

5-Deck Rotary Mower

GM2800A

**BARONESS
MOWER**

Owner's handling manual & parts catalogue
































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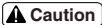
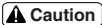













"Required reading" Read this manual and the owner's manual for the engine before using the machine.

BARONESS

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Introduction

Thank you for purchasing the Baroness GM2800A, front 5-deck rotary mower.

This manual describes the correct methods for handling, adjusting, and checking the machine.

Be sure to read this manual and make sure that you understand its contents thoroughly before using the machine.

Our machines have been tested and inspected thoroughly before shipment from the factory. However, whether the machine can display its original performance depends on the handling method, as well as daily checks, adjustments, and lubrication before and after operation. Keep the machine well maintained to expect safe operation and excellent performance for an extended period of time.

Note

- Gradual changes may be made to the machine.
When making enquiries about the machine, be sure to specify both the model type and serial number.
- Please keep this Owner's Manual in a box behind the seat.
- The information described in this manual may change without prior notice.

Caution ••• About operation

- The warning labels that are attached to the machine and used in this owner's manual contain information to maintain safety. Please read the operating procedures and safety precautions carefully and only operate the machine after you have understood them completely.
- The warning labels and their descriptions should be preserved in their entirety. If they are lost or damaged, please replace them immediately with new ones.
- Do not, under any circumstances, remove the warning labels that are attached to the machine.

Introduction

Read this manual carefully to thoroughly understand the proper operating and maintenance methods of your mower, and to avoid causing injury to yourself and to others. The operator is responsible for operating this machine properly and safely.

For questions concerning maintenance or genuine parts, please contact your local Baroness dealer. When making inquiries about your mower, please specify the mower's model number and serial number.

Safety

This machine meets CEN standard EN 836:1997 (by affixing the specified label) for ride-on lawn mowers at the time of production.

Improper use or maintenance can result in injury or death. To prevent an accident, be sure to follow the safety precautions described below and always pay attention to the warning symbols. The warning symbols are displayed as CAUTION, WARNING, or DANGER, and all symbols describe important safety precautions. Failure to thoroughly follow these safety precautions can cause an accident resulting in injury or death.

Safety management

The following instructions are taken from CEN standard EN 836:1997, ISO standard 5395:1990.

Intended uses

Use the mower for the purpose it is intended for, that is cutting grass on lawns. Any other use could be dangerous or damage the equipment.

1. Training

- Read the Operator's Manual and other training material carefully. Be familiar with the controls and safety indications and learn how to stop the mower in an emergency.
- If the operator cannot understand the manual, it is the owner's responsibility to thoroughly explain the contents of this Operator's Manual.
- Never allow children to operate or service the mower. Never allow adults that are unfamiliar with the instructions to operate or service the mower. Follow the age limit specified by your country or local government.
- Never mow while people, especially children, or pets are nearby.
- Keep in mind that the owner, operator, or mechanic is responsible for preventing accidents, and accidents can be abolished with the cooperation of all.
- Never carry passengers other than the operator.
- All operators and mechanics should receive proper training. The owner is responsible for training the operators and the following must be thoroughly understood::
 - The basic safety precautions for operating ride-on mowers
 - Controlling the mower by applying the brake when it begins to slide on a slope is difficult. The main reasons it is impossible to control the mower on a slope are:
 - * Insufficient tire grip
 - * Driving too fast
 - * Inadequate braking
 - * Using a model inadequate for the job
 - * Lack of awareness of the ground conditions (bumpy, icy, muddy)

2. Preparation

- Use clothing and equipment that are suitable for the job. Wear a helmet, safety glasses, and ear protectors. Long hair, loose clothing, or jewelry can get tangled in moving parts. Do not operate the mower when barefoot or wearing sandals.
- Thoroughly check that the area where the mower is to be used is free of objects that can be thrown by the mower such as rocks, toys, and wire before starting.
- Do not operate the mower under the influence of alcohol or drugs.
- Warning: Fuel is highly flammable. Take the following precautions:
 - Store fuel in containers specifically designed for this purpose.
 - Refuel outdoors only and do not smoke while refueling.
 - Refuel before mowing. Do not remove the fuel tank cap when the engine is running or when the engine is hot.
 - If fuel is spilled, do not start the engine. Move the machine away from the area where the fuel was spilled and avoid creating any source of ignition until the spilled fuel has completely dissipated.
 - Close the fuel tank and fuel container cap securely.
- Repair any sensors that are malfunctioning before operating the mower.
- Check that the seat switch and safety switch, and the safety guards and covers are installed correctly and that they function properly. Repair these parts if there is a malfunction before operating the mower.

3. Precautions during operation

- Do not start the engine in a closed space since there is a danger of carbon monoxide poisoning.
- Operate the mower during the day or in an area with sufficient lighting.
- Before starting the engine, disengage all equipment, place the gearshift into neutral, and set the parking brake.
- Remember that there is no such thing as a safe slope. Operating on grassy slopes requires particular care. To avoid overturning:
 - Do not stop or start suddenly on any slope.
 - Reduce speed when operating on slopes and when making sharp turns.
 - Always stay alert for bumps, hollows, and other hidden obstacles.
 - Never mow across the surface of the slope unless the mower is designed to do so.
 - If noted in the Operator's Manual, use a counterbalance or wheel balance.
- Never neglect the warnings for hidden hollows or obstacles.
- Watch out for other traffic when crossing or near a road.
- Stop the rotation of the blade when operating on surfaces other than grass.
- When using attachments, never direct the discharge at bystanders or allow anyone near the mower while it is operating.
- Do not operate the mower with damaged guards or with guards not installed properly.
- Do not remove the interlock device, and be sure to use it when it is adjusted properly.
- Do not change the engine governor setting or operate the engine at high engine speeds. Otherwise, an accident resulting in injury or death, or a malfunction can occur.
- Before leaving the operator's position:
 - Move the mower to a level surface.
 - Disconnect the power take-off (PTO) and lower the attachments.
 - Place the gearshift into neutral and set the parking brake.
 - Reduce the engine speed.
 - Stop the engine and remove the key.

Note

After operating with a heavy load, let the engine idle for 5 minutes before turning the engine off. If the engine is not allowed to idle, a malfunction can occur with the turbo charge

- Disengage the drive to each attachment except when mowing.
- Stop the engine, disengage the drive to each attachment, and remove the key under the following conditions:
 - Before refueling
 - Before removing the grass catcher
 - Before adjusting the blade height (except when the adjustment can be made from the operator's seat)
 - Before removing blockages
 - Before checking, cleaning, or servicing the mower
 - After striking a foreign object or an abnormal vibration occurs while mowing
- When turning the engine off, close the throttle, and close the fuel valve if your model is equipped with one.
- Keep hands and feet away from the cutting units.
- Before backing up, look down and behind you to check that the path is clear and you can back up safely. Have someone guide you if it is difficult to check the area behind you.
- Reduce speed when turning or crossing roads or sidewalks, and proceed by taking extreme caution with your surroundings. Also, be sure to stop the rotation of the blade.
- Take care when loading or unloading the mower onto a trailer or truck.
- Use care when approaching blind corners, shrubs, trees, or other objects that may obscure your vision.

4. Maintenance and storage


- Check that all nuts, bolts, and screws are properly tightened to ensure that the mower is always working under safe conditions.
- Empty the fuel tank and keep the mower away from ignition sources when storing the mower indoors where sparks and open flames are used.
- Let the engine cool down before storing the mower in a closed space.
- To prevent a fire, keep the engine, muffler, and battery areas free of excessive grease, grass, leaves, and dust.
- Check the grass catcher frequently for preventing wear or damage.

- Keep all parts of the mower in good working condition and all fasteners and hydraulic fittings tightened.
- If the fuel tank needs to be cleaned, clean it outdoors.
- Take care not to pinch your fingers while making adjustments to the mower.
- For mowers equipped with multiple blades, take care as rotating one blade can cause other blades to rotate.
- Before servicing or adjusting the mower, stop the mower, stop the cutting units, set the parking brake, turn the engine off, and remove the key (for gasoline engines, disconnect the spark plug lead). Be sure to check that each part has completely stopped operating before servicing or adjusting the mower.
- To prevent a fire, keep the cutting units, drives, exhaust pipes, and muffler areas free of excessive grease, grass, leaves, and dust. Clean up any spilled oil or fuel.
- When necessary, use a jack to securely support the mower.
- Take care when removing equipment that may have applied spring pressure.
- When servicing the mower, disconnect the battery and the spark plug lead. To disconnect the battery, disconnect the negative battery cable first, then the positive battery cable. To connect the battery, connect the positive battery cable first.
- When checking the blades, wear gloves or wrap the blades in thick cloth to avoid an injury.
- Keep hands and feet away from moving parts. If possible, avoid making any adjustments while the engine is running.
- Charge the battery in a well ventilated area, away from sparks and flames. Unplug the battery charger before connecting it to the battery. Also, wear protective clothing and use insulated tools.
- When storing the mower, lower the cutting units or set the latch on the outermost deck (wing deck) so that the unit cannot lower.

















To use the Baroness mower safely

The following precautions are not included in the CEN standard, but they should always be followed to operate the Baroness mower safely.

Warnings for Safety

Warning symbols  have been attached to this machine to ensure that you can operate it safely.

The warning symbols indicate items which are particularly important for your safety. It is important to always follow the warnings and operate the machine with safety.

Warning symbols			
	Danger	••• This symbol indicates that serious injury or death will occur if the warning is ignored.	
	Warning	••• This symbol indicates that serious injury or death could occur if the warning is ignored.	
	Caution	••• This symbol indicates that an injury or damage to property may occur if the caution is ignored.	
	••• Refer to the owner's manual.		
	••• Danger symbol (Cutting of finger)		••• Caution symbol (Entanglement)
	••• Danger symbol (Danger-flammables)		••• Warning symbol (High-pressure oil)
	••• Danger symbol (Flying objects)		••• Caution symbol (Pinch)
	••• Danger symbol (Cutting of hand or foot)		••• Warning symbol (Overturn, fall)
	••• Warning symbol (Caution-exhaust gas)		••• Caution symbol (V-belt/rotating parts)
	••• Caution symbol (Hot surface)		••• Fuel (No.2 Diesel fuel only)

Please be sure to observe for safe operation.

- The precautions that are described here are the important contents concerning safety. Be sure to follow these safety precautions.
- Failure to follow these precautions can cause injury or death, or damage to the machine.
- * The information described in this manual may vary from the actual machine purchased.

1. General precautions



- **Do not operate the machine under the following conditions!**
 - If you cannot concentrate while operating the machine due to fatigue or illness, or if you are under the influence of medication
 - After drinking alcohol
 - If pregnant
 - If less than 18 years old
- * Failure to observe these precautions can cause an unexpected accident.
- **Wear suitable clothes when operating the machine.**

Do not wear a towel around your head or waist, or a scarf around your neck. Wear safety glasses, a helmet, and slip resistant shoes. Use protective gear suitable for the working conditions and do not wear loose-fitting clothes.
- * Failure to observe this precaution may cause you to get caught in the machine or to slip and fall.
- **When lending the machine to others**

Thoroughly explain the operating procedures and have them read the "owner's manual" before use.
- * Failure to follow this precaution can cause an accident, resulting in severe injury or death, or damage the machine.

2. Before operating the machine



- **Do not carry passengers.**

The riding capacity of this machine is one person. Do not carry passengers.
- * Failure to follow this precaution can cause an unexpected accident.
- **Before starting the engine**

When starting the engine, be sure to be seated in the operator's seat, check the position of the seat, and check your surroundings for safety.
- * Failure to follow this precaution can cause an unexpected accident.
- **Do not operate the machine or work at night.**

Do not operate the machine or work at night or in poor visible condition.
- * Failure to follow this precaution can cause an unexpected accident.



- **Warm the engine up when it is cold.**

When the engine is cold, be sure to warm it up.
- * Failure to follow this precaution may not allow the machine to sufficiently demonstrate its performance capability.
- **Take precaution with a hot muffler/exhaust pipe.**

Do not touch the muffler/exhaust pipe while operating the machine or just after the engine is turned off since it will be hot.
- * Failure to follow this precaution can cause burns.
- **Do not modify the machine.**

Do not modify the machine.
- * Failure to follow this precaution can cause an accident or injury, or the machine to malfunction.
- **Inspection and maintenance**

Be sure to perform checks and maintenance before and after operating the machine.
- * Failure to follow this precaution can cause an accident or injury, or the machine to malfunction.
- **Performing the periodic checks and maintenance**

Perform the periodic checks and maintenance every year, and maintain each part. Be sure to change the power steering hose every two years and to check the electrical wires every year.
- * Failure to follow this precaution can cause an accident or the machine to malfunction due to improper maintenance.

3. Inspection and maintenance before and after operating the machine

Danger



- **Add oil and refuel when the engine is cold.**
Do not add oil or refuel when the engine is operating or if the engine is hot.
 - * Failure to follow this precaution can cause the fuel to ignite and cause a fire.
- **Fire is strictly prohibited when refueling**
Do not smoke or use open flames when refueling.
 - * Failure to follow this precaution can cause the fuel to ignite and cause a fire.
- **Fire is strictly prohibited when checking the battery**
Fire is strictly prohibited when checking or charging the battery.
 - * Failure to follow this precaution can cause the battery to ignite and explode, which can cause burns.
- **Do not let electrolyte get on your skin.**
Do not let electrolyte get on your skin or on your clothes. If it gets on your skin or clothes, immediately wash the affected area with water.
 - * Failure to follow this precaution can cause burns or damage to your clothes.
- **Take precaution with fuel leaks.**
If the fuel pipe is damaged, check the fuel pipe for fuel leaks.
 - * Failure to follow this precaution can cause fuel to ignite and cause a fire.
- **Close the fuel cap and clean up any spilt fuel.**
After refueling, be sure to securely close the fuel cap and thoroughly clean up any spilt fuel.
 - * Failure to follow this precaution can cause a fire.
- **Install and remove the battery by following the correct procedure.**
To install the battery, connect the positive (+) battery cable first. To remove the battery, disconnect the negative (-) battery cable first.
 - * Failure to follow this precaution can cause a short circuit, which can cause burns and a fire.

Warning



- **Perform inspect and maintenance on a flat and stable place.**
Set lower the mower unit and inspect and maintenance on a flat and stable place on which the machine will not overturn or move.
 - * Failure to follow this precaution can cause the machine to overturn and cause an unexpected accident.
- **Remove debris from the muffler and engine.**
Check that there is no grass, debris, or fuel around the muffler and engine or on the brakes every day before operating the machine.
 - * Failure to follow this precaution can cause a fire.
- **Do not fill the tires with air over the specified maximum air pressure.**
When filling the tires with air, do not fill the tires over the specified maximum air pressure.
 - * Failure to follow this precaution can cause the tires to explode and cause an injury.
- **Be sure to check the electrical parts and wires.**
Check if the electrical wires are touching other parts, if the cover is disconnected, or if the connector is loose every day before operating the machine.
 - * Failure to follow this precaution can cause a short circuit, which can cause a fire.
- **Do not allow the electrolyte to go below the "LOWER" level mark.**
Check the electrolyte between the "UPPER" and "LOWER" level marks and that it is not below the "LOWER" level marks.
 - * Failure to follow this precaution can cause the pole connector in the container to be exposed from the electrolyte if it is below the "LOWER" level mark, which can cause sparks when starting the engine, and the gas in the container to ignite, causing an explosion.
- **Take sufficient precaution with exhaust gas.**
Do not start the engine in an enclosed area. Start the engine outdoors with sufficient air circulation. If you have to start the engine indoors, make sure there is sufficient ventilation.
 - * Failure to follow this precaution can cause you to be poisoned by the exhaust gas, which can result in death.

■ **Be sure to check the parking brake lever.**

Check that the brake operation is not faulty and that the parking brake lever is not remarkably loose nor does it have remarkable play.

- * Failure to follow this precaution can cause an accident.

■ **Take precaution with high-pressure oil.**

Always check if the fittings and hoses are loose or damaged. When disconnecting the fittings and hoses, release the pressure in the hydraulic circuit.

- * Failure to follow this precaution can cause the high-pressure oil to break through your skin and cause an injury.



■ **Turn the engine off while inspection and maintenance.**

Be sure to turn the engine off while inspection, servicing, repairing, or cleaning the machine.

- * Failure to follow this precaution can cause you to be pinned under the machine or a personal injury.

■ **Be sure to install the covers.**

Be sure to install any covers that were removed while inspection and maintenance.

- * Failure to follow this precaution can cause you to get caught up in the machine or a personal injury.

■ **Let overheated parts sufficiently cool down before inspection and maintenance.**

Let the parts that overheat such as the muffler and engine to sufficiently cool down before inspection and maintenance.

- * Failure to follow this precaution can cause burns.

■ **Correctly use the proper tools for the job.**

Properly manage and correctly use the proper tools necessary for inspection and maintenance.

- * Failure to follow this precaution can cause an accident due to improper maintenance.

4. When transporting the machine

Warning



■ **Do not operate quick start and stop on a running board.**

Take sufficient precaution when operating on slopes or running boards.

- * Failure to follow this precaution can cause an accident such as fall or overturn.

■ **Use a running board with sufficient strength, length, and width.**

When loading or unloading the machine onto a truck, be sure to turn the engine of the truck off on a flat surface that is safe from traffic, set the parking brake to avoid moving, and chock the wheels. The running board should be non-skid and bear sufficient strength, length, and width.

- * Failure to follow these precautions can cause an accident such as fall or overturn.

■ **When the machine is loading / unloading on the truck.**

When the machine is loading onto a truck, it move forward, when the machine is unloading, it move backward.

- * Failure to follow this precaution can cause you to loose your balance and cause an accident such as causing the machine to fall or overturn.

■ **Securely fasten the machine to the truck with a rope.**

When loading the machine onto a truck and moving it, set the parking brake and fasten the machine to the truck with a rope that has sufficient strength.

- * Failure to follow this precaution can cause the machine to fall from the deck of the truck and cause an accident.



- Caution** (P)  



- Inspect and perform maintenance immediately if unusual vibration occurs.

If unusual vibration occurs, stop the engine immediately, then inspect the cause and repair it if necessary.

- * Failure to follow this precaution can cause an accident or injury, or the machine to malfunction.

- Keep bystanders away from grass discharge area.

Grass, dust, sand and rocks will fly out.

- * Failure to follow this precaution can cause a personal injury.

- Do not look aside. Do not operate or travel with no hands.

- * Failure to follow this precaution can cause a personal injury or material damage.

- When leave from the machine.

Stay the machine at flat and stable place, then turn the engine off, set the parking brake, lower the mower unit, and remove key from ignition switch.

- * Failure to follow this precaution can cause the machine to move spontaneously and cause an accident.

- Do not carry passengers.

The riding capacity of this machine is one person. Do not carry passengers.

- * Failure to follow this precaution can cause an unexpected accident.

[IMPORTANT]

After operating long time or heavy load, take idle running time for about 5 minutes before stopping the engine.

- * If it is not performed, trouble may occur in the turbocharger.

- Precautions for operating on slopes

When operating on a slope, the ground will not be even and there may be bumps and rocks, which can cause the machine to incline suddenly. Therefore, do not operate the machine on a slope of 15 degrees or more, or in areas in which there is danger of it overturning or slipping.

7. After operating the machine and storage

 **Danger**



- Add oil and refuel when the engine is cold.

Do not add oil or refuel when the engine is operating or if the engine is hot.

- * Failure to follow this precaution can cause the fuel to ignite and cause a fire.

- Do not open the radiator cap when the radiator is hot.

When the radiator has overheated, do not open the radiator cap.

- * Failure to follow this precaution can cause scalding water to shoot out and cause burns.

- Cover the machine with a sheet after it has sufficiently cooled down.

If covering the machine with a sheet, cover it after the muffler and engine have sufficiently cooled down.

- * Failure to follow this precaution can cause a fire.

- Install and remove the battery by following the correct procedure.

To install the battery, connect the positive (+) battery cable first. To remove the battery, disconnect the negative (-) battery cable first.

- * Failure to follow this precaution can cause a short circuit, which can cause burns and a fire.

 **Warning**



- Perform inspection and maintenance on a flat and stable place.

Set lower the mower unit and perform inspection and maintenance on a flat and stable place on which the machine will not overturn or move.

- * Failure to follow this precaution can cause the machine to overturn and cause an unexpected accident.

- Remove debris from the muffler and engine.

Check that there is no grass, debris, or fuel around the muffler and engine and on the brakes every day before operating the machine.

- * Failure to follow this precaution can cause the fuel to ignite and cause a fire.

■ **Be sure to inspect the electrical components and wires.**

Inspect if the electrical cables are touching other parts, if the cover is disconnected, or if the connector is loose every day before operating the machine.

- * Failure to follow this precaution can cause a fire.

■ **When storing the machine for a long period of time, remove the battery cable and ignition key.**

When not using the machine for a long period of time and storage, remove the battery cable and ignition key.

- * Failure to follow this precaution can cause an accident.

■ **Take precaution with high pressure hydraulic oil.**

Always check if the fittings and hoses are loose or damaged. When disconnecting the joints and hoses, release the pressure in the hydraulic circuit.

- * Failure to follow this precaution can cause the high-pressure hydraulic oil to break through your skin and cause an injury.



■ **Turn the engine off while inspecting and maintenance.**

Be sure to turn the engine off while checking, servicing, repairing, or cleaning the machine.

- * Failure to follow this precaution can cause you to be pinned under the machine or a personal injury.

■ **Be sure to install the covers.**

Be sure to install any covers that were removed during inspection and maintenance.

- * Failure to follow this precaution can cause you to get caught up in the machine or a personal injury.

■ **Let overheated parts sufficiently cool down before inspection and maintenance.**

Let the parts that overheat such as the muffler and engine to sufficiently cool down before checking or performing maintenance.

- * Failure to follow this precaution can cause burns.

- Regularly have the engine speed tested at a Baroness dealer to check the engine for safety and accuracy.
- Consult a Baroness dealer when a major repair or assistance is required.
- For safety and maximum performance, use genuine Baroness parts and accessories. Note that the Baroness product warranty may not apply if parts or accessories from other companies are used.
- Do not use this mower if it has been modified.

[Sound pressure level]

This machine was confirmed to have a continuous A-weighted sound pressure level of 88 dB (A) as the result of measuring identical machines based on the procedure specified in directive 98/37/EC and its amendments.

[Sound power level]

This machine was confirmed to have a sound power level of 105 dBA/l pW as the result of measuring identical machines based on the procedure specified in directive 2000/14/EC.

[Vibration level]

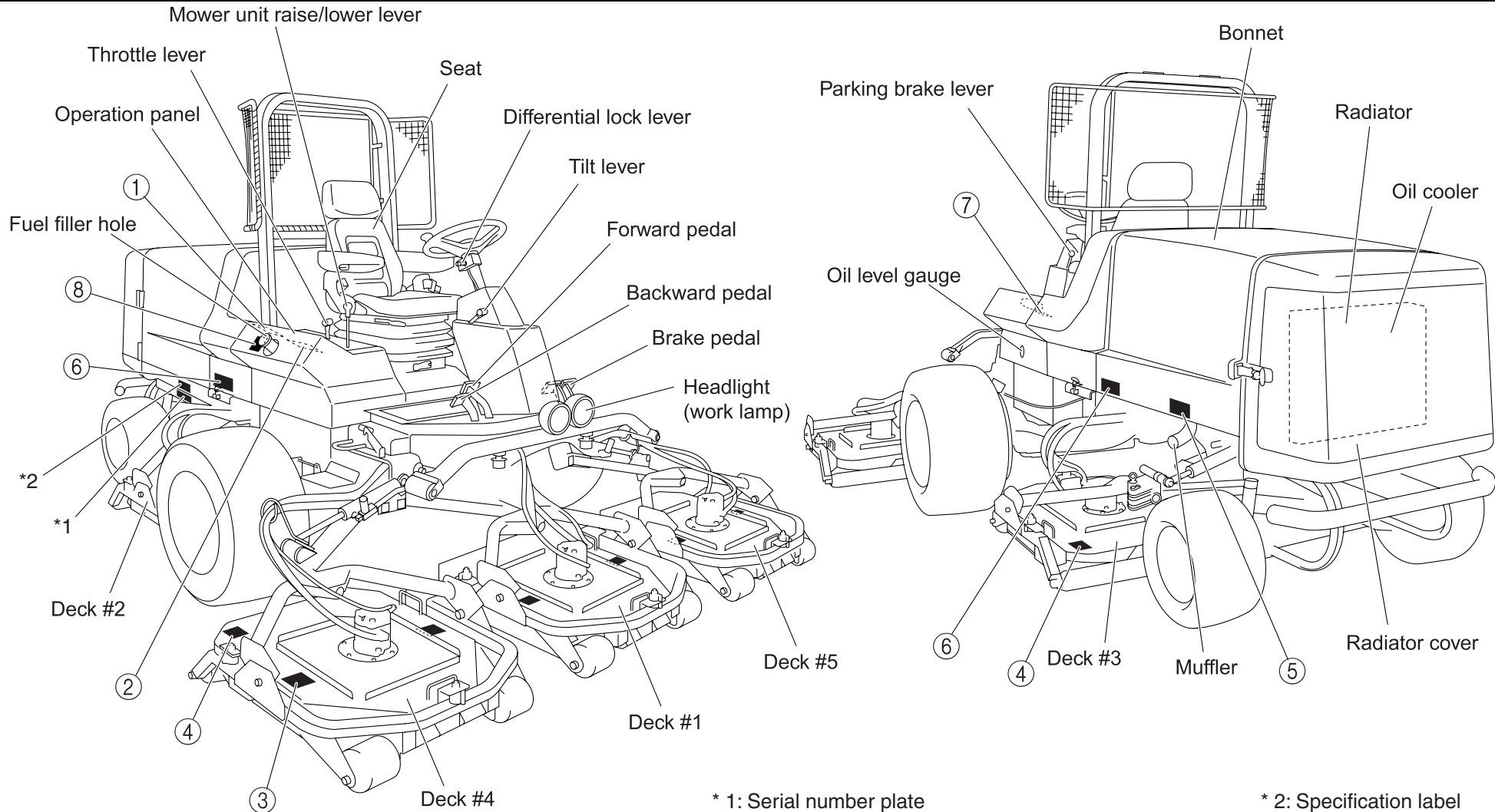
-Hand-arm vibration-

This machine was confirmed to have a maximum vibration level on hands and arms of less than 2.5 m/s² as the result of measuring identical machines based on the procedure specified in ISO 5349.

-Whole body vibration-

This machine was confirmed to have a maximum vibration level on whole body of less than 0.5 m/s² as the result of measuring identical machines based on the procedure specified in ISO 2631.

Names of various sections



* Please refer to the following page for the details of the warning labels and operation labels of ① to ⑧.

* 1: Serial number plate

KYOEISHA CO., LTD. Head Office 1-26, Miyuki-cho, Toyokawa, Aichi-Pref. 442-8530 Japan.	model	
	serial No.	
	year of manufacture	

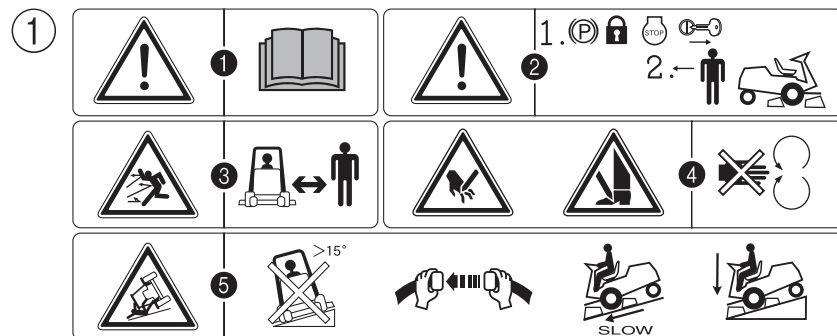
* 2: Specification label

BARONESS Ride-on lawnmower KYOEISHA CO., LTD.	Specifications	
	Model	GM2800A
	Rating output	41.7kW
	Total weight	2,000kg

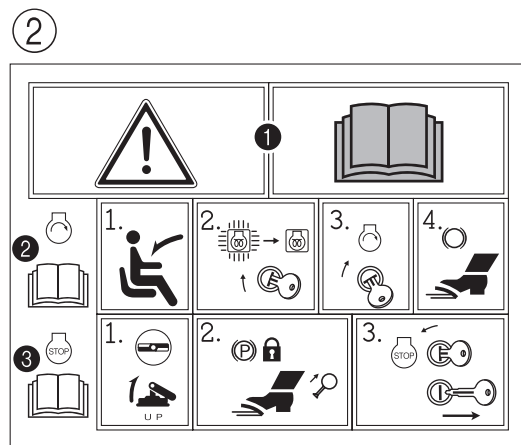
Warning label and operation label description

Attach the warning labels and operation labels in the locations that are close to dangerous parts and in which the labels can be easily seen.

If a label is damaged or peels off, attach a new label to the machine.



