

Front 5-reel mower

LM2700

**BARONESS
MOWER**

Owner's handling manual & parts catalogue

















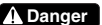


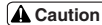
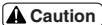
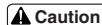









SN10163 and onwards










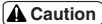

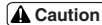
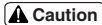






"Required reading" Read this manual and the owner's manual for the engine before using the machine.

BARONESS


Contents

Warnings for safety	1	1-7 Inspection of the tires	16
Introduction	1	2. Fastening of each portion	16
Please be sure to observe for safe operation.	2	3. Operation method of each part	17
1. General precautions 	2	3-1  About the mechanical operation	17
2. Before operating the machine  	2	3-2  Before starting engine	17
3. Checking and performing maintenance before and after operating the machine   	3	3-3 Starting and stopping the engine 	17
4. When transporting the machine 	5	3-4 About the Safety device	17
5. When moving and taking the machine on or off a field  	5	3-5  Cautions on fuel handling	18
6. Overturning when operating the machine 	6	3-6  Cautions when leaving the machine 	18
7. After operating the machine and storing it   	8	3-7 Parking brake 	18
Names of various sections	10	3-8 Forward/Backward pedal 	18
Warning label and operation label attachment locations	11	3-9 Pedal stopper 	18
Warning label and operation label description	12	3-10 Adjustment of seat	19
Feature of LM2700	13	3-11 Tilt steering 	19
Specifications	13	3-12 Switches, levers on the operation panel	19
Handling instructions	14	3-13 Travelling-Mowing changeover switch	19
1. Inspection before use 	14	3-14 2WD - 4WD changeover switch 	20
1-1 Cleaning of the radiator and oil cooler 	14	3-15 Reel rotary switch 	20
1-2 Inspection of the radiator and coolant level 	14	3-16 Reel normal-reverse rotation switch 	20
1-3 Inspection and refilling of engine oil	15	3-17 Throttle lever	20
1-4 Inspection of the hydraulic fluid	15	3-18 Mower unit raise/lower lever 	21
1-5 Cleaning of the air filter	15	3-19 Differential lock switch 	21
1-6 Inspection of the engine circumference	16	3-20 Bypass valve	21
		3-21 Reel rotation adjusting valve	21
		3-22 Mower lock lever	22
		3-23 Groomer clutch lever (option)	22
		4. Measuring instrument	22
		Instruments of operation panel	22
		Tachometer & hour meter	22

4-3 Water temperature meter	22
4-4 Fuel meter  Danger	23
4-5 Charge lamp	23
4-6 Thermal start lamp	23
4-7 Oil pressure lamp (Engine oil pressure lamp)	23
5. Mowing operation 	23
6. Maintenance/Engine	24
6-1 Change of engine oil 	24
6-2 Change of hydraulic oil	24
6-3 Inspection of oil leak	24
6-4 Grease up of each part	24
6-5 Replace of fuses	25
6-6 Inspection of battery  Danger	25
6-7 Opening and closing of the engine hood 	26
6-8 Opening and closing of the seat undercover 	26
6-9 Adjustment of brake  Danger	26
6-10 Fuel air bleeding	26
7. Maintenance of the mower	27
7-1 Grease lubrication	27
7-2 Cutting height adjustment	27
7-3 Adjusting the edge   Danger	28
7-4 Lapping   Danger	29
7-5 Adjustment of the groomer (option) 	29
7-6 Adjustment of the reel housing	30
7-7 Turning the #2 and #3 mower unit   Danger	30
8. Cautions for maintenance	31
8-1  Caution Cautions for maintenance	31
8-2  Warning Prevention of the damage caused by	31
8-3 Maintenance schedule	31
9. Inspection of each part	32
9-1 Adjustment of the neutral position of piston pump	32

9-2 Traction when the machine is unable to run. 	32
10. Long-term storage	33
PARTS CATALOGUE	34
1. PARTS CATALOGUE	35
2. Frame parts B	37
3. Cover parts	39
4. Front wheel parts	41
5. Rear wheel parts	43
6. Pedal parts A	45
7. Pedal parts B	47
8. Engine parts A	49
9. Engine parts B	51
10. Engine parts C	55
11. Engine parts D	57
12. Hydraulic parts A	59
13. Hydraulic parts B	63
14. Hydraulic parts C	65
15. Hydraulic parts C	67
16. Hydraulic parts E	69
17. Hydraulic parts F	71
18. Hydraulic parts G	73
19. Hydraulic parts H	77
20. Lift arm front part	79
21. Lift arm rear part	81
22. Mower parts A	83
23. Mower parts B	85
24. Roller Ass'y parts	87
25. Accessary parts	89
26. Option (Grass catcher parts)	91
27. Option (Groomer Ass'y parts for mower unit #1、#3、#5)	93
28. Option (Groomer Ass'y parts for mower unit #2、#4)	95


Warnings for Safety

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

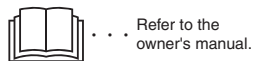
The warning symbols indicate items which are particularly important for your safety. It is important to always follow the warnings and operate the machine with safety.

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.



Warning symbol (High-pressure oil)



Caution symbol (Injury)



Danger symbol (Hand entanglement)



Caution symbol (Hot surface)



Danger symbol (Foot entanglement)



Warning symbol (Caution-exhaust gas)



Fuel (Diesel fuel only)



Danger symbol (Danger-flammables)



Caution symbol (V-belt/rotating parts)



Clothes, protective gear



Warning symbol (Overturn, fall)



Caution symbol (Injury)

Introduction

Thank you for purchasing the Baroness LM2700, front 5-reel 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.
- 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.

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.

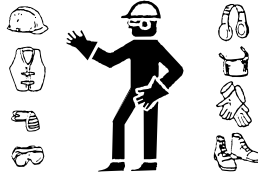
1. General precautions



- **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



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 since no lighting part is equipped.
 - * 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 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



■ 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.

5. When moving and taking the machine on or off a field



■ Do not operate the machine on public roads.

This machine is not authorized as a special motorized vehicle. Do not operate it on public roads.

- * Failure to follow this precaution is subject to punishment for violating the traffic laws.

■ Check your surroundings for safety and slowly accelerate.

Start the engine after checking your surroundings for safety. Accelerate slowly, do not start quickly.

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

■ Take precaution with the shoulder of the road when moving.

On roads with ditches or on roads where both sides are inclined, take sufficient precaution with the shoulder of the road.

- * Failure to follow the precaution can cause the machine to fall.

■ Do not start, stop, or turn suddenly, or operate at excessive speeds.

Start and stop slowly. When turning, sufficiently reduce your speed. Also, sufficiently reduce your speed when operating on slopes, bumpy roads, or curves.

- * Failure to follow this precaution can cause the machine to overturn or fall, causing damage to the machine.

■ Use a running board to cross ditches.

When entering a field, crossing ditches, or traveling over a soft area, be sure to use a running board. Use non-skid running board bearing sufficient strength, length, and width.

- * Failure to follow this precaution can cause the machine to have an accident by slipping or overturning.



■ **Set the parking brake while warming the engine up.**

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

■ **When operating at high speeds do not operate the brake pedal suddenly.**

* Failure to follow this precaution can cause the machine to overturn or fall.

6. When operating the machine



■ **Do not substitute weight for people or cargo.**

Do not load people or cargo as a substitute for weight.

* Failure to follow this precaution can cause an injury.

■ **Wear protective gear.**

Be sure to wear safety glasses, a helmet, and slip resistant shoes.

* Failure to follow this precaution can cause an injury.

■ **Do not go or place your feet under the operating machine.**

Do not go or place your feet under the operating machine.

* Failure to follow this precaution can cause a personal injury when the operating machine is lowered.

■ **Before operating, remove obstacles in the field such as rocks, wire, rope, etc.**

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

■ **Do not start, stop, or turn suddenly, or operate at excessive speeds.**

Start and stop slowly. When turning, sufficiently reduce your speed.

* Failure to follow this precaution can cause the machine to overturn or fall, causing damage to the machine.

■ **Operate or work on a slope with extreme care.**

The balance of the machine worsens on slopes and bumps. Be sure to decrease your speed sufficiently and operate and work slowly.

* Failure to follow this precaution can cause the machine to overturn or fall, causing damage to the machine.

■ **Be sure to turn the engine off when inspecting the mower.**

When a malfunction of the reel cutter occurs such as jamming the grass or rocks, be sure to turn the engine off to inspect and make adjustments.

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

■ **Do not operate the machine near children.**

Keep away from children and do not operate the machine near them.

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

■ **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. In addition, be sure to install the reel cover.

- * 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.

■ **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, be sure to follow the instructions indicated below when operating the machine on a slope of 15 degrees or more.

- Do not operate the machine in areas in which there is danger of it overturning or slipping.
- Remove holes, rocks, or tree roots (and other illegally thrown objects) and check that these items do not exist before operating the machine on a slope.
- When operating the machine on a slope, work along the contour line and make turns where the grade of the slope is low.

7. After operating the machine and storage



■ 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.



■ 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.

