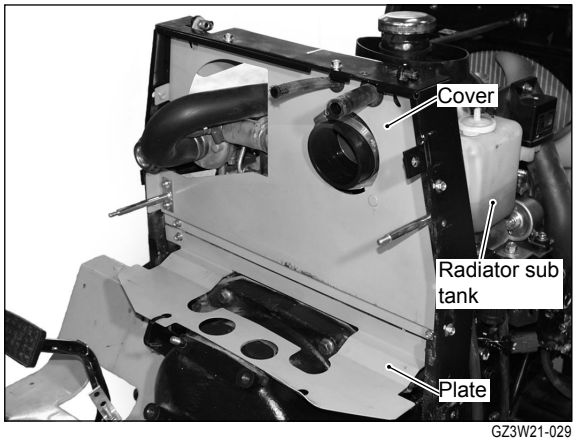
GZ3W21-027

26. Remove the bolts and nuts and remove the steering assembly.



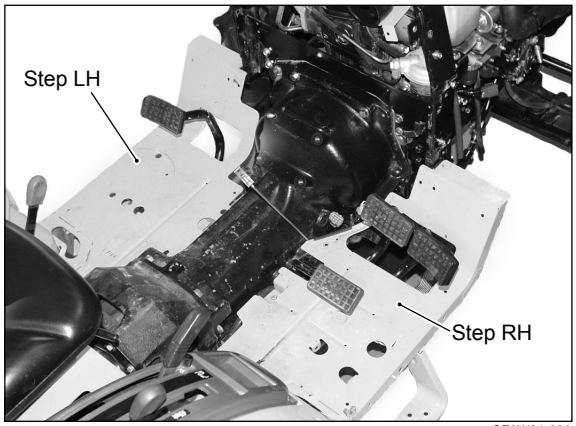
GZ3W21-028

27. Remove the fuel tank by removing the following parts.
    - Hose clip 1
    - Hose clip 2
    - Hose clip 3
    - Nut



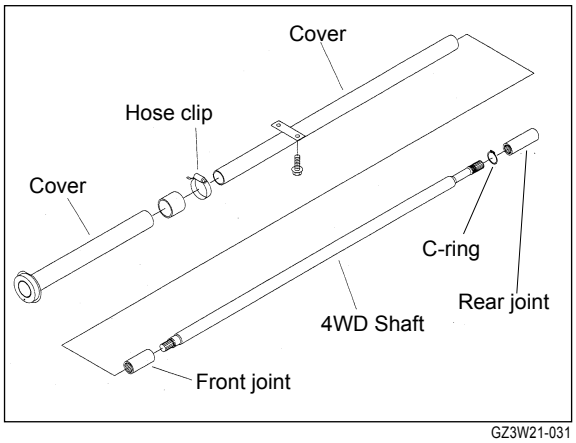
GZ3W21-029

28. Avoiding the radiator sub tank, remove the cover and plate.



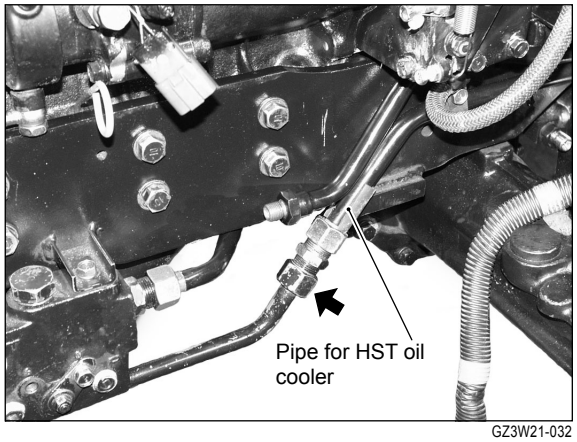
GZ3W21-030

29. Remove the step.



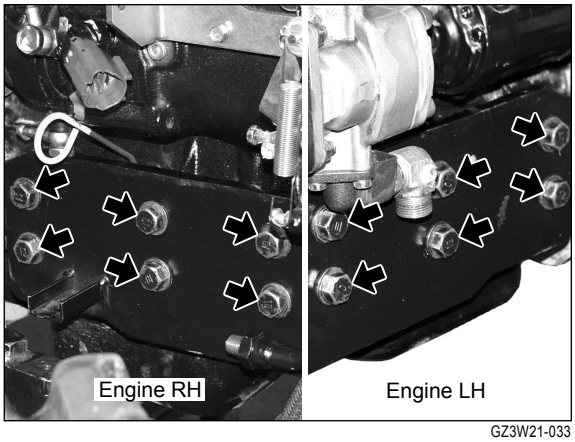
GZ3W21-031

30. Remove the 4WD shaft.



GZ3W21-032

31. Disconnect the pipe for HST oil cooler.

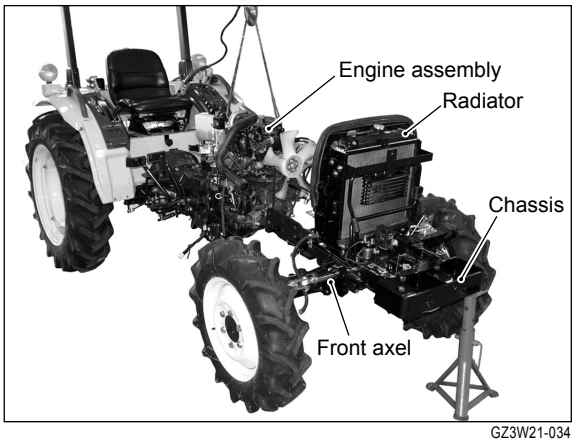


GZ3W21-033

32. Hang the engine assembly with chain block and remove the mounting bolts for chassis (engine RH and LH).

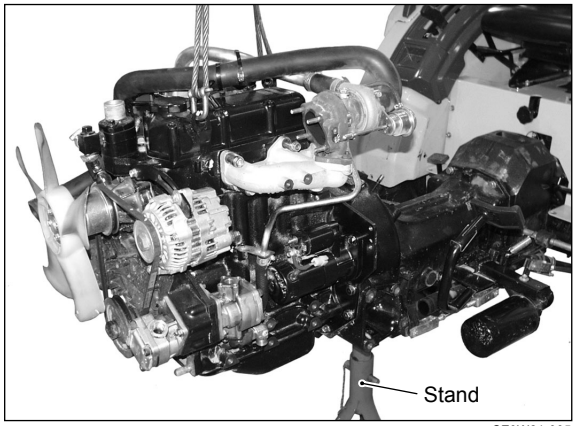
⚠ CAUTION

Hang the engine in balance.



GZ3W21-034

33. Remove the front axel, chassis and radiator together from the engine.

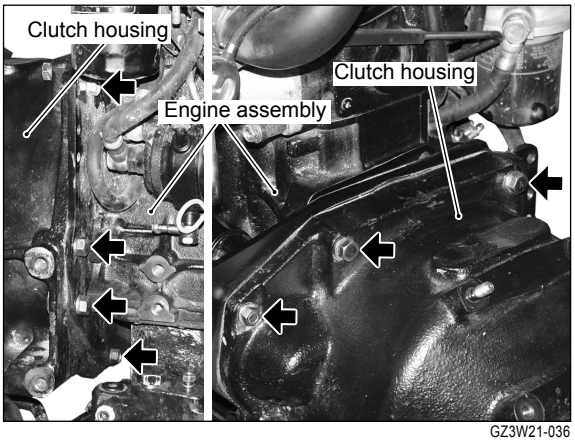


GZ3W21-035

34. Hold the lower part of the clutch housing with the stand.

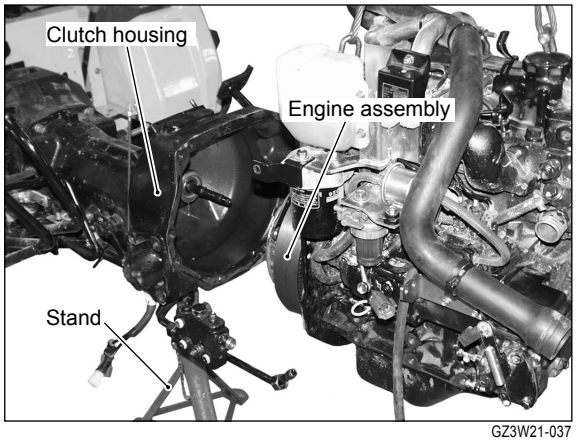
CAUTION

When holding the lower part of the clutch housing with the stand, set it in the position where the clutch housing would not fall off from the stand.



GZ3W21-036

35. Remove the clutch housing and mounting bolts for the engine rear plate.



GZ3W21-037

36. Hang the engine assembly with the chain block and remove the engine assembly.

2.2 Assembly and Installation of Engine Assembly

Follow the reverse procedure of removal and disassembly for the assembly and installation of engine parts. Reference for assembling adjustment and maintenance is as shown below.

1 Installation of Engine Assembly

1. When installing the engine assembly, apply the liquid packing (equivalent to Threebond #1208D) on the mating face of the clutch housing to engine rear plate.
2. Hang the engine assembly, align with the main shaft to clutch assembly and inside diameter of flywheel bearing and connect it.

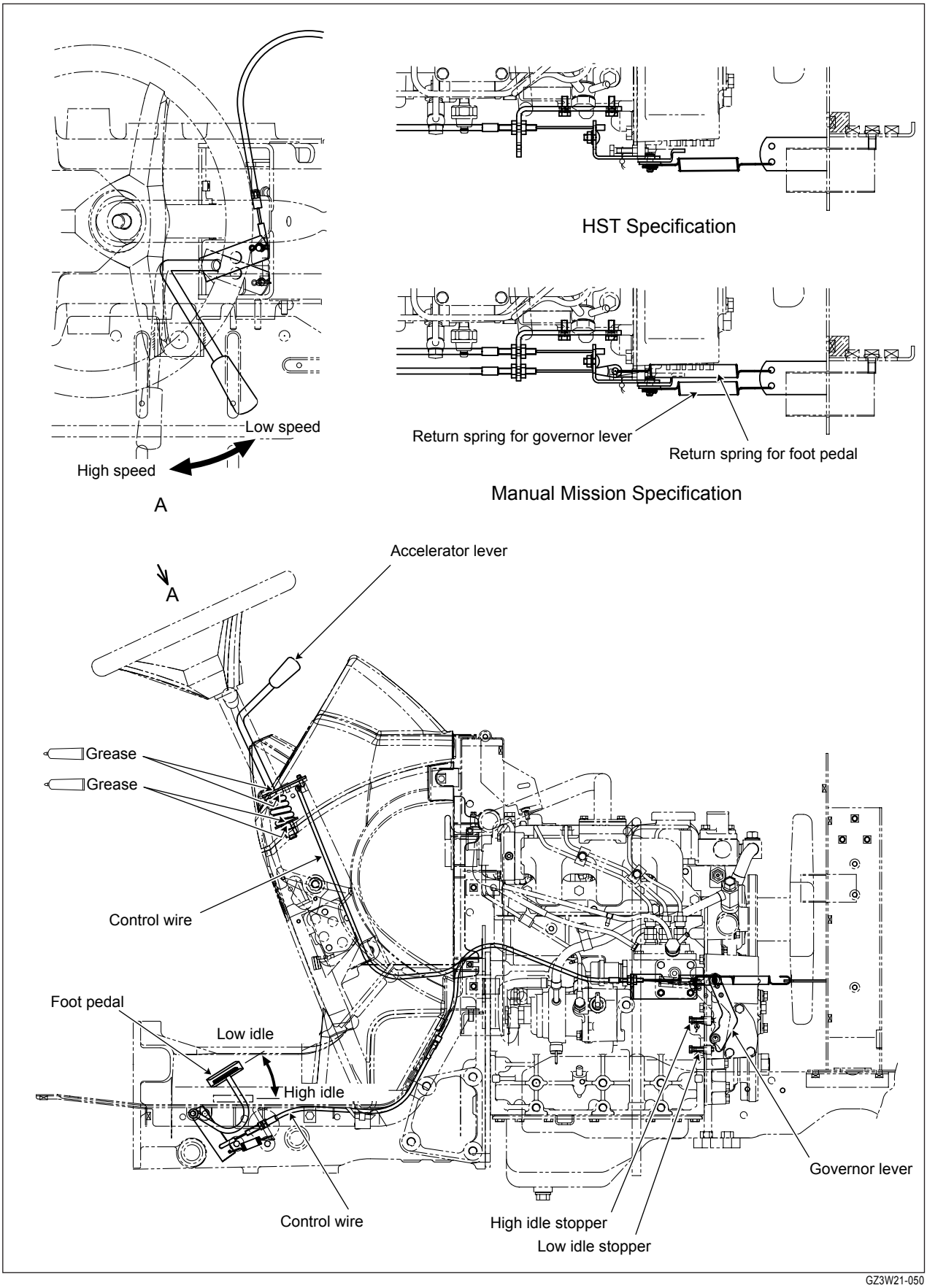
2 Assembly of Engine Control

1. Adjust the operation force at edge of the accelerator lever to be 29 to 78 N {3 to 8kgf, 7 to 18lbf} at the lever tip using the nut and lock it.
2. Pull the accelerator lever to the high-speed side and adjust by the captive screw for the wire to have the clearance between governor lever and bolt for high idle stopper to be 0mm {0in}.
3. Step on the foot pedal. Adjust by the captive screw for the wire to have the clearance between governor lever and bolt for high idle stopper to be 0mm {0in}. (Manual transmission specification only)
4. When returning the both accelerator lever and foot pedal to the lower idle side, make sure the governor lever makes a contact with the low idle stopper.
   (Only accelerator lever side for HST specification)
5. Engine rpm at Low idle and High idle

   7530/7532

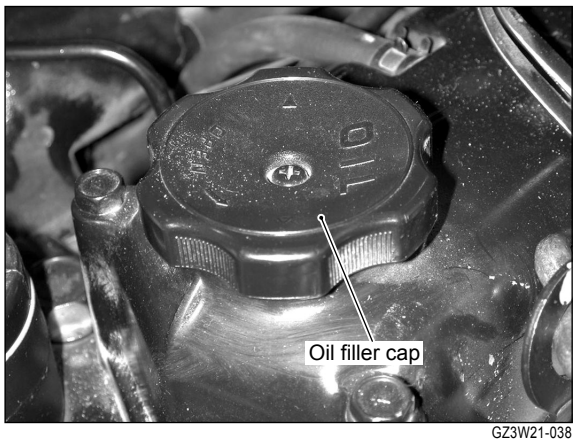
   Low Idle : 1030 ± 25rpm

   High Idle : 2700 ± 30rpm

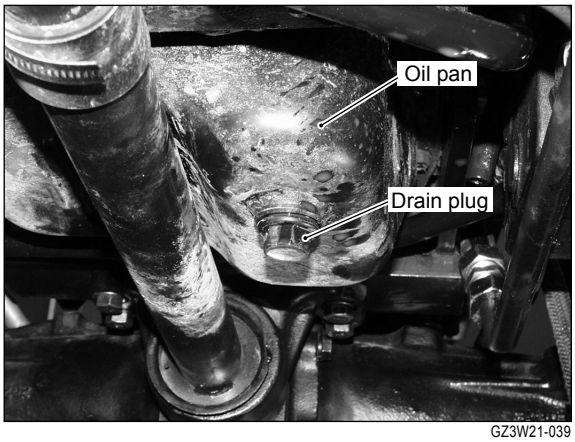


2.3 Inspection and Maintenance

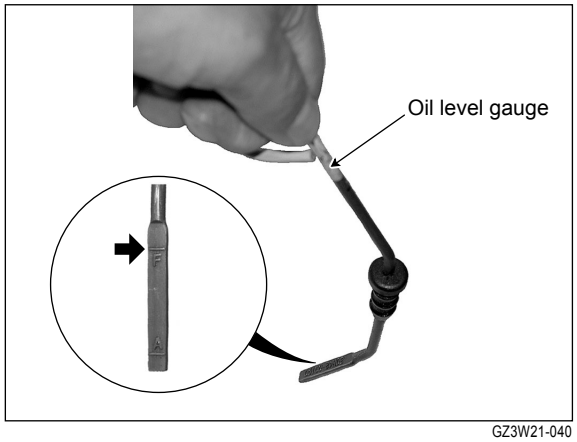
1 Changing of Engine Oil



GZ3W21-038



GZ3W21-039



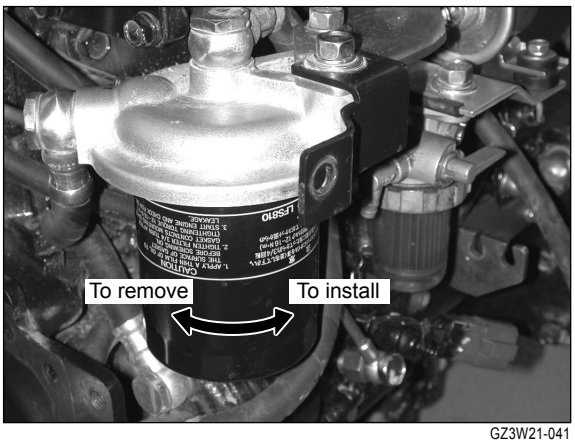
GZ3W21-040

- Oil Grade:

  Genuine oil or oil for diesel engine category API, class CD.

- Oil Amount : 4.2 L {1.1gal}

  Fill the oil between the line "F" and "E" on the level gauge.



GZ3W21-041

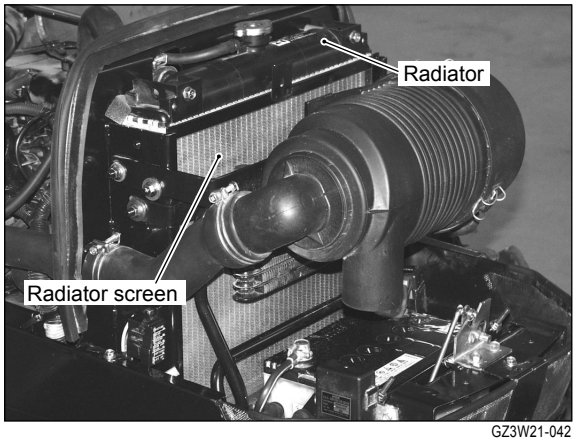
2 Changing of Oil Filter

- First time:

  Change after 50 hours of operation
- After second time:

  Change after every 100 hours of operation

When changing the oil filter, make sure to check the oil amount with oil level gauge and supply to satisfy the required amount.



GZ3W21-042

3 Cleaning of Radiator and Radiator Screen

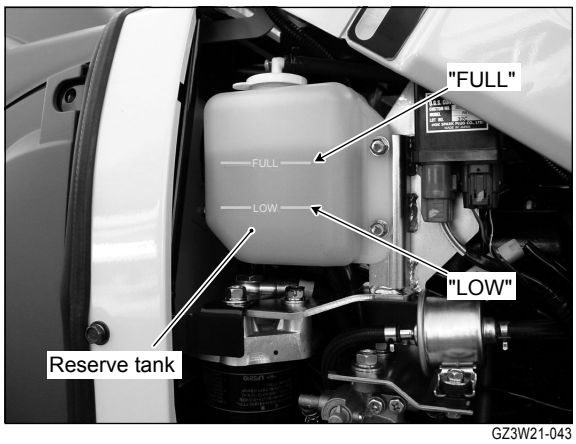
Reference) Use working gloves.

1. Remove the radiator screen and clean the trash.
2. Check the blinding of the radiator. If blinded, remove the trash on the front face of the radiator. Blow the air from the cooling fan side to remove the refuse.

4 Inspection of Cooling Water

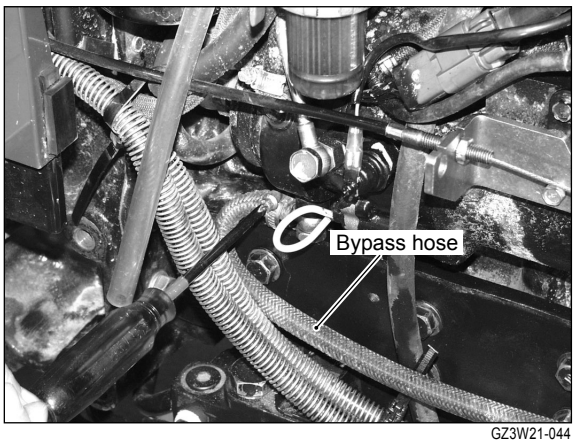
⚠ CAUTION

Check before starting the engine. Take caution not to burn yourself when opening/closing the radiator cap.



GZ3W21-043

1. The radiator is equipped with a reserve tank to adjust the cooling water in the radiator appropriately. Check it before operation and supply if required.
2. Open the bonnet and check the cooling water in the reserve tank is within "FULL" (upper limit) and "LOW" (lower limit).
3. When the cooling water is insufficient, supply it from the reserve tank.

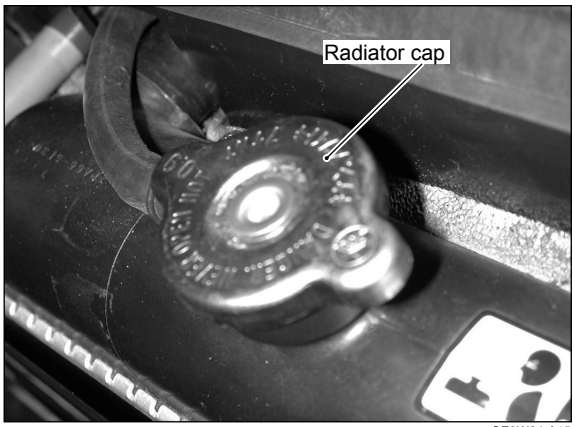


GZ3W21-044

5 Changing of Cooling Water

1. Remove the bypass hose and drain the cooling water.
2. Wash the radiator internal sufficiently by running and draining the water repeatedly until the water in the radiator is clean.

   Reference) Use the cleaning agent for a better effect.



GZ3W21-045

3. After draining, install the bypass hose. Fill up the radiator with water up to the water supply opening and close the radiator cap.

- Once the engine started, the water will circulate and the water in the radiator will decrease. Stop the engine and Supply the water.

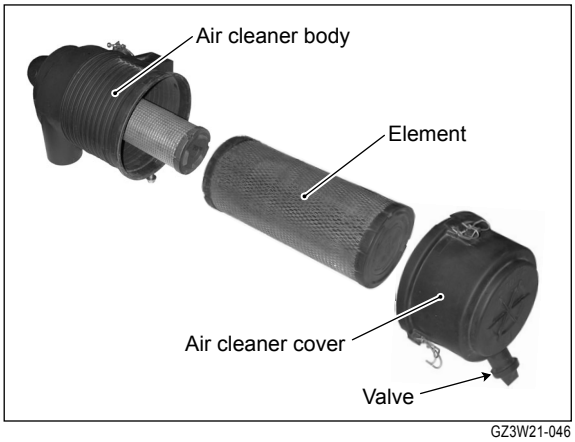
  Reference) In order to prevent the internal of engine cooling water parts from corrosion, it is recommended to add the rust-preventive agent to the cooling water.

  Capacity : 5.5 L {1.5 gal}

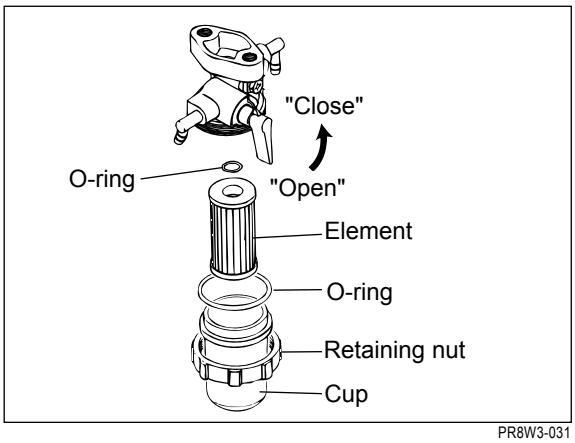
6 Cleaning of Air Cleaner

If used an unclean air cleaner element, the engine output will deteriorate.

1. Remove the air cleaner cover and remove the element.
2. Clean the element and valve of the air cleaner cover.



GZ3W21-046



PR8W3-031

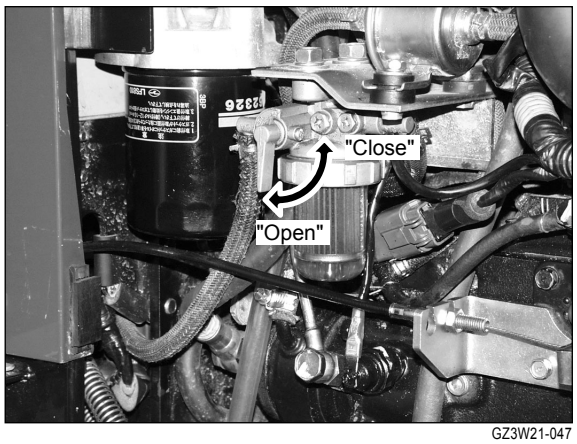
7 Cleaning and Changing of Fuel Filter

Clean it every 50 hours and change it every 200 hours.

1. Position the cock to "OFF".
2. Remove the cup and wash it with clean gas-oil.
3. Remove the element and clean or change it.
4. Install the O-ring, element and cup.
5. Remove the air following the air purge procedure.

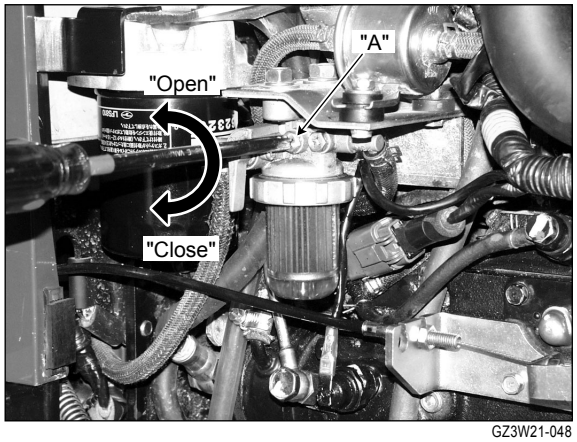
8 Air Removal of Fuel Line

1. Open the fuel cock.

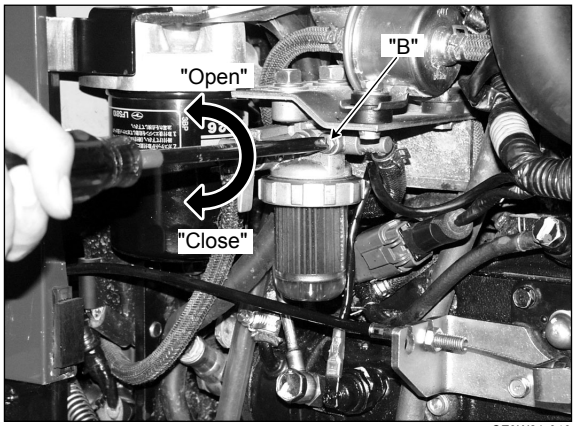


GZ3W21-047

2. Loosen the air vent screw "A". When fuel with no mixture with bubbles starts coming out, tighten the air vent screw.



GZ3W21-048



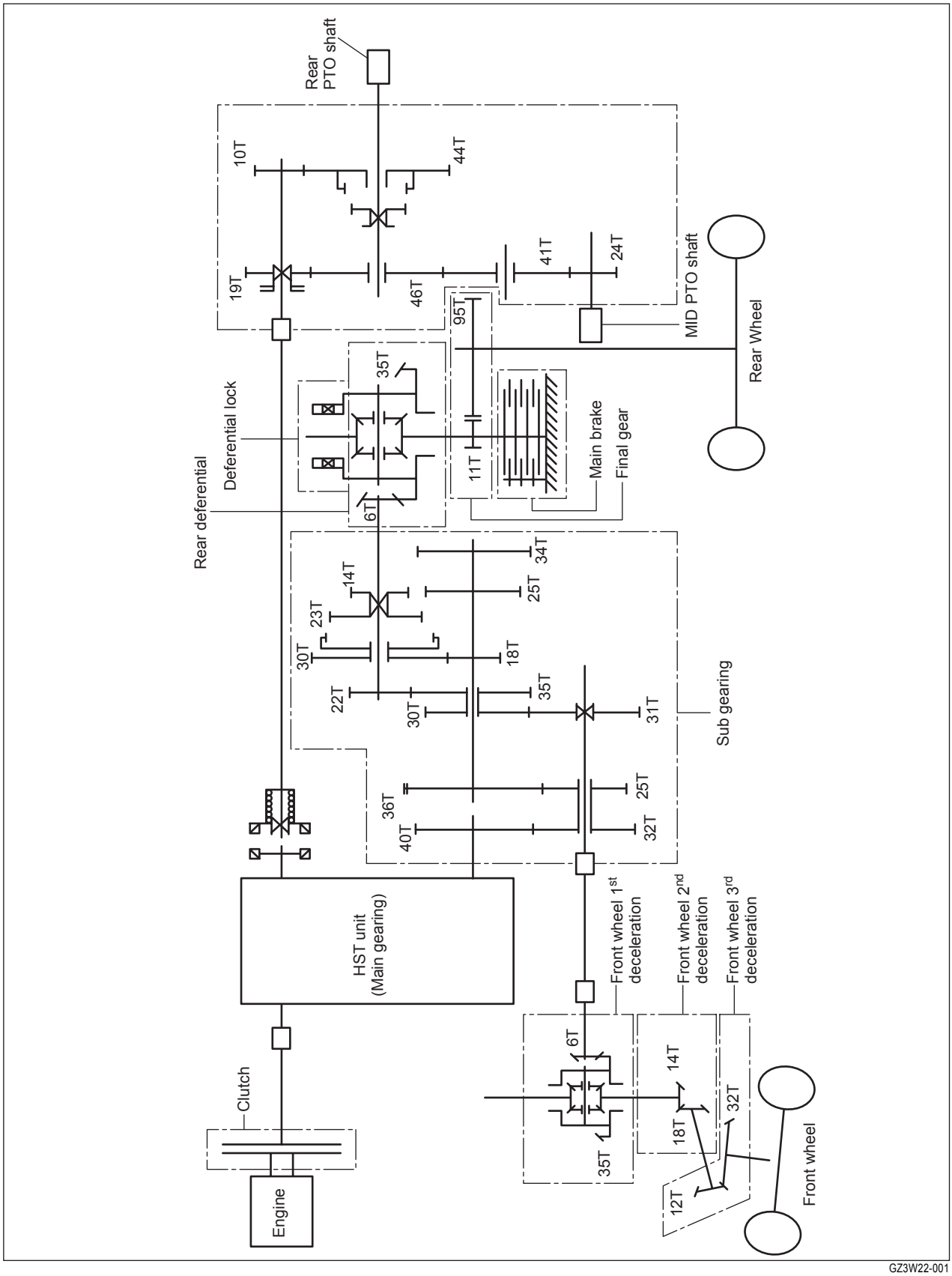
GZ3W21-049

3. Loosen the air vent screw "B" and when fuel with no mixture with bubbles starts coming out, tighten the air vent screw.

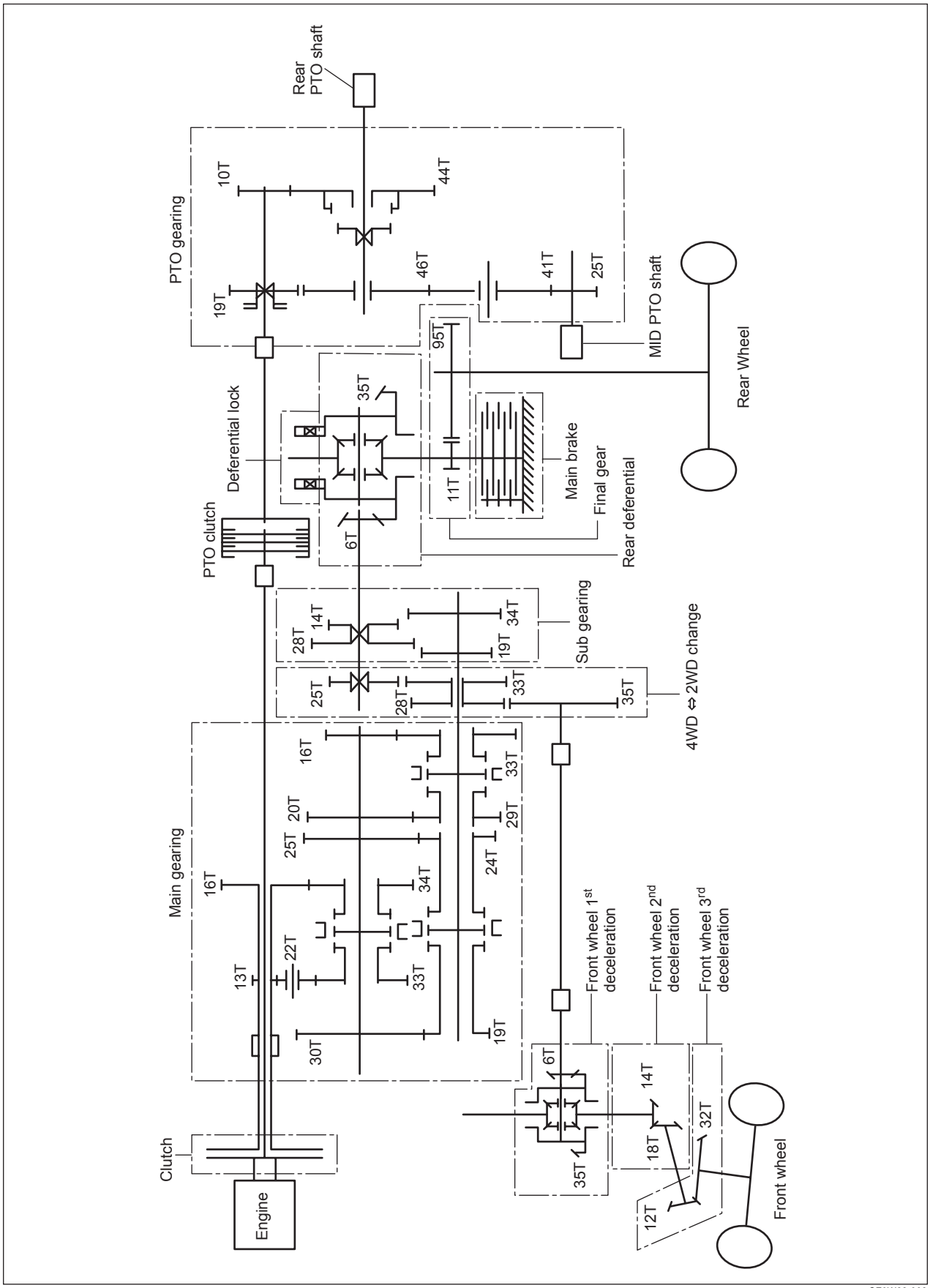
3 Clutch

3.1 Transmission Power Train Schematic

1 7532



2 7530

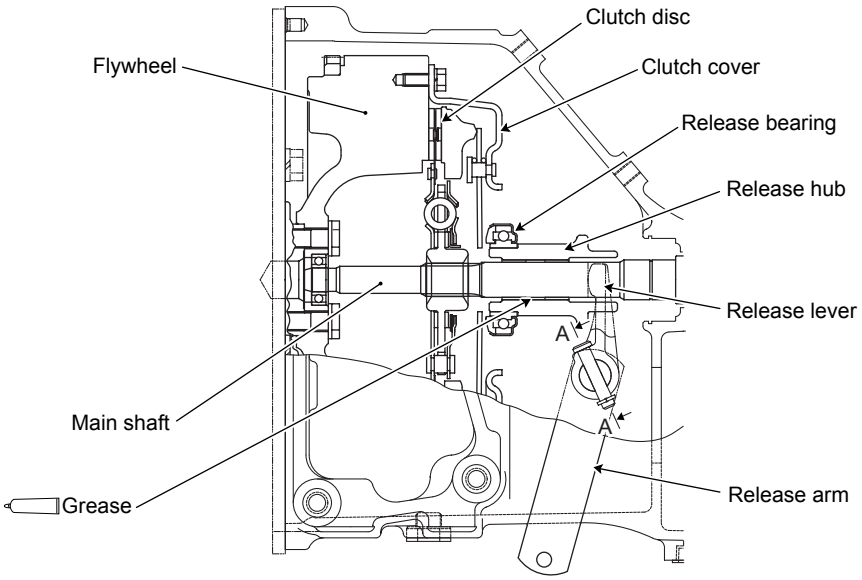


3.2 Structure and Specifications of Clutch

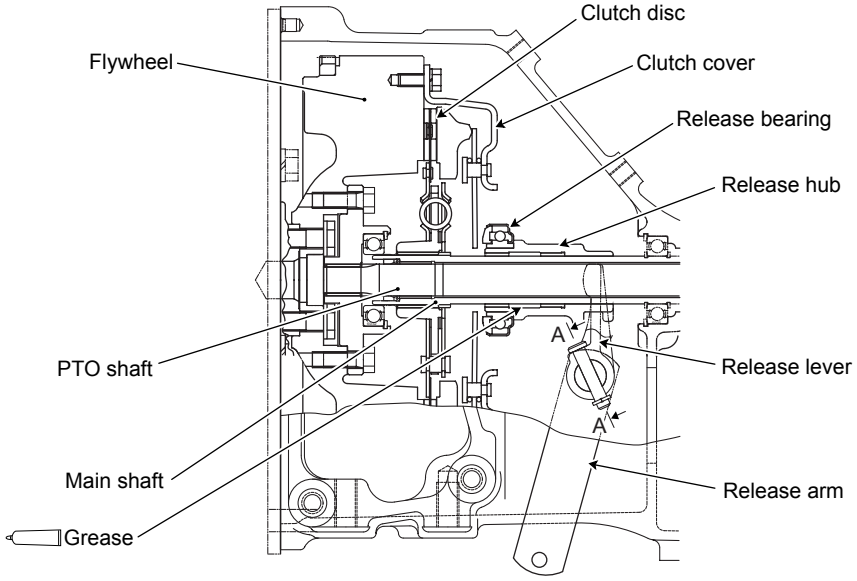
1 Specifications

Model	Model / Dry Single Plate Type (Diaphragm)
Facing Dimension (mm {in}) (Ext. Diameter × Inside Diameter × Thickness)	ø 215 × ø 2150 × 3.5 {ø 28.46 × ø 25.91 × 0.14}
Release Bearing	Non-oil supply (grease enclosure)
Release Method	Stepping
Transfer Torque (N•m {kgf•m, lbf•ft})(Static)	273.6 {27.9, 201.8}

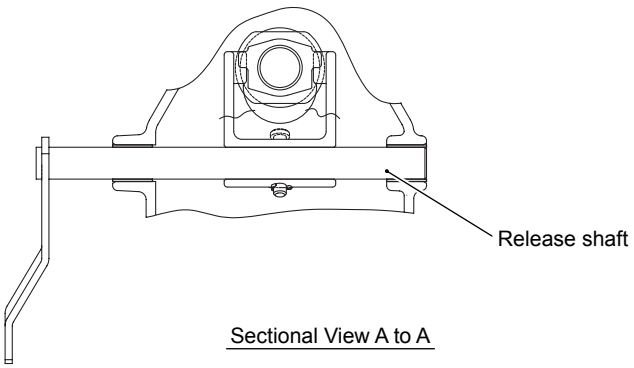
2 Structure



HST specification



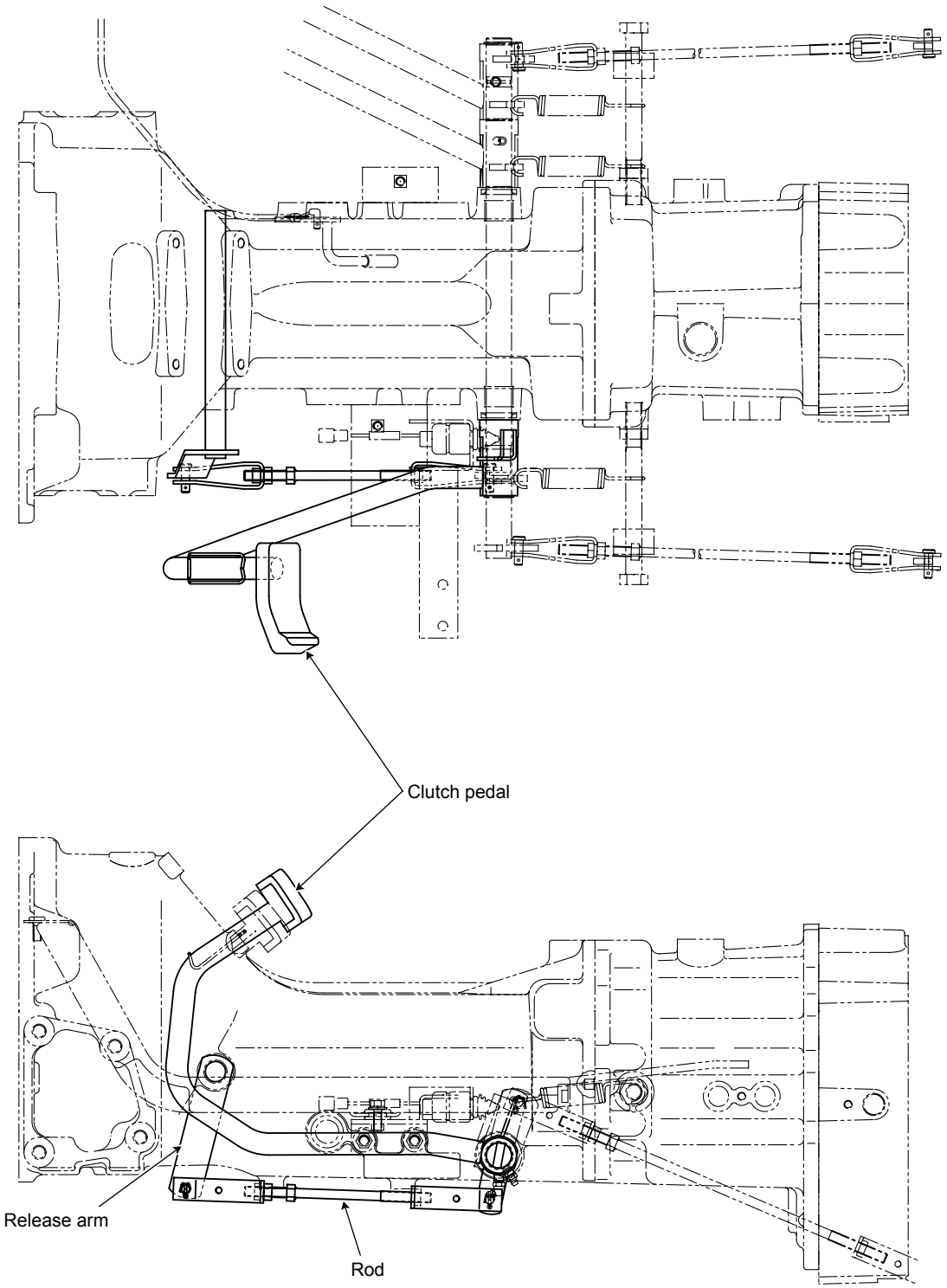
Manual Transmission Specification



Sectional View A to A

GZ3W22-003

3.3 Clutch Control



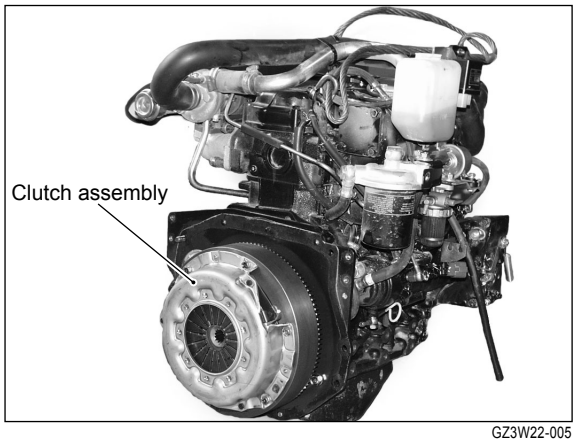
GZ3W22-004

3.4 Removal and Disassembly of Clutch

Follow the following procedure for removal of the clutch.

1 Removal of Clutch Assembly

After removing the engine assembly, remove the clutch assembly (clutch cover and clutch disc) by removing fixing bolts. (M8×20 6 bolts)



GZ3W22-005

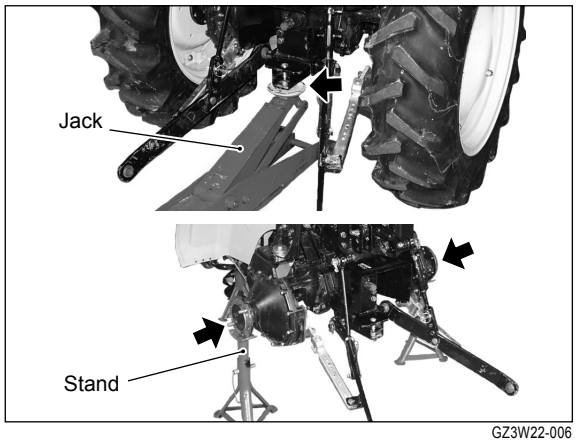
2 In order to facilitate the removal and installation of clutch housing, remove the tire, sheet and fender.

1. Remove the tire by removing fixing bolts.

CAUTION

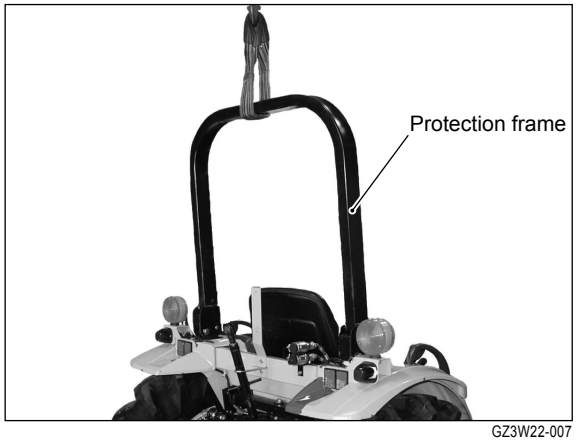
Hang the upper part of the protection guard to prevent the stumbling and falling off.

Reference) Jack-up point is as shown in the photo.

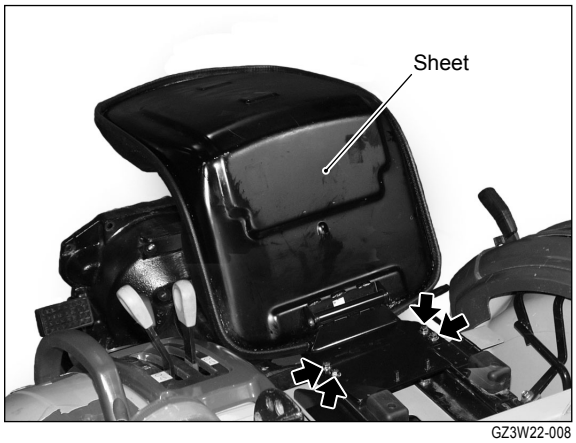


GZ3W22-006

2. Remove the protection frame.

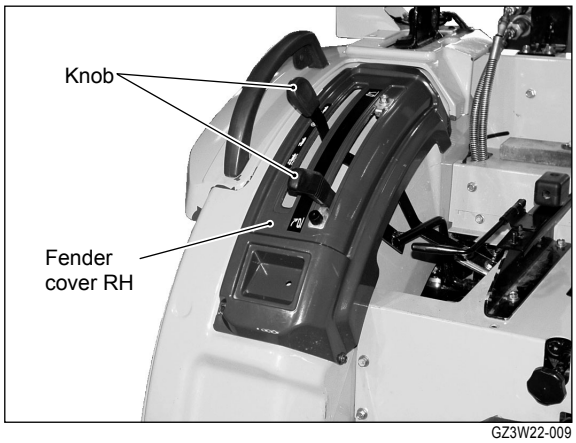


GZ3W22-007



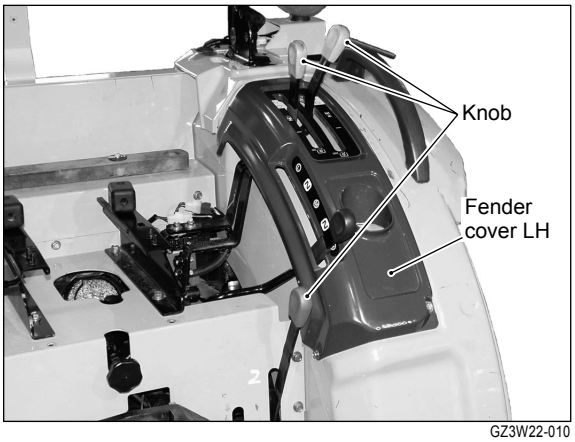
GZ3W22-008

3. Remove the sheet.



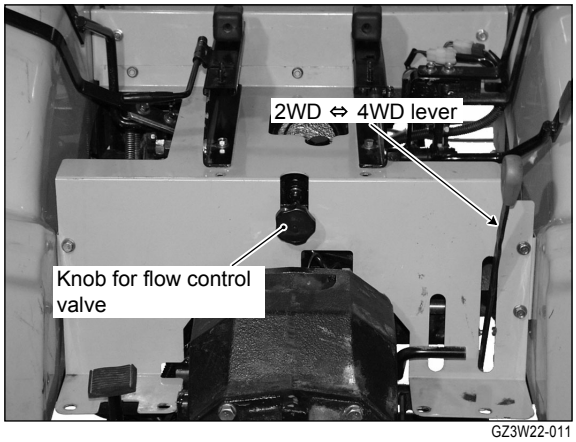
GZ3W22-009

4. Remove the knob and fender cover RH by removing the fixing bolts of cover.



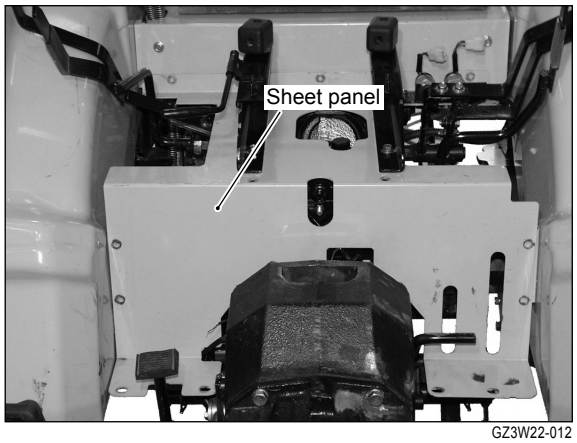
GZ3W22-010

5. Remove the knob and fender cover LH by removing the fixing bolts of cover.



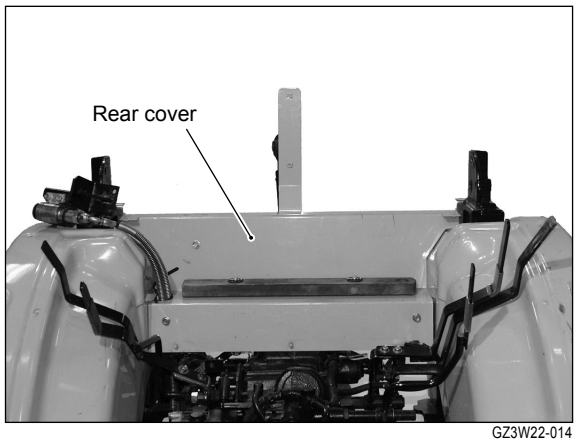
GZ3W22-011

6. Remove the knob for flow control valve and 2WD ⇔ 4WD lever.



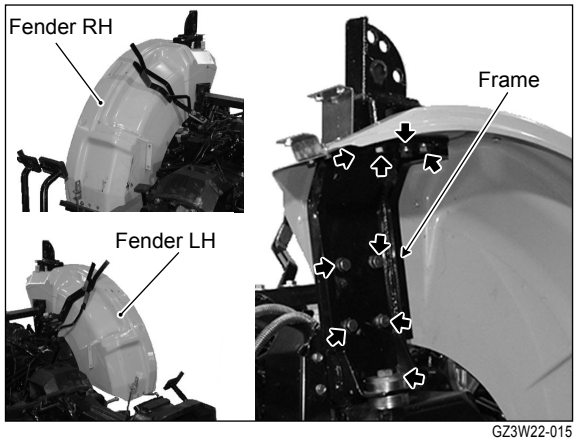
GZ3W22-012

7. Remove the sheet panel by removing the fixing bolts of sheet panel.



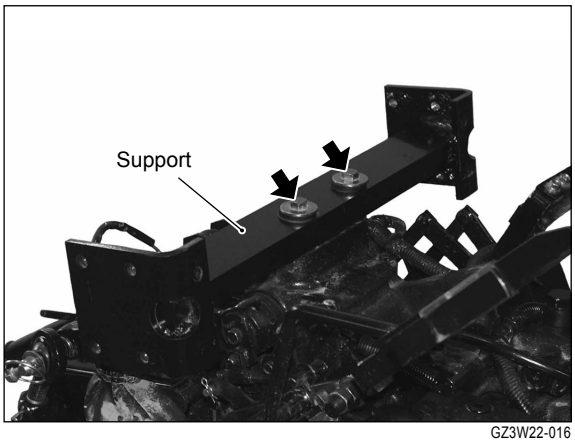
GZ3W22-014

8. Remove the rear cover by removing the fixing bolts of rear cover.



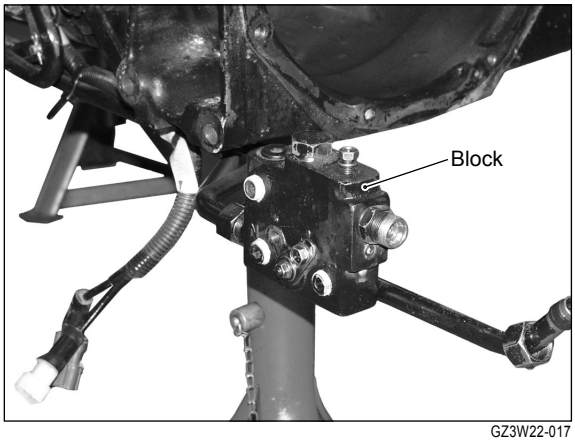
GZ3W22-015

9. Remove the fender RH and LH and frame by removing the fixing bolts of fenders and frame.



GZ3W22-016

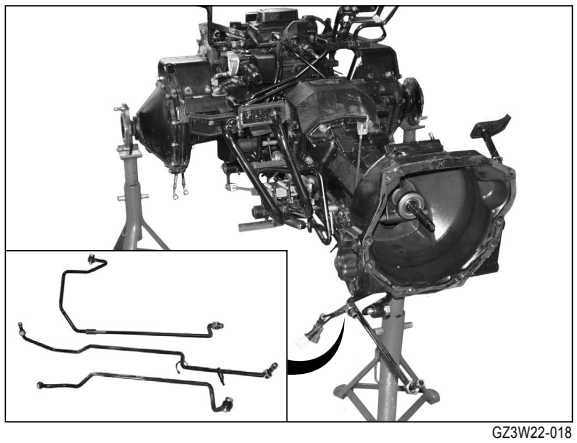
10. Remove the support by removing the fixing bolts of the support.



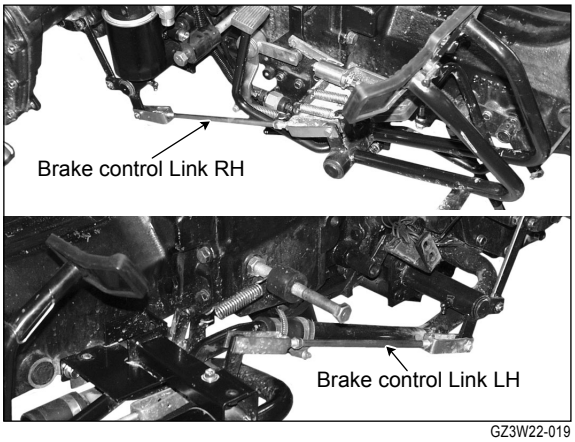
GZ3W22-017

3 Removal of Clutch Housing Assembly

1. Remove the block.
   1) Disconnect the hydraulic pipe from the block.
   2) Remove the block by removing the mounting bolt of block.

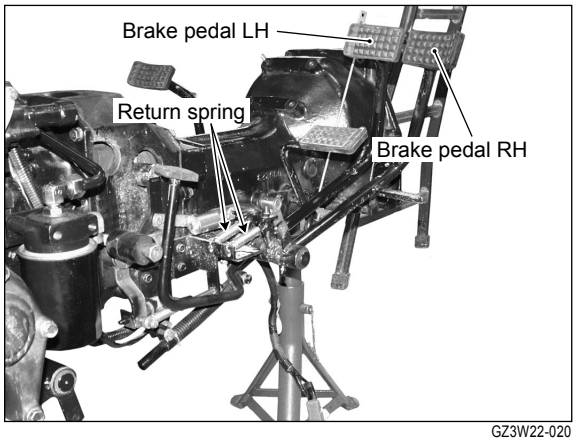

GZ3W22-018

2. Remove the pipe.



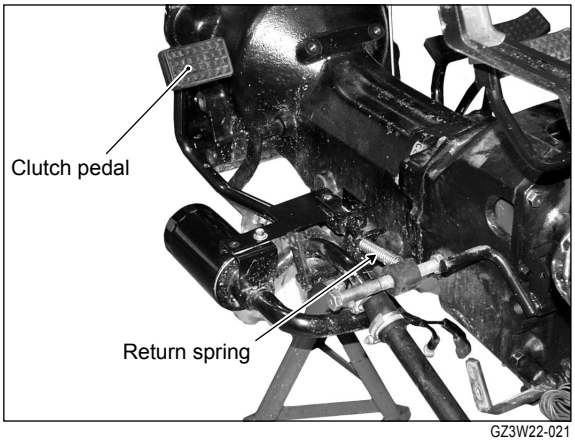
GZ3W22-019

3. Remove the brake control link RH and LH.
   1) Remove the cottor pin from clevis pin the end of brake control link RH and LH.
   2) Remove the brake control link RH and LH.



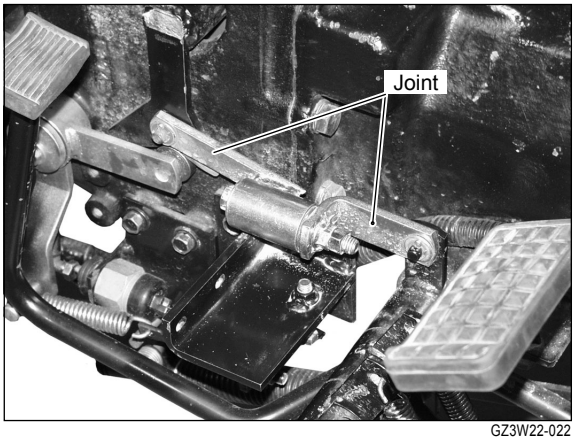
GZ3W22-020

4. Remove the return spring for brake pedal.



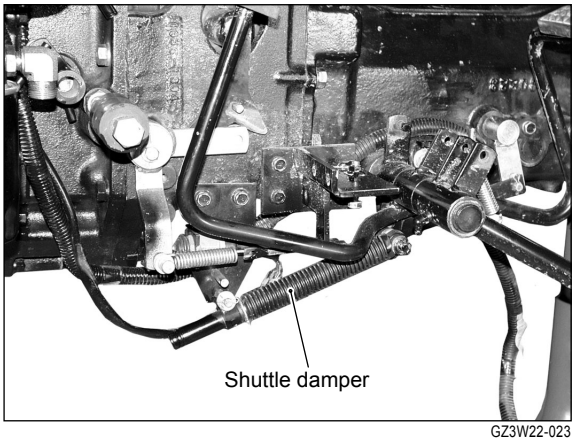
GZ3W22-021

5. Remove the return spring for clutch pedal.



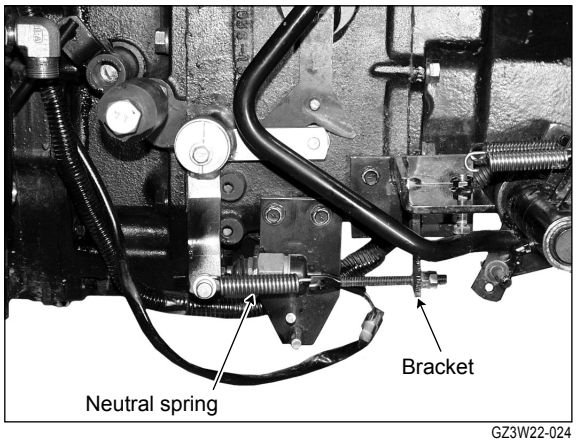
GZ3W22-022

6. Remove the joint.
   (HST Specification)
   1) Remove the snap ring from the pin at joint end and remove the joint.



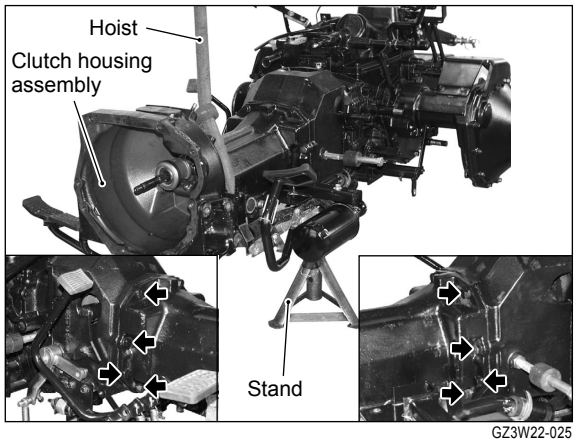
GZ3W22-023

7. Remove the shuttle damper. (HST Specification)
   1) Remove the cottor pin from the pin of shuttle damper bracket.
   2) Remove the shuttle damper.



GZ3W22-024

8. Remove the neutral spring and bracket. (HST Specification)



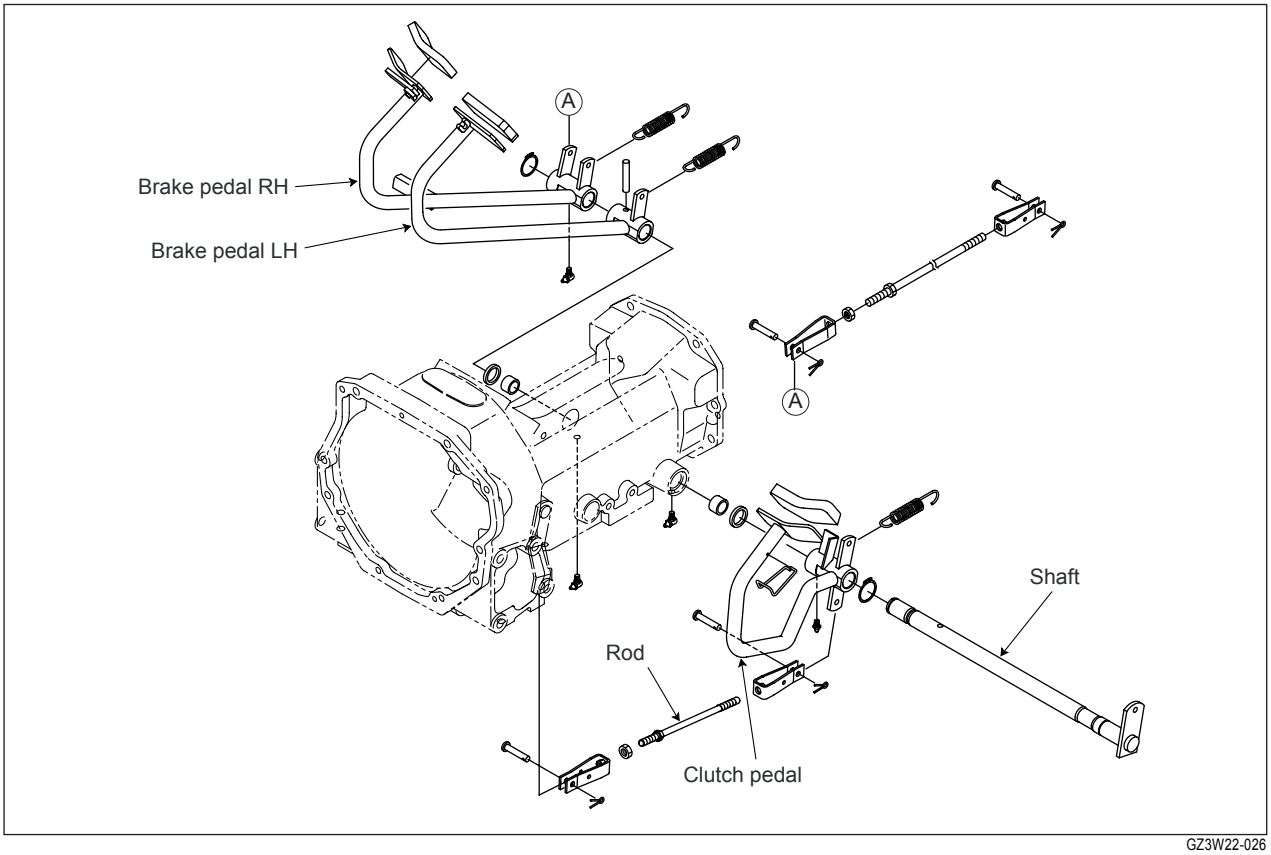
GZ3W22-025

9. Remove the mounting bolt for clutch housing and remove the clutch housing assembly.

⚠ CAUTION

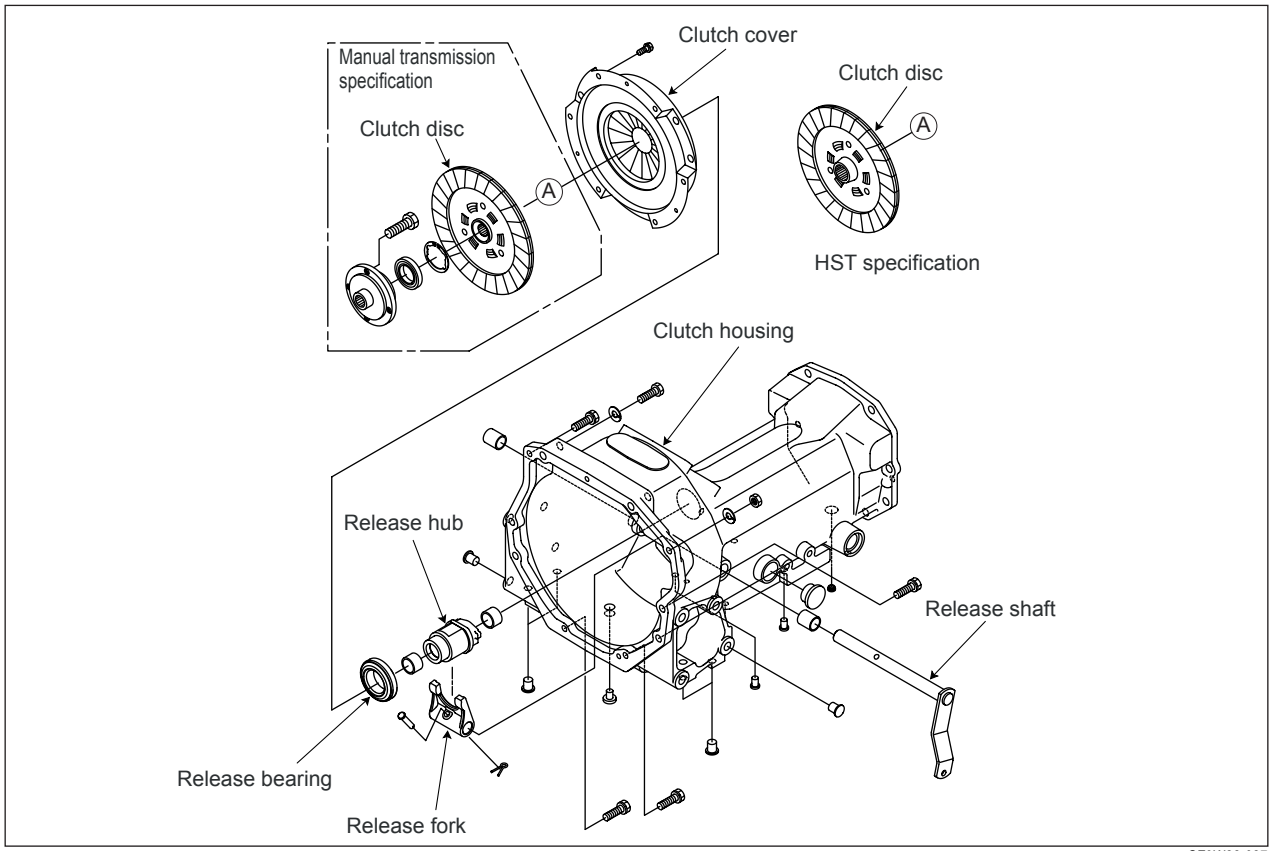
Take caution for safety and balance at disassembling and moving the clutch housing. (Use a jack or hoist as required.)