- ① **Warning** : Read the owner's manual.
- ② **Warning** : Leave the machine after setting the parking brake, turning the engine off, and removing the ignition key.
- ③ **Danger** : Flying objects - Excluding the operator, keep a safe distance away from the machine.
- ④ **Danger** : Cutting hands or feet - Do not put near moving parts.
- ⑤ **Danger** : Overturning - Do not operate the machine on a slope of 15 degrees or more.
When going down a slope, fasten the seat belt and operate the machine at slow speeds, Lower the mower and travel at a low speed.)with the mower lowered.

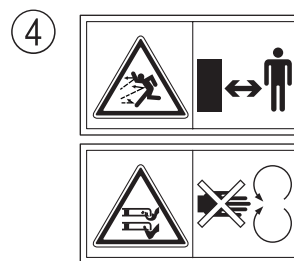


- ① **Warning** : Read the owner's manual
- ② Engine starting-up procedure (please read the owner's manual.)
 - ① Take a seat.
 - ② Turn the key to the "Glow" position, and wait until the "Glow" lamp goes out.
 - ③ Turn to the "START" position.
 - ④ Step on the brake pedal and release the parking braking.
- ③ : Engine stop procedure
 - ① Turn off the knife rotation switch and raise the mower.
 - ② Apply parking brake system.
 - ③ Turn the key to the "STOP" position and remove it.



Danger : Cutting hands or feet

If you do not stop rotating the mower and the engine is not turned off, there is a risk that you will get injured.



Danger : Cutting of hand

While the blade is rotating, keep away from the machine.



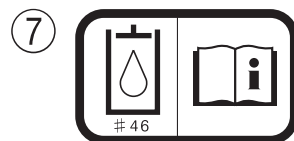
Caution : Hot surface

Do not touch. It can cause burns.



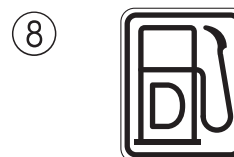
Caution : Pinch

You can get pinched.



High-pressure oil symbol

Read the owner's manual.



Fuel filler port

(No.2 diesel fuel only)

Features of GM2800A

- Since the five sets of 27-inch rotary mower decks are arranged independently, even it has the large cutting width of 280 cm, the tracking of the undulation is good and operation is possible without damaging the ground.
- Operation can be comfortably done by application of large turbo-diesel engine, and introduction of large-sized wheel motor and original hydraulic circuit.
- By introduction of right-and-left independent large caliber disc brake, it can turn without difficulty in surroundings of trees or in bunker, and a spot turn is also possible.
- Since the five sets of all decks rose, maintenance became easy.
- Cutting height setting can be easily performed by extraction and insertion of adjustment collar.

Specifications

Model		GM2800A
Drive system		Four-wheel drive
Dimensions	Total Length	370cm
	Total width	300cm (230cm when travelling)
	Total height	230cm (165cm Steering wheel)
	Wheelbase	172cm
Total weight		2,000kgf
Speed	Two-wheel drive	0~16km/h
	Four-wheel drive	0~9km/h
Wheels	Front wheel	29 x 14.00-15
	Rear wheel	20 x 12.00-10
Engine	Model	KubotaV2403M-T Vertical type water-cooled four-cycle diesel with turbocharger
	Number of cylinders	4
	Displacement	2.434L (2,434cm ³)
	Rating output	Gross 41.7kW (56.7PS)/2,600rpm
	Rotation Speed	1,425~2,800rpm (without load) (*1)
Battery		105D31R
Mowing height		20~91.5mm
Mowing width		280cm

(*1) Maximum engine rpm is set up 2,450 rpm before shipment.

Handling instructions

1. Inspection before use

⚠ Caution

- Please be sure to check the following matter before putting the engine into operation.

1-1 Inspection of the rotary knife

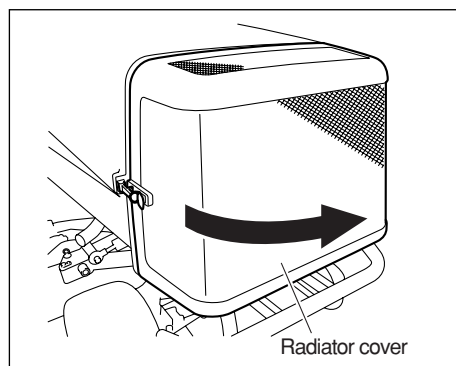
Check whether the rotary blade is not damaged and fitting bolts are not loosening. When the blade has damaged, replace immediately after referring to "**7-2** Replacement of rotary blade." When there is loose bolt, be sure to carry out retightening.

⚠ Warning

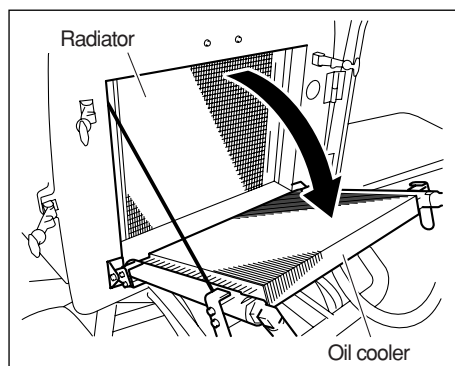
- If a rotary blade with which balance collapsed is used, it will be very dangerous since mechanical vibration will come out, and it will become cause of machine damage. Be sure to replace the blade and to maintain balance.

1-2 Cleaning of the radiator, oil cooler and radiator cover

Be sure to clean when the dust has adhered to the radiator, oil cooler, and radiator cover. When you operate it in the dusty place, please try to clean a little early.



Radiator cover



Oil cooler

⚠ Caution

- If it does not clean, it will become overheating of the engine and the cause of the seizure. Moreover, it also becomes cause of the damage of the hydraulic equipment.

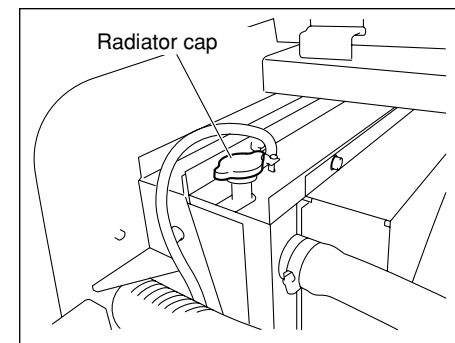
1-3 Inspection of the radiator and coolant level

⚠ Caution

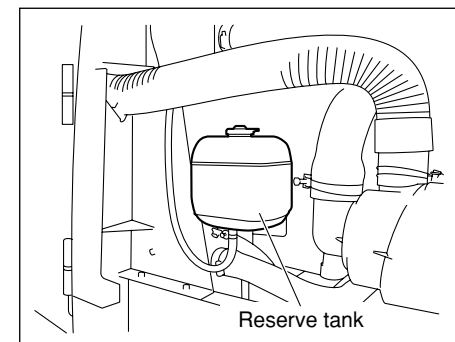


- Perform the inspection when the engine is cold. The radiator cap is the pressure type. If the radiator cap is removed when the engine is high temperature, the steam blows off and it may cause burns. After the water temperature and the pressure falls, apply a thick cloth etc. to the cap. Then turn to the left gradually, and loosen and remove.

- Check that the coolant level of the reserve tank is between "FULL" and "LOW."
- When the coolant is below the line of "LOW", add the coolant from the cap part of the reserve tank to the line of "FULL". When there is no coolant in the reserve tank, supply it also from the cap part of the radiator to the top.
- Do not open the radiator cap in normal inspection.
- When the coolant level decreases, supply clean water only.
- Please drain the cooling water before winter or mix the long life coolant.
- Perform the drainage by the drain plug in the left side of the machine.



Radiator cap



Reserve tank

Standard long life coolant (LLC) consistency and the freezing point

Freezing point	LLC consistency (volume %)
Up to -10 °C	20%
Up to -15 °C	30%
Up to -20 °C	35%
Up to -25 °C	40%

* The radiator coolant capacity of this machine is about 12L. (including the reserve tank)

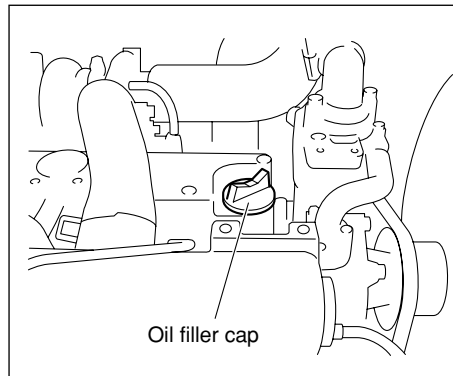
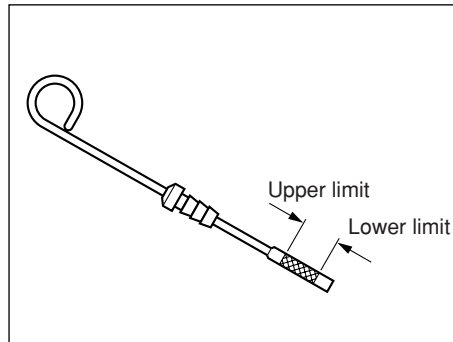
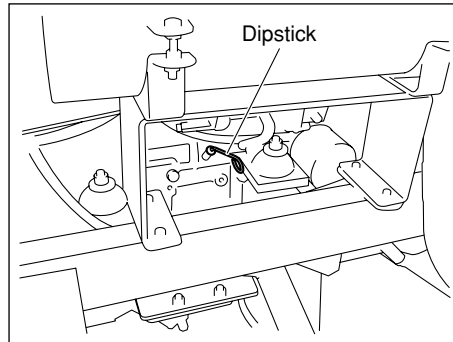
1-4 Inspection and refilling of engine oil



Put the engine on the level surface, and check the level of the oil by the dipstick. It will be the proper quantity, if the oil level is between the upper and lower limit when the dipstick is fully inserted. If the oil level is low, add the engine oil, and if the oil is dirty, exchange the oil. Perform the oil level inspection when the engine is suspended and after 10 to 20 minutes or more past. Please keep in mind that it becomes engine failure and cause of accident if the engine oil added too much.

Perform refilling of the engine oil from the oil filler. It takes some time for the added engine oil to fall in oil pan. Inspect the oil level again in 10 to 20 minutes after adding the engine oil.

- * Never mix different kind of engine oil.
- * Use the engine oil higher than the API service classification CD class, and SAE viscosity suited to the application environment (temperature).
- * The engine oil tank capacity is approximately 10L.

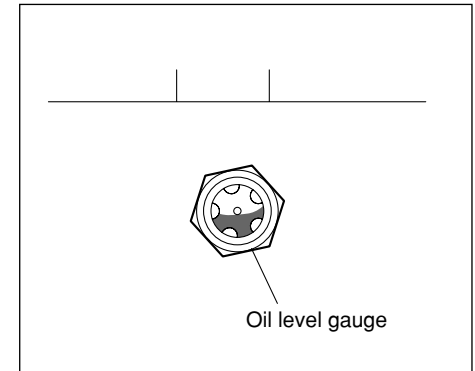


1-5 Inspection of the hydraulic oil

Level the engine and raise the mower unit. Always check whether the hydraulic oil level is at the center of oil level gauge, and supply oil if the level is low.

When refilling the hydraulic oil, use the ShellTellus 46 or equivalent type.

- * Do not mix hydraulic oil of different kind by any means.
- * The tank capacity is approximately 44L.



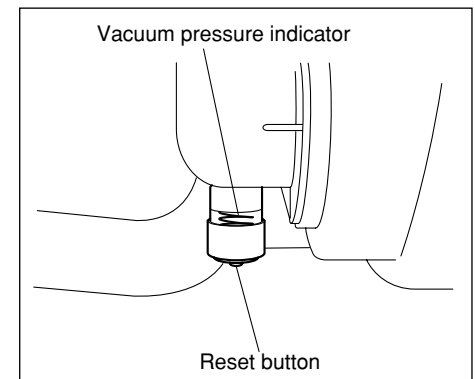
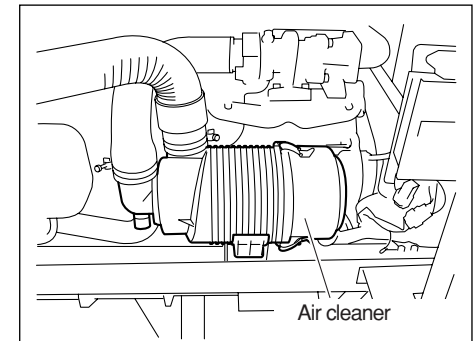
1-6 Cleaning of the air cleaner

Perform the inspection with the vacuum pressure indicator. If the element of the air cleaner becomes dirty, the red ring is visible in the vacuum pressure indicator. Remove and clean the air cleaner.

If the element of the air cleaner is dirty, it will become the cause of the engine malfunction. When it's dirty, clean it by carefully tapping the element or blowing air from inside so that the element may not be damaged.

Replace the element of the air cleaner every 200 hours.

Attach the element after clean up and push the reset button.



1-7 Inspection of the engine and its surroundings



Please refer to "Operating and instruction manual" for engine for handling of the engine.



- 1) The parts of the fuel system should check whether there is neither the crack nor the leak, and replace it with new one if necessary.
- 2) When the grass, the leaf, etc. have jammed to the inside of the muffler, and exhaust pipe or the surroundings, blow out by air.

1-8 Inspection of the tires

Inspect the tire pressure, crack, damage, and unusual wear.

Tire pressure	
Front wheel	150kPa (1.5kgf/cm ²)
Rear wheel	140kPa (1.4kgf/cm ²)

2. Fastening of each portion

Many parts are fastening by bolts. Bolts and nuts may be loosened some time after initial operation. Be sure to tighten them by the specified torque.

Appropriate tightening torque

Nominal diameter	Normal bolt Hardness classification 4.8	Heat-treated bolt Hardness classification 10.9
M6	7~9 (70~90)	14~18 (140~180)
M8	14~19 (140~190)	28~38 (280~380)
M10	29~38 (290~380)	58~76 (580~760)
M12	52~67 (520~670)	104~134 (1040~1340)
M14	70~94 (700~940)	140~188 (1400~1880)
M16	88~112 (880~1120)	210~260 (2100~2600)
M18	116~144 (1160~1440)	280~340 (2800~3400)
M20	147~183 (1470~1830)	370~450 (3700~4500)

3. Operation method of each part

3-1



Caution About the mechanical operation

Check whether the operation state of each part is good, and the brake disc, tires, steering, and mower do not have abnormalities in particular before operating the engine. In any cases, operate the engine by the speed that can carry out the urgency stop. Locate and remove all debris, in the operating area before using equipment.

3-2



Warning Before starting engine



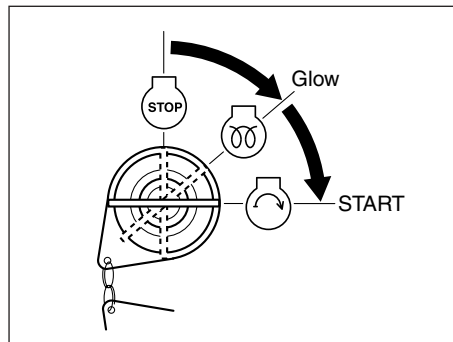
- Inspect the area where the equipment will be used.
- Inspect whether there are no damages and the cover/guard are securely fastened in place.
- Never operate the engine without proper ventilation.

3-3 Starting and stopping the engine



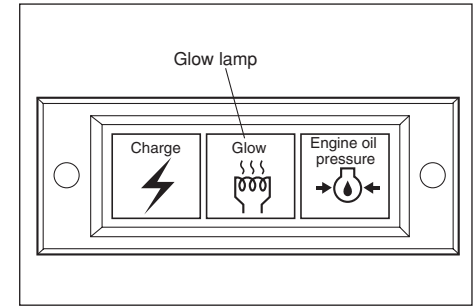
Starting procedure

- 1) Sit on the seat, and adjust seat arrangement for safety.
- 2) Connect the brake pedal on either side with the pedal lever, and step on both of brake pedals. Pull up the parking lever, and apply parking brake.
- 3) Make the blade rotary switch into the "STOP" position.
- 4) Pull the throttle lever a little to the upward.
- 5) When the ignition key is turned to the "GLOW" position, the glow lamp will turn on.



- 6) Fully turn the ignition key to rightward promptly when the glow lamp turns off, the starter will operate and the engine will start. Release it as soon as engine starts.

- 7) Ensure that the charge lamp and the engine oil pressure lamp turn off. When they do not turn off, stop the engine and perform the inspection and repair.



Caution



- Do not step on the Forward/Backward pedal. It is very dangerous if the machine moves.
- Do not touch the V-Belt, the Pulley, etc. during the engine rotation.
- Operation of the starter is a maximum of 15 seconds. When the engine still does not start, to prevent battery wastage restart should be made 30 to 60 seconds after.

Stopping procedure

- 1) Turn the knife rotary switch to the "OFF" position.
- 2) Apply the parking brake.
- 3) Return the throttle lever to the "LOW" position.
- 4) The engine will stop, when the ignition key turns to "STOP" position.

3-4

Safety device

This machine is equipped with the Safety device to starting/stopping of the engine as interlock system.

- Safety device on this machine prevents the engine from starting unless;
 - a. Sit on the seat.
 - b. Parking brake is engaged.
 - c. The blade rotation switch is "STOP" position.
- The interlock system will stop the engine if the operator leaves the seat without engaging the parking brake.

3-5



Danger Cautions on fuel handling



- It is highly flammable. Do not smoke when handling fuel.
- Never fill the fuel tank indoors, and while engine is running or the engine is hot.
- In order to prevent the fire, always keep the engine clean and be sure to remove deposition of grass, grease, and oil.
- Clean spilled fuel immediately.

3-6



Caution Cautions when leaving the machine



- 1) Stop the machine in level place and engage the parking brake.
- 2) Make the blade rotary switch into the "OFF" position, and lower the mower unit to the ground.
- 3) Stop the engine.
- 4) Remove the ignition key.
- 5) When effectiveness of the brake is not good, park the machine using wheel stoppers.



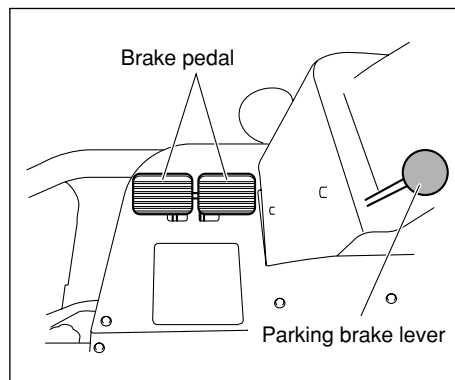
Caution

- Do not park on the slopes.

3-7

Parking brake

The parking brake is on the left side of the front cover. Connect the brake pedal on either side with the pedal lever, and step on both of brake pedals. Pull up the parking brake lever, and engage parking brake. Press the brake pedal down again for releasing the parking brake.



Caution

- Be sure to run after releasing the parking brake. Otherwise, the brake disc and the hydraulic equipment are damaged.

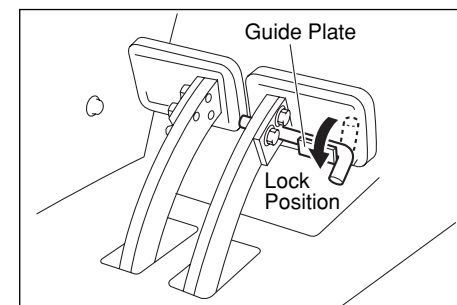
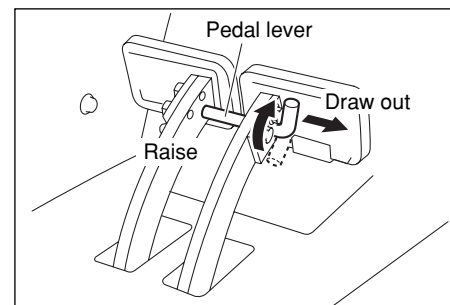
3-8

Brake pedal

Turning characteristics at the operation and travelling performance in inclined field are improved by introducing the independent right and left brake pedals. If the brake pedal of the turning direction is stepped on, it can turn in smaller radius. Moreover, when the front wheel of mountain side slips on inclined field, step on the brake pedal of mountain side to make the traction of the wheel of valley side increase, and stable travelling can be carried out.

<Change procedure from the connection state to the independent mode>

- 1) Raise the pedal lever and draw out from the right brake pedal.
- 2) Lock the pedal lever to the guide plate on the left brake pedal.



Warning

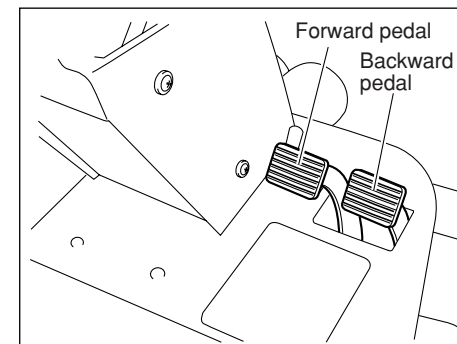
- Always connect the brake pedal except the time of operation. If it is used without connecting, a fall accident may occur.
- When you step on the brake and turn in small radius, be very careful of the state of the grass and the ground. The grass may be damaged.



3-9

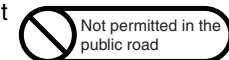
Forward/Backward pedal

Two pedals system is adopted. To move forward, press the inside pedal down. To move backward, press the outside pedal down. If the pedal is returned, the machine will stop automatically.



Warning

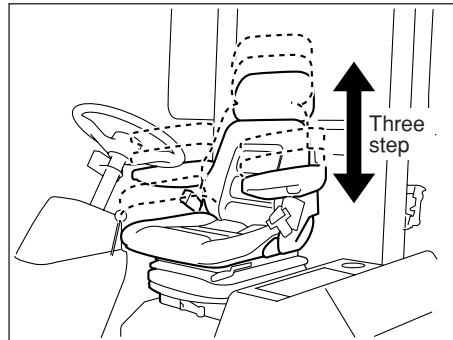
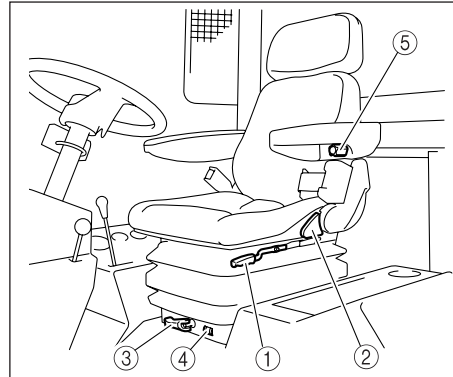
- The travelling in the public road is not permitted by law.



3-10 Adjustment of seat

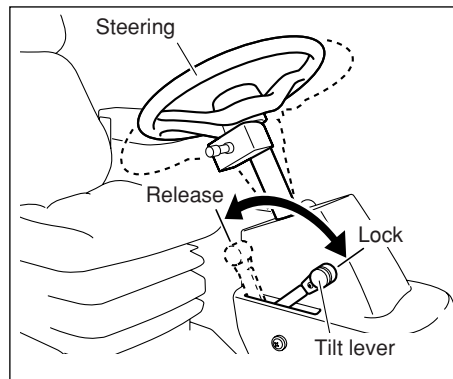


- The seat can be adjusted forward and backward by the seat lever ①.
- Angle adjustment of the reclining backrest can be performed by the lever ②.
- Hardness of the seat suspension can be adjusted by turning the handle ③. Check and adjust with the scale ④. (50~130kgf)
- Angle setting of the armrest can be performed by turning the knob ⑤).
- The height of the seat can adjust to the three steps by lifting the whole seat.



3-11 Tilt steering

Pull lever up to release steering column.
Tilt column up or down to position desired.
Push lever back to lock steering column in place.

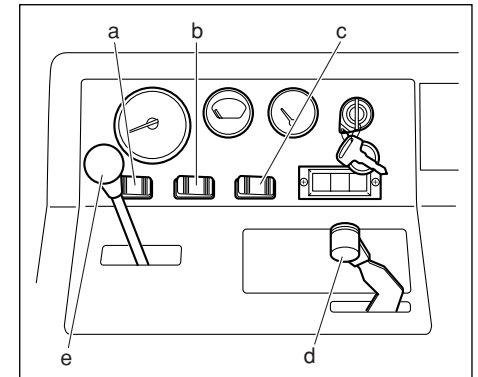


⚠ Caution

- Never adjust steering while machine is moving.
- To prevent serious accidents, ensure tilt steering lever is fastened during operation.

3-12 Switches, levers on the operation panel

- a. Blade rotation switch
- b. 2WD-4WD changeover switch
- c. Headlight switch
- d. Throttle lever
- e. Mower unit raise/lower lever

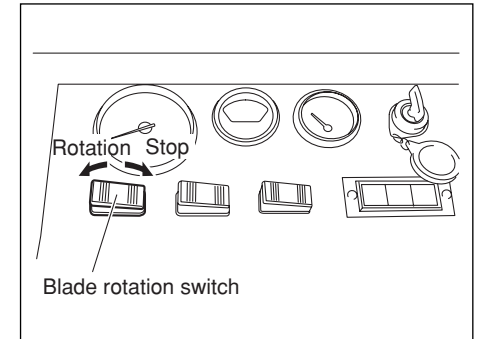


3-13 Blade rotation switch

When the blade rotation switch is turned to "ON", the rotary blade will rotate, and when it moves to "OFF", the rotation of the rotary blade will stop.

When the mower has gone up, the knife does not rotate.

* When the blade rotation switch is "ON", regardless of 2WD-4WD changeover switch, it becomes "4WD".



⚠ Caution

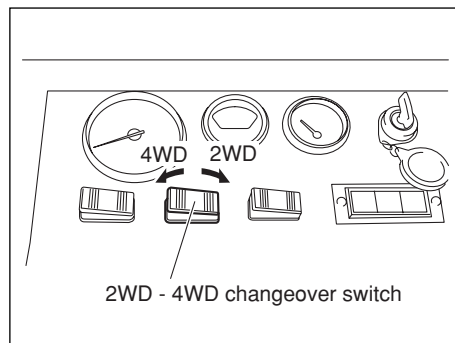
- Turn the blade rotation switch to "ON" just before starting the cutting work. When you do not work, be sure to turn it to "OFF".
- Start operation after checking that people are not in the surroundings of the machine.



3-14 2WD - 4WD changeover switch

The 2WD-4WD changeover switch is in the operation panel. When the switch is turned to "2WD", it will become two-wheel drive (front wheel drive), and when it is turned to "4WD", it will become four-wheel drive.

* When the blade rotation switch is "ON", regardless of 2WD-4WD changeover switch, it becomes "4WD".

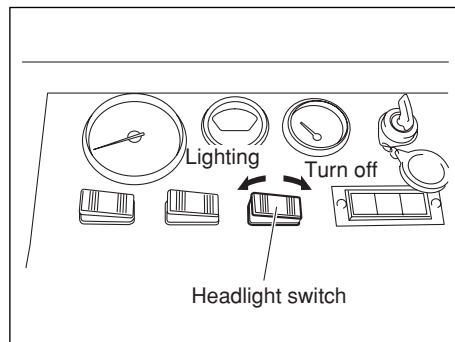


⚠ Caution

- Be sure to use 4WD in a sloping ground.
- When moving, suspend the rotation of the blade, and raise the mower unit.
- Operate the machine in consideration of the state of the roads and the ground, such as the slant and the undulation.

3-15 Headlight switch

When the switch is turned to "ON", the headlight will light up, and the light will be put out when it is turned to "OFF".



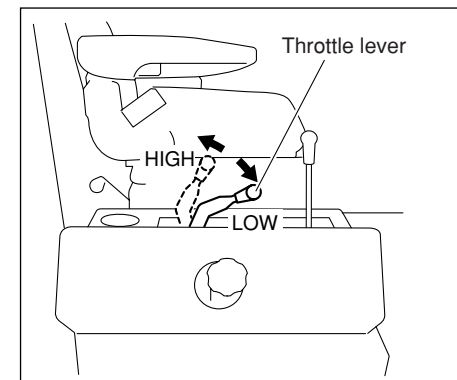
⚠ Warning

- The headlight is auxiliary light. Do not travel or operate when the visibility is not good or in nighttime.

3-16 Throttle lever

If the throttle lever is pulling up to the top (HIGH), the engine speed becomes high, and if the throttle lever is lowering to the bottom (LOW), the engine speed becomes low.

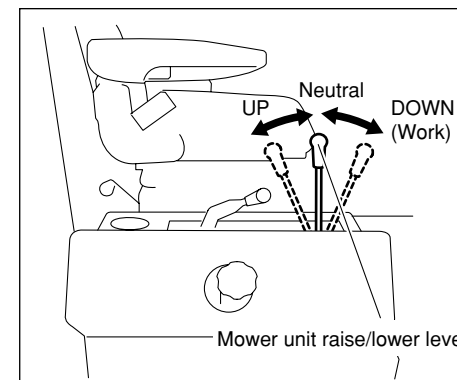
*1 Factory setting of the maximum engine rpm is 2,600 rpm.



3-17 Mower unit raise/lower lever

The lever returns to the neutral position. When it moves to "DOWN", the deck will be lowered, and if it moves to "UP", the deck will be raised.

If the deck is raised even if the blade rotation switch is in the "ON" position, rotation of the blade will stop.



⚠ Caution

- Inspect the area where the machine will be used.