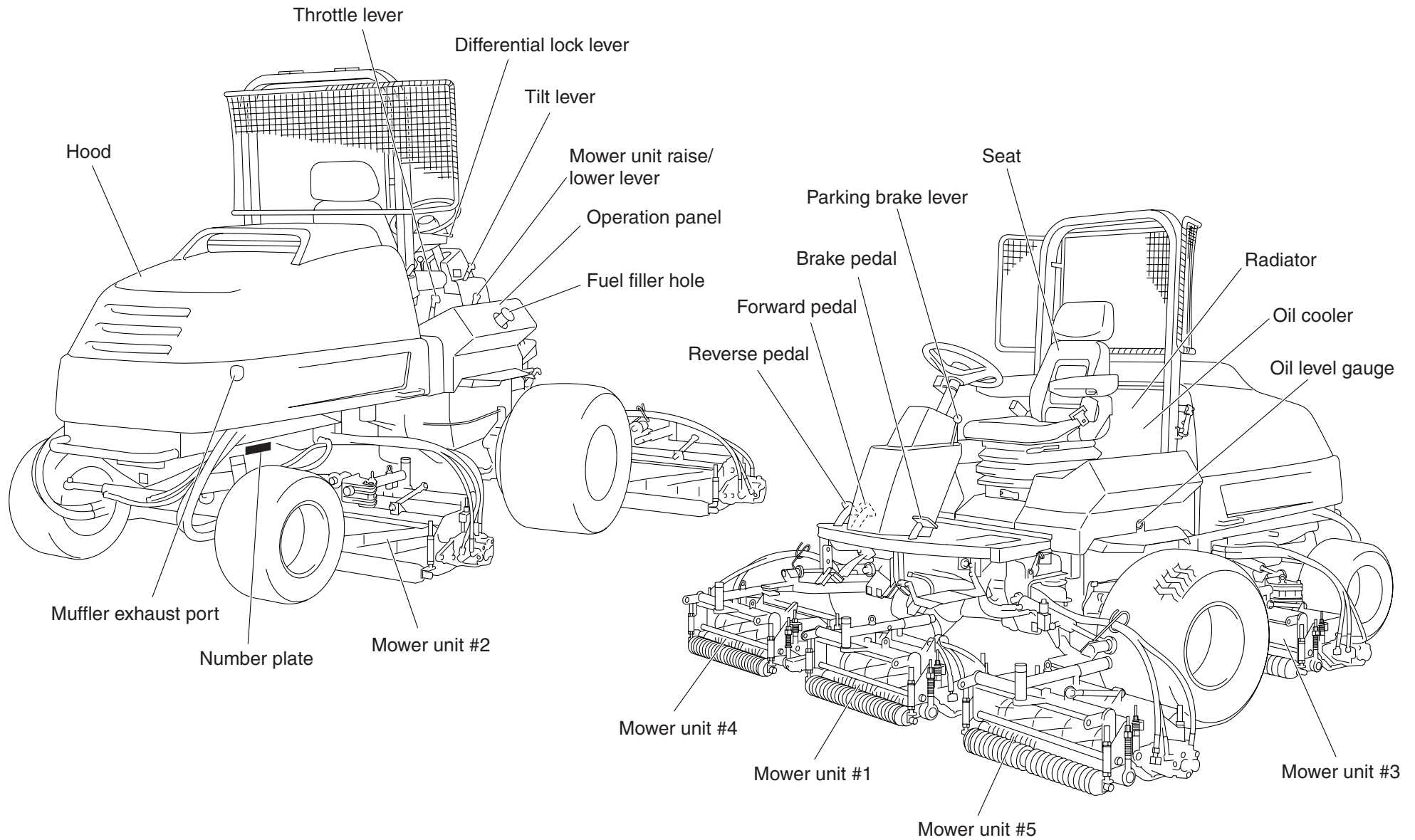
- * Failure to follow this precaution can cause you to get caught up in the machine or a personal injury.

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

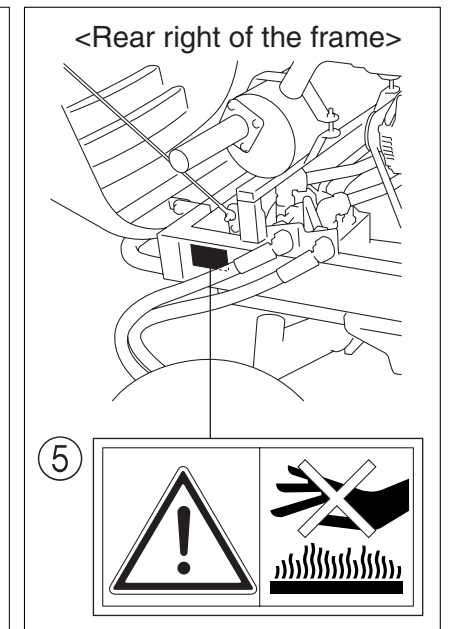
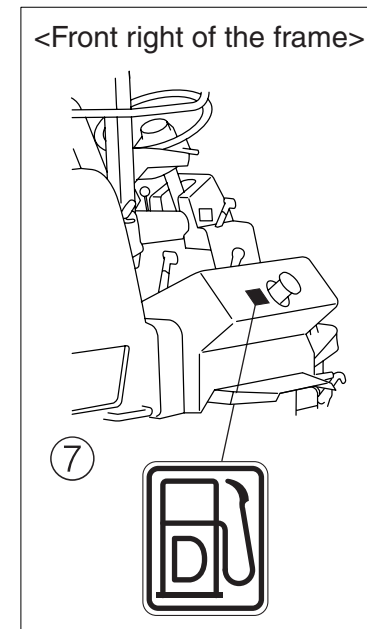
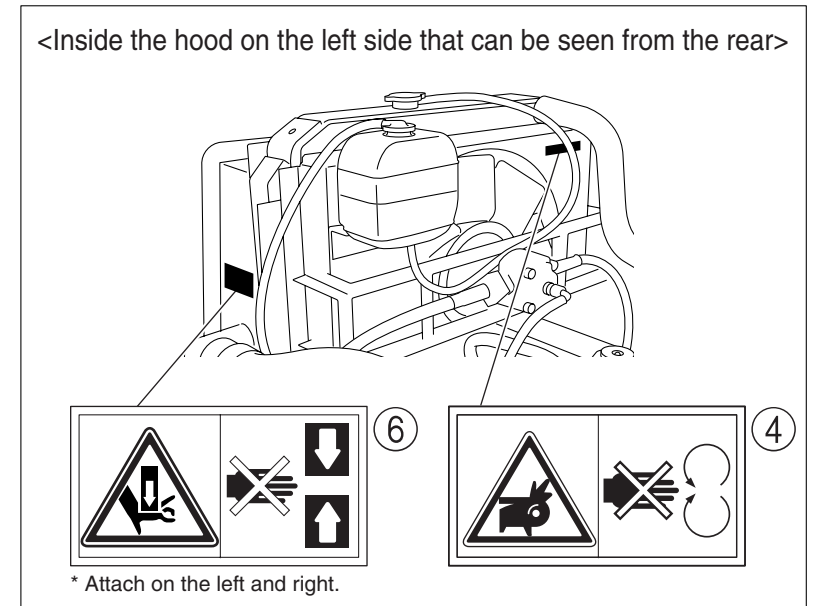
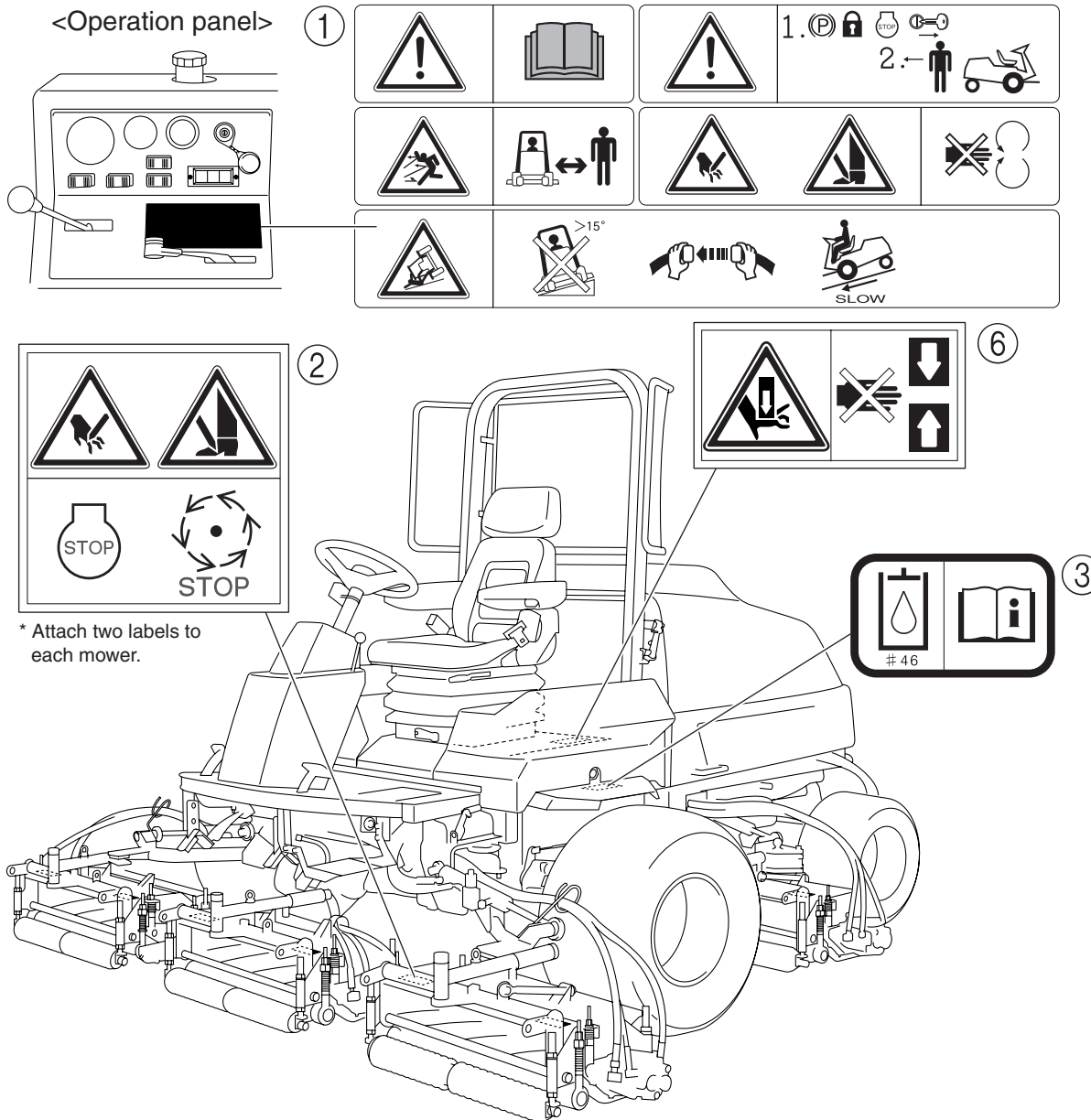
Let the parts that overheat such as the muffler and engine to sufficiently cool down before checking or performing maintenance.