4 Disassembly of Clutch Pedal



GZ3W22-026

5 Disassembly of Clutch Housing Assembly



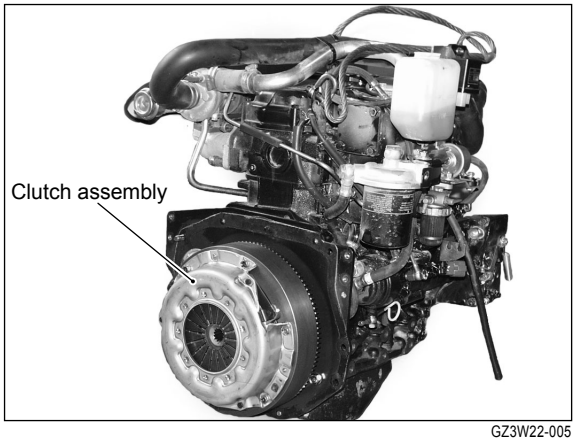
GZ3W22-027

3.5 Assembly and Installation of Clutch

Follow the procedure for removal and disassembly in the reverse order for assembly and installation of clutch.

1 Assembly of Clutch Assembly

1. Clean the flywheel of engine (clutch mounting face) and apply rust preventive oil.
2. When assembling the clutch assembly, align the inside diameter of flywheel bearing and install.



GZ3W22-005

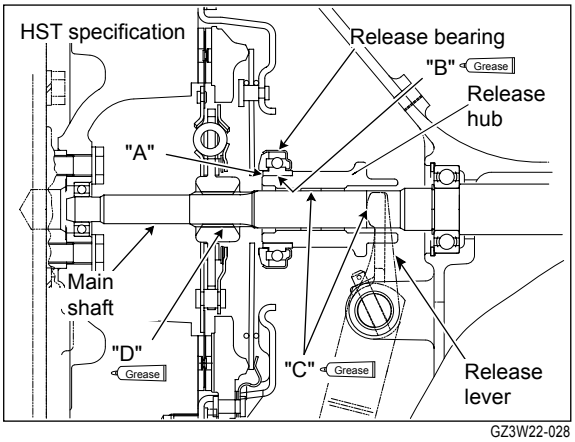
CAUTION

Take caution for mounting direction of disc assembly.

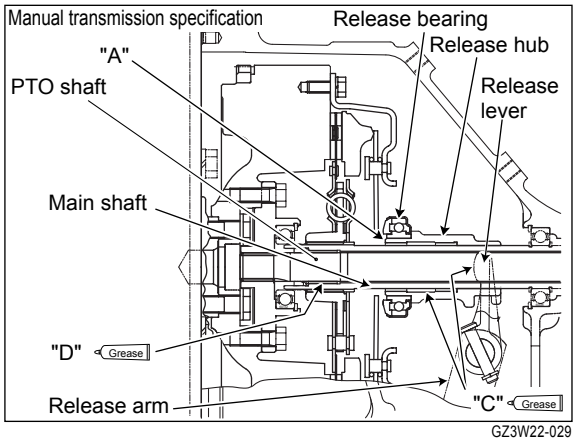
2 Assembly of Clutch Housing Assembly

1. When assembling the release bearing, apply pressure to "A" and assemble.
2. Fill up lithium grease to "B" at inside diameter of the release hub and assemble.
3. Apply lithium grease to "C" at the release lever and assemble.
4. Apply lithium grease to both sides of the release shaft and assemble.
5. Apply lithium grease to "D" at spline of the main shaft and assemble.
6. Apply liquid packing (equivalent to Threebond #1208D) to the composition face of the clutch housing an engine rear plate and assemble.

   Reference) For main shaft in the clutch housing, refer to the section 5 - 8 Assembly and Installation of Transmission for adjustment and maintenance reference for transmission parts.



GZ3W22-028



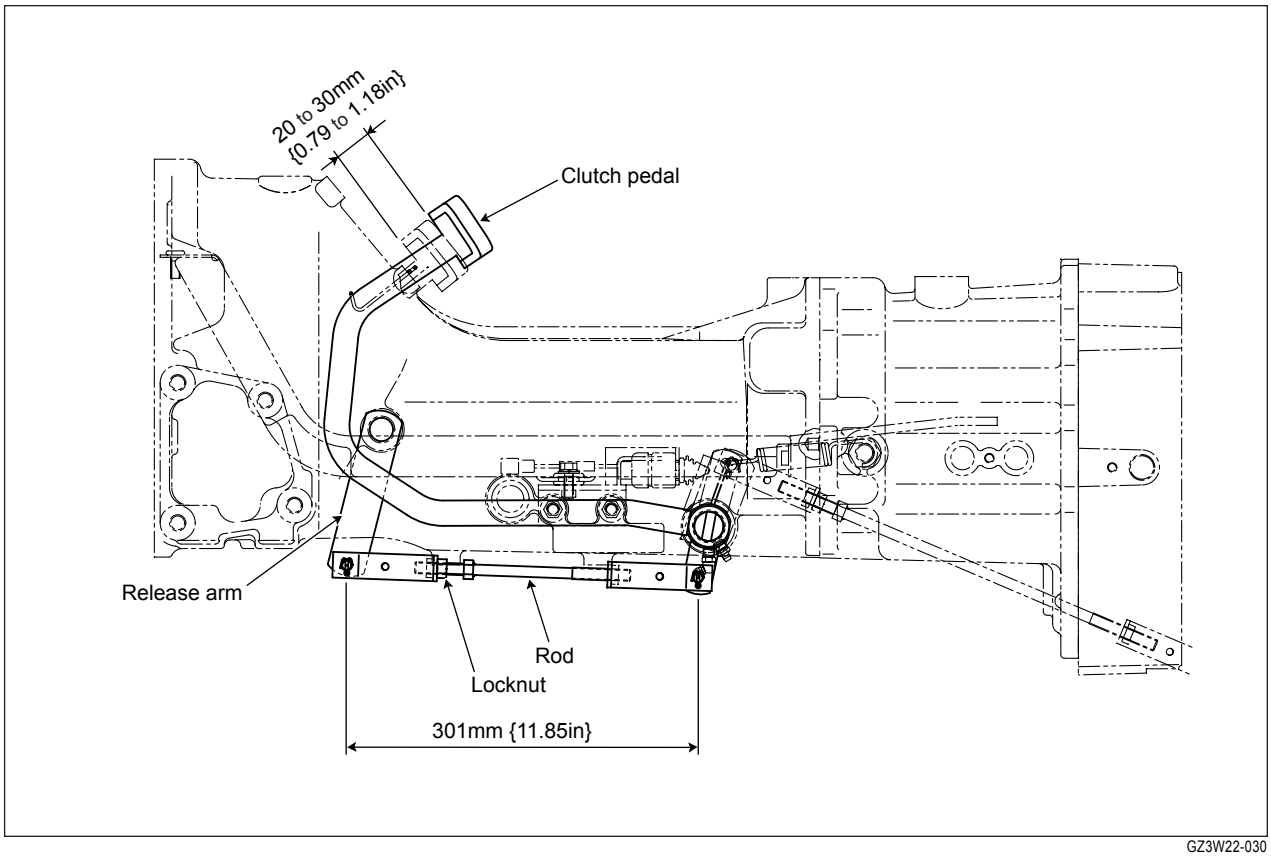
GZ3W22-029

3 Assembly of Clutch Pedal

⚠ CAUTION

Take caution for direction of the spring.

1. After adjusting the free play of clutch pedal to 20 to 30mm {0.79 to 1.18in} with nut, lock it.
   3) Make sure that the pedal strokes to the stopper.
   4) Adjust the rod length to 301mm {11.85in} and lock with nut.
2. Apply lithium grease to the shaft of clutch pedal.
3. Assemble the pedal cover as shown in the drawing.



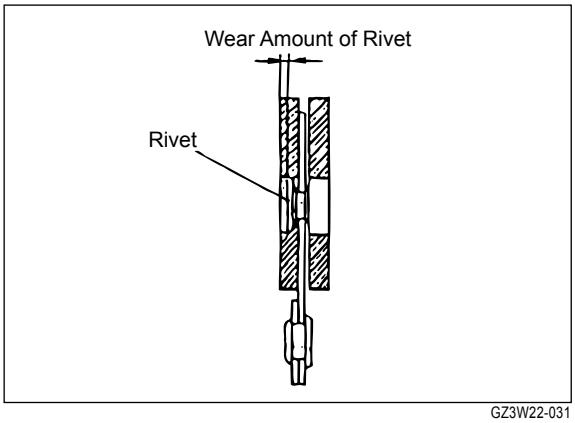
GZ3W22-030

3.6 Inspection and Maintenance of Clutch

1 Clutch Facing

Inspect the contact and existence of wear, galling, and cracks and repair or change as required.

1. Change the clutch facing with the contact of contact face come to below 80%.
2. Change the clutch facing if the clutch facing is stained by oil and study the cause.
3. If a small amount of oil is adhered. Wipe with the cloth soaked with gasoline and air-dry.



GZ3W22-031

2 Rivet Wear

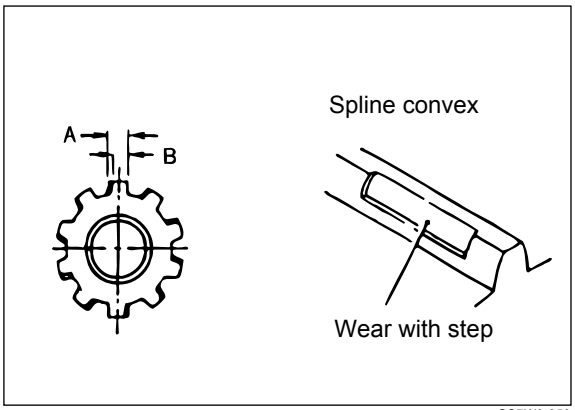
Inspect the wear amount of rivet and change if exceeding the usable limit.

(Unit: mm {in})

Item	Referential Value	Usable Limit
Wear Amount of Rivet	1.3 to 1.9 {0.051 to 0.075}	0.2 {0.008}

CAUTION

Change the disc assembly with rivet with looseness even if the wear amount is within the usable limit.



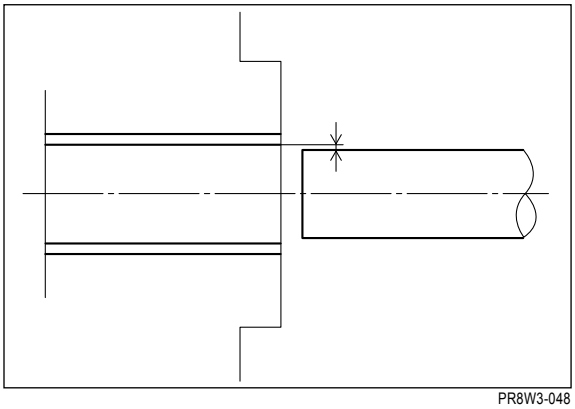
GS7W3-059

3 Backlash for Main Shaft Spline and Boss Spline for Disc

1. If the spline of the main shaft and disc boss is worn with step (from A to B as shown in the figure) and exceeding the usable limit, change the main shaft together with the clutch disc.
2. Measure the backlash using the line gauge.

(Unit: mm {in})

Item	Referential Value	Usable Limit
Backlash	0.05 to 0.15 {0.002 to 0.006}	0.3 {0.012}

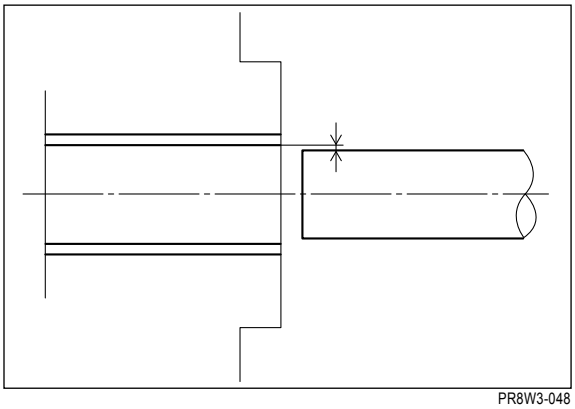

PR8W3-048

4 Release Shaft and Bush

Inspect the clearance between the release shaft and bush and change the bush if exceeding the usable limit.

(Unit: mm {in})

Item	Referential Value	Usable Limit
Clearance bet. release shaft and bush	0.04 to 0.12 {0.0016 to 0.005}	0.3 {0.0120}


PR8W3-048

5 Shaft and Bush

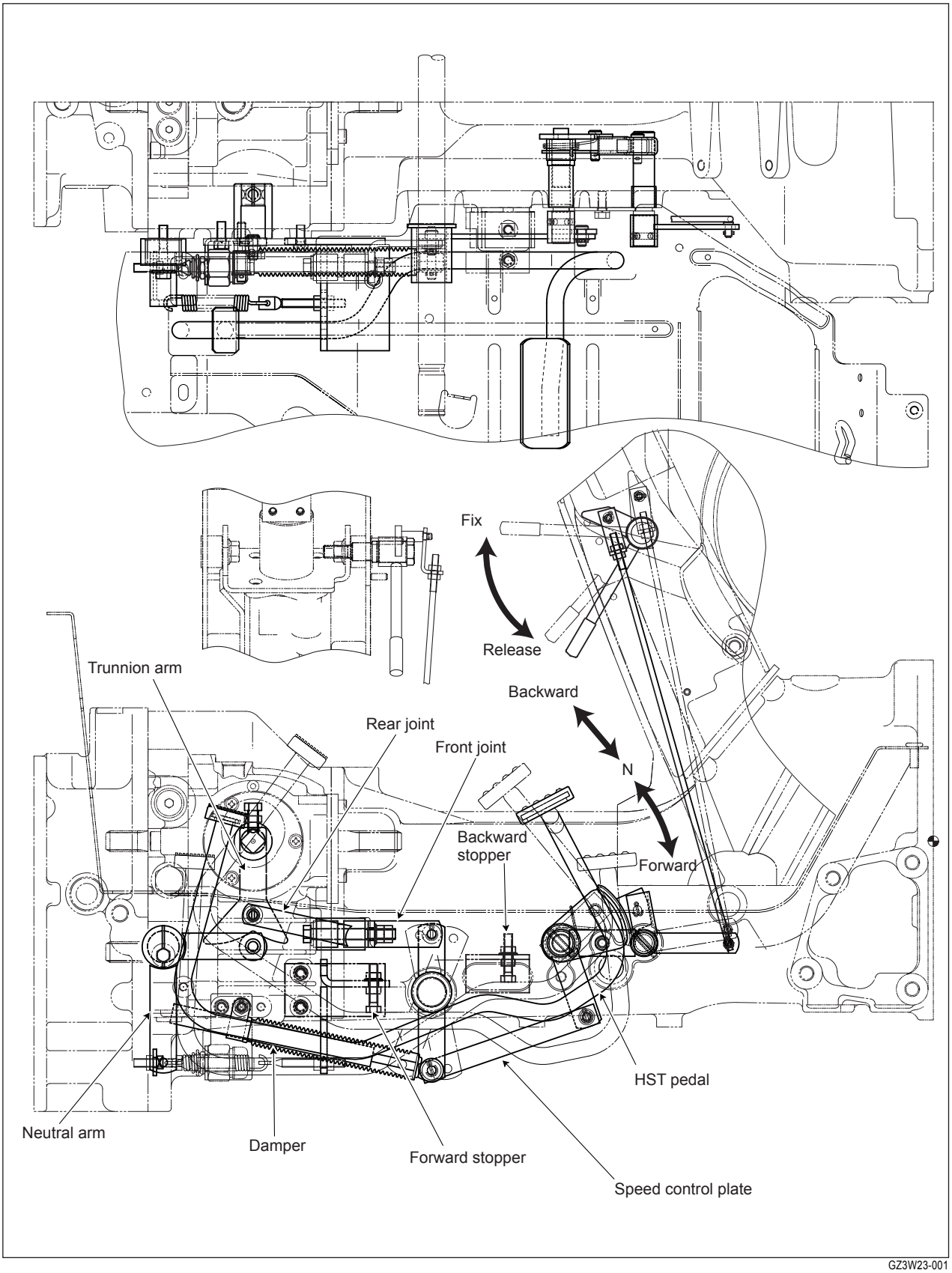
Inspect the clearance between mounting shaft for clutch pedal (brake shaft) and inside diameter of the bush and change the clutch pedal or brake shaft if exceeding the usable limit.

(Unit: mm {in})

Item	Referential Value	Usable Limit
Clearance bet. shaft and bush	0.04 to 0.12 {0.0016 to 0.005}	0.5 {0.020}

4 HST

4.1 HST Control



4.2 Removal and Disassembly of HST

Follow the following procedure for removal and disassembly of HST.

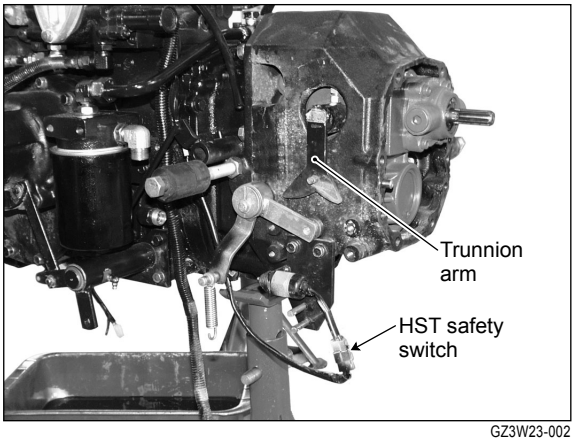
1 Removal of HST Case

Remove the HST case after removing the clutch housing.

1. Move the stand placed under the HST case to under the mission case.

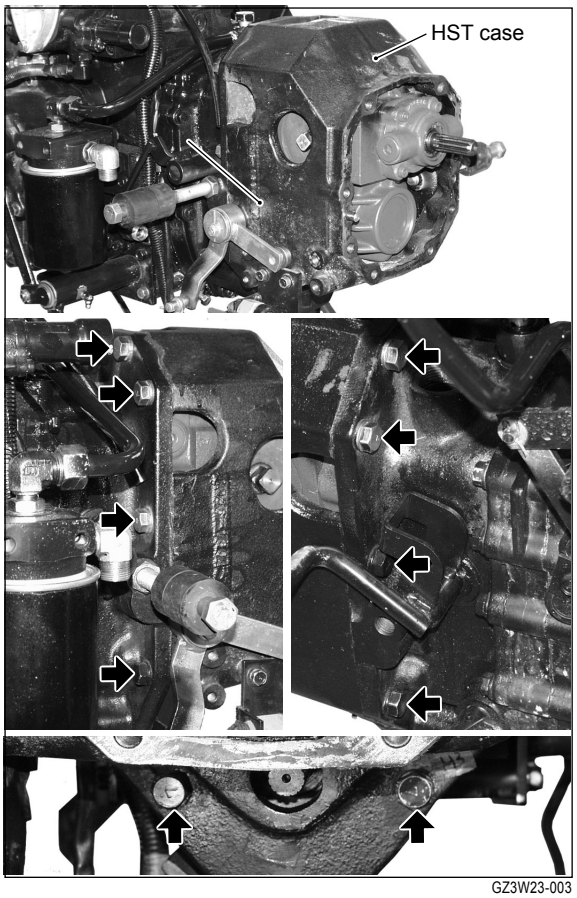
⚠ CAUTION

Take caution not to stumble over the body and set the stand.



GZ3W23-002

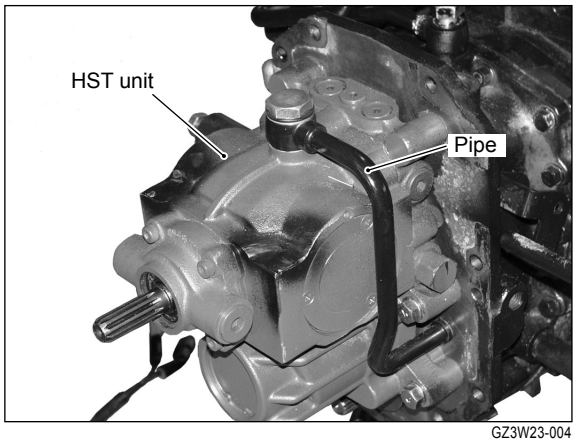
2. Disconnect the harness of the HST safety switch.



GZ3W23-003

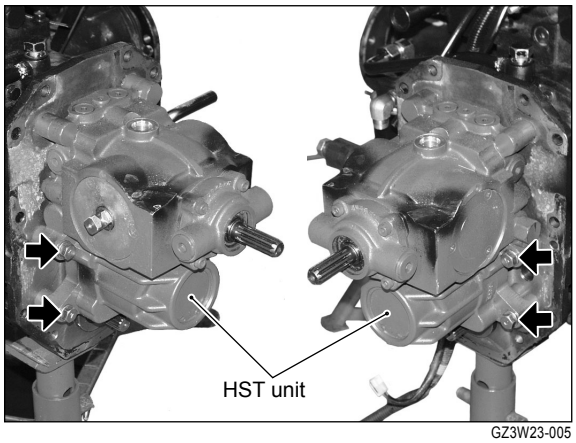
3. Remove the fixing bolt of trunnion arm.
4. Remove the mounting bolt and then remove the HST case.

2 Removal of HST Unit



GZ3W23-004

1. Remove the bolt and remove the pipe.



GZ3W23-005

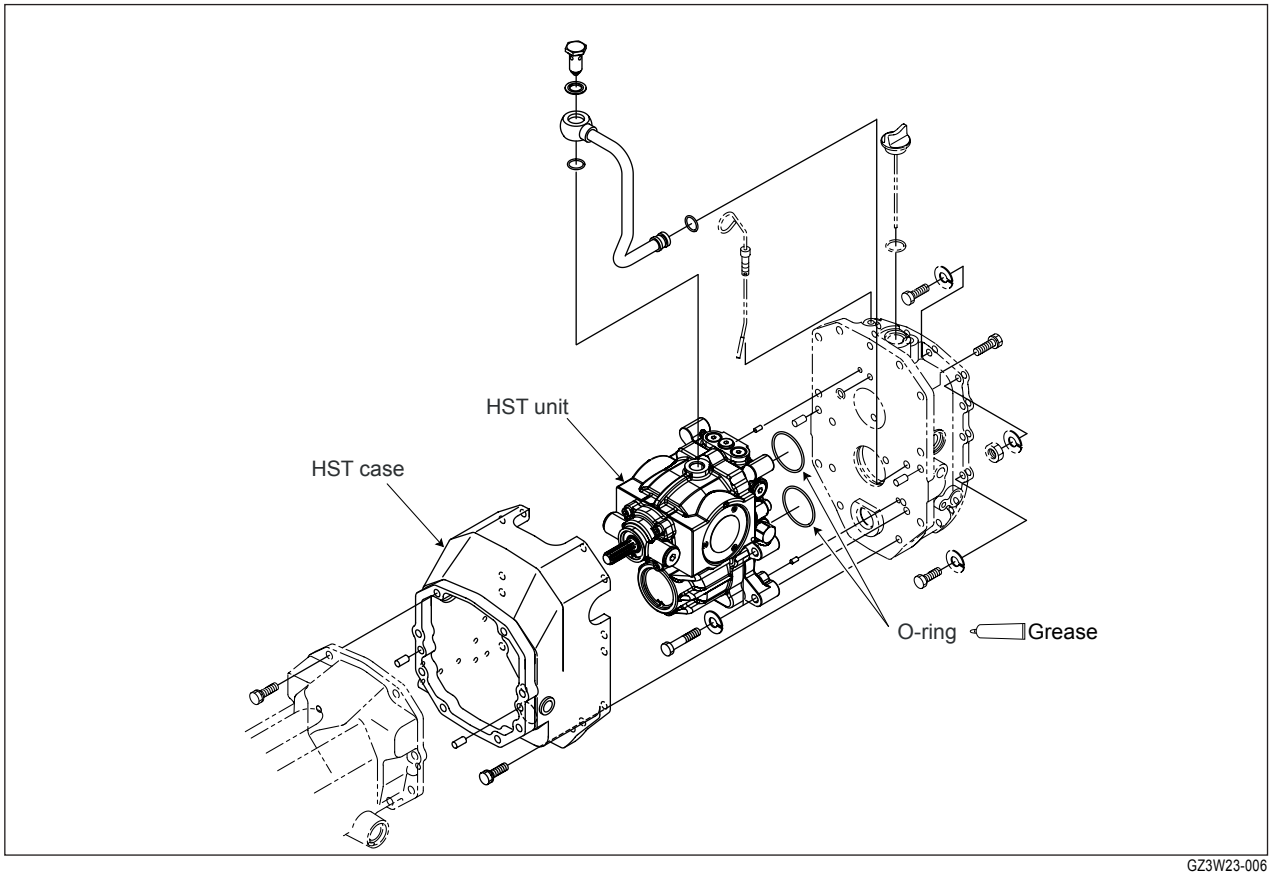
2. Remove the mounting bolts for HST unit and then remove the HST unit.

3 Disassembly of HST Case

1. Disassembly of HST Case

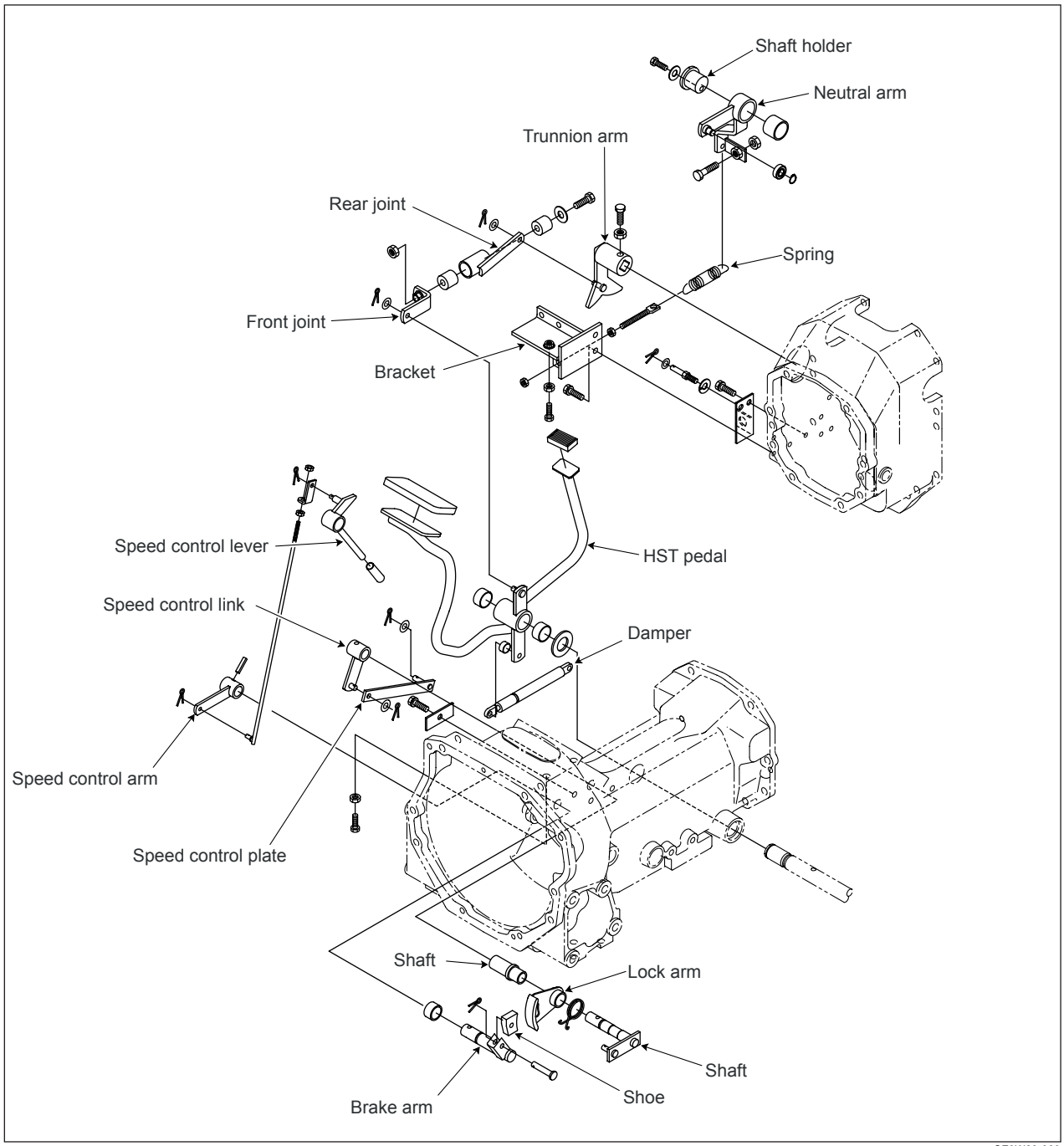
⚠ CAUTION

HST unit is a precision part. Do not disassemble the HST unit. Replace the entire unit if. repair of HST unit is necessary.



GZ3W23-006

4 Disassembly of HST Control



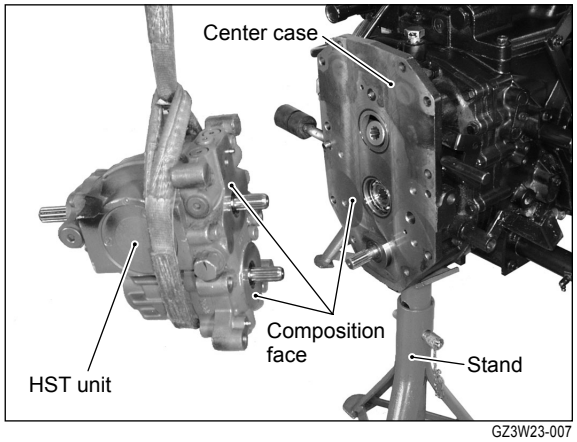
GZ3W23-009

4.3 Assembly and Installation of HST

Follow the procedure of removal and disassembly in the reverse order for the assembly and installation of HST.

1 Assembly of HST Unit

1. Apply some oil to the O-ring for assembly.
2. Clean the composition face of the HST unit and center case and assemble.



GZ3W23-007

2 Assembly of HST Case

Apply some liquid packing (equivalent to Threebond #1208D) to the composition face of the HST case and mission case and assemble.

4.4 Inspection and Adjustment of HST

1 Neutral Adjustment of HST

1. Position the trunnion arm to the detent valve position.
2. Turn the shaft holder to set the roller of the neutral arm to the neutral position of the trunnion arm. Tighten the bolt.
3. Set the spring length to 92mm {3.62in} in neutral.
4. Check the below items after adjusting.

- Operate the HST pedal to make sure it forwards and reverse.
- It stays stopped in neutral.

2 Adjustment of Speed Control Lever

1. Set the speed control rod length to 418mm {16.46in} and install.
2. Adjust the backlash of the speed control lever within 25 to 30 mm {0.98 to 1.18in} with nut.

⚠ CAUTION

Stop the engine when checking the speed control lever.

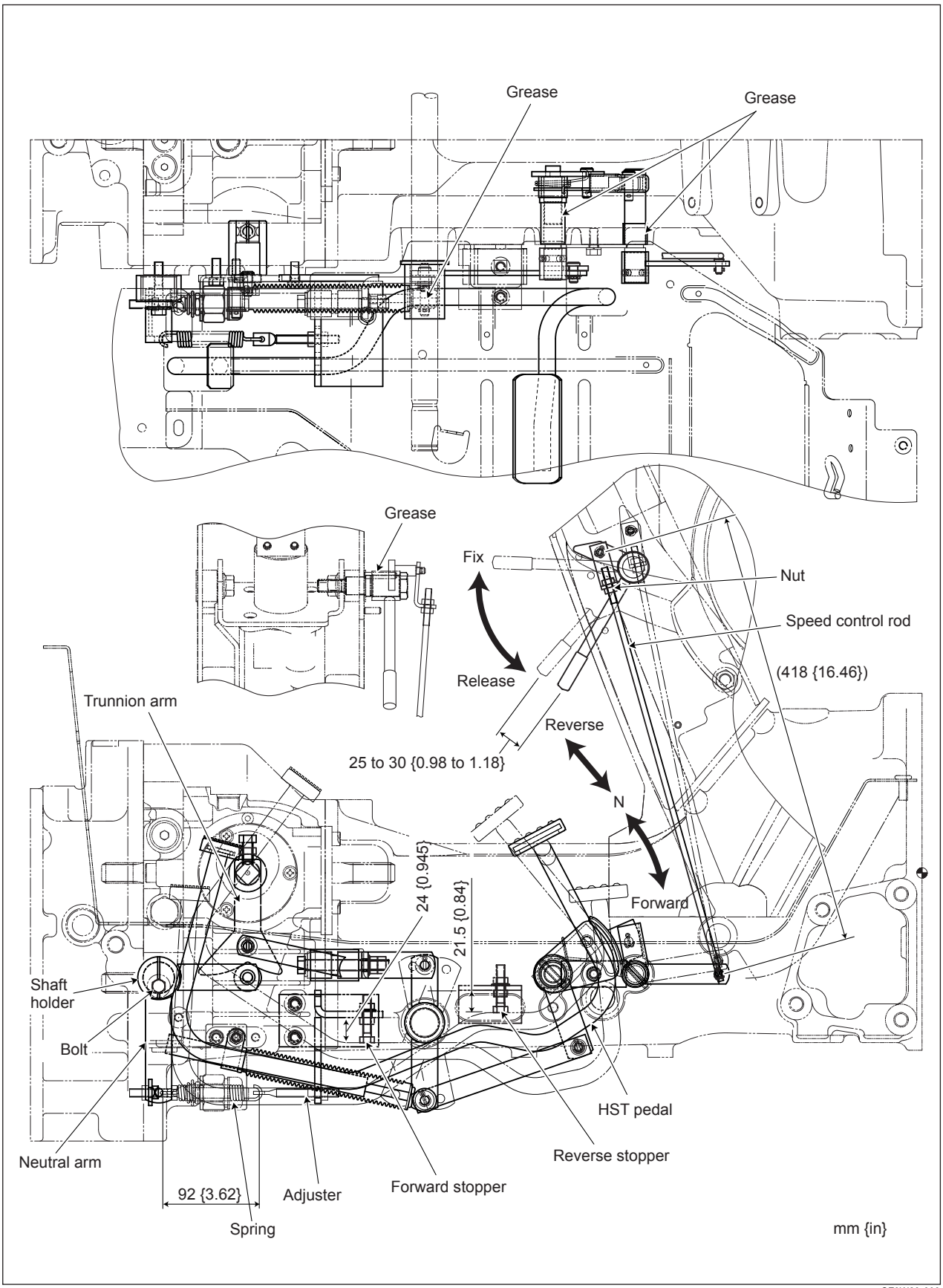
3. Check the below items after adjusting.

- It can be locked or released with HST pedal stepped into forward side.
- Lock HST pedal in forward side, middle position. HST pedal will return to the middle position when HST pedal is stepped further and then released.
- It cannot be locked when HST pedal is moved to the reverse side and the speed control lever is positioned in the lock position. HST pedal will return to the neutral position.

3 Adjustment of Stopper for HST Pedal

1. Forward Side Stopper:
   1) Loosen the locknut for forward stopper and tighten the bolt.
   2) Move the HST pedal to the forward side.
   3) Loosen the forward stopper bolt and attach to the HST pedal. Loosen the bolt 1/2 turn and tighten the locknut.
2. Reverse Side Stopper:
   1) Loosen the locknut. Adjust the stopper bolt to the referential measurement 21.5mm {0.846in} and tighten the locknut.

3. After adjustment, make sure the HST pedal is operable to both forward and backward sides.



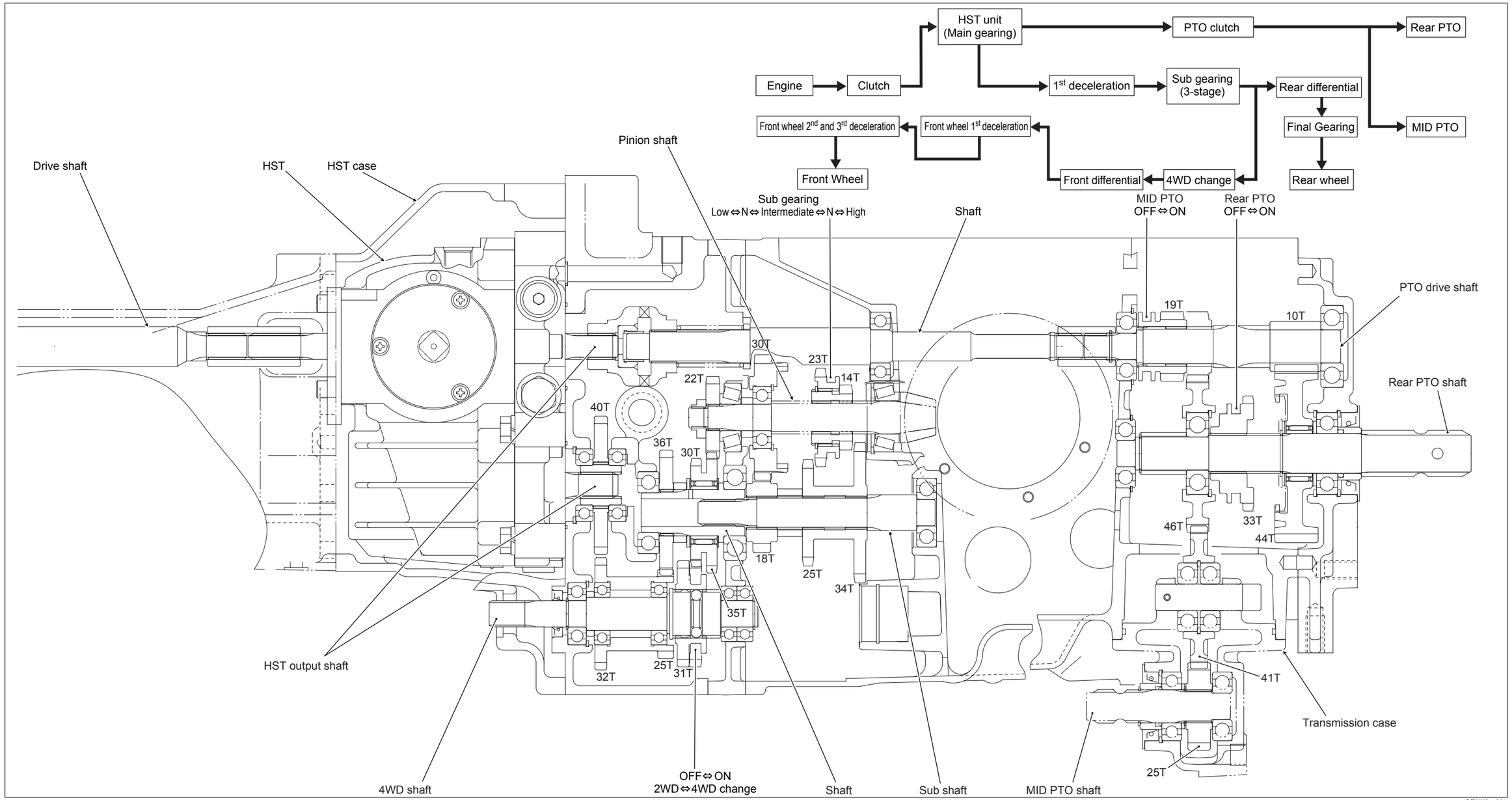
GZ3W23-008

5 Transmission

5.1 Transmission Assembly Outline

5.1.1 7532

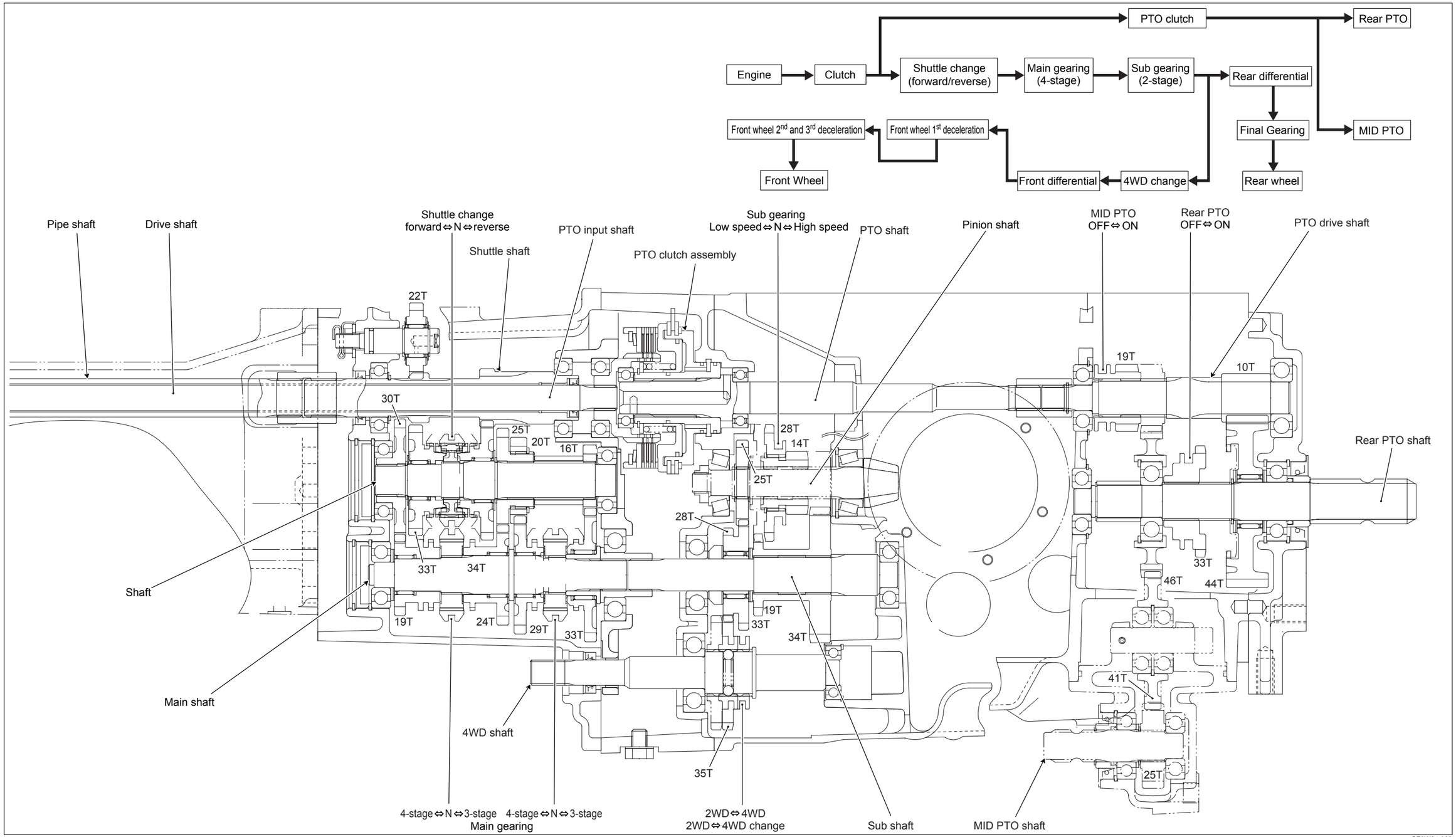
- The main transmission is forward/reverse infinitive transmission and range transmission is 3-range transmission.
- PTO gearing: 1-stage rear PTO and 1-stage MID PTO.



GZ3W24-001

5.1.2 7530

- The main transmission is forward: 4-stage transmission and reverse: 4-stage transmission, and range transmission is 3-stage transmission.
- PTO gearing: 1-stage rear PTO and 1-stage MID PTO.

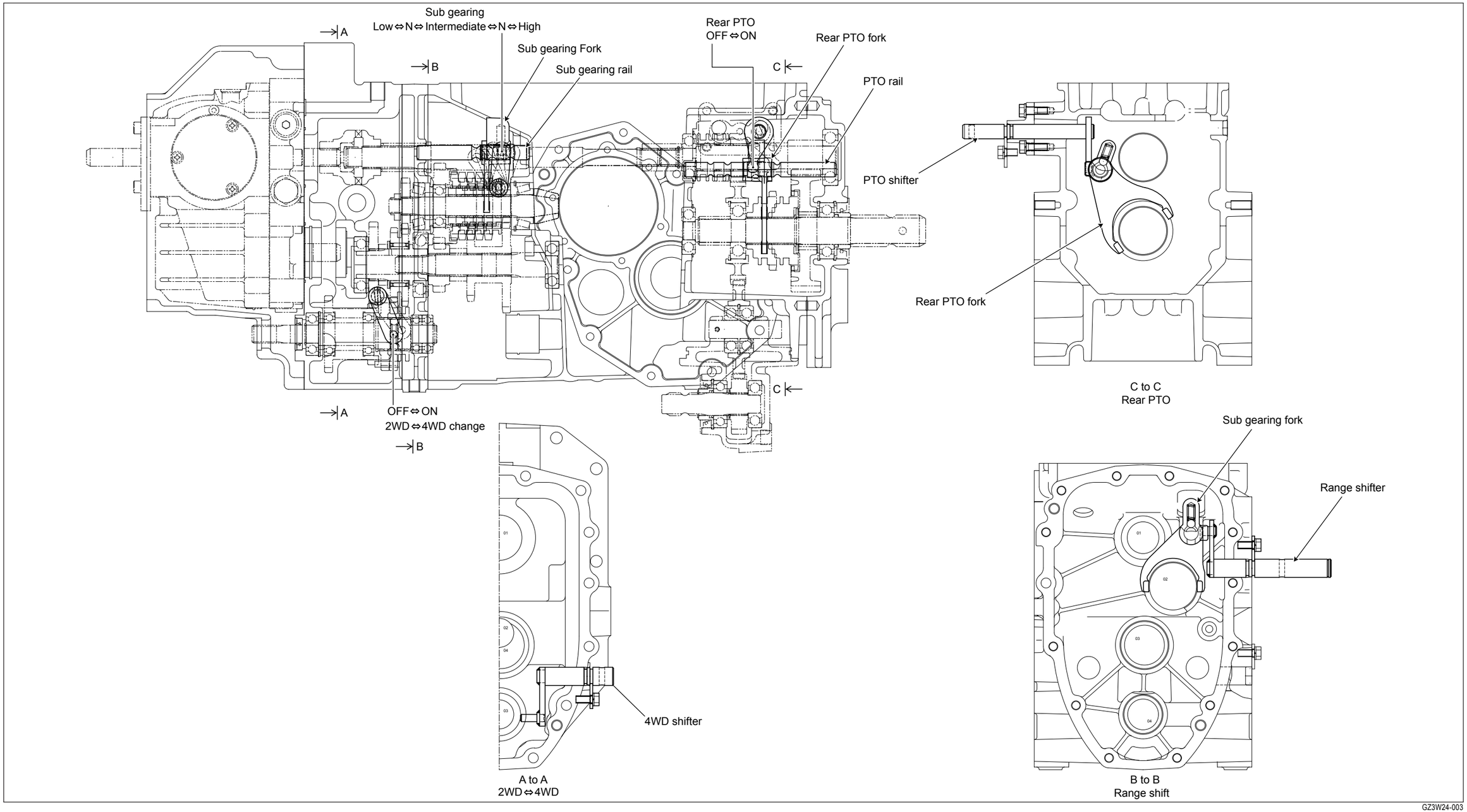


GZ3W24-002

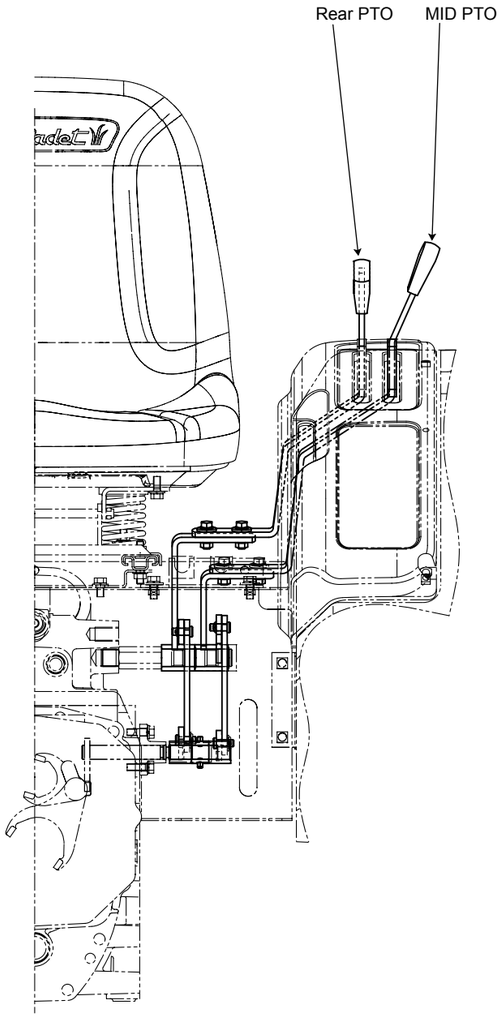
5.2 Transmission Control

5.2.1 7532

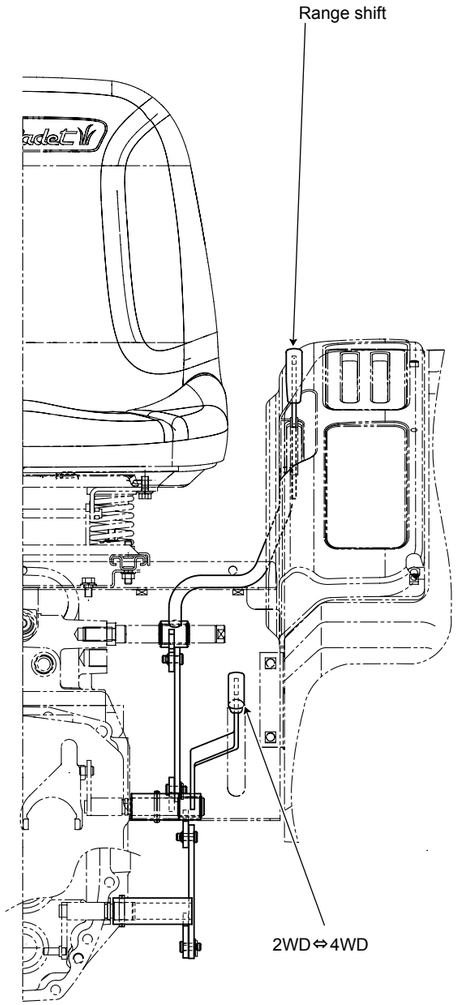
- Range shift
- 2WD ⇔ 4WD change
- PTO ON/OFF



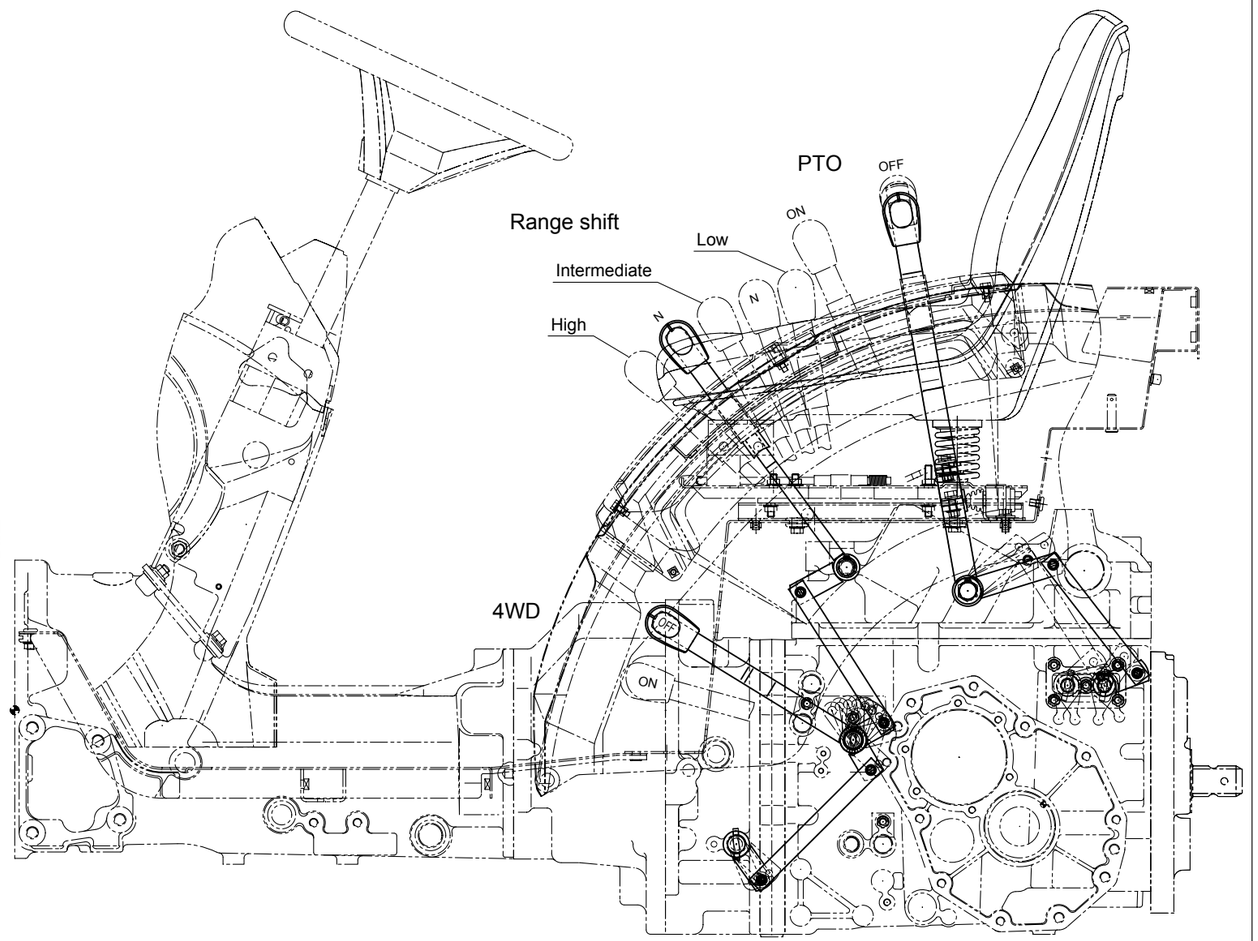
GZ3W24-003



PTO



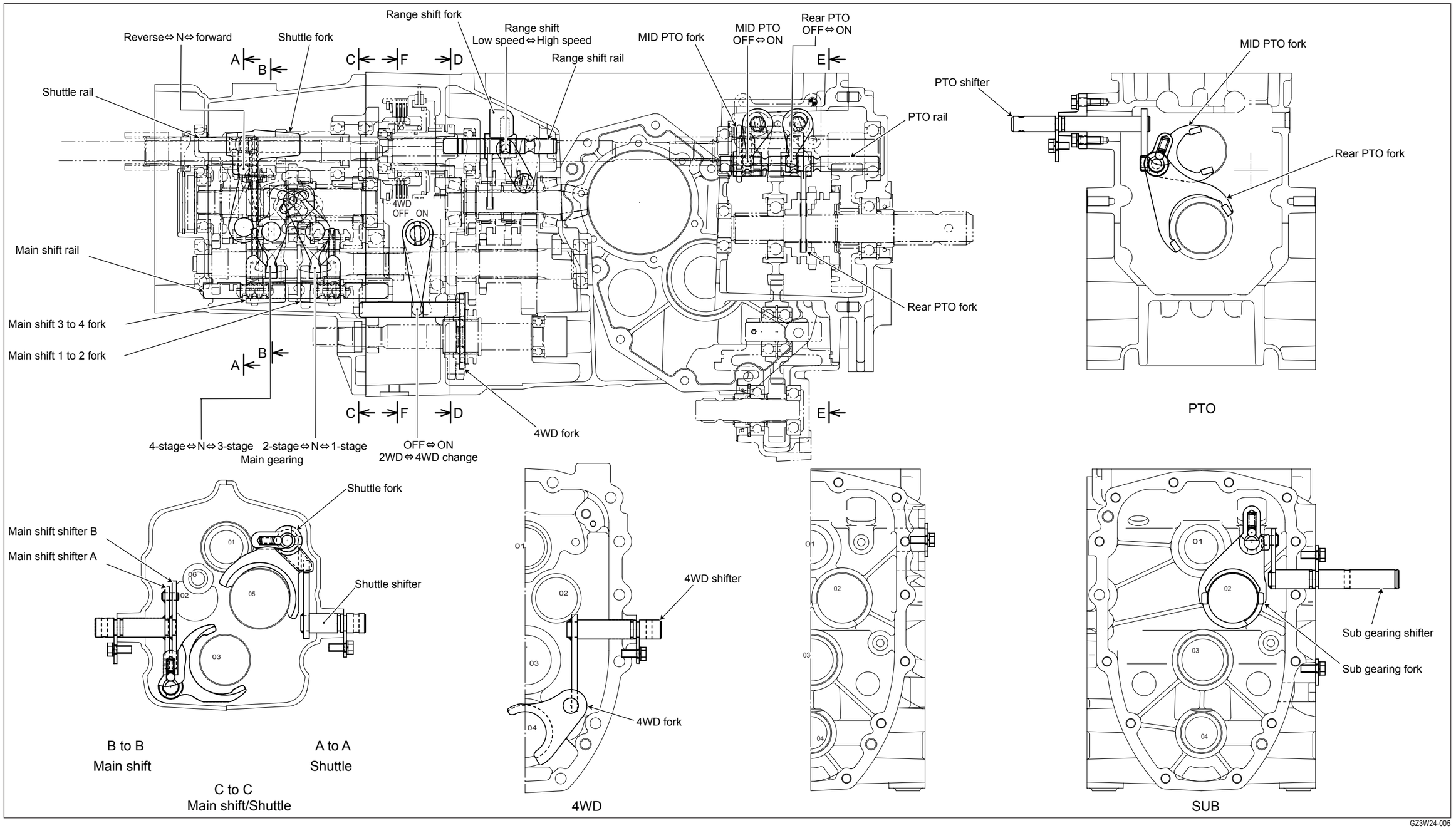
Sub gearing/2WD⇔4WD



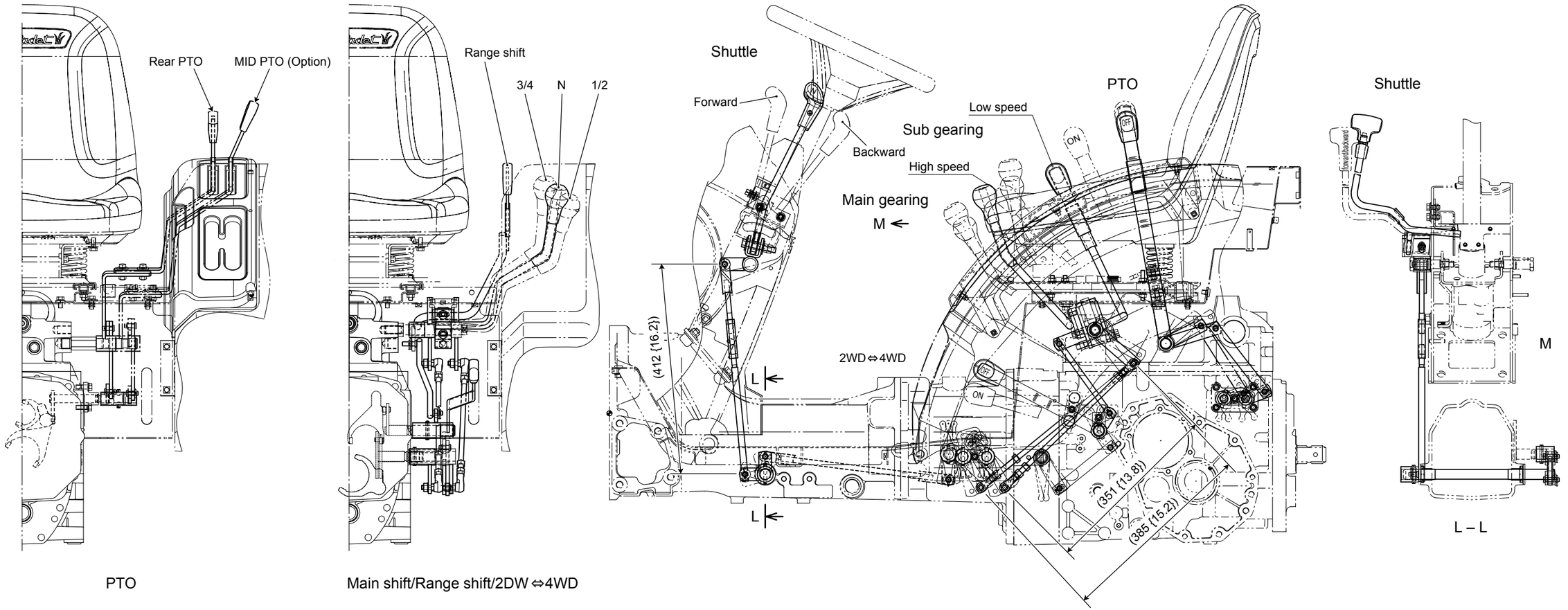
GZ3W24-004

5.2.2 7530

- Main shift
- Range shift
- 2WD ⇔ 4WD change
- PTO ON/OFF

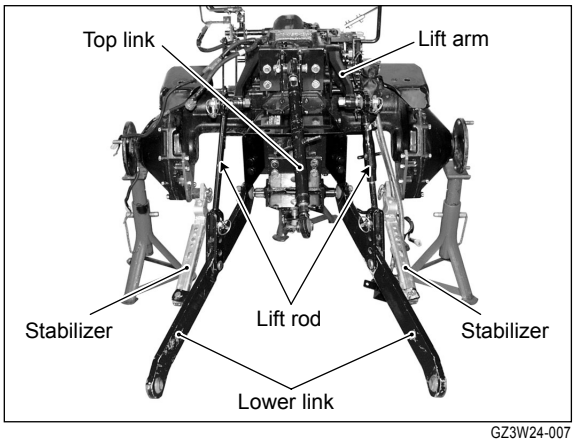


GZ3W24-005



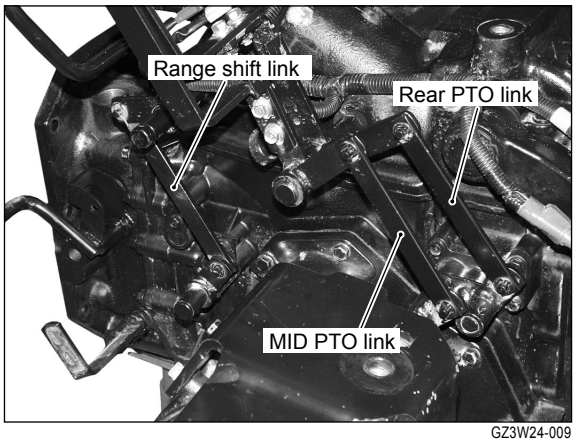
5.3 Removal and Disassembly of Transmission

Follow the following procedure for removal and disassembly of transmission.



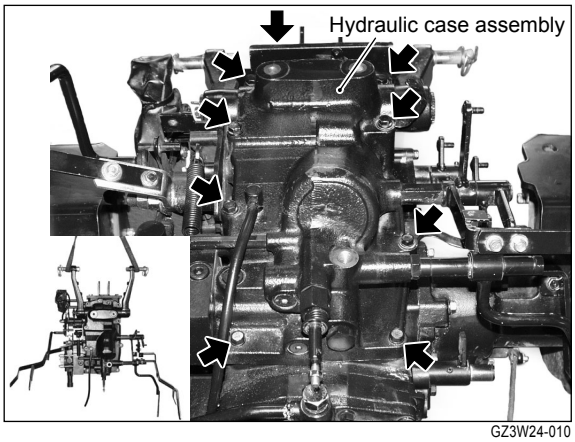
GZ3W24-007

1. Remove the 3-point link.
   1) Remove the snap pin at rear axle housing and disconnect the stabilizers.
   2) Remove the linchpin from lift arm and disconnect it lift rods LH/RM from lift arm.
   3) Remove the linchpin at the mounting point of lower link and remove 3-point link.
   4) Remove the snap pin at top link bracket and remove clevis pin and top link.



GZ3W24-009

2. Remove the harness and link.
   • Rear PTO link
   • MID PTO link (Option)
   • Range shift link



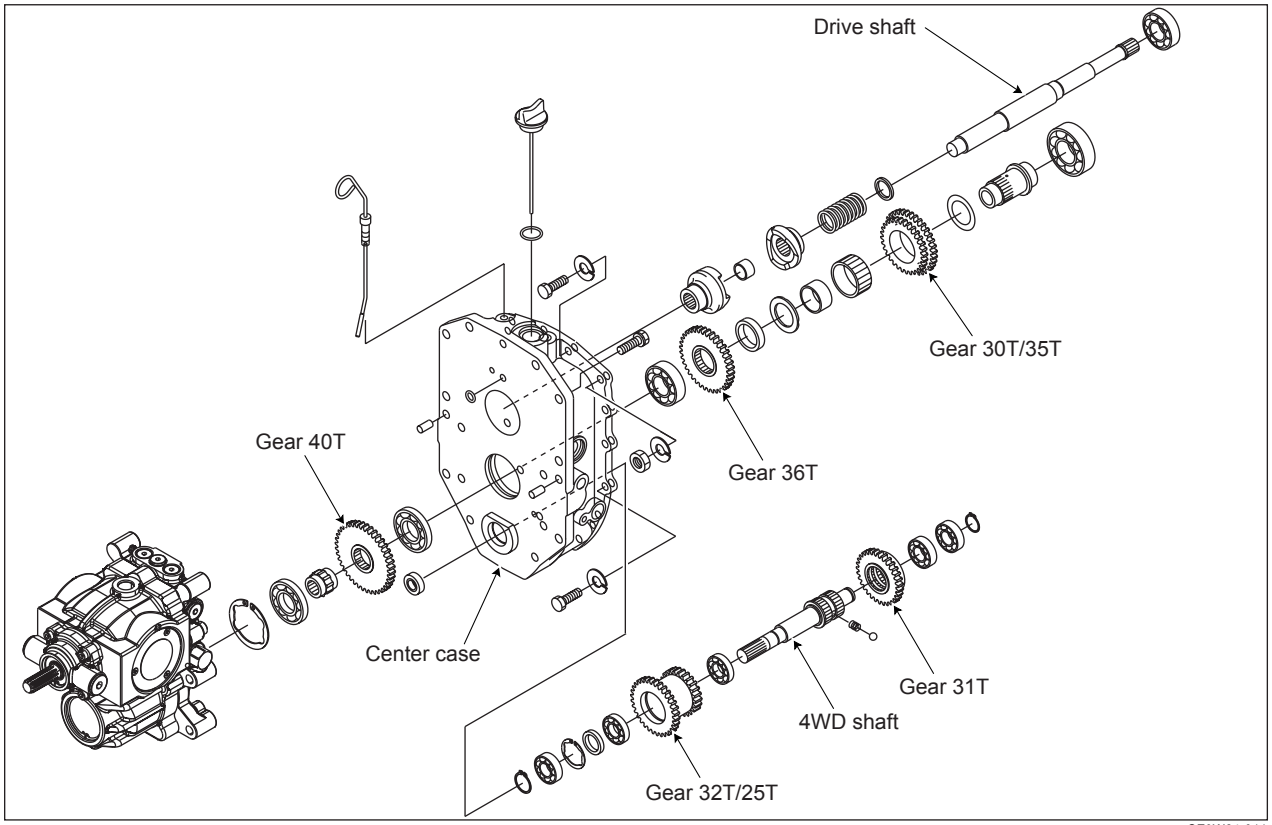
GZ3W24-010

3. Remove the mounting bolts (9 pieces) for hydraulic case.
4. Remove the hydraulic case assembly by hoisting.

5.3.1 Disassembly of Transmission Case Assembly (7532)

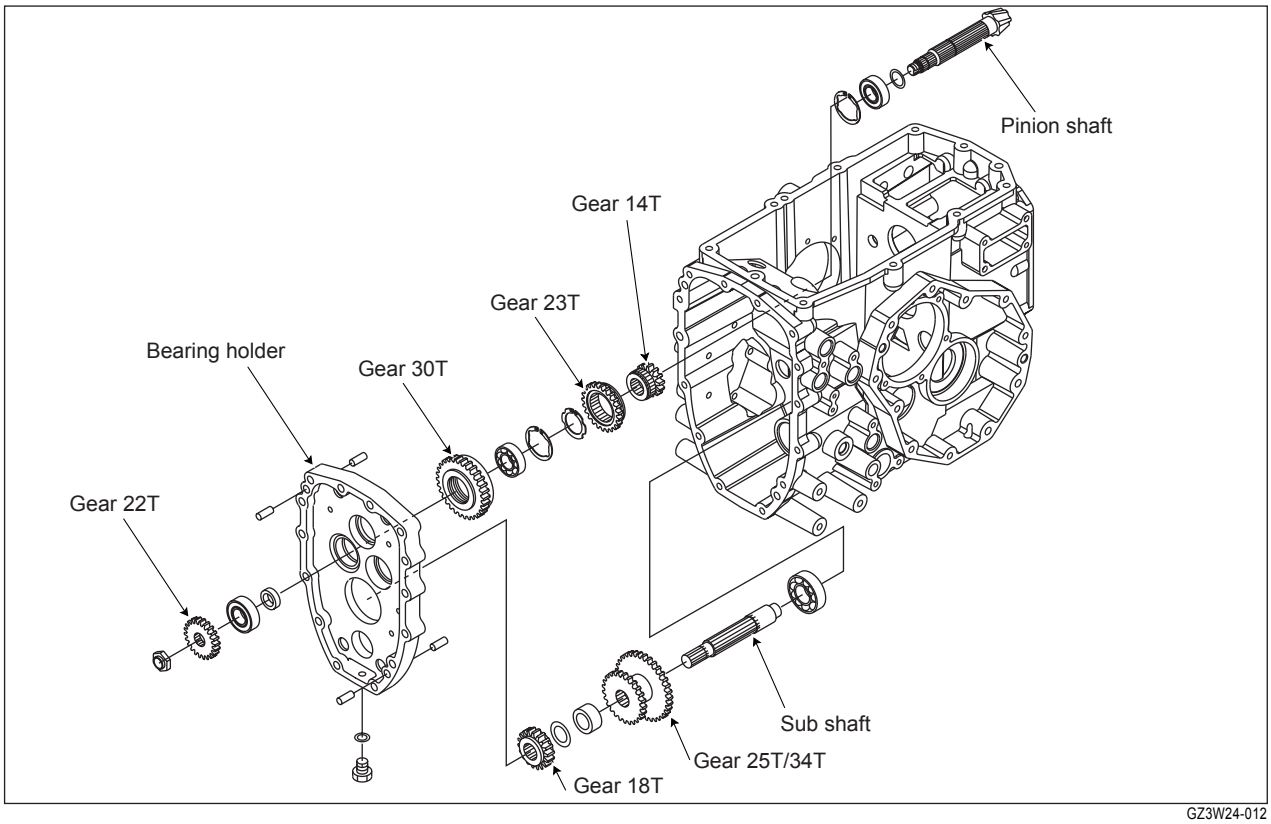
1 Follow the following procedure for disassembly of transmission case assembly (7532) after removing the link bracket.