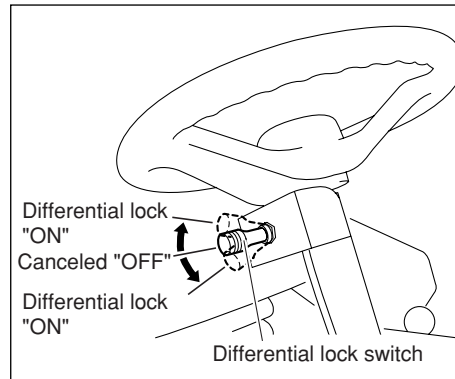


3-18 Differential lock switch

It is located in the right side on the steering column.

It is the switch that operates the differential lock of the both front wheels.

If the switch is moved to the upper or lower position, the front wheel will be in the differential lock state. If the switch is released, the switch will return to the neutral position and the differential lock will be canceled.



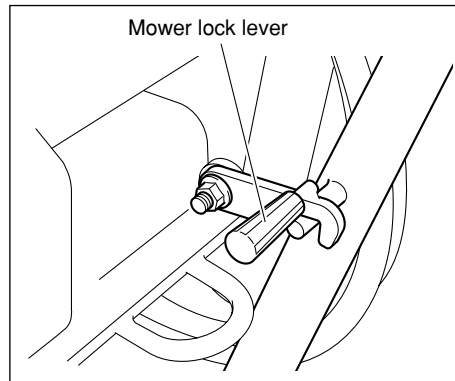
Caution

- Never perform the differential lock operation when it's not required. There is a possibility that the hydraulic equipment may be damaged.

3-19 Mower lock lever



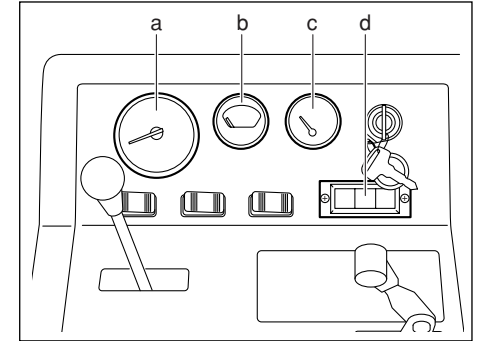
When you store the machine hang the mower lock lever when the mower unit #4 and #5 are raised.



4. Measuring instrument

4-1 Instruments of operation panel

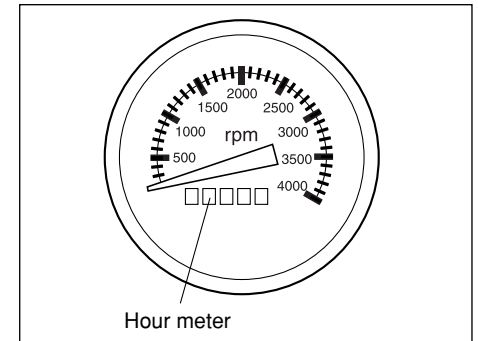
- Tachometer & hour meter
- Water temperature gauge
- Fuel level gauge
- Pilot lamp
 - Charge lamp
 - Glow lamp
 - Oil pressure lamp (Engine oil pressure lamp)



4-2 Tachometer & hour meter

Indicate the engine speed and total operating hour.

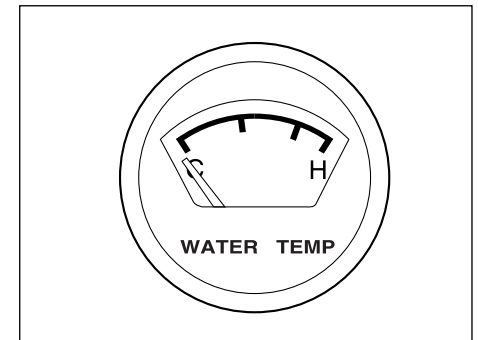
Carry out the periodic inspection and maintenance, and repair based on the operating hour.



4-3 Water temperature gauge

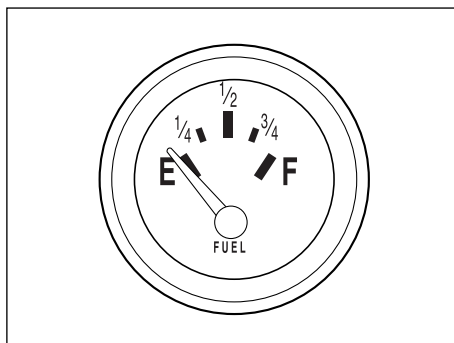
When the water temperature gauge rises to near "H" during the operation, it is in the overheating state. Stop the engine and carry out the maintenance and repair, after making the engine no-load and operating for 5 minutes in idling.

- If the water temperature raise above 115°C, the warning alarm (discontinuous sounds) will sound.



4-4 Fuel gauge

It indicates current fuel level. If the fuel gauge approaches E(Empty), supply fuel (diesel) immediately. The capacity of the fuel tank is approximately 51 Liters.



⚠ Danger

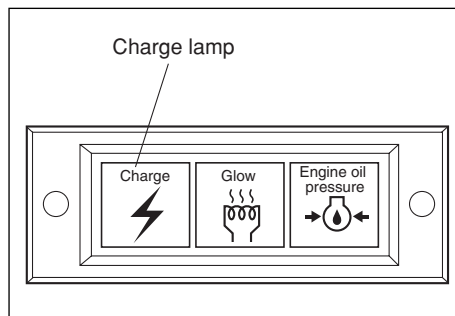
- Never fill gasoline (Petrol) into the tank.
- Never allow fuel to run out of the tank.
- Never overfill the tank.



4-5 Charge lamp

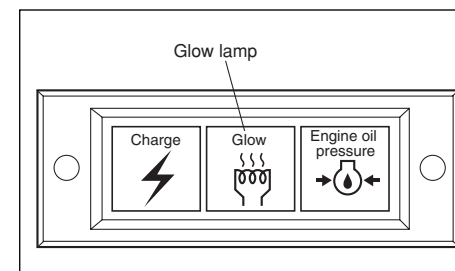
The lamp turns on when the ignition switch is in the "ON" position.

After the engine starts, and the light will turn off if it charges normal. When the lamp is turned on during operation, stop the engine immediately and inspect, do maintenance and repair.



4-6 Glow lamp

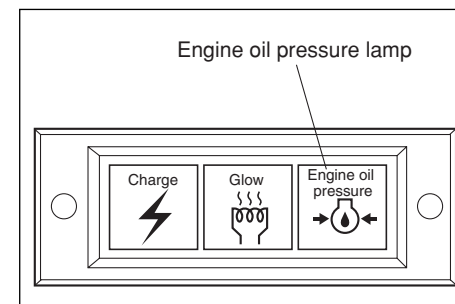
Refer to **3-3** " Starting and stopping the engine".



4-7 Oil pressure lamp (Engine oil pressure lamp)

The lamp turns on when the ignition switch is in the "ON" position.

After the engine starts, the light will be turned off, if the oil begins to circulate and it becomes the normal pressure. When the lamp is turned on during operation, stop the engine immediately and carry out the maintenance and repair.



5. Mowing operation

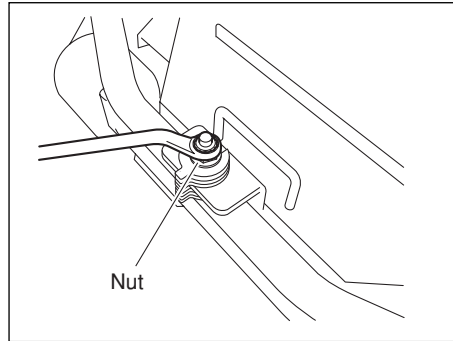
5-1 Adjustment of the cutting height



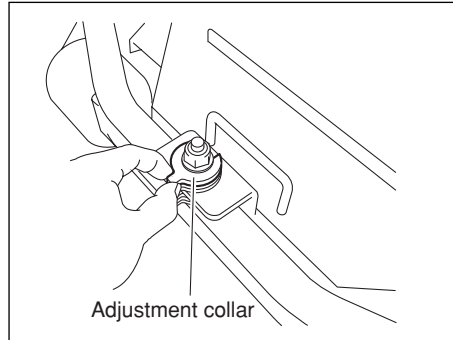
Set the parking brake, lower the mower units, and remove key from ignition switch.

1. Cutting height adjustment by using adjustment collar (3 places per one deck)

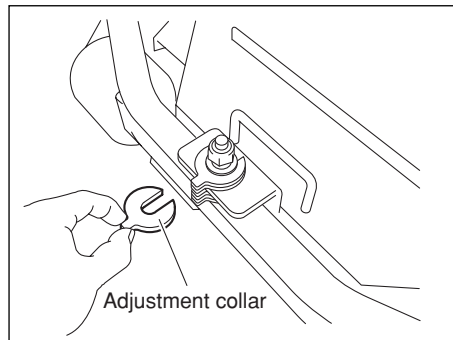
- 1) Loosen all three nuts fastening the adjustment collar.



- 2) Refer to the cutting height table and change the number of the adjustment collar.

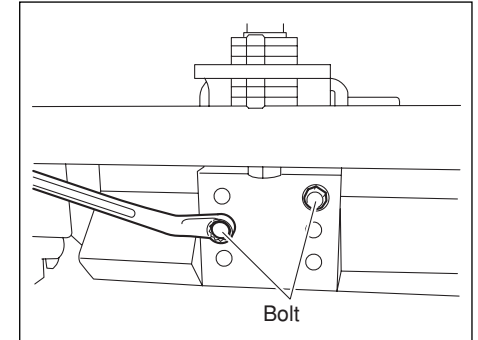


- 3) Tighten all the nuts securely after completing adjustment of the collars at the three places.

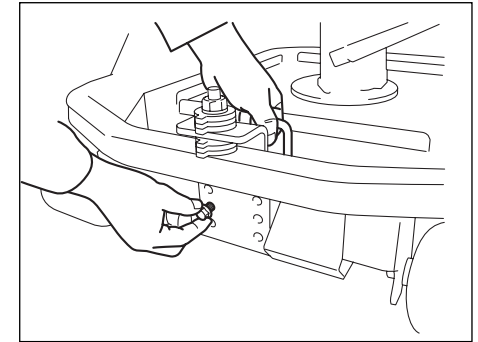


2. Cutting height adjustment by using adjustment plate (3 places per one deck)

- 1) Loosen the bolts (a total of 6) fastening the cutting height adjustment plate and the rotary deck.



- 2) Raise the carrying handle of the rotary deck, and change the hole location by referring to the cutting height table one place at a time, then temporarily tighten them.



- 3) When the temporary setting finishes at three places, all the bolts must be tightened securely.

■ Cutting height table (adjustment range 20.0 - 91.5mm)

Adjustment collar				
Zero sheet	20.0mm	30.0mm	45.5mm	55.5mm
One sheet	26.0mm	36.0mm	51.5mm	61.5mm
Two sheets	32.0mm	42.0mm	57.5mm	67.5mm
Three sheets	38.0mm	48.0mm	63.5mm	73.5mm
Four sheets	44.0mm	54.0mm	69.5mm	79.5mm
Five sheets	50.0mm	60.0mm	75.5mm	85.5mm
Six sheets	26.0mm	66.0mm	81.5mm	91.5mm

⚠ Caution

- Length of grass mown at once should be less than 30mm.
- Moreover, do not cut 1/3 or more of the total grass length.
- * The cutting height at the time of the shipping is set to 48mm.

5-2 Mowing operation

- 1) Pull up the throttle lever and set engine speed to MAX (2,600rpm). (Refer to **3-16**)
 - 2) Release the mower lock lever. (Refer to **3-19**)
 - 3) Move the mower unit raise/lower lever to the "DOWN" position, and lower the mower deck. (Refer to **3-17**)
 - 4) Turn the blade rotation switch to the "ON" position, and rotate the blade.
(Refer to **3-13**)
 - 5) Hold the forward pedal down and begin the operation.
- * Respond to the raising or lowering of the mower unit, the blade will rotate or stop automatically.

Caution



- Be sure to work by the speed which suited the working condition.
- The machine detects the position of the mower unit and decides "whether to rotate or stop" the blade. Keep in mind that the blade rotation may not stop if the mower unit is not fully raised by operating the mower unit raise/lower lever.

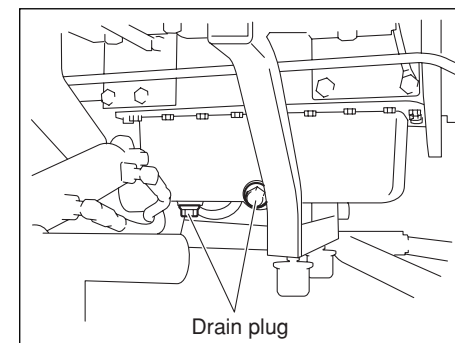
6. Maintenance of the main unit

6-1 Change of engine oil



Refer to the engine's instruction manual for handling of the engine.

- 1) Change the oil after the first 50 hours operation, and change it for every 100 hours operation from the next.
- 2) Remove drain plug on the oil pan. If it carries out while the engine is warm, the oil can be drained completely.



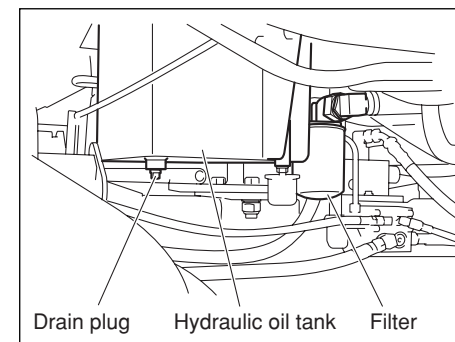
Caution



- Use the engine oil higher than the API service classification CD class.
- The engine oil is high temperature immediately after the operation. Change it after waiting for a while so that you may not be burned, when removing the drain plug.

6-2 Change of hydraulic oil

- 1) Change the hydraulic oil after the first 100-hour operation, and change it in the shorter period between the one year and 500-hours operation from the next.
- 2) Always replace the hydraulic filter when changing oil.
- 3) Remove the drain plug on the bottom of the hydraulic oil tank, and drain the hydraulic oil.



- 4) Drain and replace the hydraulic oil if you notice the presence of water or foam in the oil (emulsifying), or contamination (lack of transparency).
 - 5) Use the Shell Tellus 46 or equivalent products for the hydraulic oil.
- * The capacity of the hydraulic oil tank is approximately 44Liters.

Caution



- The hydraulic oil is high temperature immediately after the operation. Change it after waiting for a while so that you may not be burned, when removing the drain plug.
- * Do not overfill

6-3 Inspection of oil leak



All of fittings for hydraulic hose, pump, cylinder etc. may loose after 50 hours operation. The fittings should be securely fastened.

- * The level sensor is attached to the hydraulic fluid tank.
If the amount of hydraulic oil decreases about 2Liters, the warning alarm (discontinuous sounds) will sound.

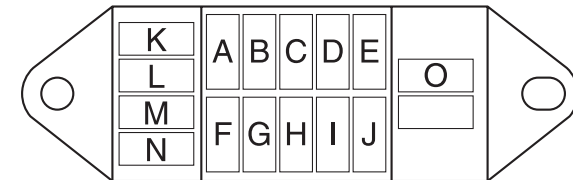
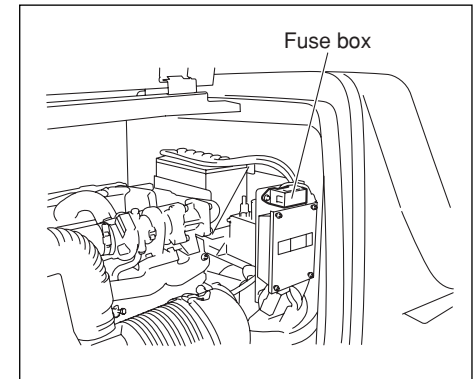
6-4 Greasing each part

Carry out the greasing up to the following grease nipples every 50 hours.

Grease up points	Parts catalogue number
Rear roller assembly	20-35
#1 - #5 lift arm	18-14, 18-23, 18-26, 19-22, 19-28
#2 - #3 Rotation fitting	19-13, 19-29
Pivot	5-26
Forward/backward pedal	7-1, 7-6
Right/left brake pedal	6-22, 6-29
Brake fitting	6-2
Pump center fitting	7-31
Pump idle lever	7-28

6-5 Replacement of fuses

- 1) Fuse box.
The spare fuse and the replacement tool are attached in the fuse box.
Replace with the fuses of the requirement rated capacity.
The fuses are mini-fuse for automobiles.
- 2) Fusible link
The fuse rated capacity of the fusible link is 50A.



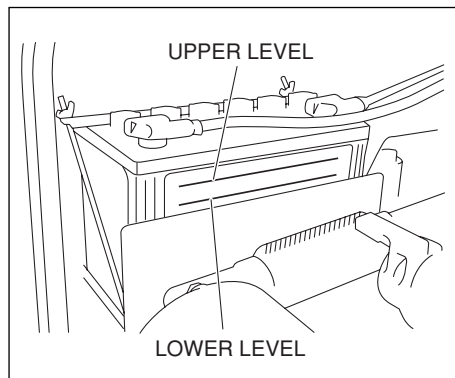
A	5A	Timer
B	5A	Glow lamp
C	5A	Tachometer, fuel gauge, water temperature gauge, charge lamp, oil pressure (engine oil pressure) lamp, Water temperature warning alarm, Hydraulic oil warning alarm
D	15A	Relay box 1
E	15A	Relay box 2, differential lock, #4,#5 proximity switch
F	-	
G	5A	Timer
H	5A	Alternator
I	5A	Fuel pump, cooling-fan valve safety relay, stop solenoid
J	5A	Relay (starter)
K	5A	Spare fuse
L	5A	
M	15A	
N	15A	
O	Fuse replacement tool	

6-6 Inspection of battery



Refer to the Battery's instruction manual.

Check the electrolyte level between "UPPER LEVEL" (maximum level line) and "LOWER LEVEL" (minimum level line). When the electrolyte level is falling below to half between "UPPER LEVEL" and "LOWER LEVEL", add the refining water to "UPPER LEVEL" immediately.



Danger

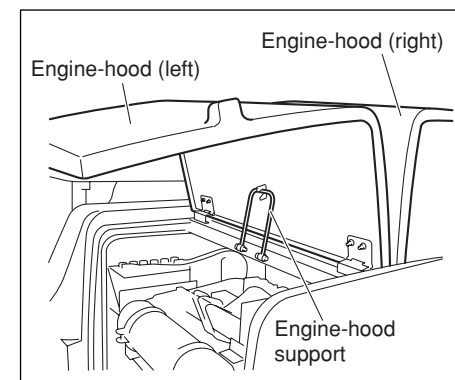


- Do not drink electrolyte and avoid contact with skin, eyes or clothing. Wear protective glasses and protective clothes.
- When charging battery, battery generate explosive hydrogen gas as battery electrolyte contains sulfuric acid which is deadly poison and causes severe burns.
- Never smoke near the battery and keep sparks and flames away from it.
- When removing battery, remove the negative (-) cable first, and positive (+) cable last. Install the battery; assemble the positive (+) cable first and negative (-) cable last.
- When you connect the battery cables, connect the positive and negative side correctly. When you mistake, the battery and the electrical equipment may be damaged. (The red-color cable is the positive side.)
- If a dry cloth is used to clean the battery, the static electricity may occur and there is danger of fire or explosion.

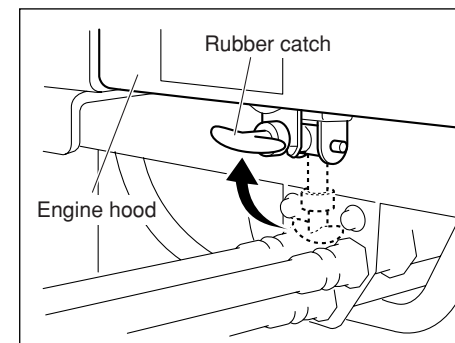
6-7 Opening and closing the engine hood (R, L)

Detach the rubber catch and pull up the engine hood.

Hook the engine-hood support on the carrier of the housing inner side; check that the engine hood does not close.



When you close, detach the engine-hood support from the carrier, lower slowly, and fit the rubber catch.



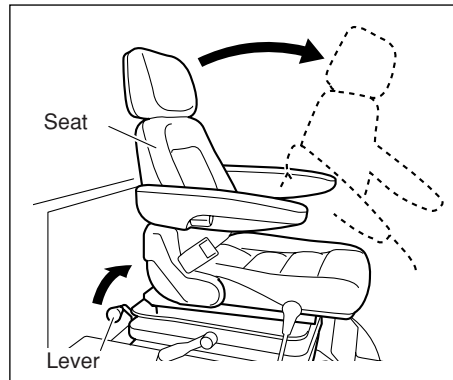
Caution



- When you close the engine hood, be careful not to pinch your hand.
- Do not open the engine hood at the windy place.

6-8 Opening and closing the seat undercover

Raise the tilt steering column to the upper position first, and then move the seat to the rear end position. Pull up the lever behind the seat to release the lock, and then raise the seat and open the undercover. To close the undercover, lower it slowly.



Caution

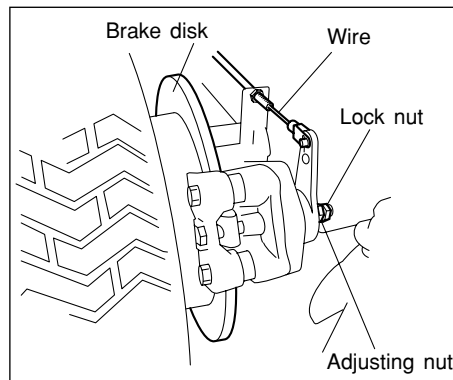
- When you close the undercover, be careful not to pinch your hand.



6-9 Adjustment of brake

Carry out the clearance adjustment, if the clearance between the brake disk and brake pad becomes large and effectiveness of the brake disc worsens.

Loosen the lock nut, and tighten the adjusting nut; the clearance will become small. If adjusted to the proper clearance, tighten the lock nut securely. The fine adjustment can be performed with the wire. Be sure to adjust so that effectiveness of the brake disc on either side becomes the same.

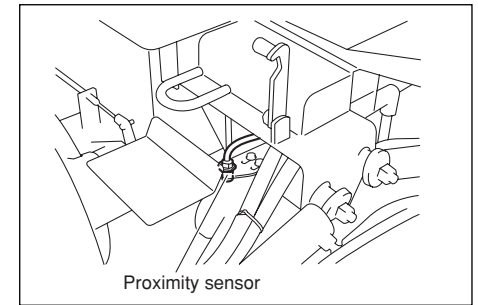


Danger

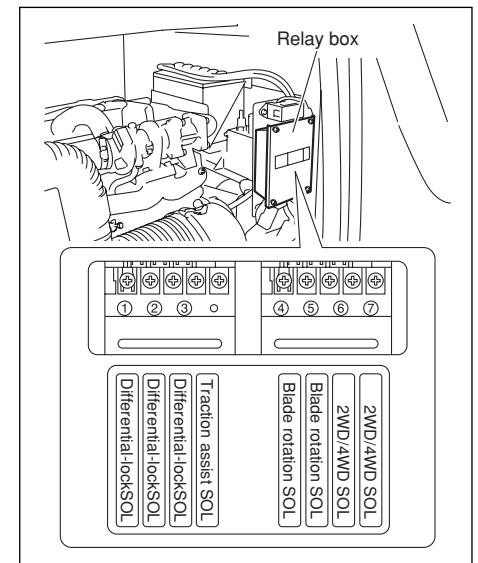
- It will generate heat, if the clearance is too small, and it becomes the cause of the fire.
- If effectiveness of the brake disc on either side is different, it may lead to an unexpected accident.

6-10 Checking operation of the proximity sensor/relay

- There are two proximity sensors. It detects the raising and lowering position of #4 and #5 mower deck, and performs rotation and halt of the blade.
- While operating, the red LED (④,⑤) in the relay box lights up.



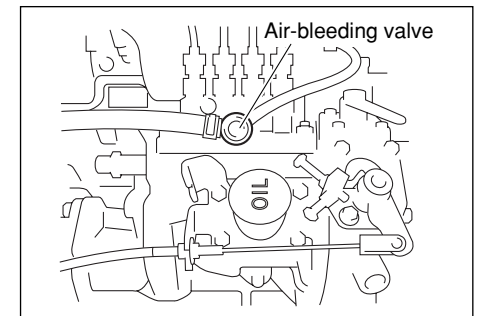
1. When the differential lock valve is turned "ON", the LED ①,②,③ light on.
2. When the blade rotation switch is set to "ON", and while the mower deck is lowered, the LED ④,⑤ light on.
3. When the blade rotation switch is set to "ON", the LED ⑥ lights on and becomes 4WD.
4. When the 2WD-4WD changeover switch is set to "4WD", the LED ⑦ lights on and becomes 4WD.



6-11 Air-bleeding from fuel

Since this machine has equipped the automatic air bleeder, the air-bleeding operation is unnecessary.

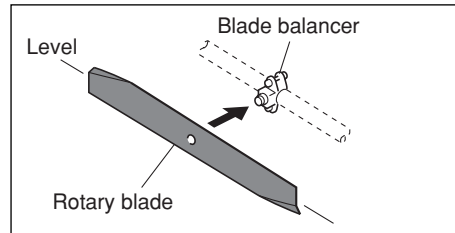
- * Always use the air-bleeding valve with the fully open position. If it is used in the closed position, it will become the cause of the engine stop.



7. Maintenance of the mower unit

7-1 Grinding and balancing of the rotary blade

- 1) Grind the edge of the blade on the rotary blade by a grinder.
- 2) After grinding, use it after maintaining right-and-left balance by using a knife balancer system.
- 3) Attach the blade balancer system to a suitable place, insert the rotary blade in the balancer system, and maintain right-and-left balance.



Warning

- If it is used while the balance of the rotary blade is bad, vibration will come out and the machine will be damaged.

Caution

- When you grind the blade, use an eye protector and gloves.

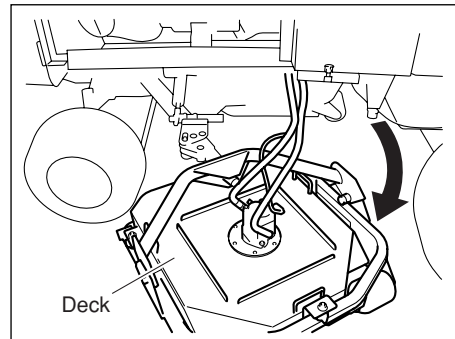
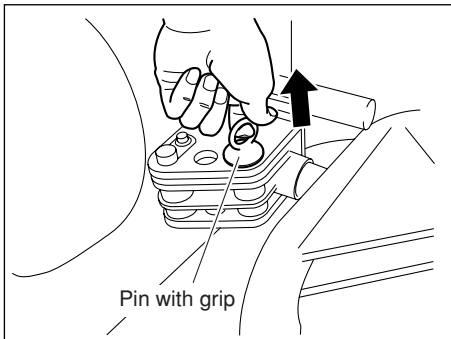
7-2 Replacement of the rotary blade



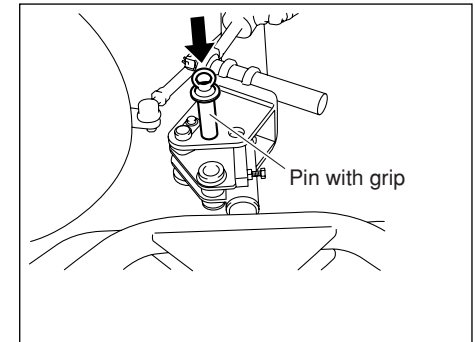
Set the parking brake, lower the mower units, and remove key from ignition switch.

1. Raise the #2 and #3 deck.

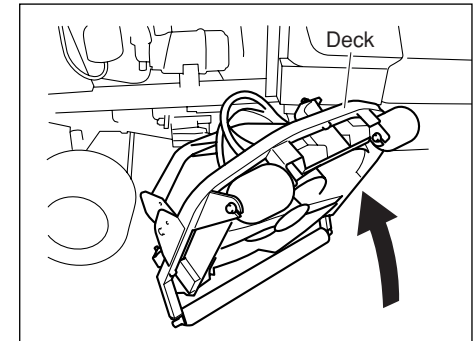
- 1) Pull out the pin with grip (19-19), and shift the deck horizontally.



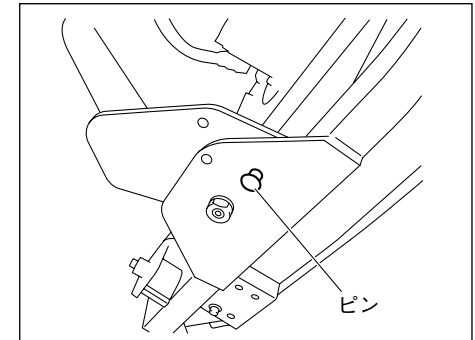
- 2) Insert the pin with grip in the fixed hole for the maintenance.



- 3) Start the engine and raise the deck.
- 4) Stop the engine and remove the key.