- * Failure to follow this precaution can cause burns.

Names of various sections



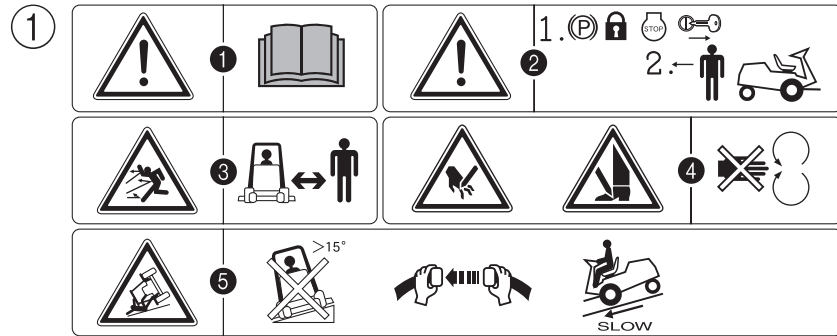
Warning label and operation label attachment locations



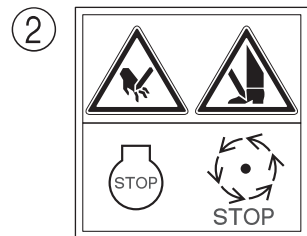
Warning label and operation label description

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.

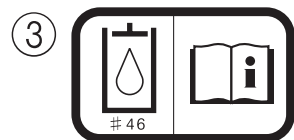


- ① **Warning** : Read the owner's manual.
- ② **Warning** : Leave the machine after setting the parking brake, turning the engine off, and removing the engine key.
- ③ **Danger** : Flying objects - Excluding the operator, keep a safe distance away from the machine.
- ④ **Danger** : Cutting hands or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



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 may get injured.



High-pressure oil symbol

Read the owner's manual.



Danger : Cutting of Hand

Placing your hand near the fan and the belt while the engine is running could result in injury.



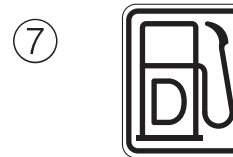
Caution : Hot surface

Do not touch. It can cause burns.



Caution : Pinch

You can get pinched.



Fuel filler port

(diesel only)

Features of LM2700

- Compared with the conventional machine, the work at a quick speed can also be cut finely.
Moreover, since the travelling speed is also quick and the turning radius is small, efficient work can be performed.
- Comfortable work can be performed by the introduction of the large displacement engine.
- The introduction of the new oil-hydraulics travelling system and the large-sized disc brake etc. is raising the safety.
- The optimal sheet position is obtained according to the driver's body.
- The maintenance of the bottom mower can be performed easily.

Specifications

Model		LM2700
Drive system		Four-wheel drive
Dimensions	Total Length	300cm
	Total width	320cm (228cm when travelling)
	Total height	220cm(Roof), 204cm(Roof bar), 150cm(Steering wheel)
	Wheelbase	155cm
Total weight		1,750kg
Speed	Two-wheel drive	0~22km/h
	Four-wheel drive	0~14km/h
Wheels	Front wheel	26.5 x 14.00-12
	Rear wheel	20 x 12.00-10
Engine	Model	KubotaV2203-M Vertical type water-cooled four-cycle diesel
	Number of cylinders	4
	Displacement	2.197L (2,197cm ³)
	Rating output	32.7kW (44.5PS)/2,600rpm
	Rotation Speed	975~2,800rpm (without load) (*1)
	Fuel consumption (at 2,500 rpm)	250g/kW • h (185g/PS • h)
Battery		105D31R
Mowing height		8~45mm (*2)
Mowing width		277cm
Reel cylinder		9 blade 66cm x 5 (reel diameter 16.3cm)

(*1) Maximum engine rpm is set up 2,600 rpm before shipment.

(*2) For 10 mm or less mowing height, the optional bed knife is required.

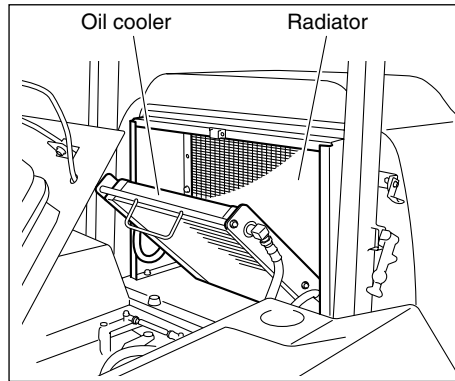
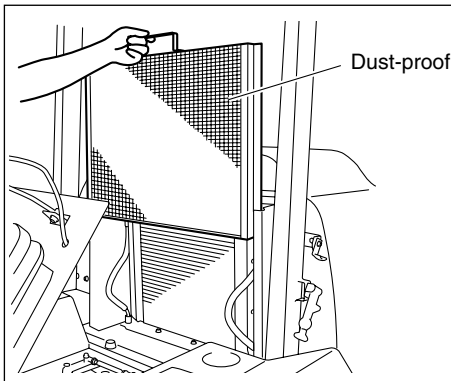
Handling instructions

1. Inspection before use

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

1-1 Cleaning of the radiator and oil cooler

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



- 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.

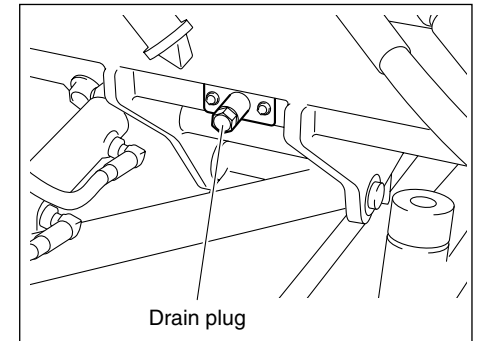
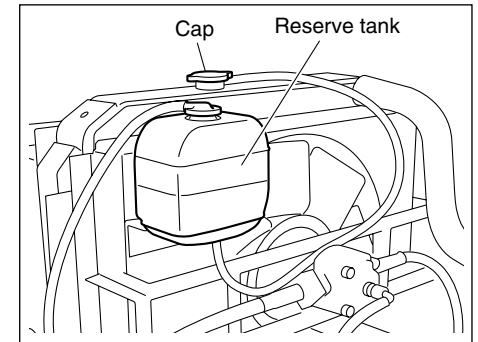
1-2 Inspection of the radiator and coolant level

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.



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

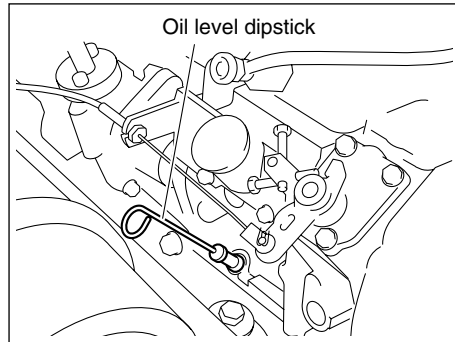
Freezing point	LLC consistency (volume %)
Up to -10 °C	20%
Up to -15 °C	30%
Up to -20 °C	35%
Up to -25 °C	40%

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

1-3 Inspection and refilling of engine oil



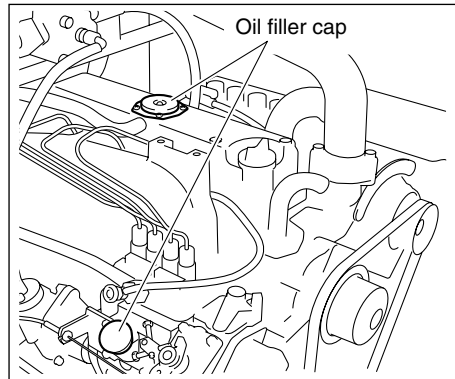
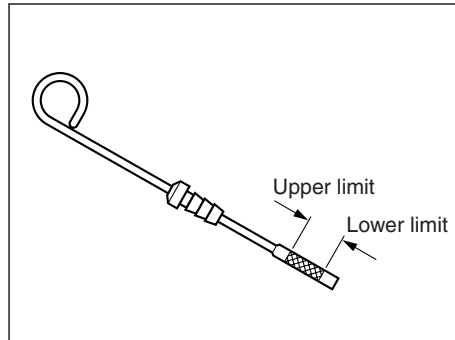
Put the engine on the level surface, and check the level of the oil by the dipstick. It will be the proper quantity, if the oil level is between the upper and lower limit when the dipstick is fully inserted. If the oil level is low, add the engine oil, and if the oil is dirty, exchange the oil. Perform 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.

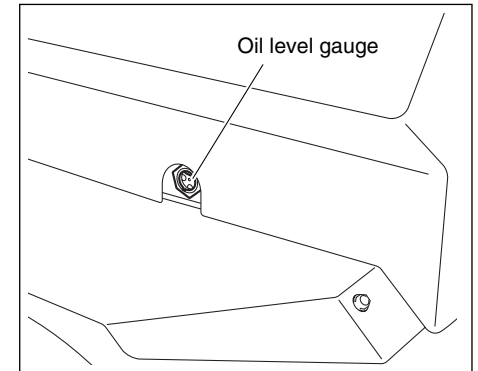
* Use the engine oil higher than the API service classification CD class, and SAE viscosity suited to the application environment (temperature).



1-4 Inspection of the hydraulic oil

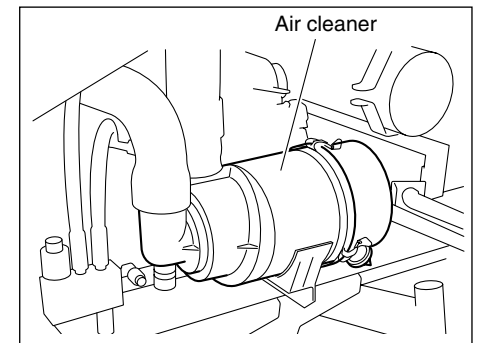
Level the engine and always check whether the hydraulic oil is contained to the center of the oil level gauge. When refilling the hydraulic oil, use the Shell Tellus 46 or equivalent type.