1. Disassemble the center case.



GZ3W24-011

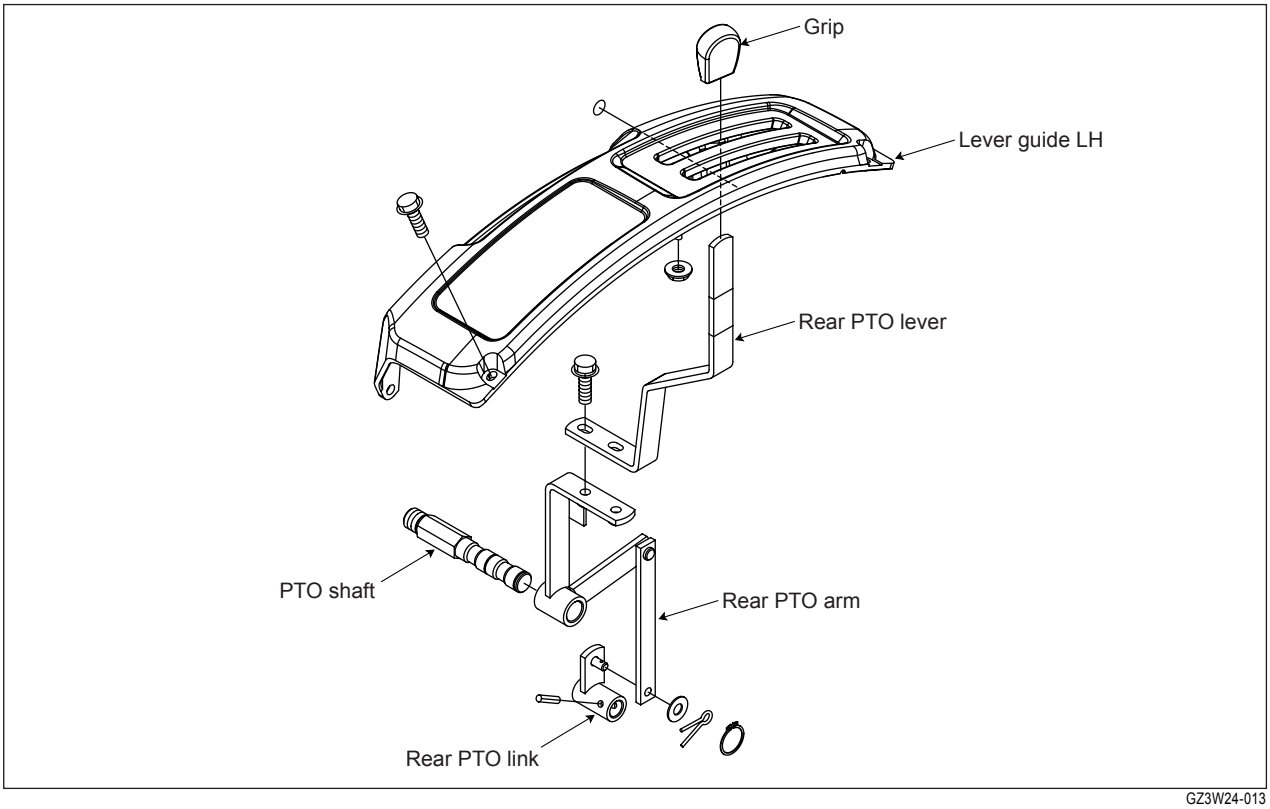
2. Disassemble the range transmission and sub shaft.



GZ3W24-012

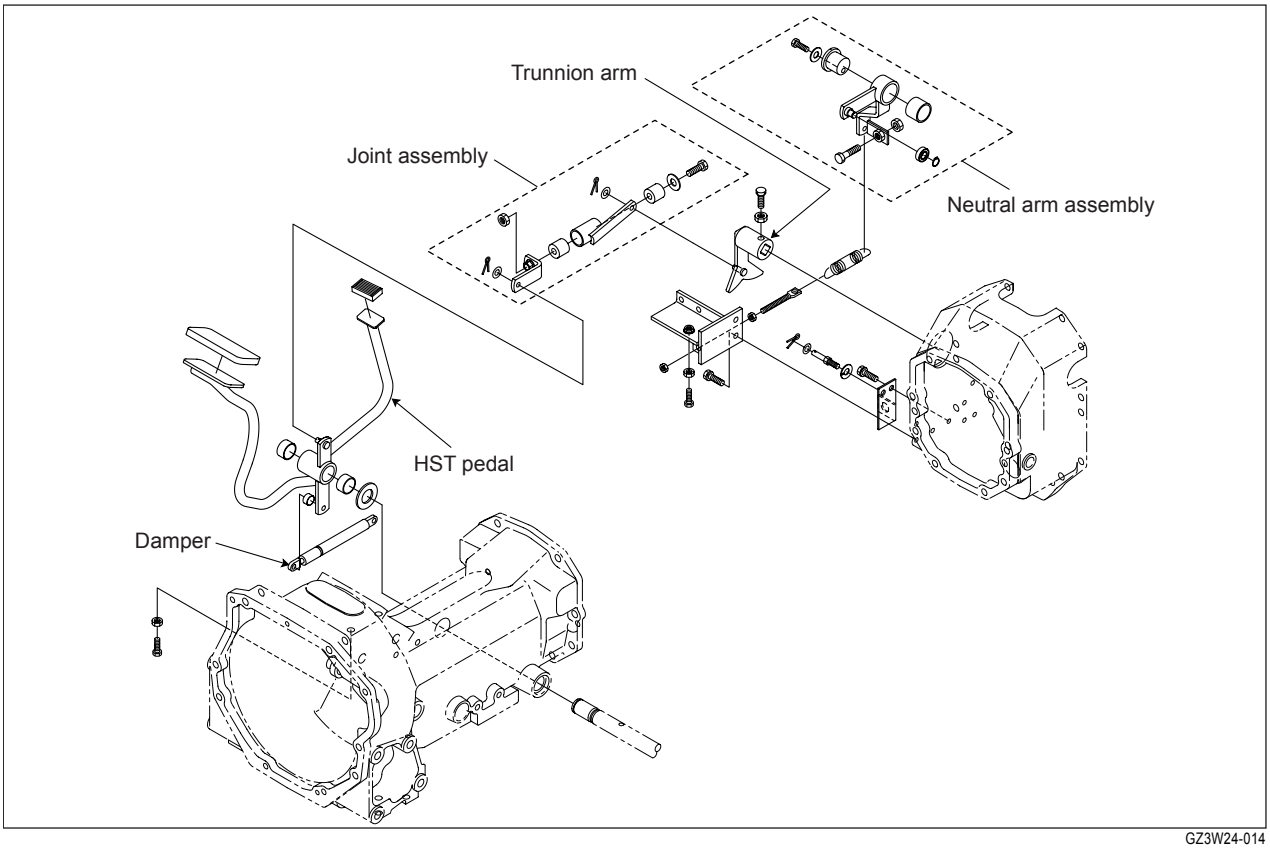
2 Disassembly of Transmission Control

1. Disassemble the PTO lever.



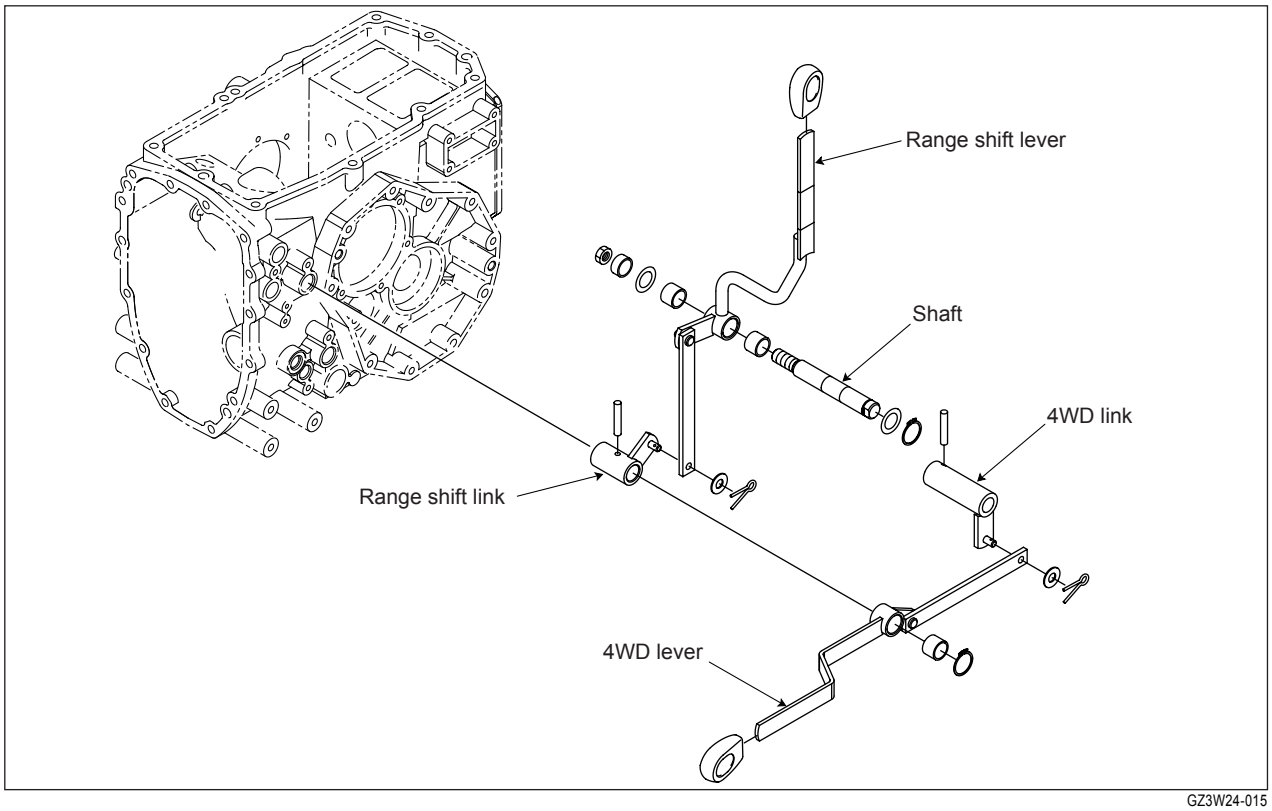
GZ3W24-013

2. Disassemble the HST control.



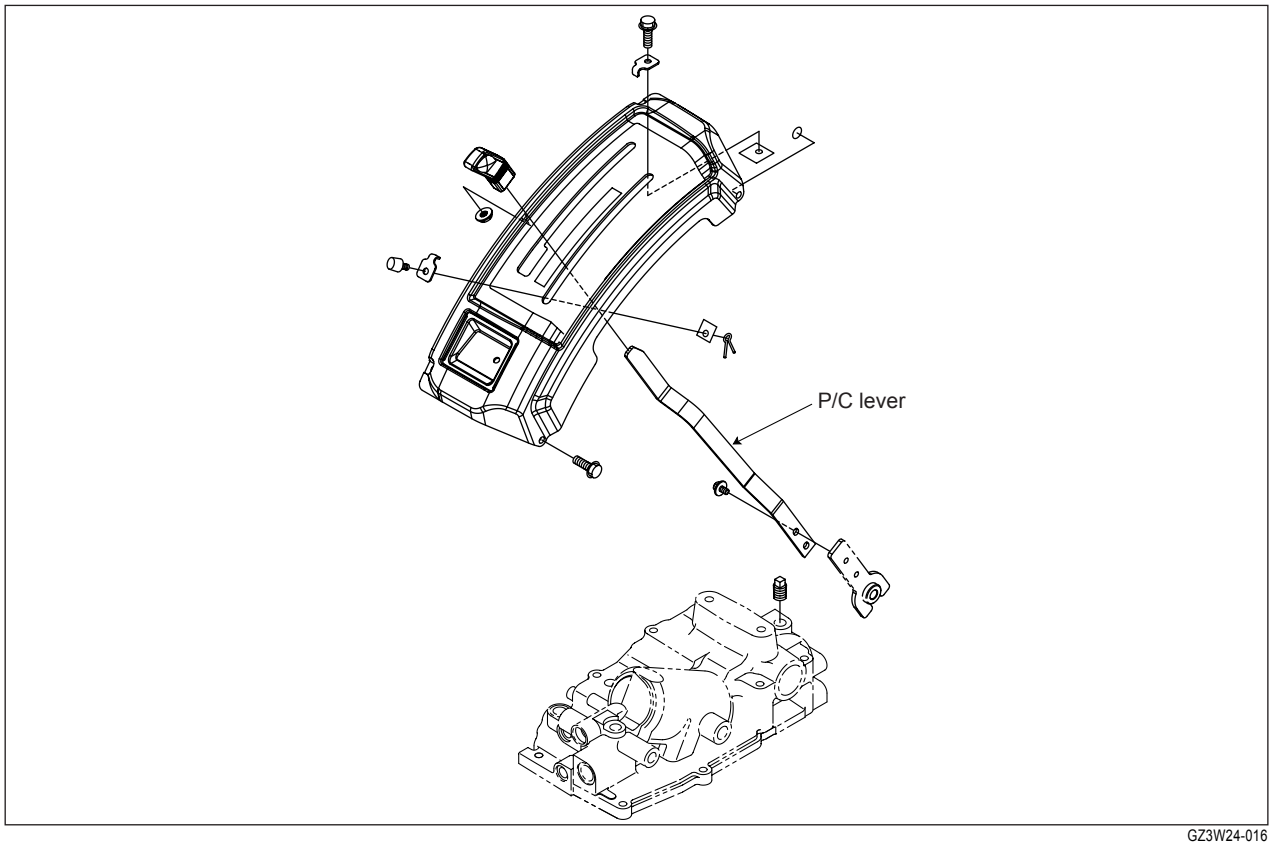
GZ3W24-014

3. Disassemble the 4WD and range shift control.



GZ3W24-015

4. Disassemble the P/C control.

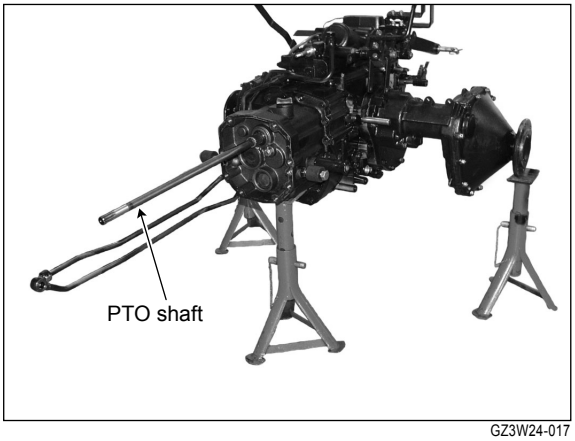


GZ3W24-016

5.3.2 Disassembly of Transmission Case Assembly (Manual Transmission Specification)

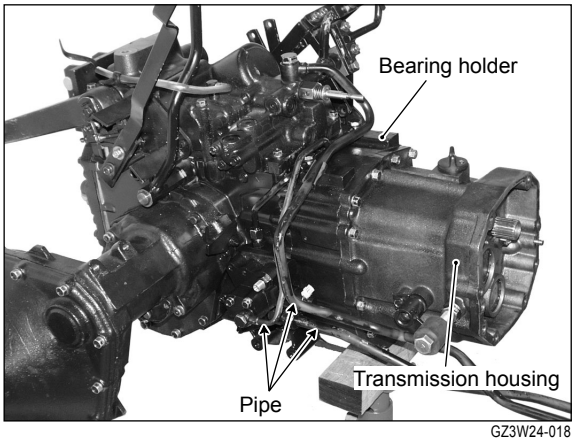
1 Follow the following procedure for disassembly of transmission case assembly (7530) after removing the link bracket.

1. Remove the PTO drive shaft.



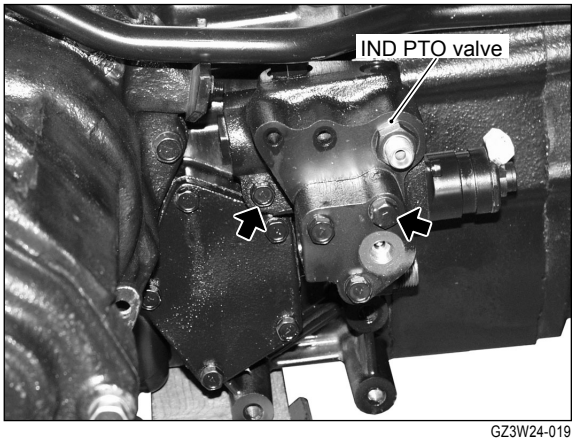
GZ3W24-017

2. Remove the pipe.
   Remove the eye bolts and remove the pipes.

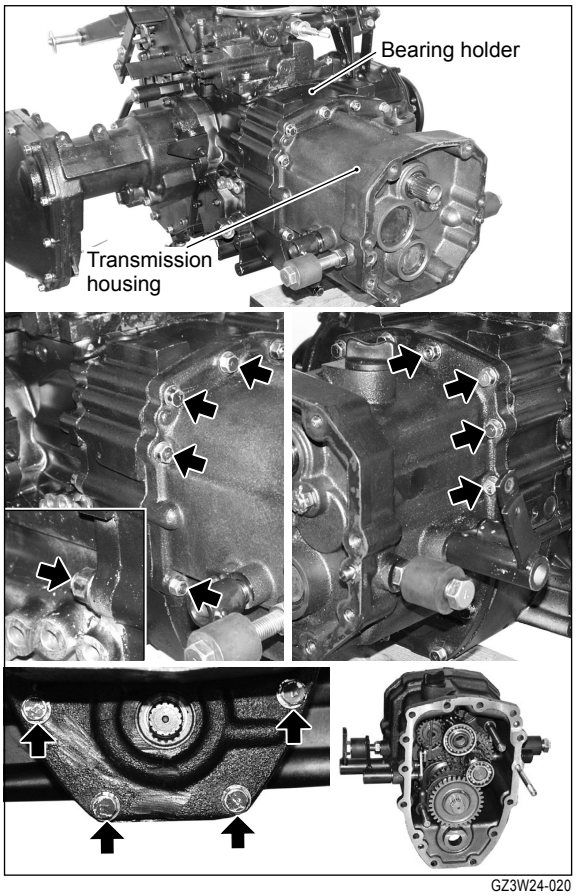


GZ3W24-018

3. Remove the IND-PTO valve by removing the mounting bolts.
   (2 places as shown in the drawing)



GZ3W24-019

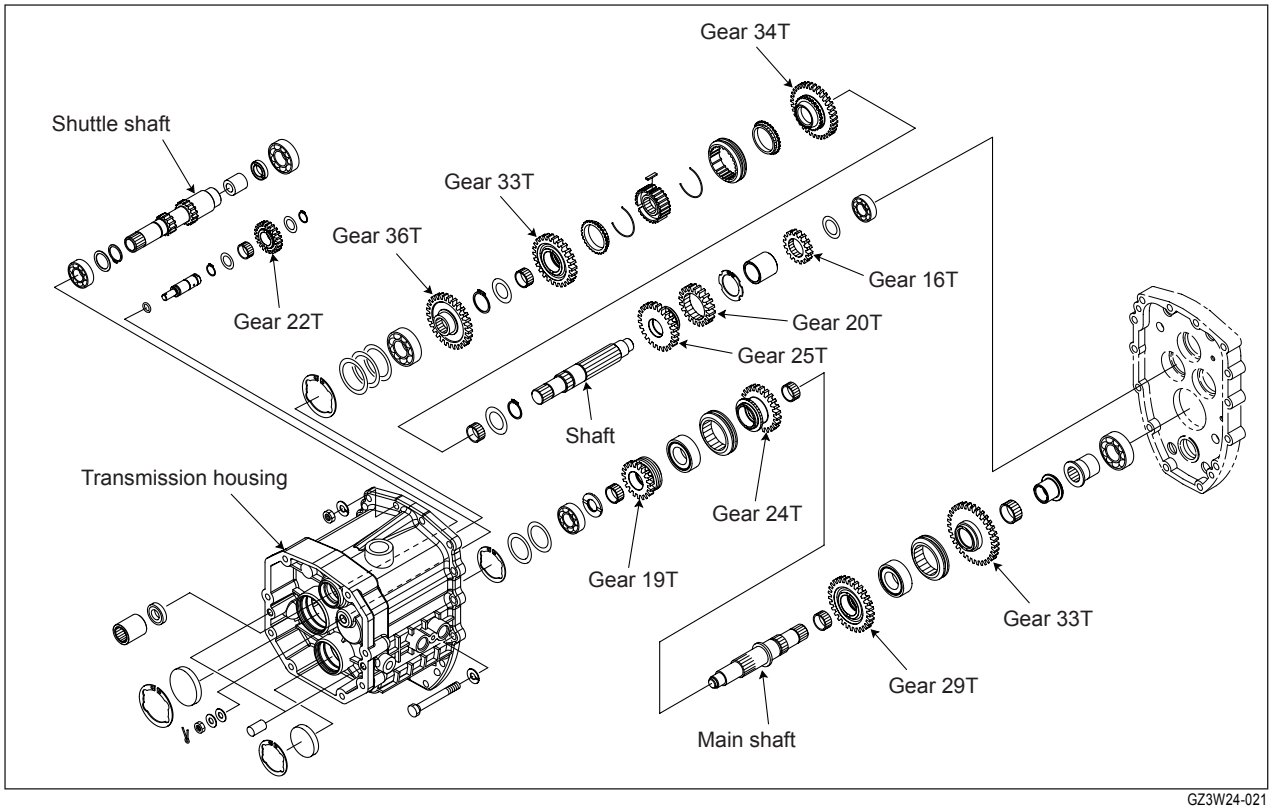


GZ3W24-020

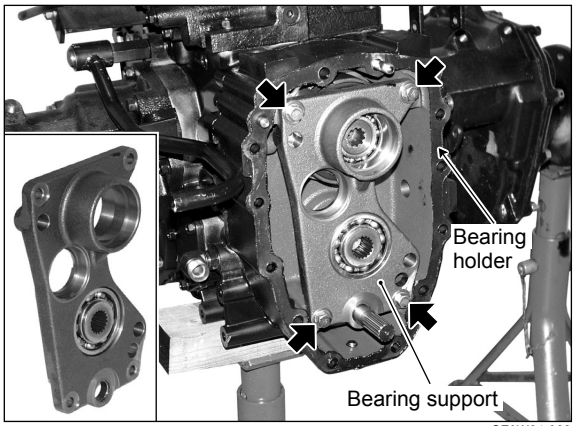
4. Remove the transmission housing with removing the mounting bolts.

⚠ CAUTION

When removing the transmission housing, take caution for the matching face of bearing holder and differential case not to become apart.

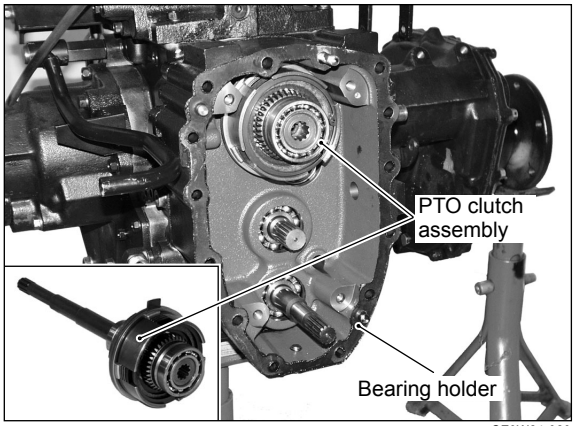


GZ3W24-021



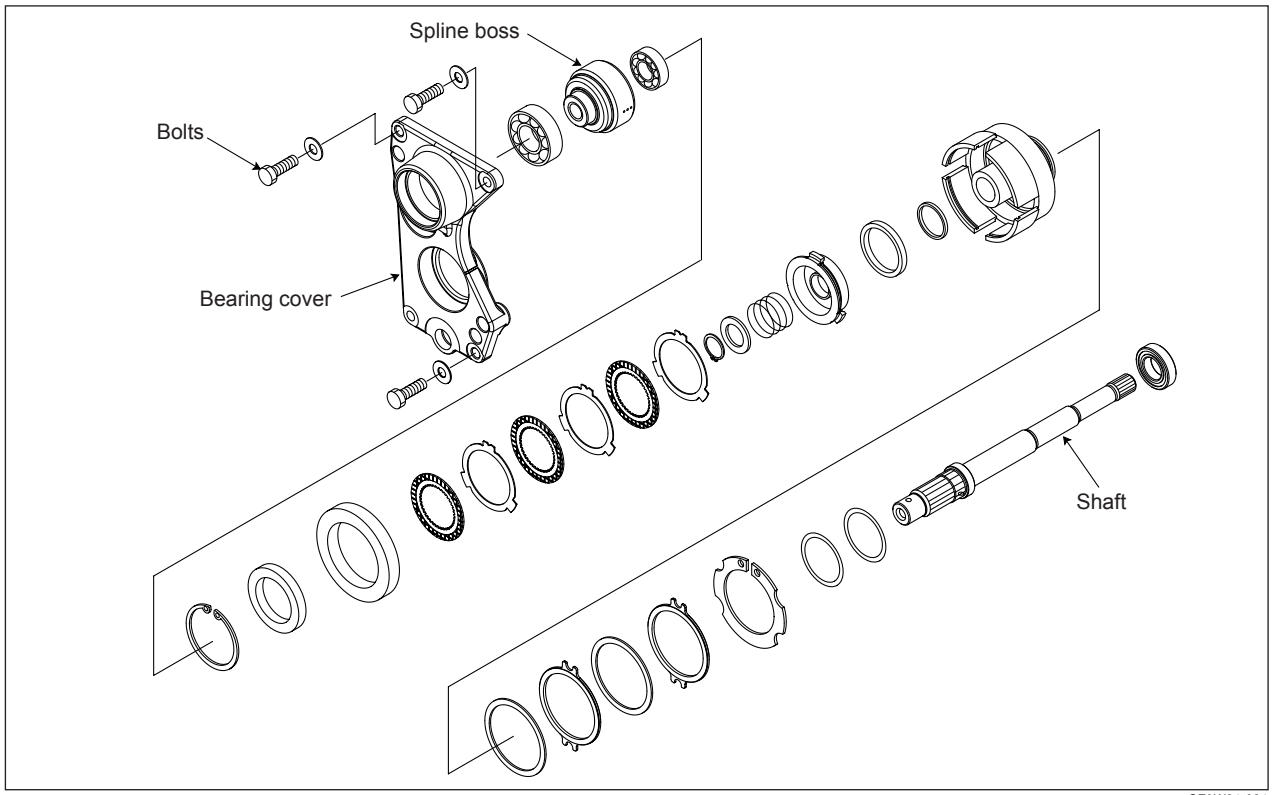
GZ3W24-022

5. Remove the bearing cover and PTO clutch assembly with removing the mounting bolts.

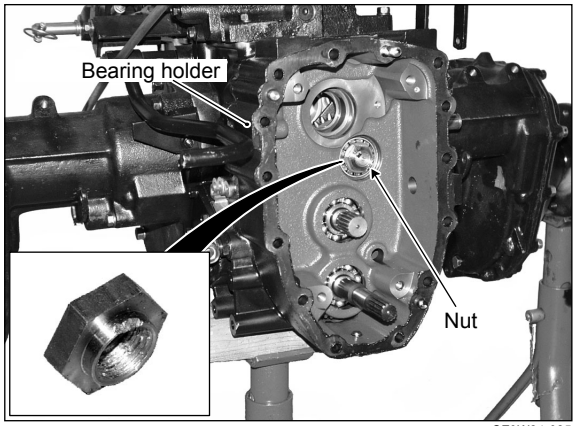


GZ3W24-023

6. Remove the PTO clutch.

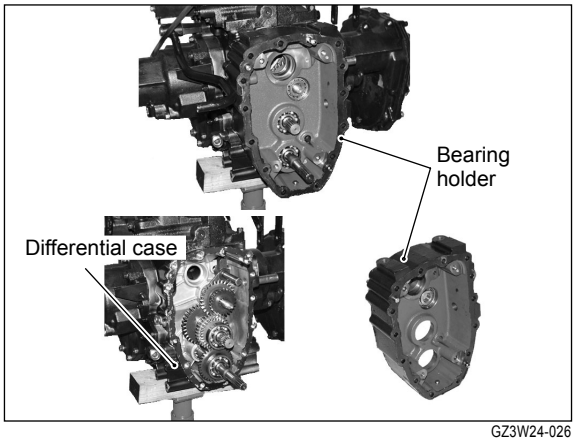


GZ3W24-024



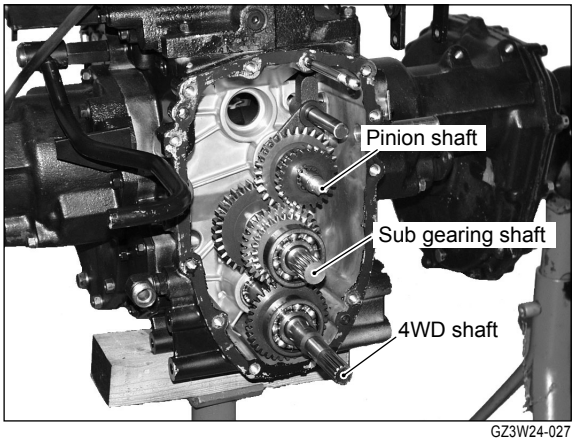
GZ3W24-025

7. Remove the pinion shaft nut.



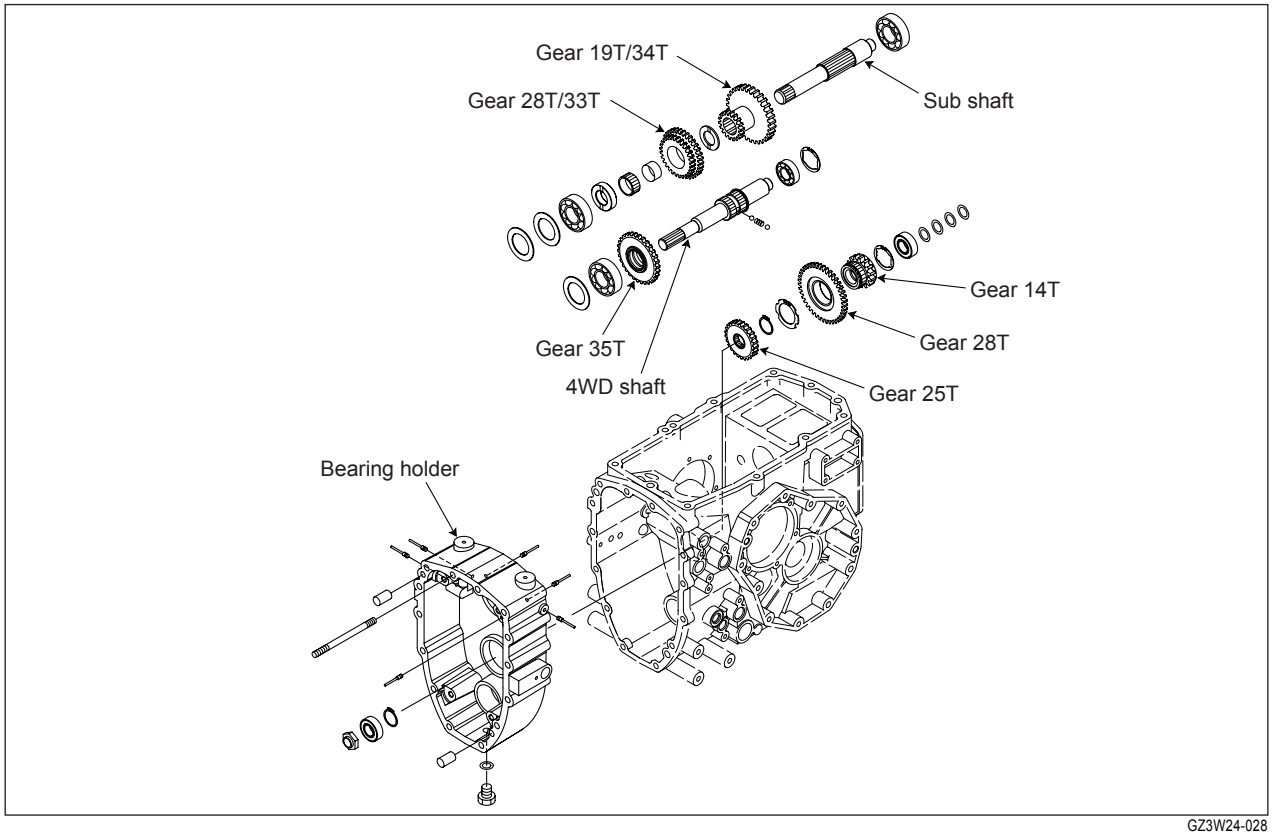
GZ3W24-026

8. Remove the bearing holder.



GZ3W24-027

9. Remove the gear for 2WD ⇔ 4WD and sub gearing.

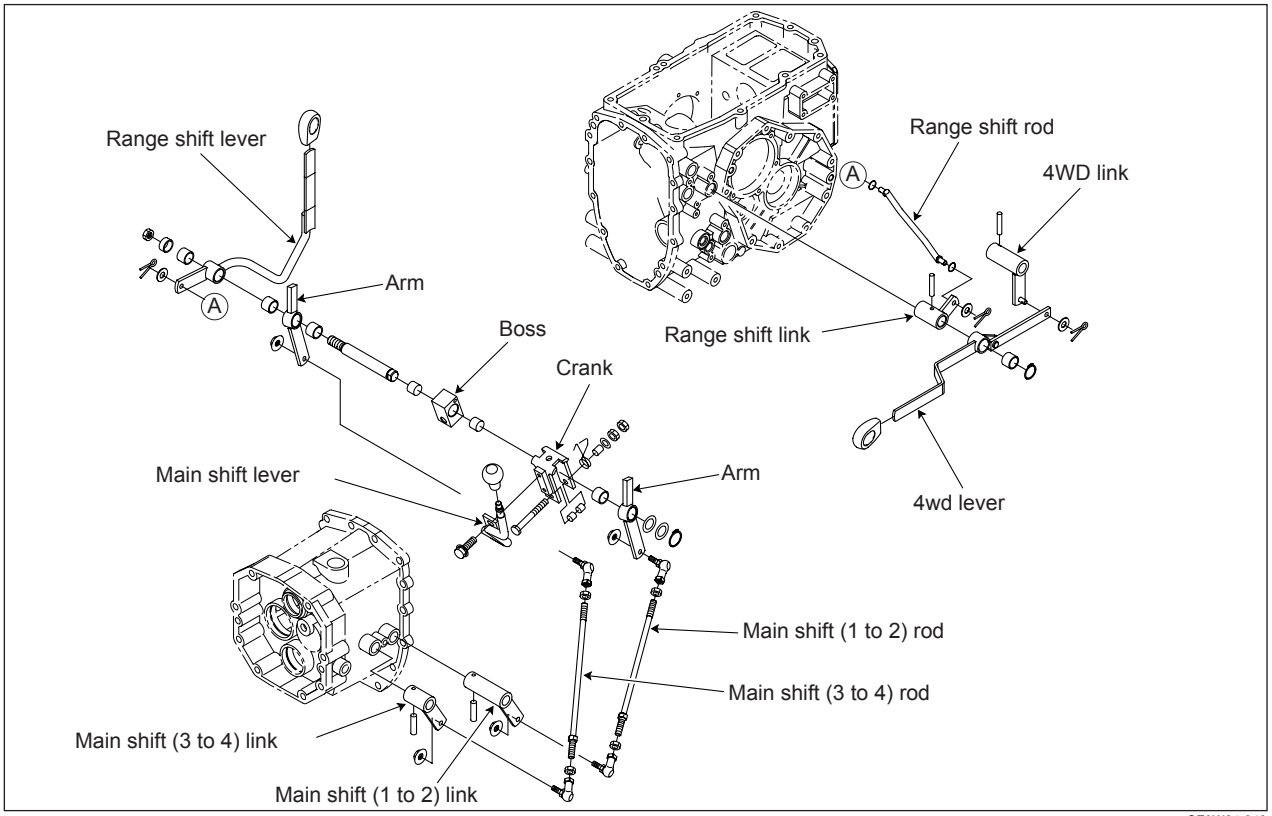


GZ3W24-028

2 Disassembly of Transmission Control

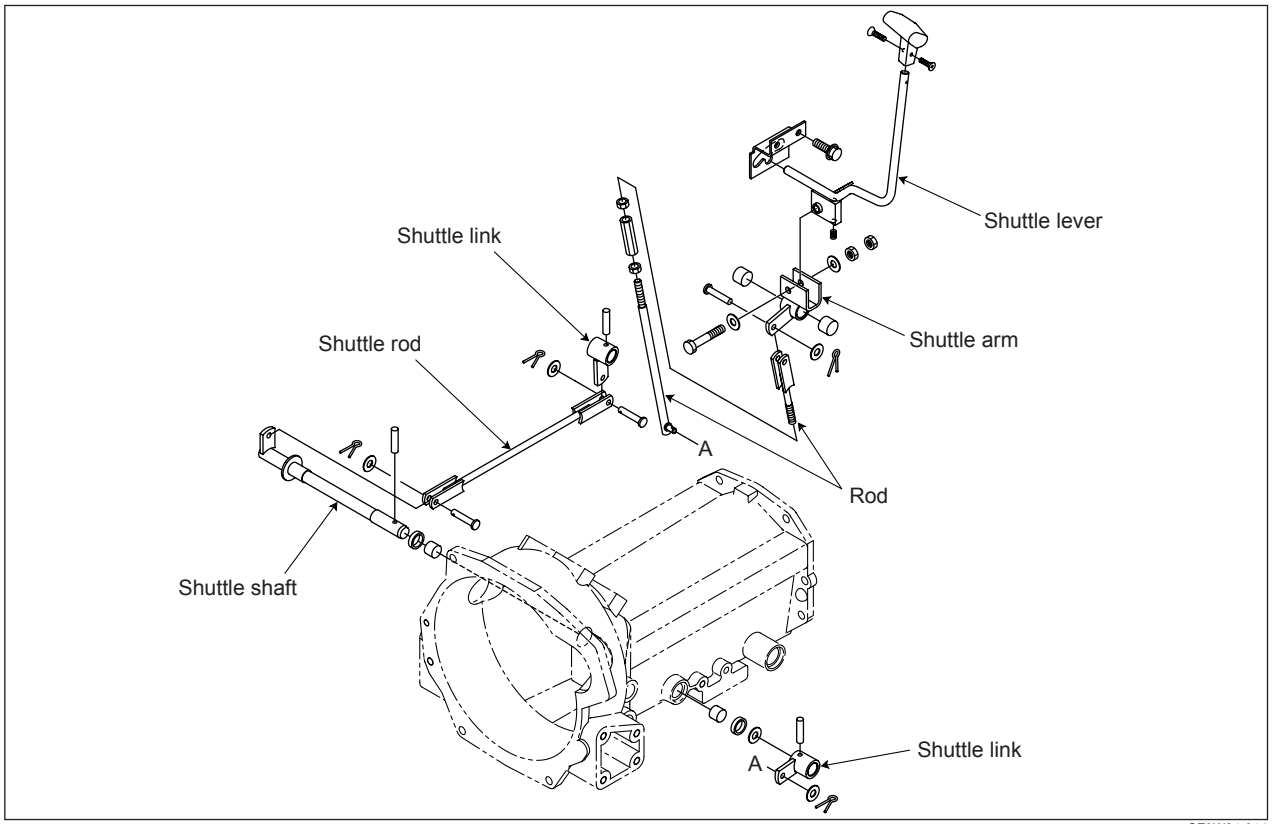
Refer to 7532 transmission for disassembly of PTO lever and P/C control.

1. Disassemble the main gearing lever, 4WD control, and sub gearing control.



GZ3W24-043

2. Disassemble the shuttle control.

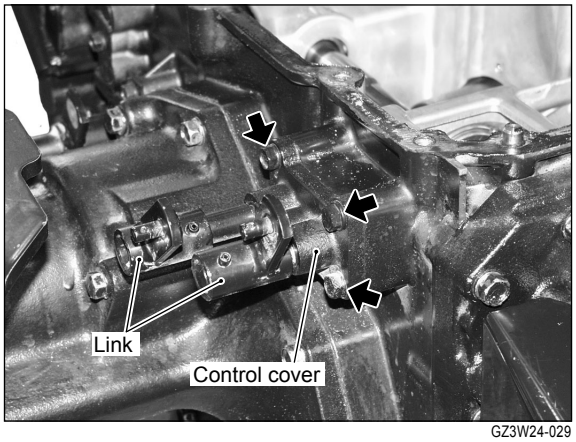


GZ3W24-044

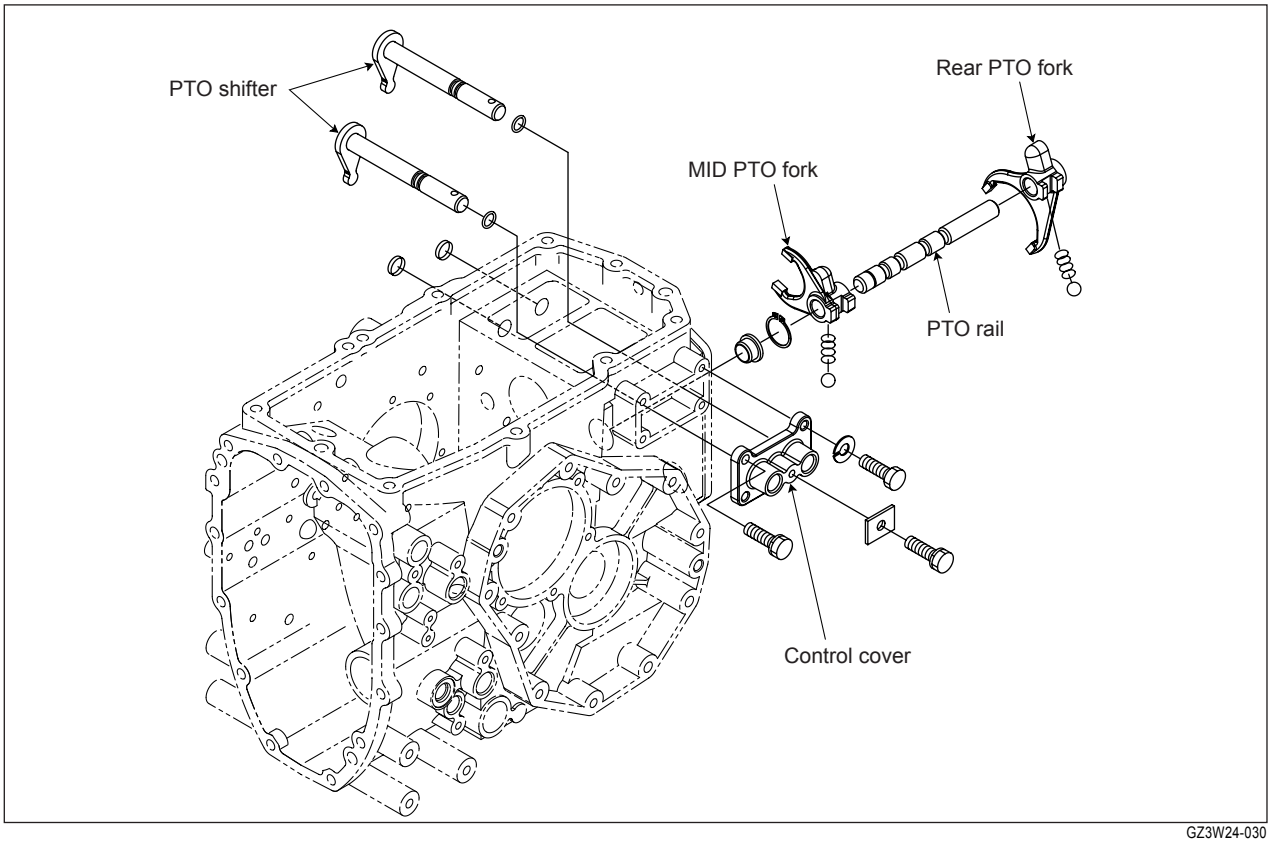
5.4 Removal and Disassembly of Rear PTO

Follow the following procedure for removal and disassembly of rear PTO after removing the link bracket.

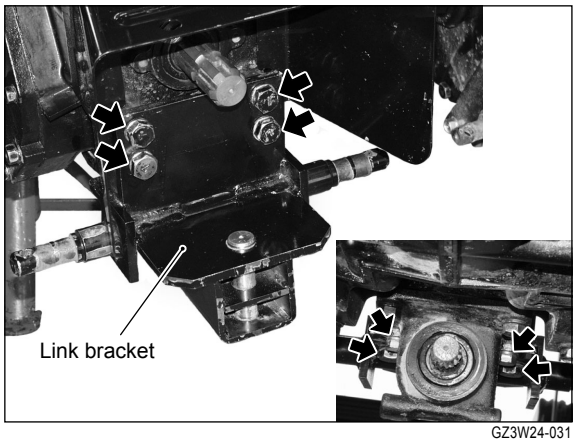
1. Remove the control cover with removing the mounting bolts. (4 bolts)



GZ3W24-029

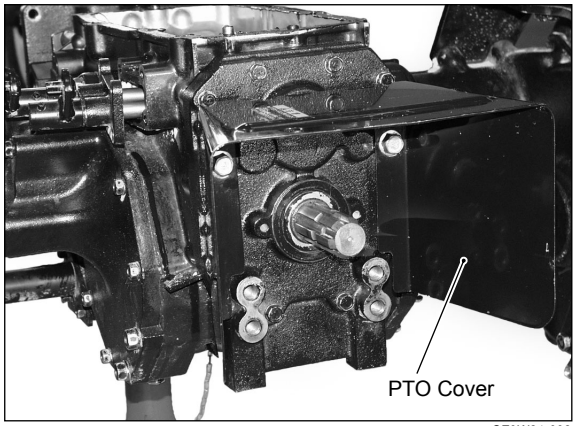


GZ3W24-030



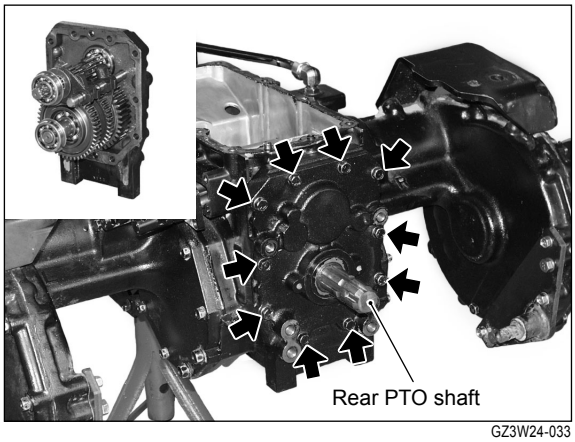
GZ3W24-031

2. Remove the link bracket with removing the mounting bolts. (4 bolts)



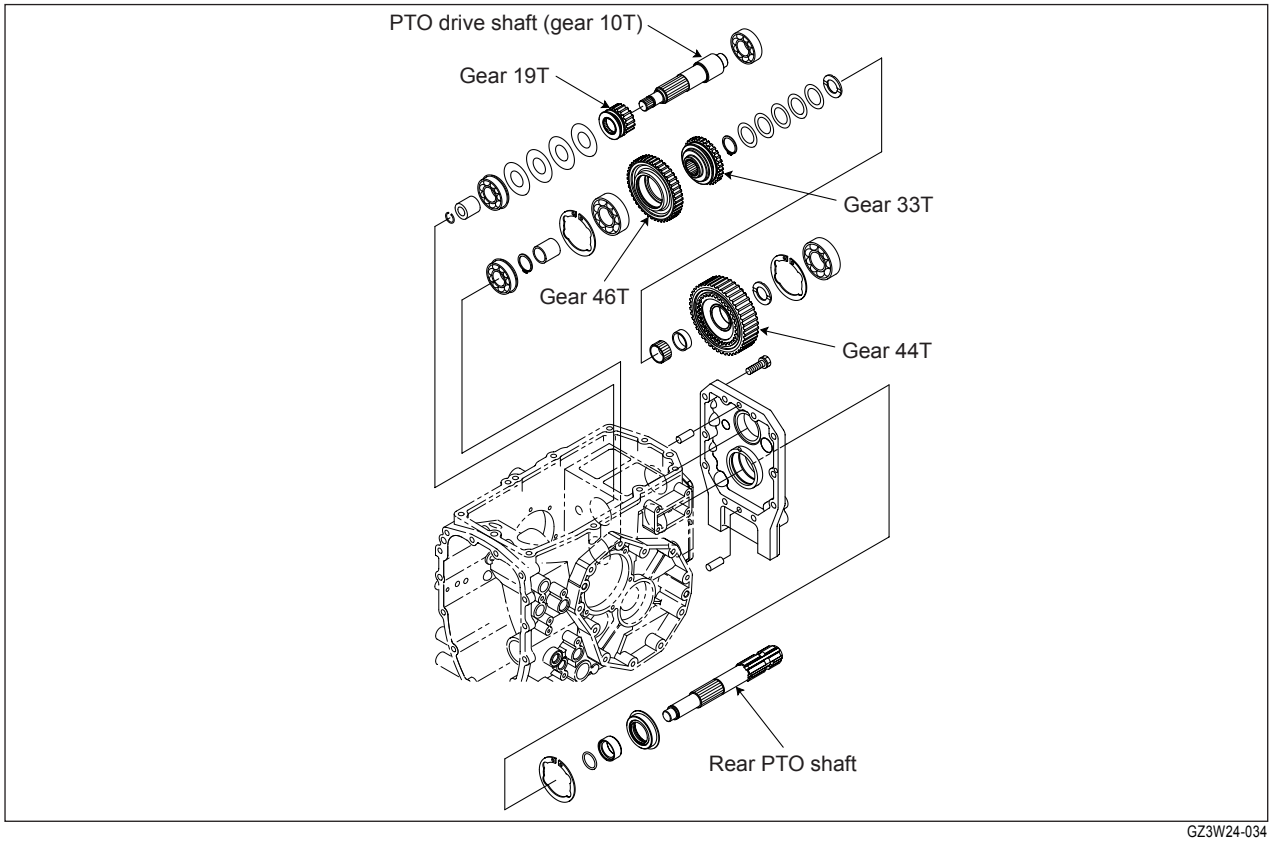
GZ3W24-032

3. Remove the PTO cover with removing the mounting bolts. (4 bolts)



GZ3W24-033

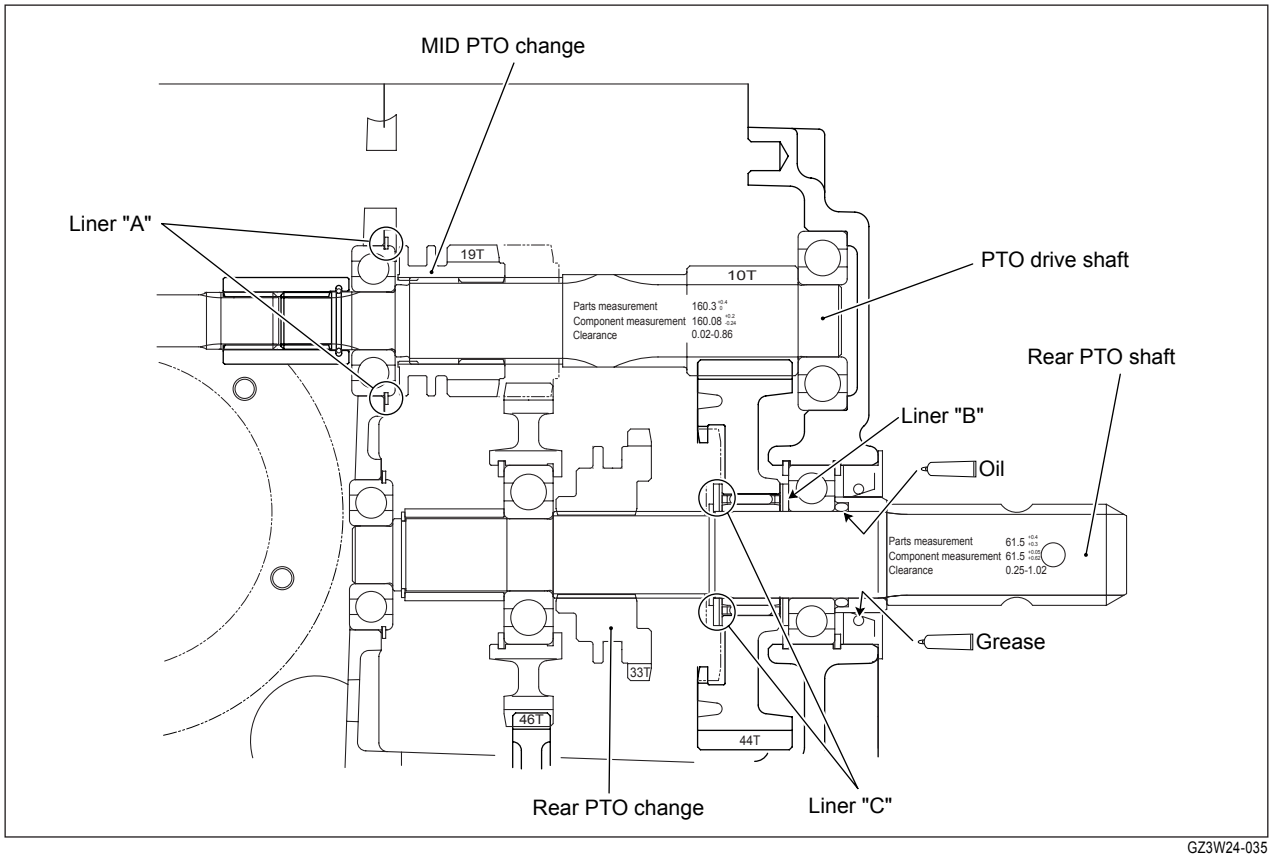
4. Loosen the mounting bolts (10 pieces) for rear PTO case and remove the rear PTO case assembly.



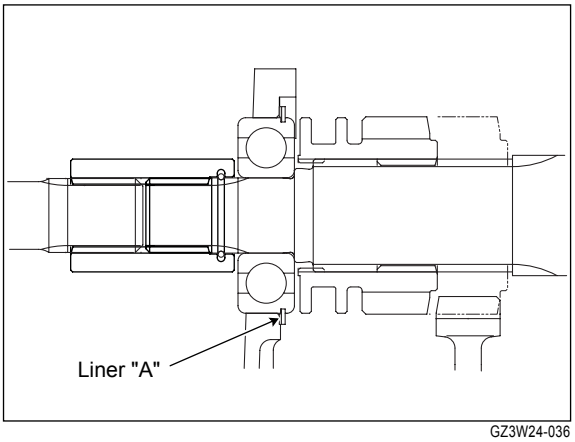
GZ3W24-034

5.5 Assembly and Installation of Rear PTO

1. Clean each part and assemble.
2. Make sure that snap rings and spring pins are securely assembled.
3. Apply oil to the O-ring and needle bearing for assembly.
4. Apply lithium grease to the oil seal for assembly.
5. Assemble as shown in the drawing for the spur gears with specified mounting direction (edgy or chamfered side).



GZ3W24-035



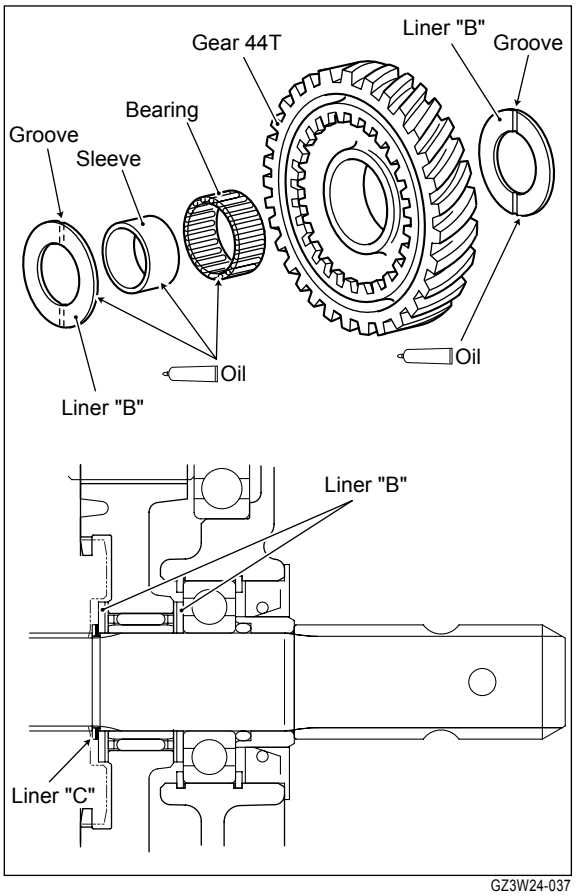
GZ3W24-036

6. Adjust the endplay shown in the drawing to be within 0.05 to 0.20mm {0.002 to 0.008in} with liner "A".

(Unit: mm {in})

Item	Thickness	Parts No.
Liner "A"	0.15 {0.006}	0731 0002 001*
	0.2 {0.008}	0731 0002 002*
	0.4 {0.016}	0731 0002 004*
	1.0 {0.039}	0731 0002 010

Note) * use only for HST specification.



7. Assemble liner "B" with oil groove toward gear 44T.
8. Adjust the endplay shown in the drawing to be within 0.05 to 0.20mm {0.002 to 0.008in} with liner "C".

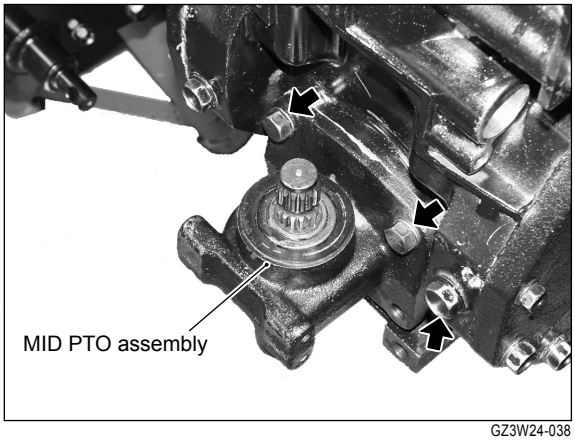
(Unit: mm {in})

Item	Thickness	Parts No.
Liner "C"	0.15 {0.006}	0731 0003 001*
	0.2 {0.008}	0731 0003 002*
	0.4 {0.016}	0731 0003 004*
	0.8 {0.031}	0731 0003 008
	1.0 {0.039}	0731 0003 010

Note) * use only for HST specification.

5.6 Removal and Disassembly of MID PTO

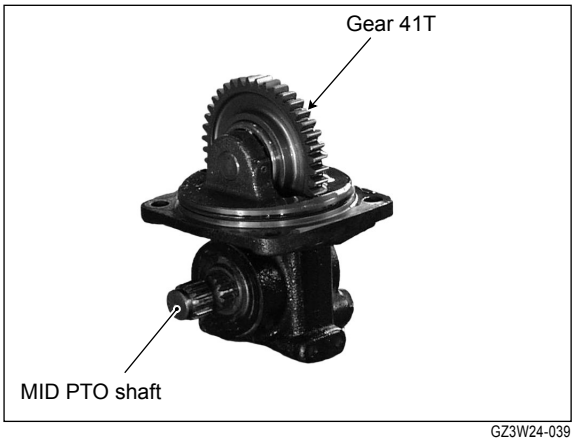
Follow the following procedure for removal and disassembly of MID PTO.



GZ3W24-038

1 Removal of MID PTO

1. Remove the cover and MID PTO assembly with removing the mounting bolts.(4 bolts)

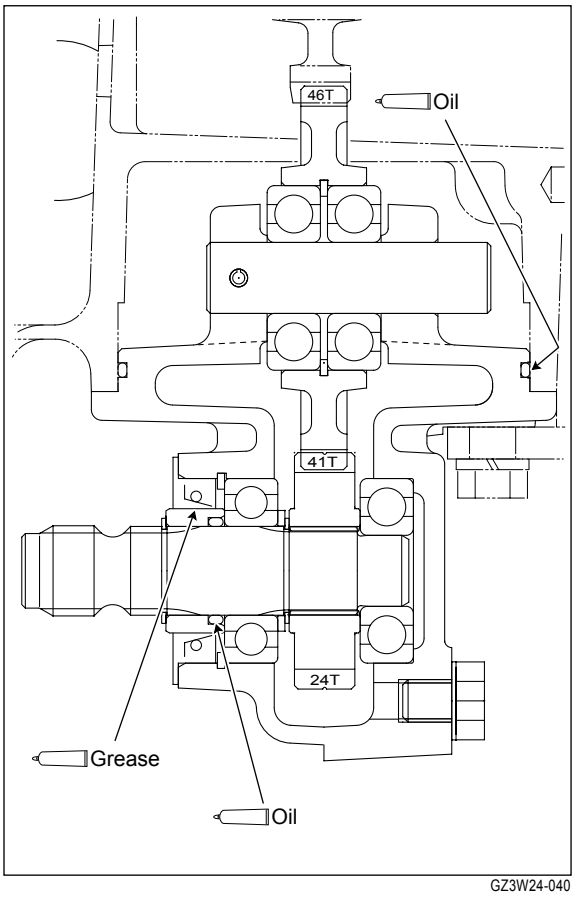


GZ3W24-039

2 Disassembly of MID PTO

1. Disassemble the MID PTO.
   1) Remove the snap ring from MID PTO shaft.
   2) Remove the holder.
   3) Remove the oil seal.
   4) Remove the snap ring from MID PTO case.
   5) Remove the MID PTO shaft and bearing together.

5.7 Assembly and Installation of MID PTO



1 Assembly of MID PTO

1. Clean each part sufficiently and assemble.
2. Make sure that snap rings and spring pins are securely attached.
3. Apply oil to the O-ring and needle bearing for assembly.
4. Apply lithium grease to the oil seal for assembly.
5. Assemble as shown in the drawing for the spur gears with specified mounting direction (edgy or chamfered side).

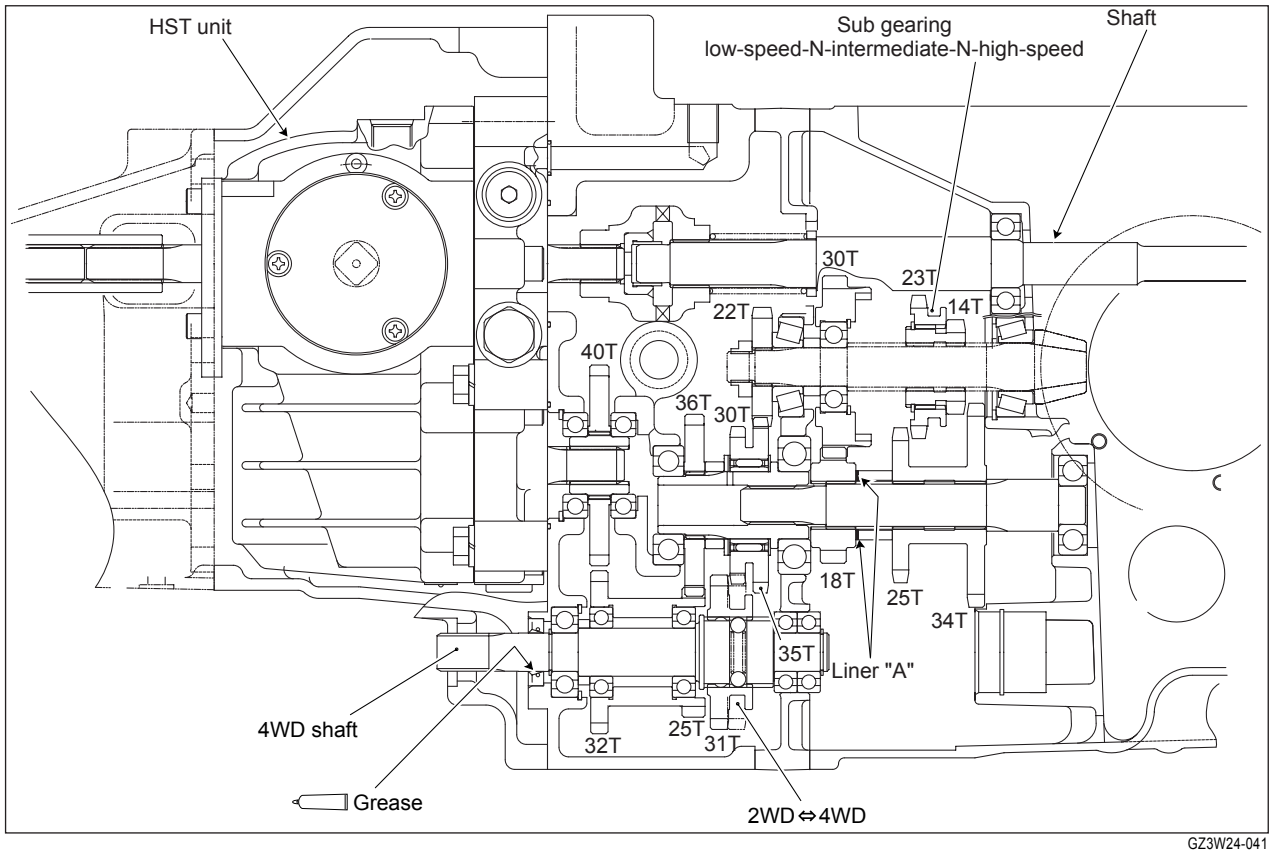
5.8 Assembly and Installation of Transmission

Follow the procedure for removal and disassembly of transmission in the reverse order for assembly and installation and the below procedure for reference for adjustment and maintenance at assembly.