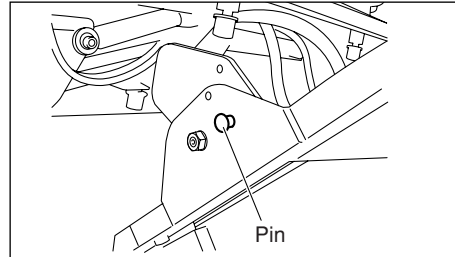
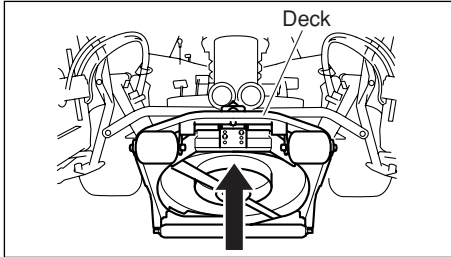


- 5) Lift the deck from the front, put the pin (19-5) in the position shown in the figure, and fasten it.



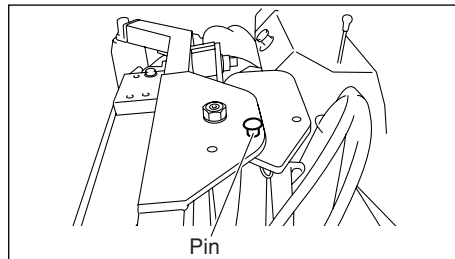
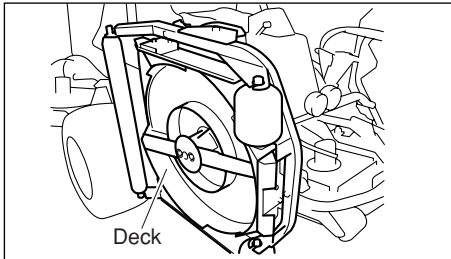
2. Raise the #1 deck.

- 1) Start the engine and raise the deck.
- 2) Stop the engine and remove the key.
- 3) Lift the deck from the front, put the pin (18-5) in the position shown in the figure, and fasten it.



3. Fix the #4 and #5 deck.

- 1) Start the engine and raise the deck.
- 2) Stop the engine and remove the key.
- 3) Put the pin (18-5) in the position shown in the figure, and fix the deck.



4. Detach the knife.

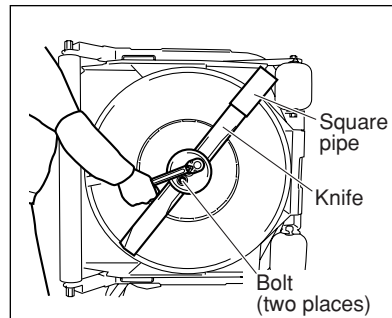
- * Be sure to stop the engine, and remove the key.

- 1) Use the square pipe from the attached tool, fix so that the blade may not turn, and remove the blade fitting bolt (2 pcs).

5. Install the knife.

- 1) Install in the reverse procedure of removal.

6. Return the pin (19-5) (18-5) to the original position after the end of work.



- * Tightening torque of the blade fitting bolt: 104 - 134 N-m (10.4 - 13.4 kgf-m)



- Replace the bearing of the mower and oil seals for every season.

8. Cautions for maintenance

8-1



Cautions for maintenance



- Read this manual carefully and have full knowledge of the maintenance procedure.
- Stay the machine on a flat, clean and dried place.
- Never lubricate or maintenance where the engine is run.
- Keep hands, feet away from drive/moving part if engine is run.
- Set lower the mower unit to the ground, engage parking brake, stop the engine and remove key from ignition switch.
- Use correct/appropriate parts in good condition.
- Repair or replace worn or damaged parts immediately.
- Do not modify any mechanical equipments/parts. Use Baroness genuine equipments or parts for safety.
- Clean up grass and debris, oil/grease or fuel spillage.
- Make sure to disconnect the negative (-) battery cable before maintaining the electric circuit.
- When you maintain with the machine raised, carry out the safe support securely.



8-2



Prevention of the damage caused by high-pressure oil



- When high pressure oil is injected to the skin, get seriously injured.
- Eliminate the pressure before removing the high-pressure line hose coupling.
- Check visible hose, fittings before operating the machine.
- Use the paper or cardboard for the test of oil leak. If hydraulic oil is injected into the skin, be sure to have medical treatment by doctor within 2 to 3 hours.

8-3 Maintenance schedule

◆ Use the required tools suitable for the purpose of the maintenance.

	Maintenance	Before use	Every 50hrs	Every 100hrs	Every 200hrs	Every 500hrs	Every 6 months
Engine	Inspection of engine oil	○					
	Change of engine oil		○ (Initial operation)	○			
	Replacement of oil filter		○ (Initial operation)	○			
	Cleaning of radiator, oil cooler and radiator cover	○					
	Inspection of coolant	○					
	Inspection and cleaning of air filter	○					
	Replacement of air filter element				○		
	Inspection of fan belt	○					
	Inspection of battery electrolyte						○
	Replacement of fuel filter					○	
Main body	Inspection of tires	○					
	Inspection of fuel	○					
	Inspection of hydraulic oil	○					
	Replacement of hydraulic oil			○ (Initial operation)		○	
	Replacement of oil filter			○ (Initial operation)		○	
	Inspection of brake	○					
	Oil leakage of each part	○					
	Inspection of slack or damage on each part	○					
	Inspection of rotary blade	○					
	Grease up		○		○		
	Remove adhesion of cutting grass, etc.	○					

<Specifications for periodic maintenance>

Engine oil capacity	MAX: 9.7 L MIN: 7 L	Higher than the API service classification CD class
Coolant capacity	Total capacity 12 L	Including 1 L in reserve tank
Tire pressure (standard tire)	Front tire 150 kPa (1.5kgf/cm ²)	
	Rear tire 140 kPa (1.4kgf/cm ²)	
Fuel tank capacity	Approximately 51 L	Diesel JIS2 type
Oil tank capacity	Approximately 44 L	Use the Shell Tellus 46 equivalent

<Wear parts lists for the engine, hydraulic system>

For engine

Parts name	Code No.	Parts catalogue No.
Oil filter element	PF16414-3243-0	9-91
Air filter element	PFR1401-4227-0	8-66
Fan belt	PF17112-9701-0	-
Fuel filter cartridge	PF15221-4317-0	8-67
Battery	K3600000180	9-54

For hydraulics system

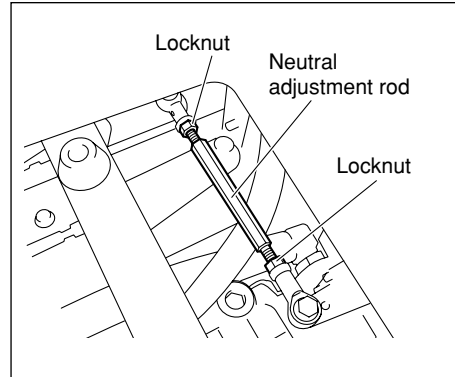
Parts name	Code No.	Parts catalogue No.
Oil pressure filter cartridge	K3410000030	10-70
Suction filter	K3413000040	10-69

9. Adjustment of the other functions

9-1 Adjustment of the neutral position of piston pump



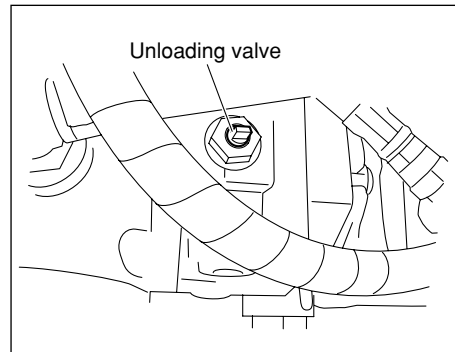
- 1) Jack up the machine and put on a stable stand, and float the front and rear wheels.
- 2) Raise the seat upwards.
- 3) Start the engine and run at high speed, and put the 2WD-4WD changeover switch into "2WD."
- 4) When the front wheel rotates in the forward direction, loosen the locknut and turn in the direction that reduces the length of the neutral adjustment rod. When rotating in the backward direction, turn in the direction that extends the length of the neutral adjustment rod. Find the position at which the front wheel stops and tighten the locknut.



9-2 Traction when the machine is unable to travel.



- 1) When the engine is running, stop the engine.
- 2) Apply the parking brake and attach a wheel stopper.
- 3) Set the 2WD-4WD changeover switch into "2WD."
- 4) Raise the seat upward.
- 5) Turn 90 degrees of the unloading valve beside the hydraulic pump.



⚠ Caution

- When you tow, drive carefully at a low speed.
- When you put the engine into operation next time, be sure to start after returning the unloading valve.

10. Long-term storage



Please refer to the Engine/Battery operation manuals for details.

Stay the machine at flat and stable place, then turn the engine off and set the parking brake, lower the mower unit, and remove key from ignition switch.

1. Clean grass and debris from mower unit, drives, muffler, radiator and engine. Clean up oil, grease or fuel spillage.
2. Inspect and replace the engine oil and filter element.
3. Refill oil and apply lubricating/greasing to each lubrication part.
4. Drain the fuel in the fuel tank. Do this outdoors.
5. Set the air pressure in the tires slightly higher than normal, place the machine on a board to avoid humidity.
6. Inspect all bolts, nuts and screws tightened. If worn or damaged replace them.
7. Repair or replace damaged parts and paint peelings. Store it where is dry and free from rain.
8. Remove the battery from the machine. If you keep the battery installed in the machine, disconnect the grounding side (negative side).

5-Deck Rotary Mower **GM2800A BARONESS** **MOWER**

PARTS CATALOGUE

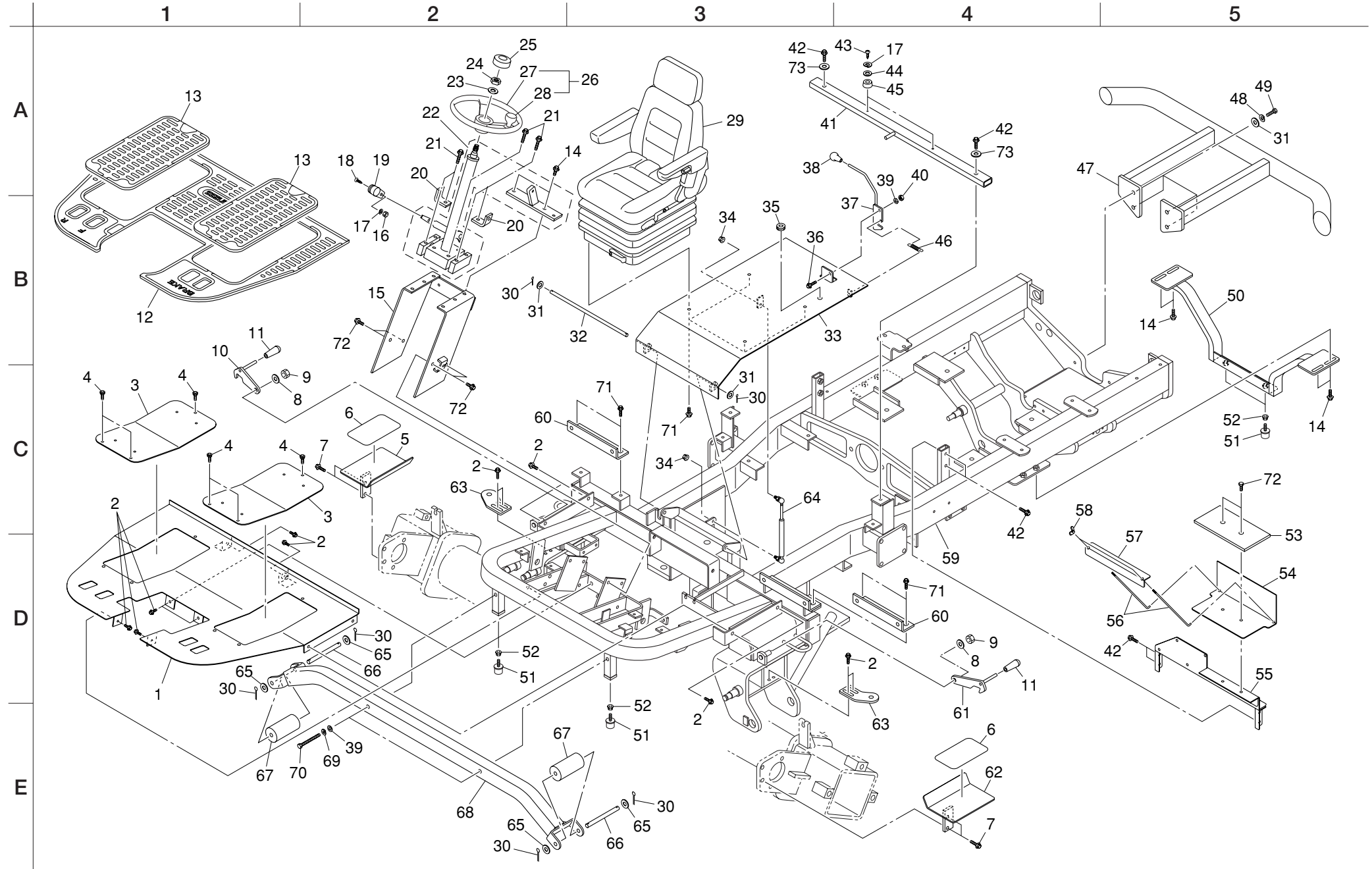
☆ Ordering parts

All parts in this parts catalogue are controlled by computer.

For prevention of delivery of wrong parts, advise us of the catalogue No., code No., and part name.

(Example)	Catalogue No.	Code No.	Part Name	Qty
	1-5	GM2800-0624ZD	step (R)	1

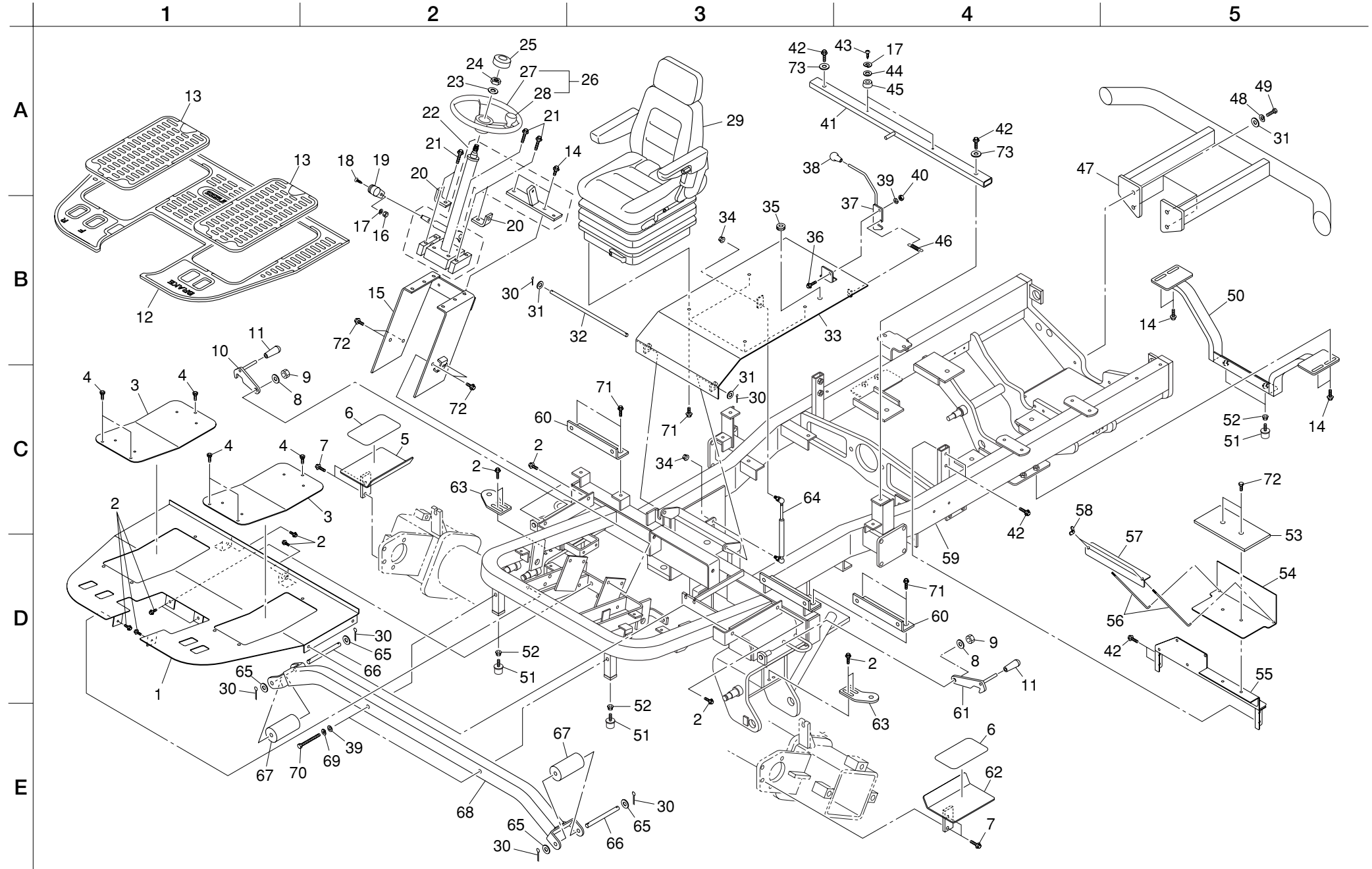
1. Frame parts A



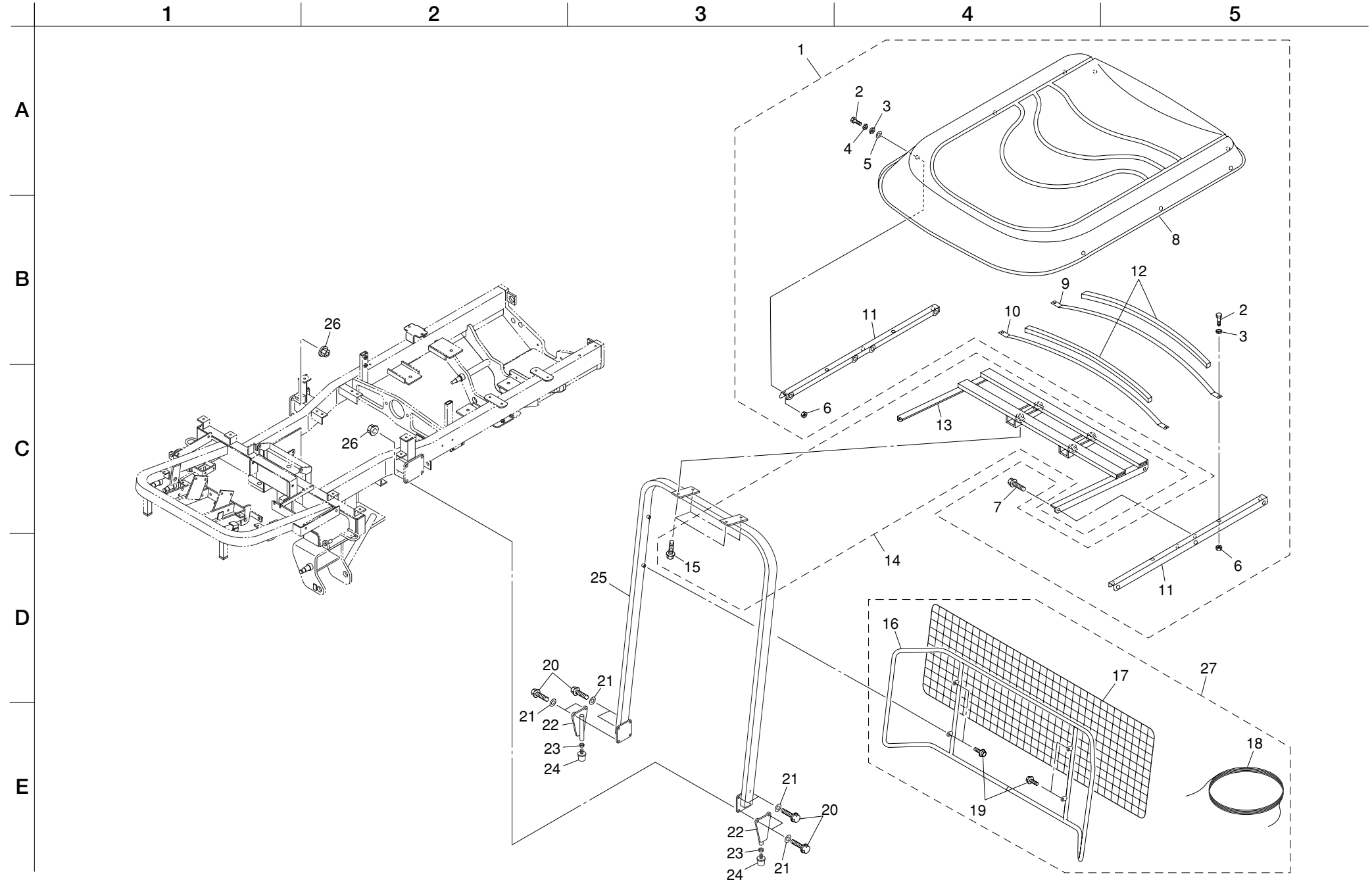
Cat No.	Code No.	Part Name	Qty	Remark
1-1	LM2700-0620AD	step	1	
1-2	K0021080152	8 bolt with flange 15	14	
1-3	LM2700-0621AD	step cover	2	
1-4	K0062080122	hexagonal socket button bolt	6	
1-5	GM2800-0624ZD	step (R)	1	
1-6	K4400000030	pedal seat 100170	2	
1-7	K0021120302	12 bolt with flange 30	4	
1-8	K0210140002	14 conical spring L	2	
1-9	K0145140002	14U nut P1.5	2	
1-10	GM2800-0621AD	#4 lock lever	1	
1-11	K1300000110	9 grip yellow 22	2	
1-12	GM2800-0630A0	step rubber (L)	1	
1-13	LM2700-0629A0	step rubber (S)	2	
1-14	K0021100202	10 bolt with flange 20	8	
1-15	LM2700-0602ZD	handle mount	1	
1-16	K0100050002	5 nut	1	
1-17	K0200050002	5S washer	3	
1-18	K0042050082	5+ round head small screw 8	1	
1-19	K1301000150	throttle lever grip	1	
1-20	LM2700-0931ZD	front cover mount	2	
1-21	K0021100502	10 bolt with flange 50	8	
1-22	K1730000040	tilt steering column	1	
1-23	K0200140002	14S washer	1	
1-24	K0103140002	14 nut P1.5	1	
1-25	K1310000130	rubber cap	1	
1-26	K1710000070	steering with knob V027200-000	1	
1-27	K1710000080	steering V027220-0101	1	
1-28	K1710000090	knob Ass'y V027220-0200	1	
1-29	K1700000250	saddle DS85H/90	1	
1-30	K0300032222	3.2 split pin 22	6	
1-31	K5000120002	12 washer	6	
1-32	LM2700-0609Z2	12 shaft with holes 333	1	
1-33	GM2800-0606ZD	seat mount	1	
1-34	K0151080002	8 nut with flange	2	
1-35	K0910000020	grommet C30NG79H	1	

Cat No.	Code No.	Part Name	Qty	Remark
1-36	K0000100202	10 bolt 20	1	
1-37	LM2700-0607ZD	lever	1	
1-38	K1300000040	9 grip black35.5	1	
1-39	K5000100002	10 washer	3	
1-40	K0144100002	10U nut	1	
1-41	LM2700-0608AD	seat receiver	1	
1-42	K0021100302	10 bolt with flange 30	6	
1-43	K0042050152	5+ round head small screw 15	2	
1-44	K5000050002	5 washer	2	
1-45	K4039000130	rubber foot TK-3220	2	
1-46	K1030000098	1.6U hook spring 1266.8	1	
1-47	GM2800-0617ZD	bumper	1	
1-48	K0200120002	12S washer	4	
1-49	K0010120302	12 heat-treated bolt 30	4	
1-50	GM2800-0620ZD	rear deck stopper	1	
1-51	K4049050000	rubber stopper KI-50	4	
1-52	K0151100002	10 nut with flange	4	
1-53	K4035000140	battery anti-vibration rubber	1	
1-54	GM2800-0603ZD	battery mount	1	
1-55	GM2800-0602ZD	valve mount	1	
1-56	GM2800-0605ZD	battery support rod	2	
1-57	GM2800-0604ZD	battery support	1	
1-58	K0140060002	6 wing nut	2	
1-59	GM2800-0601AD	frame	1	
1-60	GM2800-0627ZD	cover mount	2	
1-61	GM2800-0622AD	#5 lock lever	1	
1-62	GM2800-0623ZD	step(L)	1	
1-63	LM2700-0625ZD	switch mount plate	2	
1-64	K3381000010	gas spring C25	1	
1-65	K5000140002	14 washer	4	
1-66	GM2800-0629Z2	roller shaft 155	2	
1-67	GM2800-0628Z0	rubber roller	2	
1-68	GM2800-0614ZD	arm guide	1	
1-69	K0200100001	10S washer	2	
1-70	K0003101002	10 bolt 100	2	