*The tank capacity is approximately 44L.

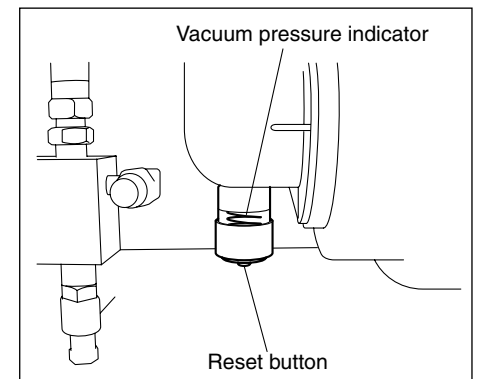


1-5 Cleaning of the air cleaner

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. Attach the element after clean up and push the reset button. Exchange the element of the air cleaner every 200 hours.



1-6 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.

1-7 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

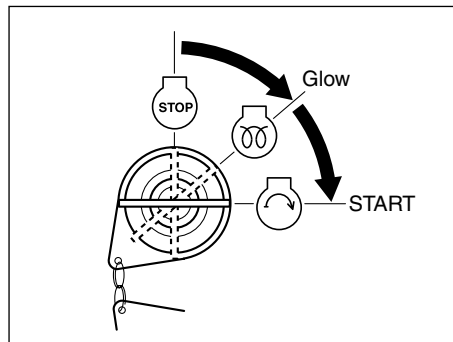


- Inspect the area where the equipment will be used.
- Inspect whether there are no damages and the cover/guard are securely fastened in place.
- Never operate the engine without proper ventilation.

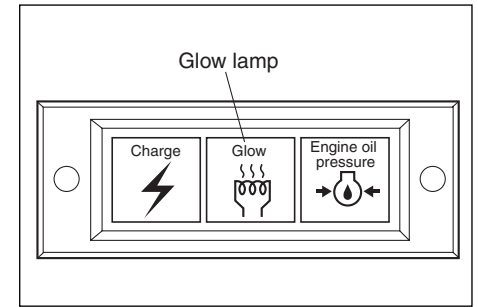
3-3 Starting and stopping the engine (P)

● Starting procedure _____

- 1) Sit on the seat, and adjust seat arrangement for safety.
- 2) Hold brake pedal down, pull parking brake lever up until it engages.
- 3) Make the reel 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 turns 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) Hold the brake pedal down, pull the parking brake lever up until it engages.
- 2) Make the reel rotary switch into the "STOP" position.
- 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 reel 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



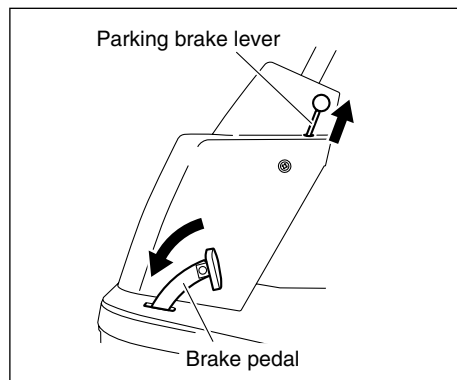
- 1) Stop the machine in level place and engage the parking brake.
- 2) Make the reel rotary switch into the "STOP" position", and lower the mower unit to the ground.
- 3) Stop the engine.
- 4) Remove the ignition key.
- 5) When effectiveness of the brake is not good, park the machine using wheel stoppers.

Caution • Do not park on the slopes.

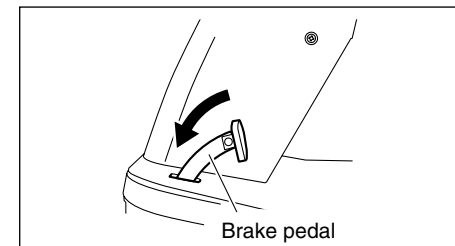
3-7 **Parking brake** (P)

The parking brake is on the center housing left side.

Hold the brake pedal down and pull the parking brake lever up for engaging the parking brake.



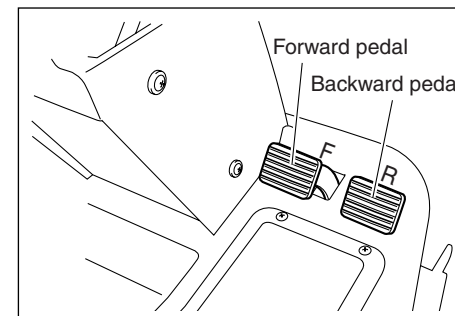
Press the brake pedal down again for releasing the parking brake.



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

3-8 **Forward/Backward pedal**

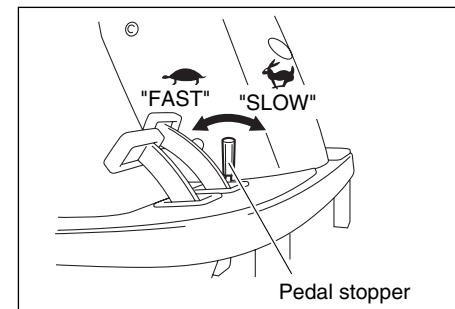
Two pedals system is adopted. To move forward, press the inside pedal down. To move backward, press the outside pedal down. If the pedal is returned, the machine will stop automatically.



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

3-9 **Speed limiter lever**

It is a shift lever, which restricts the forward pedal step in amount. The step in amount decreases if it turns to the "SLOW" side.

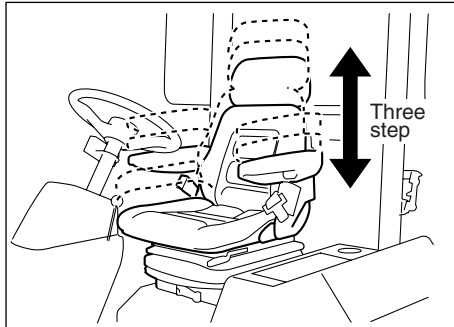
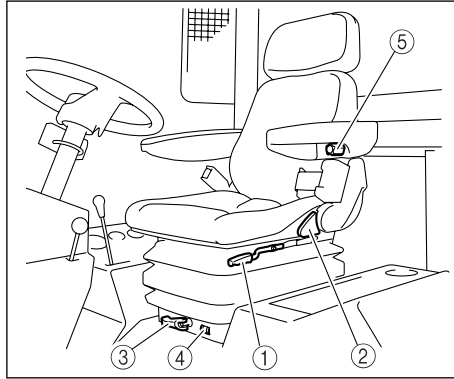


Caution • Be sure to make set to "SLOW" position when travelling by two-wheel-drive. If make set to "FAST" position, it becomes too fast when the pedal is fully pressed in.

3-10 Adjustment of seat

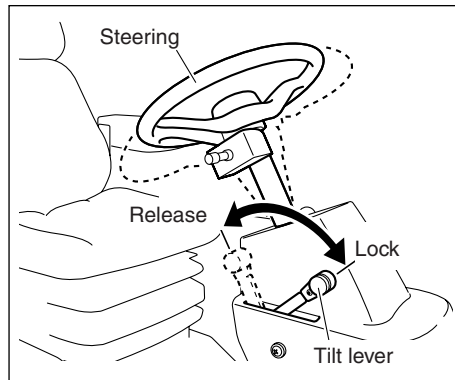


- The seat can be adjusted forward and backward by the seat lever (1).
- Angle adjustment of the reclining backrest can be performed by the lever (2).
- Hardness of the seat suspension can be adjusted by turning the handle (3). Check and adjust with the scale 4. (50~130kgf)
- Angle setting of the armrest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

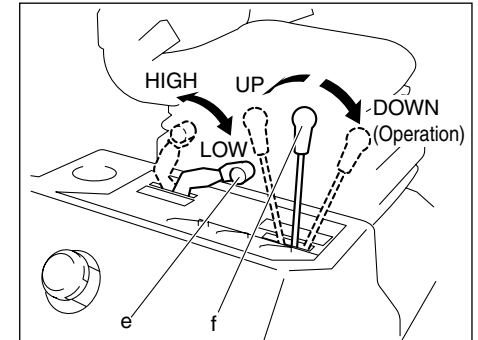
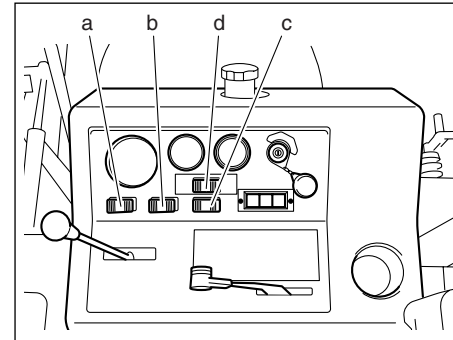


Caution

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

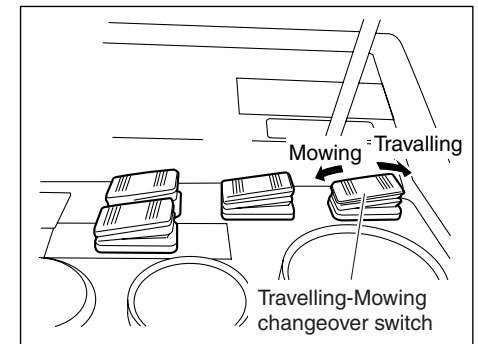
3-12 Switches, levers on the operation panel

- a. Travelling-Mowing changeover switch
- b. 2WD - 4WD changeover switch
- c. Reel rotary switch
- d. Reel rotation direction forward-reverse switch
- e. Throttle lever
- f. Mower unit raise/lower lever

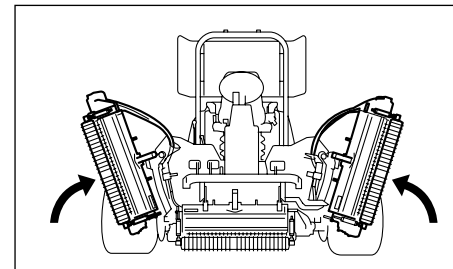


3-13 Travelling-Mowing changeover switch

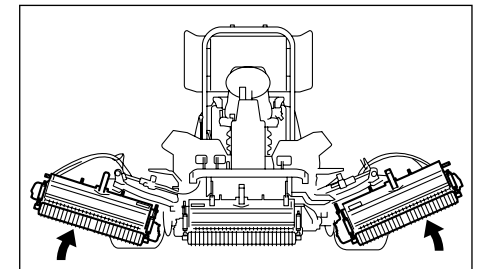
When it is set to UP, the position of mower unit #4#5 can be changed. Press switch to the "Travelling" position, #4 & #5 mower units raise to top. Press switch to the "Operating" position, #4 & #5 mower units raise up to middle.