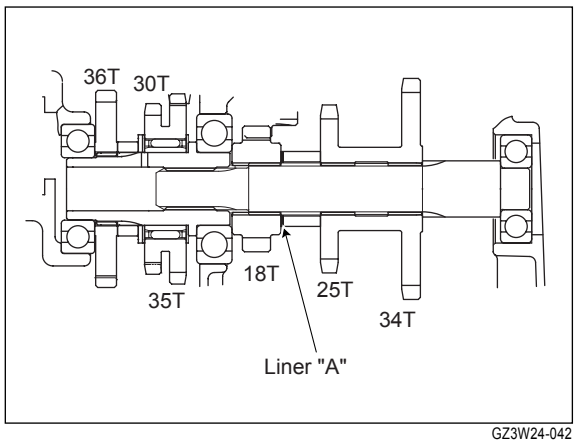
1 Assembly of Transmission

1. Clean each part sufficiently and assemble.
2. Make sure that snap rings for each part are securely attached.
3. Apply oil to the O-ring and needle bearing for assembly.
4. Apply lithium grease to the oil seal for assembly.
5. Assemble as shown in the drawing for the spur gears with specified mounting direction (edgy or chamfered side).
6. Apply liquid packing (Threebond #1208D) to the matching face of mission case for assembly.

5.8.1 Assembly of Transmission Case Assembly (HST Specification)



GZ3W24-041



GZ3W24-042

1. Adjust the endplay shown in the drawing to be within 0.05 to 0.20mm {0.002 to 0.008in} with liner "A".

(Unit: mm {in})

Item	Thickness	Parts No.
Liner "A"	0.15 {0.006}	0731 0002 501
	0.2 {0.008}	0731 0002 502
	0.4 {0.016}	0731 0002 504
	0.8 {0.031}	0731 0002 508

2 Backlash of Gear

Change the spur gear with backlash exceeding the usable limit.

(Unit: mm {in})

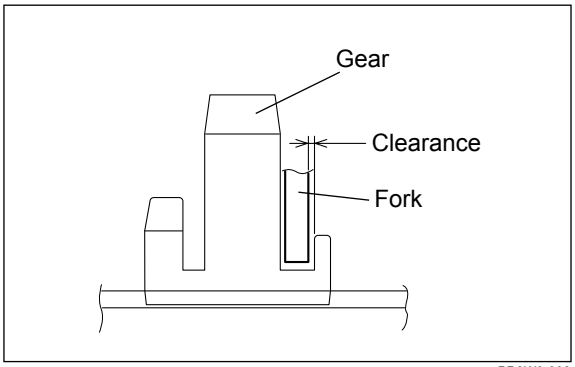
Item	Referential Value	Usable Limit
Backlash of spur gear for transmission	0.10 to 0.30 {0.004 to 0.012}	0.35 {0.014} (Clearance)

3 Clearance between Shift Fork and Gear groove

Measure the clearance between the shift fork and gear groove and change if exceeding the usable limit.

(Unit: mm {in})

Item	Referential Value	Usable Limit
Clearance bet. sub gearing fork and gear groove	0.35 to 0.65 {0.014 to 0.026}	1.00 {0.039}
Clearance bet. 2WD ⇔ 4WD shift piece and gear groove	0.20 to 0.40 {0.008 to 0.016}	1.00 {0.039}
Clearance bet. rear PTO fork and gear groove	0.35 to 0.65 {0.014 to 0.026}	1.00 {0.039}
Clearance bet. MID PTO fork and gear groove	0.35 to 0.65 {0.014 to 0.026}	1.00 {0.039}

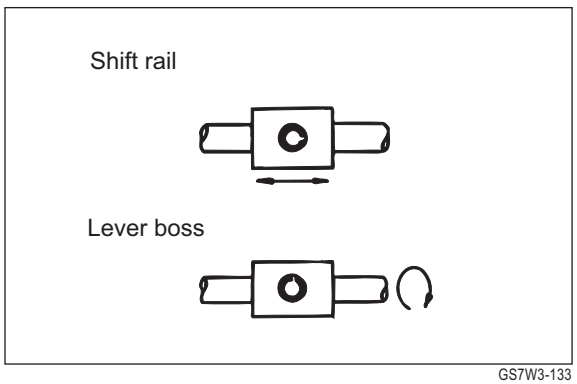


PR8W3-098

4 Assembly of Transmission Control

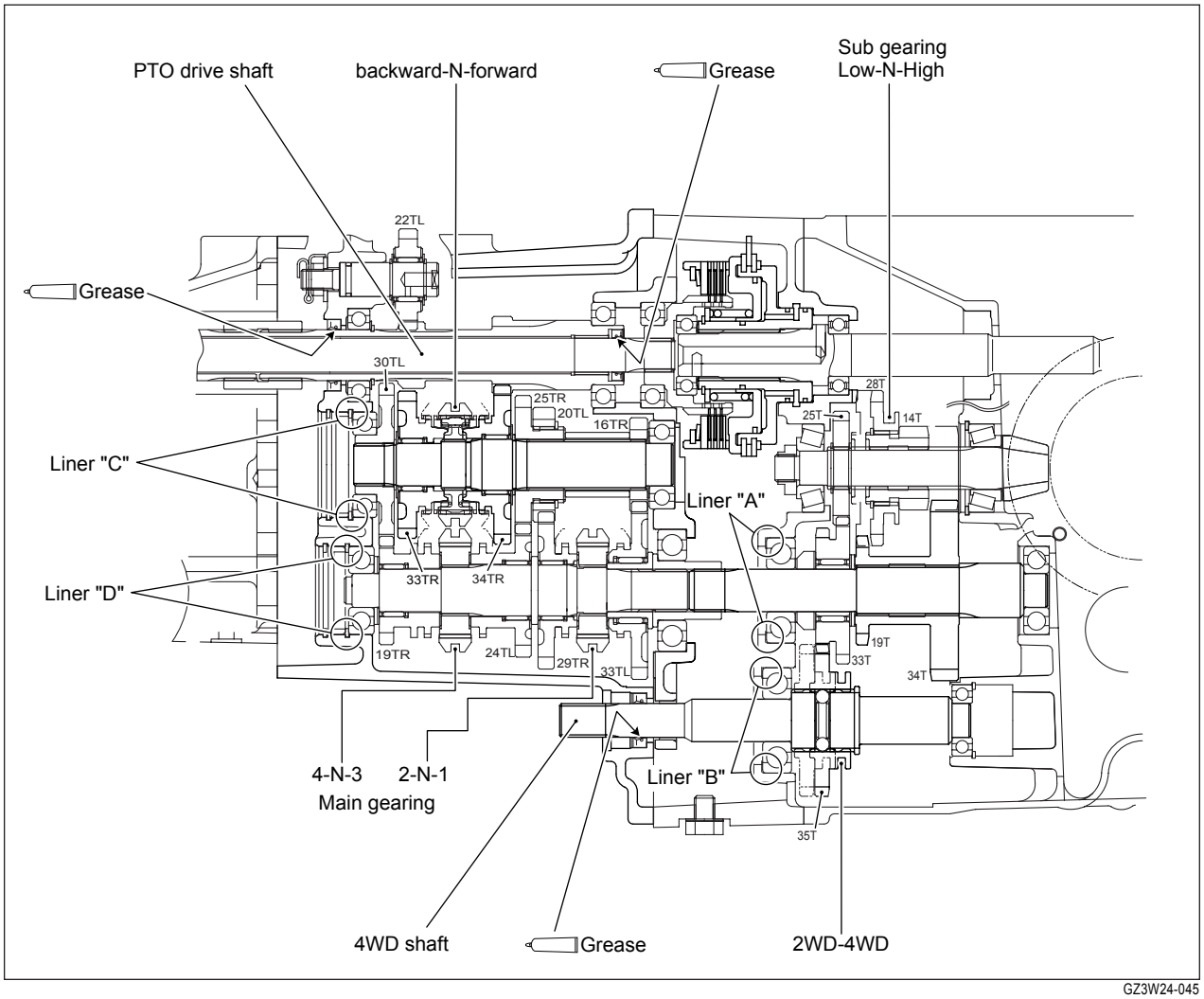
Refer to the drawing for the direction of slit for spring pin.

- When driving the spring pins, as shown in the figure, toward the split (joint) to the same direction which the force is received.

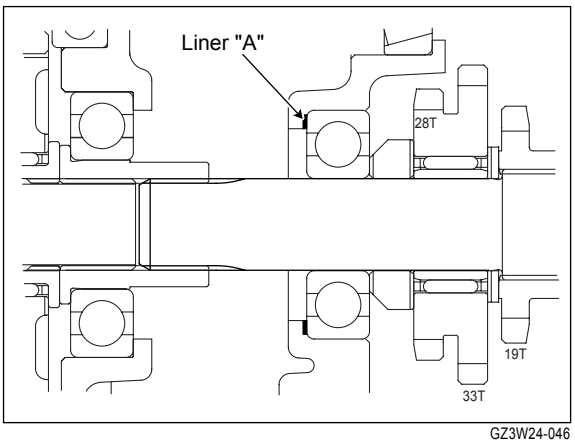


GS7W3-133

5.8.2 Assembly of Transmission Case Assembly (7530)



GZ3W24-045

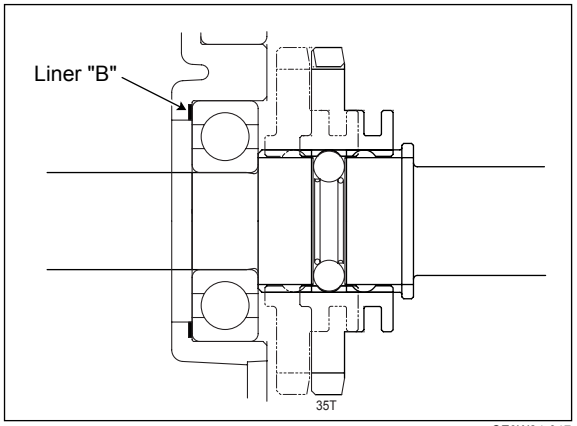


GZ3W24-046

1. Adjust the endplay shown in the drawing to be within 0.05 to 0.20mm {0.002 to 0.008in} with liner "A".

(Unit: mm {in})

Item	Thickness	Parts No.
Liner "A"	0.2 {0.008}	0730 0006 202
	0.6 {0.024}	0730 0006 206

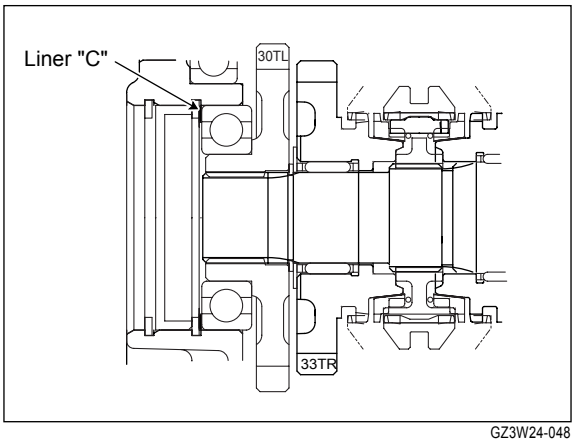


GZ3W24-047

2. Adjust the endplay shown in the drawing to be within 0.05 to 0.20mm {0.002 to 0.008in} with liner "B".

(Unit: mm {in})

Item	Thickness	Parts No.
Liner "B"	0.2 {0.008}	0730 0006 202
	0.6 {0.024}	0730 0006 206

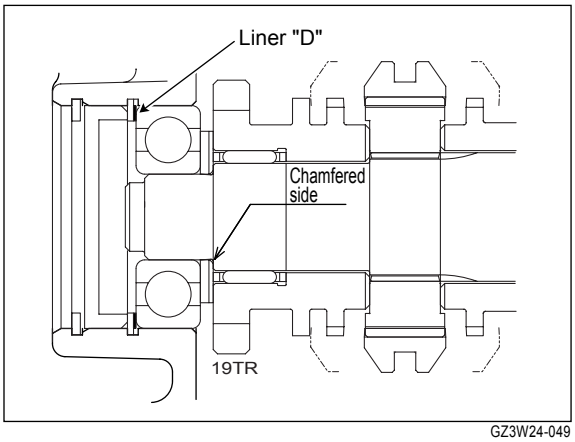


GZ3W24-048

3. Adjust the endplay shown in the drawing to be within 0.05 to 0.20mm {0.002 to 0.008in} with liner "C".

(Unit: mm {in})

Item	Thickness	Parts No.
Liner "C"	0.2 {0.008}	0730 0006 202
	0.6 {0.024}	0730 0006 206
	1.0 {0.039}	0730 0006 210



GZ3W24-049

4. Adjust the endplay shown in the drawing to be within 0.05 to 0.20mm {0.002 to 0.008in} with liner "D".

(Unit: mm {in})

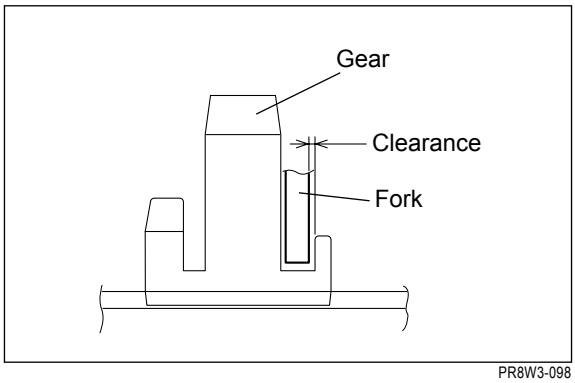
Item	Thickness	Parts No.
Liner "D"	0.2 {0.008}	0730 0005 202
	0.6 {0.024}	0730 0005 206

5 Backlash of Gear

Change the spur gear with backlash exceeding the usable limit.

(Unit: mm {in})

Item	Referential Value	Usable Limit
Backlash of spur gear for transmission	0.10 to 0.30 {0.004 to 0.012}	0.35 {0.014} (Clearance)



PR8W3-098

6 Clearance between Shift Fork and Gear groove

Measure the clearance between the shift fork and gear groove and change if exceeding the usable limit.

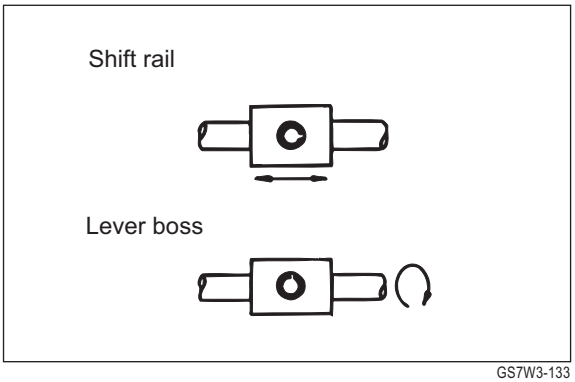
(Unit: mm {in})

Item	Referential Value	Usable Limit
Clearance bet. shuttle fork and gear groove	0.35 to 0.65 {0.014 to 0.026}	1.00 {0.039}
Clearance bet. main gearing fork 1 to 2 and gear groove	0.35 to 0.65 {0.014 to 0.026}	1.00 {0.039}
Clearance bet. main gearing fork 3 to 4 and gear groove	0.35 to 0.65 {0.014 to 0.026}	1.00 {0.039}
Clearance bet. sub gearing fork and gear groove	0.35 to 0.65 {0.014 to 0.026}	1.00 {0.039}
Clearance bet. 2WD ⇔ 4WD shift piece and gear groove	0.20 to 0.40 {0.008 to 0.016}	1.00 {0.039}
Clearance bet. rear PTO fork and gear groove	0.35 to 0.65 {0.014 to 0.026}	1.00 {0.039}
Clearance bet. MID PTO fork and gear groove	0.35 to 0.65 {0.014 to 0.026}	1.00 {0.039}

7 Assembly of Transmission Control

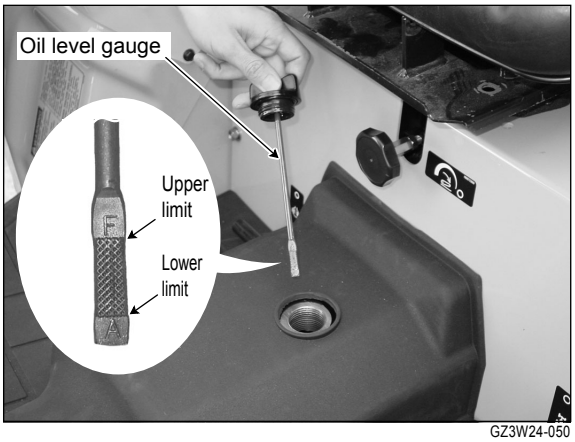
Refer to the drawing for the direction of slit for spring pin.

- When driving the spring pins, as shown in the figure, toward the split (joint) to the same direction which the force is received.



GS7W3-133

5.9 Inspection and Adjustment of Transmission



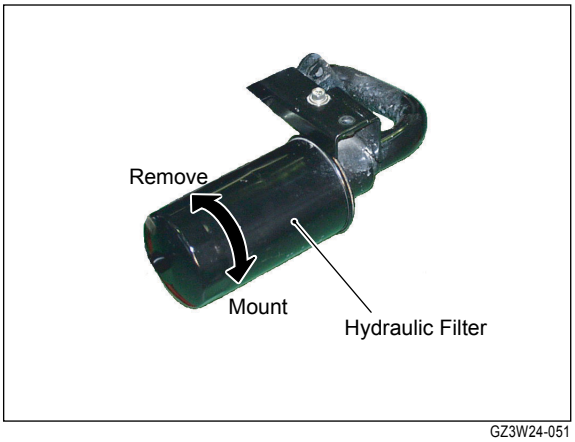
GZ3W24-050

1 Change of Transmission Oil

- Gear Oil:
  Multi STOU oil or API over class GL-4

  Oil Amount:

  HST: 32 L {8.5 gal}
  Gear: 29 L {7.7 gal}
- Supply oil between the line "F" (upper limit) and the line "A" (lower limit) on the level gauge.
- Perform oil inspection 5 minutes after oil supply.



GZ3W24-051

2 Change of Hydraulic Filter

- 1st Change: After 100 hours of operation
- As of 2nd time and on: Every 300 hours of operation
- When change the hydraulic filter, larger amount of oil tends to be supplied. Operate for 5 minutes and check with the level gauge to supply the specified amount of oil.

⚠ CAUTION

When installing the hydraulic filter, apply oil to the packing, manually tighten the hydraulic filter, and tighten approximately 2/3 turns after packing is attached to the seal face.

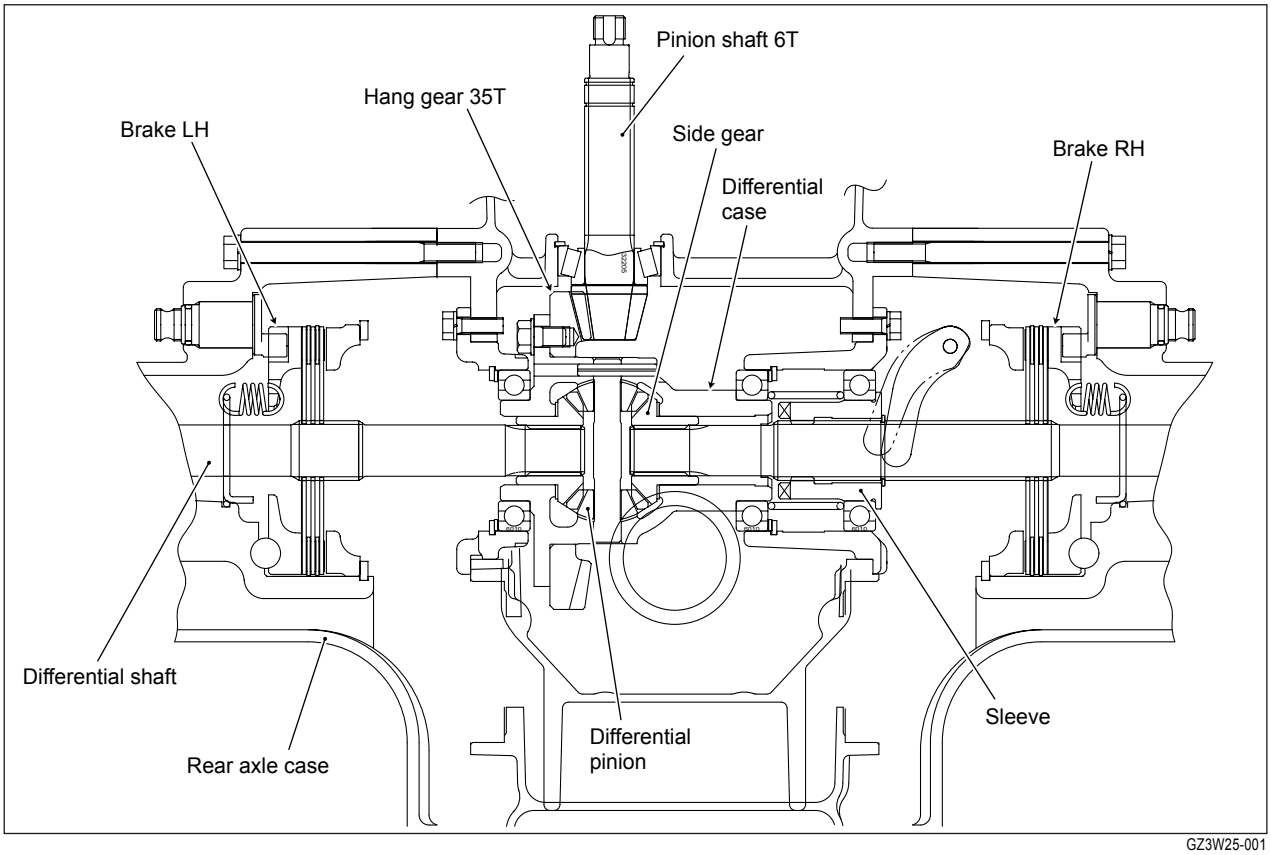
6 Rear Axle and Brake

6.1 Structure of Rear Axle and Brake

The drive is transmitted from the pinion shaft to the axle shaft via spiral bevel gear (differential ring gear), differential pinion, differential side gear, and final gear.

The differential lock device can be locked by operating the sleeve on the right of differential case in foot-operating jaw clutch.

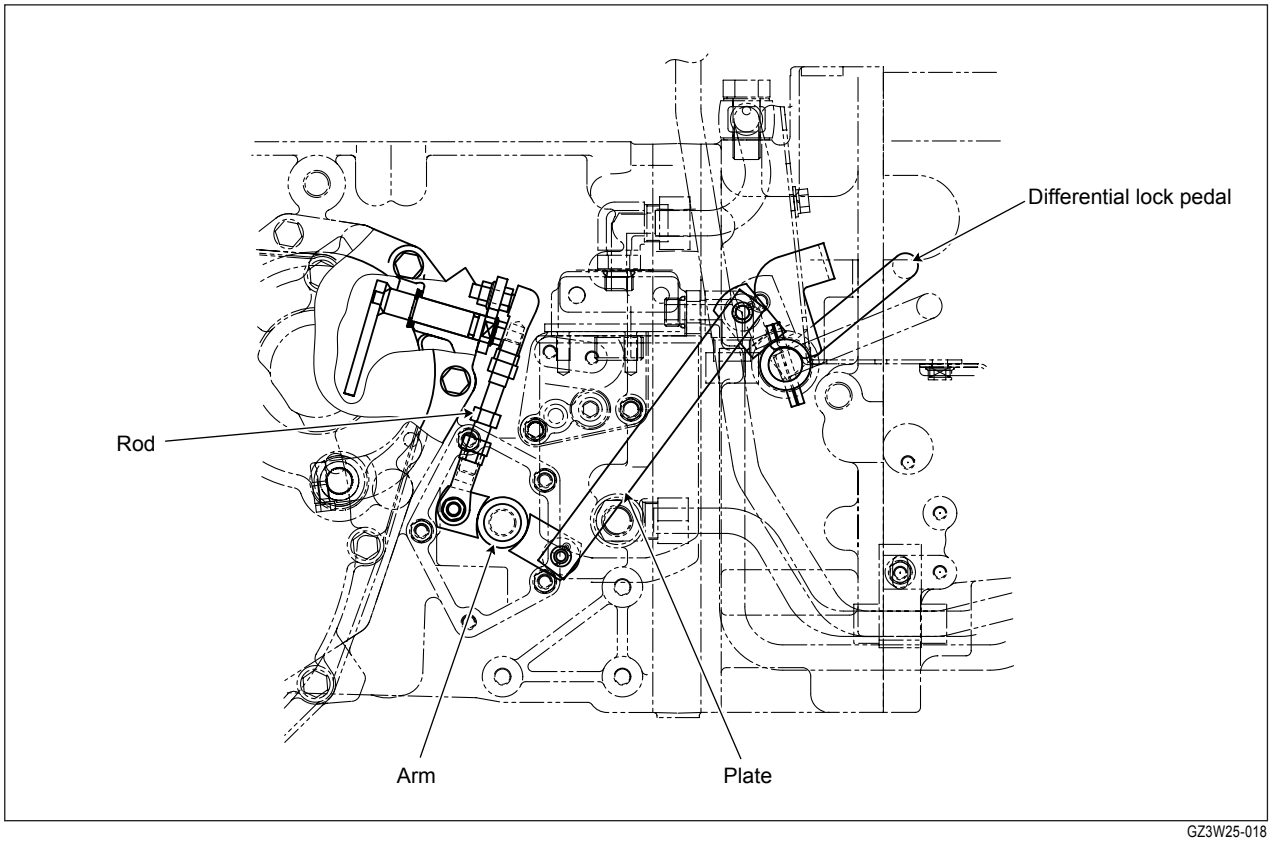
Wet type brake is applied for the brake.



GZ3W25-001

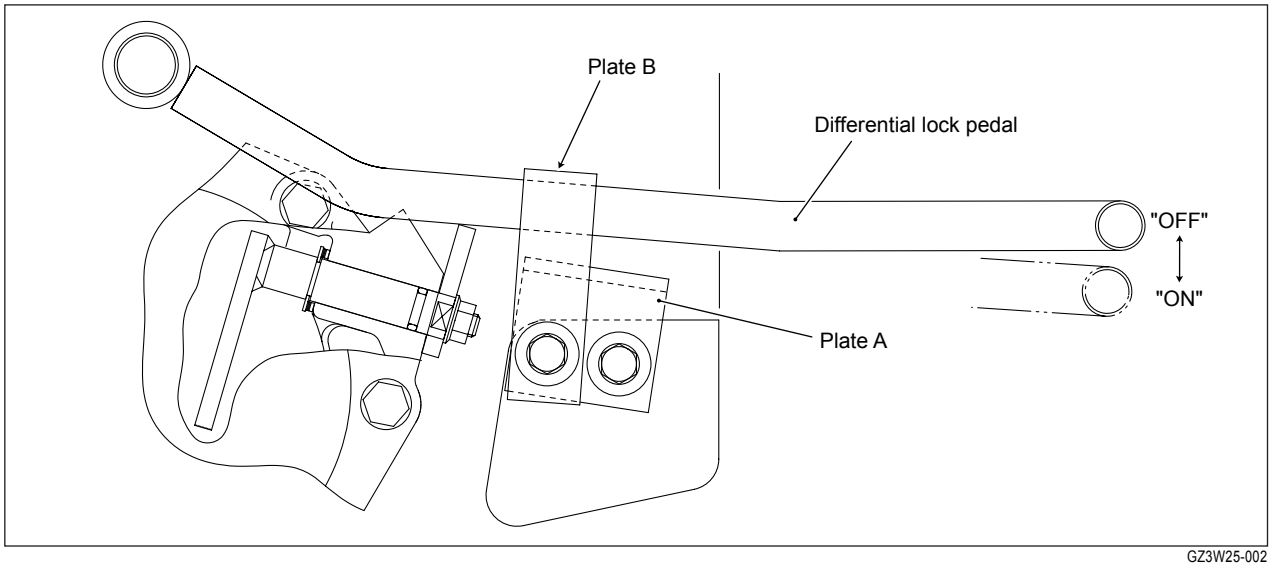
6.2 Differential Lock Pedal

7532(HST drive)



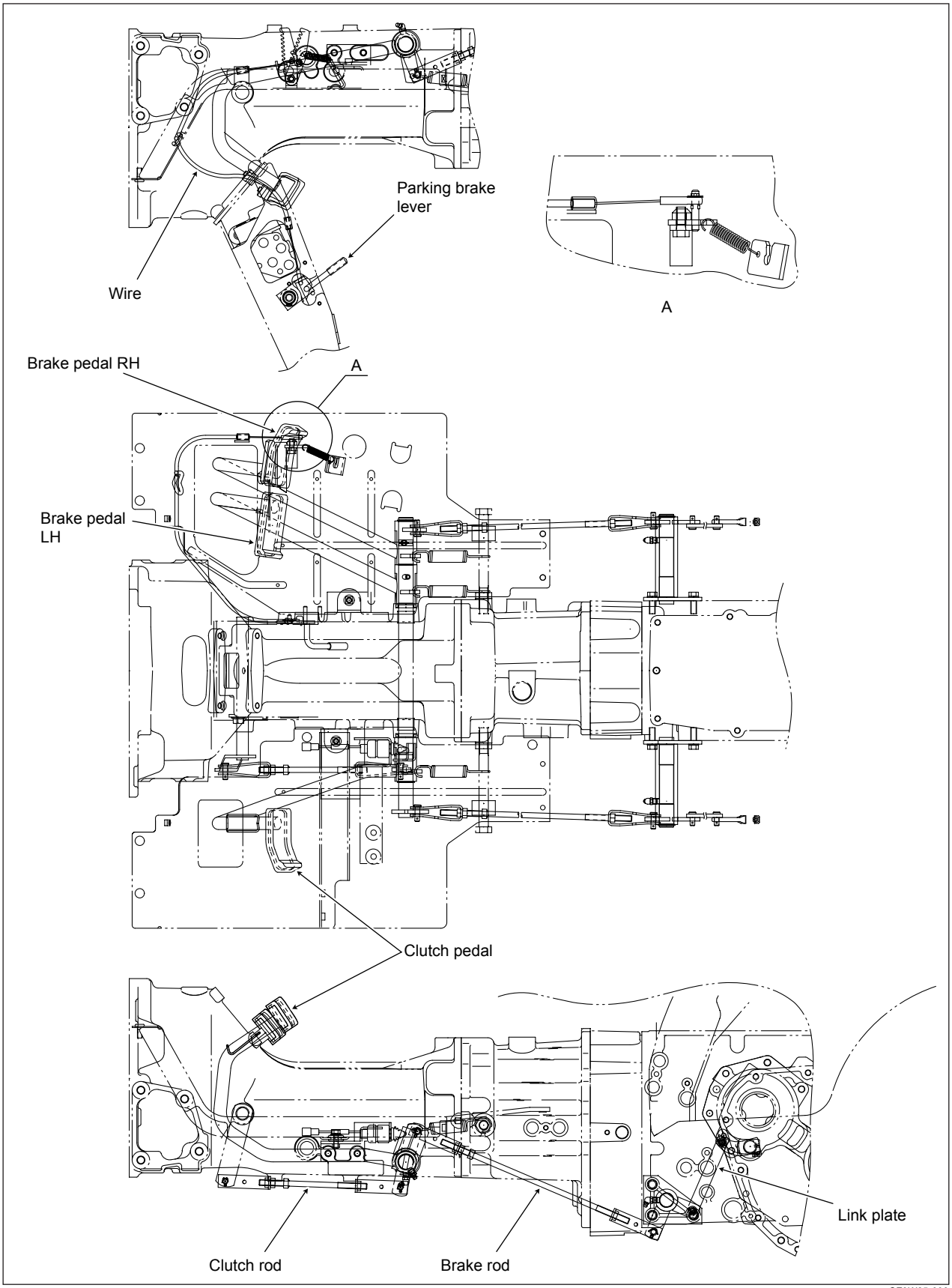
GZ3W25-018

7530(Gear drive)



GZ3W25-002

6.3 Control for Rear Axle and Brake

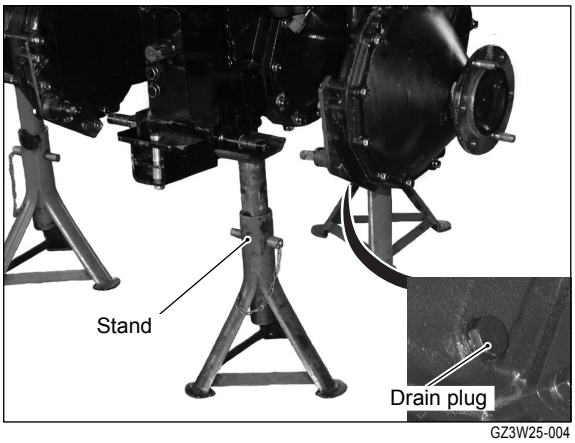


6.4 Removal and Disassembly of Rear Axle and Brake

1 Removal of Rear Axle Assembly

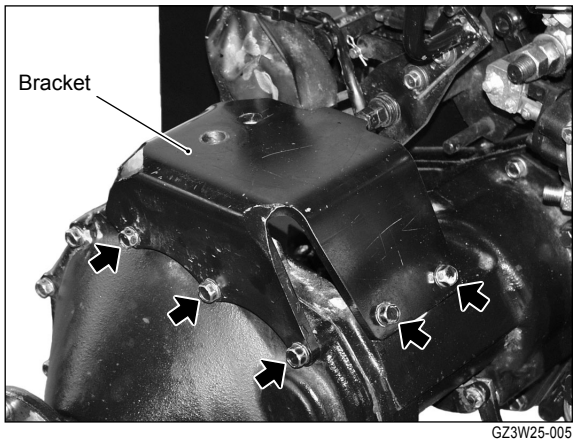
After removing the link, tire and fender, follow the following procedure for removal of rear axle assembly.

1. Set the stand in the position as shown. Drain the transmission oil from the rear axle case.



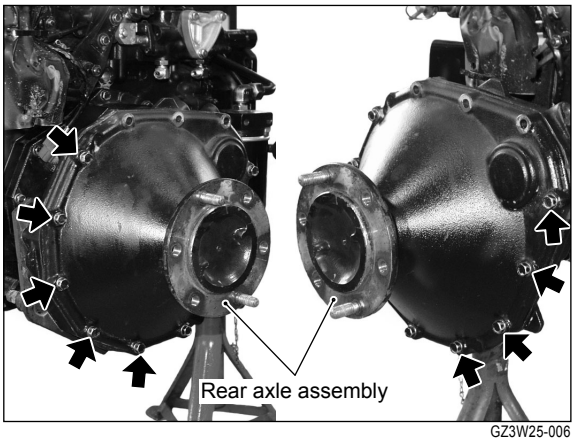
GZ3W25-004

2. Remove the bracket from rear axle housing with removing the mounting bolts.

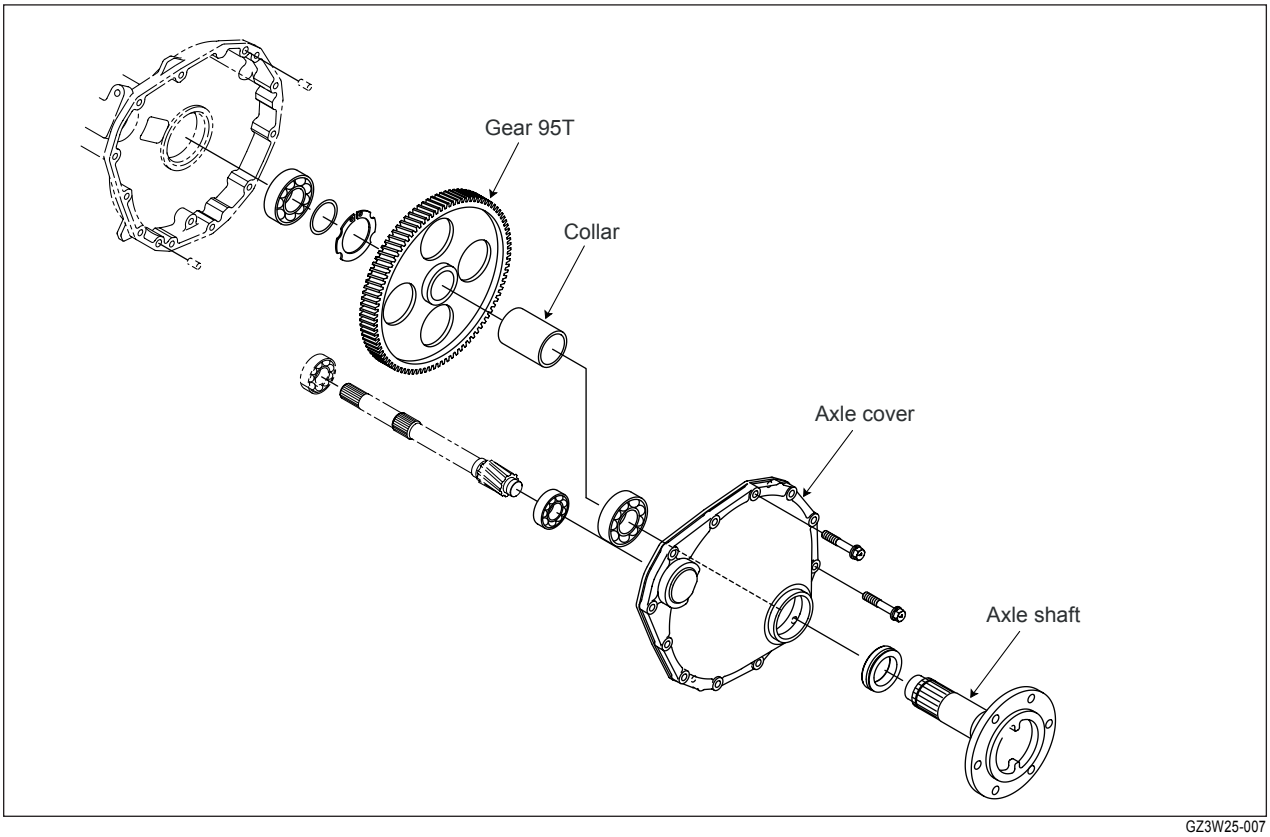


GZ3W25-005

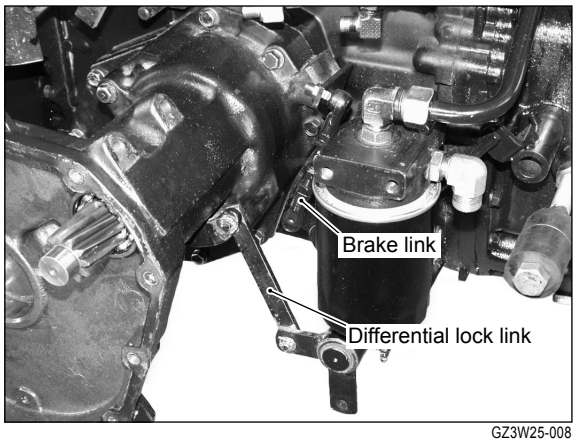
3. Remove the rear axle assembly with removing the mounting bolts.



GZ3W25-006

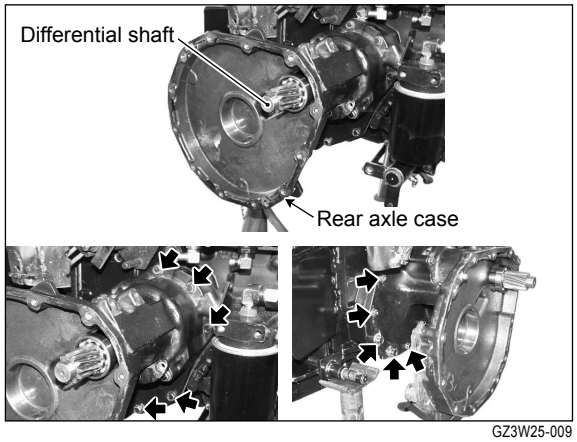


GZ3W25-007



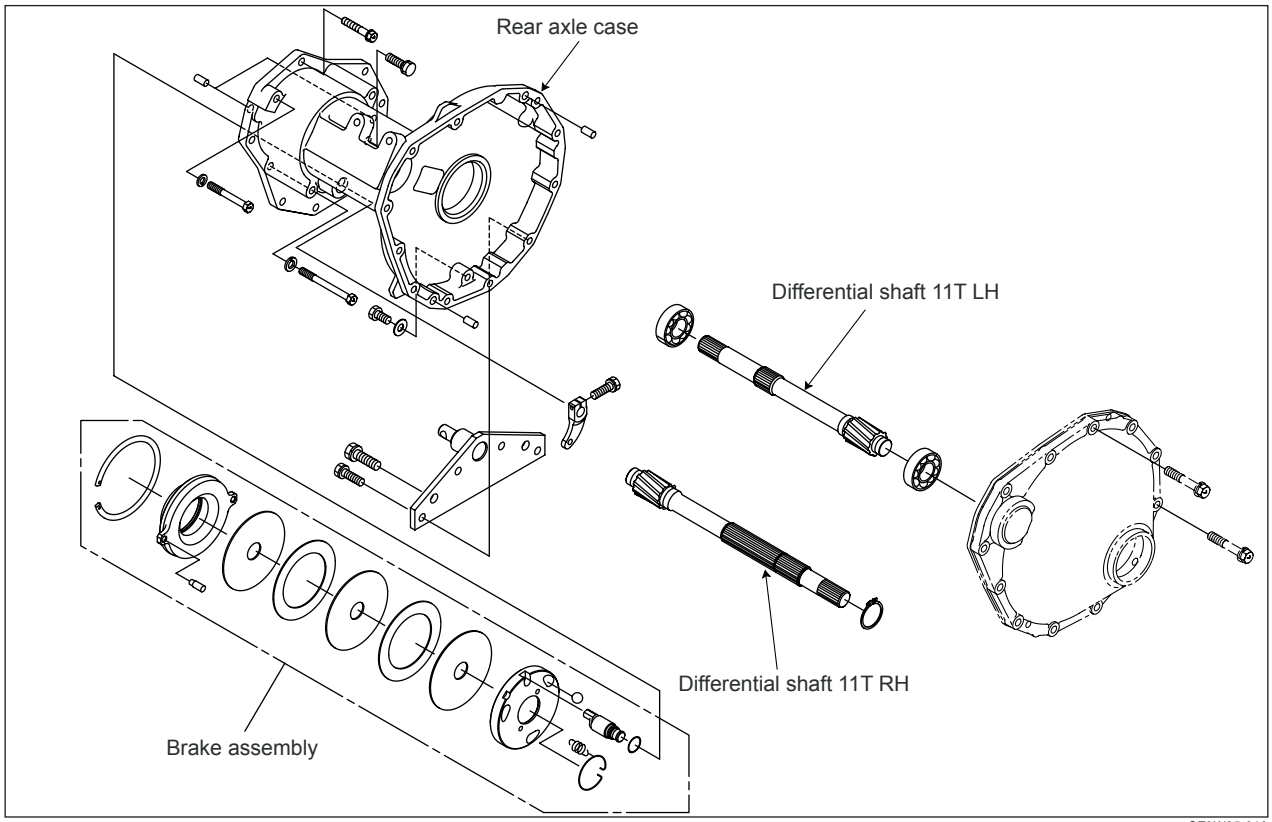
GZ3W25-008

4. Remove the differential lock link and brake link.



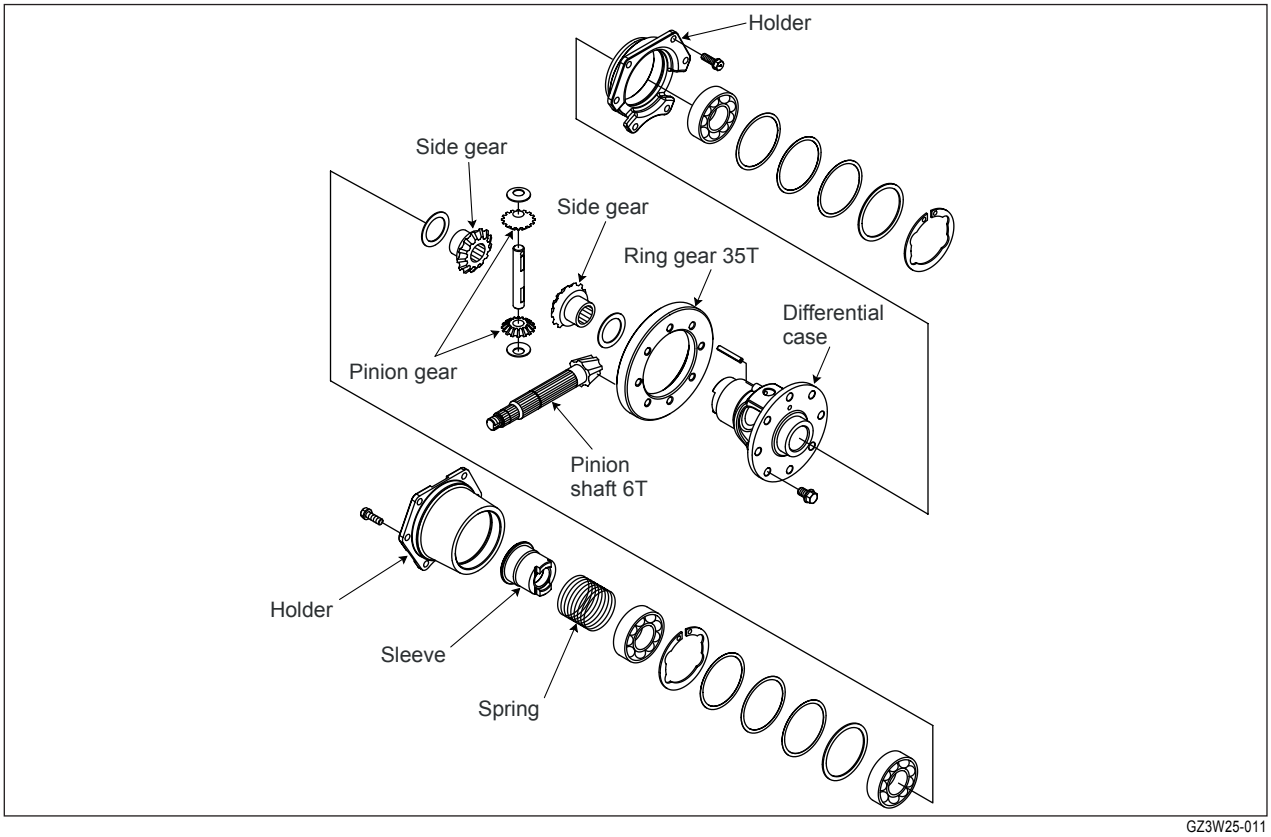
GZ3W25-009

5. Remove the axle case assembly.



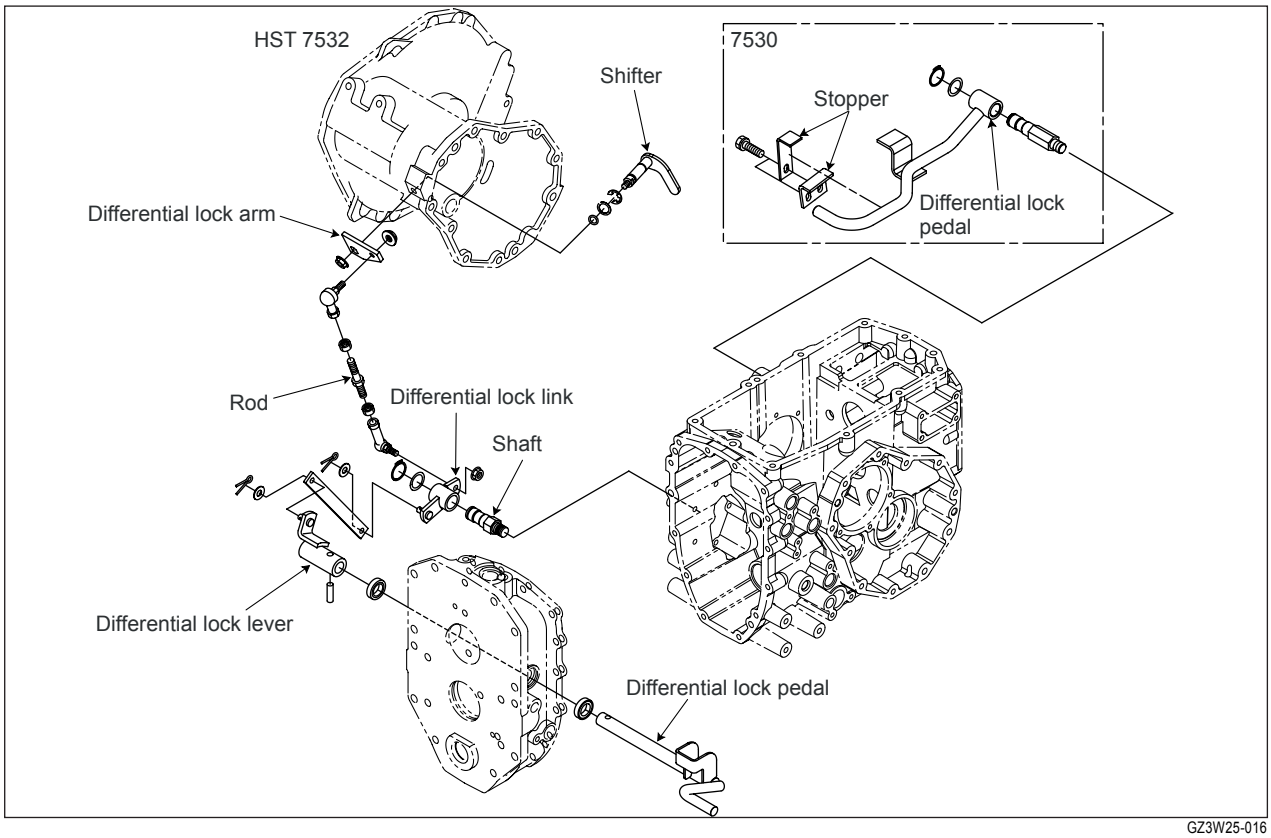
GZ3W25-010

2 Disassembly of Differential Case and Differential Lock



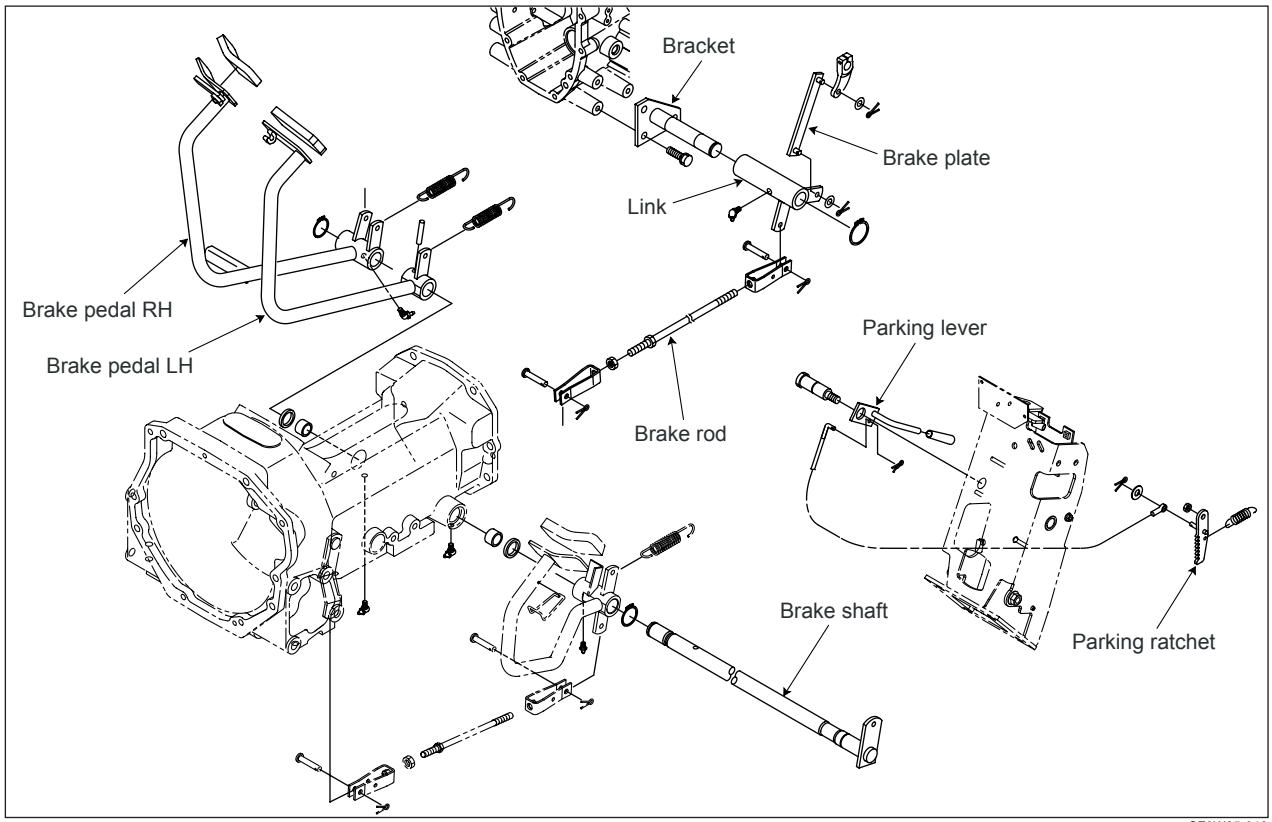
GZ3W25-011

3 Disassembly of Differential Lock Control



GZ3W25-016

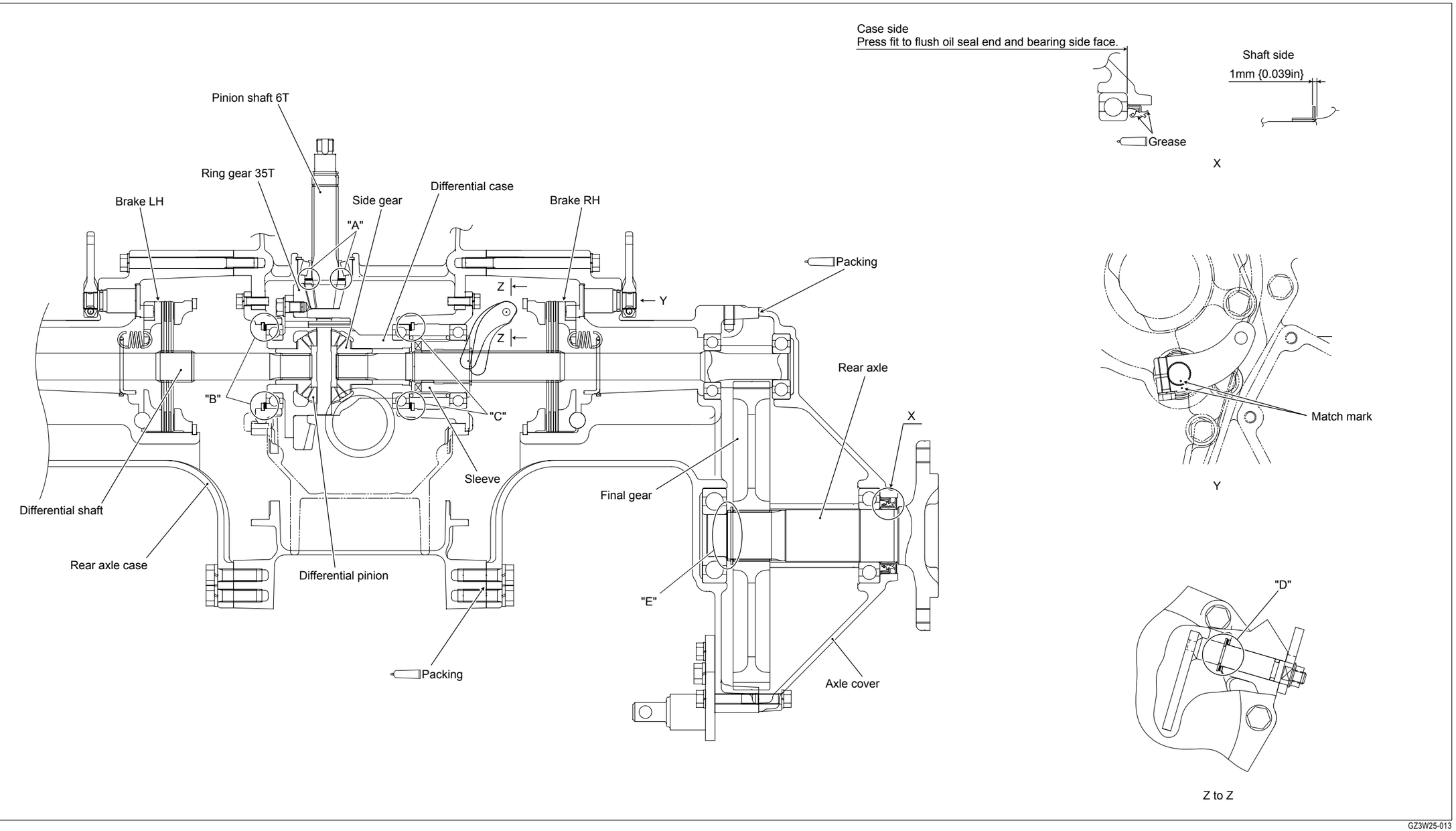
4 Disassembly of Brake Control



GZ3W25-012

6.5 Assembly and Installation of Rear Axle and Brake

Follow the procedure for removal and disassembly of rear axle in the reverse order for assembly and installation.



1 Assembly of Pinion Shaft

1. Adjust the liner "A" to have the distance from the pinion rear face to the differential case center 82 ± 0.05mm {3.23 ± 0.0020in}.

(Unit: mm {in})

Item	Thickness	Parts No.
Liner "A"	0.15 {0.06}	0731 0002 501
	0.2 {0.008}	0731 0002 502
	0.4 {0.016}	0731 0002 504
	0.8 {0.032}	0731 0002 508

2 Assembly of Differential Case Assembly

1. Make sure the backlash of the pinion shaft gear and side gear is within 0.25 to 0.35mm {0.001 to 0.014in}.
2. Place the spring pin with the slit toward as shown in the figure. (Vertical to the shaft)
3. Apply lubricant (MOS_2) to the gears and assemble it.

3 Installation of Differential Case Assembly

1. Adjust the backlash of pinion shaft and differential ring gear to be within 0.10 to 0.30mm {0.004 to 0.012in} with the liner "B".
2. After adjusting the backlash, adjust the lateral free play of differential case assembly to be within 0 to 0.10mm {0 to 0.004in} with the liner "C".

(Unit: mm {in})

Item	Thickness	Parts No.
Liner "B" and "C"	0.4 {0.016}	1007 0618 200
	0.2 {0.008}	1007 0618 100
	0.2 {0.008}	1007 0618 000
	1.6 {0.063}	1025 1535 000

4 Liner Adjustment of Rear Axle Shaft and Differential Lock Shifter

1. Adjust the clearance between the axle case and shifter to be within 0.20 to 0.60mm {0.008 to 0.0024in} with the liner "D".

(Unit: mm {in})

Item	Thickness	Parts No.
Liner "D"	0.4 {0.016}	0731 0001 504
	1.2 {0.047}	0731 0001 512

2. Adjust the endplay of rear axle shaft to be within 0.15 to 0.35mm {0.006 to 0.0014in} with the liner "E".

(Unit: mm {in})

Item	Thickness	Parts No.
Liner "E"	0.6 {0.024}	0730 0005 206
	0.2 {0.008}	0730 0005 202

5 Assembly of Rear Axle Assembly

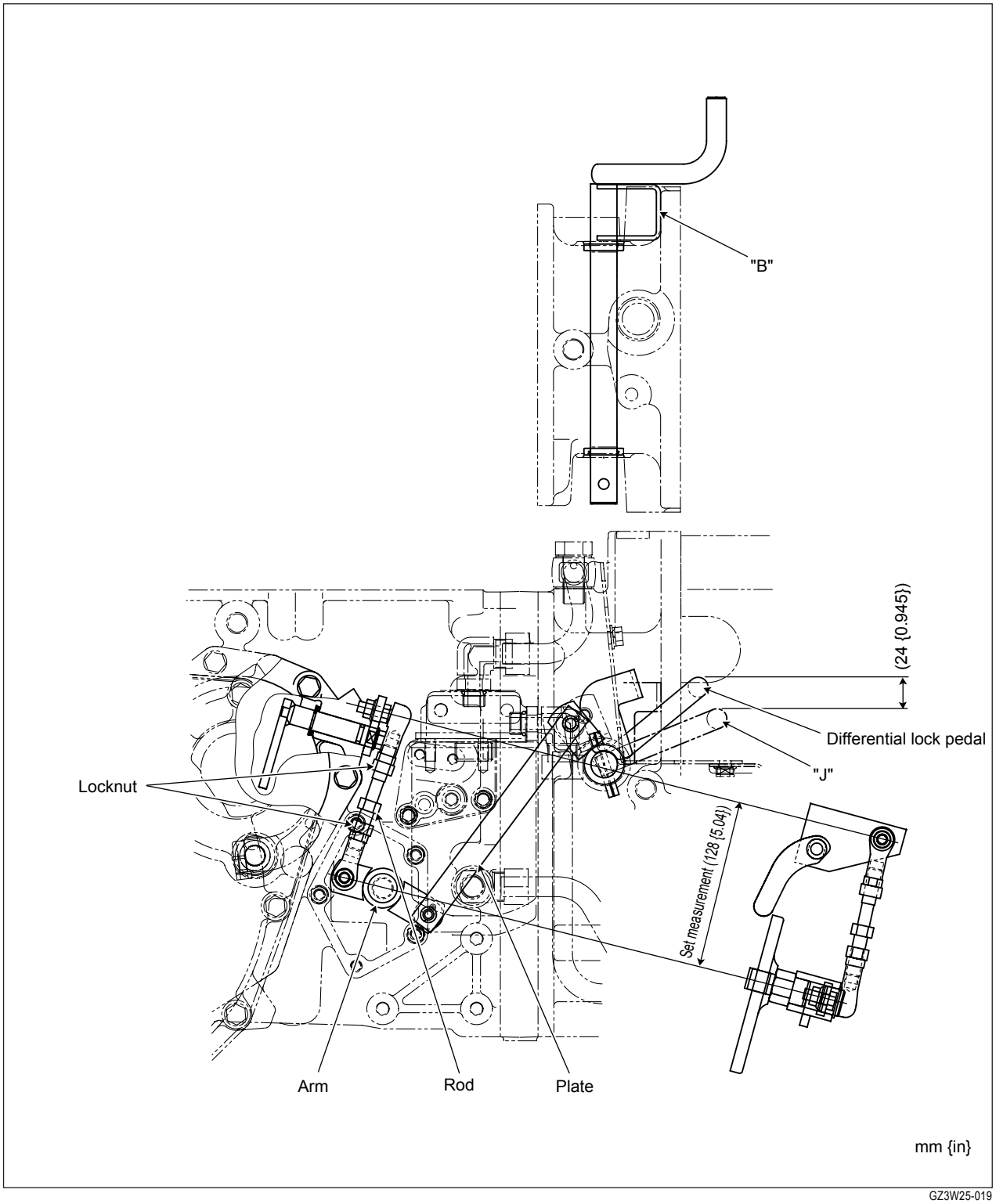
1. Assembly of Brake
   1) Assemble the brake disc to the axle case.
   2) Assemble the differential shaft.
   3) Operate the brake lever to confirm the cam plate is functioning.

   Reference) Wet type disc brake may make brake noise depending on the type of gear oil. Supply genuine oil or the transmission oil.
2. Apply liquid packing (Threebond #1208D) to the matching face of rear axle case and assemble.

6 Assembly of Differential Lock Pedal

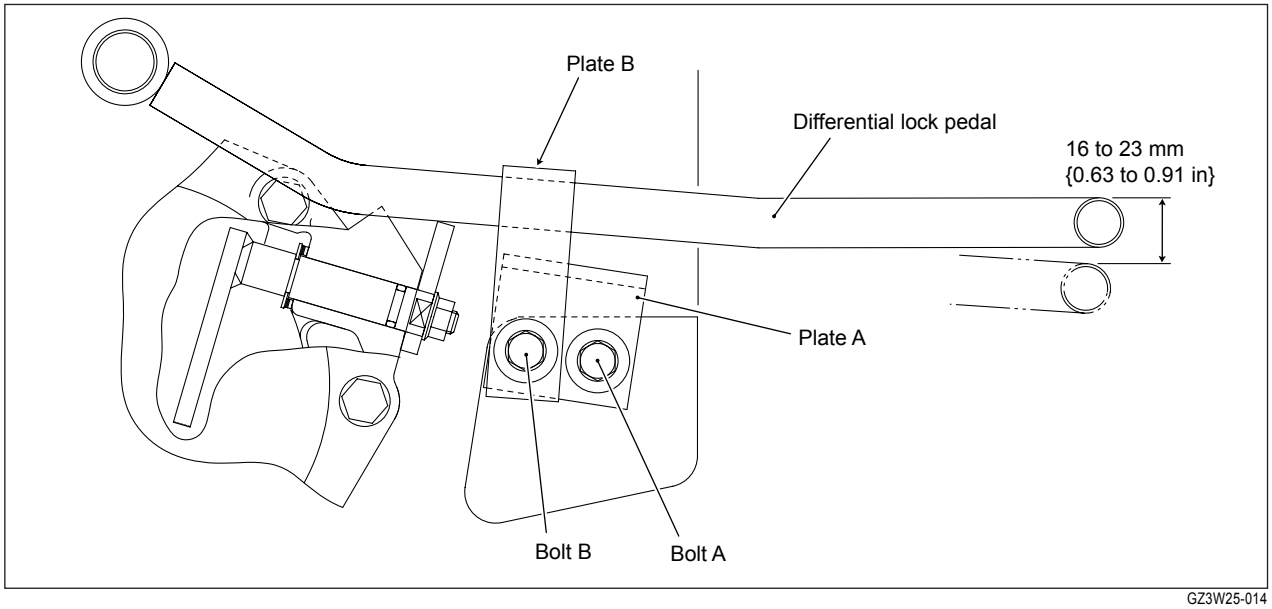
1. Adjustment of Differential Lock Pedal (HST Specification)
   1) Press "J" at the differential lock pedal.
   2) Turn the rod and touch "B" to the center case.

3) Turn the rod back 1/2 turn and fix with locknut.