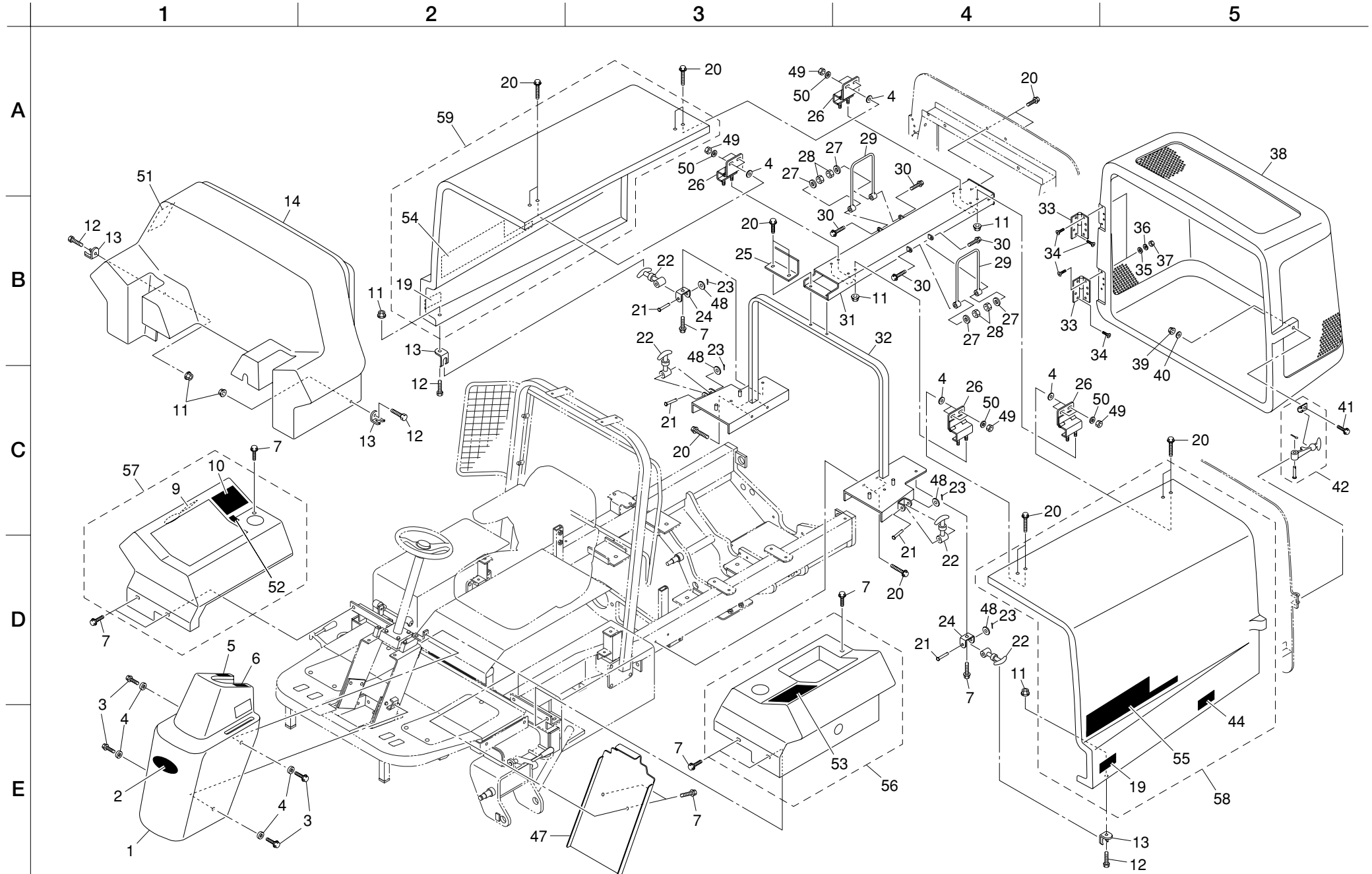
1. Frame parts A



2. Frame parts B



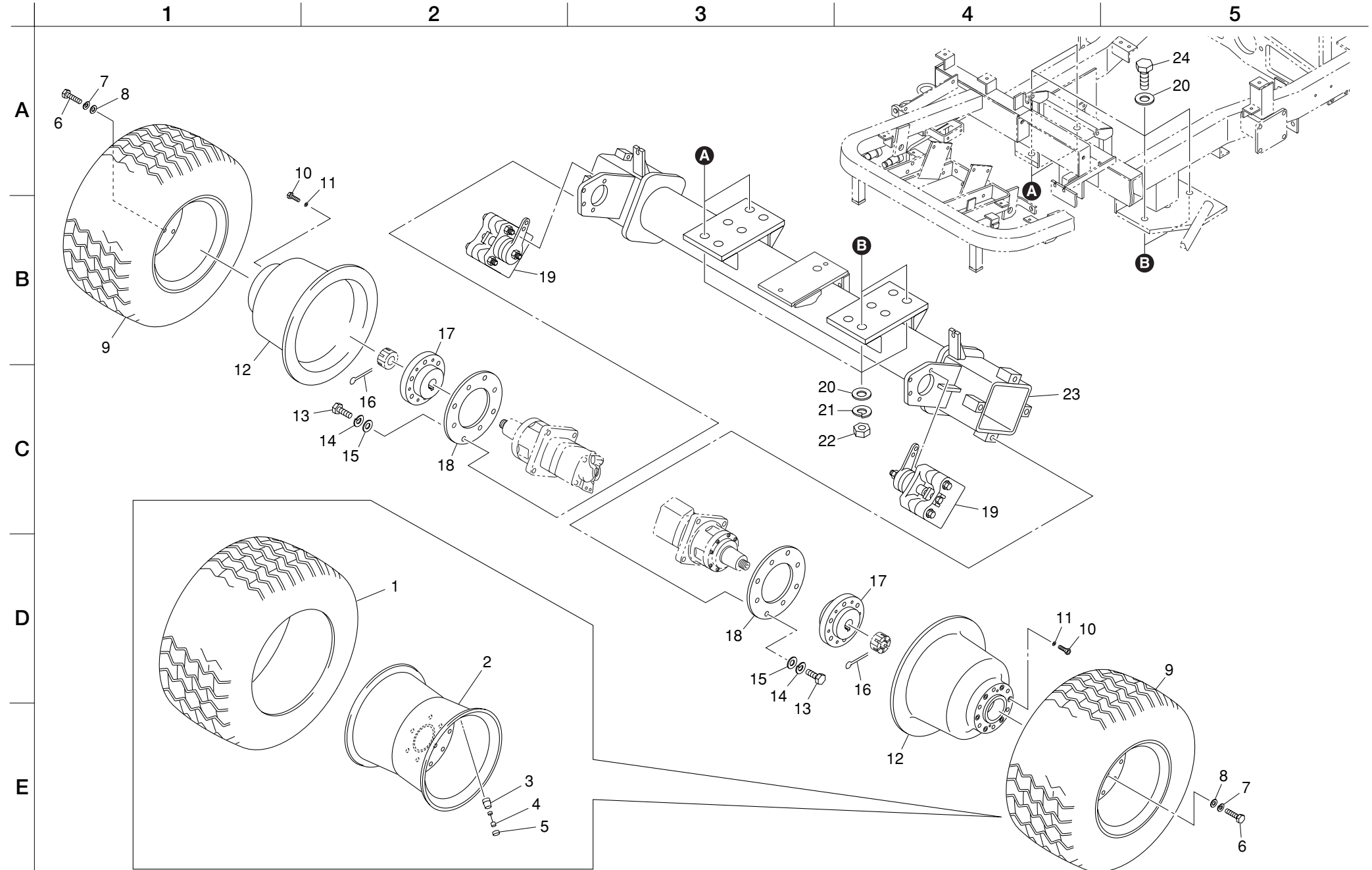
3. Cover parts



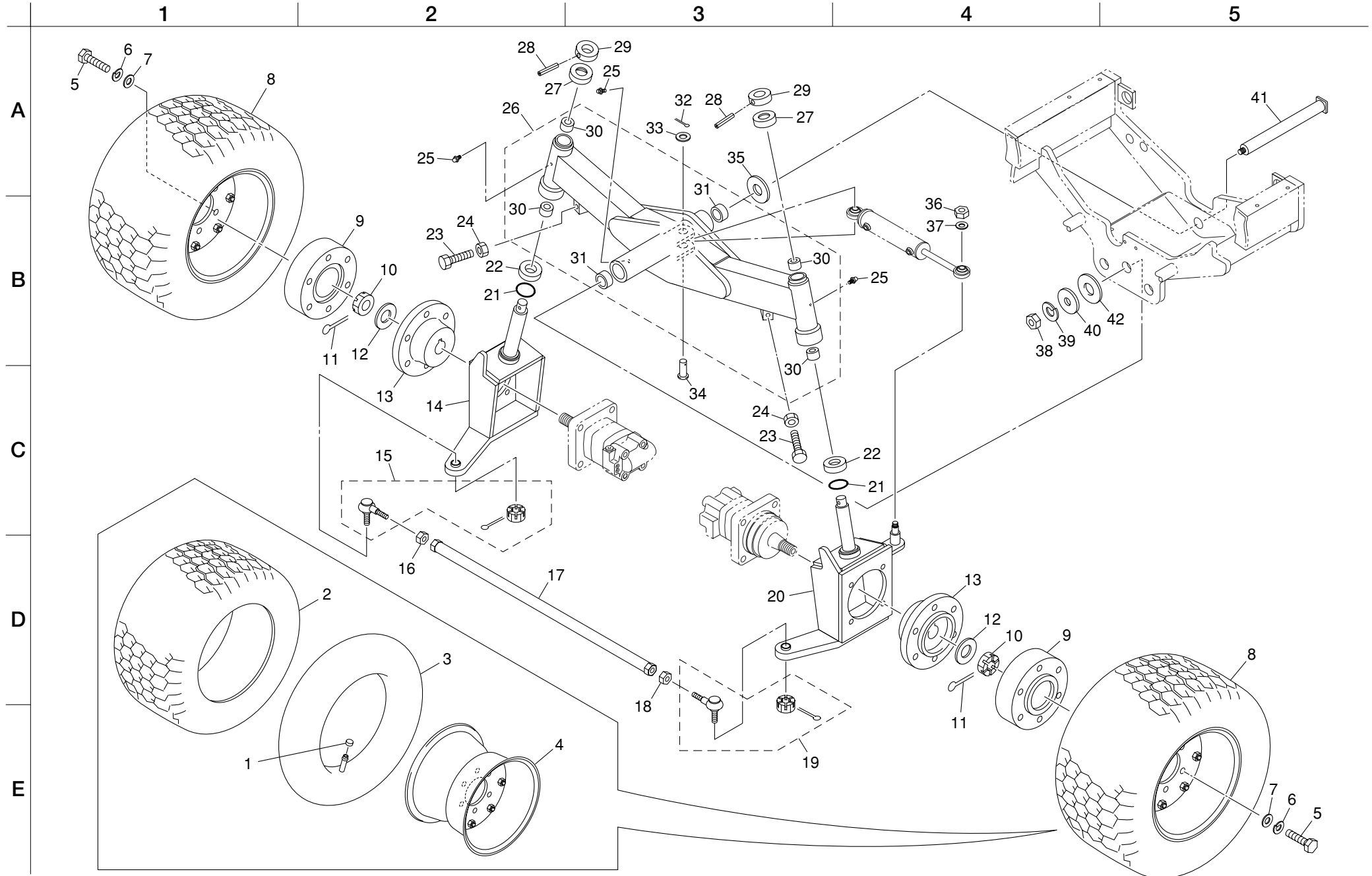
Cat No.	Code No.	Part Name	Qty	Remark
3-1	LM2700-0926Z0	front cover	1	
3-2	K4201000570	BARONESS mark	1	
3-3	K0045080202	8+ truss small screw 20	4	
3-4	K4031000070	5 anti-vibration rubber 825	12	
3-5	K4203001350	tilt steering mark	1	
3-6	K4203001340	parking brake mark	1	
3-7	K0021080152	8 nut with flange 15	10	
3-8				
3-9	K4209001000	fuel filler port mark	1	
3-10	K4205001630	start/stop label	1	
3-11	K0151080002	8 nut with flange	12	
3-12	K0000080152	8 bolt 15	4	
3-13	K5270002352	rubber catch	4	
3-14	GM2800-0902A0	center cover	1	
3-15				
3-16				
3-17				
3-18				
3-19	K4205001580	caution mark (injury)	2	
3-20	K0021080202	8 bolt with flange 20	16	
3-21	K6030060352	6 flat-head pin 35	4	
3-22	K1520000090	rubber catch (S)	4	
3-23	K0300016162	1.6 split pin 16	4	
3-24	K5200000102	rubber catch stopper	2	
3-25	GM2800-0930ZD	cover retainer	1	
3-26	GM2800-0920Z0	hinge Ass' y	4	
3-27	K5000100002	10 washer	4	
3-28	K0144100002	10U nut	4	
3-29	GM1500-0932B2	bonnet support	2	
3-30	K0021100402	10 bolt with flange 40	4	
3-31	GM2800-0916ZD	cover mount	1	
3-32	GM2800-0917ZD	cover frame	1	
3-33	GM2800-0931Z0	flag style hinge B-67-1R	2	
3-34	K0041050122	5+ countersunk head screw 12	16	
3-35	K5000050002	5 washer	8	

Cat No.	Code No.	Part Name	Qty	Remark
3-36	K0200050002	5S washer	8	
3-37	K0100050002	5 nut	8	
3-38	GM2800-0912Z0	radiator cover COMP	1	
3-39	K0151060002	6 nut with flange	1	
3-40	K50111606202	1.6SPCC metal washer 620	1	
3-41	K0021060302	6 bolt with flange 30	1	
3-42	K1520000030	rubber catch Ass' y	1	
3-43				
3-44	K4205001540	caution mark (hot parts)	1	
3-45				
3-46				
3-47	LM2700-0951ZD	front rear cover	1	
3-48	K5000060002	6 washer	4	
3-49	K0144080002	8U nut	8	
3-50	K5000080002	8 washer	8	
3-51	K4209001260	maintenance label	1	
3-52	K4209000720	noise level Lwa 105 mark	1	
3-53	K4204000110	mowing height label	1	
3-54	GM2800A0902Z0	BARONESS mark GM2800A right	1	
3-55	GM2800A0901Z0	BARONESS mark GM2800A left	1	
3-56	GM2800-1601Z0	tank cover left COMP	1	
3-57	GM2800-1602Z0	tank cover right COMP	1	
3-58	GM2800-1603Z0	bonnet left COMP	1	
3-59	GM2800-1604Z0	bonnet right COMP	1	

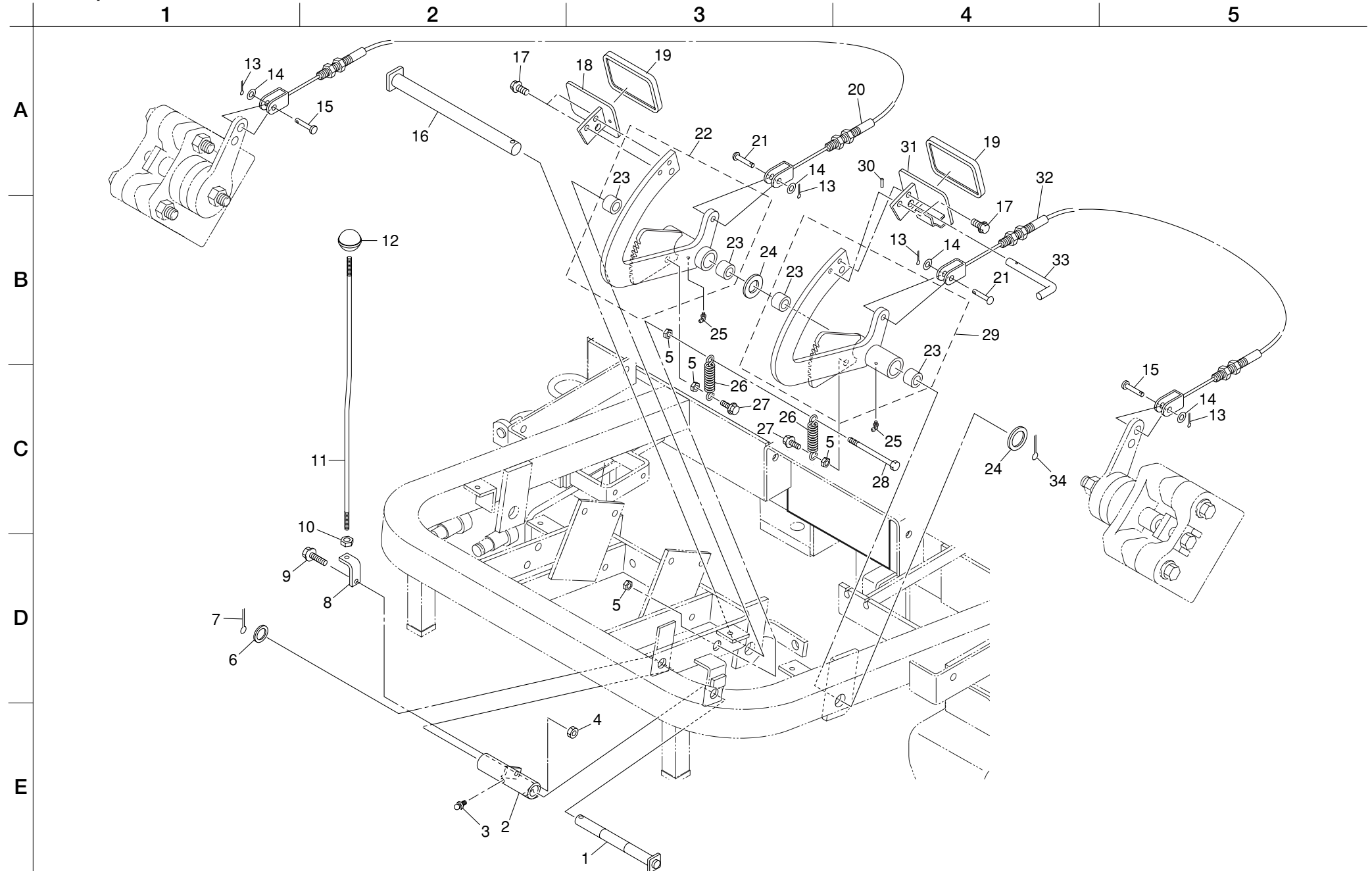
4. Front wheel parts



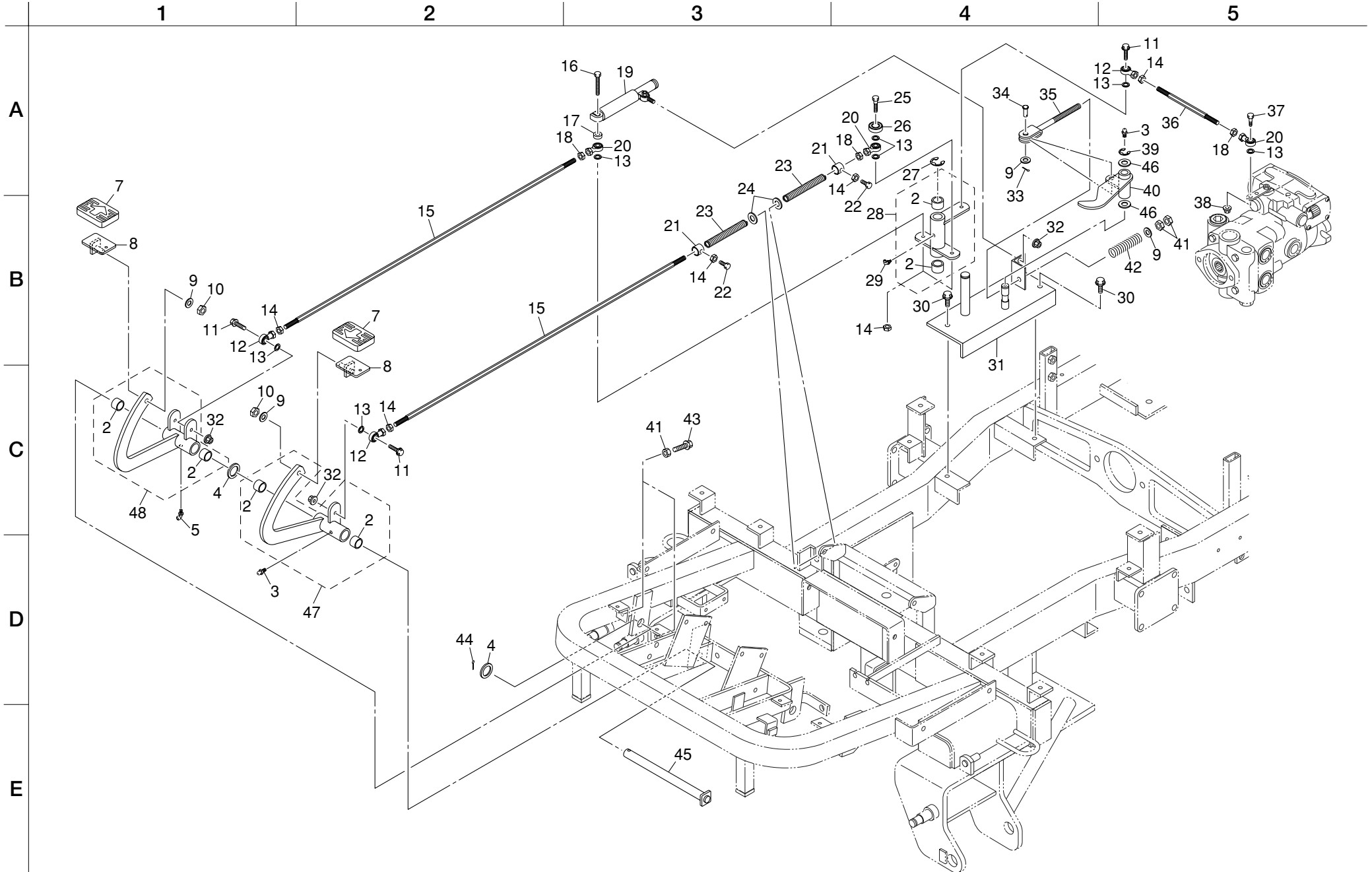
5. Rear wheel parts



6. Brake parts



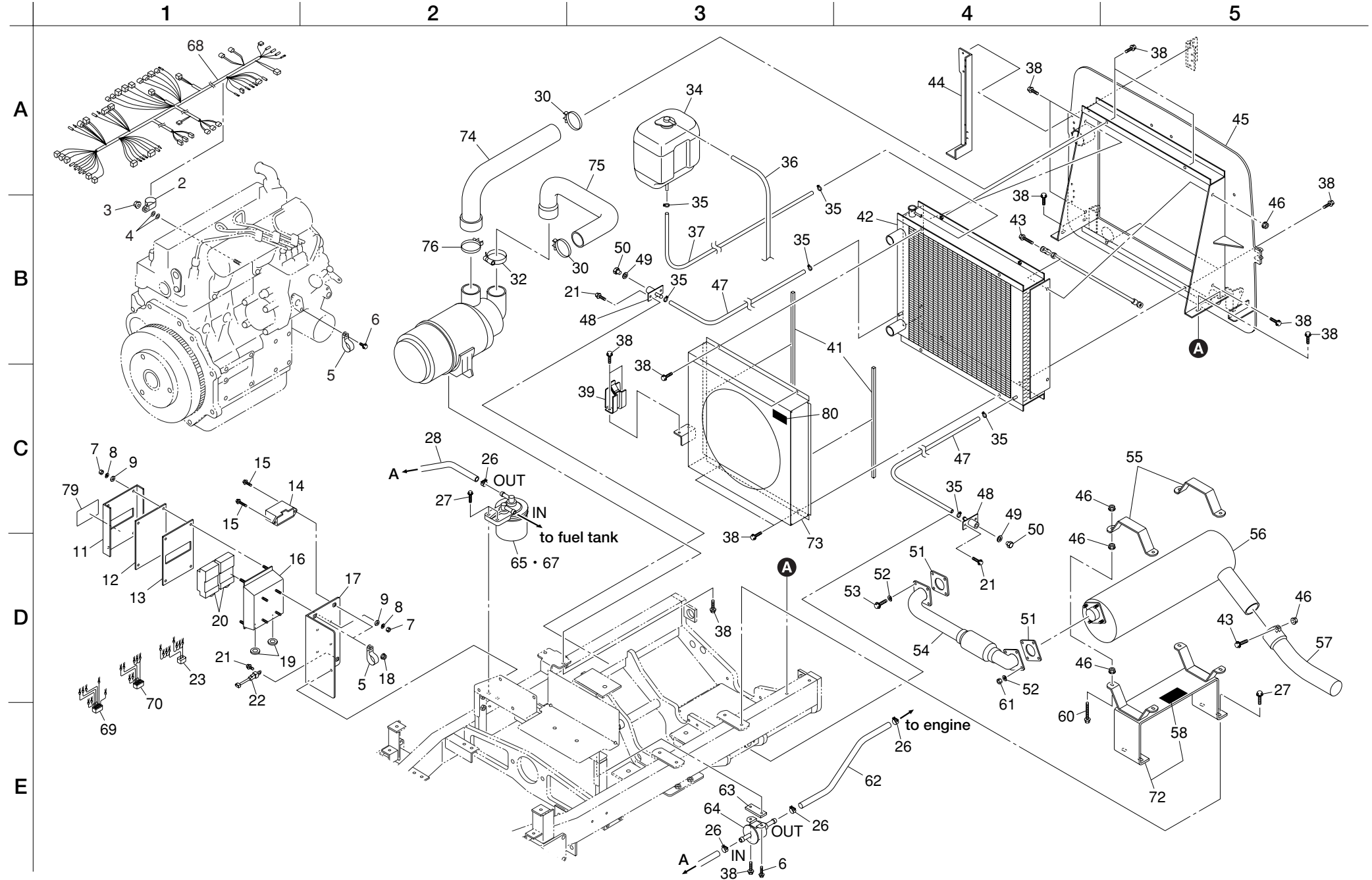
7. forward/backward pedal parts



Cat No.	Code No.	Part Name	Qty	Remark
7-1				
7-2	K6000000280	20 bush 2420	6	
7-3	K1440000010	grease nipple	2	
7-4	K5011020322	1SPCC metal washer 2032	2	
7-5	K1440000020	C-shaped grease nipple	1	
7-6				
7-7	LM2700-0420Z0	pedal rubber 5575	2	
7-8	LM2700-0408ZD	pedal B	2	
7-9	K5000100002	10 washer	4	
7-10	K0144100002	10U nut	2	
7-11	K0021080302	8 bolt with flange 30	3	
7-12	K1601080000	pillow ball rod end PHS8	3	
7-13	K5073208202	3.2SPHC metal washer 820	7	
7-14	K0100080002	8 nut	7	
7-15	GM2800-0415Z2	screw rod 1017	2	
7-16	K0000080552	8 bolt 55	1	
7-17	LM184--0310Z2	damper collar	1	
7-18	K0180080002	8 left-hand thread nut	3	
7-19	K3380000010	lever damper	1	
7-20	K16010800L0	pillow ball rod end PHS8LA	3	
7-21	K6218000012	12 collar with tap 2220	2	
7-22	K0000080152	8 bolt 15	2	
7-23	K1000000558	2 compression spring 18100	2	
7-24	K5000120002	12 washer	2	
7-25	LM2700-0418Z2	special bolt with M8	1	
7-26	K0608006290	bearing 6292RS	1	
7-27	K0400015002	stop ring E15	1	
7-28	LM2700-0413Z2	pump idle lever	1	
7-29	K1440000030	B-shaped grease nipple	1	
7-30	K0021100152	10 bolt with flange 15 (1pc)	2	
7-31	GM2800-0414Z2	pump center fitting	1	
7-32	K0151080002	8 nut with flange	3	
7-33	K0300025202	2.5 split pin 20	1	
7-34	K6031100258	10 hardened flat head pin 25	1	
7-35	K7303000092	lever adjuster	1	

Cat No.	Code No.	Part Name	Qty	Remark
7-36	LM2700-0416Z2	screw rod 170	1	
7-37	LM2700-0417Z2	special bolt with M6	1	
7-38	K0151060002	6 nut with flange	1	
7-39	K0400012002	stop ring E12	1	
7-40	GM2800-0412Z2	pump neutral lever	1	
7-41	K0100100002	10 nut	4	
7-42	K100000082D	2.6 compression spring 17.270	1	
7-43	K0000100352	10 bolt 50	2	
7-44	K0300032322	3.2 split pin 32	1	
7-45	LM2700-0411Z2	pedal shaft	1	
7-46	K5011016242	1SPCC metal washer 1624	2	
7-47	GM2800-0406AD	forward pedal	1	
7-48	GM2700-0402AD	backward pedal	1	

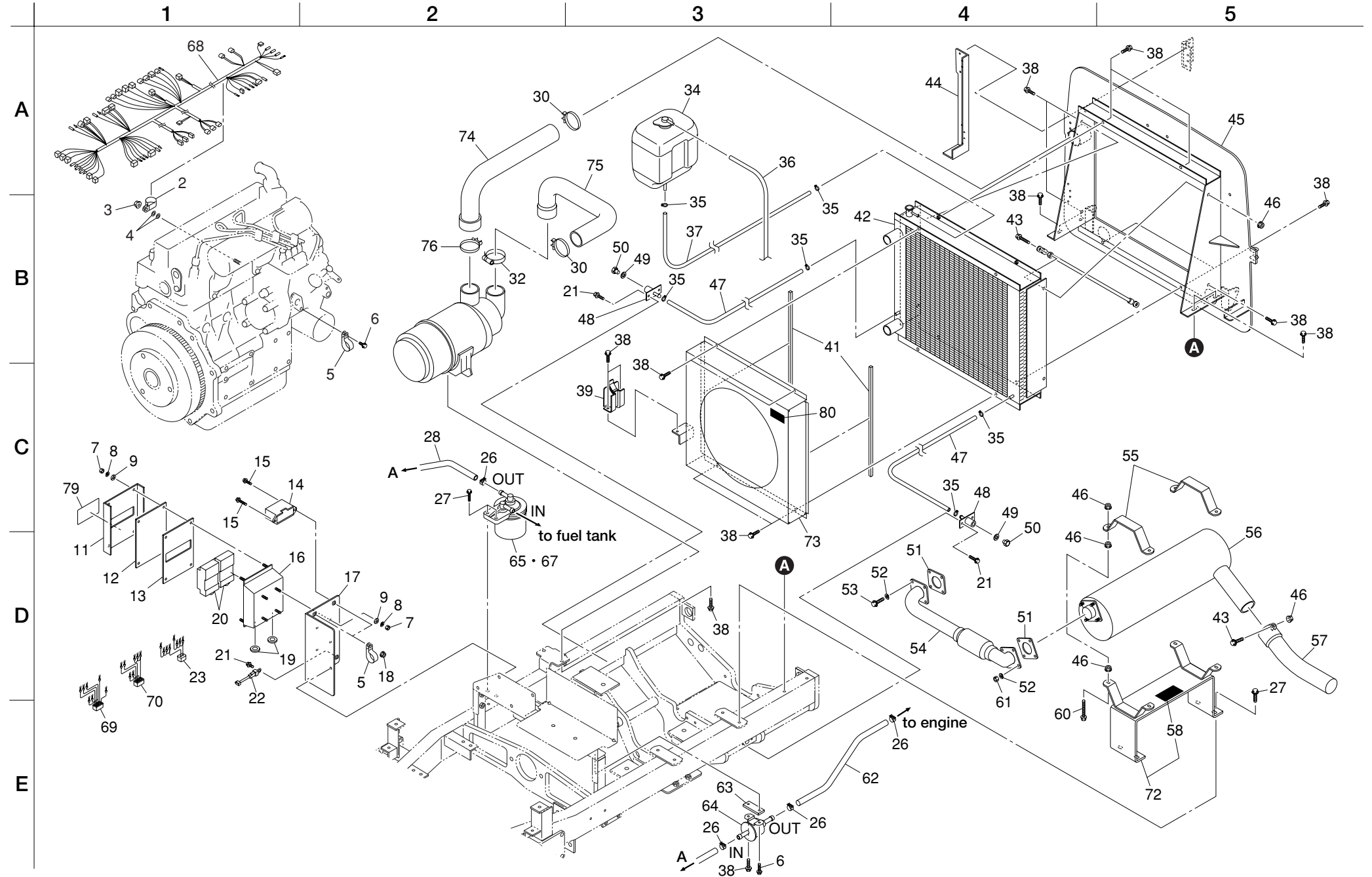
8. Engine parts A



Cat No.	Code No.	Part Name	Qty	Remark
8-1				
8-2	K 4 2 8 1 0 0 0 0 2 0	8.5 harness clamp 80	1	
8-3	K 0 1 5 1 0 8 0 0 0 2	8 nut with flange	1	
8-4	K 5 0 0 0 0 8 0 0 0 2	8 washer	2	
8-5	K 4 2 7 0 0 2 2 0 6 0	22 harness grip M6	3	
8-6	K 0 0 2 1 0 6 0 1 5 2	6 bolt with flange 15	2	
8-7	K 0 1 0 0 0 5 0 0 0 2	5 nut	8	
8-8	K 0 2 0 0 0 5 0 0 0 2	5S washer	8	
8-9	K 5 0 0 0 0 5 0 0 0 2	5 washer	8	
8-10				
8-11	GM2800-0519ZD	box cover	1	
8-12	GM2800-0518Z0	1.5 acrylic board 134189	1	
8-13	GM2800-0517Z0	1 rubber packing 134189	1	
8-14	K 3 6 3 0 0 0 0 0 9 0	mini-fuse block 10P-A	1	
8-15	K 0 0 2 1 0 6 0 3 0 2	6 bolt with flange 30	2	
8-16	GM2800-0516ZD	relay box	1	
8-17	GM2800-0522AD	relay mounting metal	1	
8-18	K 0 1 5 1 0 6 0 0 0 2	6 nut with flange	2	
8-19	K 0 9 0 0 3 0 0 1 6 0	grommet with film C30SG16A	2	
8-20	K 3 6 8 0 0 0 0 0 3 0	terminal relay G6B-4CB	2	
8-21	K 0 0 2 1 0 6 0 1 0 2	6 bolt with flange 10	3	
8-22	K 3 6 2 0 0 0 0 7 2 0	fusible link	1	
8-23	GM2800-0511Z0	relay wire C	1	
8-24				
8-25				
8-26	K 4 2 6 0 0 0 0 1 7 2	hose clamp KS-11-19	4	
8-27	K 0 0 2 1 0 8 0 2 0 2	8 bolt with flange 20	6	
8-28	K 3 1 8 0 0 0 8 0 0 0	fuel hose FUEL8×1B800	1	
8-29				
8-30	K 4 2 6 1 0 3 6 0 0 0	4669 clamp	3	
8-31				
8-32	K 4 2 6 1 0 4 4 0 0 0	parker clamp 29-76	1	
8-33				
8-34	P F 1 5 5 0 1 - 7 2 4 0 - 4	reserve tank	1	
8-35	K 4 2 6 0 0 0 0 1 5 0	hose clamp 12	6	