Select "Travelling"

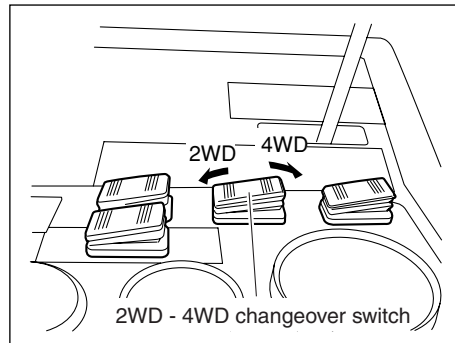


Select "Mowing"



3-14 2WD - 4WD changeover switch

It is the switch that chooses two-wheel-drive (front wheel) travelling or four-wheel drive travelling. If it moves to the "2WD" position it will become the two-wheel-drive, and if it moves to the "4WD" position, it will become the four-wheel drive.



⚠ Caution

- When you move under the operation and by the sloping ground, be sure to choose the four-wheel drive.
- Operate the machine in consideration of the state of the roads and the ground, such as the slant and the undulation.

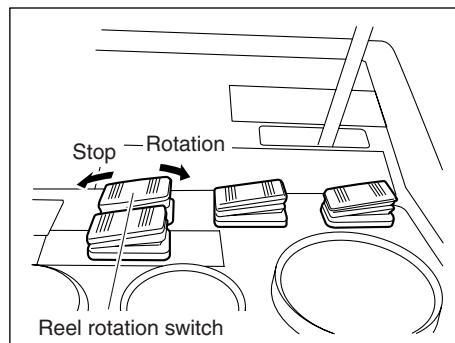


3-15 Reel rotation switch

It is swing type switch with "ON" and "OFF" for the reel rotation.

To mow, press switch to "Rotation" position, and switch to "STOP" position to disable mowers.

Operate the reel rotation switch after deciding the rotation direction with the reel forward-reverse rotation switch.



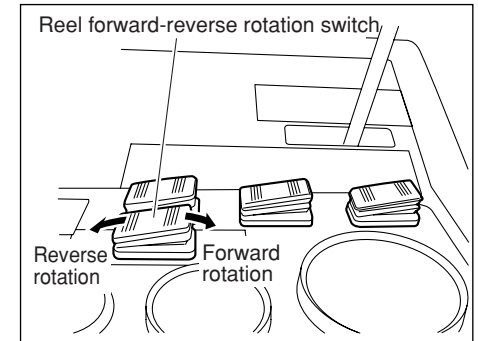
⚠ Caution

- When the mower unit is in the UP position, the reels do not rotate.
- When travelling-mowing changeover switch is NOT in the "Mowing" position, the reels do not rotate.
- Inspect the area where the machine will be used.



3-16 Reel forward-reverse rotation switch

It is swing type switch that chooses the rotation direction of the reel. To mow, press the switch to the "Forward rotation" position. To backlapping, press the switch to the "Reverse rotation" position.

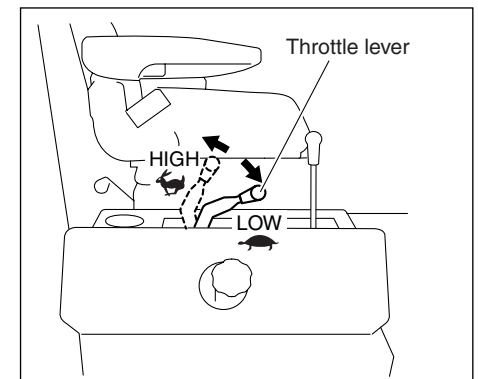


⚠ Caution

- When not operating the reel rotation switch, the reels do not rotate.
- Never switch forward and reverse while the reel rotating, otherwise hydraulic equipment may be damaged.

3-17 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.

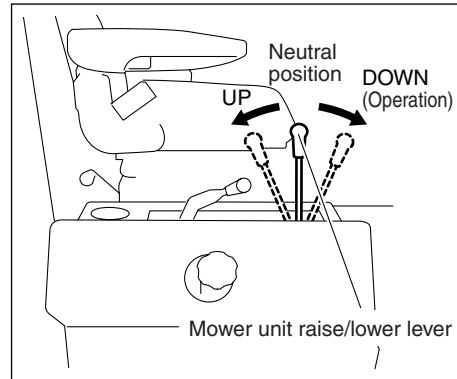


3-18 Mower unit raise/lower lever

It is the shifter lever that raises or lowers the mower unit.

If the shifter lever is moved to the "UP" position, the mower unit will go up, and if it is moved to the "DOWN" position, the mower unit will descend.

At the time of the mowing, move the shift lever to the "DOWN" position. If it is shifted to the neutral position, the cylinder is fixed and it cannot respond to the undulation.



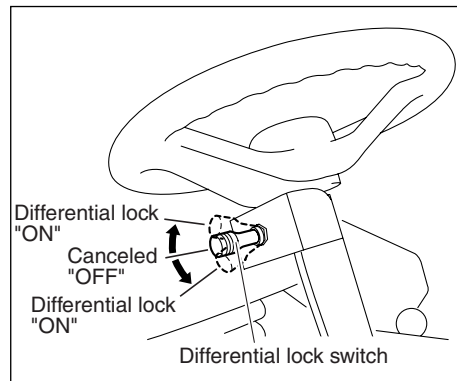
Caution • Inspect the area where the machine will be used.



3-19 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.

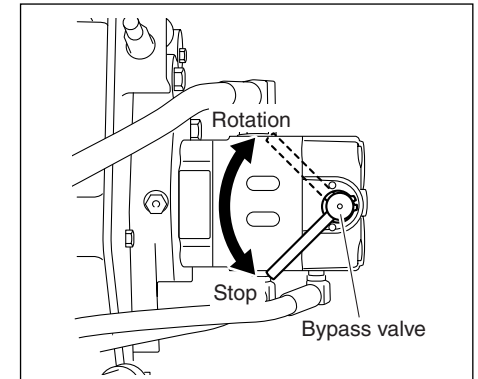
3-20 Bypass valve

It is located on the hydraulic motor of each mower unit.

The hydraulic motor will become free if the shift lever is shifted to the stop position.

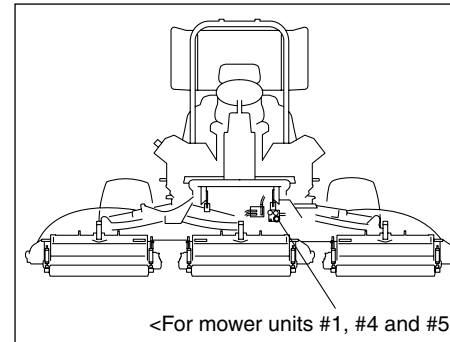
Rotate position: ().

Stop position: ().

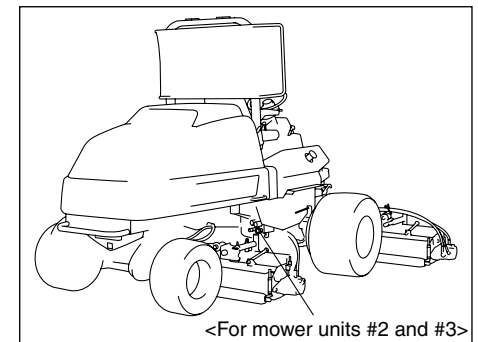


3-21 Reel rotation adjusting valve

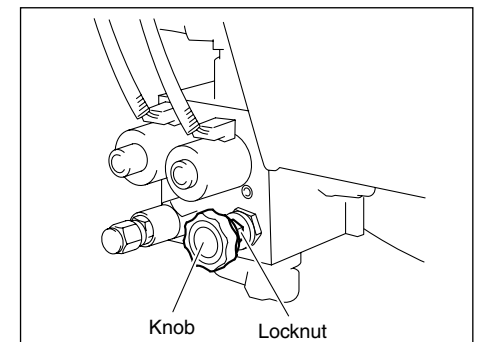
<For mower units #1, #4 and #5>



<For mower units #2 and #3>



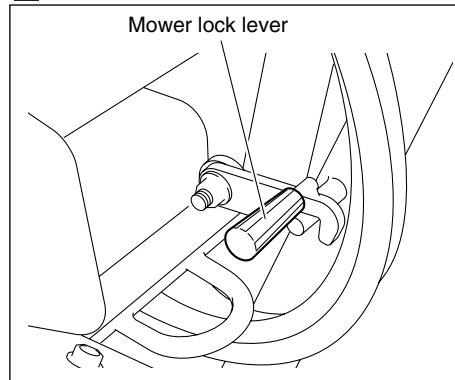
It is the valve that adjusts the rotation speed of the reel cutter. Loosen the locknut and turn in the knob, the rotation speed will become slow.



3-22 Mower lock lever



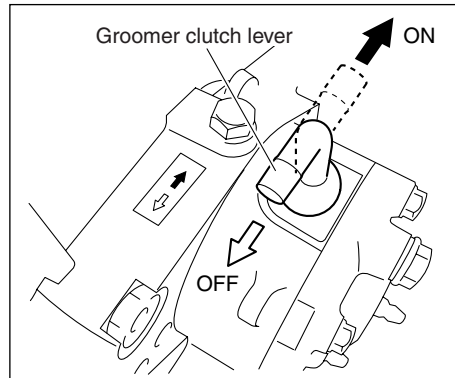
When you store the machine hang the mower lock lever when the mower unit #4 and #5 are raised.