GZ3W25-019

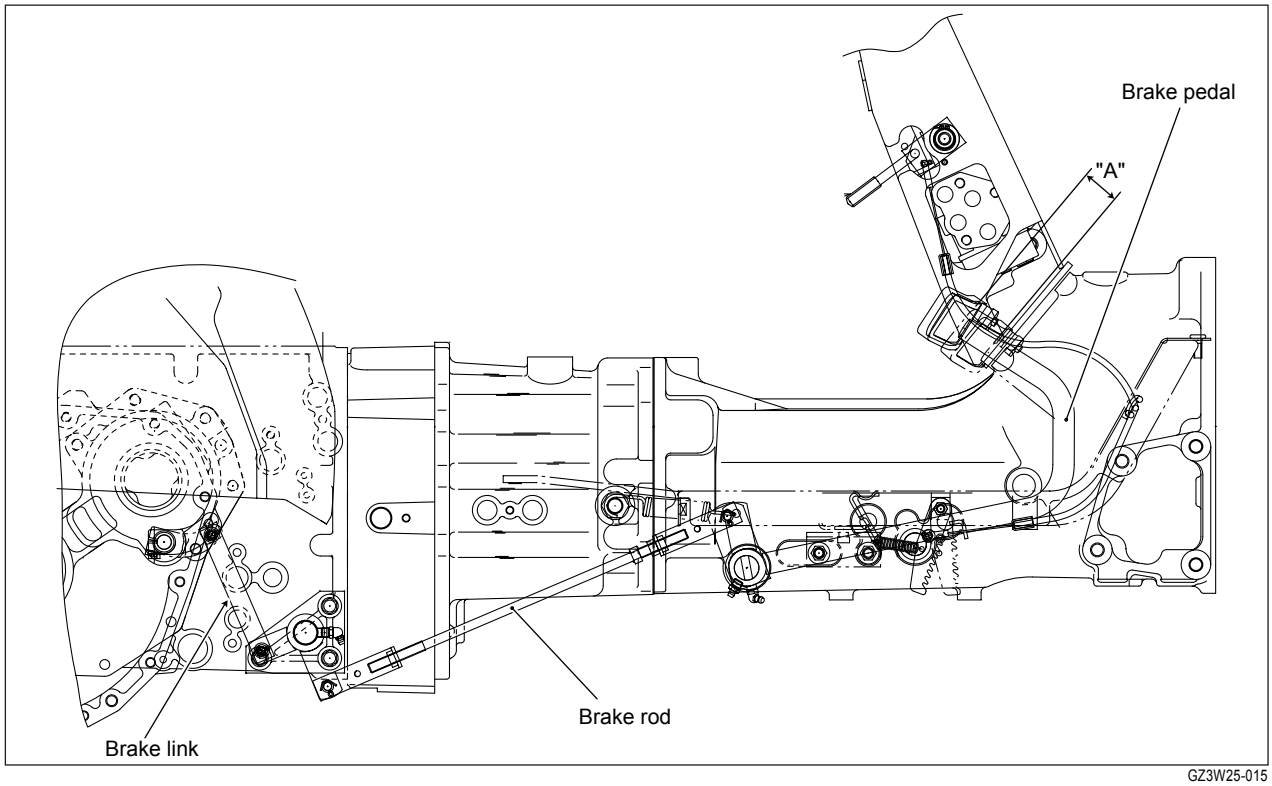
2. Adjustment of Differential Lock Pedal (7530-Gear drive)
   1) Step on the pedal and touch the pedal to the plate "A". Tighten the bolt "A".
   2) Release the pedal and touch to the plate "B". Tighten the bolt "B".
   3) Make sure ON and OFF for the differential lock.



GZ3W25-014

7 Assembly of Brake Pedal

1. Adjust the free play "A" for the brake pedal to be within 35 to 45mm {1.38 to 1.77in} with joint of the brake rod on both sides. Also, the difference of pedal for each side shall be within 3.0mm {0.12in} to prevent the one-side effect of the brake when locked together.
2. Apply chassis grease to the rotating part of brake link.
3. Make sure that the parking brake lever smoothly returns to the stopper position when releasing the lock by stepping on the brake pedal.



GZ3W25-015

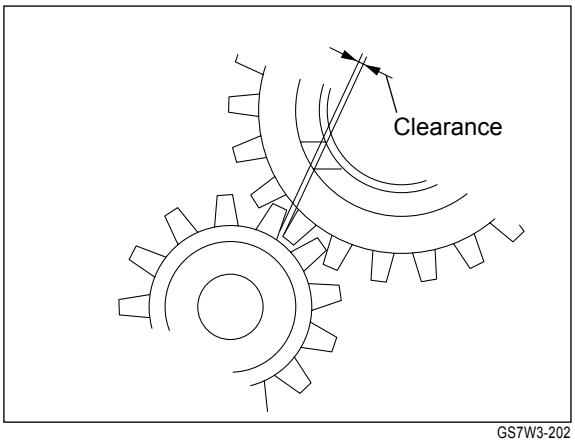
6.6 Inspection and Adjustment of Rear Axle and Brake

1 Backlash

1. Inspect the backlash and lateral clearance of differential case assembly and adjust the ones exceeding the referential value.

(Unit: mm {in})

Item	Referential Value
Backlash for pinion gear and side gear	0.25 to 0.35 {0.01 to 0.014}
Backlash for pinion shaft and differential ring gear	0.10 to 0.30 {0.004 to 0.012}
Lateral clearance for differential assembly	0 to 0.10 {0 to 0.004}
Clearance bet. axle case and shifter	0.20 to 0.60 {0.008 to 0.024}
Endplay for rear axle shaft and case	0.15 to 0.35 {0.006 to 0.014}



GS7W3-202

2. Inspect the backlash of gear for differential shaft and final gear and replace the ones exceeding the usable limit.

(Unit: mm {in})

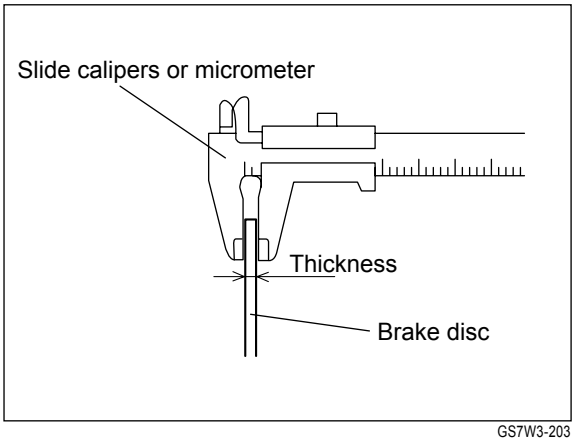
Item	Referential Value	Usable Limit
Backlash for differential shaft and final gear	0.10 to 0.30 {0.004 to 0.012}	0.50 {0.020}

2 Brake Disc

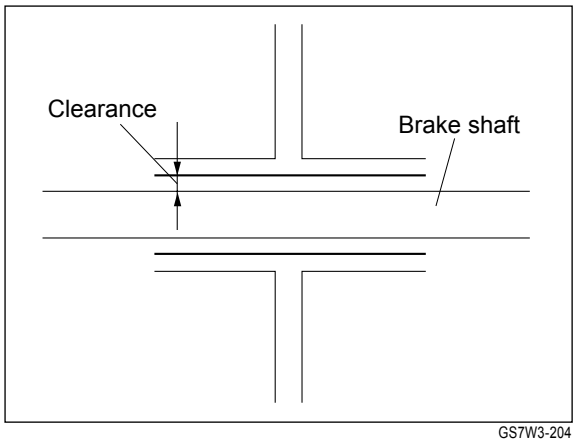
Inspect the brake disc for wear and replace the ones exceeding the usable limit.

(Unit: mm {in})

Item	Referential Value	Usable Limit
Thickness of Brake Disc	2.8 {0.110}	2.2 {0.087}



GS7W3-203



GS7W3-204

6.6.1 Brake Pedal

Inspect the clearance between bush inside diameter for the right brake pedal and brake shaft and replace the bush exceeding the usable limit.

(Unit: mm {in})

Item	Referential Value	Usable Limit
Clearance bet. bush and shaft	0.04 to 0.12 {0.0016 to 0.005}	0.5 {0.02}

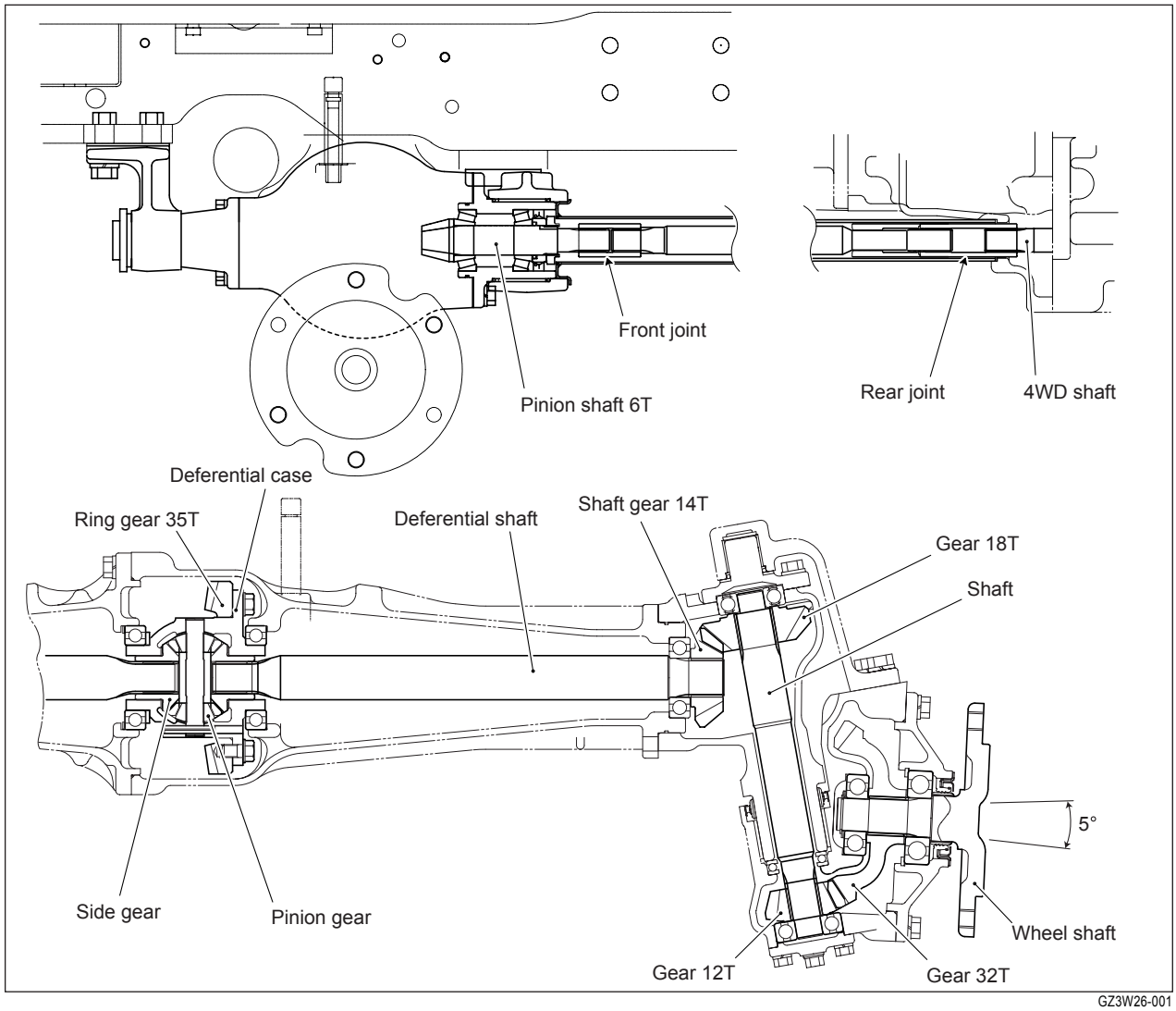
7 Front Axle

7.1 Structure and Specification of Front Axle

- Center pivot reverse Elliot type is applied to the front axle.
- Bevel type is applied to the front axle with the smaller turning radius at cutting angle interior: 60°, external: 54°, and caster 3°.

(Unit: mm {in})

Model		7530	7532
Tread (front wheel) (mm)		1070 {42.13}	
Ground clearance (mm)		337 {13.3}	364 {14.3}
Swing angle		5°	
Steering Angle	Interior angle	60° $^{0}_{-2}$°	
	External angle	54° $^{0}_{-2}$°	
Kingpin angle		10°	
Camber		2.5°	
Caster		3°	
Toe in		0 - 10	



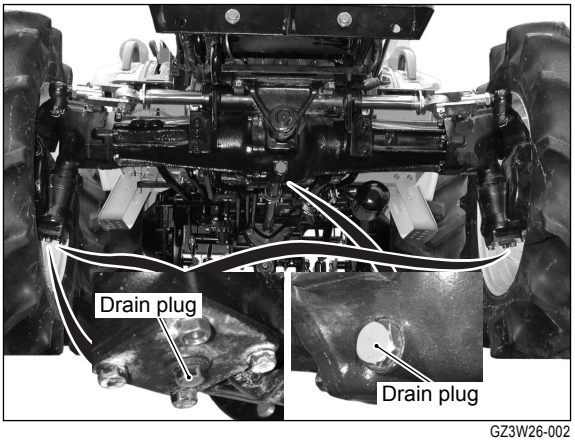
GZ3W26-001

7.2 Removal and Disassembly of Front Axle

7.2.1 Removal of Front Axle Assembly

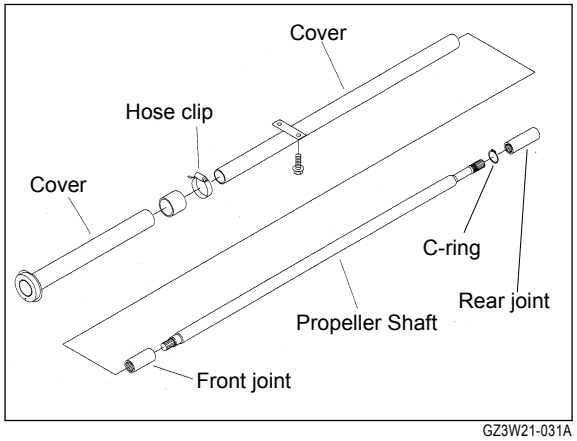
Follow the following procedure for removal of front axle assembly.

1. Drain the front axle oil.



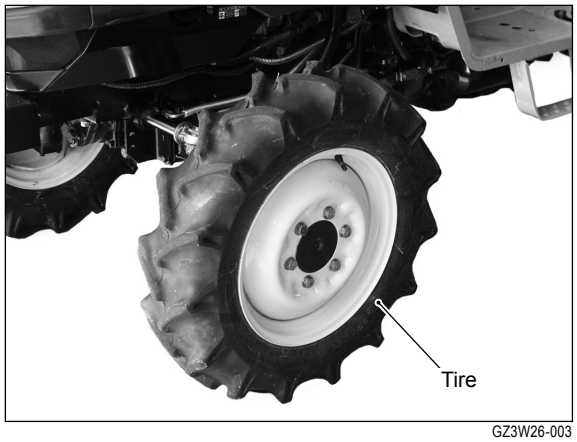
GZ3W26-002

2. Remove the propeller shaft.

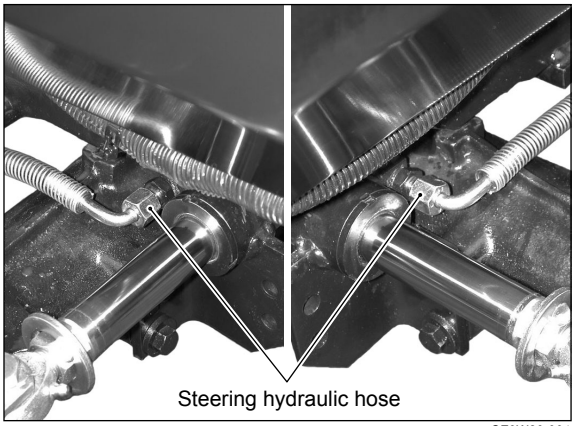


GZ3W21-031A

3. Remove the tires.

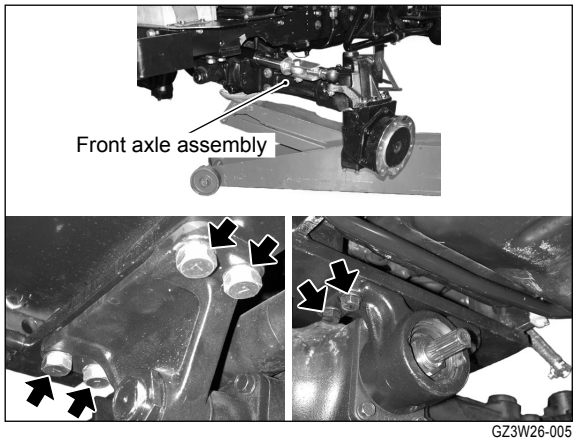


GZ3W26-003



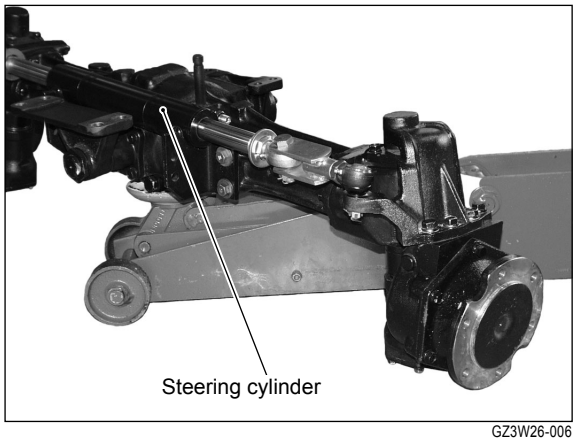
GZ3W26-004

4. Remove the power steering hydraulic hose.



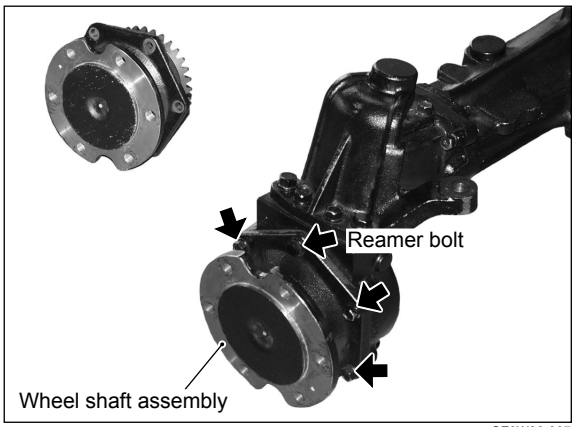
GZ3W26-005

5. Remove the front axle assembly.



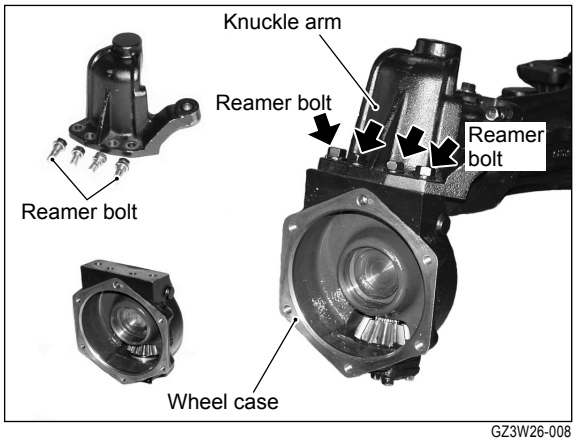
GZ3W26-006

6. Remove the steering cylinder.



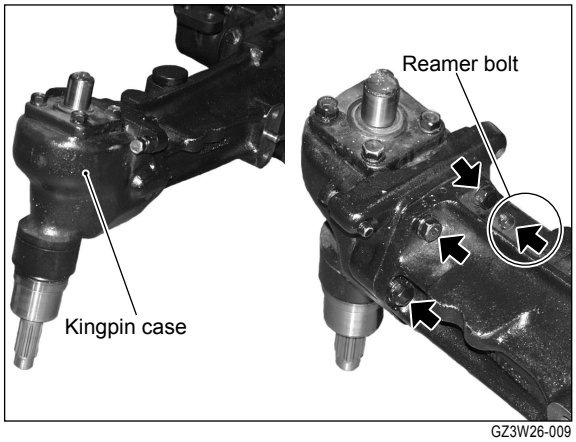
GZ3W26-007

7. Remove the wheel shaft assembly.



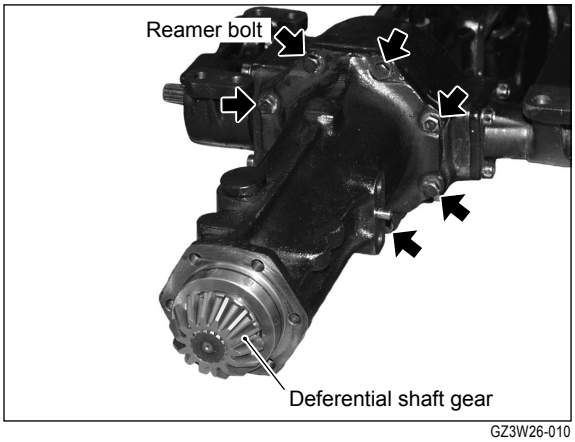
GZ3W26-008

8. Remove the knuckle arm and final case.



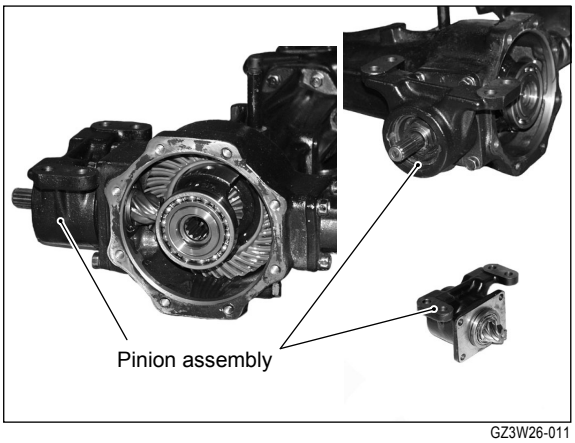
GZ3W26-009

9. Remove the kingpin case.



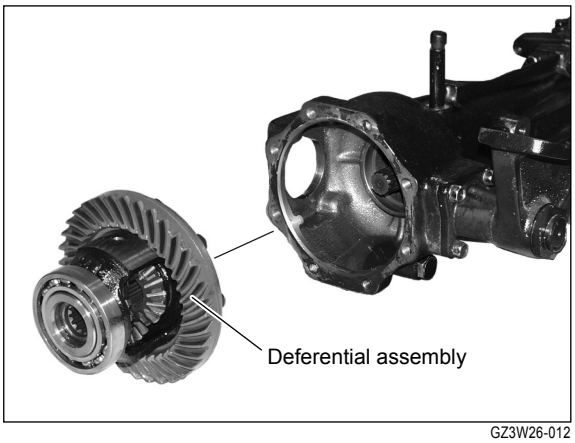
GZ3W26-010

10. Remove the axle housing.



GZ3W26-011

11. Remove the pinion assembly.



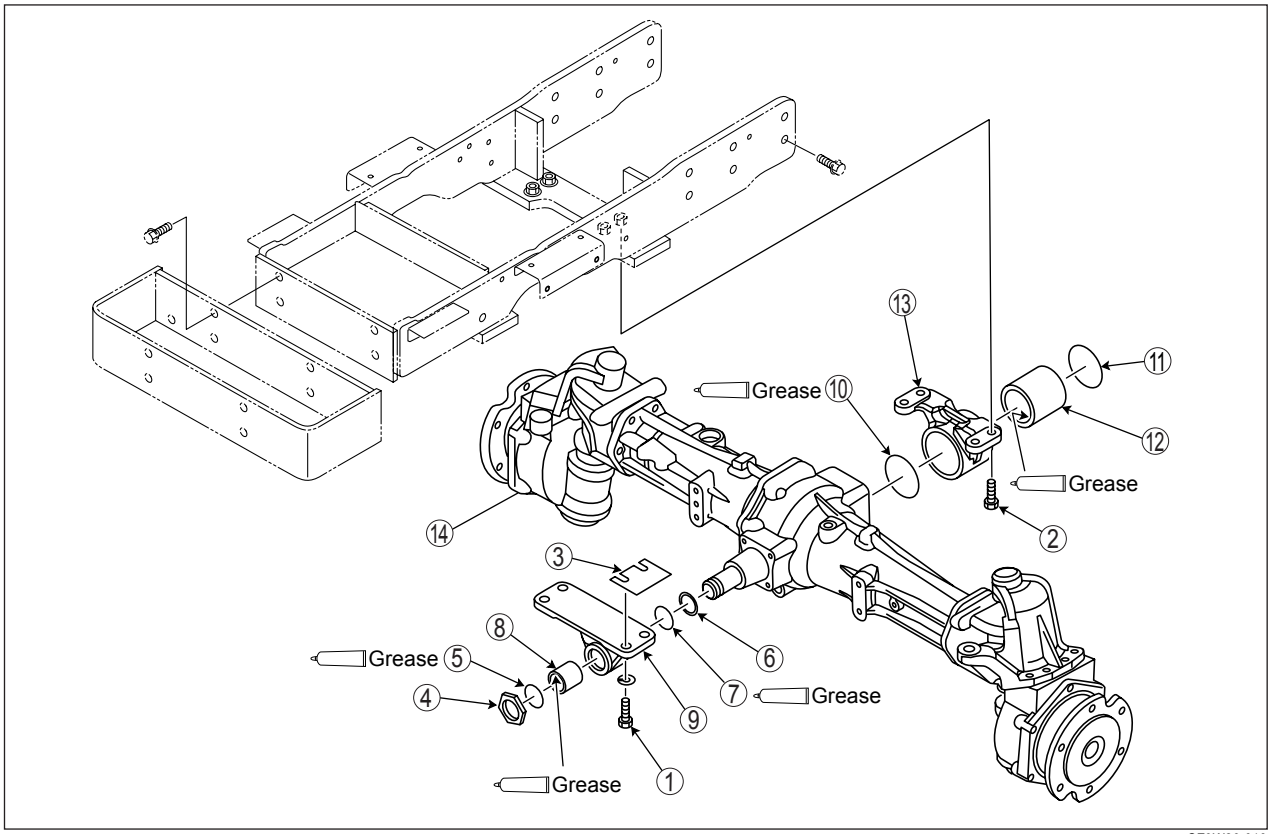
GZ3W26-012

12. Remove the deferential assembly.

7.2.2 Disassembly of Front Axle Assembly

Follow the following procedure to disassemble the front axle unit by unit.

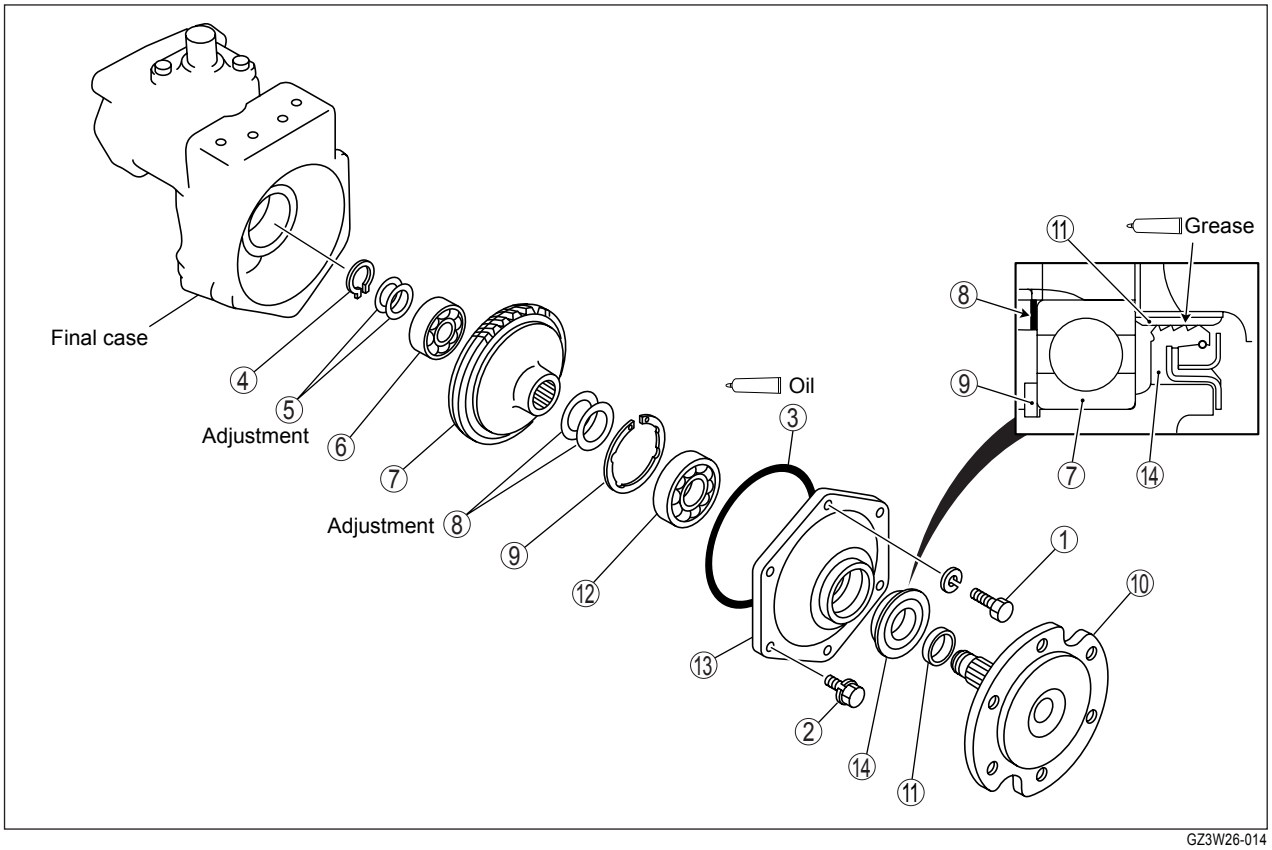
1. Disassemble the front bracket and rear bracket.



GZ3W26-013

1	Bolt	2	Bolt
3	Shim K	4	Nut
5	O-ring	6	Liner
7	O-ring	8	Bush
9	Front Bracket	10	O-ring
11	O-ring	12	Bush
13	Rear Bracket	14	Front Axle Assembly

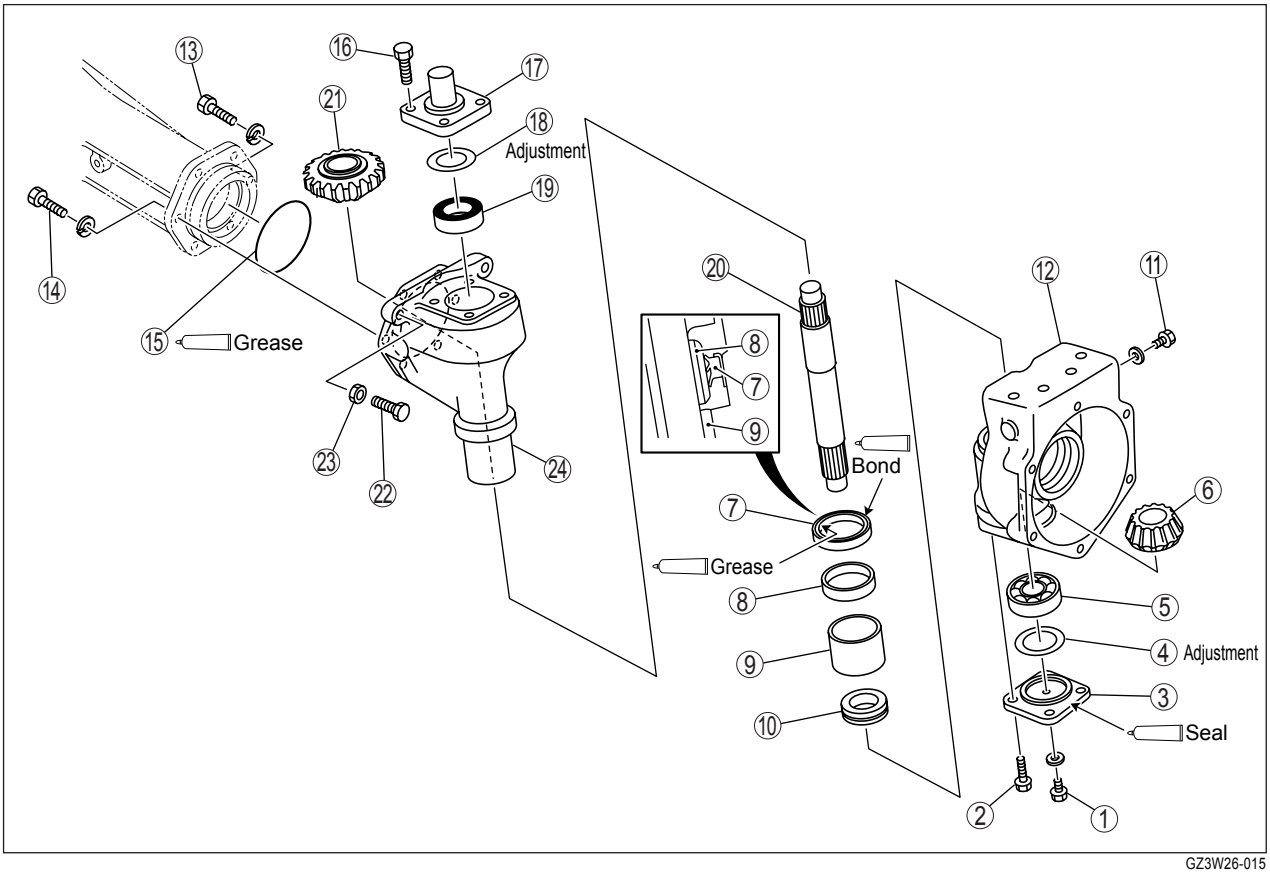
2. Disassemble the wheel shaft.



GZ3W26-014

1	Reamer Bolt	2	Bolt
3	O-ring	4	C-ring
5	Liner E	6	Bearing
7	Gear 32T	8	Liner D
9	C-ring	10	Wheel Shaft
11	SI Sleeve	12	Bearing
13	Cover	14	Oil Seal

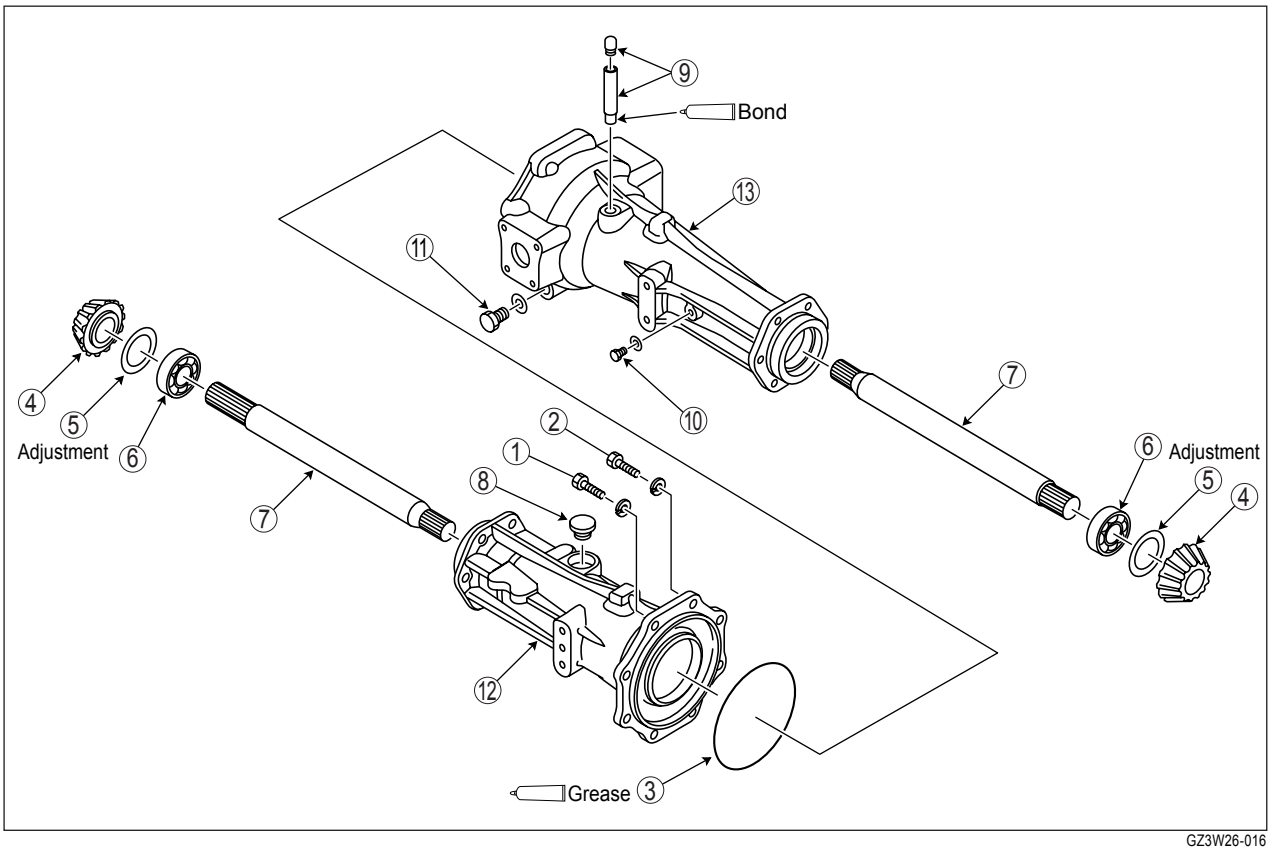
3. Disassemble the kingpin case and final case.



GZ3W26-015

1	Drain Plug	2	Bolt
3	Cover	4	Liner G
5	Bearing	6	Gear 12T
7	Oil Seal	8	SI Sleeve
9	Bush	10	Thrust Bearing
11	Plug	12	Final Case
13	Reamer Bolt	14	Bolt
15	O-ring	16	Bolt
17	Holder	18	Liner G
19	Bearing	20	Shaft
21	Gear 18T	22	Stopper Bolt
23	Nut	24	Kingpin Case

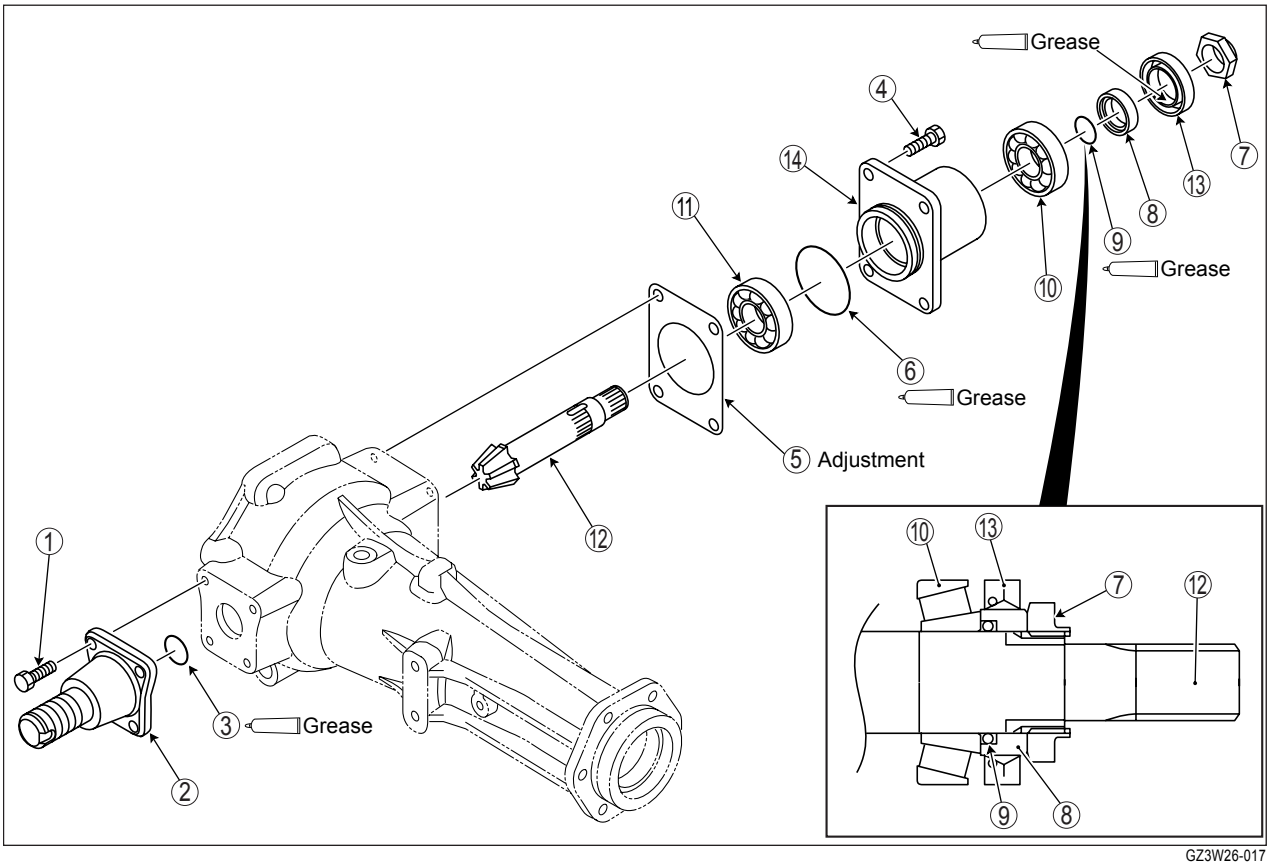
4. Disassemble the axle housing and center case.



GZ3W26-016

1	Reamer Bolt	2	Bolt
3	O-ring	4	Gear 14T
5	Liner C	6	Bearing
7	Deferential Shaft	8	Cap
9	Breather Pipe	10	Cap
11	Cap	12	Axle Housing
13	Center case		

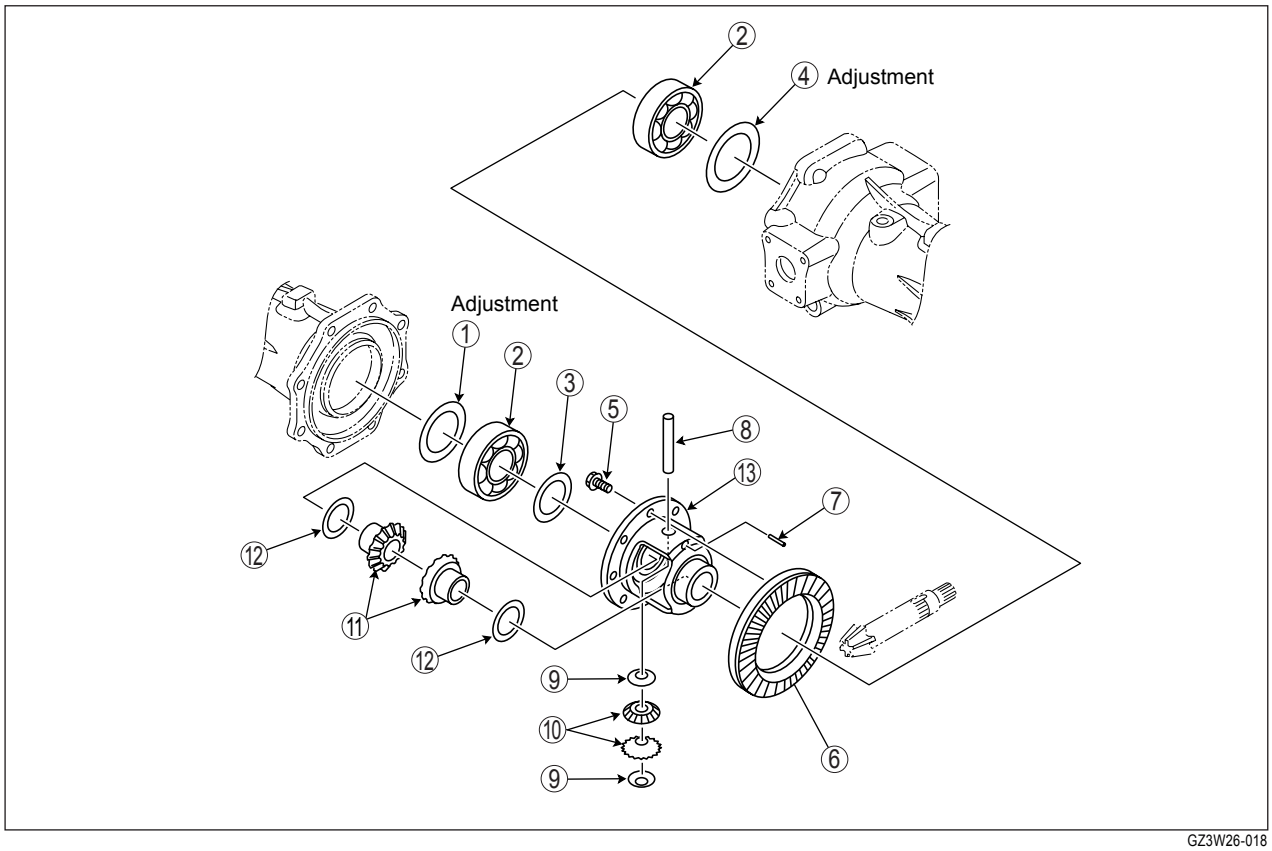
5. Disassemble the pinion assembly.



GZ3W26-017

1	Bolt	2	Bracket Holder
3	O-ring	4	Bolt
5	Shim D	6	O-ring
7	Nut	8	Bush
9	O-ring	10	Bearing
11	Bearing	12	Pinion Shaft
13	Oil Seal	14	Case

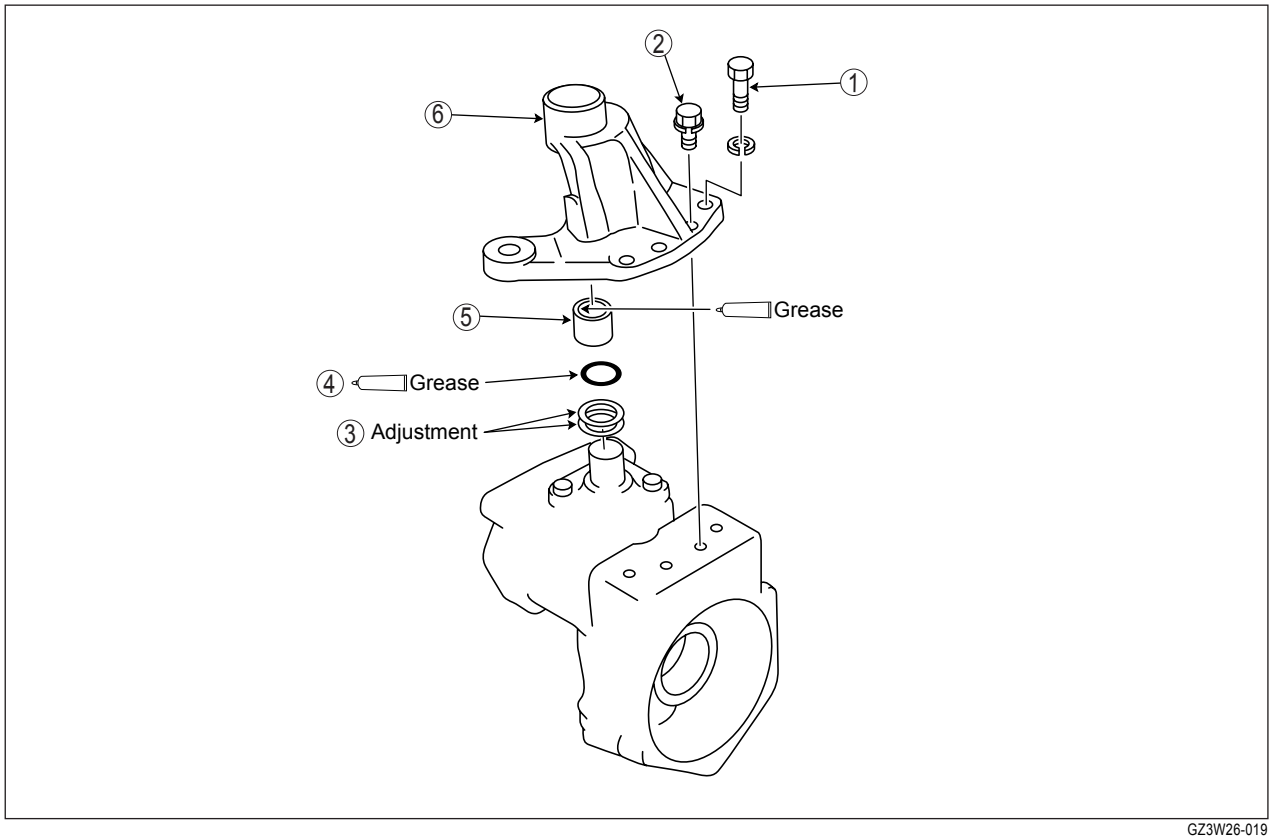
6. Disassemble the deferential assembly.



GZ3W26-018

1	Liner A	2	Bearing
3	Liner	4	Liner B
5	Bolt	6	Ring Gear
7	Spring Pin	8	Shaft
9	Washer	10	Pinion
11	Side Gear	12	Washer
13	Deferential Case		

7. Disassemble the knuckle arm.

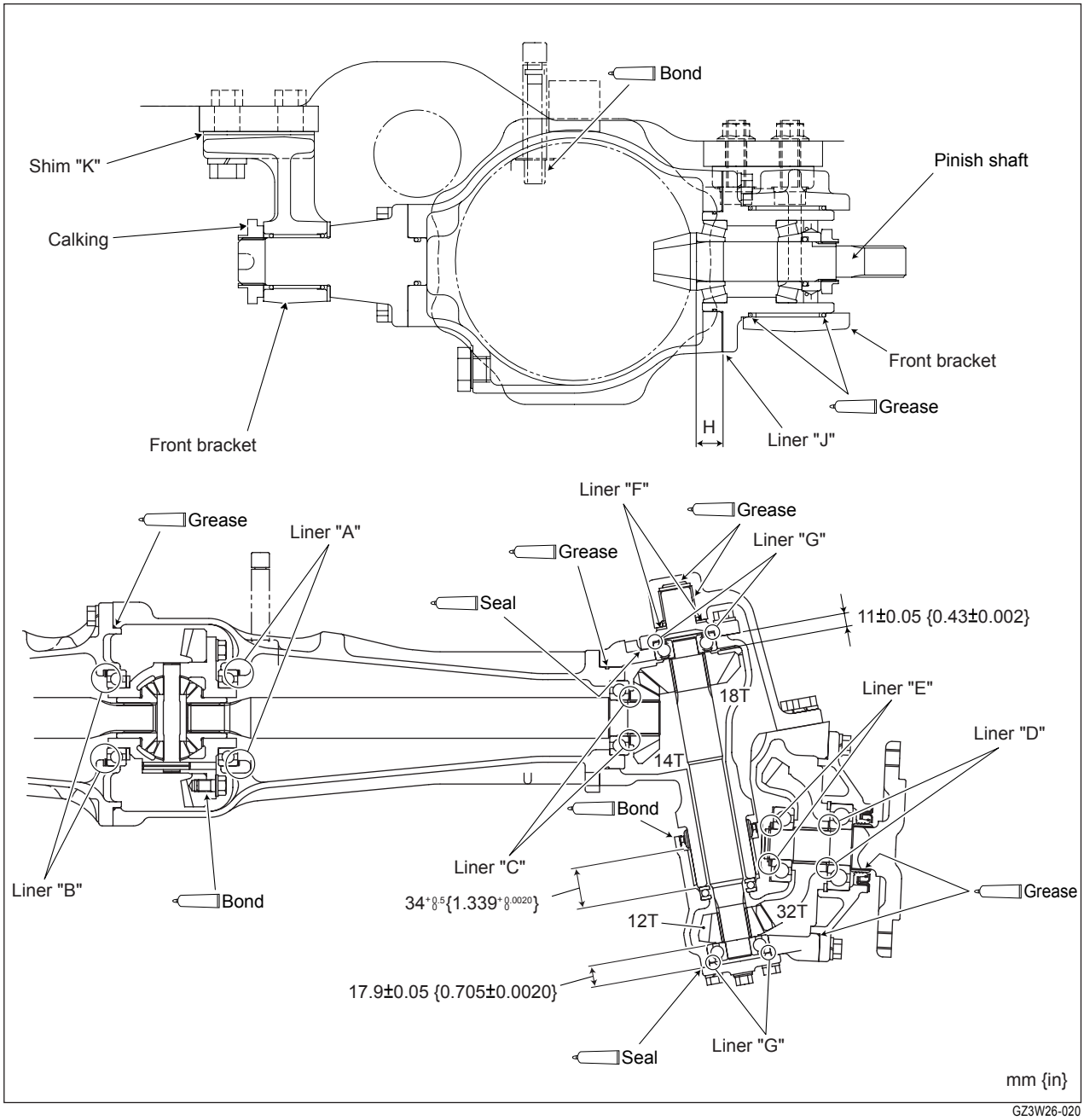


GZ3W26-019

1	Reamer Bolt	2	Bolt
3	Liner F	4	O-ring
5	Bush	6	Knuckle Arm

7.3 Assembly and Installation of Front Axle

Follow the procedure for removal and disassembly in the reverse order for assembly and installation of front axle.

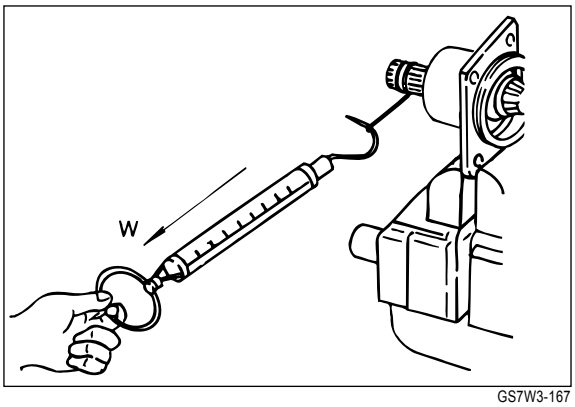


7.3.1 Assembly of Front Axle Assembly

1 Apply lithium grease to the bush of the front and rear brackets for assembly.

2 Screw and crimp the nut in the condition which the front bracket is set with slight backlash, none excessive.

3 Apply adhesives equivalent to Alteco CN4 to the breather pipe and press it.



GS7W3-167

4 Assembly of Pinion Shaft

1. Adjust the preload for pinion shaft within 0.39 to 0.59N•m {4 to 6kgf•cm, 28.9 to 43.4lbf•ft} (at oil seal assembling) by tightening the nut.
   Crimp the nut after adjustment.

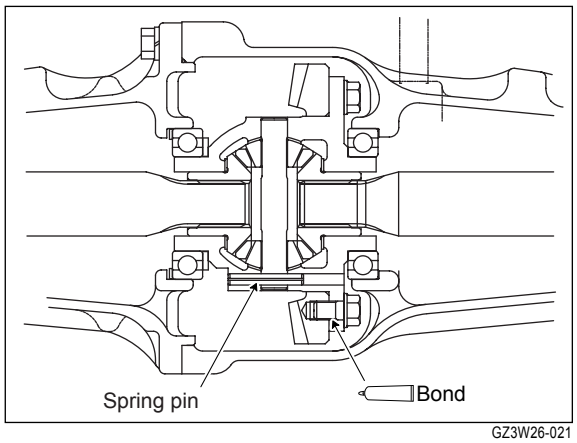
⚠ CAUTION

As an easier method for measuring the preload, after temporarily tightening the nut, wind the shaft of pinion shaft with rope and pull with spring balance. (F = 39.2 - 58.8N {4.0 to 6.0kgf, 8.8 - 13.2lbf})

2. Measure the H measurement and adjust to have H - 16mm {0.63in} = Liner Thickness with the liner "J".
3. Placing direction of the oil seal for pinion shaft shall be as shown in the figure. (Spring stays inside.)

(Unit: mm {in})

Item	Thickness	Usable Limit
Liner "J"	0.10 {0.004}	1023 2136 001
	0.20 {0.008}	1023 2137 001
	0.40 {0.016}	1023 2138 001



GZ3W26-021

5 Assembly of Deferential Case Assembly

1. Make sure the backlash for the pinion gear and side gear is within 0.10 to 0.30mm {0.004 to 0.012in}.
2. Apply adhesives equivalent to Threebond #1374 to the locking bolt for the ring gear and tighten with torque at 68.6 to 78.5N•m {7 to 8kgf•cm, 50.6 to 57.9lbf•ft}.
3. Place the spring pin with the slit toward as shown in the figure. (Vertical to the shaft)
4. Apply lubricant (MOS_2) to the gears and assemble it.

6 Installation of Deferential Case Assembly

1. Adjust the backlash for pinion shaft and deferential ring gear to be within 0.25 to 0.35mm {0.01 to 0.014in} with the liner "A".
2. After adjusting the backlash, adjust the lateral backlash for deferential case assembly to be within 0 to 0.10mm {0 to 0.004in} with the liner "B".

(Unit: mm {in})

Item	Thickness	Usable Limit
Liner "A" and "B"	0.10 {0.004}	1007 0618 000
	0.20 {0.008}	1007 0618 100
	0.40 {0.016}	1007 0618 200

7 Assembly of Kingpin

1. Adjust the kingpin shaft to have the measurement as shown, top "G": 11.0 ± 0.05mm {0.433 ± 0.0020in} and bottom "G": 17.9 ± 0.05mm {0.705 ± 0.0020in}, with the liner "G".

(Unit: mm {in})

Item	Thickness	Usable Limit
Liner "G"	0.15 {0.006}	0730 0005 201
	0.20 {0.008}	0730 0005 202
	0.30 {0.012}	0730 0005 203

2. Assemble with caution not to turn over the lip of the oil seal.
3. Adjust the backlash for deferential shaft bevel gear 14T and kingpin bevel gear 18T (top) to be within 0.20 to 0.40mm {0.008 to 0.016in} with the liner "C".

(Unit: mm {in})

Item	Thickness	Usable Limit
Liner "C"	0.075 {0.003}	67700 30300
	0.40 {0.016}	0731 0003 004
	0.80 {0.031}	0731 0003 008
	1.00 {0.039}	0731 0003 010
	1.20 {0.047}	0731 0003 012

8 Assembly of Axle Shaft

1. Adjust the backlash for axle shaft bevel gear 32T and kingpin shaft bevel gear 12T (bottom) to be within 0.20 to 0.40mm {0.008 to 0.016in} with the liner "D".

(Unit: mm {in})

Item	Thickness	Usable Limit
Liner "D"	0.15 {0.006}	0731 0003 001
	0.40 {0.016}	0731 0003 004
	0.80 {0.031}	0731 0003 008
	1.00 {0.039}	0731 0003 010
	1.20 {0.047}	0731 0003 012

2. Adjust the lateral clearance "E" for axle shaft to be within 0 to 0.20mm {0 to 0.008in} with the liner "E".
3. Apply liquid packing (Threebond #1208D) to the holder and cover. Wrap the mounting bolt with seal tape and tighten.

(Unit: mm {in})

Item	Thickness	Usable Limit
Liner "E"	0.10 {0.004}	1135 3016 000
	0.40 {0.016}	0731 0002 504
	0.80 {0.031}	0731 0002 508
	1.00 {0.039}	0731 0002 510
	1.20 {0.047}	0731 0002 512

9 Assembly of Knuckle Arm

1. Adjust the clearance "F" between the knuckle arm and holder to be within 0.05 to 0.20mm {0.002 to 0.008in} with the thrust liner "F".
2. Apply lithium grease to the bush for the knuckle arm.

(Unit: mm {in})

Item	Thickness	Usable Limit
Thrust Liner "F"	0.80 {0.031}	1438 1319 600
	1.00 {0.039}	1438 1319 500
	1.20 {0.047}	1438 1319 400
	1.40 {0.055}	1438 1319 300

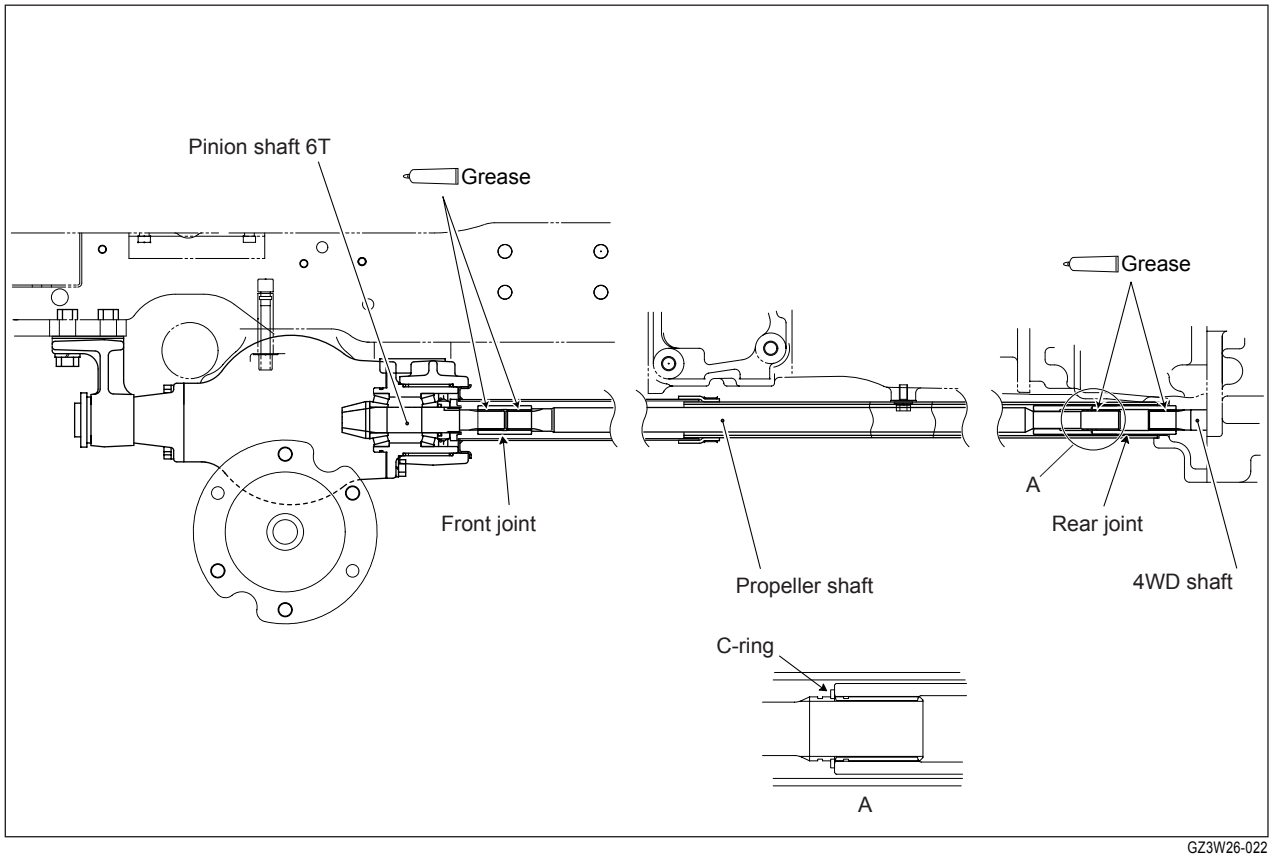
7.3.2 Installation of Front Axle Assembly

1 Assemble the front axle assembly to the chassis.

1. Make sure that the propeller shaft and spline boss for joint smoothly slides.
2. After assembling, adjust the toe in to 0 to 10.0mm {0 to 0.39in} and steering angle (external angle) to 54°. (Set the length of cutting angle adjusting bolt to 20.0mm {0.787in}.)

   Reference) Refer to the Section 8 - 3 Assembly and Installation of Steering for toe in adjustment.
3. After removing the bleeder plug on both left/right sides and supplying oil, install the bleeder plug.
4. Supply the front axle oil.
   Gear Oil SAE #80, 4.0L {1.1gal}

2 Assembly of Propeller Shaft



GZ3W26-022

1. In case the spline boss for joint does not slide smoothly, adjust with the shim "K".

(Unit: mm {in})

Item	Thickness	Usable Limit
Shim "K"	0.40 {0.016}	1030 2141 001
	1.00 {0.039}	1030 2142 001
	3.20 {0.13}	1030 2143 001

2. Apply lithium grease to the spline and assemble shafts.
3. Select the position (gap) where the backlash of the joint becomes minimum for C-ring at joint and assemble it.

7.4 Inspection and Adjustment of Front Axle

7.4.1 Backlash

1. Inspect the backlash for pinion gear and lateral clearance of deferential case and change or adjust the ones exceeding the referential value.

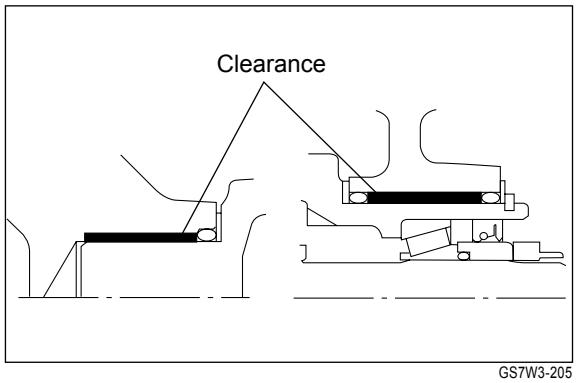
(Unit: mm {in})

Item	Referential Value
Backlash for pinion gear and side gear	0.10 to 0.30 {0.004 to 0.012}
Lateral clearance of deferential case	0 to 0.10 {0 to 0.004}
Backlash for pinion shaft and deferential ring gear	0.25 to 0.35 {0.01 to 0.014}

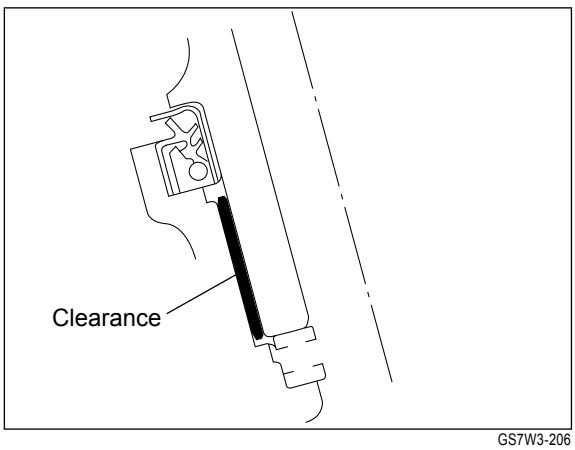
2. Inspect the backlash for bevel gear and adjust the ones exceeding the referential value.

(Unit: mm {in})

Item	Referential Value
Backlash for deferential shaft bevel gear 14T and kingpin shaft bevel gear (top) 18T	0.20 to 0.40 {0.008 to 0.016}
Backlash for axle shaft bevel gear 32T and kingpin shaft bevel gear (bottom) 12T	0.20 to 0.40 {0.008 to 0.016}



GS7W3-205



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7.4.2 Clearance of Bush

1. Inspect the clearance of the bush for front and rear bracket and change the ones exceeding the usable limit.

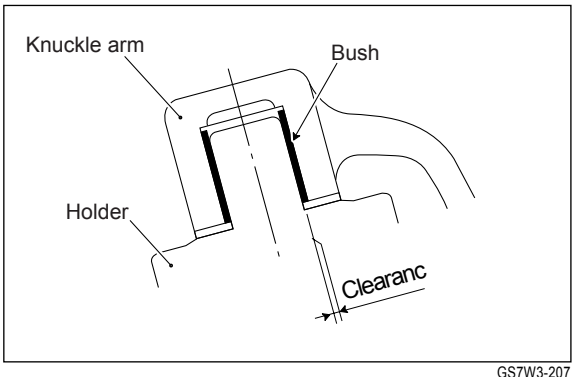
(Unit: mm {in})

Item	Referential Value	Usable Limit
Clearance bet. holder and front bracket	0.03 to 0.065 {0.0012 to 0.0026}	0.20 {0.008}
Clearance bet. holder and bush for rear bracket	0.03 to 0.08 {0.0012 to 0.003}	0.20 {0.008}

2. Inspect the clearance of the bush for final case and change the ones exceeding the usable limit.

(Unit: mm {in})

Item	Referential Value	Usable Limit
Clearance bet. kingpin case and bush	0.03 to 0.08 {0.0012 to 0.003}	0.20 {0.008}



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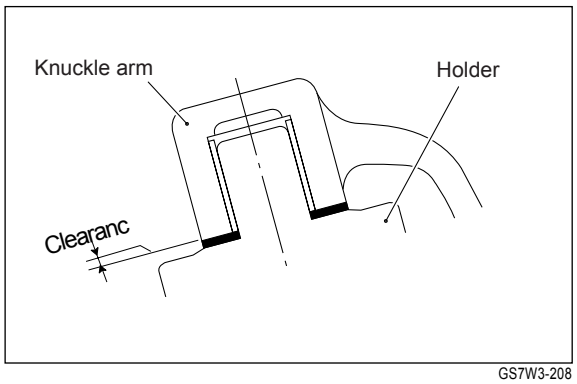
3. Clearance between the holder for knuckle arm and bush
   Inspect the clearance between the holder and bush and change the bush exceeding the usable limit.