Cat No.	Code No.	Part Name	Qty	Remark
8-36	GM2800-0528Z0	drain hose 700	1	
8-37	GM2800-0527Z0	drain hose 950	1	
8-38	K 0 0 2 1 0 8 0 1 5 2	8 bolt with flange 15	20	
8-39	P F 1 5 5 2 1 - 7 2 4 6 - 2	reserve tank stay	1	
8-40				
8-41	K 4 2 2 0 0 0 0 2 3 0	10 urethane sponge 10500	2	
8-42	GM2800-0501Z0	radiator	1	
8-43	K 0 0 2 1 0 8 0 3 0 2	8 bolt with flange 30	2	
8-44	GM2800-0523ZD	guide plate	1	
8-45	GM2800-0502BD	radiator mounting frame	1	
8-46	K 0 1 5 1 0 8 0 0 0 2	8 nut with flange	14	
8-47	GM2800-0526Z0	drain hose 300	1	
8-48	LM2700-0561Z2	TER39280AB joint	1	
8-49	LM2700-0562Z0	packing	1	
8-50	LM2700-0563Z0	drain plug	1	
8-51	P F 1 7 3 2 6 - 1 2 2 3 - 1	muffler packing	2	
8-52	K 0 2 0 0 0 8 0 0 0 2	8S washer	8	
8-53	K 0 0 0 0 0 8 0 2 0 2	8 bolt 20	4	
8-54	GM2800-0507ZU	exhaust pipe	1	
8-55	LM2700-0524ZU	muffler mount plate	2	
8-56	P F 1 G 3 7 2 - 1 2 1 1 - 1	muffler	1	
8-57	GM2800-0521ZU	tail pipe	1	
8-58	K 4 2 0 5 0 0 1 5 4 0	caution mark (hot parts)	1	
8-59				
8-60	K 0 0 2 1 0 8 0 5 0 2	8 bolt with flange 50	4	
8-61	K 0 1 0 0 0 8 0 0 0 2	8 nut	4	
8-62	K 3 1 8 0 0 0 5 0 0 0	fuel hoseFUEL8×1B500	1	
8-63	P F 6 6 5 9 1 - 5 4 5 6 - 3	anti-vibration rubber	1	
8-64	P F R 1 4 0 1 - 5 1 3 5 - 1	fuel pump Ass'y	1	
8-65	P F 1 5 2 2 4 - 4 3 0 1 - 3	fuel filter	1	
8-66				
8-67	P F 1 5 2 2 1 - 4 3 1 7 - 0	filter element	1	
8-68	GM2800-0535Z0	wire harness	1	
8-69	GM2800-0536Z0	relay wire A	1	
8-70	GM2800-0537Z0	relay wire B	1	

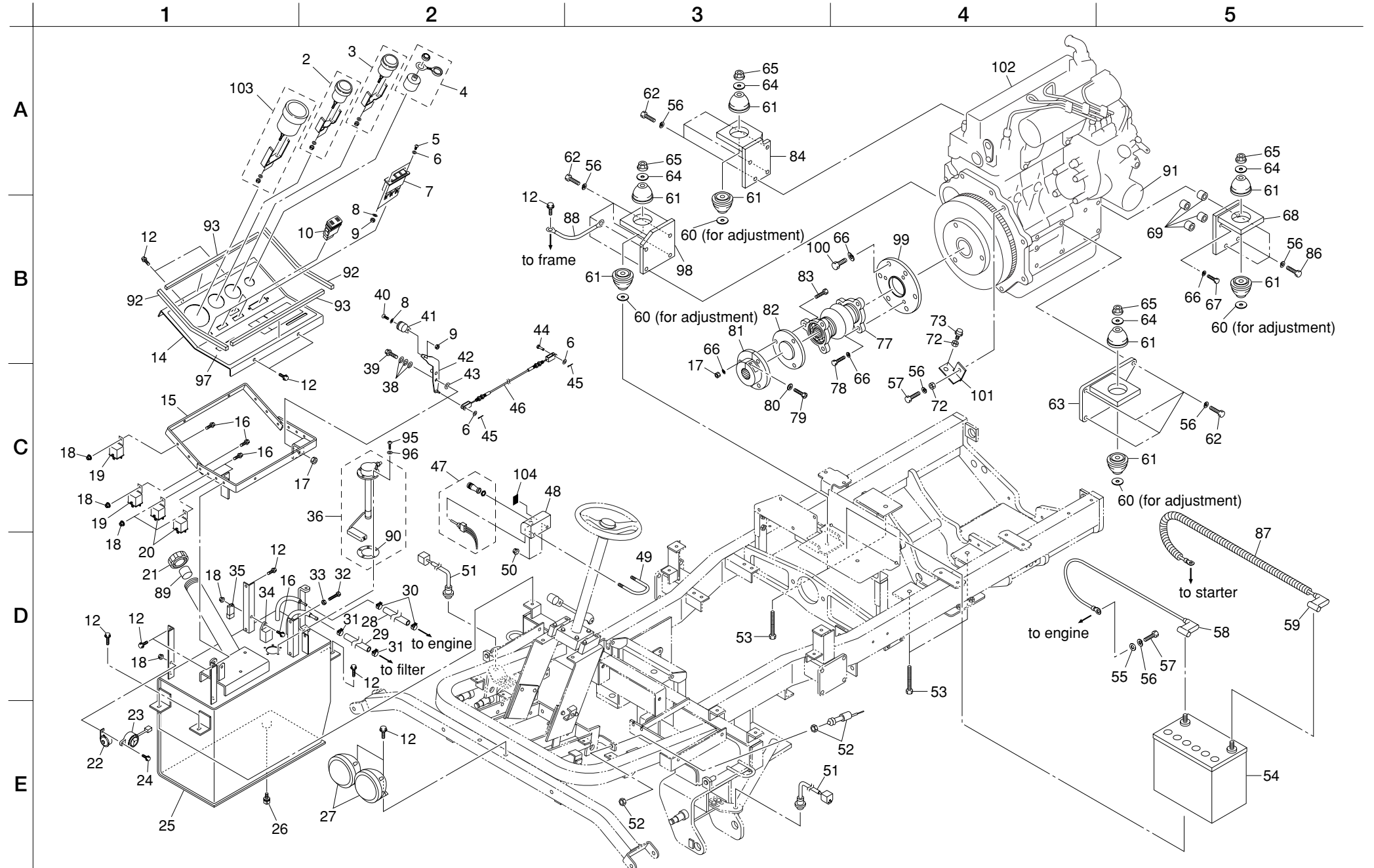
8. Engine parts A



Cat No.	Code No.	Part Name	Qty	Remark
8-71				
8-72	GM2800-0554Z0	muffler mounting plate COMP	1	
8-73	GM2800-0551Z0	shroud	1	
8-74	GM2800-0556Z0	suction hose A	1	
8-75	GM2800-0557Z0	suction hose B	1	
8-76	K4261056000	parker clamp 54-100	1	
8-77	PF14095-2253-1	air cleaner	1	
8-78	PF59800-2611-1	element	1	
8-79	GM2800-0560Z0	relay label	1	
8-80	K4205001530	rotation parts hazard label	1	

Cat No.	Code No.	Part Name	Qty	Remark

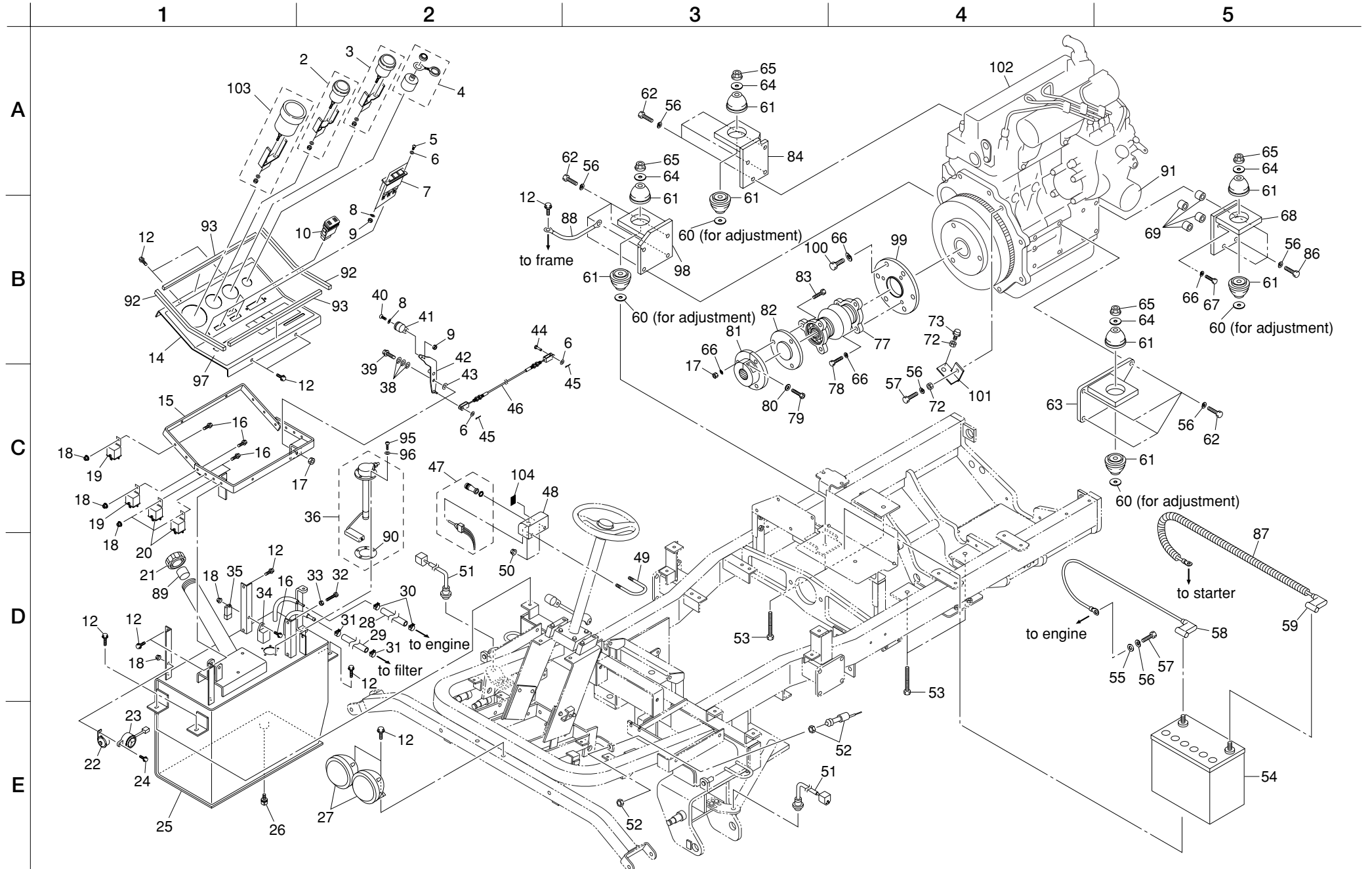
9. Engine parts B



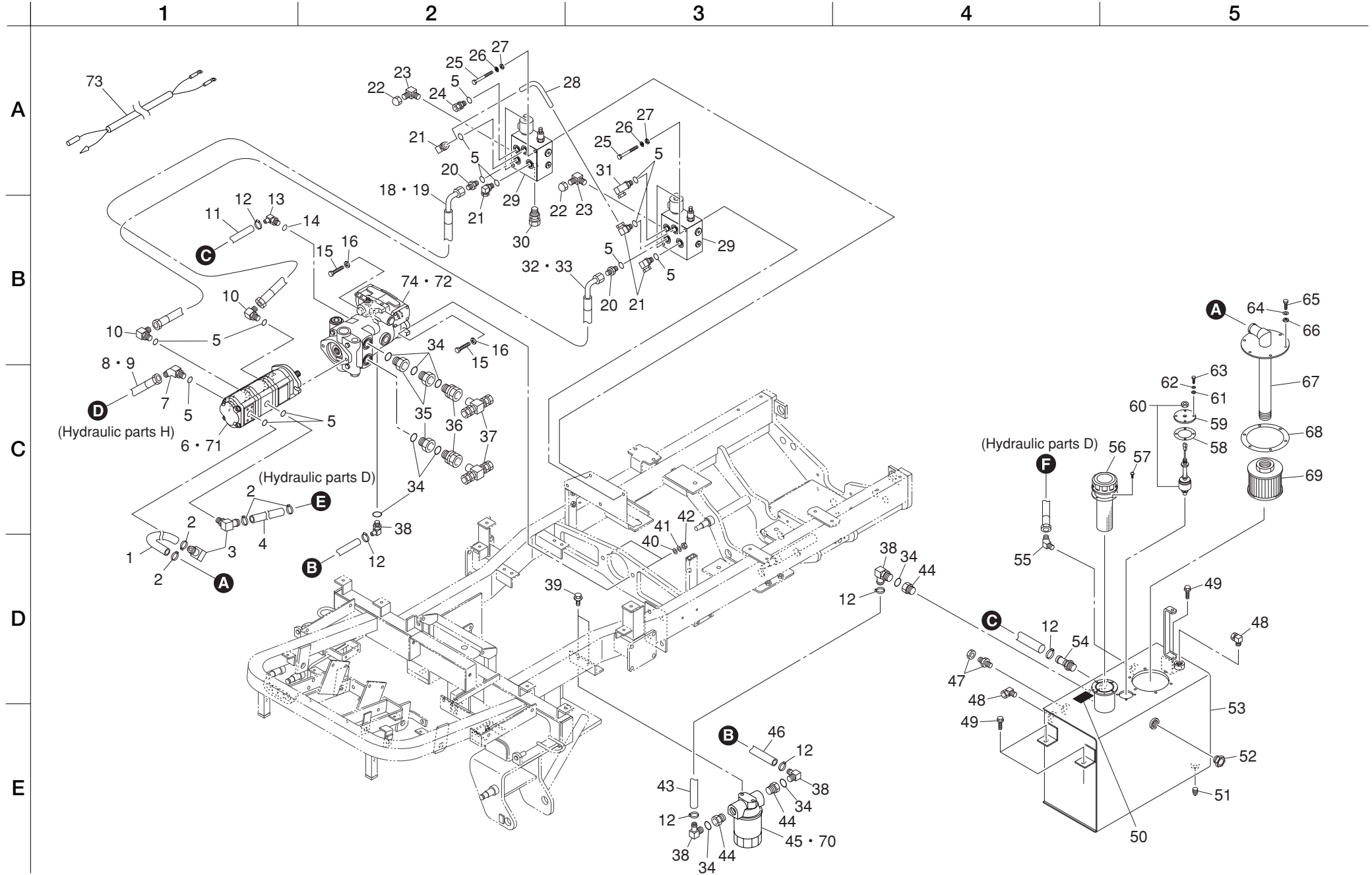
Cat No.	Code No.	Part Name	Qty	Remark
9-1				
9-2	PF19488-8303-2	water temperature gauge	1	
9-3	K3653000010	fuel gauge 52BG2	1	
9-4	PF15248-6359-2	starter switch Ass'y	1	
9-5	K0042050122	5+ round head small screw 12	2	
9-6	K5000050002	5 washer	4	
9-7	K3641000040	pilot lamp	1	
9-8	K0200050002	5S washer	3	
9-9	K0100050002	5 nut	3	
9-10	K3661000050	see-saw switch	4	
9-11				
9-12	K0021080152	8 bolt with flange 15	13	
9-13				
9-14	LM2700-0938ZD	instrument mount plate	1	
9-15	LM2700-0937ZD	instrument mount frame	1	
9-16	K0021060202	6 bolt with flange 20	5	
9-17	K0100100002	10 nut	4	
9-18	K0151060002	6 nut with flange	5	
9-19	K3681000080	power relay MR5A602A1K	2	
9-20	K3681000070	power relay MR5A411A1K	2	
9-21	K1410000070-Y	filler cap Ass' y	1	
9-22	K3700000020	buzzer U-WBS12	1	
9-23	K3700000010	buzzer type EBM-12	1	
9-24	K0021060302	6 bolt with flange 30	1	
9-25	GM2800-0701ZD-Y	fuel tank	1	
9-26	K1421060002-Y	tapered plug with square head PT3/8	1	
9-27	K3640000060	work lamp V31623A	2	
9-28	K3182019000	fuel hose FUEL4×1B1900	1	
9-29	K3180008000	fuel hose FUEL8×1B800	1	
9-30	K4260000150	hose clamp 12	2	
9-31	K4260000172	hose clamp KS-11-19	2	
9-32	K0000080402	8 bolt 40	1	
9-33	K0100080002	8 nut	1	
9-34	PF15694-6599-2	glow timer	1	
9-35	PF1K574-6022-1	relay COMP	1	

Cat No.	Code No.	Part Name	Qty	Remark
9-36	K2721000090	tank unit 180×195	1	
9-37				
9-38	K0210100001	10 conical disk spring L	3	
9-39	K0021100302	10 bolt with flange 30	1	
9-40	K0042050082	5+ round head small screw 8	1	
9-41	K1301000150	throttle lever grip	1	
9-42	LM2700-0560Z2	throttle lever	1	
9-43	K5000100002	10 washer	1	
9-44	K6030050152	5 flat-head pin 15	1	
9-45	K0300016102	1.6 split pin 10	2	
9-46	K1110168020	throttle wire 1680	1	
9-47	K3662000030	auto-return switch ET115G	1	
9-48	LM2700-0552ZD	switch BOX	1	
9-49	K0073000052	U bolt M8×40A	1	
9-50	K0151080002	8 nut with flange	2	
9-51	K3720000120	proximity sensor E2E-X5E2	2	
9-52	K3671000150	safety switch V17680A	1	
9-53	K0013121102	12 heat-treated bolt 110	4	
9-54	K3600000180	battery FX105D31R	1	
9-55	K5000120002	12 washer	1	
9-56	K0200120002	12S washer	17	
9-57	K0002120202	12 bolt 20P1.25	2	
9-58	K3611000390	battery (—) wire 850	1	
9-59	K3610000320	battery (+) wire 1400	1	
9-60	K5011613402	1.6SPCC metal washer 1340	4	for adjustment
9-61	K4042000100	engine mount	8	
9-62	K0012120352	12 heat-treated bolt 35P1.25	12	
9-63	LM2700-0504ZD	engine bracket C	1	
9-64	K5076012402	6SPHC metal washer 1240	4	
9-65	K0151120002	12 nut with flange	4	
9-66	K0200100002	10S washer	13	
9-67	K0011100502	10 heat-treated bolt 50P1.25	1	
9-68	GM2800-0525ZD	engine bracket D	1	
9-69	K6212000542	12.8STKM collar 2220	4	
9-70				

9. Engine parts B



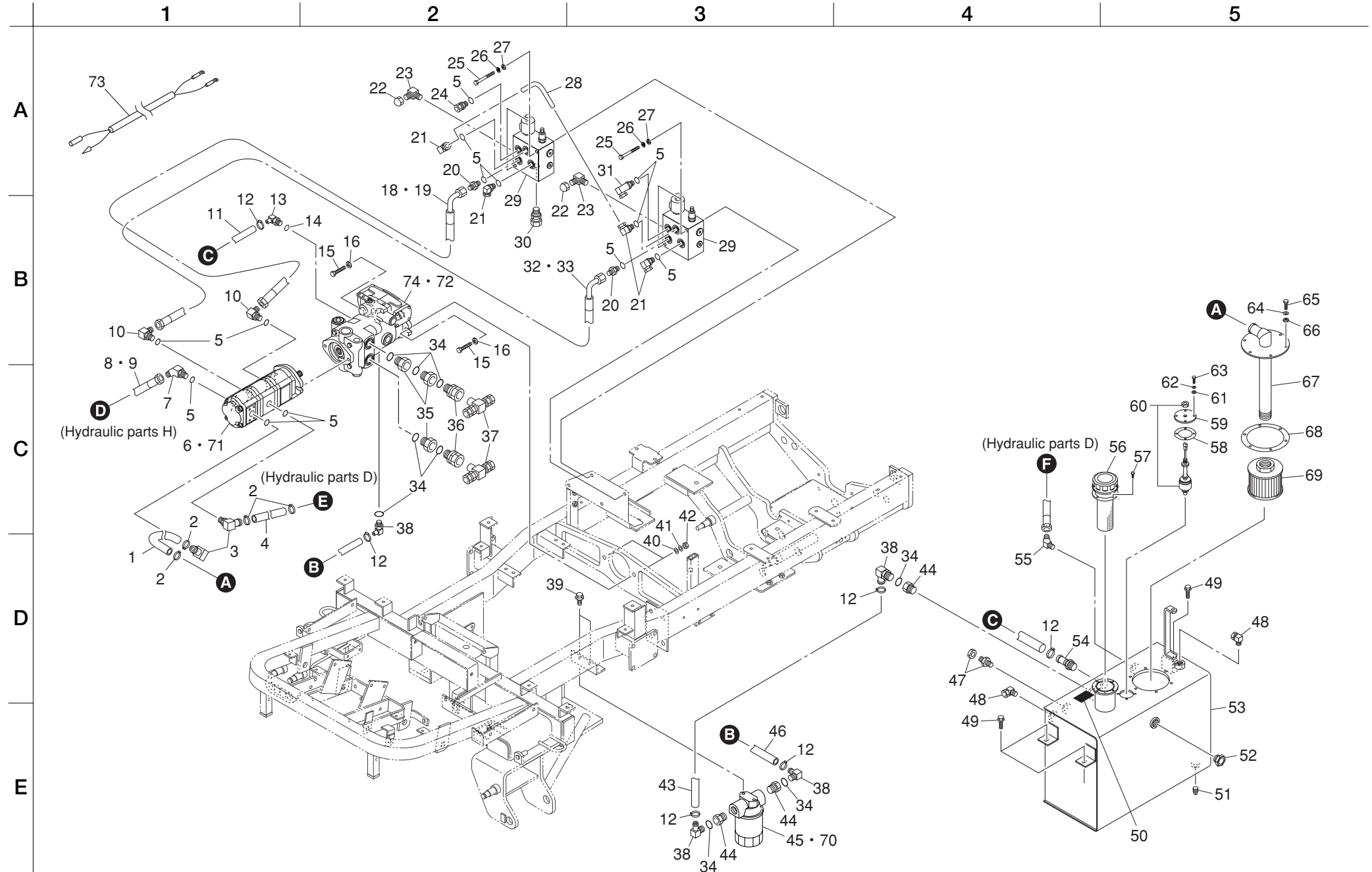
10. Hydraulic parts A



Cat No.	Code No.	Part Name	Qty	Remark
10-1	GM2800-0843Z0	38 suction hose 550	1	
10-2	K4260000200	jubilee band 2A	4	
10-3	K3008000212-Y	elbow nipple FPD2576	2	
10-4	GM2800-0844Z0	38 suction hose 420	1	
10-5	K0881018000	O-ring P18B	13	
10-6	K3252000050	gear pump PBBB442RK157	1	
10-7	K3008000412-Y	45 different diameter elbow PF3/8 PF1/2	1	
10-8	K3103311300	WP140-9 hose 1-1300	1	
10-9	K3191012000	SP-15 coil tube 1200	1	
10-10	K3008000042-Y	90 adjuster elbow 1086-12	2	
10-11	GM2800-0846Z0	25 suction hose 750	1	
10-12	K4260000190	jubilee band 1	6	
10-13	K3008000302-Y	adjuster elbow FPD21941	1	
10-14	K0887009120	O-ring AS568-912	1	
10-15	K0013120552	12 heat-treated bolt 55	2	
10-16	K5073212302	3.2SPHC metal washer 1230	2	
10-17				
10-18	K3105430540	WP210-12 hose 3-540	1	
10-19	K3191004400	SP-15 coil tube 440	1	
10-20	K3009000092-Y	special adaptor PF1/2 PF1/2	2	
10-21	K3026416081-Y	elbow nipple KLO16-040E	4	
10-22	K3008000482-Y	screw cap female PF1/4	2	
10-23	K3008000442-Y	90 adjuster elbow 1086-6	2	
10-24	K3026316081-Y	connector KCO16-040E	1	
10-25	K0003101002	10 bolt 100	4	
10-26	K0200100002	10S washer	4	
10-27	K5000100002	10 washer	4	
10-28	GM2800-0815Z2-Y	pipe G	1	
10-29	K3313000350	solenoid valve V5325 COMP	2	
10-30	K3026325121-Y	connector KCO25-060E	1	
10-31	K3028416081-Y	long elbow nipple KLG16-040E	1	
10-32	K3105430410	WP210-12 hose 3-410	1	
10-33	K3191003100	SP-15 coil tube 310	1	
10-34	K0887009160	O-ring AS568-916	9	
10-35	K3008000632-Y	O-ring connector 4043-1 5/16-O	3	

Cat No.	Code No.	Part Name	Qty	Remark
10-36	K3008000622-Y	O-ring connector 1202-25-1 5/16	2	
10-37	K3027025001-Y	tee KTB25-000E	2	
10-38	K3008000312-Y	adjustable elbow FPD21939	4	
10-39	K0021100202	10 bolt with flange 20	2	
10-40	K5000120002	12 washer	2	
10-41	K0200120002	12S washer	2	
10-42	K0100120002	12 nut	2	
10-43	LM2700-0868Z0	25 suction hose 210	1	
10-44	K3008000642-Y	O-ring connector 4400-25-16	3	
10-45	K3410000020	cartridge filter CF-08-10U	1	
10-46	GM2800-0845Z0	25 suction hose 240	1	
10-47	K3026610081-Y	connector KCT10-040E	1	
10-48	K3028010081-Y	elbow KLN10-040E	2	
10-49	K0021080152	8 bolt with flange 15	3	
10-50	K4209000980	hydraulic oil mark	1	
10-51	K1421060002-Y	tapered plug with square head PT3/8	1	
10-52	K1400000044-Y	PF3/4 oil quantity plug type M	1	
10-53	GM2800-0840ZD-Y	hydraulic tank	1	
10-54	K3009000132-Y	special adaptor MO-JS-25	1	
10-55	K3003120002-Y	45 elbow 1035-12	1	
10-56	K3400000030	refueling hole breather FAB-50	1	
10-57	K0044050102	5+ round head small screw 10SW	4	
10-58	K4011000330	0.8 oil seat 4575	1	
10-59	LM526--0809Z2-Y	oil level sensor mount plate	1	
10-60	K3720000130	level switch	1	
10-61	K5000060002	6 washer	4	
10-62	K0200060002	6S washer	4	
10-63	K0000060202	6 bolt 20	4	
10-64	K0200080002	8S washer	6	
10-65	K0000080202	8 bolt 20	6	
10-66	K5000080002	8 washer	6	
10-67	LM2700-0802Z2-Y	suction hose attachment	1	
10-68	LM535E-0434Z0	suction port packing	1	
10-69	K3413000040	suction filter SFT-10-150W	1	
10-70	K3410000030	filter for the substitute F-913-1	1	

10. Hydraulic parts A



Cat No.	Code No.	Part Name	Qty	Remark
10-71	YCG0093A	gear pump seal kit	1	
10-72	Y72400-908	piston pump 72400 seal kit	1	
10-73	GM2800-9503Z0	lockout switch wire	1	
10-74	K3244000040	piston pump 72400	1	