3-23 Groomer clutch lever (option)

It is the operating lever that makes the groomer "ON" or "OFF".

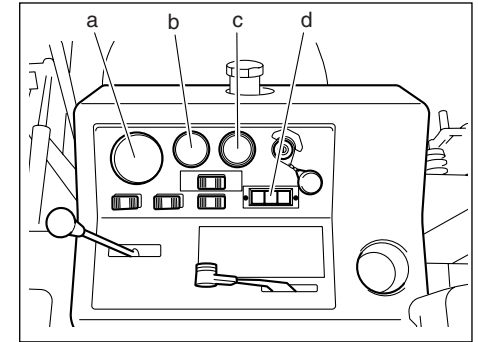
When you do not operate the groomer, be sure to shift it to "OFF" position.



4. Measuring instrument

4-1 Instruments of operation panel

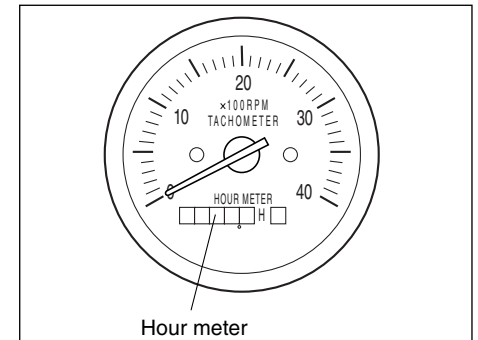
- a. Tachometer & hour meter
- b. Water temperature gauge
- c. Fuel level gauge
- d. Pilot lamp
 - Charge lamp
 - Glow lamp
 - Oil pressure lamp (Engine oil pressure lamp)



4-2 Tachometer & hour meter

Indicate the engine speed and total operating hour.

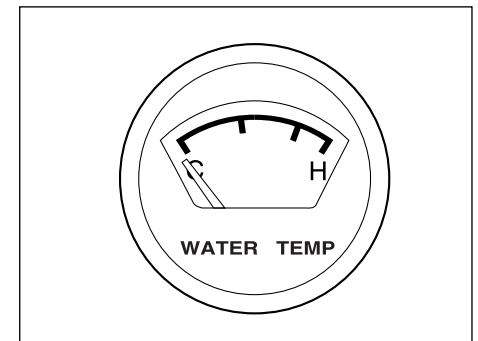
Carry out the periodic inspection and maintenance, and repair based on the operating hour.



4-3 Water temperature gauge

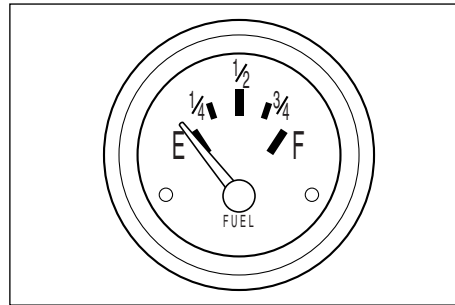
When the water temperature gauge rises to near "H" during the operation, it is in the overheating state. Stop the engine and carry out the maintenance and repair, after making the engine no-load and operating for 5 minutes in idling.

- 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.



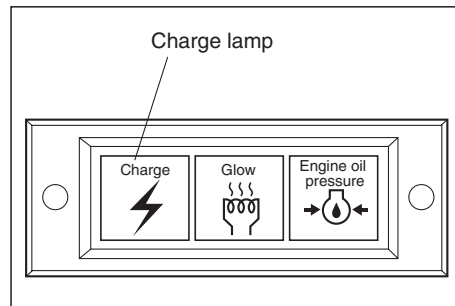
! Danger

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



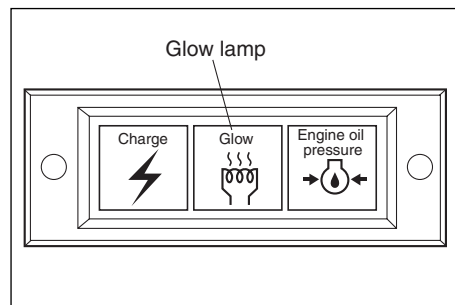
4-5 Charge lamp

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.



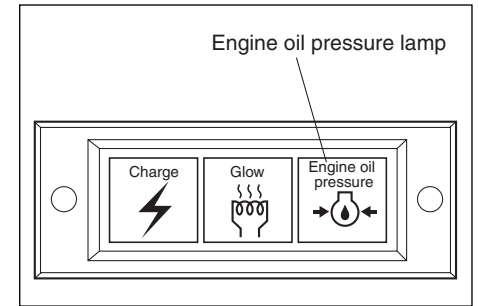
4-6 Glow lamp

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



- 1) Pull up the throttle lever and set engine speed to MAX (2,600rpm). (Refer to 3-17)
 - 2) Set the 2WD - 4WD changeover switch to the "4WD" position. (Refer to 3-14)
 - 3) Set the Travelling-Mowing changeover switch to the "Mowing" position. (Refer to 3-13)
 - 4) Set the reel rotation forward - reverse direction switch to the "Forward" position (Refer to 3-16)
 - 5) Release the Mower lock lever. (Refer to 3-22)
 - 6) Move the mower unit raise/lower lever to the "LOWER" position, and ensure lower the mower unit to the ground. (Refer to 3-18)
 - 7) Move reel rotation switch to the "Rotation" position, and rotate the reel. (Refer to 3-15)
 - 8) Hold the Forward pedal down and begin the operation.
- * Respond to the raising or lowering of the mower unit, the reel will rotate or stop automatically.

! Caution

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

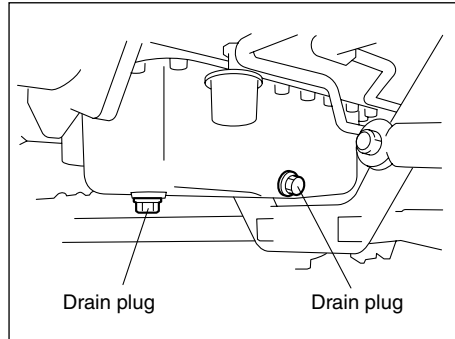
6. Maintenance of the main unit

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.



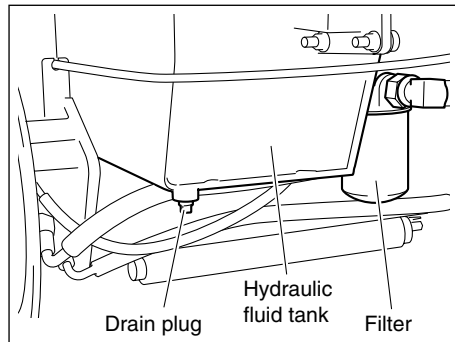
Caution



- 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.
* 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.

	Parts catalogue number
Rear wheel section	5-15
Pedal section	6-19, 6-26, 7-5, 7-9, 7-30, 7-32
Lift arm section	20-1, 20-13, 20-22, 20-24, 20-25, 20-26, 21-1, 21-11, 21-26, 21-27

6-5 Replacement of fuses

1) Fuse box.

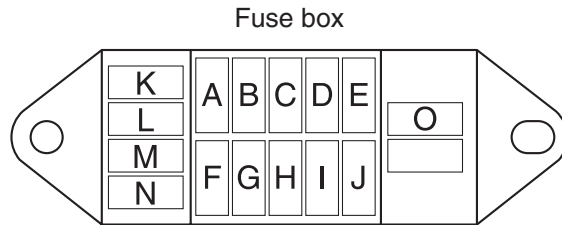
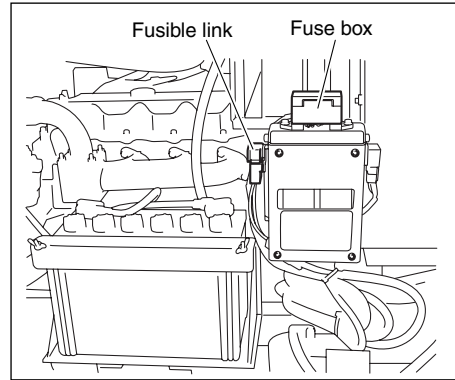
The spare fuse and the replacement tool are attached in the fuse box.

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.



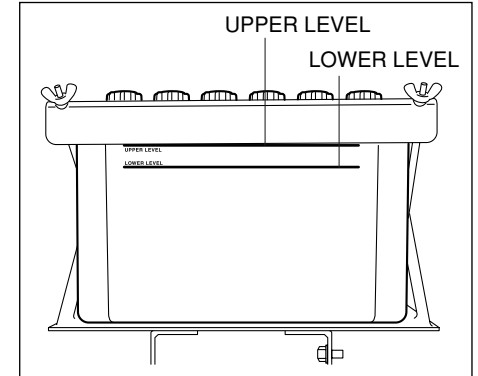
A	5A	Timer
B	5A	Glow lamp
C	5A	Tachometer, fuel gauge, water temperature gauge, charge lamp, oil pressure (engine oil pressure) lamp, Water temperature warning alarm, Hydraulic oil warning alarm
D	15A	Relay box 1
E	15A	Relay box 2, differential lock
F	-	
G	5A	Timer
H	5A	Alternator
I	5A	Fuel pump, cooling-fan 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.



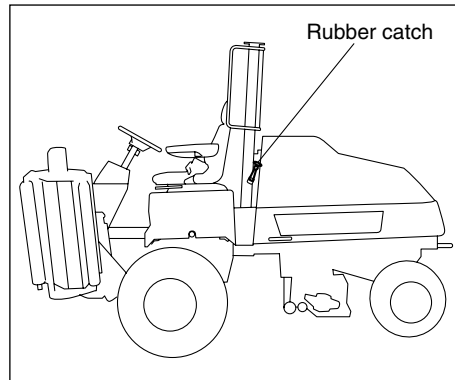
! Danger



- Do not drink electrolyte and avoid contact with skin, eyes or clothing. Wear protective glasses and protective clothes.
- 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 the 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

Disconnect the rubber catch in right and left, and pull up the engine hood upwards until the wire stretches to the limit. When you close the engine hood, lower it slowly.