(Unit: mm {in})

Item	Referential Value	Usable Limit
Clearance bet. holder and bush	0.03 to 0.06 {0.0012 to 0.002}	0.20 {0.008}



GS7W3-208

4. Clearance between the holder and knuckle arm
   Inspect the clearance of the holder and knuckle arm and change the liner exceeding the usable limit.

(Unit: mm {in})

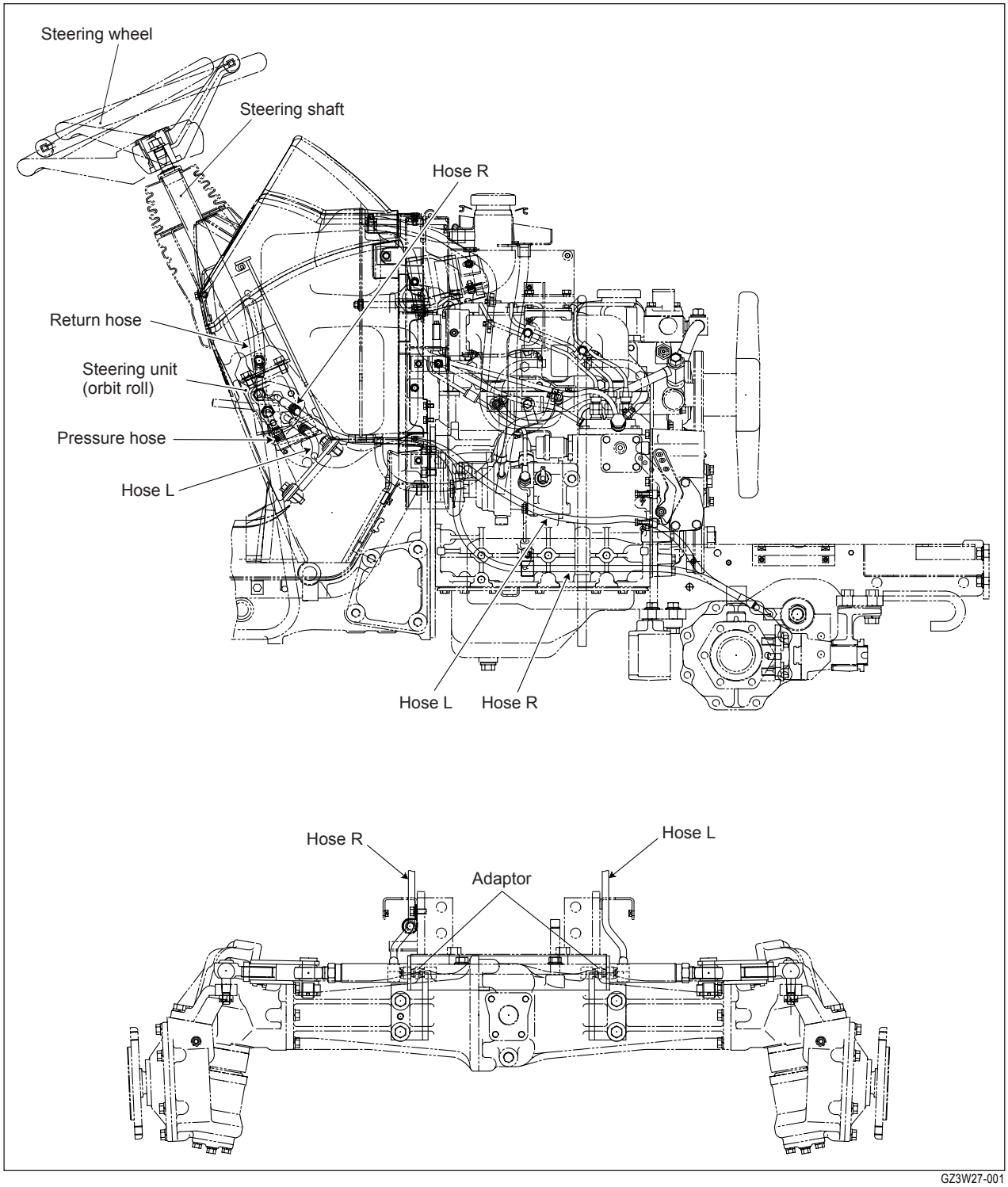
Item	Referential Value
Clearance bet. holder and knuckle arm	0.05 to 0.20 {0.002 to 0.008}

8 Steering

8.1 Structure of Steering

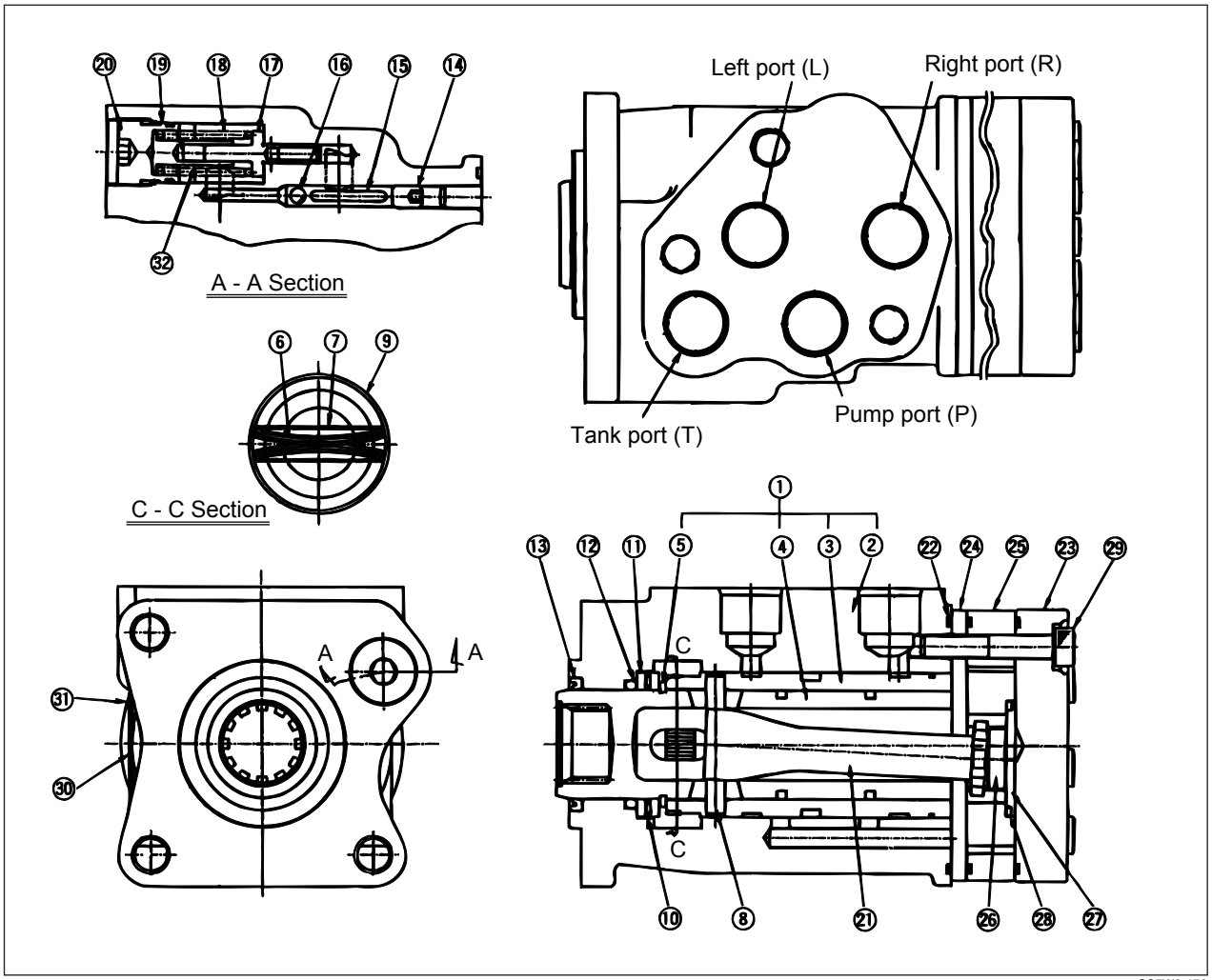
8.1.1 Structure

- Full hydraulic system is applied for power steering. This power steering is provided with an orbit roll type hydraulic steering unit in the steering system.
- This system reduces the steering effort of operator by guiding the forced feed oil from the pump to the unit and sending to the double-acting hydraulic cylinder while controlling.



GZ3W27-001

8.1.2 Steering Unit

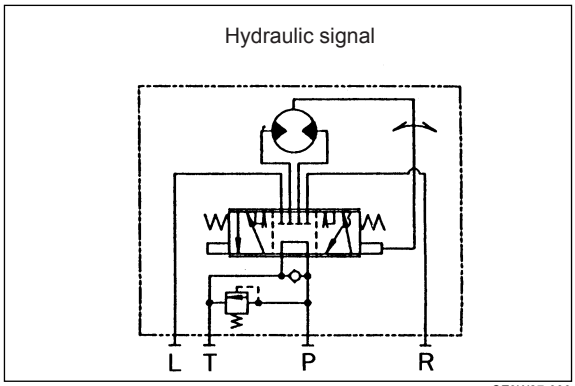


GS7W3-176

1	Control Parts Assembly	2	Housing
3	Sleeve	4	Spool
5	Retaining Ring	6	Centering Spring
7	Flat Spring	8	Pin
9	Spring Retaining Ring	10	Thrust Needle Bearing
11	Bearing Race	12	Oil Seal
13	Dust Seal	14	Retainer Screw Assembly
15	Retainer Pin	16	Ball
17	Relief Poppet	18	Spring
19	O-ring	20	Relief Adjust Plug
21	Drive	22	O-ring
23	End Cap	24	Spacer Plate
25	Gerotor	26	Spacer
27	Plate	28	O-ring
29	Cap Screw	30	Nameplate
31	Rivet	32	Damper Collar

8.1.3 Specification

Valve System	Open Center
Load Effect	Non-load reaction
Model	RU051B120F6A (Sumitomo)
Mix. Temperature	95° (oil temperature)
Preset Pressure	10.3MPa (105kgf/cm^2, 1493psi)
Rated Flow	8L/min {2.1gal/min}



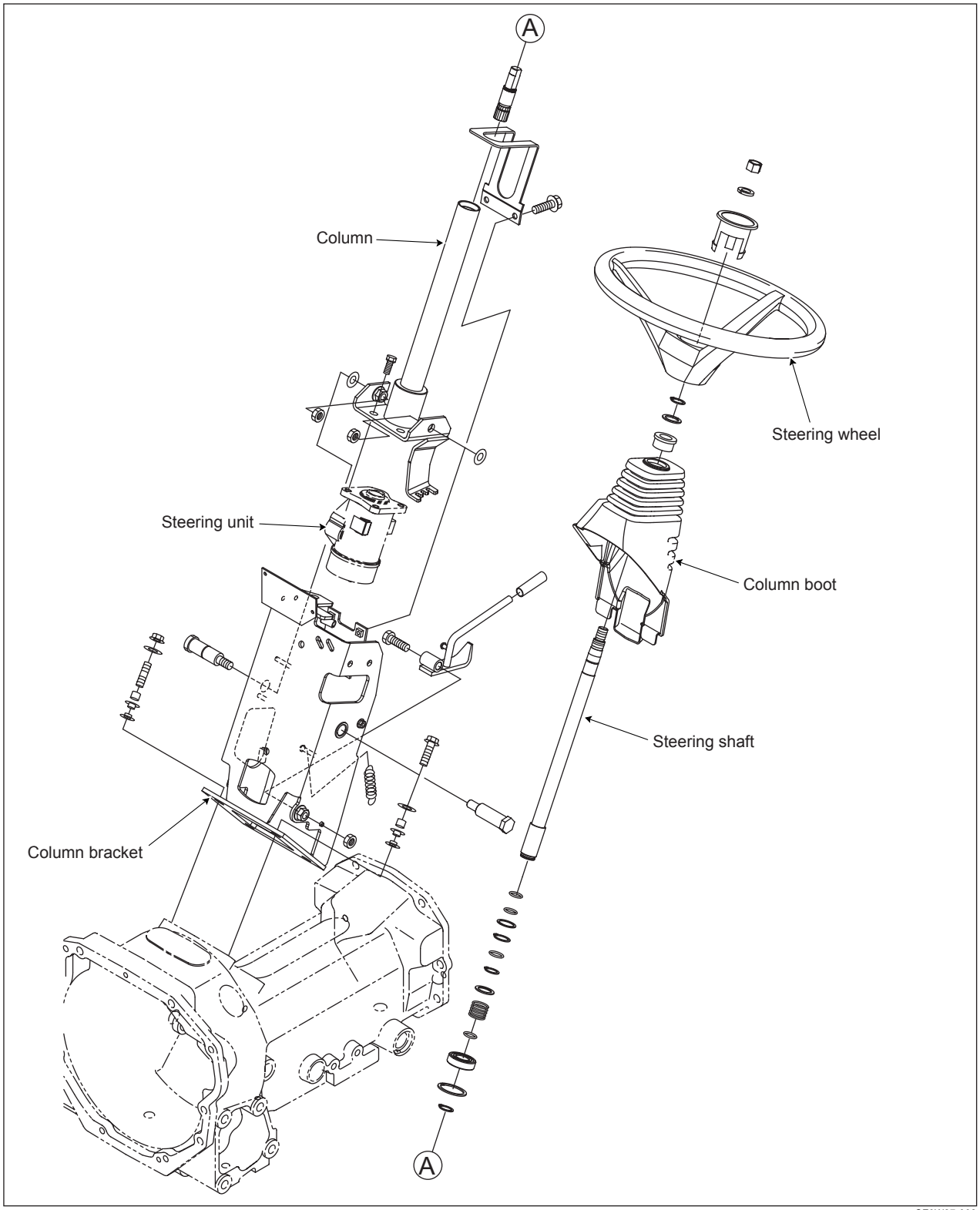
GZ3W27-009

8.2 Removal and Disassembly of Steering

8.2.1 Removal of Steering

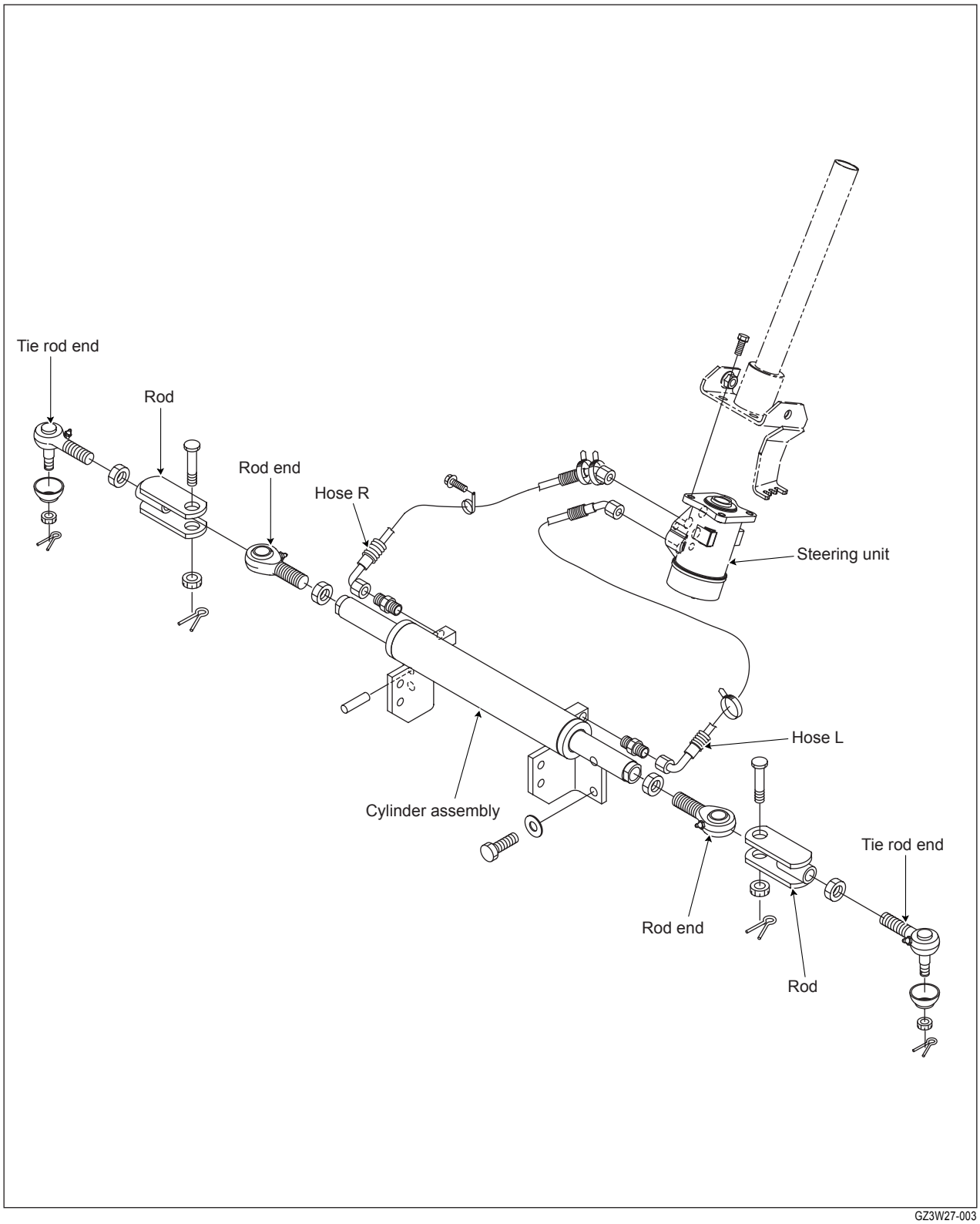
Follow below for disassembly referring to Installation and Removal of Engine Parts for Chassis.

1. Disassemble the steering wheel.

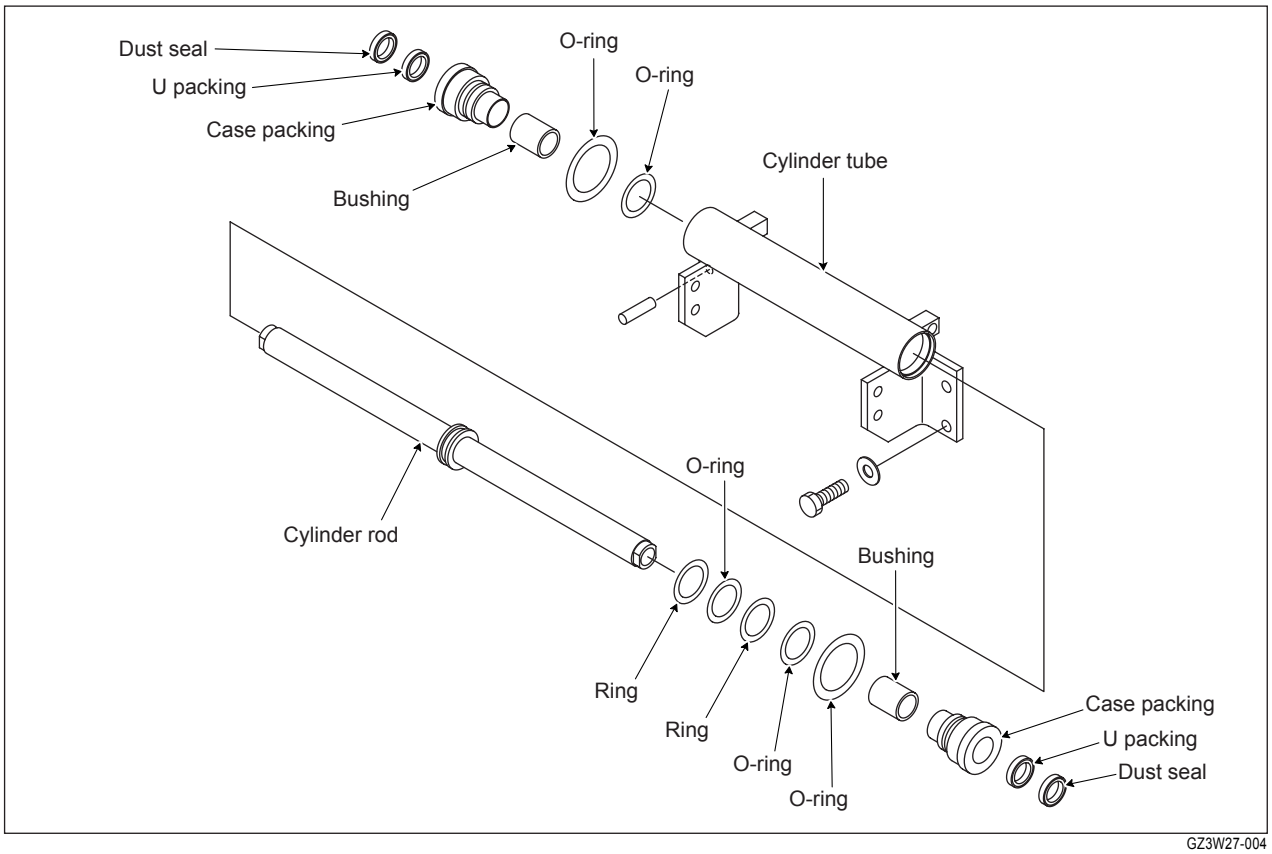


GZ3W27-002

2. Disassemble the cylinder assembly and hose.



3. Disassemble the cylinder assembly.

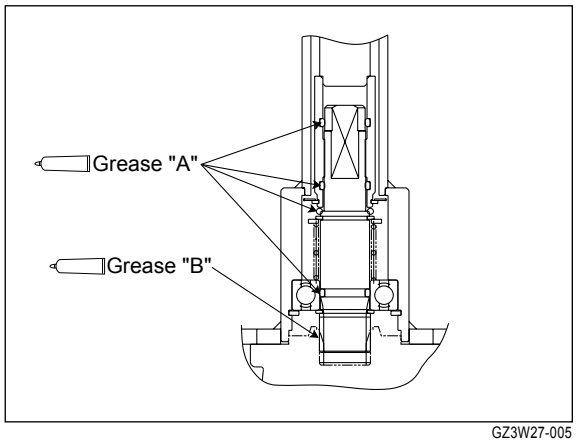


GZ3W27-004

8.3 Assembly and Installation of Steering

Follow the procedure for removal and disassembly in the reverse order for assembly and installation of steering.

8.3.1 Assembly of Steering Shaft



GZ3W27-005

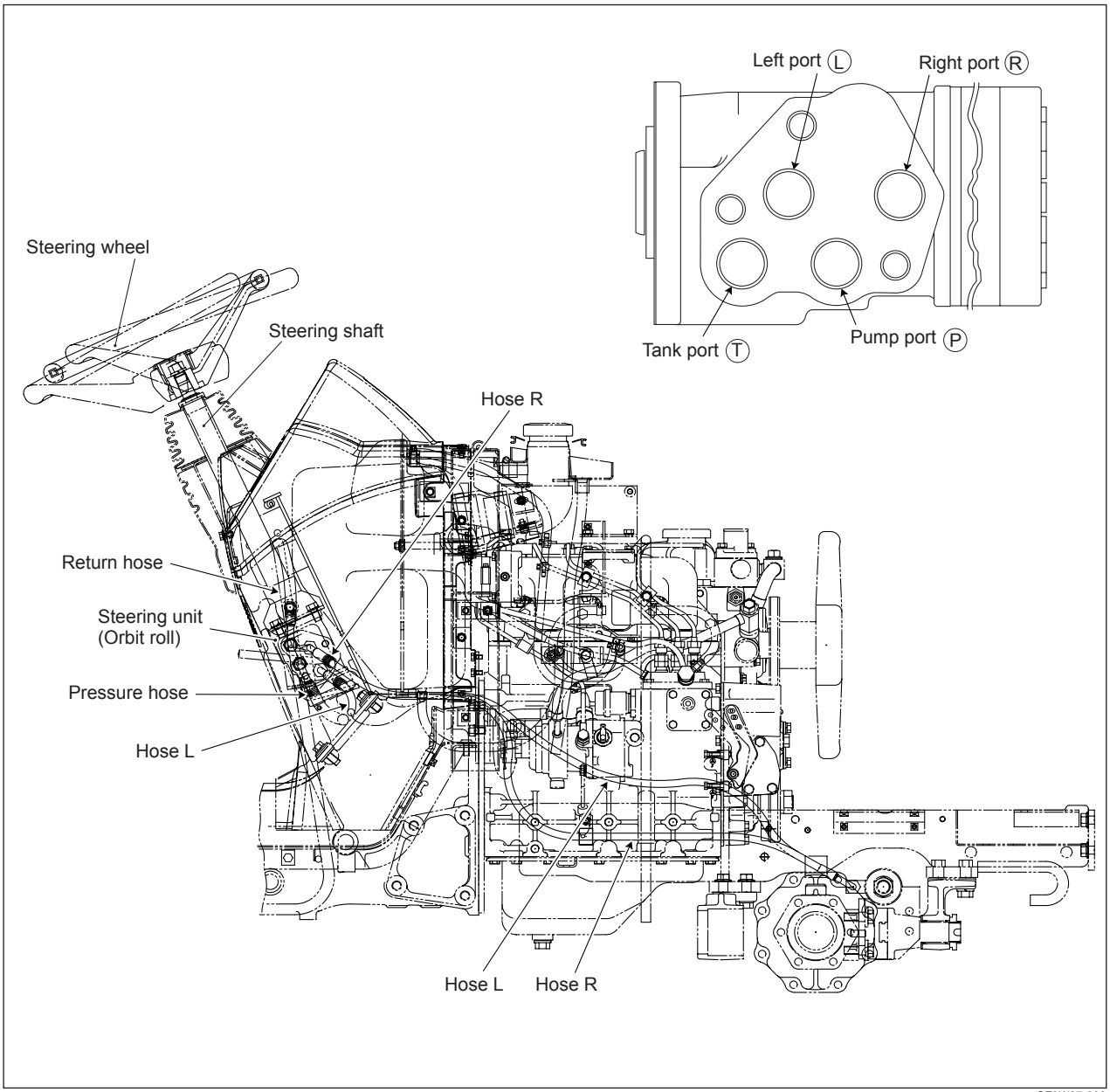
1. Apply some oil to the steering shaft for assembly.
2. Apply some lithium grease to the O-ring at "A" mark for assembly.
3. Apply some lithium grease to the "B" mark at the spline for steering shaft and insert.

8.3.2 Installation of Steering Unit Hose

1. Assemble 4 units of steering hoses (T, P, L, and R) with caution not to misassemble. Tighten the fittings on both sides of hose with torque at 29.4 to 39.2N•m {300 to 400kgf•cm, 21.7 to 28.9lbf•ft}.
2. Fix the steering hose R and L with some slacks using clamp to prevent obstruction from each other when the front axle assembly swings.

⚠ CAUTION

After connecting the hoses, make sure that the tires steer left by left-operation of the steering wheel.

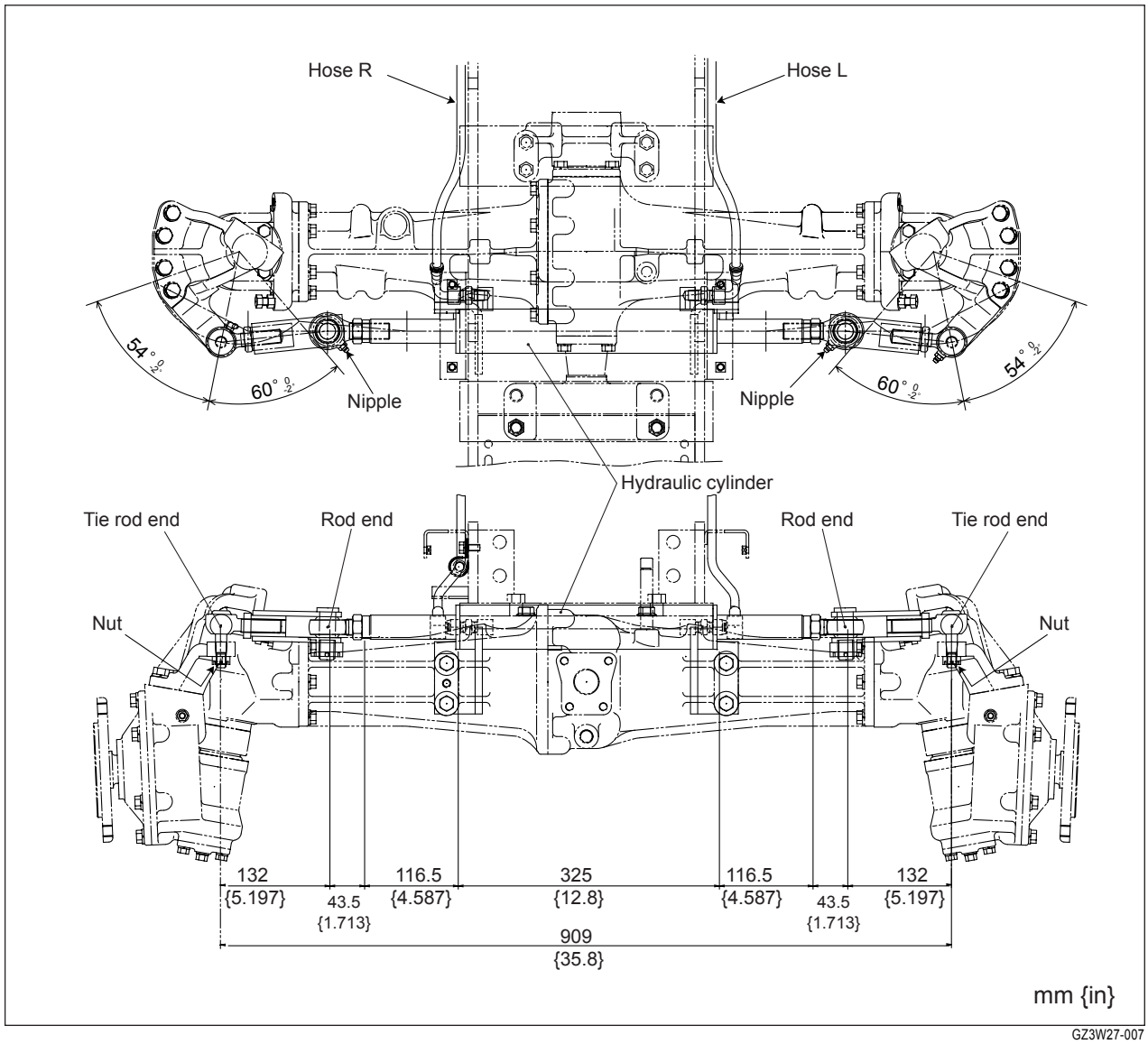


GZ3W27-006

8.3.3 Assembly of Hydraulic Cylinder Assembly

1. Adjust the steering angle on both sides to interior angle: 60° $^{0}_{-2}$° and external angle: 54° $^{0}_{-2}$°by adjusting the length of stopper bolts.
2. Install hydraulic cylinder assembly as shown in the figure with the nipple of rod end toward as shown (forward to body) at basic measurement 43.5mm {1.71in}. (Tolerance of leaning angle: ± 10°)
3. Adjust the length of tie rod end to 132mm {5.2in} as shown in the figure and adjust the toe in by turning only the tie rod.

   Reference) Adjust the tie rod end of both sides to have the difference of margin on both sides for cylinder rod to be within 1.5mm {0.059in}.
4. After tightening the tie rod end nut with torque at 44.1 to 53.9N•m {450 to 550kgf•cm, 32.5 to 39.8lbf•ft}, adjust the gap in the tightening range of 9.8N•m {100kgf•cm, 7.23lbf•ft} and assemble the split cotter pin.



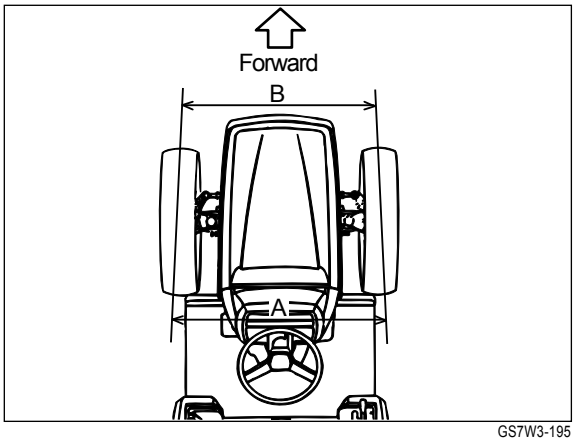
GZ3W27-007

8.3.4 Bleeding Procedure for Power Steering

After inspecting and adjusting the assembly of each part, follow the below procedure for air bleeding.

1. Set the engine speed to 1500 to 2000rpm.

2. Relieve for approximately 3 seconds on the maximum steering angle by operating the steering wheel to left and right.
3. Repeat the procedure 2 in both left and right direction 3 to 4 times.



GS7W3-195

8.4 Inspection and Maintenance of Steering

8.4.1 Inspection and Maintenance of Toe In

Toe in functions as an important role to control the stability of the vehicle. Tendency for control loss of vehicle while running may be caused by misalignment of toe in. In such case, inspect and adjust.

(Unit: mm {in})

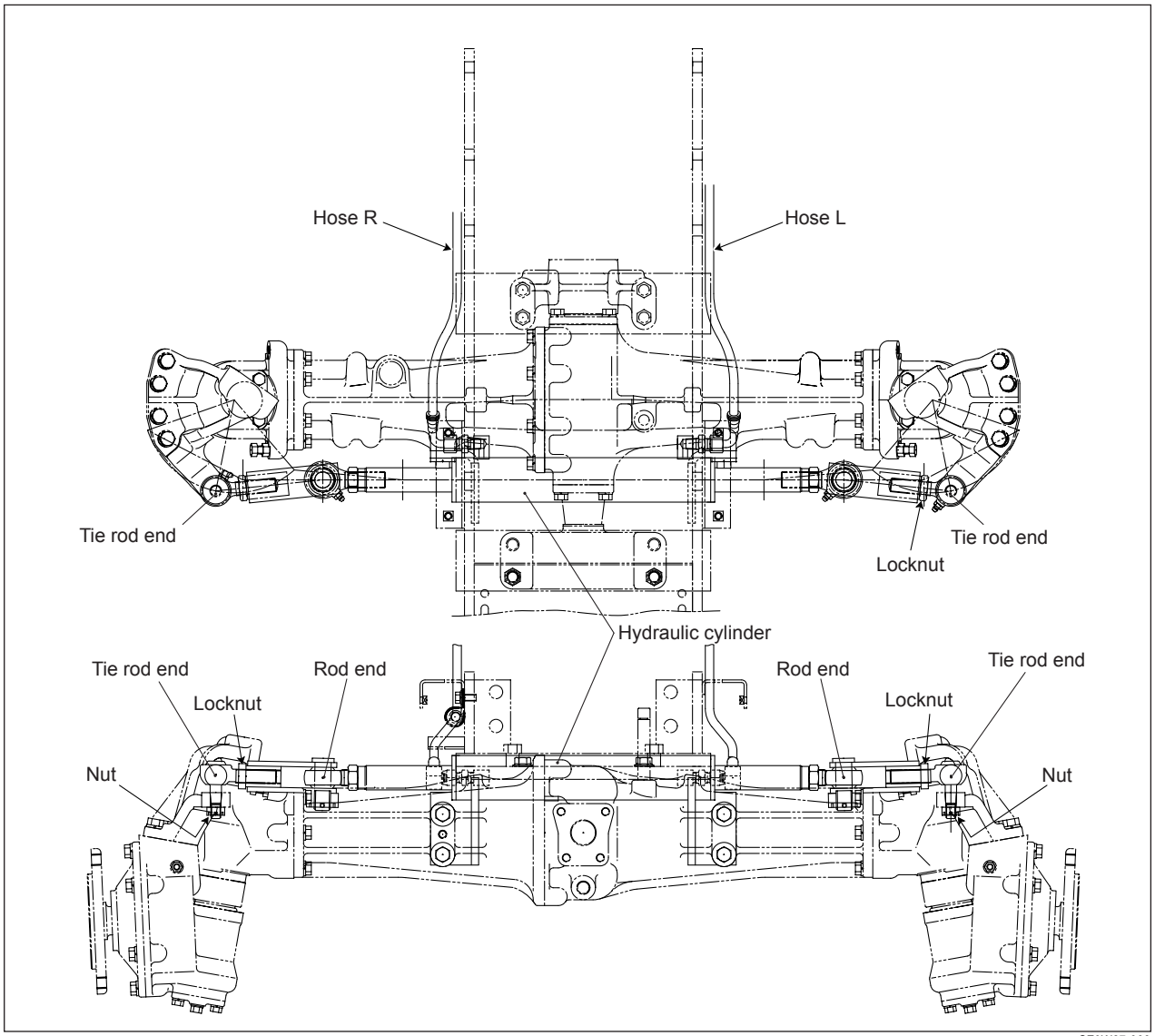
Item	Referential Value
Toe In (A - B)	0 to 10.0 {0 to 0.39}

⚠ CAUTION

- Adjust the both sides of tie rod end at the same time.
- Make sure the nonexistence of looseness for front tire while adjusting.

1) Loosen the locknut for tie rod end.
2) Remove the nut for tie rod end from the knuckle arm.
3) Adjust the length of tie rod end by turning only the tie rod end.
4) Tighten the locknut after adjusting.
   Torque: 147 to 167N•m {1500 to 1700kgf•cm, 108 to 123lbf•ft}

5) After tightening the nut for tie rod end with torque at 44.1 to 53.9N•m {450 to 550kgf•cm, 32.5 to 39.8lbf•ft}, adjust the gap in the tightening range of 9.8N•m {100kgf•cm, 7.23lbf•ft} and assemble the split cotter pin.



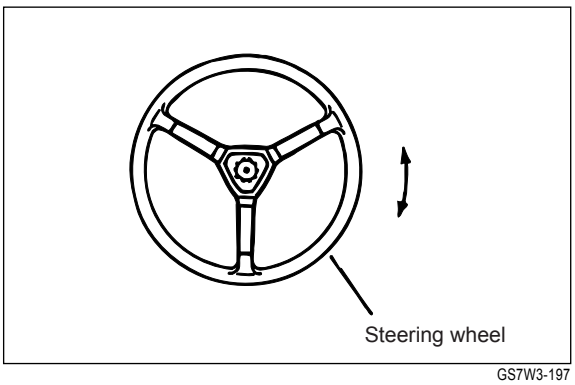
GZ3W27-008

8.4.2 Free Play for Steering Wheel

(Unit: mm {in})

Item	Referential Value
Free Play for Steering Wheel	Circumference: 20 to 50 {0.79 to 1.97}

There is a possibility of oil leakage or air suction, etc of hydraulic cylinder if exceeding the above standard. Check for the malfunction and perform inspection and maintenance in case of nonexistence of malfunction.



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9 Troubleshooting

- Causes and measures for troubles in chassis are described below.

9.1 Running Operation

Condition	Causes (Checked Place)	Measures	Remarks
1. Clutch slips off.	• Adjustment failure of clutch pedal • Wear and galling of clutch disc	• Adjust free play of pedal. • Change clutch disc.	20 to 30mm {0.79 to 1.18in}
2. Clutch cannot be disengaged.	• Adjustment failure of clutch pedal	• Adjust free play of pedal.	20 to 30mm {0.79 to 1.18in}
3. It brakes deficiently or only one side. Brake does not work properly or work only oneside of brake.	• Free play of brake pedal is excessive. • Wear and galling of brake lining • Operating amount on each side differs.	• Adjust free play of pedal. • Change brake lining. • Adjust operating amount even on both sides.	35 to 45mm {1.38 to 1.77in}
4. Brake pedal does not return to properly position.	• Brake return spring is damaged. • Grease at sliding part is insufficient.	• Change spring. • Apply more grease.	

9.2 Power Steering

Condition	Causes (Checked Place)	Measures	Remarks
1. Pressure cannot be increased.	• Pump failure (1) Degradation of performance due to wear, etc. (2) Parts damage • Sticking, damage, and wear of power steering unit • Refuse jam at relief valve or valve damage • Seal damage • Pipe damage or oil leakage • Air accumulation in circuit	• Repair. • Repair. • Repair. • Tighten or change. • Bleed air sufficiently.	
2. Steering is heavy or easily lost control.	• Uneven air pressure in tires. • Excessive backlash in each end. • Excessive viscosity in used oil. • Toe in failure.	• Adjust to the specified air pressure on both sides. • Tighten or change parts. • Change oil or warm up sufficiently. • Adjust.	0 to 10mm {0 to 0.39in}

3. Steering action does not follow the steering operation	• Damage or wear of hydraulic pump • Insufficient oil amount • Air mixture • Valve malfunction • Backlash in rod end • Looseness in tightening part	• Repair or change. • Supply oil to specified amount. • Bleed air sufficiently and inspect oil amount and suction pipes. • Repair. • Change. • Tighten.	
4. Front wheel drifts. (Excessive backlash of steering wheel)	• Toe in failure • Air mixture • Backlash in rod end • Looseness in tightening part	• Adjust. • Bleed air. • Change. • Tighten.	
5. Unusual noise in hydraulic circuit	• Insufficient oil (Transmission oil) • Sound of cavitations due to excessive suction resistance.	• Adjust backlash of pedal. • Change clutch disc.	HST: 32L {8.5gal} Gear: 29L {7.7gal}

III HYDRAULIC SYSTEM

HYDRAULIC SYSTEM

1 Hydraulic System

1.1 Outline

The hydraulic system used for the lifting hitch, power steering, IND PTO (7530 Only), and HST (7532 Only).

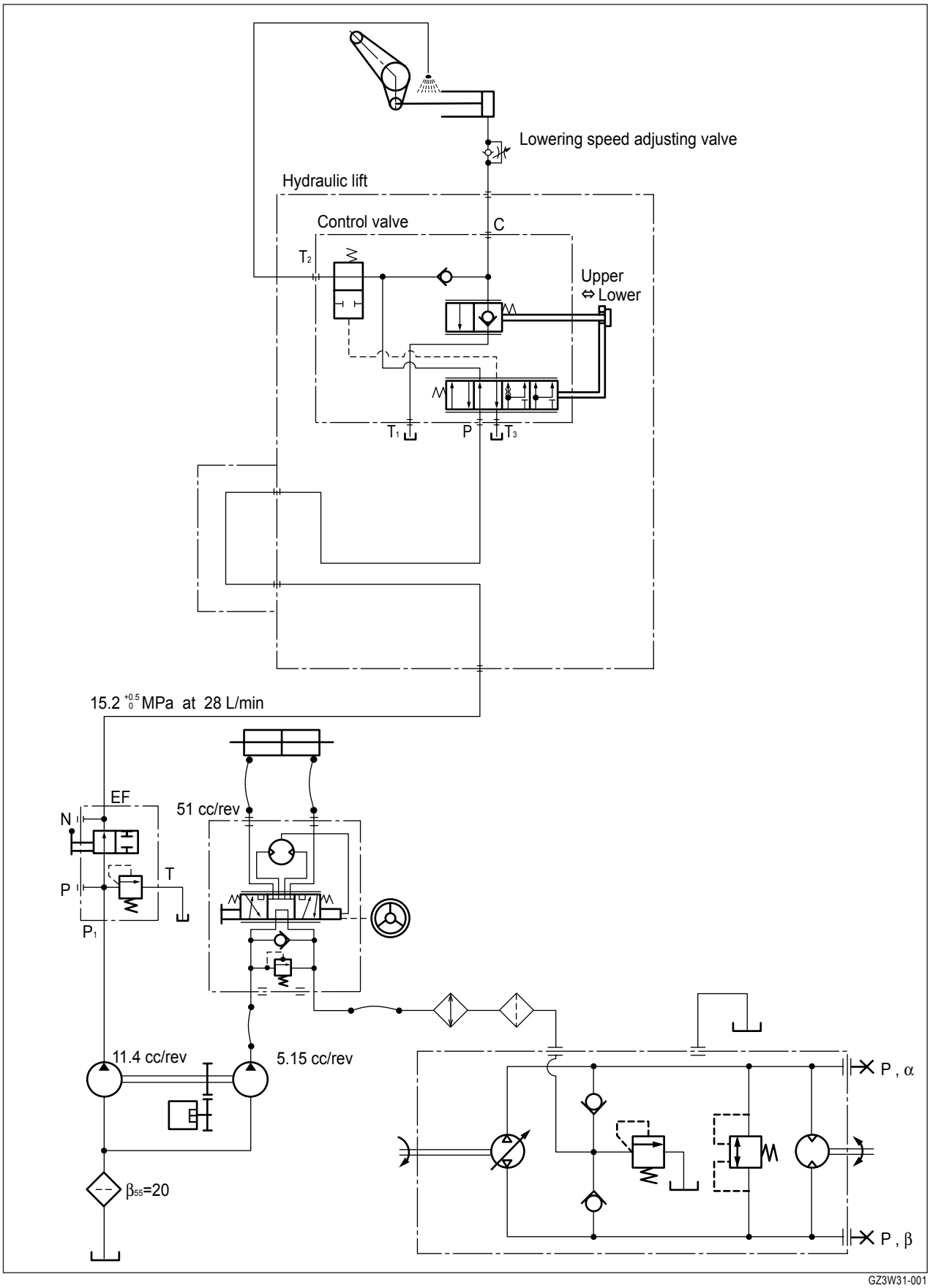
P/C system (Position Control) is equipped as a lift control for 3-point hitch.

1.2 Specifications

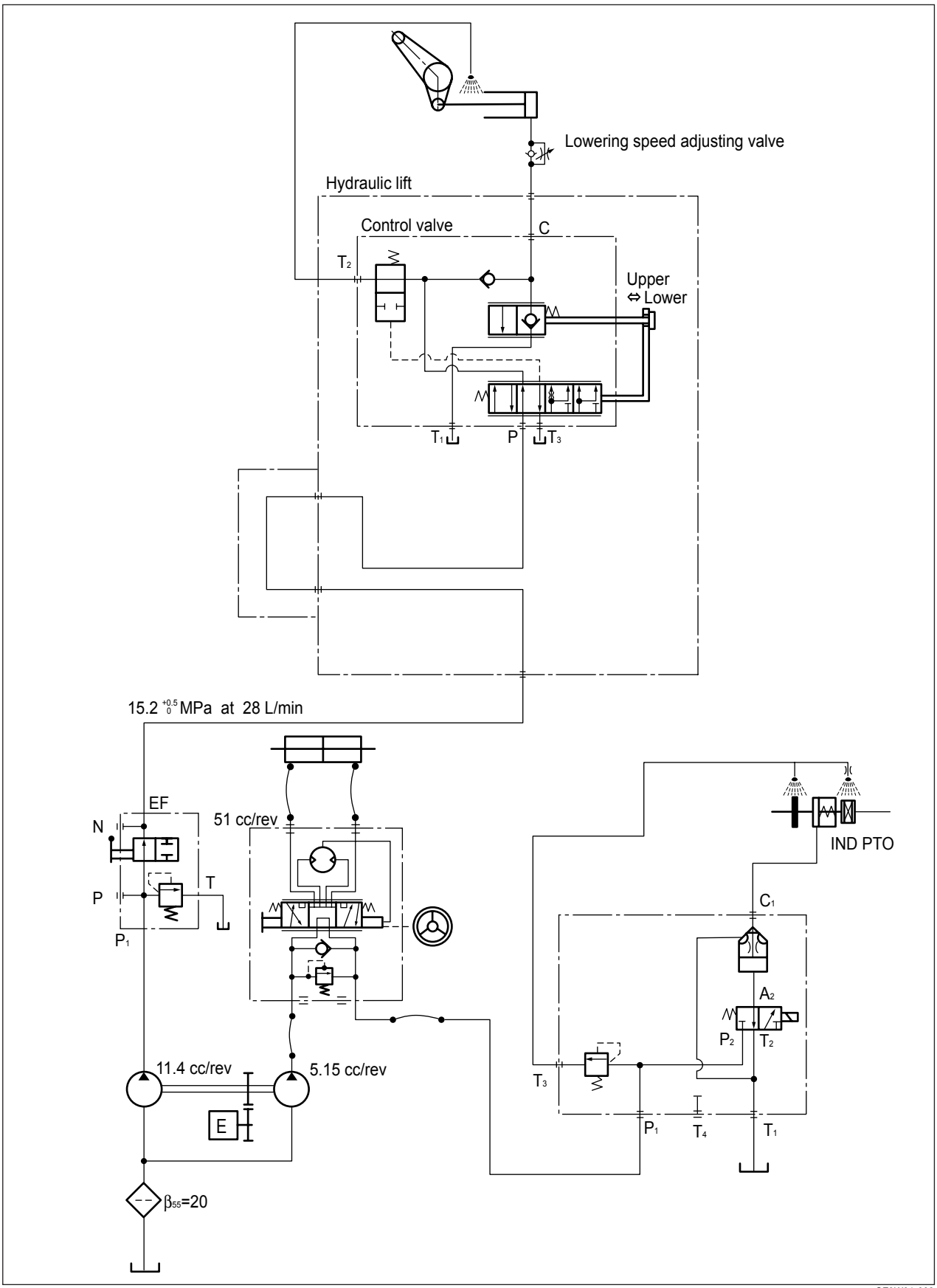
Item		7530/7532
Position Control		With
Pump Model	P/C	GP-OB-13.8-L
	Power Steering	GP-OB-6.3
Pump Discharge Amount	P/C	11.4cc/rev {0.696in^3/rev}
	Power Steering	5.15cc/rev {0.314in^3/rev}
Relief Pressure	For lift	15.2MPa (155kgf/cm^2, 2205psi)
Cylinder Diameter × Stroke (for lift)		ø 75 × 100.7mm {ø 2.95 × 3.965in}
Max. Dynamic Lift		1035kgf {2282lbf }

1.3 Hydraulic Circuit Diagram

1 HST (7532 Only)

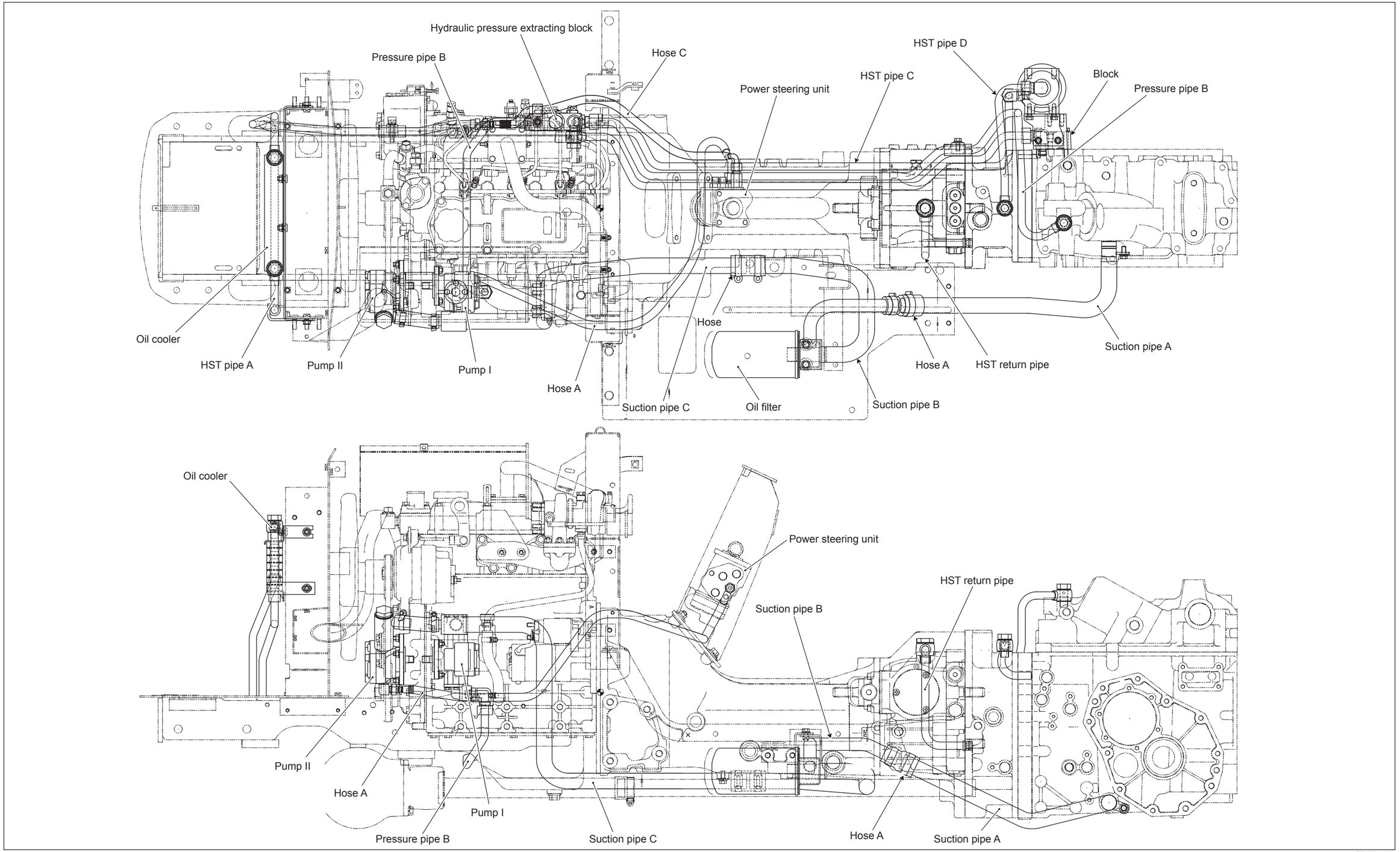


2 Manual Transmission (7530 Only)



1.4 Hydraulic Piping Diagram

1 HST (7532 Only) - 1/2



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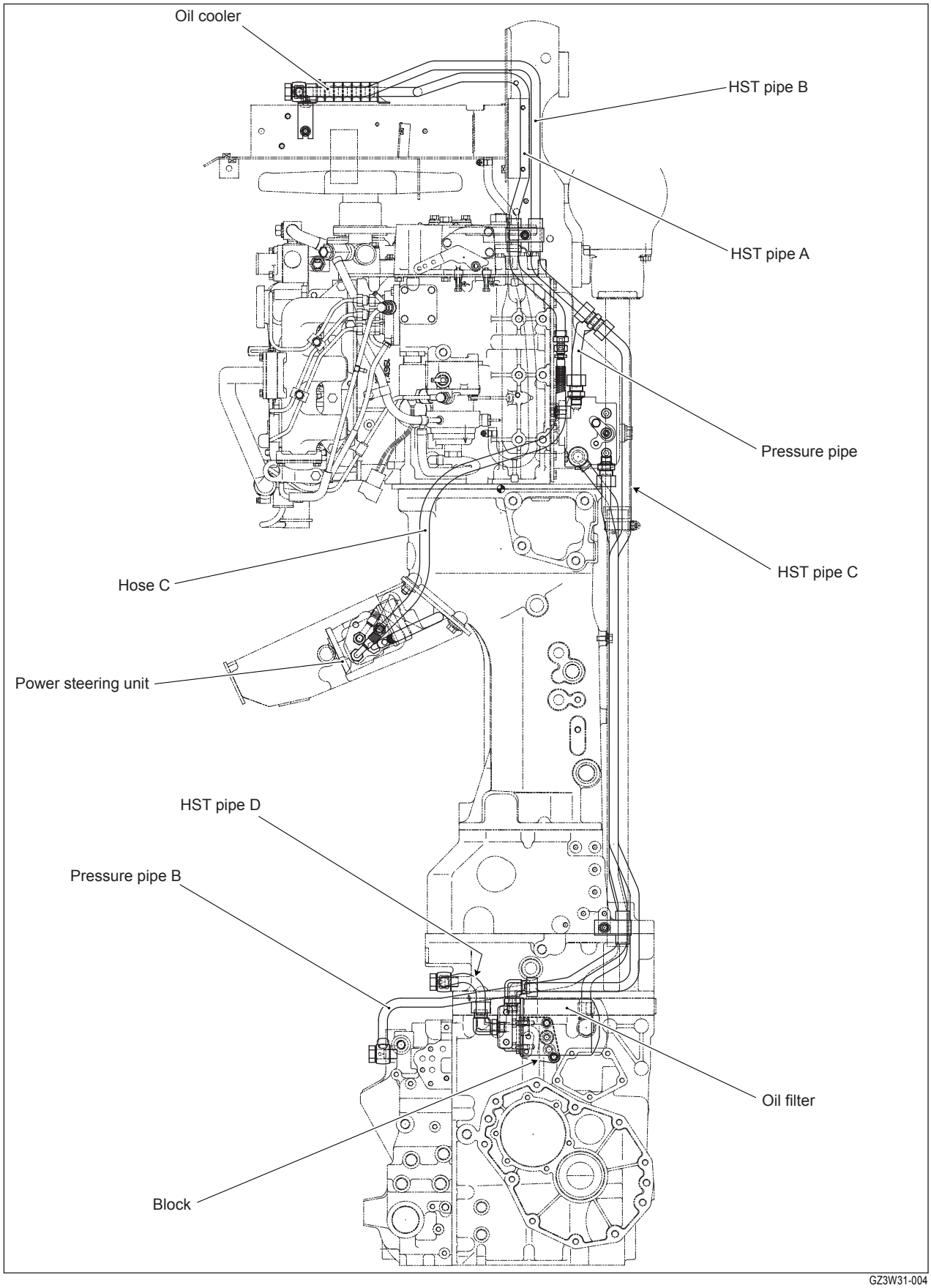
HST (7532 Only) - 2/2



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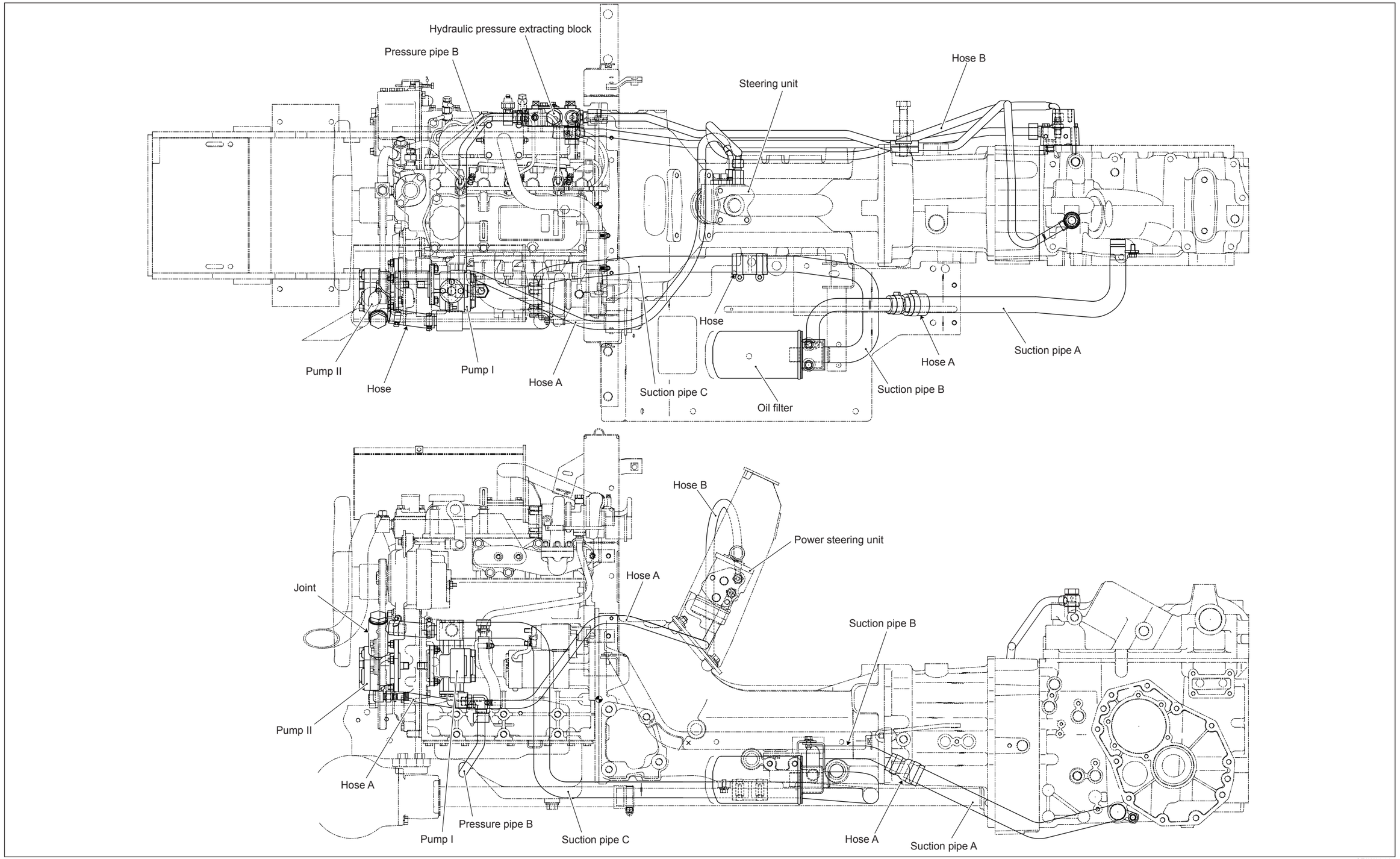
2 Manual Transmission (7530 Only) - 1/2



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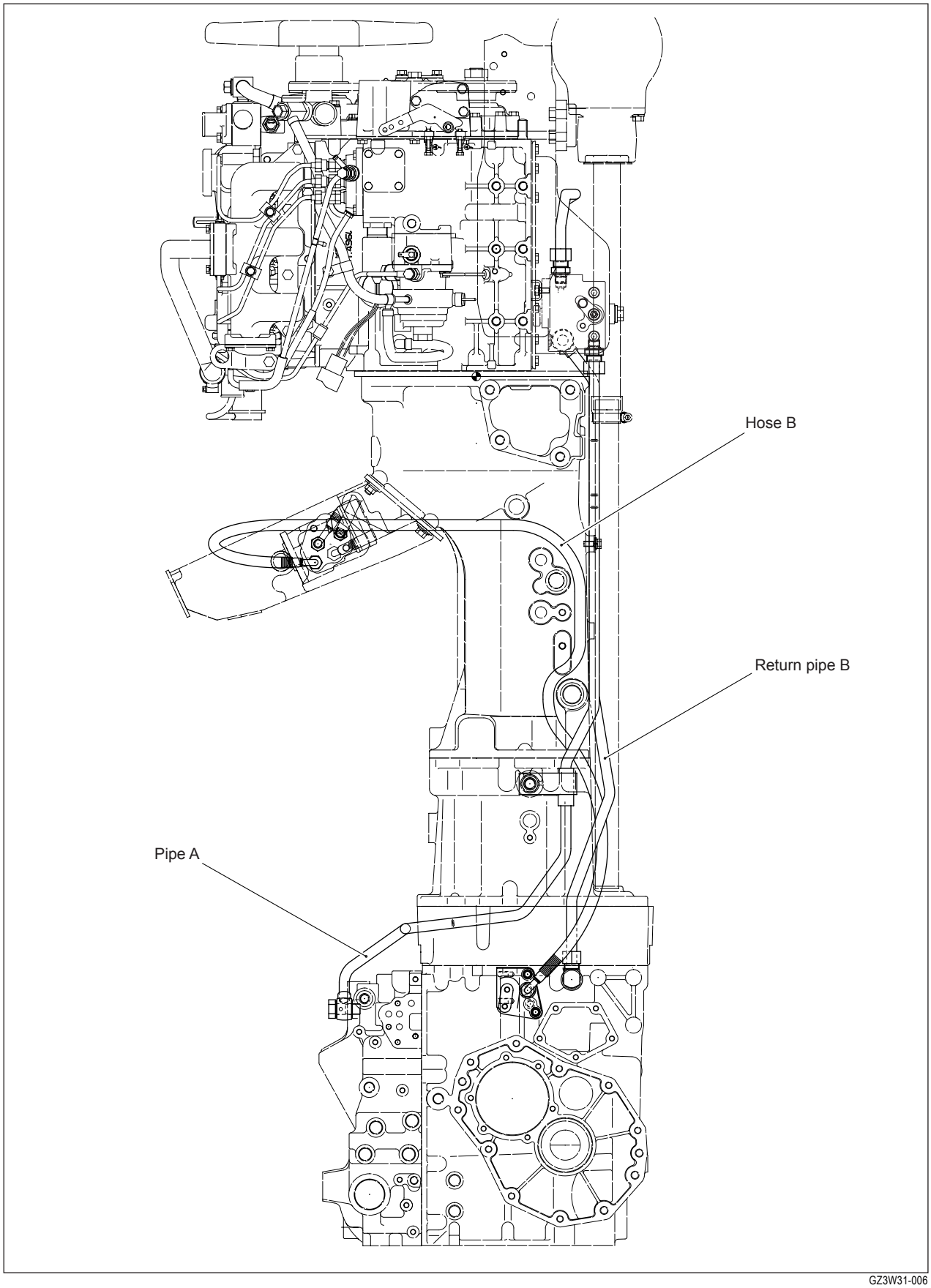
Manual Transmission (7530 Only) - 2/2



GZ3W31-006

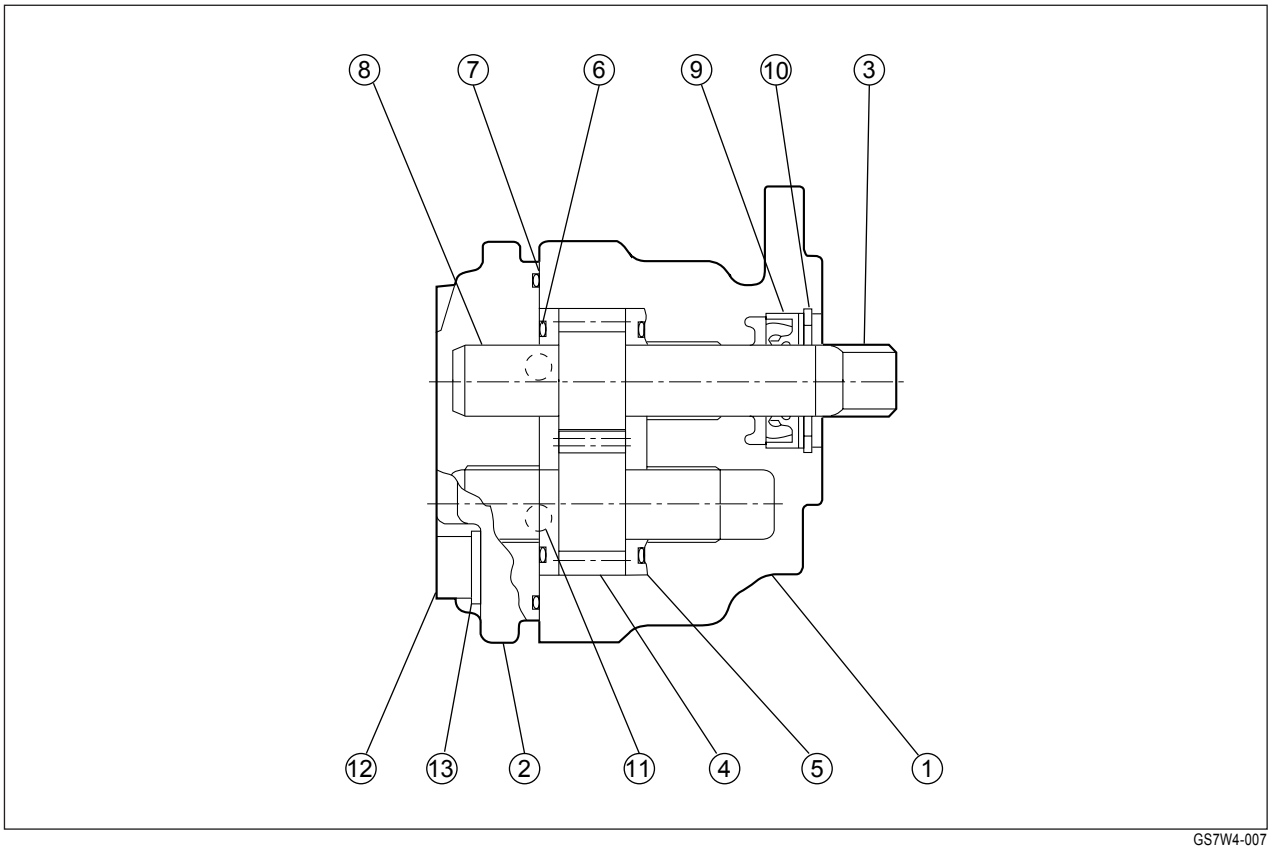
1.5 Hydraulic Components

1.5.1 Pump

1 Specifications

	Pump I	Pump II
	P/C	Power Steering
Pump Model	Gear Type	Gear Type
Model	Fujikoshi GP-OB-13.8-L	Fujikoshi GP-OB-6.3
Discharge Amount	11.4cc/rev {0.696in^3/rev}	5.15cc/rev {0.314in^3/rev}
Relief Pressure	15.2MPa (155kgf/cm^2, 2205psi)	15.2MPa (155kgf/cm^2, 2205psi)
Rotating Direction	Left (from the pump shaft side)	Right (from the pump shaft side)
Parts Number	1030 2501-	1030 2539-
Application	For Hydraulic Cylinder	For Power Steering

2 Pump Structure



GS7W4-007

No.	Parts	No.	Parts
1	Body	2	Cover
3	Gear A	4	Gear B
5	Plate	6	Gasket
7	Gasket	8	Bearing
9	Oil Seal	10	Snap Ring
11	Steel Ball	12	Screw
13	Washer		

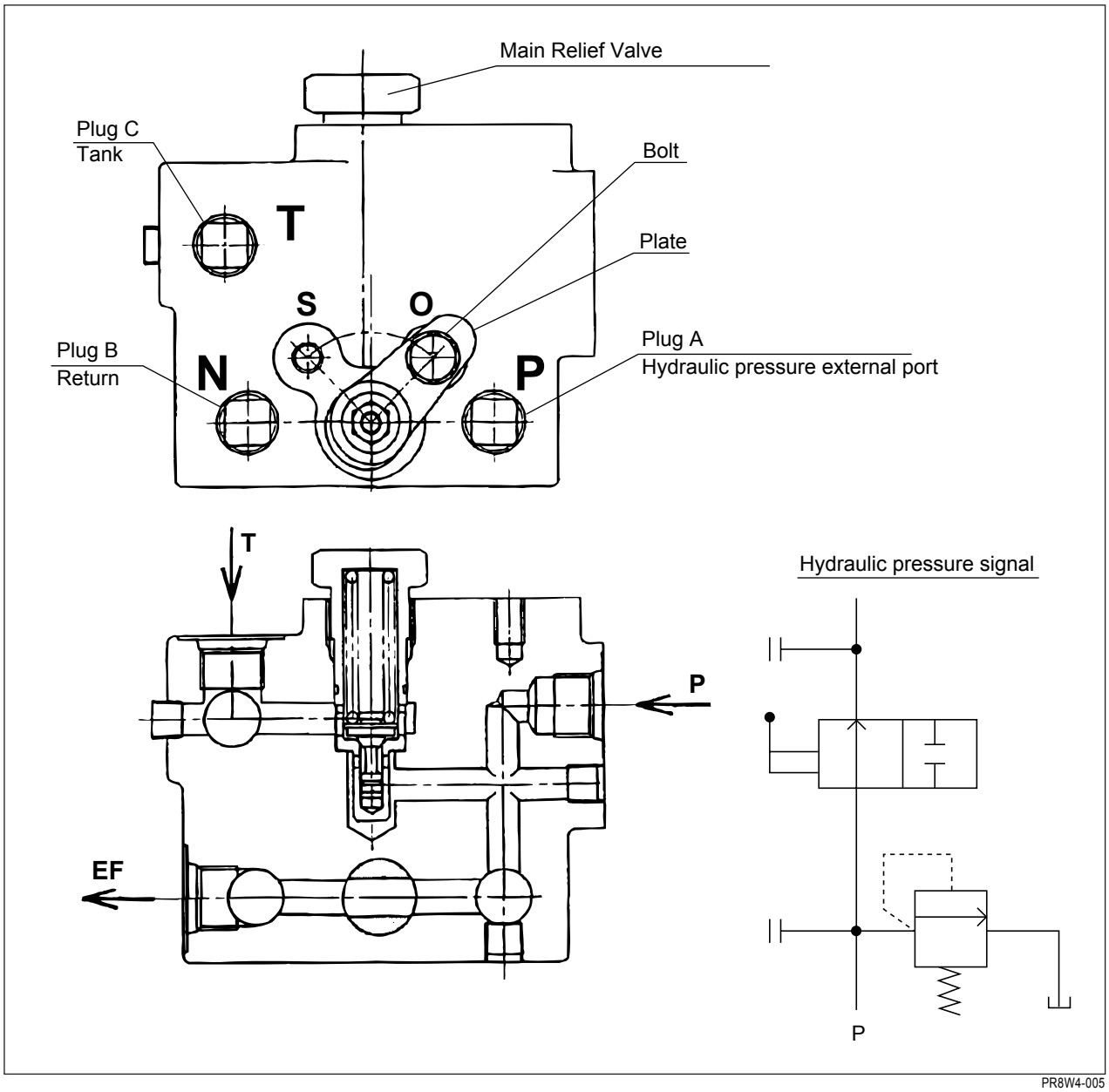
1.5.2 Hydraulic Block

The hydraulic block prevents the hydraulic circuit from damaging by relieving the oil when the pressure raise to higher level than normal level due to some causes.