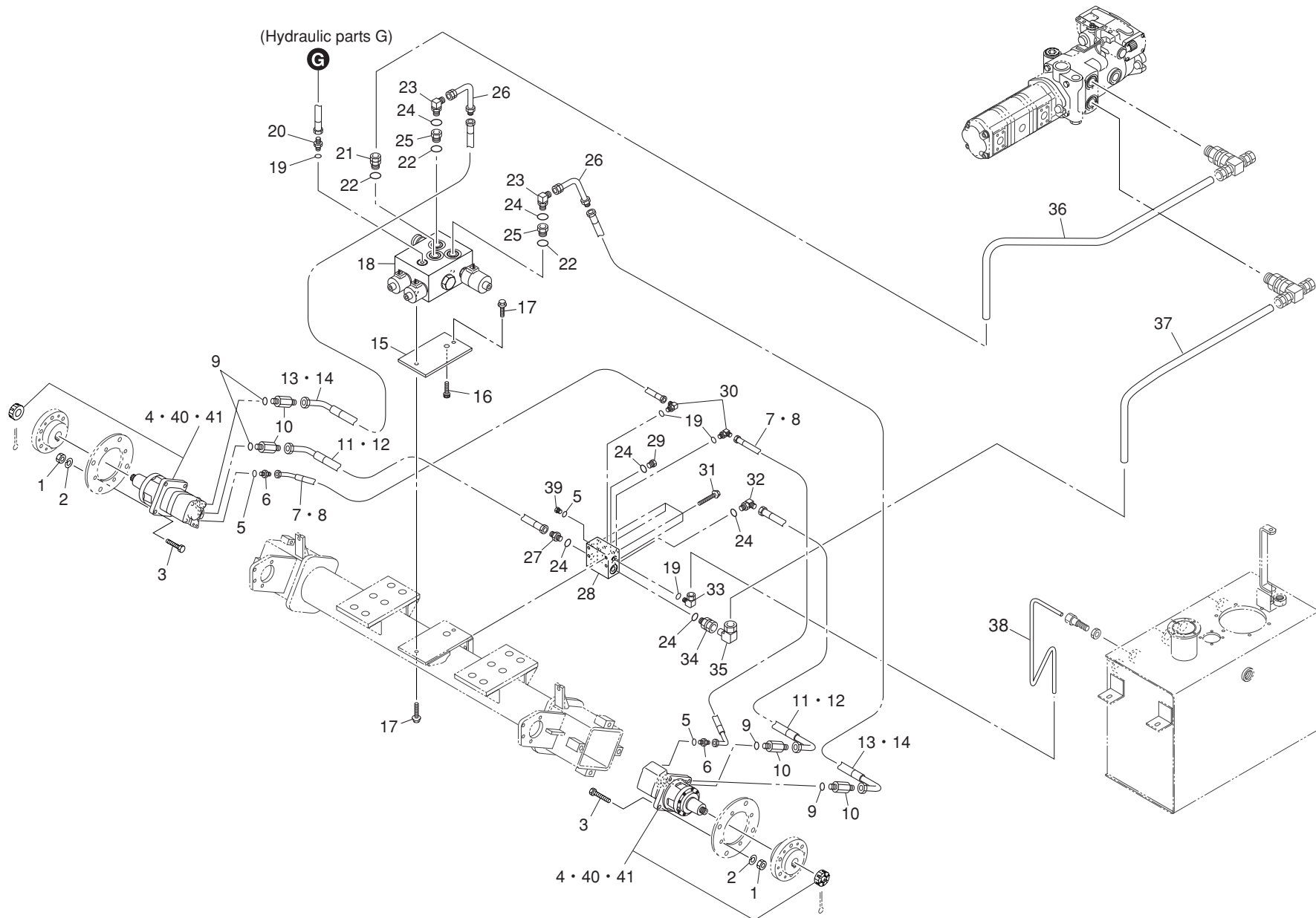
Cat No.	Code No.	Part Name	Qty	Remark

B

C

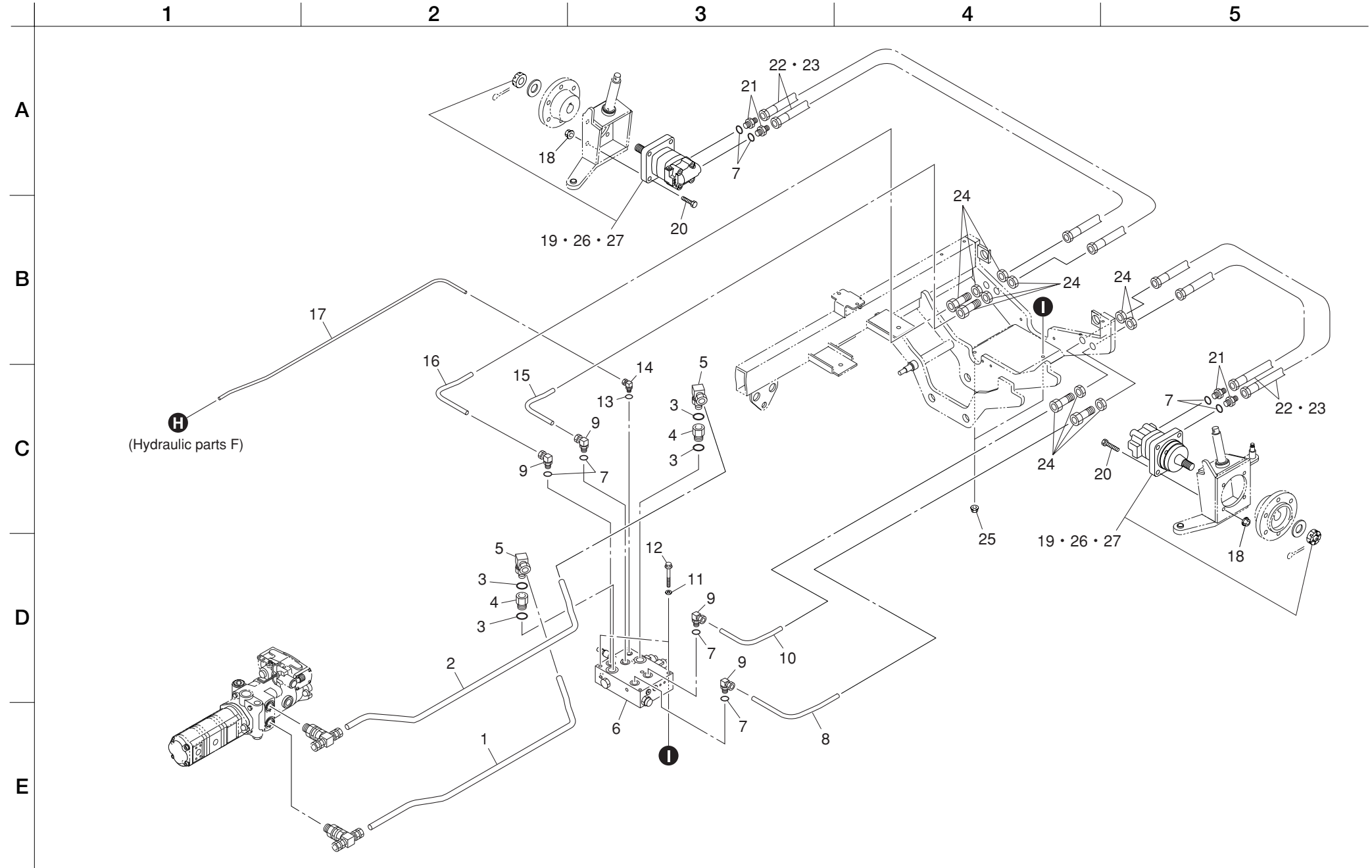
D

E

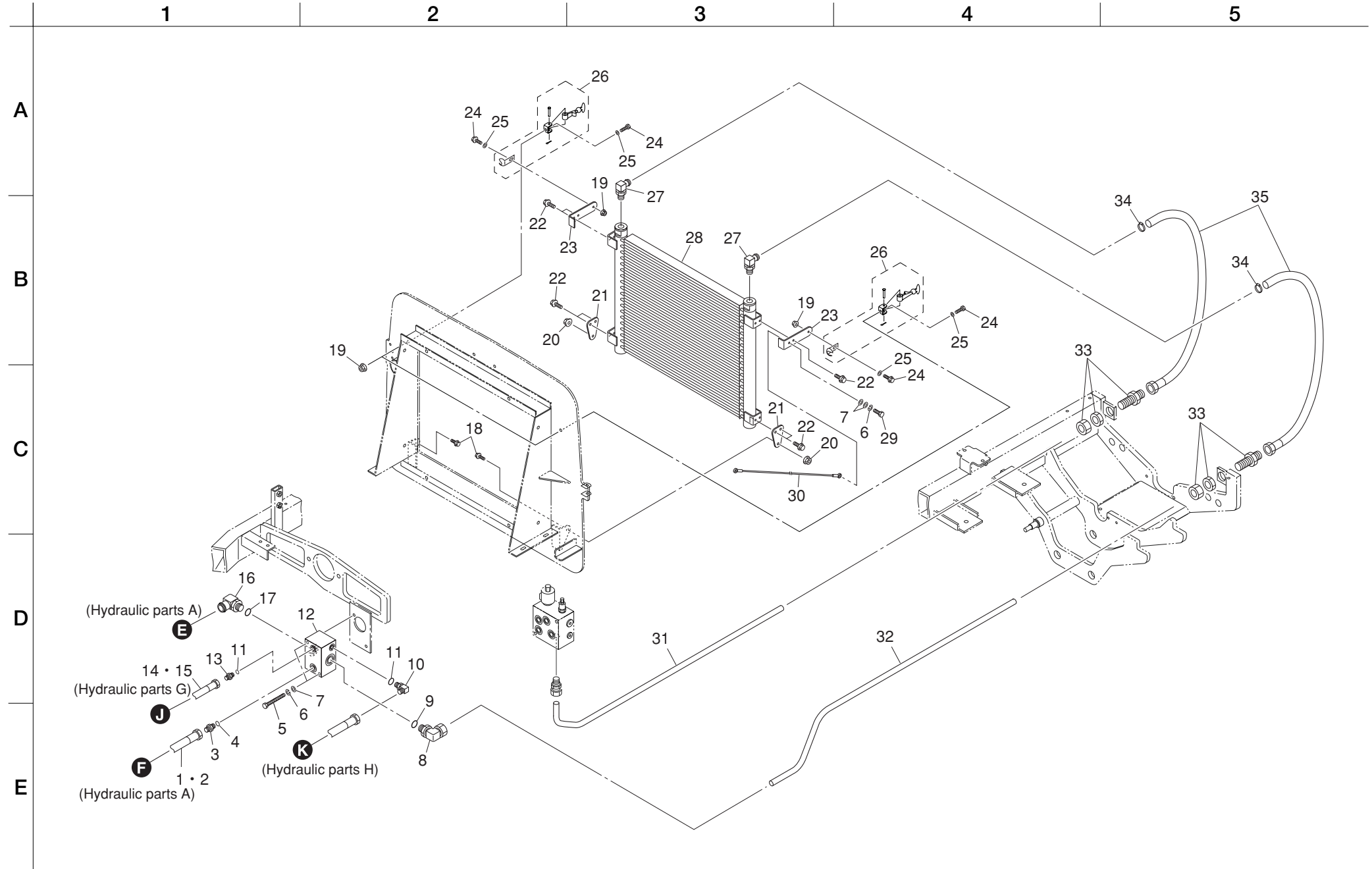


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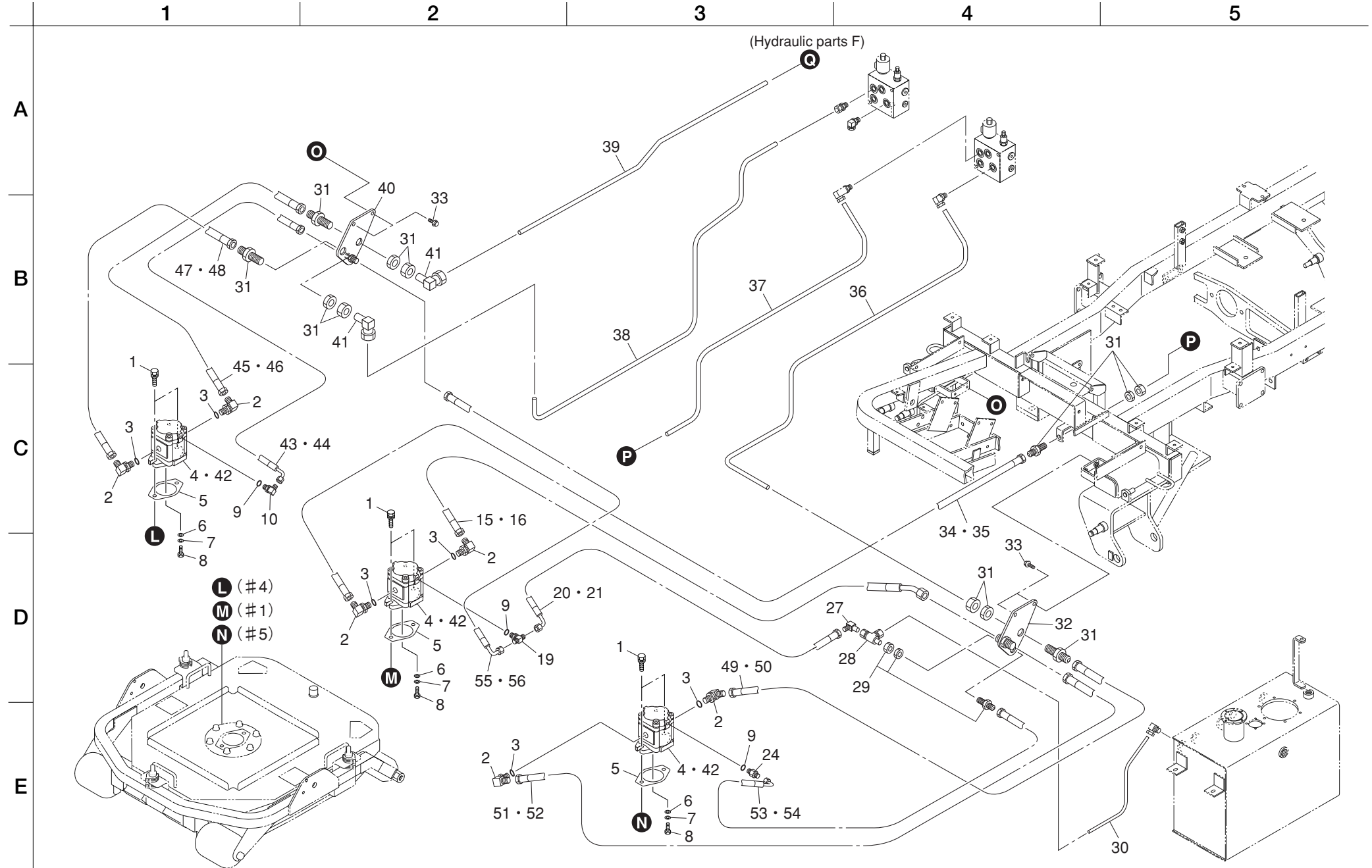
12. Hydraulic parts C



13. Hydraulic parts D



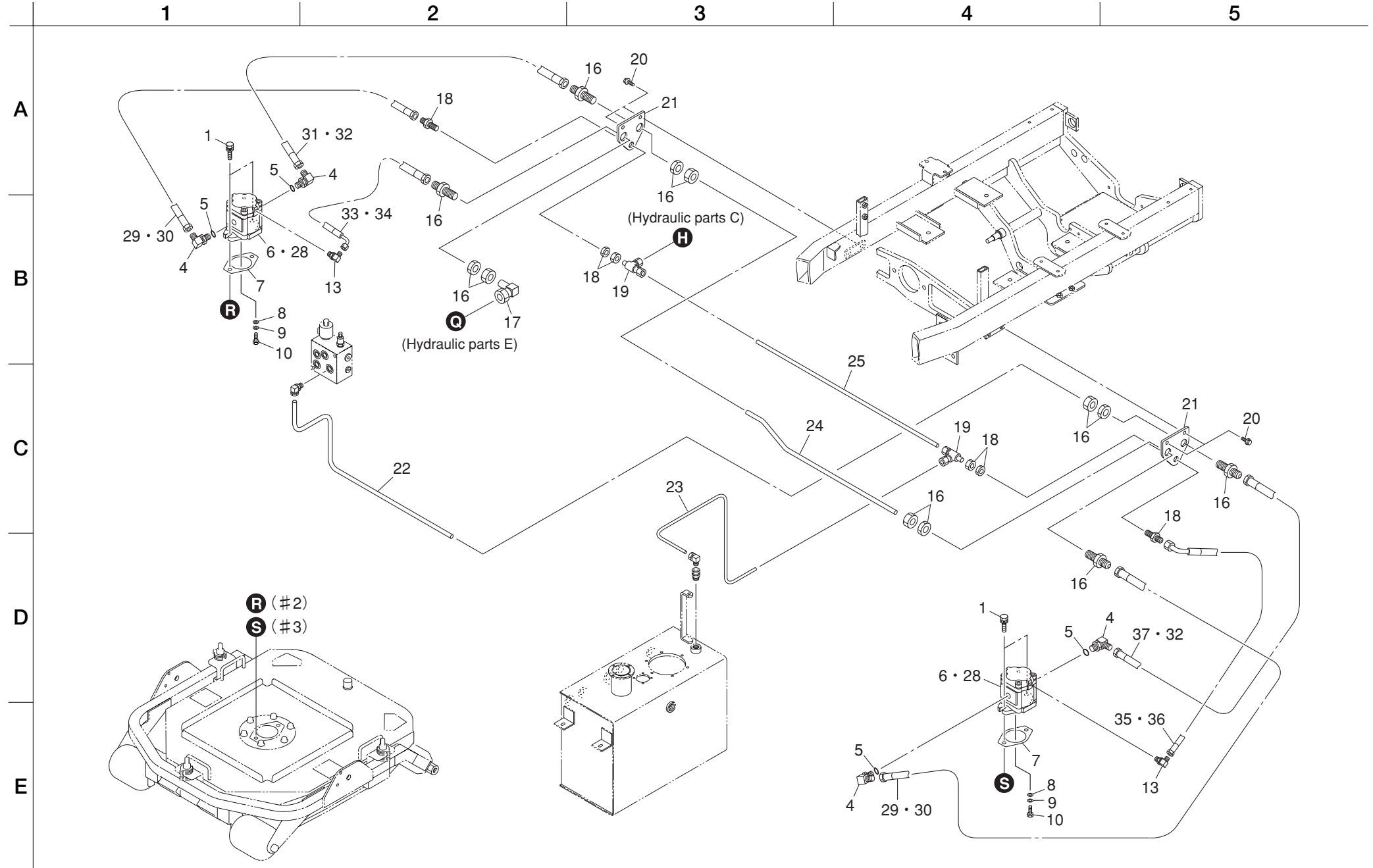
14. Hydraulic parts E



Cat No.	Code No.	Part Name	Qty	Remark
14-1	K0007100252	10 bolt 25SW	6	
14-2	K3008000042-Y	90 adjuster elbow 1086-12	6	
14-3	K0881018000	O-ring P18B	6	
14-4	K3280000280	gear motor MB5LK381	3	
14-5	K4011000290	packing	3	
14-6	K5012306162	2.3SPCC metal washer 616	3	
14-7	K0200060002	6S washer	3	
14-8	K0000060122	6 bolt 12	3	
14-9	K0881011000	O-ring P11B	3	
14-10	K3008000442-Y	90 adjuster elbow 1086-6	1	
14-11				
14-12				
14-13				
14-14				
14-15	K3103420900	WP140-12 hose 2-900	1	
14-16	K3191008000	SP-15 coil tube 800	1	
14-17				
14-18				
14-19	K3008000672-Y	O-ring hose stay 1087-6	1	
14-20	K3101230800	WP70-6 hose 3-800	1	
14-21	K3190007000	SP-12 coil tube 700	1	
14-22				
14-23				
14-24	K3008000232-Y	O-ring connector PF1/4PF1/4	1	
14-25				
14-26				
14-27	K3028510041-Y	hose connection elbow HLD10-020E	1	
14-28	K3027210001-Y	tee KTC10-000E	1	
14-29	K3026910041-Y	bulkhead union KUE10-020E	1	
14-30	GM2800-0826Z2-Y	pipe R	1	
14-31	K3026916081-Y	bulkhead union KUE16-040E	4	
14-32	GM2800-0830Z2-Y	fitting mounting plate A	1	
14-33	K0021080202	8 bolt with flange 20	4	
14-34	K3103411150	WP210-12 hose 1-1150	1	
14-35	K3191010500	SP-15 coil tube 1050	1	

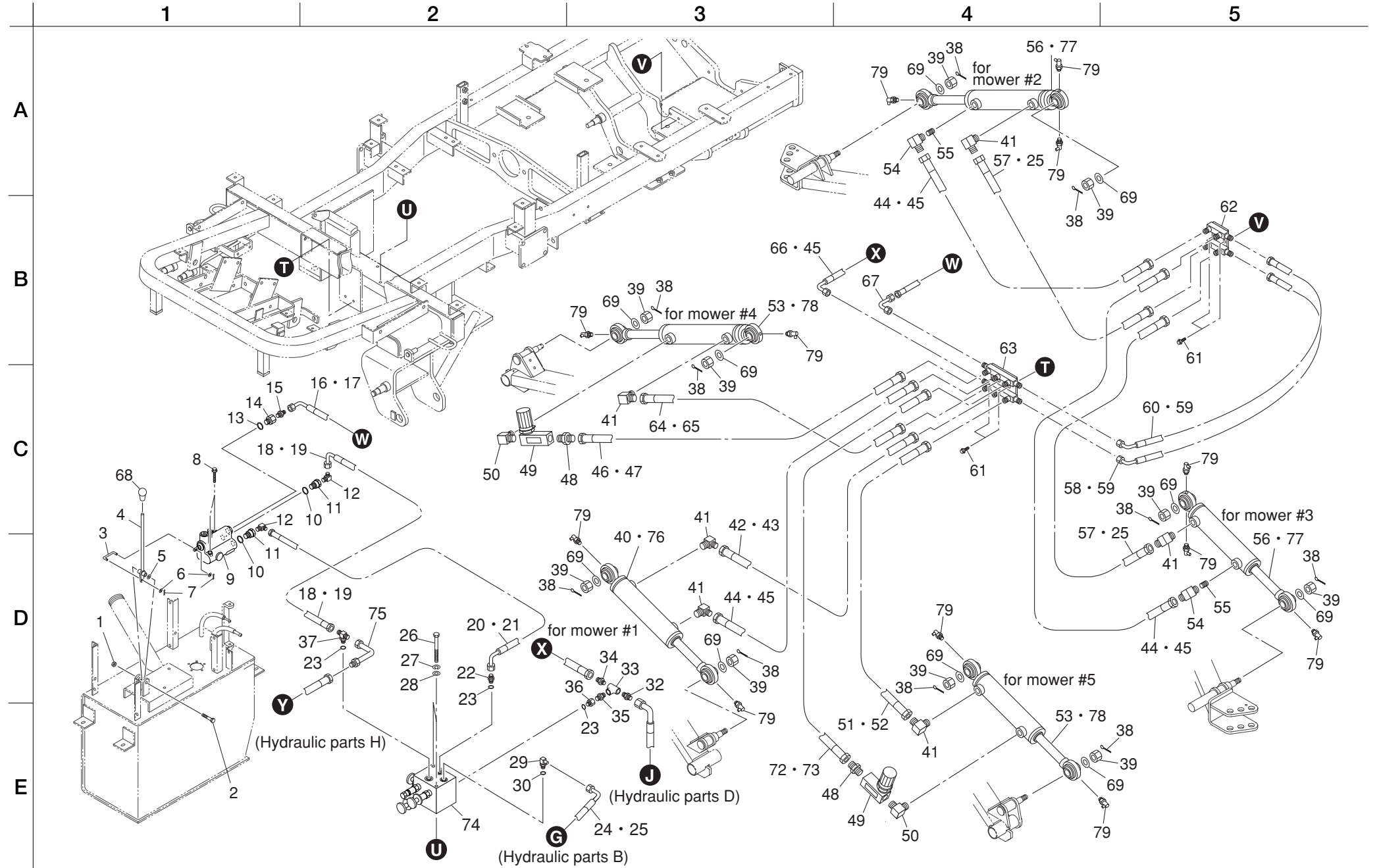
Cat No.	Code No.	Part Name	Qty	Remark
14-36	GM2800-0828Z2-Y	pipe T	1	
14-37	GM2800-0827Z2-Y	pipe S	1	
14-38	GM2800-0832Z2-Y	pipe V	1	
14-39	GM2800-0841Z2-Y	pipe W	1	
14-40	GM2800-0833Z2-Y	fitting mounting plate C	1	
14-41	K3027116001-Y	elbow KLC16-000E	2	
14-42	YCG0047A	gear motor seal kit	3	
14-43	K3101231650	WP70-6 hose 3-1650	1	
14-44	K3190015500	SP-12 coil tube 1550	1	
14-45	K3103411550	WP140-12 hose 1-1550	1	
14-46	K3191014500	SP-15 coil tube 1450	1	
14-47	K3105411650	WP210-12 hose 1-1650	1	
14-48	K3191015500	SP-15 coil tube 1550	1	
14-49	K3105411500	WP210-12 hose 1500	1	
14-50	K3191013000	SP-15 coil tube 1300	1	
14-51	K3103411600	WP140-12 hose 1-1600	1	
14-52	K3191015000	SP-15 coil tube 1500	1	
14-53	K3101221550	WP70-6 hose 2-1550	1	
14-54	K3190014500	SP-12 coil tube 1450	1	
14-55	K3101231150	WP70-6 hose 3-1150	1	
14-56	K3190010500	SP-12 coil tube 1050	1	

15. Hydraulic parts F



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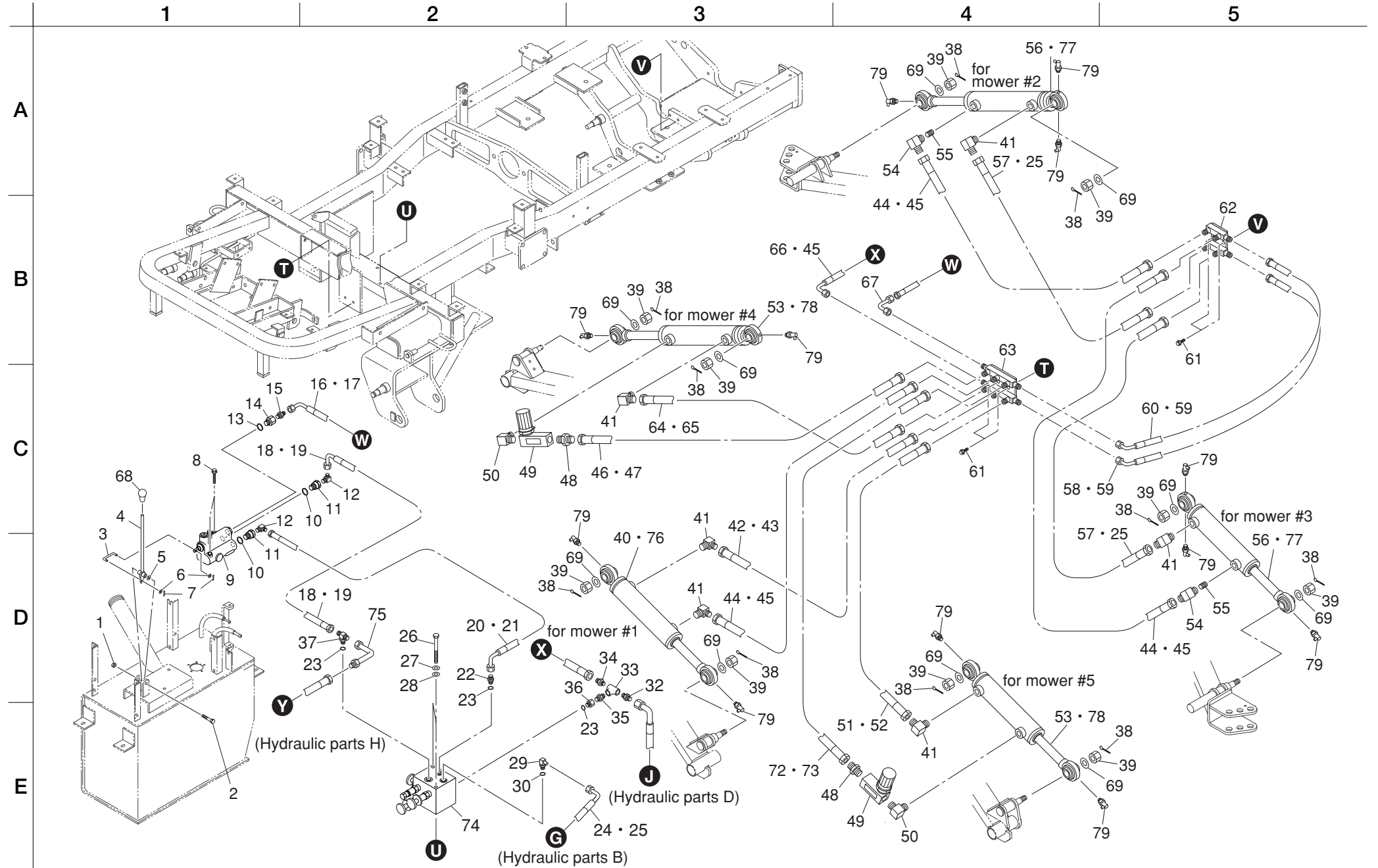
16. Hydraulic parts G