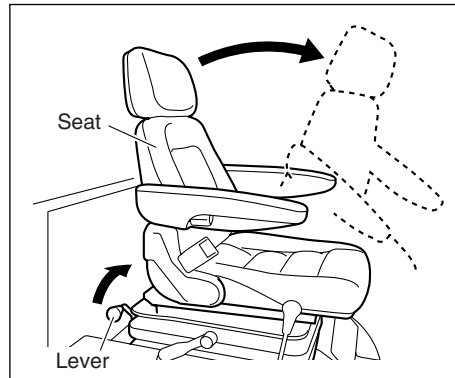
⚠ Caution

- 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.



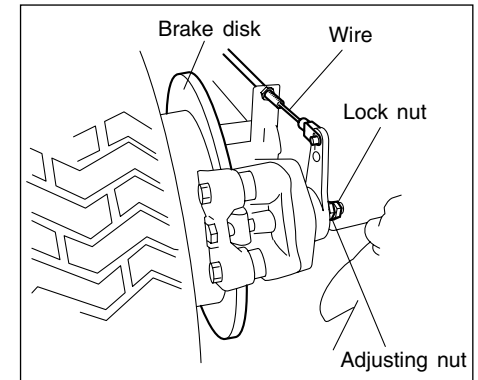
⚠ Caution

- 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

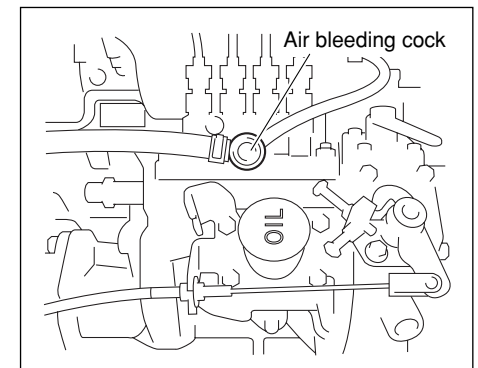
- It will generate heat, if the clearance is too small, and it becomes the cause of the fire.
- If effectiveness of the brake disc on either side is different, it may lead to an unexpected accident.

6-10 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.



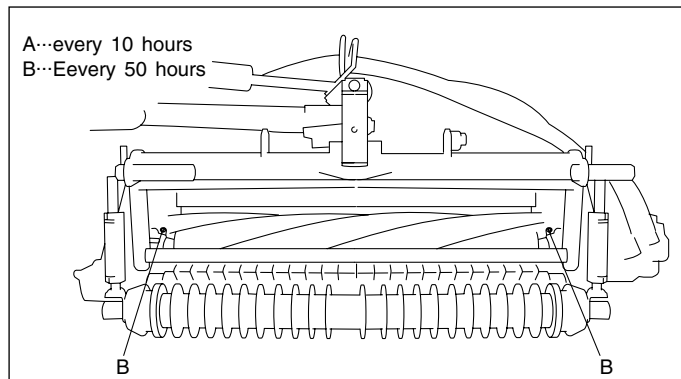
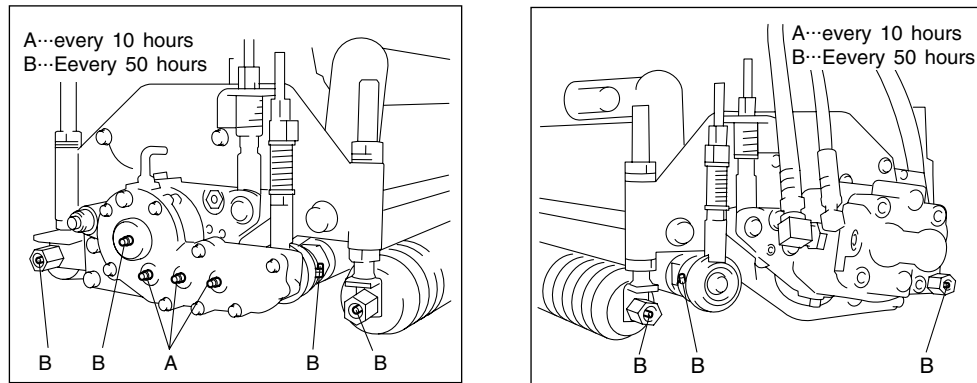
7. Maintenance of the mower

7-1 Greasing

Carry out the greasing up periodically to each part grease fitting.

The parts greasing up every 10 hours is using the needle bearing. Be careful of the lubrication interval.

Carry out about 1g (1 to 2 times with manual-type small grease gun) grease up for each part with the grease (Excelite EP No. 2) respectively.



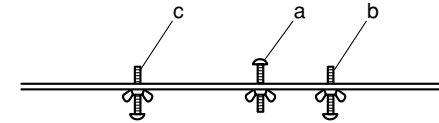
7-2 Cutting height adjustment



Warning

- To avoid personal injury and damage by the cutting edges wear groves and handle the reel and bedknife with extreme care.

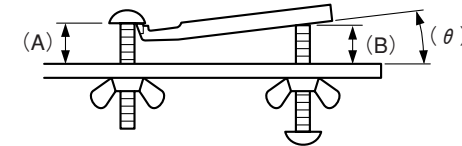
- Set the supplied cutting height gauge bar.



- Small adjusting screw for the cutting height setting
- Small adjusting screw for the bed knife angle adjustment
- Small adjusting screw for the Groomer adjustment

- Set the "a" screw to desired cutting height.
- Set the included angle of the bed knife with the screw of "b" by referring to the following table.

Example: When the angle of the bed knife is 5 degrees and 15mm of cutting height, use 12mm.

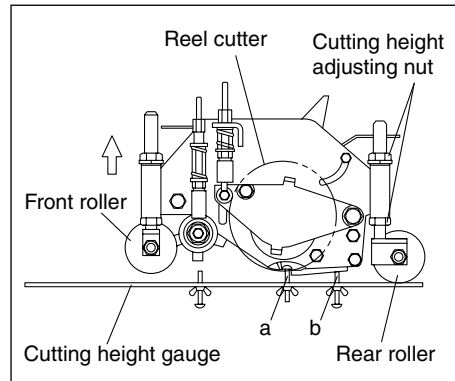


Bed knife angle (θ)	Value of (B)
7°	Cutting height of (A) - 0.6mm
6°	Cutting height of (A) - 1.8mm
5°	Cutting height of (A) - 3.0mm
4°	Cutting height of (A) - 4.2mm
3°	Cutting height of (A) - 5.4mm
2°	Cutting height of (A) - 6.6mm
1°	Cutting height of (A) - 7.8mm

- * Set the bed knife angle as the basis of 5 degrees, and change it depending on the situation.

2) Adjust the height of the rear roller.

(1) As shown in the figure, apply the screw "a" and "b" on the cutting height gauge to the bed knife, and adjust the rear roller. (Decide the position of the rear roller on the basis of the bed knife angle.)



(2) Loosen the cutting height adjusting nut first, and then adjust the rear roller according to the cutting height gauge.

(3) At this time, to avoid incorrect adjustment, do not touch the Front Roller on cutting height gauge surface.

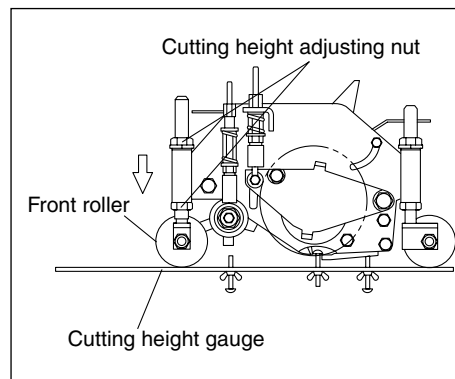
(4) Tighten the cutting height adjusting nut securely after completing the setting.

3) Adjust the height of the front roller.

(1) Loosen the cutting height adjusting nut for the front roller first, and lower the front roller down to the cutting height gauge.

(2) Tighten the cutting height adjusting nut securely after completing the setting.

4) Repeat steps 2) - (2), (3), (4) and 3) - (1), (2) on opposite end. Complete adjustment to one end before adjusting opposite end.



7-3 Adjusting the blades

* Proper reel-to-bedknife adjustment is critical.

⚠ Caution

• When you adjust reel-to-bedknife, stop the engine and remove the ignition key.



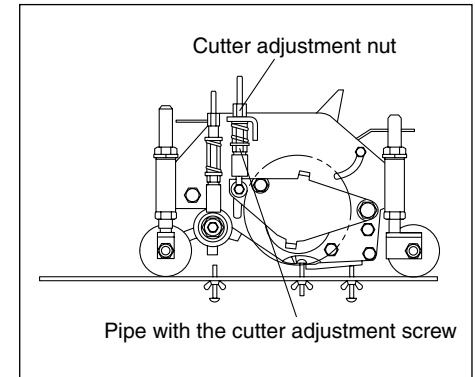
1) Set Bypass valve on hydraulic motor to "Stop" position then reel cylinder will free rotate. (Refer to 3-20)

2) Inspect the reel blade and bedknife to ensure properly engaged. When the reel blade is properly adjusted to the bedknife, the reel cylinder will spin freely and you should be able to cut two sheets of newspaper, along the full length of the reel blade.

If the cutter adjustment nut is loosened, contact between the reel and bedknife become hard, and contact will become weak if it is tightened.

3) If no newspaper cutting due to wear or damage is evident, the cutting edges should be corrected by the lapping process.

4) If the reel cutter is worn out and the diameter becomes small, the tension of the spring will become weak. Loosen the pipe with the cutter adjustment screw, and adjust the tension of the spring.



⚠ Danger



• Both the reel cylinder and bed knife are the cutting tools. When you handle with them, be careful of injury.

• When you try cutting the newspaper, be careful not to pinch your fingertip, which turns the reel cutter.