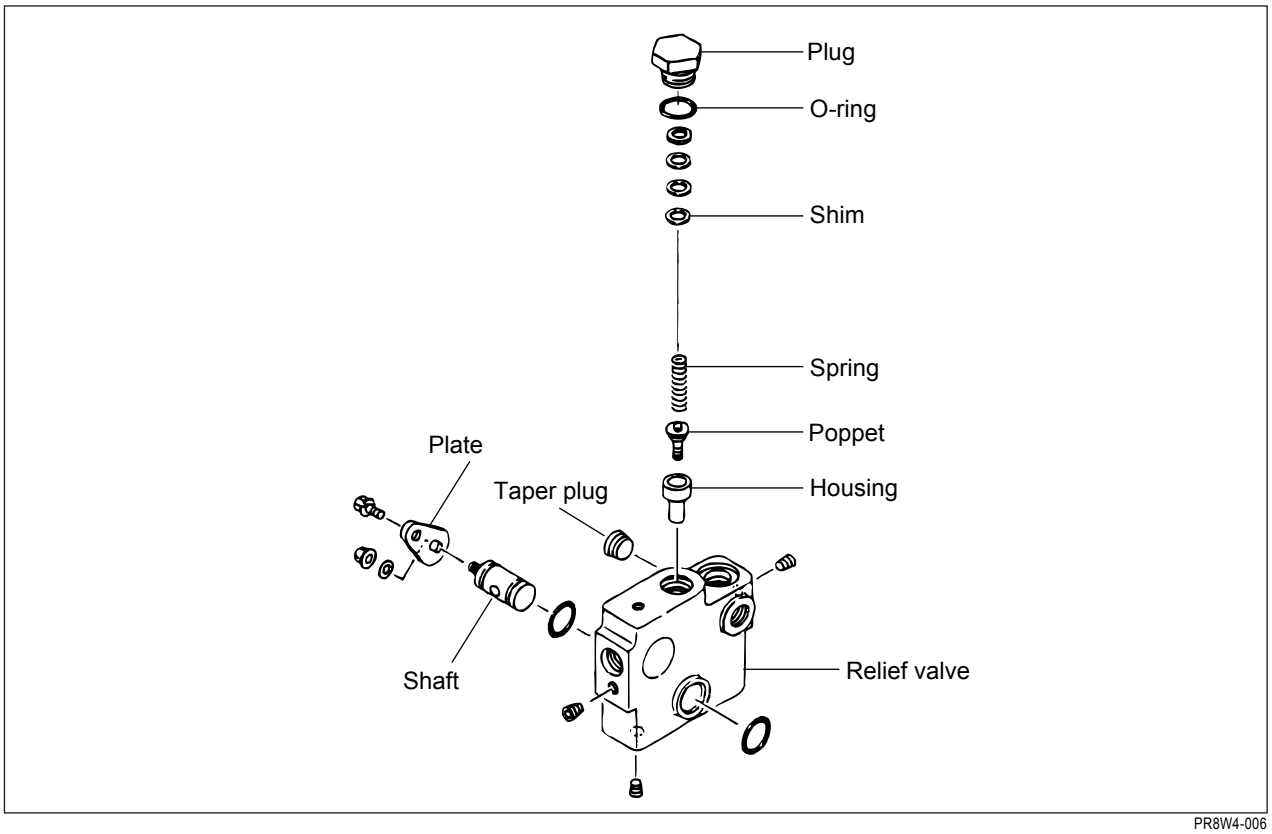
1 Specifications

Relief Pressure	Oil Temperature 45°C to 55°C when adjusted to 15.2MPa (155kgf/cm^2, 2205psi)

2 Hydraulic Block Structure



3 Disassembly of Hydraulic Block

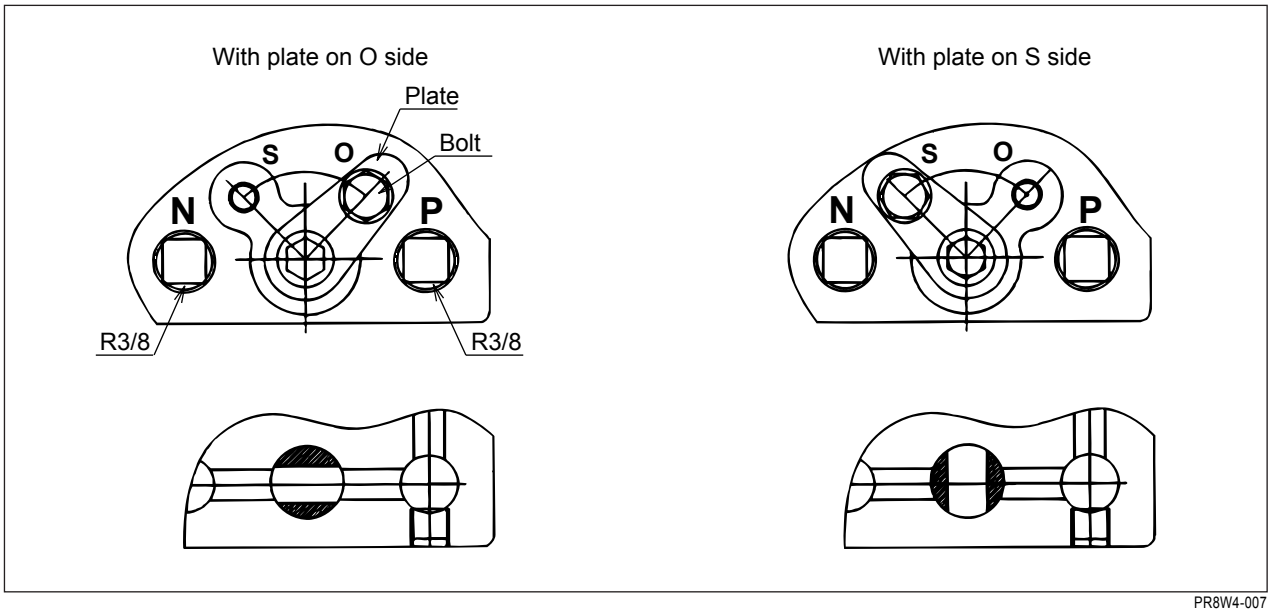


PR8W4-006

4 External hydraulic circuit

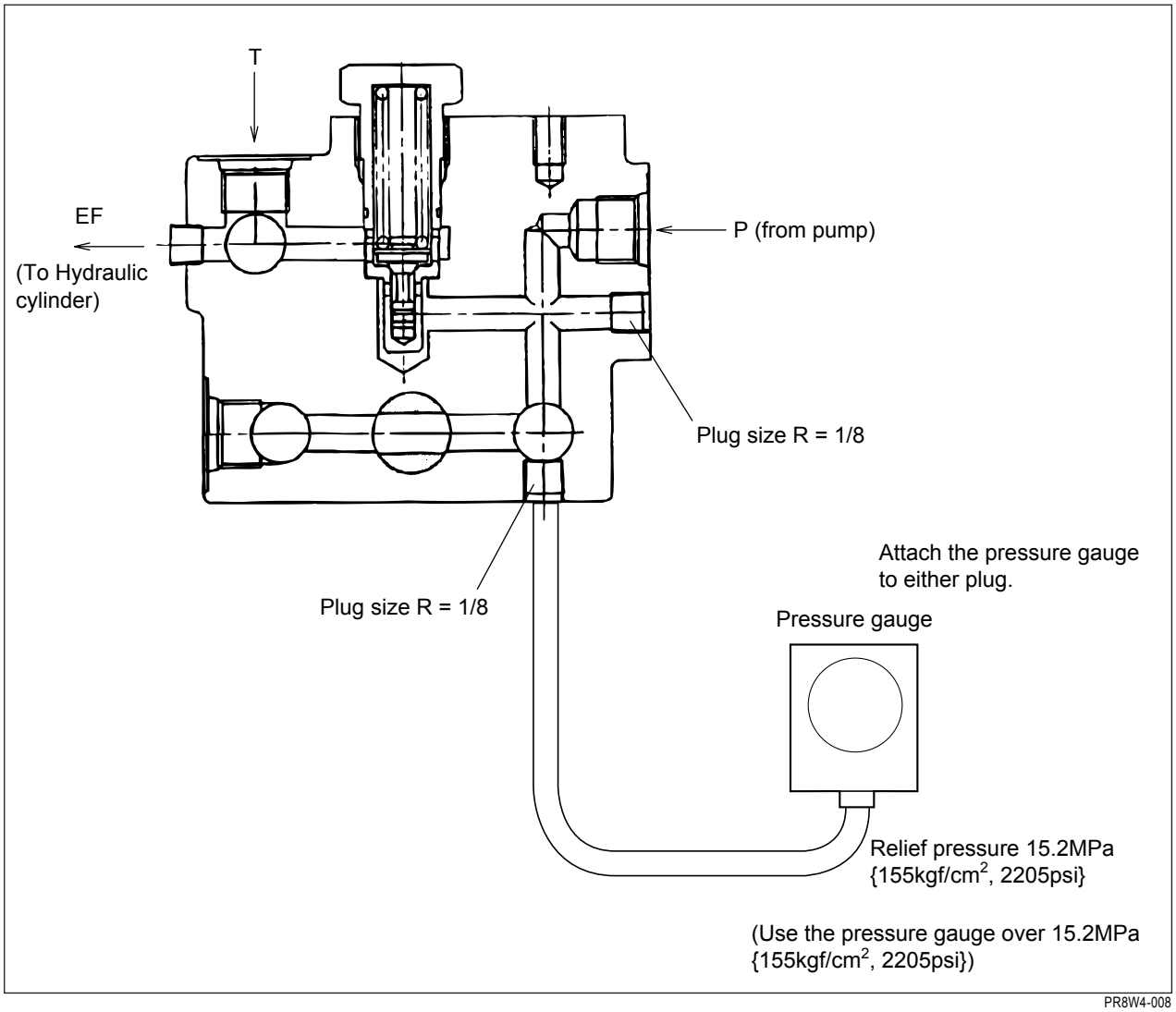
This block can provide on external hydraulic circuit for loader use or other applications.
Remove the bolt, turn the plate from "O" side to "S" side, and mount with bolt.

Remove the plug P and N and connect the hose. (Plug size: R3/8)



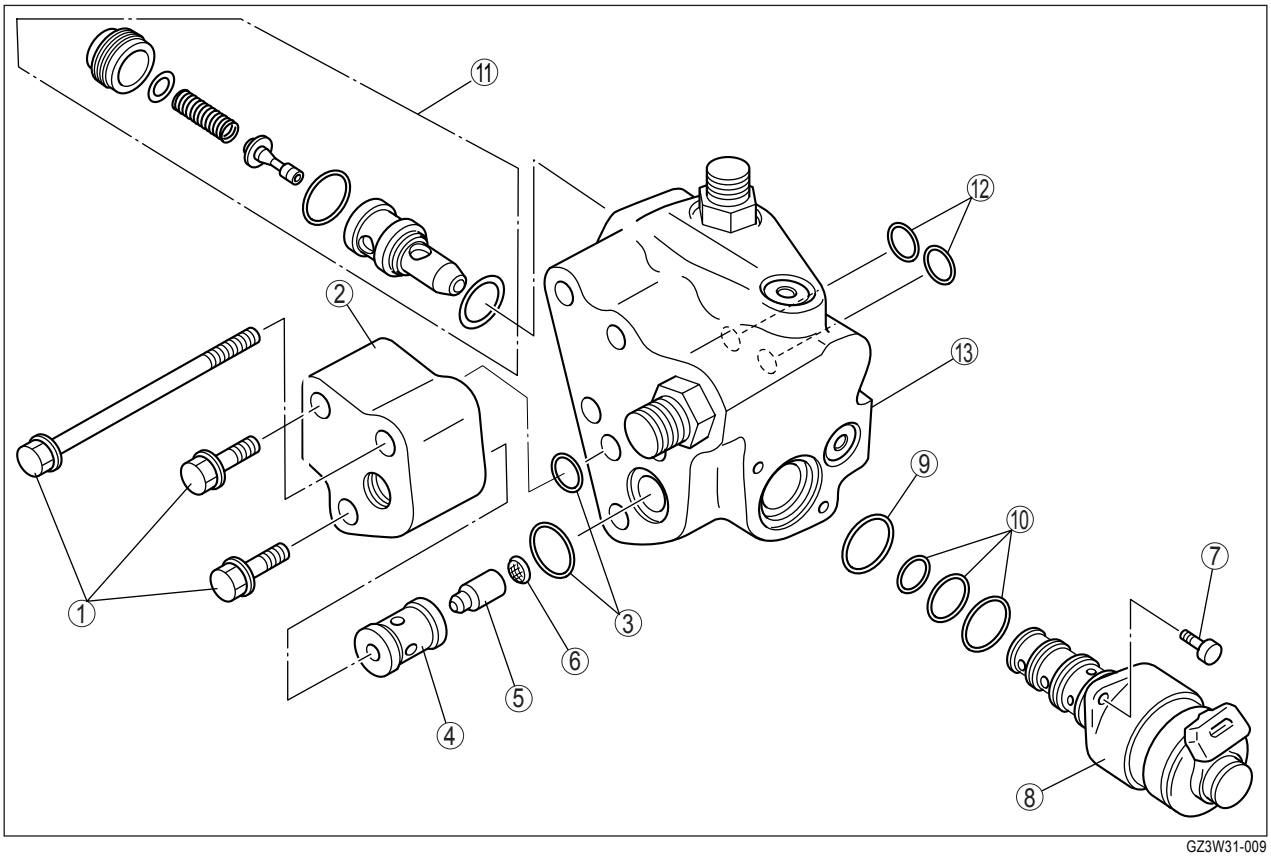
PR8W4-007

5 Pressure Measuring Method



1.5.3 IND. PTO Valve (7530 Only)

1 Structure

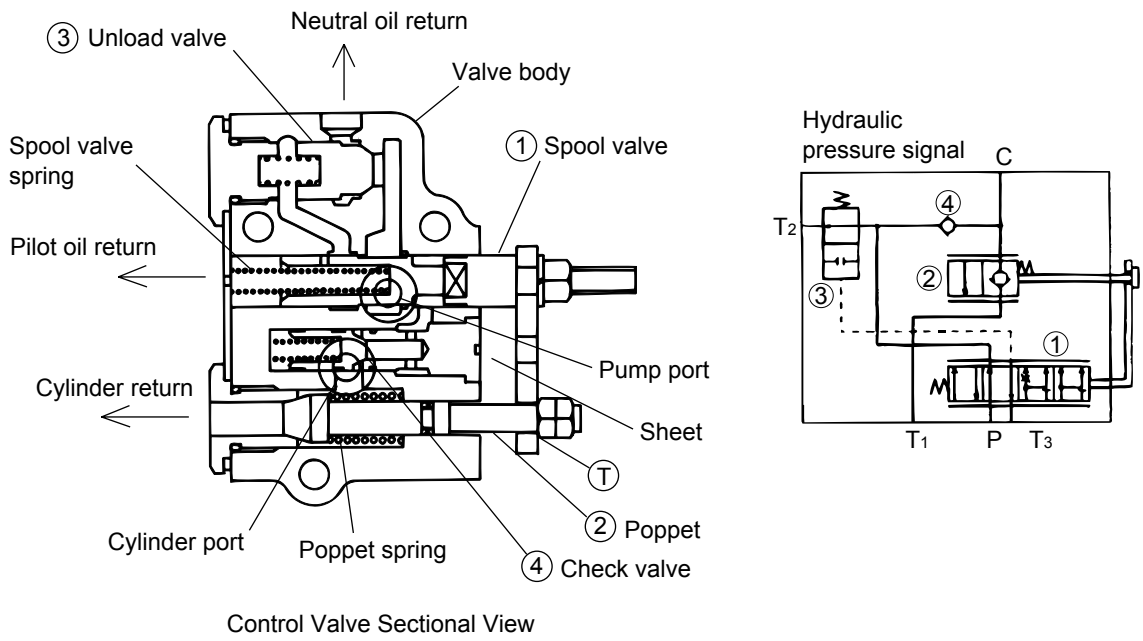


GZ3W31-009

No.	Parts	No.	Parts
1	Bolt	2	Cover
3	O-ring	4	Sleeve
5	Poppet	6	Filter
7	Bolt	8	Valve
9	O-ring	10	O-ring
11	Relief Valve Assembly	12	O-ring
13	Block		

1.5.4 Control Valve

1 Structure



Control Valve Sectional View

PR8W4-014

1. Spool Valve

   It indirectly operates the unload valve and check valve.

2. Poppet

   It opens only when lowering the lift arm and is closed to the sheet by poppet spring.

3. Unload Valve

   It is indirectly operated by movement of the spool valve. It opens when the spool is in neutral position and lowering to return the oil from the pump to the transmission case.

4. Check Valve

   It is indirectly operated by movement of the spool valve. It opens only when lifting.

2 Specifications

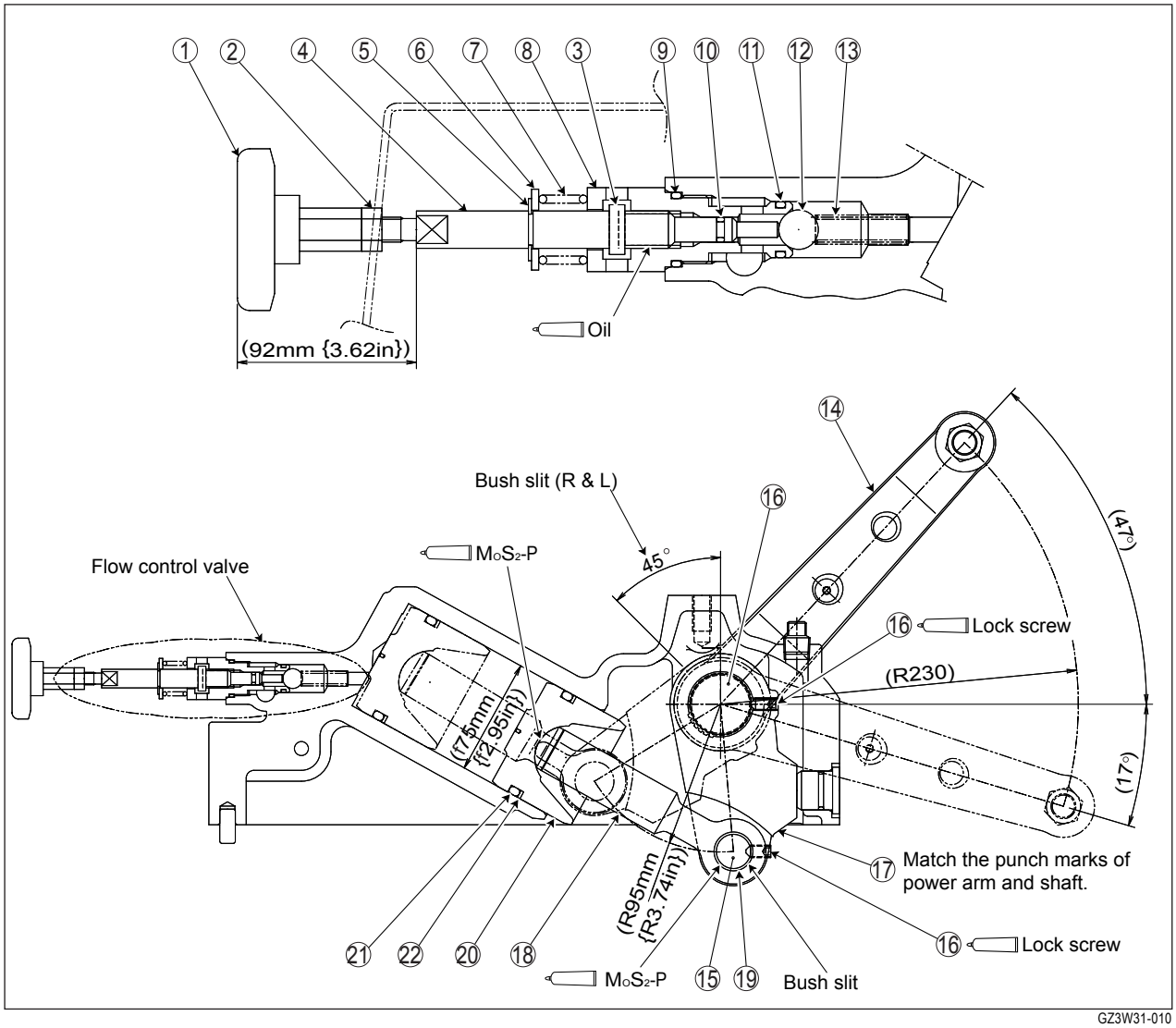
Maximum Discharge		20.5L/min {5.416gal/min}
Maximum Usable Pressure		15.2MPa {155kgf/cm^2, 2205psi}
Pressure Loss	P → T (neutral) pressure loss	20L/min when below 0.78MPa {8kgf/cm^2, 114psi}
	P → C (lifting) pressure loss	20L/min {5.28gal/min} when below 1.37MPa {14kgf/cm^2, 199psi}
Operating Oil		Multi STOU Oil Temperature: 40°C to 50°C

1.5.5 Position Control

- P/C system (Position Control) is equipped as a lift control for 3-point hitch.
- The cylinder is independent control type. (Only raise the hitch by hydraulic pressure and lower by weight.)
- The lock, functioning as well as flow control valve (lowering speed adjusting valve), located in forepart of lift case shall be used for adjustment of lowering speed for the lift arm.
- Position of the lift arm is controlled by P/C lever.

1 Specifications (Hydraulic Cylinder)

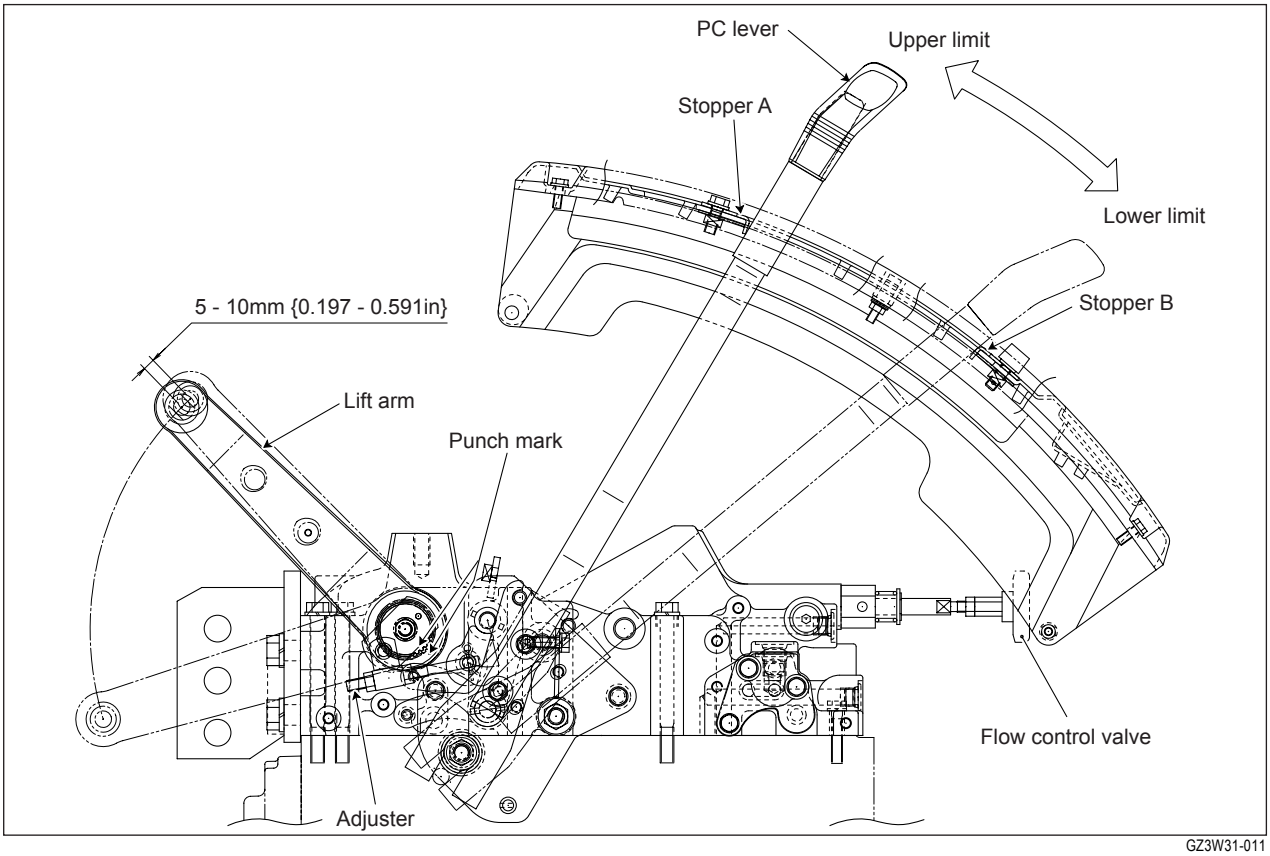
Cylinder Diameter × Stroke	ø 75 × 100.7mm {ø 2.95 × 3.965in}
Maximum Dynamic Lift	1035kgf {2282lbf}
Preset Maximum Pressure	15.2MPa (155kgf/cm^2, 2205psi)



GZ3W31-010

No.	Parts	No.	Parts
1	Knob	2	Nut
3	Spring Pin	4	Screw
5	Ring	6	Washer
7	Spring	8	Sleeve
9	O-ring	10	O-ring
11	O-ring	12	Ball
13	Spring	14	Lift Arm
15	Pin	16	Screw
17	Power Arm	18	Piston Rod
19	Bush	20	Piston
21	O-ring	22	Ring

2 P/C System (Position Control)

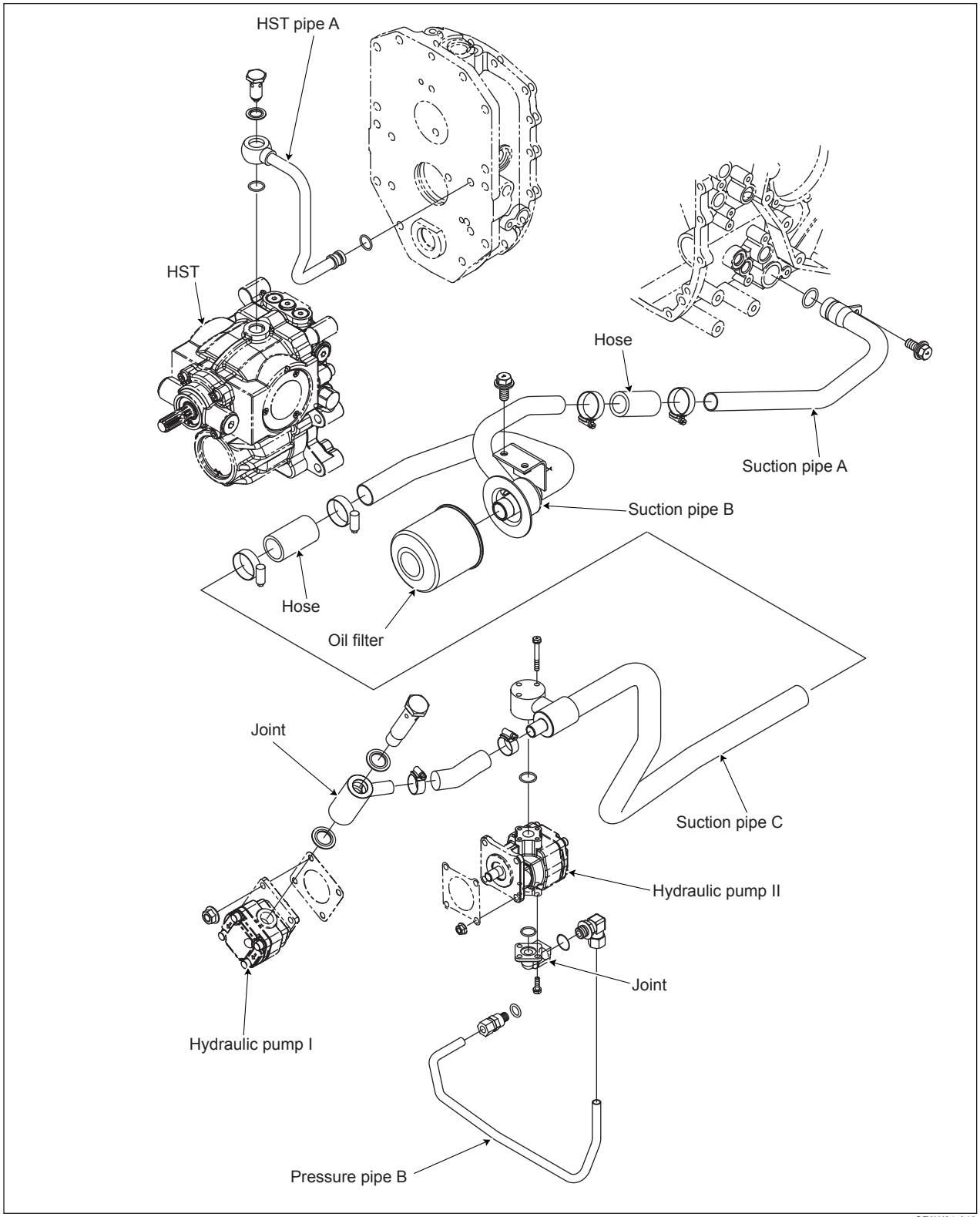


1.6 Removal and Disassembly of Hydraulic Circuit

1 Disassembly of Hydraulic Pipe

1. Disassemble the hydraulic pump and suction pipe.

HST (7532 Only)



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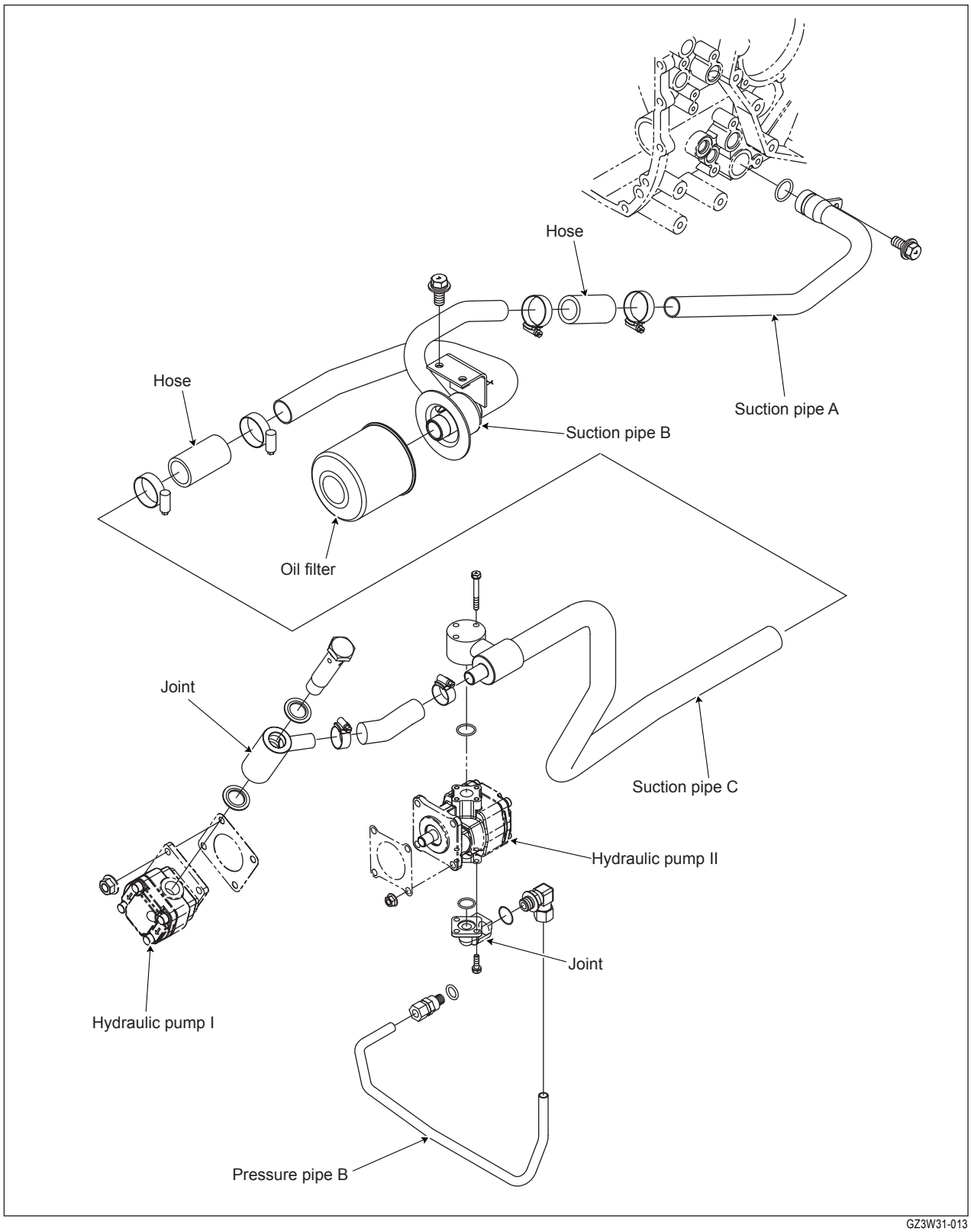
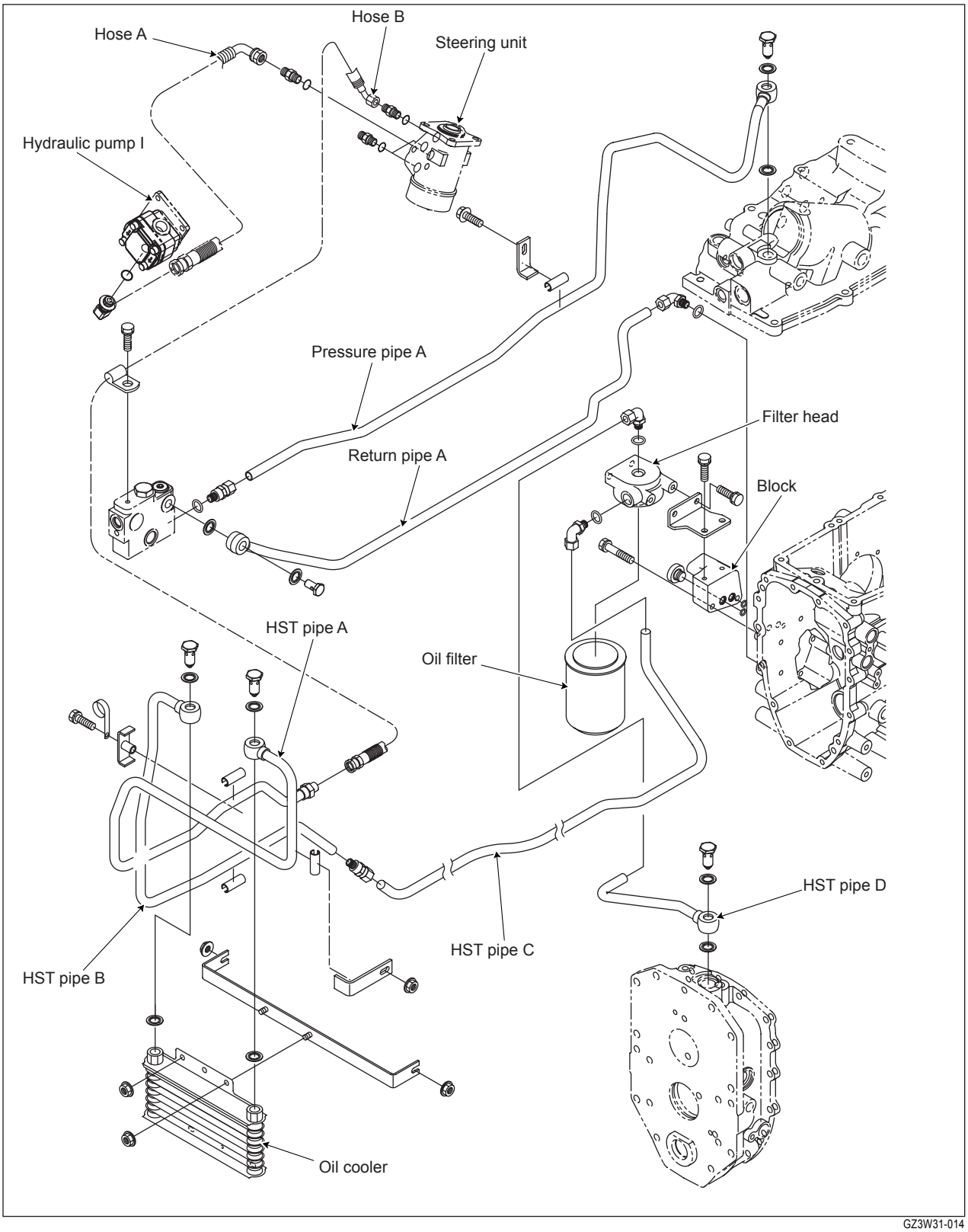
Manual Transmission (7530 Only)

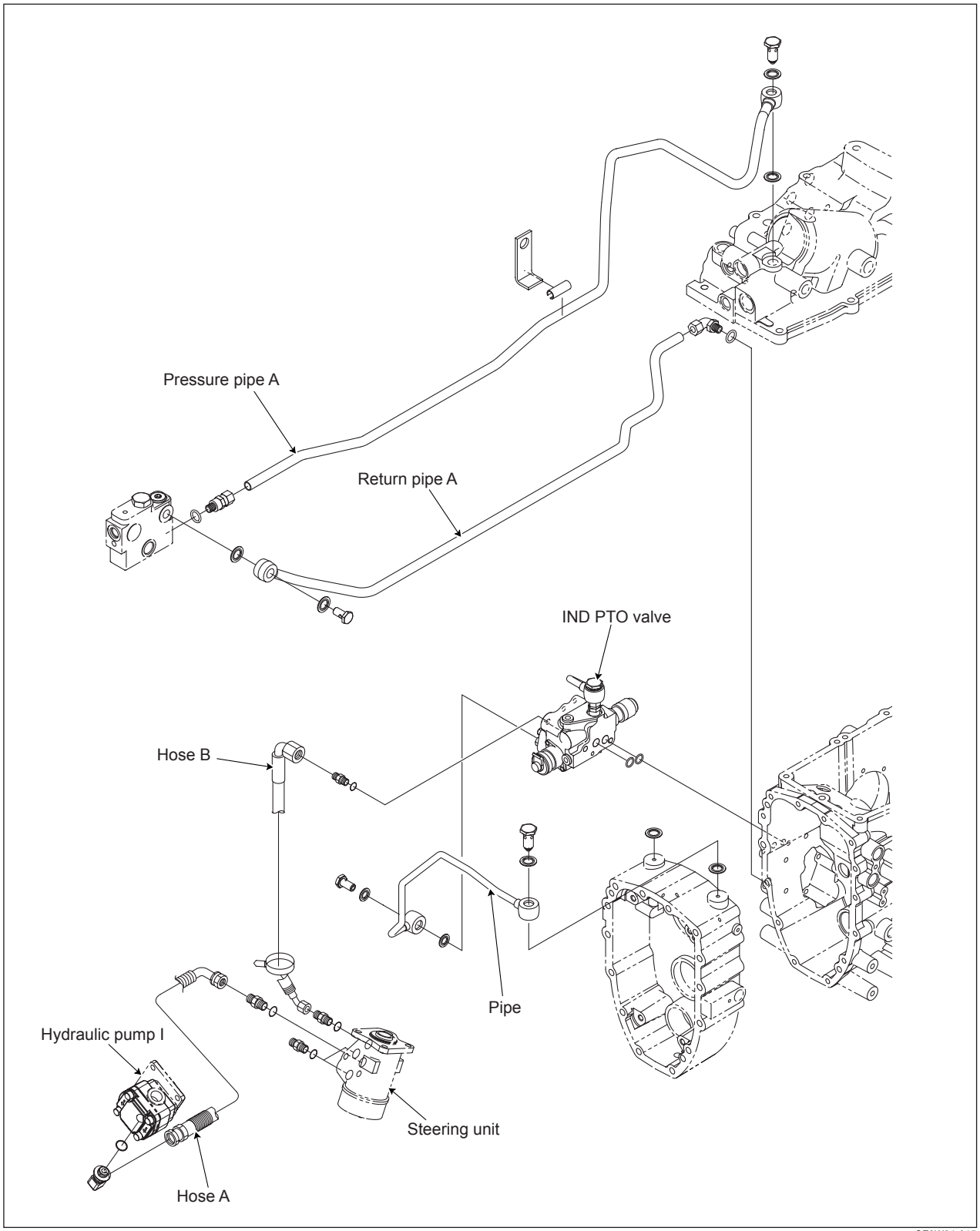


2. Disassemble the steering unit and pressure pipe.

HST (7532 Only)

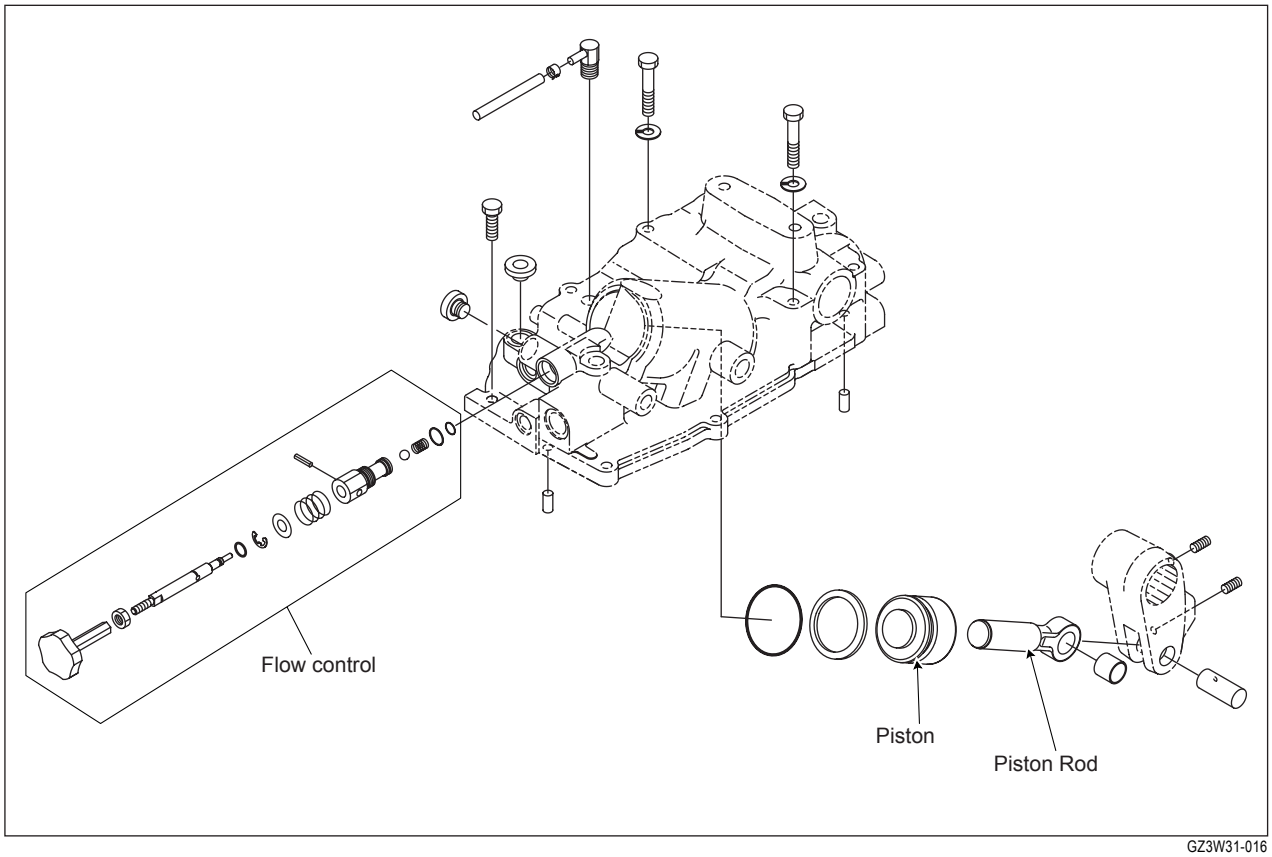


Manual Transmission (7530 Only)



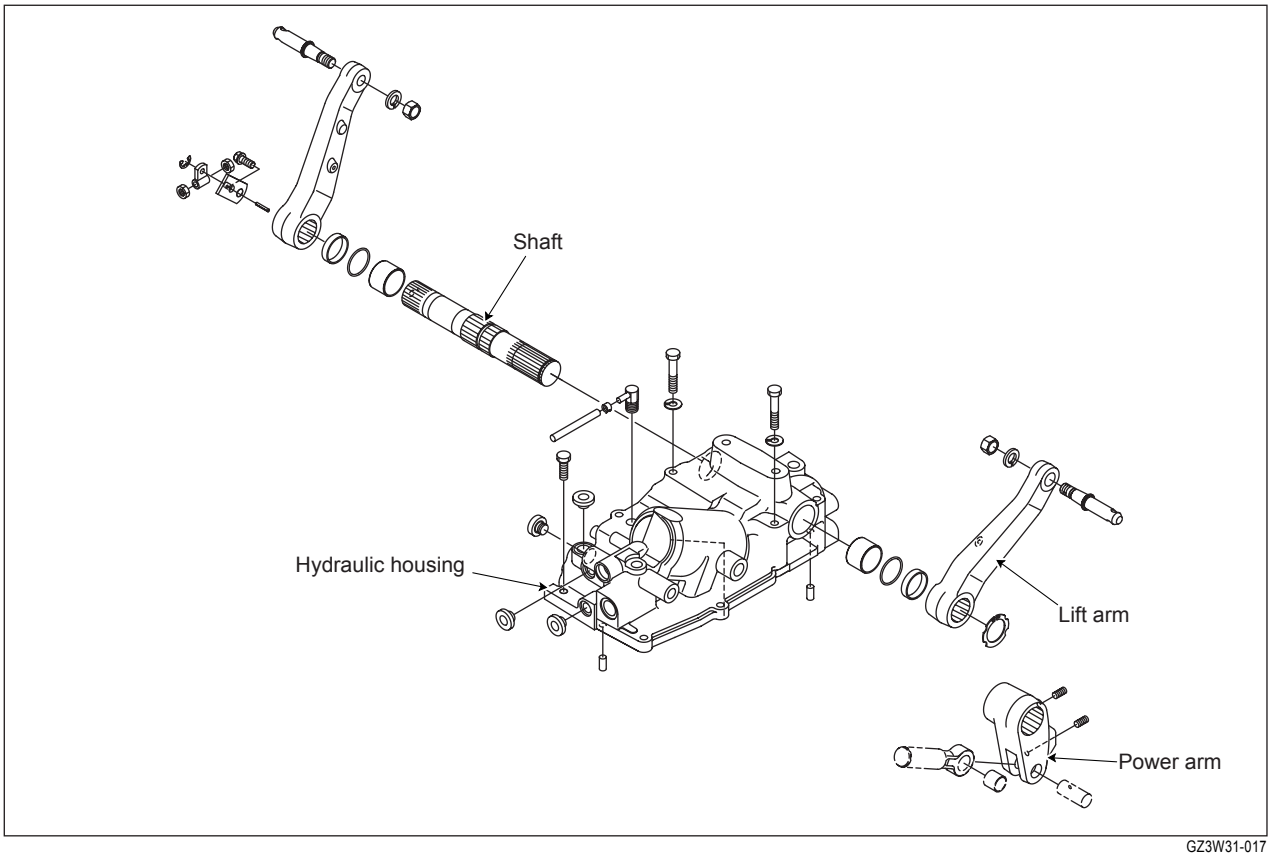
2 Disassembly of Hydraulic Lift Case

1. Disassemble the flow control part and piston.



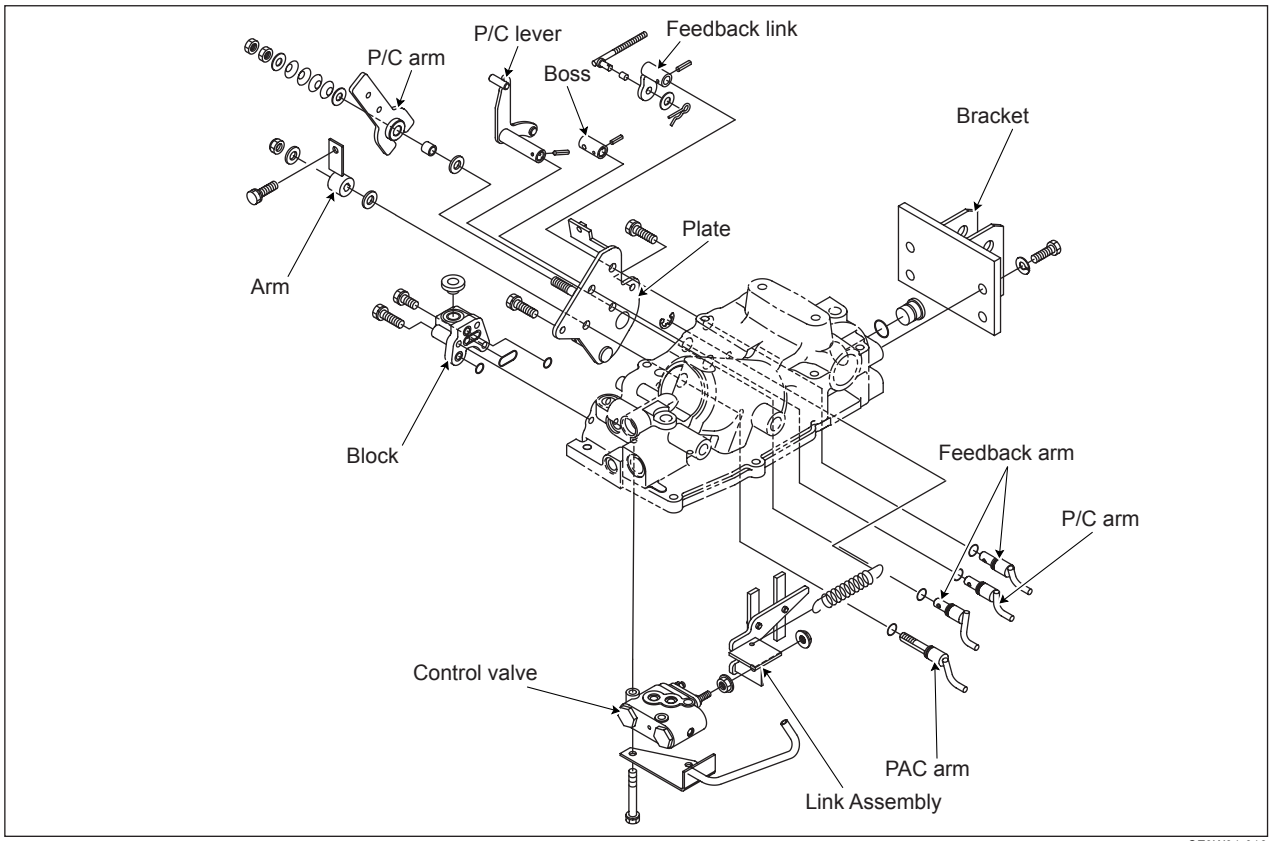
GZ3W31-016

2. Disassemble the lift arm.



GZ3W31-017

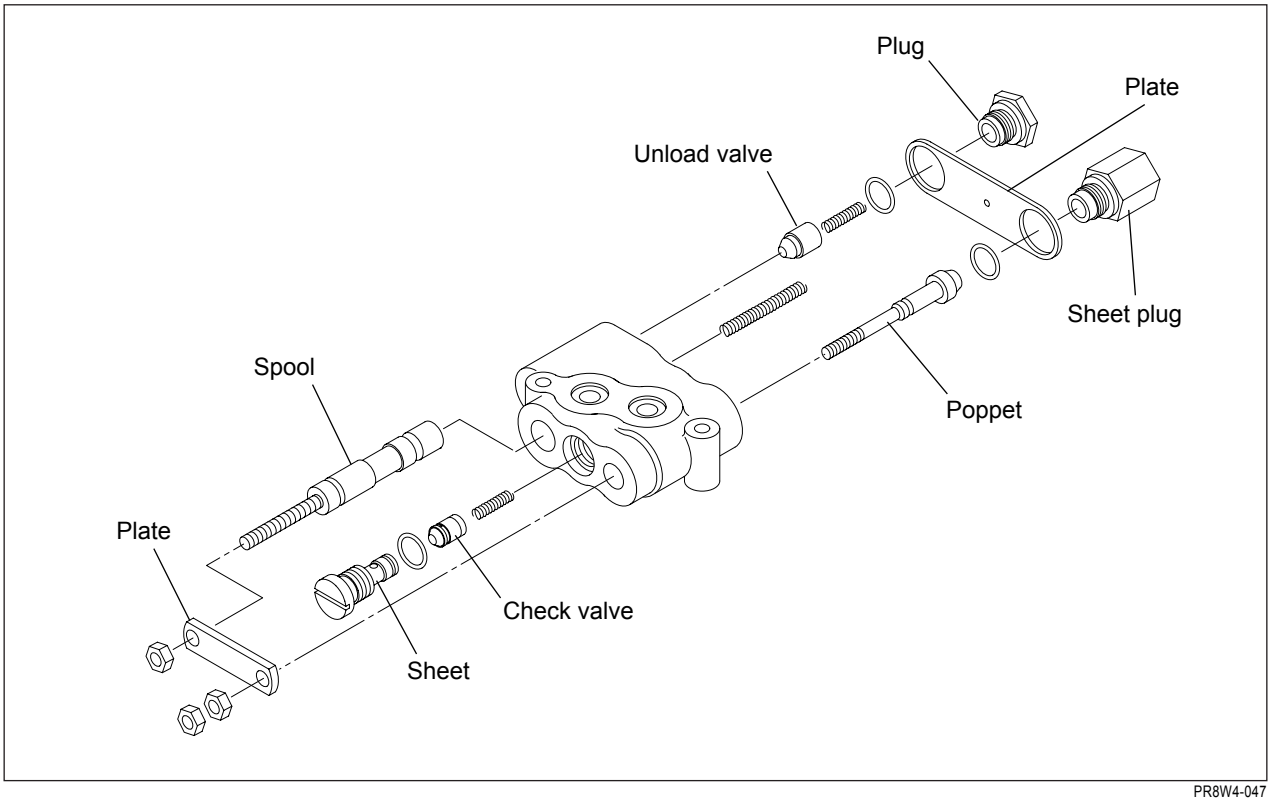
3. Disassemble the control valve and link part.



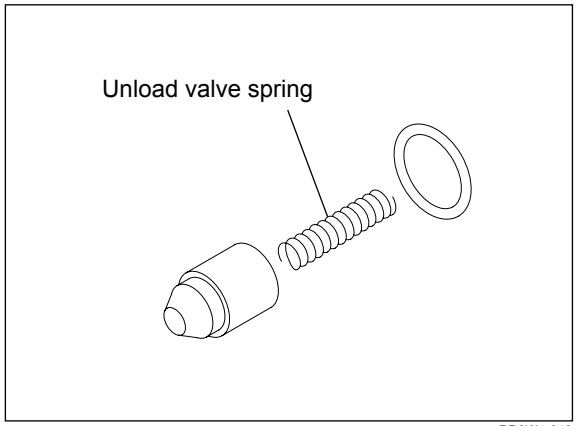
GZ3W31-018

3 Disassembly of Control Valve

1. Valve Details



PR8W4-047



PR8W4-048

1) Unload Valve

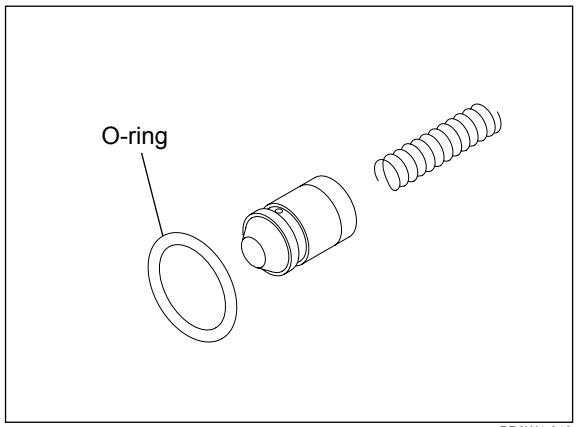
• Unload valve spring

Part No.: 21101-01215

• O-ring

Part No.: 95111-01500

Size: P15 HS70 JIS B2401



PR8W4-049

2) Check Valve

• Check valve

Part No.: 21101-01218

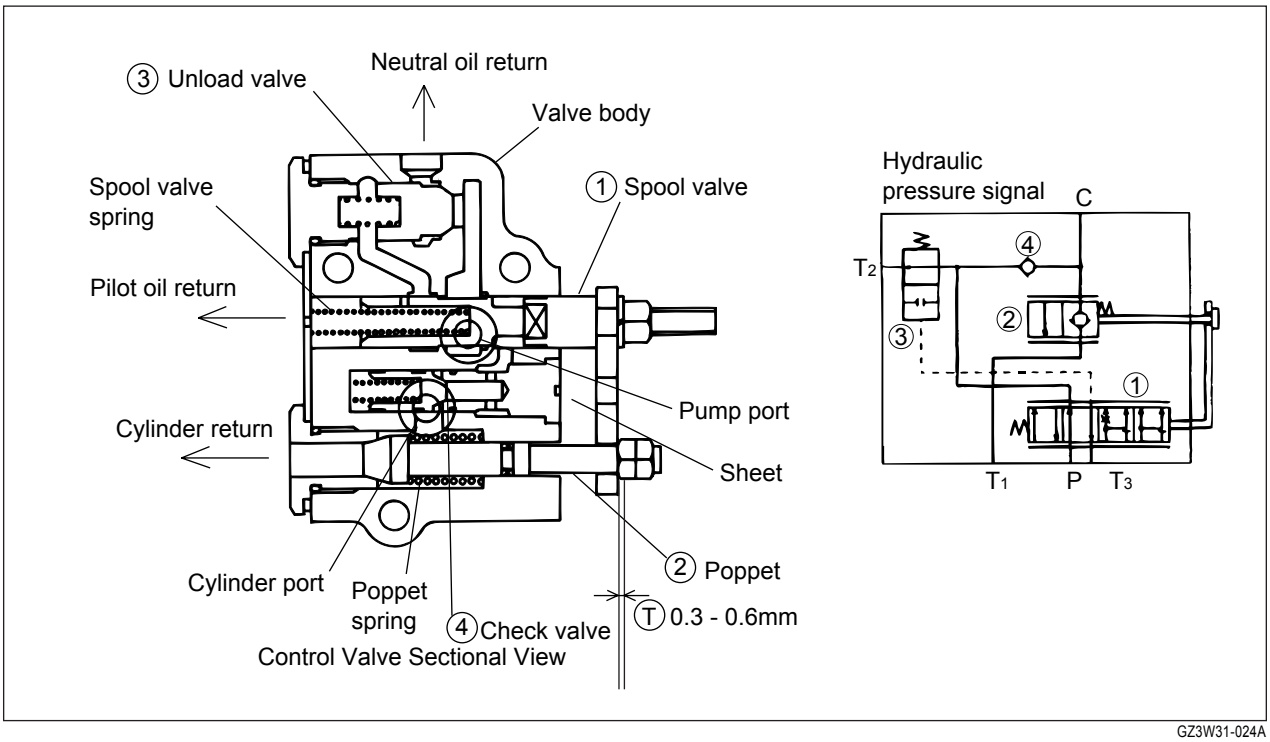
• O-ring

Part No.: 95113-00900

Size: P9 HS90 JIS B2401

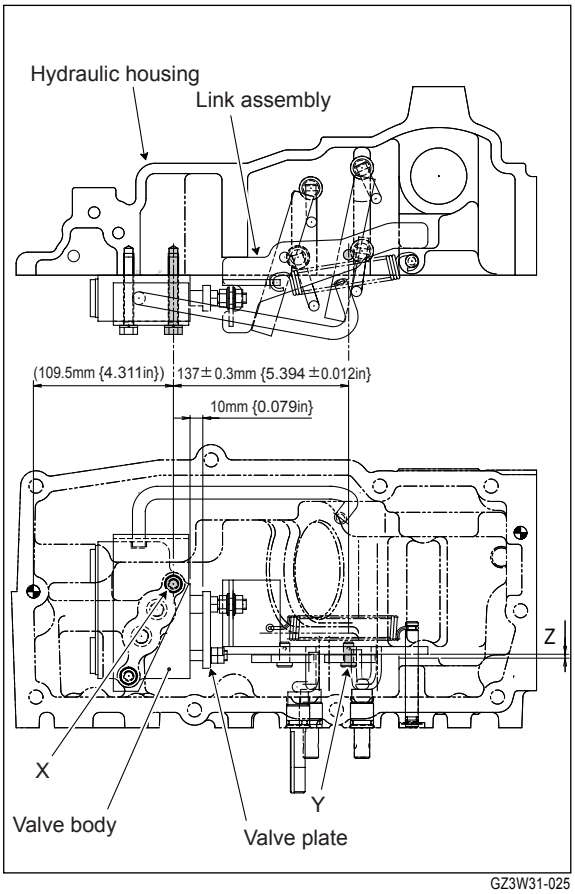
1.7 Assembly and Installation of Hydraulic Circuit

1 Assembly of Control Valve

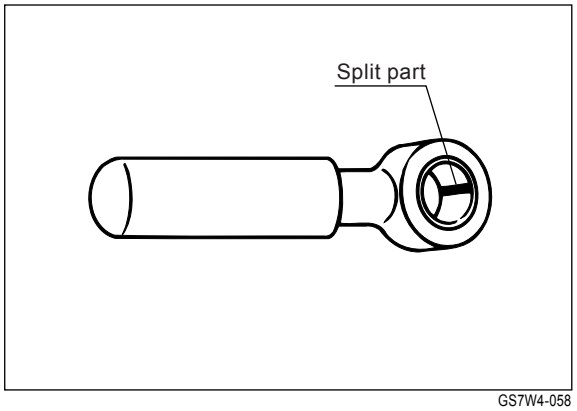


GZ3W31-024A

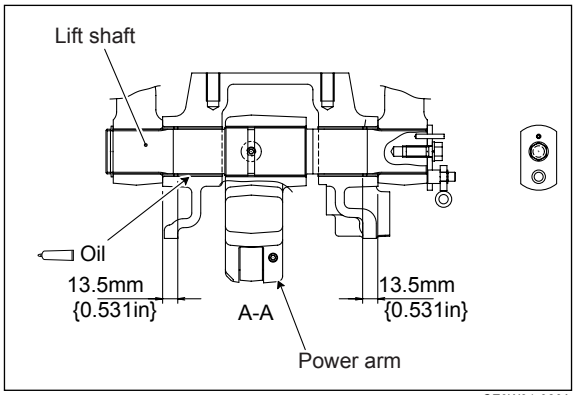
1. Assembling Procedure
   1) Line up all the parts disassembled and check the O-ring for scratches and wears. If any defects, change it.
   2) Check the spool, movement of plunger, and sheet part for any bruises. If any bruieses, smoothen them with oilstone.
   3) Clean with cleaning fluid.
   4) Make sure the assembling position and direction at assembly.
   5) Apply some grease to O-ring when assembling it.
2. Adjusting Procedure
   1) Remove the plug and the spring of unload valve.
   2) The position, which changes the sound when moving the spool while blowing in the air from the plug, is the neutral position for the spool.
   3) Set the clearance "T" with the nut connecting the plate and poppet within 0.3 to 0.6mm {0.012 to 0.024in} in this position and lock.