Cat No.	Code No.	Part Name	Qty	Remark
16-1	K0144080002	8U nut	1	
16-2	K0003080502	8 bolt 50	1	
16-3	GM2800-0805Z2	rod	1	
16-4	GM2800-0804Z2	raise/lower lever	1	
16-5	K5000080002	8 washer	1	
16-6	K5000050002	5 washer	2	
16-7	K0300016102	1.6 split pin 10	2	
16-8	K0021060402	6 bolt with flange 40	2	
16-9	K3321000030	control valve	1	
16-10	K0887009080	O-ring AS568-908	2	
16-11	K3008000692-Y	O-ring connector 4043-8-8	2	
16-12	K3006000022-Y	different diameter elbow PT1/2PF3/8	2	
16-13	K0887009060	O-ring AS568-906	1	
16-14	K3008000242-Y	9/16-18UNFPT3/8	1	
16-15	K3007000062-Y	different diameter adaptor PT3/8PF1/4	1	
16-16	K3103230700	WP140-6 hose 3-700	1	
16-17	K3190006000	SP-12 coil tube 600	1	
16-18	K3103330600	WP140-9 hose 3-600	1	
16-19	K3191005000	SP-15 coil tube 500	1	
16-20	K3103330400	WP140-9 hose 3-400	1	
16-21	K3191003000	SP-15 coil tube 300	1	
16-22	K3009000142-Y	special adaptor PF3/8PF3/8	1	
16-23	K0881014000	O-ring P14B	3	
16-24	K3106230400	WP245-6 hose 3-400	1	
16-25	K3190003000	SP-12 coil tube 300	3	
16-26	K0003101202	10 bolt 120	2	
16-27	K0200100002	10S washer	2	
16-28	K5000100002	10 washer	2	
16-29	K3008000442-Y	90 adjuster elbow 1086-6	1	
16-30	K0881011000	O-ring P11B	1	
16-31				
16-32	K3000090002-Y	adaptor 1013-9	1	
16-33	K3024000042-Y	cast-iron screwed type tee PT3/8	1	
16-34	K3009000042-Y	special adaptor PF1/4PT3/8	1	
16-35	K3023060001-Y	nipple NSPT3/8	1	

Cat No.	Code No.	Part Name	Qty	Remark
16-36	K3029000072-Y	special bushing PF3/8PT3/8	1	
16-37	K3008000682-Y	O-ring boss stay 1087-9	1	
16-38	K0300032402	3.2 split pin 40	10	
16-39	K0122160002	16 slotted high nut P1.5	10	
16-40	K3212000470	40-138 cylinder 359	1	
16-41	K3001060002-Y	90 elbow 1033-6	6	
16-42	K3101210600	WP70-6 hose 1-600	1	
16-43	K3190005000	SP-12 coil tube 500	1	
16-44	K3103210500	WP140-6 hose 1-500	3	
16-45	K3190004000	SP-12 coil tube 400	4	
16-46	K3103211000	WP140-6 hose 1-1000	2	
16-47	K3190009000	SP-12 coil tube 900	2	
16-48	K3000060002-Y	adaptor 1013-6	2	
16-49	K3332000050	slow return valve HF02172	2	
16-50	K3006000042-Y	same diameter elbow PT1/4	2	
16-51	K3101210750	WP70-6 hose 1-750	1	
16-52	K3190006500	SP-12 coil tube 650	1	
16-53	K3212000490	45-195 cylinder 397	2	
16-54	K3029000252-Y	90 elbow 1033-6M6	2	
16-55	K0023000011	6 hollow set screw 6-1	2	
16-56	K3212000480	45-110 cylinder 270	2	
16-57	K3101210400	WP70-6 hose 1-400	2	
16-58	K3101222000	WP70-6 hose 2-2000	1	
16-59	K3190019000	SP-12 coil tube 1900	2	
16-60	K3103222000	WP140-6 hose 2-2000	1	
16-61	K0021080202	8 bolt with flange 20	4	
16-62	GM2800-0803Z2-Y	manifold	1	
16-63	GM2800-0802Z2-Y	manifold	1	
16-64	K3101210850	WP70-6 hose 1-850	1	
16-65	K3190007500	SP-12 coil tube 750	1	
16-66	K3101230500	WP70-6 hose 3-500	1	
16-67	K3025069042-Y	pipe adaptor 069-04	1	
16-68	K1300000040	9 grip black 35.5	1	
16-69	K0215160001	16 metal washer with conical disk spring 2H	10	
16-70				

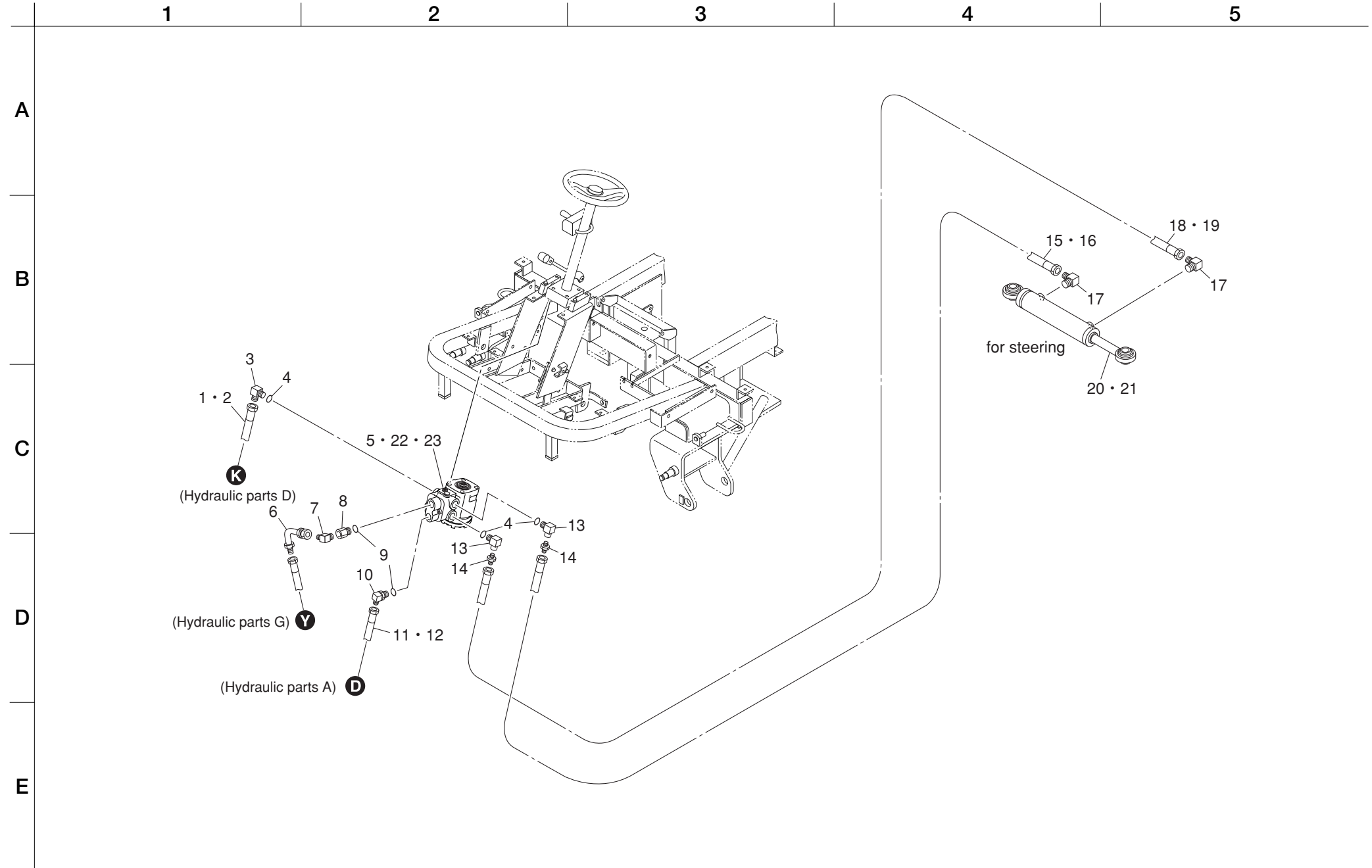
16. Hydraulic parts G



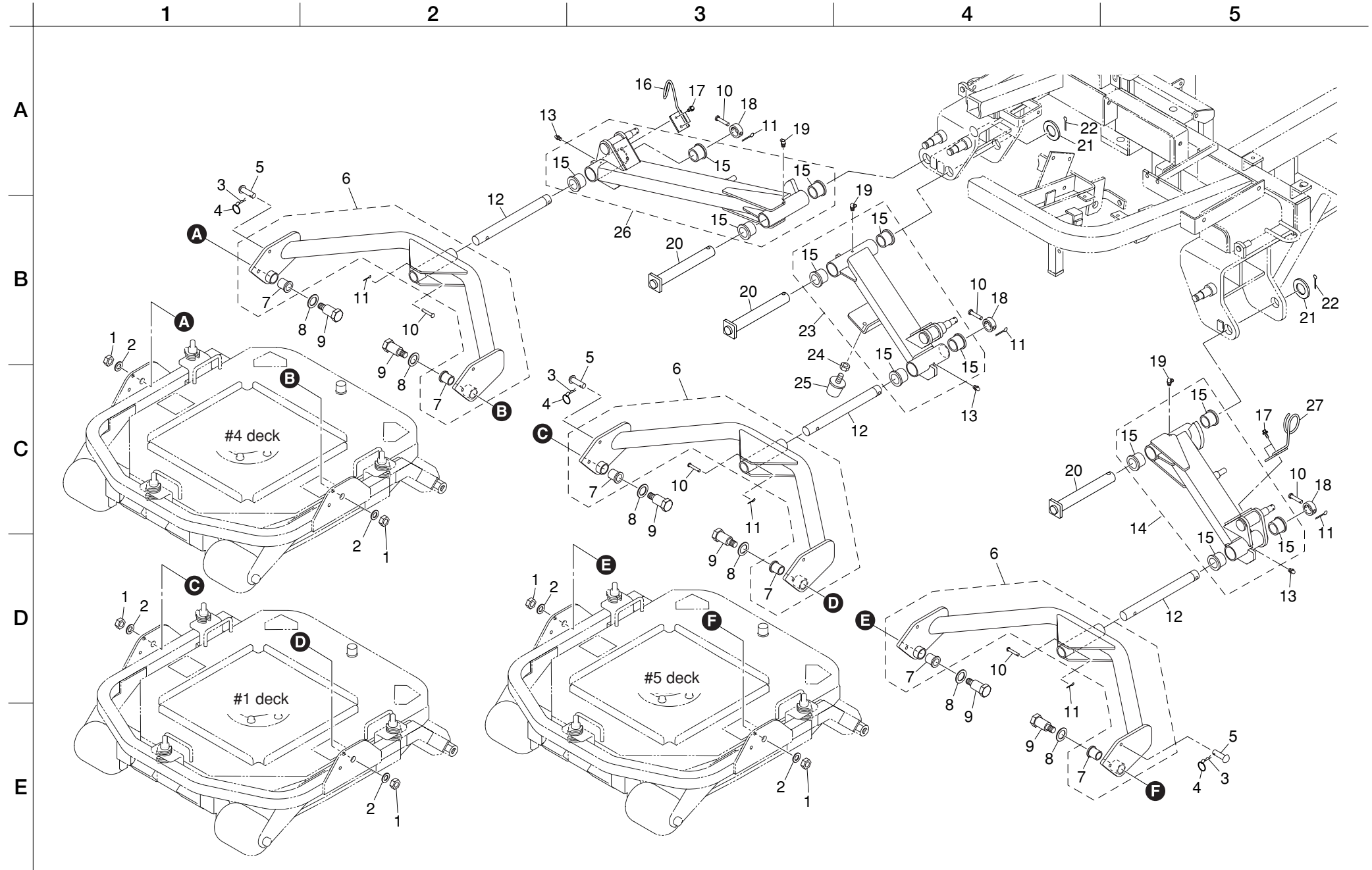
Cat No.	Code No.	Part Name	Qty	Remark
16-71				
16-72	K 3 1 0 3 2 1 0 9 4 0	WP140-6 hose 1-940	1	
16-73	K 3 1 9 0 0 0 8 4 0 0	SP-12 coil tube 840	1	
16-74	K 3 3 1 3 0 0 0 3 3 0	solenoid valve V5317 COMP	1	
16-75	K 3 0 2 5 0 6 9 0 8 2	pipe adaptor 069-08	1	
16-76	Y 8 0 2 0 9 - 0 0 3 0 1	cylinder seal kit	1	
16-77	Y 8 0 2 0 9 - 6 1 3 0 1	cylinder seal kit	2	
16-78	Y 8 0 2 0 9 - 7 5 2 0 1	cylinder seal kit	2	
16-79	K 1 4 4 0 0 0 0 0 2 0	C-shaped grease nipple	12	

Cat No.	Code No.	Part Name	Qty	Remark

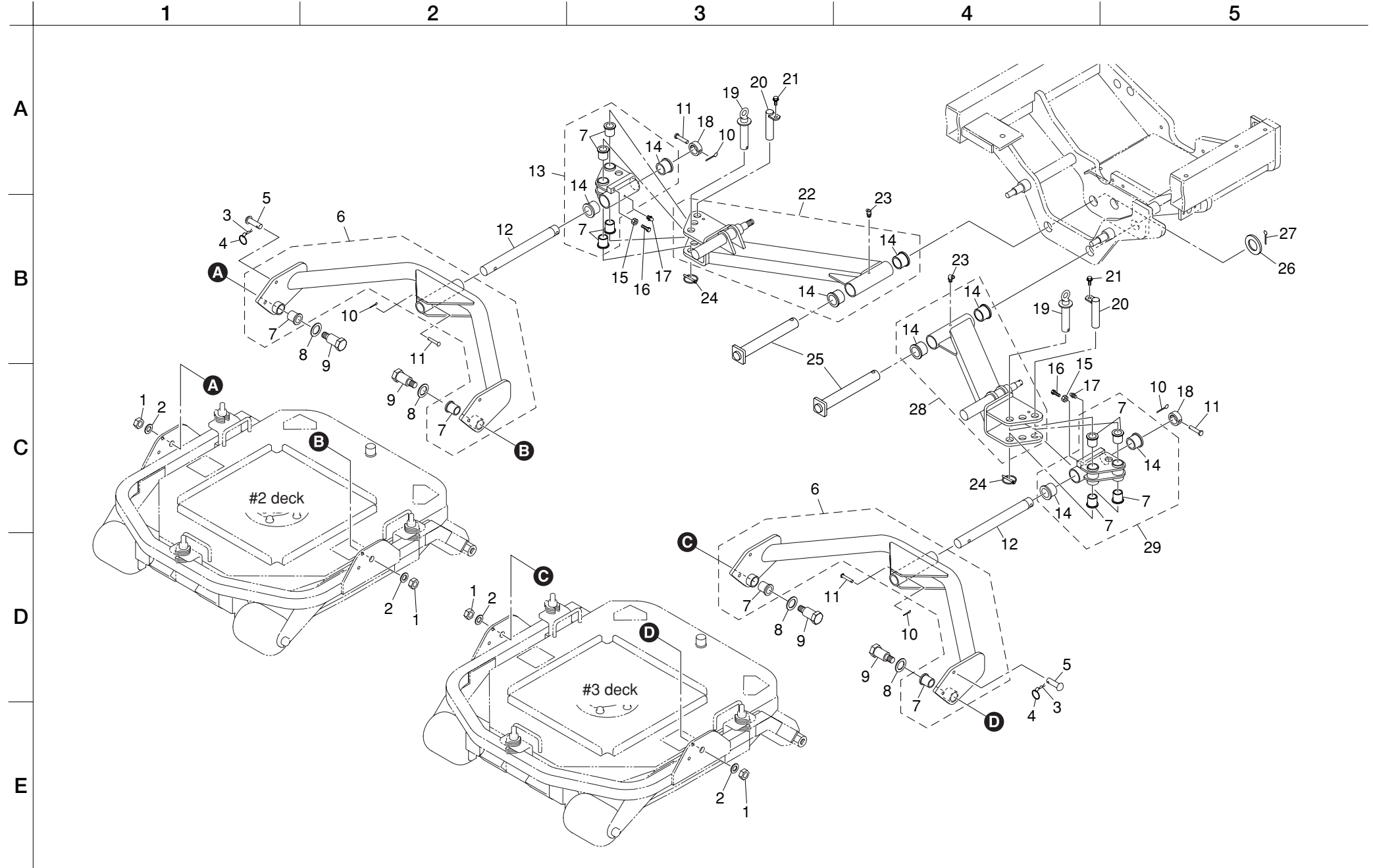
17. Hydraulic parts H



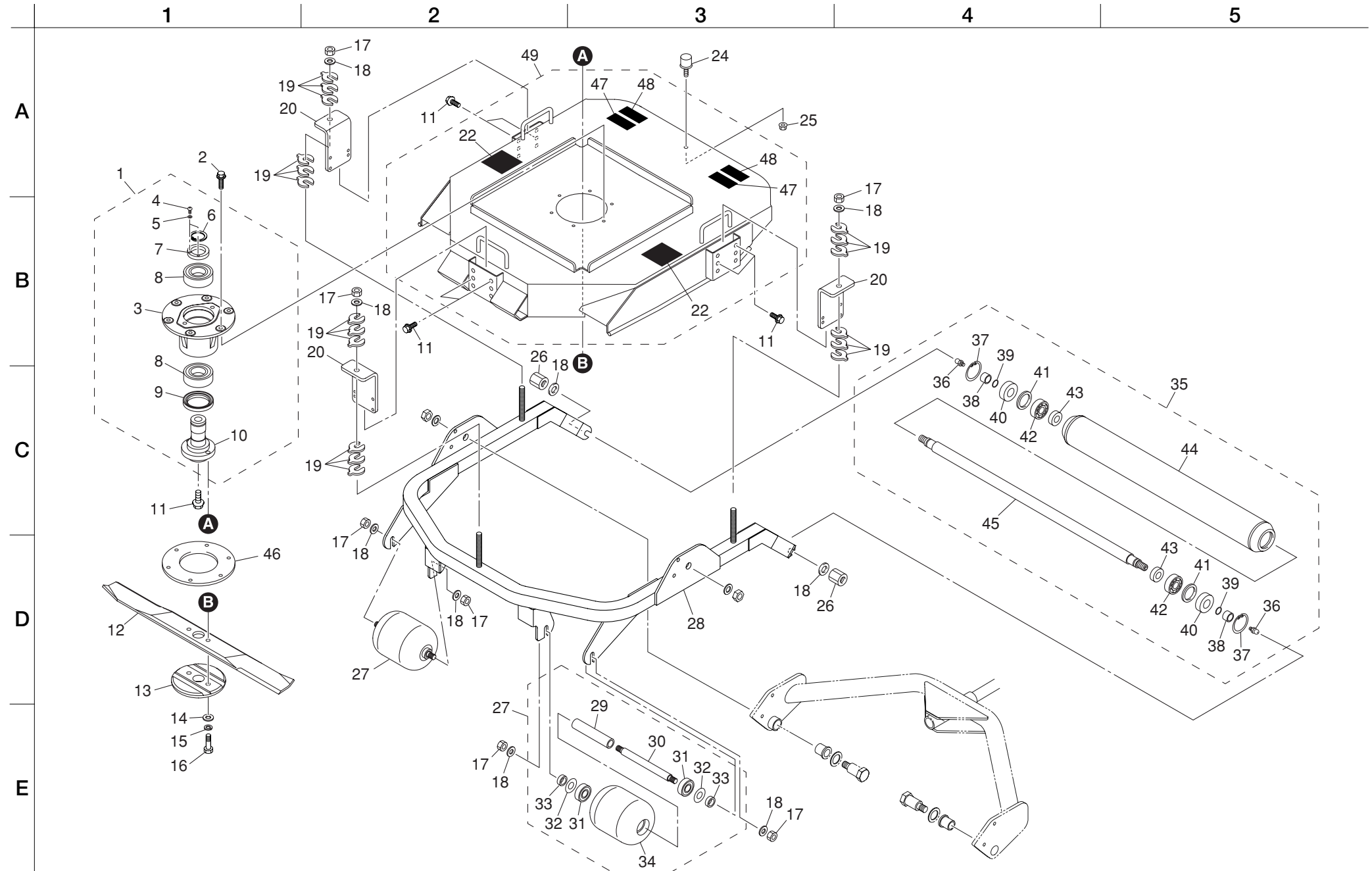
18. Lift arm front parts



19. Lift arm rear parts



20. Deck parts

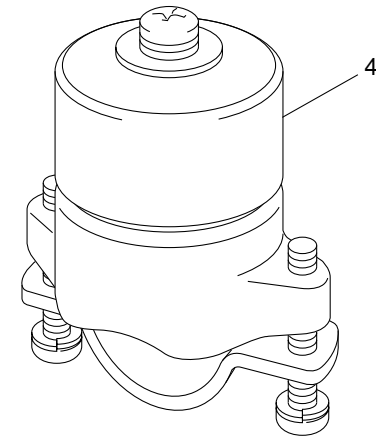
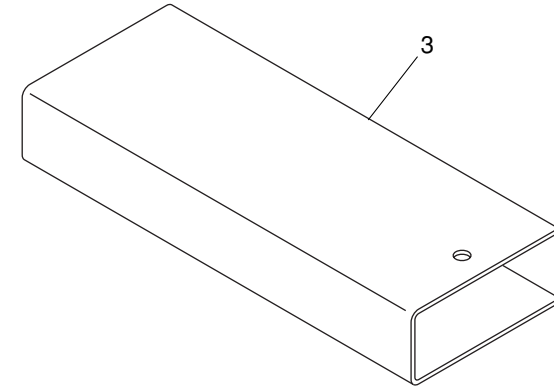
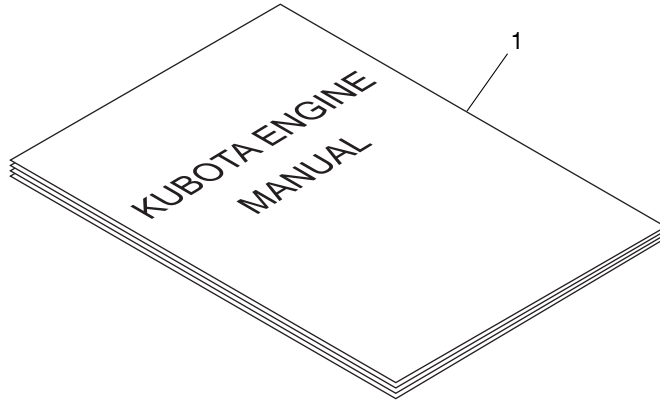


Cat No.	Code No.	Part Name	Qty	Remark
20-1	GM2800-0117Z0	housing Ass'y	5	
20-2	K0021080352	8 bolt with flange 35	30	
20-3	GM2800-0121Z2	housing	5	
20-4	K0042030052	3+ round head small screw 5	10	
20-5	K0200030002	3S washer	10	
20-6	K0401040001	stop ring S40	5	
20-7	GM2800-0119Z0	retaining collar	5	
20-8	K0612062080	bearing 62082RD	10	
20-9	K0826082120	oil seal MHSA608212	5	
20-10	GM2800-0120Z0	shaft	5	
20-11	K0021100202	10 bolt with flange 20	35	
20-12	GM2800-0103ZB	rotary blade 690	5	
20-13	GM2800-0104Z0	blade retainer	5	
20-14	K5000120002	12 washer	10	
20-15	K0200120002	12S washer	10	
20-16	K0010120302	12 heat-treated bolt 30	10	
20-17	K0100140002	14 nut	35	
20-18	K0213140002	14 conical disk spring 1H	45	
20-19	GM2800-0110Z2	adjusting collar	90	
20-20	GM2800-0109ZR	cutting height adjusting plate	15	
20-21				
20-22	K4205001600	cutting hazard label	10	
20-23				
20-24	K4049040000	rubber stopper KI-40	5	
20-25	K0151080002	8 nut with flange	5	
20-26	K0160000618	14 special nut 27	10	
20-27	GM2800-0115Z0	roller front Ass'y	10	
20-28	GM2800-0101ZR	deck frame	5	
20-29	GM2800-0118Z0	20.2STKM collar 28127	10	
20-30	GM2800-0108Z2	wheel shaft	10	
20-31	K0608062040	bearing 62042RS	20	
20-32	K5030520430	0.5C2801P metal washer 2043	20	
20-33	K6212000222	20.2STKM collar 289	20	
20-34	GM2800-0107Z0	front roller 127	10	
20-35	GM2800-0116Z0	rear roller Ass'y	5	

Cat No.	Code No.	Part Name	Qty	Remark
20-36	K1440000010	grease nipple	10	
20-37	K0402047001	stop ring R47	10	
20-38	LM2700-0158Z0	17SUS collar 2516	10	
20-39	K0885015000	O-ring S15	10	
20-40	K0822235080	oil seal MHSA22358	10	
20-41	K5090000802	3.2SPHC metal washer 4047	10	
20-42	K0600063030	bearing 6303	10	
20-43	K0822547080	oil seal MHSA25478	10	
20-44	GM2800-0112ZD	76.2 roller 785.4	5	
20-45	GM2800-0111Z0	22 roller shaft 838.4	5	
20-46	GM2800-0122Z2	spacer	5	
20-47	K4205001650	thrown objects hazard label	10	
20-48	K4205001780	hands/feet cutting hazard label	10	
20-49	GM2800-1402Z0	rotary deck COMP	5	

21. Accessory parts

	1	2	3	4	5
A					
B					
C					
D					
E					



Cat No.	Code No.	Part Name	Qty	Remark
21-1	P F 1 G 1 7 4 - 8 9 1 1 - 1	Kubota V2003 instructions for use	1	
21-2	7 5 0 1 0 2 - 3 9	GM2800A parts catalogue	1	
21-3	GM2 8 0 0 - 1 0 0 2 Z D	square pipe	1	
21-4	K 4 8 0 2 0 0 0 0 5 0	balancer Ass'y	1	

Cat No.	Code No.	Part Name	Qty	Remark



KYOEISHA CO., LTD.

BARONESS

CE Declaration of Conformity

We, Kyoeisha Co., Ltd. of 1-26 Miyuki-cho, Toyokawa, Aichi-pref. 442-8530 Japan
declare that :

Equipment	Ride-on lawnmower
Model name / number	BARONESS / GM2800A

in accordance with the following Directives :

98/37/EC	The Machinery Directive and its amending directives
2004/108/EC	The Electromagnetic Compatibility Directive

has been designed and manufactured using the following specifications :

EN 292-1	Safety of machinery – Basic concepts, general principles for design – Part 1 : Basic terminology, methodology
EN 292-2	Safety of machinery – Basic concepts, general principles for design – Part 2 : Technical principles and specifications
EN 836	Garden equipment – Powered lawnmowers – Safety

Signed : 

Name : Hiroyuki Tazawa

Position : CS Promotion Dept. Manager

Date : May 20, 2008

Manufacturer's Declaration of Conformity for

Product Identification

Product : Ride-on lawnmower
Brand : BARONESS
Model / Type GM2800A
Starting Serial No. : 11001
Measured Sound Power Level : LWA 104.26 dB
Guaranteed Sound Power Level : LWA 105 dB
Manufacturer
Name : Kyoeisha Co., Ltd.
Address : 1-26 Miyuki-cho, Toyokawa, Aichi-pref.,
Japan

Technical Documentation

Keeper's Name : Kyoeisha Co., Ltd.
Keeper's Address : 1-26 Miyuki-cho, Toyokawa, Aichi-pref.,
Japan

Conformity Assessment Procedure :

Internal Control of Production with Assessment of
Technical Documentation and Periodical Checking
(Annex VI) of 2000/14/EC

Involved Notified Body

Name : SNC-H
Address : 11, Route de Sandweiler
5230 Sandweiler
Luxembourg

Technical Construction File

Date : May 14, 2008
Technical Construction File No. : No. TC2800A-00
Test Laboratory TUV Rheinland Luxemburg GmbH
2a, Kalchesbruck
L-1852 Luxembourg


Means of conformity

The product is in conformity with the Directive relating to the noise emission in the environment by
equipment for use outdoors 2000/14/EC, in accordance with Article 12 of the Directive.

References of other Community Directives applied

98/37/EC and 2004/108/EC

Signature :



Hiroyuki Tazawa
Manager
CS Promotion Dept.
Kyoeisha Co., Ltd.

Date :

May 20, 2008



KYOEISHA CO.,LTD.

Head Office 1-26, Miyuki-cho, Toyokawa,
Aichi-Pref. 442-8530 Japan.

BARONESS

Turf Care Machinery
Tel: (0533) 84-1390
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