GZ3W31-025



GS7W4-058



GZ3W31-026A

2 Installation of Hitch Control Valve

⚠ CAUTION

Make sure the O-ring is attached before assembly.

1. Set the clearance between the valve plate and valve body to 10mm {0.394in}.
2. Make sure that the clearance "Z" between the hydraulic housing and link assembly is within 0.58 to 2.0mm {0.023 to 0.079in}.
3. Adjust the measurement of the center of valve mounting bolt "X" and arm pin "Y" for level link to 137 ± 0.3mm {5.394 ± 0.012in} with W nut.

3 Assembly of Hydraulic Piston Rod

Wash the hydraulic equipment parts and assemble with caution for entry of foreign matters.

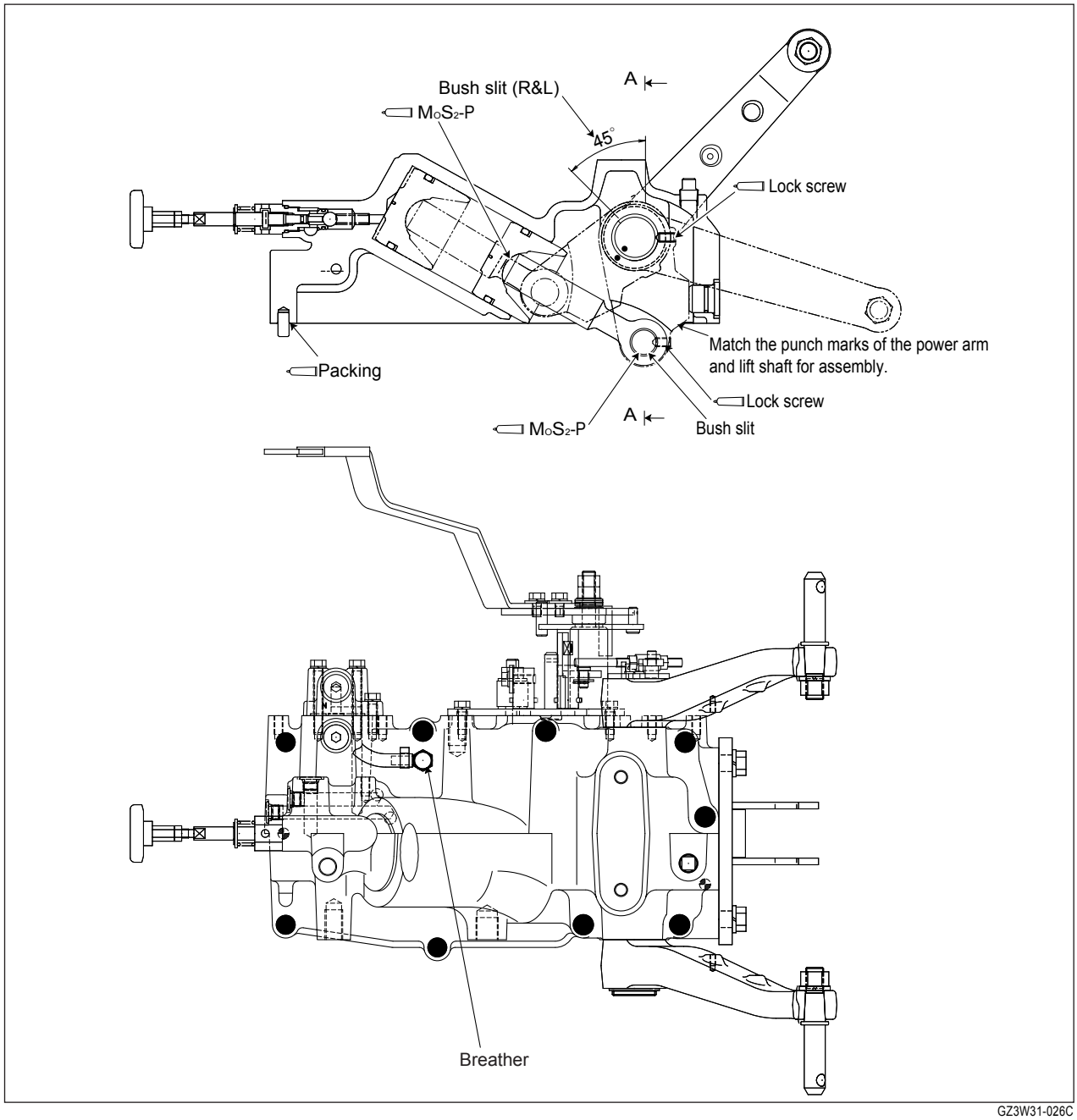
Apply some oil to the O-ring, bush and seal for assembly.

1. Toward the spilt part of the bush for piston rod as shown in the figure for mounting.

   Reference) Apply some lubricant, MoS2-P, to the bush internal diameter (pin oscillating part) and oscillating part of the piston and piston rod.
2. Toward the spilt part of the bush (left and right) for lift shaft as shown in the figure for mounting.
   1) Toward the spilt part of the bush as shown in the figure for mounting.
   2) The depth of press fit for bush shall be 13.5mm {0.531in} on both lift and right.

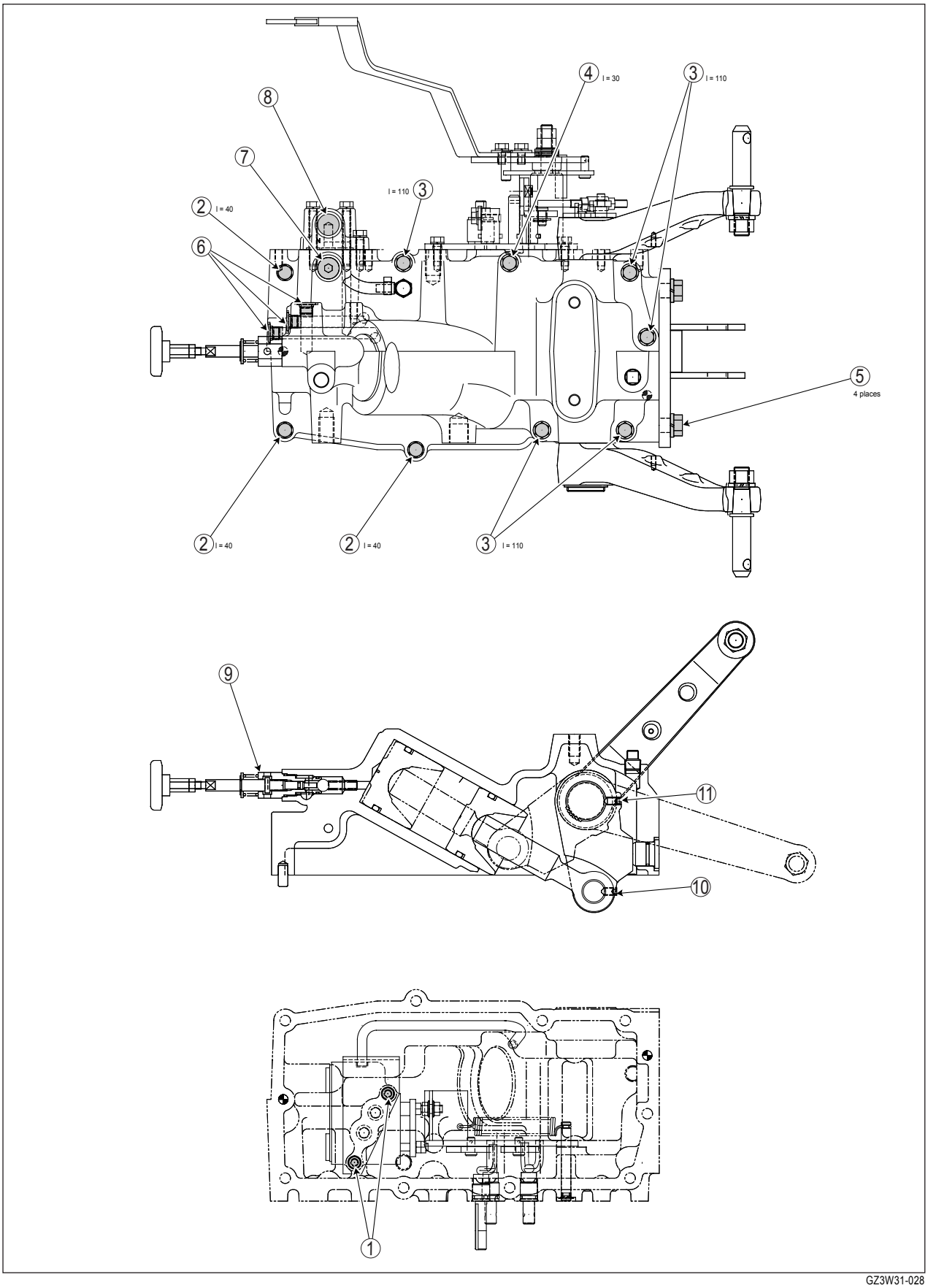
   Reference) Apply some lubricant, MoS2-P, to the spline part of the shaft.

3. Match the punch marks of the power arm and lift shaft for assembly.
4. Match the punch marks of the lift arm and lift shaft for assembly.
5. Wrap the seal tape around the breather and mount it with the hole forward.
6. Apply some liquid packing (ThreeBond #1208D) to the mounting face of the lift case for assembly.
   Torque: 39.2 to 44.1N•m {400 to 450kgf•m, 28.9 to 36.2lbf•ft}
7. Refer to the table for torque for each part. (Standard torque unless specified.)



GZ3W31-026C

4 Torque for Each Parts



GZ3W31-028

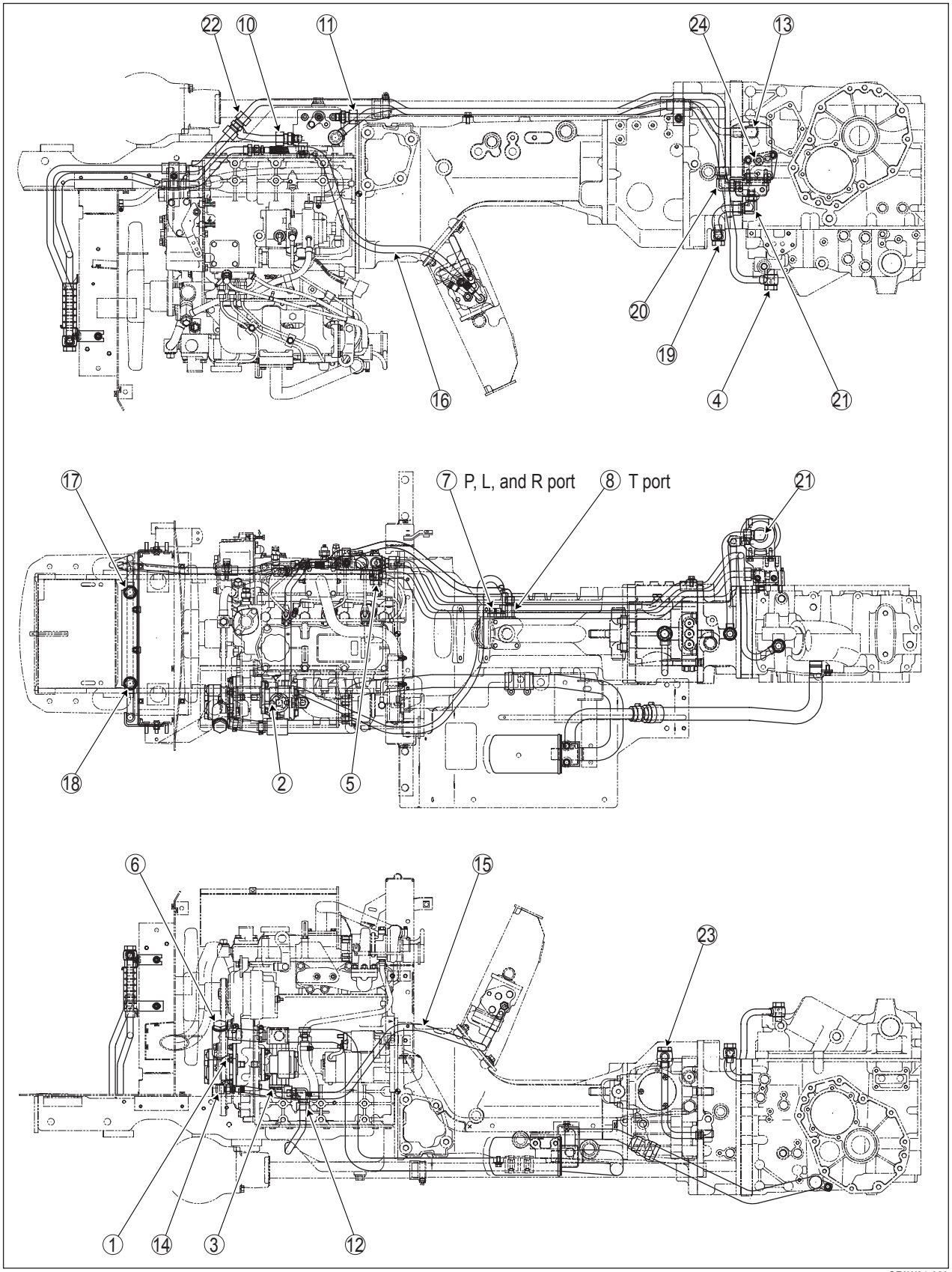
No.	Parts	Size	Torque (N•m {kgf•cm, lbf•ft})
1	Bolt	M8	19.6 to 21.6 {200 to 220, 14.46 to 15.9}
2, 3, 4	Bolt	M10	39.2 to 44.1 {400 to 450, 28.9 to 32.5}
5	Bolt	M14	118 to 132 {1200 to 1350, 86.8 to 97.6}
6	Plug	G1/4	34 to 39 {350 to 400, 25.3 to 28.9}
7, 8	Plug	G3/8	49 to 59 {500 to 600, 36.2 to 43.4}
9	Sleeve		84 to 93 {850 to 950, 61.5 to 68.7}
10, 11	Screw	M8	15 to 18 {150 to 180, 10.85 to 13}

5 Assembly of Hydraulic Pipes

1. Misalignment at joint by hose shall be within 2mm {0.079} on both sides of pipe.
2. Apply some oil to the O-ring and take caution not to fill out at assembly.
3. Apply some lubricant, MoS2-P, to the driving shaft spline for pump.
4. Handle with caution for entry of foreign matters to the pipe or mounting holes, etc. at assembly and disassembly.
5. Make sure there is no oil leakage after assembly.
6. Follow below for assembly of the filter.
   1) Clean the mounting face and apply some oil to the packing face of cartridge for lubrication.
   2) Tighten with torque at 14.7 to 19.6 N•m {150 to 200kgf•cm, 10.85 to 14.5lbf•ft}.

6 Torque for Hydraulic Line

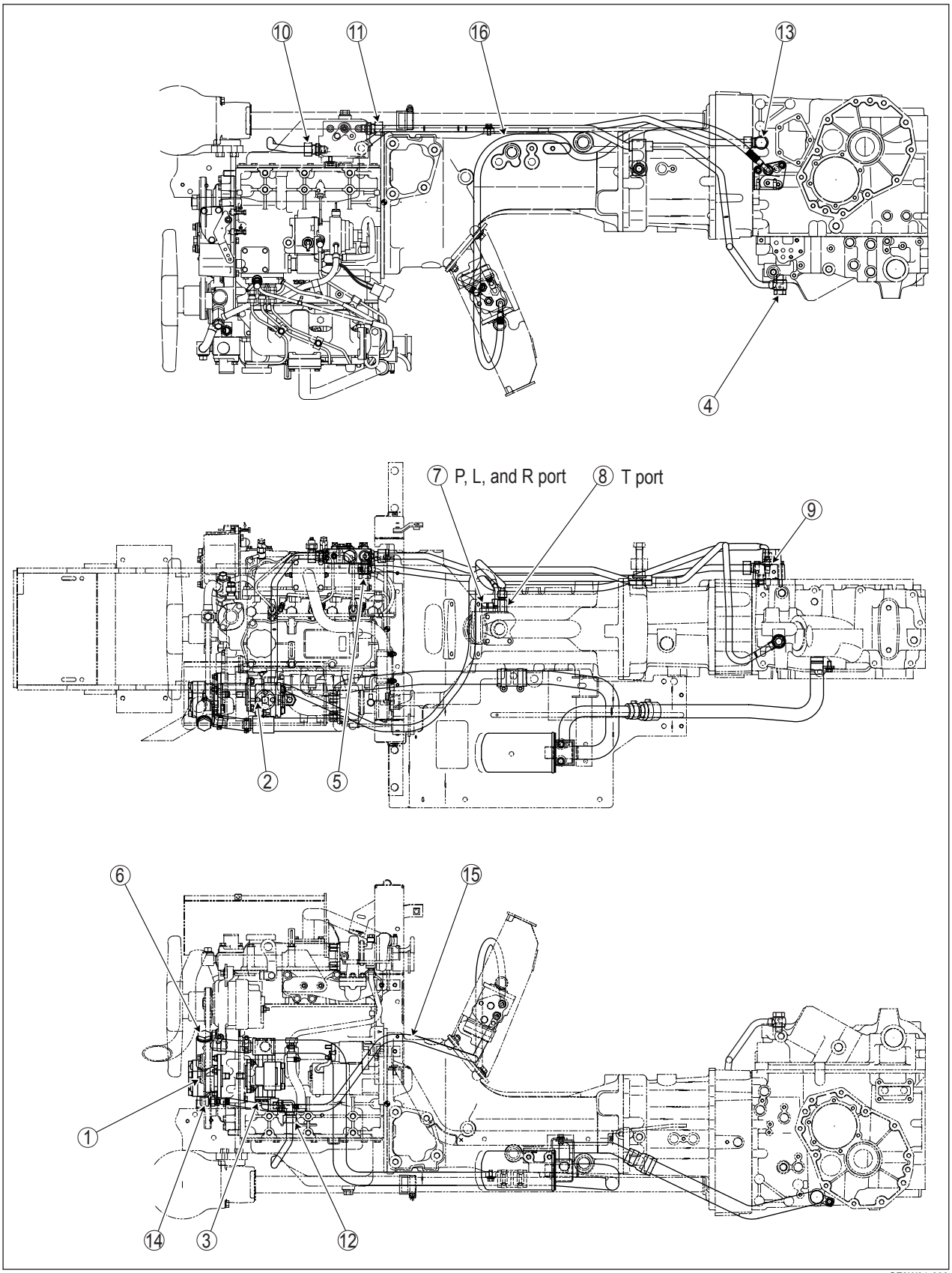
1. HST (7532 Only)



GZ3W31-029

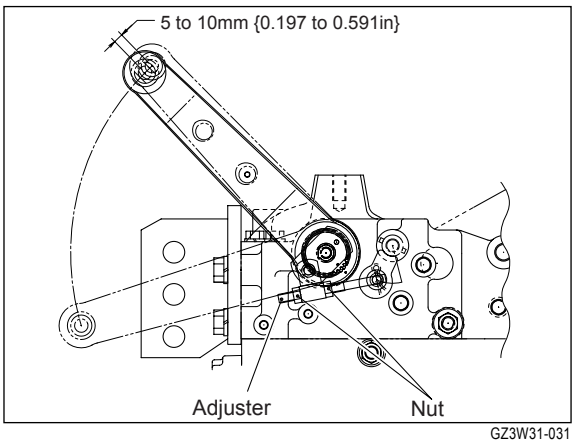
No.	Parts	Size	Torque (N•m {kgf•cm, lbf•ft})
1	Pump mounting nut	M8 × 1.25	24.5 to 29.4 {250 to 300, 18.1 to 21.7}
2, 3	Pump mounting nut	M6 × 1.0	7.9 to 9.8 {80 to 100, 5.79 to 7.23}
4, 5, 17, 18, 19	Union bolt	M16 × 1.5	39 to 44 {400 to 450, 28.9 to 32.5}
6	Union bolt	G1/2	58.8 to 68.6 {600 to 700, 43.4 to 50.6}
7, 8,	Adaptor	G1/4	39 to 49 {400 to 500, 28.9 to 36.2}
10, 11	Union	G3/8	49 to 59 {500 to 600, 36.2 to 43.4}
12, 13, 14, 20, 21	Elbow 90°	G3/8	39 to 44.1 {400 to 450, 28.9 to 32.5}
15, 16	Hose joint	G1/4	25 {260, 18.8}
10, 11, 12, 13, 20, 22, 21	Bite type joint	ø 15	Temp. tightening 44 to 59 {450 to 600, 32.5 to 43.4} Tightening 59 to 69 {600 to 700, 43.4 to 50.6}
23	Union bolt	G1/2	47 to 54 {480 to 550, 34.7 to 39.8}
24	Plug	G3/8	49 to 59 {500 to 600, 36.2 to 43.4}

2. Manual Transmission Specification



GZ3W31-030

No.	Parts	Size	Torque (N•m {kgf•cm, lbf•ft})
1	Pump mounting nut	M8 × 1.25	24.5 to 29.4 {250 to 300, 18.1 to 21.7}
2, 3	Pump mounting nut	M6 × 1.0	7.9 to 9.8 {80 to 100, 5.79 to 7.23}
4, 5	Union bolt	M16 × 1.5	39 to 44 {400 to 450, 28.9 to 32.5}
6	Union bolt	G1/2	58.8 to 68.6 {600 to 700, 43.4 to 50.6}
7, 8, 9	Adaptor	G1/4	39 to 49 {400 to 500, 28.9 to 36.2}
10, 11	Union	G3/8	49 to 59 {500 to 600, 36.2 to 43.4}
12, 13, 14	Elbow 90°	G3/8	39 to 44.1 {400 to 450, 28.9 to 32.5}
15, 16	Hose joint	G1/4	25 {260, 18.8}
10, 11, 12, 13	Bite type joint	ø 15	Temp. tightening 44 to 59 {450 to 600, 32.5 to 43.4} Tightening 59 to 69 {600-700, 43.4 to 50.6}



GZ3W31-031

7 Adjustment of Position Control Lever

Adjust the nut for adjuster to stop the lift arm at 5 to 15mm {0.197 to 0.591in} before at the tip of the lift arm from the upper limit position.

1.8 Inspection and Adjustment of Hydraulic System

1 Bush Clearance

Check the clearance of the bush and change the ones exceeding the usable limit.

⚠ CAUTION

- Check the shaft for oscillating face with the bush for fouling and change accordingly.
- Change the bush if the internal gray fiber layer is worn.

(Unit: mm {in})

Item	Reference Value	Usable Limit
Clearance bet. Lift Shaft and Bush	0.025 to 0.089 {0.0010 to 0.0035}	0.30 {0.012}
Clearance bet. Piston Rod and Bush	0.020 to 0.083 {0.0008 to 0.0033}	0.30 {0.012}

2 Troubleshooting

Condition	Causes (Checked Place)	Measures	Remarks
1. Unusual noise in hydraulic circuit	• Insufficient oil (T/M oil) • Sound of cavitation due to excessive resistance to suction	• Supply up to specified amount. • Fix the failure valves. • Change filter.	HST: 32L{8.5gal} GEAR: 29L{7.7gal}
2. Hydraulic pressure (lift arm) cannot be lifted.	• Insufficient oil (mission oil)	• Supply up to specified amount.	HST: 32L{8.5gal} GEAR: 29L{7.7gal}
	• The air is sucked from suction pipes. • Oil leakage from seal	• Retighten the filter case and mounting part and change if any cracks on pipe or damage on O-ring.	(Note 1)
	• Clogging of hydraulic filter	• Change	(Note 2)
	• Hydraulic pump failure	• Repair	
	• Control valve failure	• Repair	
	• Cylinder failure	• Change	
3. There is an oil leakage.	• Looseness of each joint • Cracks on pipe • Cut of O-ring	• Retighten • Change • Change	
4. When lifting the hydraulic lever, relief valve will sound "Beep".	• Adjustment failure at stopper position	• Repair	
5. Lift arm cannot be lifted.	• Lowering speed-adjusting grip is set locked.	• Position for lowering	
	• Control valve failure	• Repair	
	• Cylinder failure	• Change	
	• Rotating part of lift shaft is seized.	• Repair	
	• Valve lowering spring failure	• Change	

Note 1 Air suction of suction pipe

1) Hydraulic performance will notably degrade.
2) Unusual noise will sound in relief sound at actuation of hydraulic circuit.
3) Slight vibration can be sensed if touched the hydraulic pipe with fingers.
4) Set the control valve in neutral with the lift arm in the lower limit position and press down the lift arm to function. (Cushion by air can be felt.)
5) T/M oil will be dirty.
6) The pointer of the pressure gauge will swing largely.

Note 2 Phenomenon at oil filter clogging

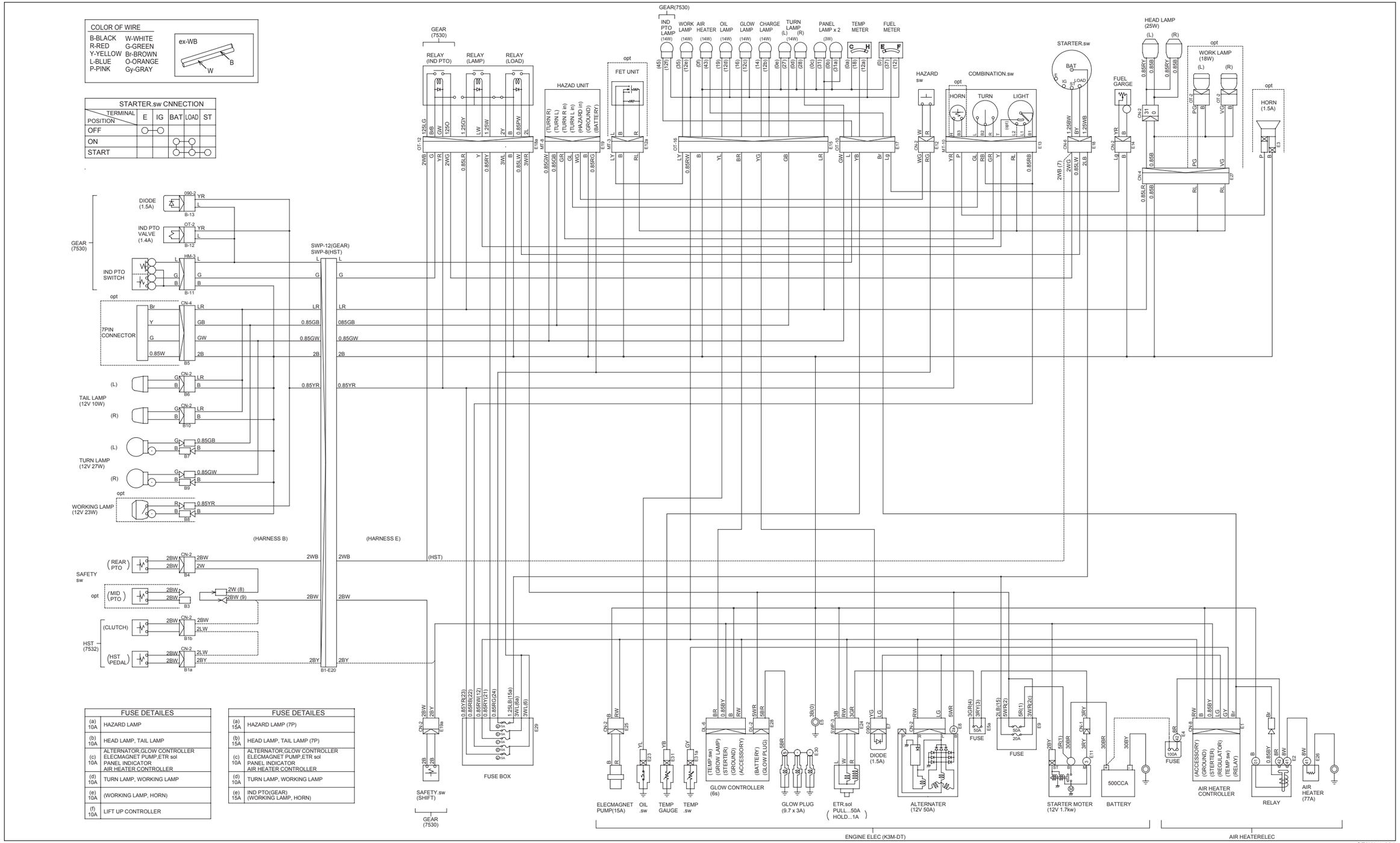
1) Hydraulic operation will become uneven and start stopping.
2) When excessive clogging, it will not function at all.
3) It will function at initial stage of operation but stop functioning when foreign matters in the oil start clogging the filter. If stopped the engine and restarted the operation after a while, it will function but will stop shortly. This is because of the precipitation of clogged matters in the filter. It is often misunderstood as a trouble caused by increase of the hydraulic pressure due to its correspondence to the increase of the hydraulic pressure.

IV ELECTRICAL EQUIPMENT

ELECTRICAL EQUIPMENT

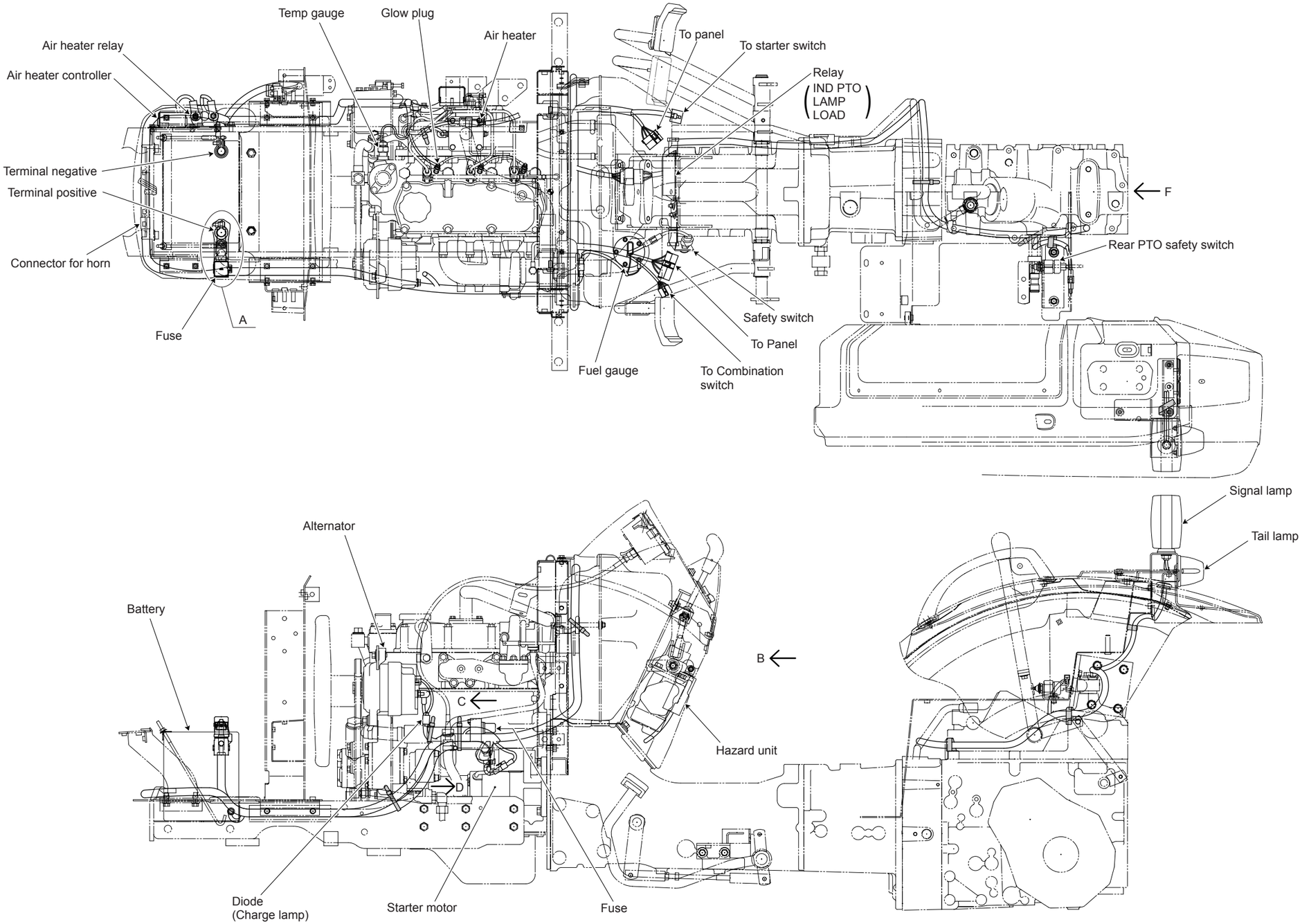
1 Wiring Diagram

1.1 Circuit Diagram



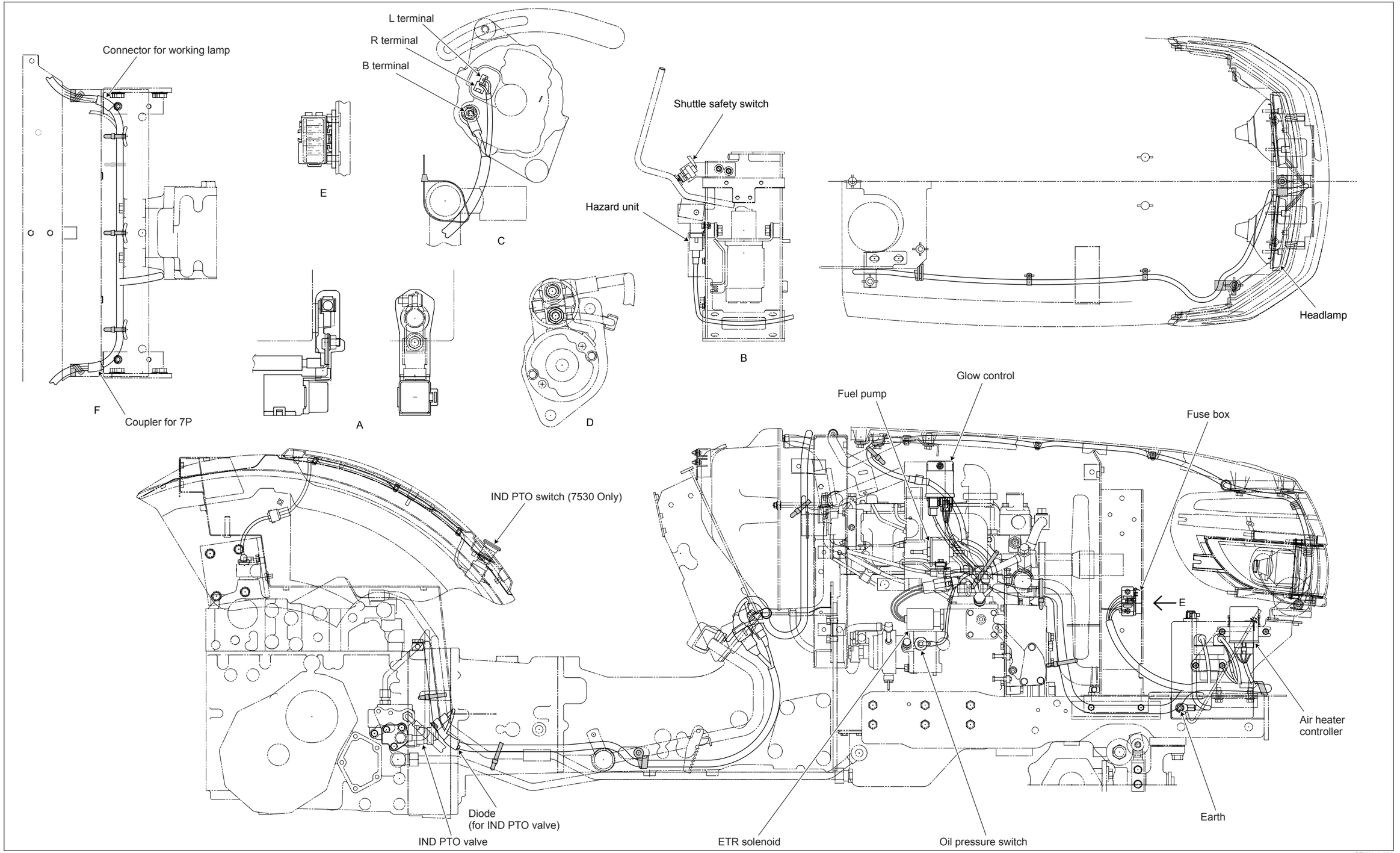
GZ3W41-001

1.2 Arrangement Plan - 1/2



GZ3W41-002

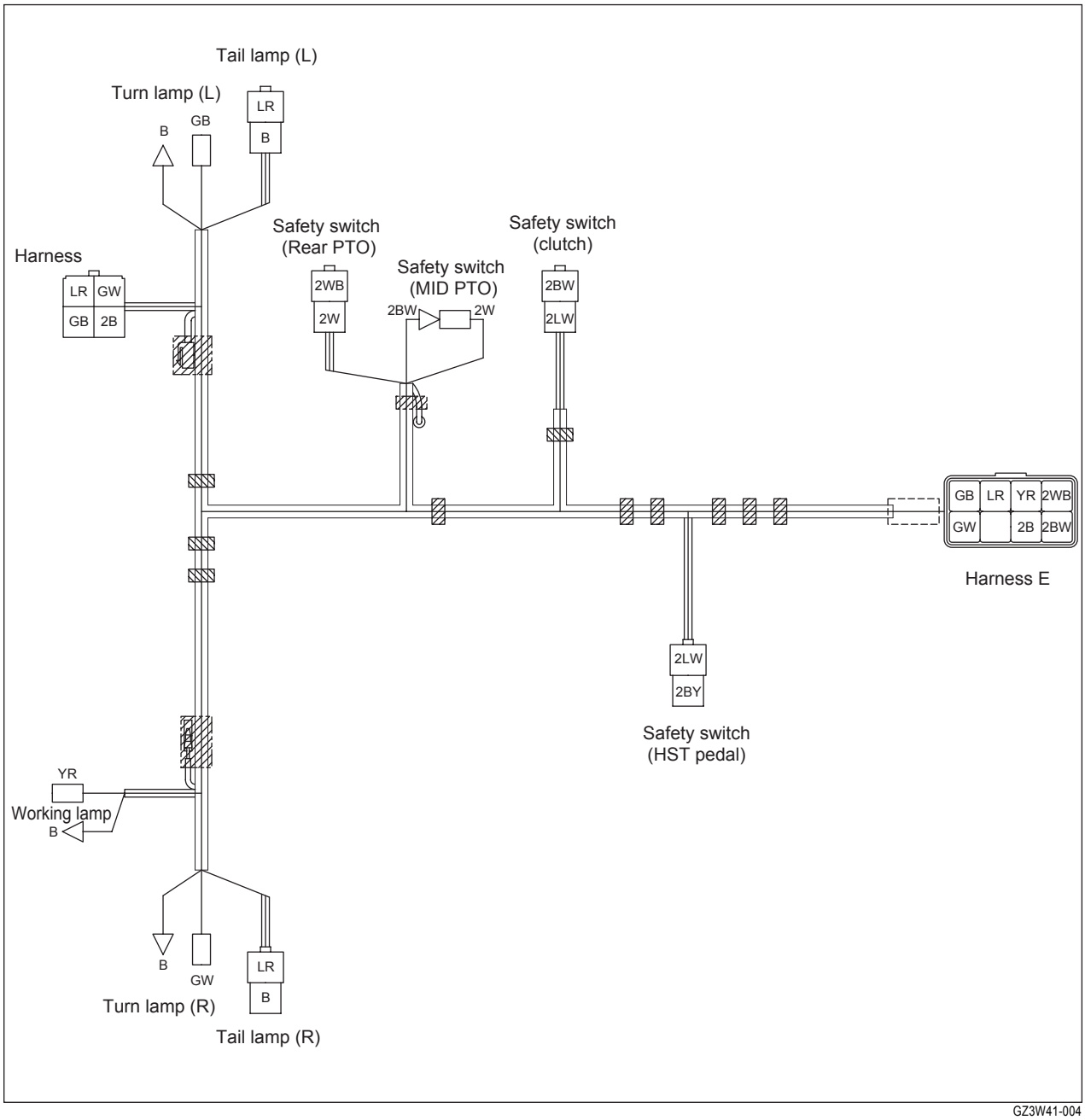
Arrangement Plan - 2/2



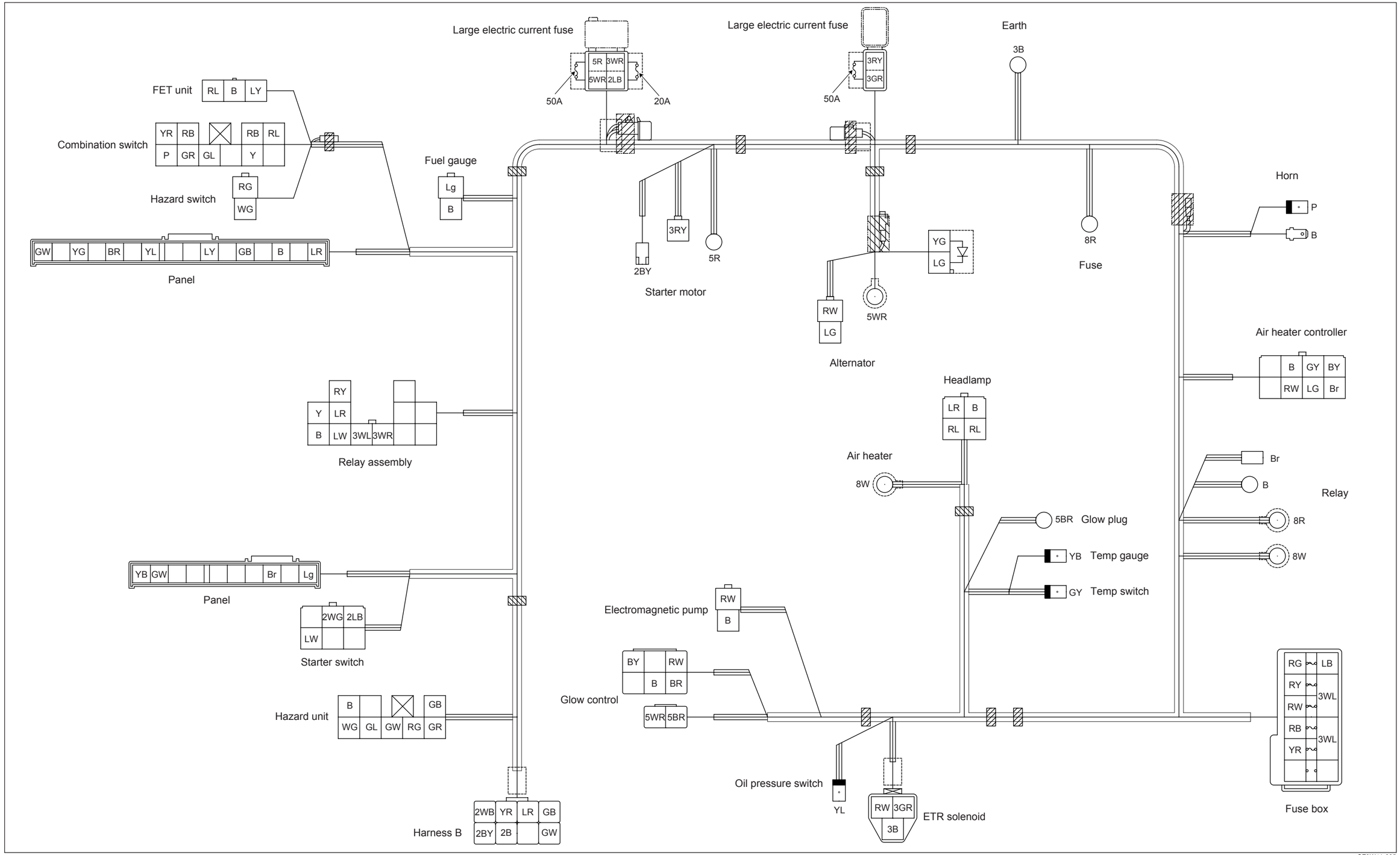
GZ3W41-003

1.3 Harness Drawing

1 HST (7532) - 1/2

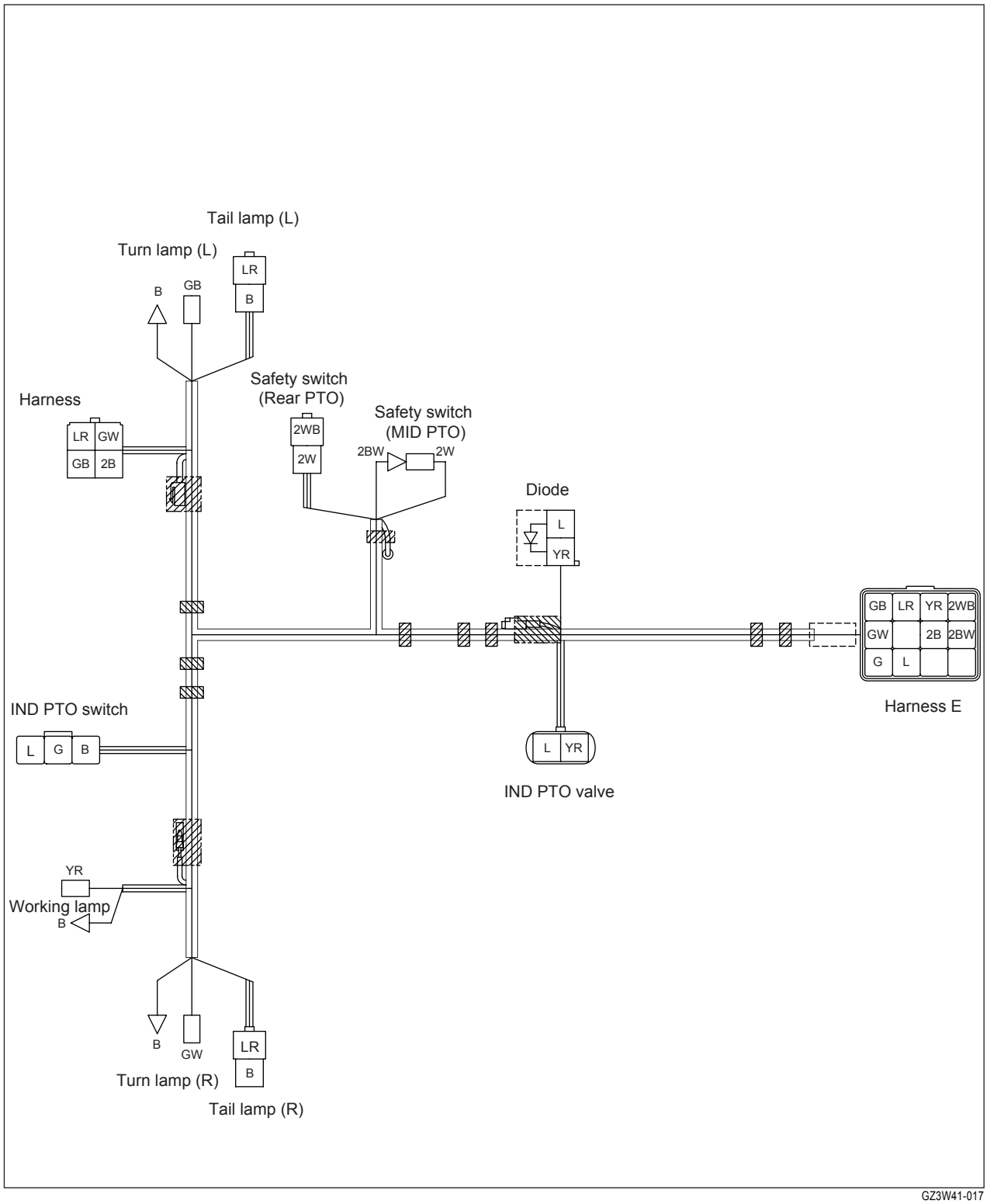


HST (7532) - 2/2

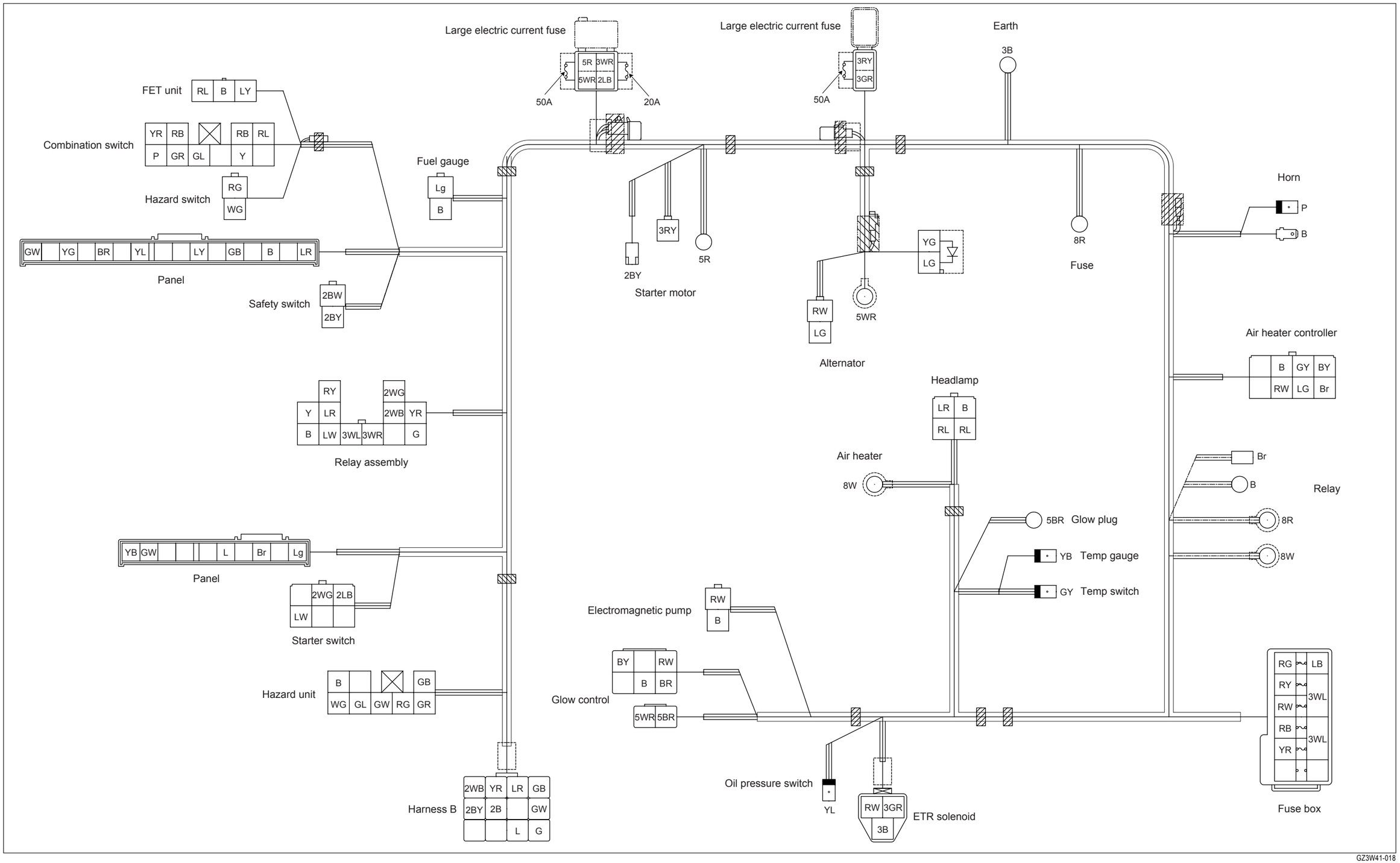


GZ3W41-005

2 Manual Transmission (7530) - 1/2

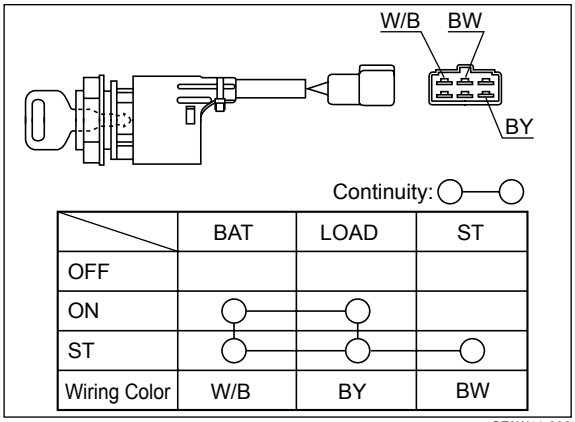


Manual Transmission (7530) - 2/2



GZ3W41-018

2 Inspection and Adjustment

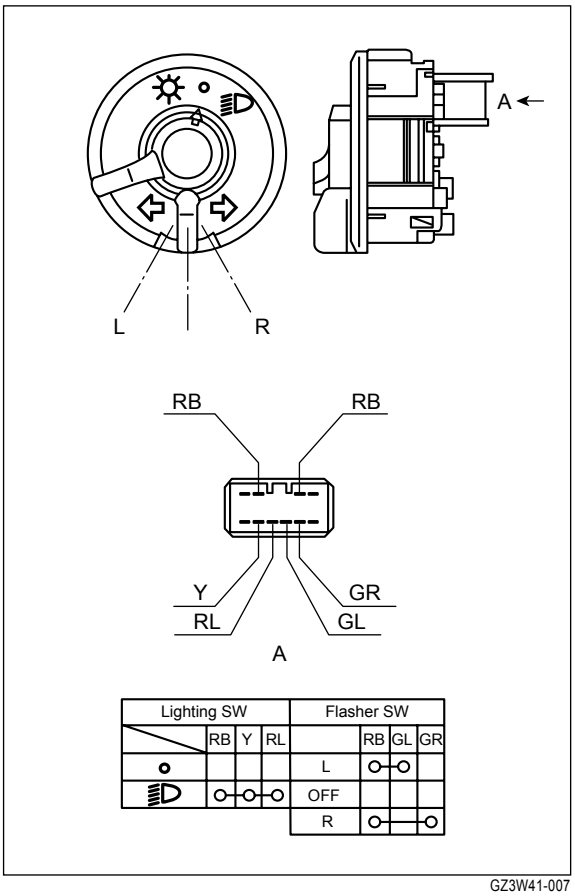


GZ3W41-006

1 Start Switch

Using the circuit tester, make sure that continuity between terminals for the start switch becomes as shown in the figure.

- If the continuity is not as shown in the figure, change the start switch.

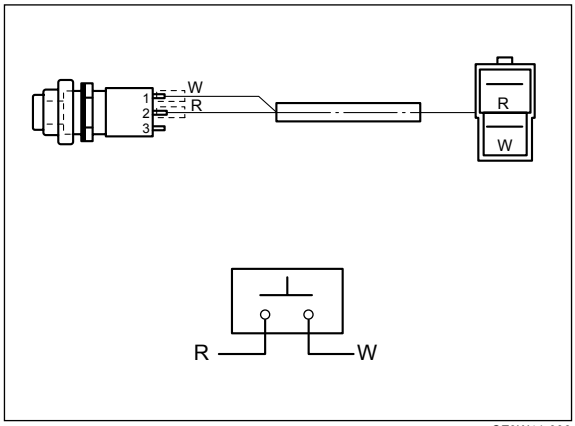


GZ3W41-007

2 Combination Switch

Using the circuit tester, make sure that continuity between terminals for the combination switch becomes as shown in the figure.

- If the continuity is not as shown in the figure, change the combination switch.

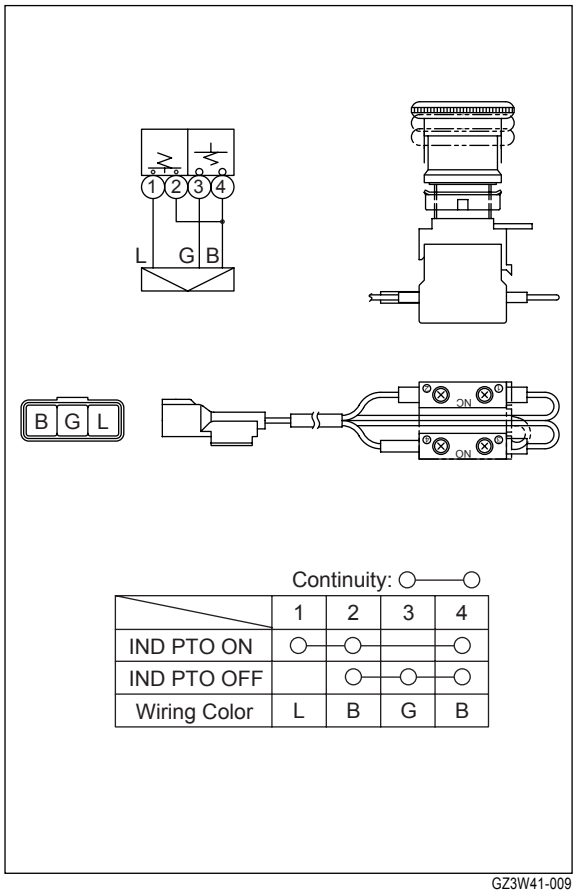


GZ3W41-008

3 Hazard Switch

Using the circuit tester, make sure that continuity between terminals for the hazard switch becomes as shown in the figure.

- If the continuity is not as shown in the figure, change the hazard switch.



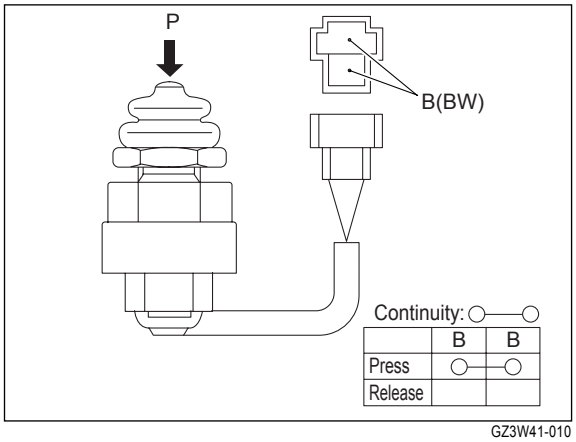
	1	2	3	4
IND PTO ON	○	○		○
IND PTO OFF		○	○	○
Wiring Color	L	B	G	B

GZ3W41-009

4 IND PTO Switch (7530 Only)

Using the circuit tester, make sure that continuity between terminals for the IND PTO switch becomes as shown in the figure.

- If the continuity is not as shown in the figure, change the IND PTO switch.



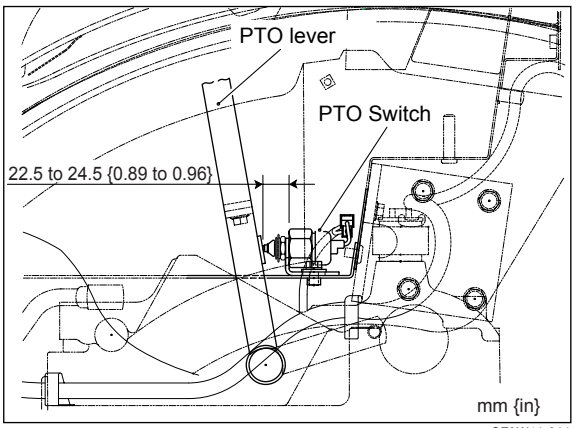
	B	B
Press	○	○
Release		

GZ3W41-010

5 Safety Switch

Repeatedly press and release the tip of the safety switch. Using the circuit tester, make sure that continuity between terminals for the safety switch becomes as shown in the figure.

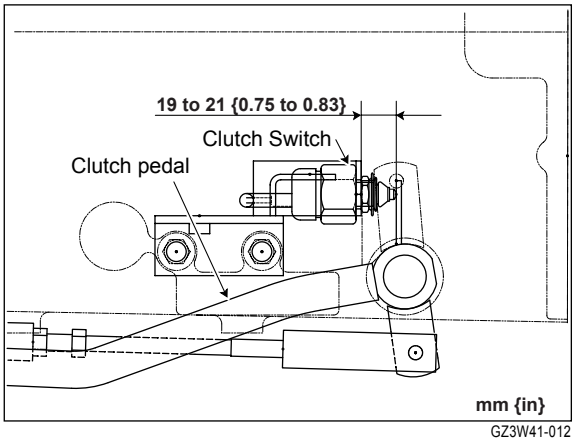
- If the continuity as shown in the figure is not confirmed, change the safety switch.



GZ3W41-011

1. Adjustment of Rear PTO Switch

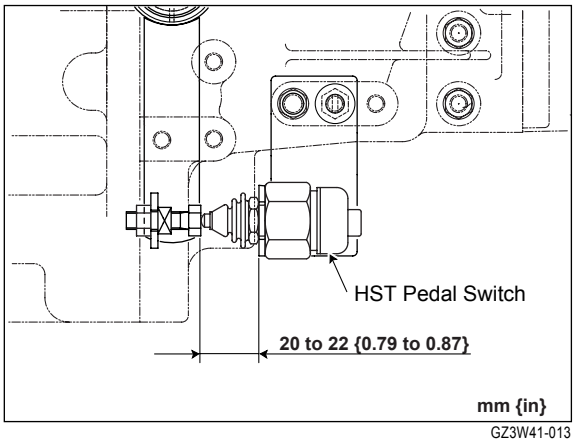
   Set as shown in the figure.



GZ3W41-012

2. Adjustment of Clutch Switch

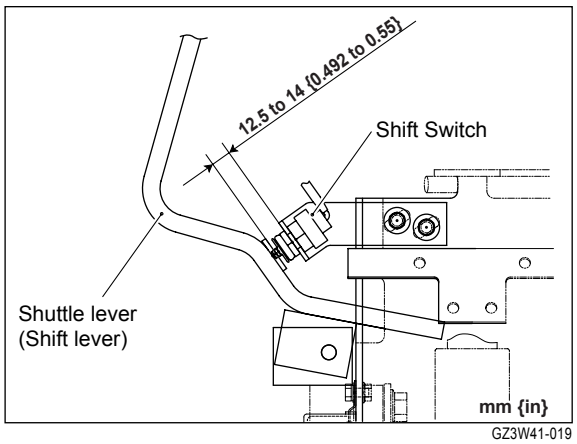
   Set as shown in the figure.



GZ3W41-013

3. Adjustment of HST Pedal Switch (7532 Only)

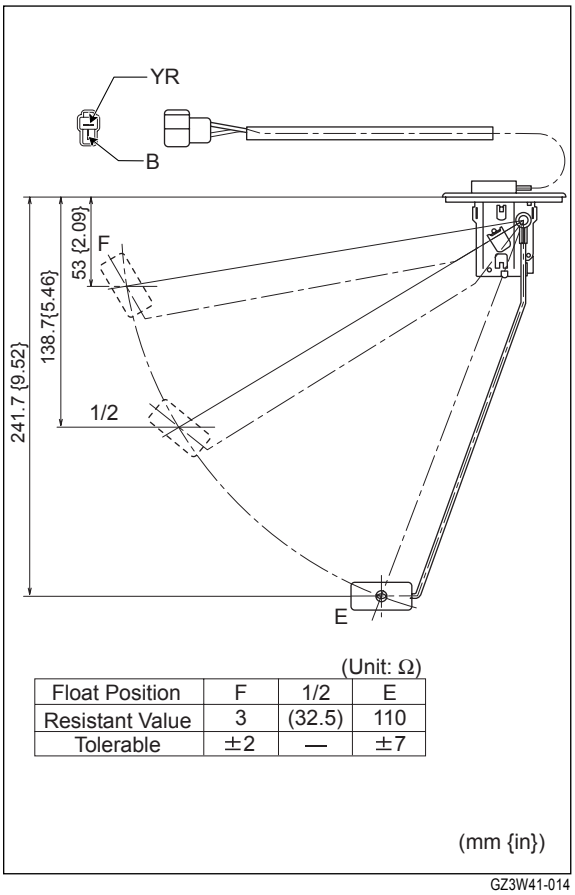
   Set as shown in the figure.



GZ3W41-019

4. Adjustment of Shift Switch (7530 Only)

   Set as shown in the figure.



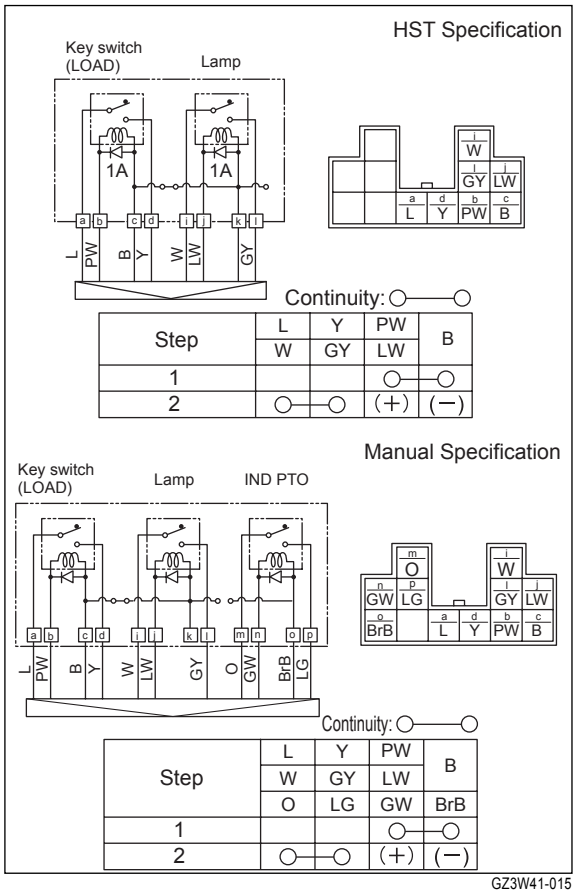
Float Position	F	1/2	E
Resistant Value	3	(32.5)	110
Tolerable	±2	—	±7

GZ3W41-014

6 Fuel Gauge

Using the circuit tester, make sure that resistant value between terminals for the fuel gauge becomes as shown in the figure.

- If the resistant value is not as shown in the figure, change the fuel gauge.



Step	L	Y	PW	B
	W	GY	LW	
1			○—○	
2	○—○		(+)	(−)

Step	L	Y	PW	B
	W	GY	LW	
	O	LG	GW	BrB
1			○—○	
2	○—○		(+)	(−)

GZ3W41-015

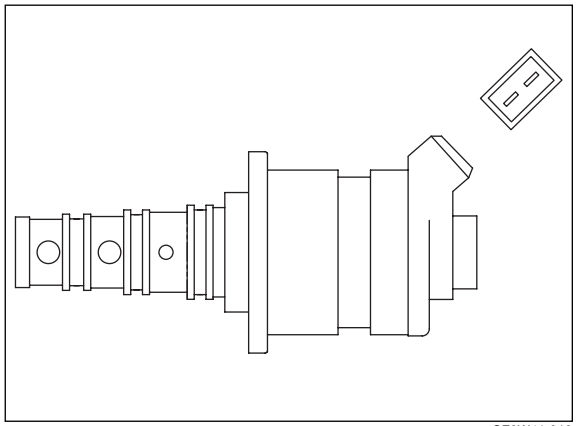
7 Relay

Step 1: Using the circuit tester, make sure that resistant value between terminals for the relay becomes as shown in the figure.

Step 2: Connect 12V to the terminal.

Using the circuit tester, make sure that resistant value between terminals for the relay becomes as shown in the figure.

- If the resistant value is not as shown in the figure, change the relay.


GZ3W41-016

8 IND PTO Valve (7530 Only)

Using the circuit tester, make sure that continuity between terminals for the IND PTO valve becomes as shown in the figure.

- If the continuity is not as shown in the figure, change the IND PTO valve.

Mitsubishi Agricultural Machinery Co., Ltd.