7-4 Lapping

- 1) Inspect whether the newspaper can cleanly cut across the full length of reel.
- 2) Set the bypass valve lever of the hydraulic motor into the "Rotation" position on the lapping mower unit. Set bypass valve lever of the hydraulic motor into "Stop" position on the mower unit, which does not carry out lapping.
- 3) Put the engine into operation and operate at a low speed.
- 4) Press the "Travelling - Mowing" changeover switch to mowing position. (Refer to **3-13**)
- 5) Set the reel forward-reverse rotation switch into the "Reverse" position. (Refer to **3-16**)
- 6) Set the reel rotation switch into the "rotation" position, and carry out the lapping rotation of the reel blade. (Refer to **3-15**)
- 7) Adjust reel rotation adjusting valve to the desired speed. (Refer to **3-21**)
- 8) Apply lapping compound to the part where a newspaper was cut with brush. (Never apply lapping compound to the part where was not cut well.) Use lapping compound which is a mixture of oil and emery (#150 - #200) at rate of 1:3 to 4.
- 9) Rotate the reel cylinder for a while, if there is no longer contact sound, stop the rotation, and then stop the engine.
- 10) Check full length of the reel cylinder whether there are the parts that cut off the newspaper well, and the parts that don't cut the newspaper. Repeat the above steps and at the same time, make a slight adjustment on the reel unit there is a uniform clearance along full length of the cutting edges.
- 11) Finally apply lapping compound to full length on the edge of the reel blade, and carry out final lapping.
- 12) When finished, carefully and thoroughly clean off the remaining lapping compound.
- 13) Return the reel rotation adjusting valve to the original position.

⚠ Danger



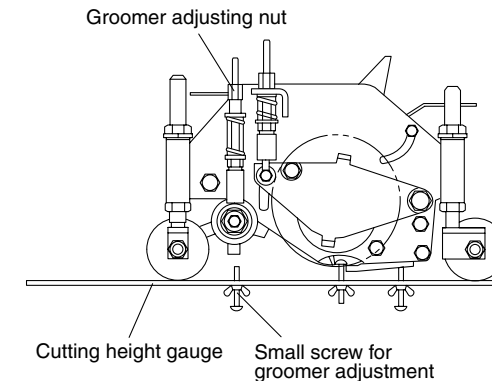
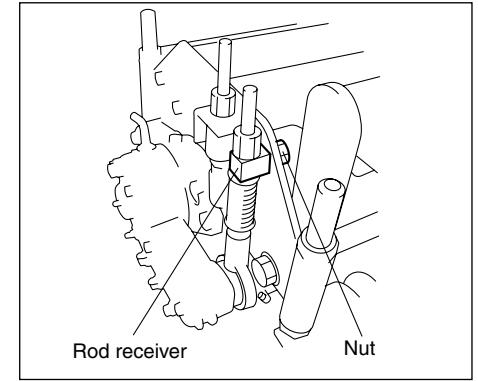
- Both the reel cylinder and bed knife are the cutting tools. When you handle with them, be careful of injury.
- When you try cutting the newspaper, be careful not to pinch your fingertip, which turns the reel cutter.

⚠ Caution

- When you wash the abrasive, be careful not to pour water to the Electrical equipment and the switches. If they become wet, it may cause unexpected accident.

7-5 Adjustment of the groomer (option)

- 1) Set the small adjusting screw for groomer adjustment on the cutting height gauge to the specified height. (Refer to **7-2**)
- 2) Loosen the rod receiver nut, and lower the whole groomer unit to the bottom of the long hole.
- 3) Tighten the rod receiver nut, and adjust the height of the groomer with the adjusting nut for the groomer.
- 4) When you do not use the groomer, raise the whole groomer unit to the top of the long hole.

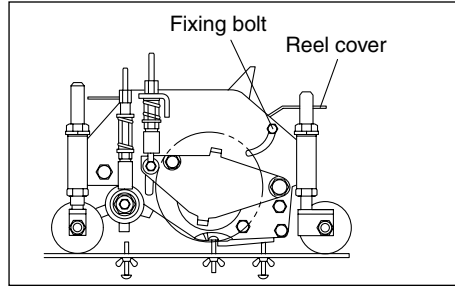


Caution

- Always use the cutting height gauge, and adjust it so that right and left sides become parallel. The bearings may be damaged if it is not used.
- Set the groomer height more than 5mm from the ground. If it is used by less than it, the groomer axis, bearing, and gear, etc. may be damaged.

7-6 Adjustment of the reel cover

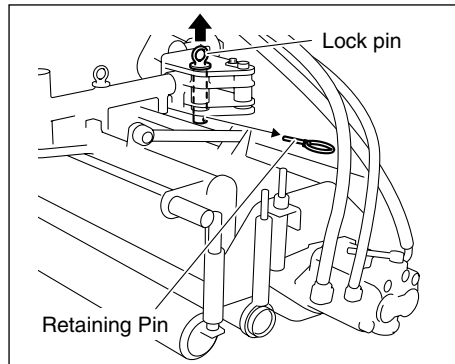
- Loosen the fixing bolts on the right and left sides of the reel cover, and adjust the angle of the reel cover.
- When you use the optional grass box, set the reel cover housing in the most closed position.



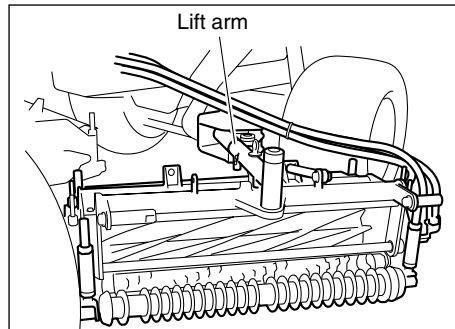
7-7 Turning the #2 and #3 mower units

It is easily maintainable if the #2 and #3 mower unit turn to outside of the main body.

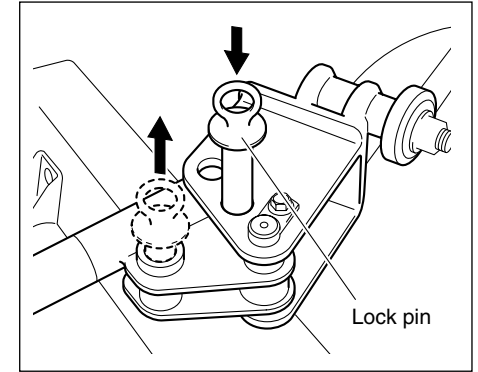
- 1) Lower the mower unit, and remove the Retaining pin, and then pull out the Lock pin.



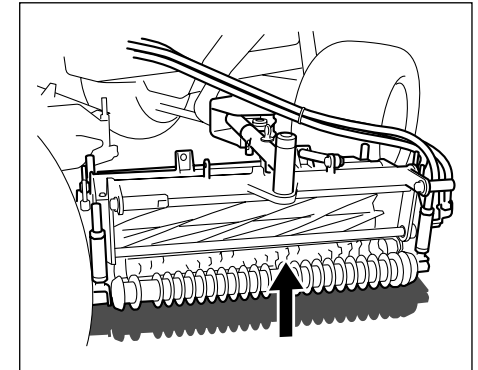
- 2) Turn the mower unit to outside of the main body.



- 3) After turning, install the Lock pin over the hole for retaining at the time of the maintenance.



- 4) Raise the mower unit.



- 5) Return the mower unit to the original state in the reverse procedure after the maintenance.

Caution



- Replace all the bearings, oil seals for mower unit every year.
- The hydraulics motor housing with the hydraulic motor is filled up with the lubricating grease (PYRONOC No. CC0). Check and supply every 200 hours.

Danger

- Both the reel cylinder and bed knife are the cutting tools. When you handle with them, be careful of injury.

8. Cautions for maintenance

8-1 Caution 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 Baronesse 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 Warning 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 and oil cooler	○					
	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	○					
	Grease up (rear wheel and mower) (Refer to [7-1])		○				
	Inspection of grease in the hydraulic motor housing				○		
Contact condition of the blades on reel cutter.	○						
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	11-19
Air filter element	PFR1401-4227-0	10-46
Fan belt	PF17112-9701-0	-
Fuel filter cartridge	PF15221-4317-0	10-16
Battery	K3600000180	9-55
Throttle wire	LM2700-0535Z0	9-33

For hydraulics system

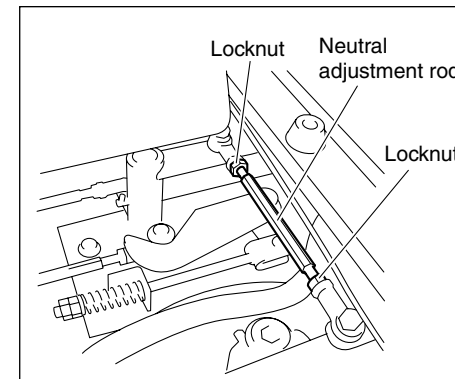
Parts name	Code No.	Parts catalogue No.
Oil pressure filter cartridge	K3410000030	12-35
Suction filter	K3413000040	12-68

9. Adjustment of the other functions

9-1 Adjustment of the neutral position of piston pump



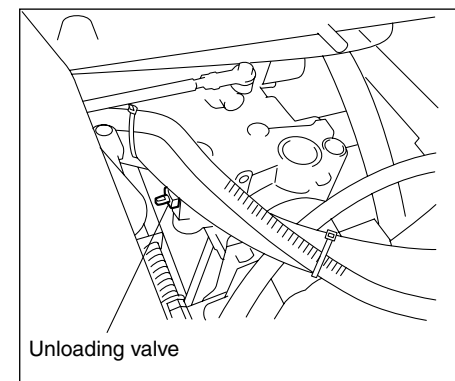
- 1) Jack up the machine and put on a stable stand, and float the front and rear wheels.
- 2) Raise the seat upwards.
- 3) Start the engine and run at high speed, and put the 2WD-4WD changeover switch into "2WD."
- 4) When the front wheel rotates in the forward direction, loosen the locknut and turn 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 braking 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).

Front 5-reel mower

LM2700 **BARONNESS** **MOWER**

PARTS CATALOGUE

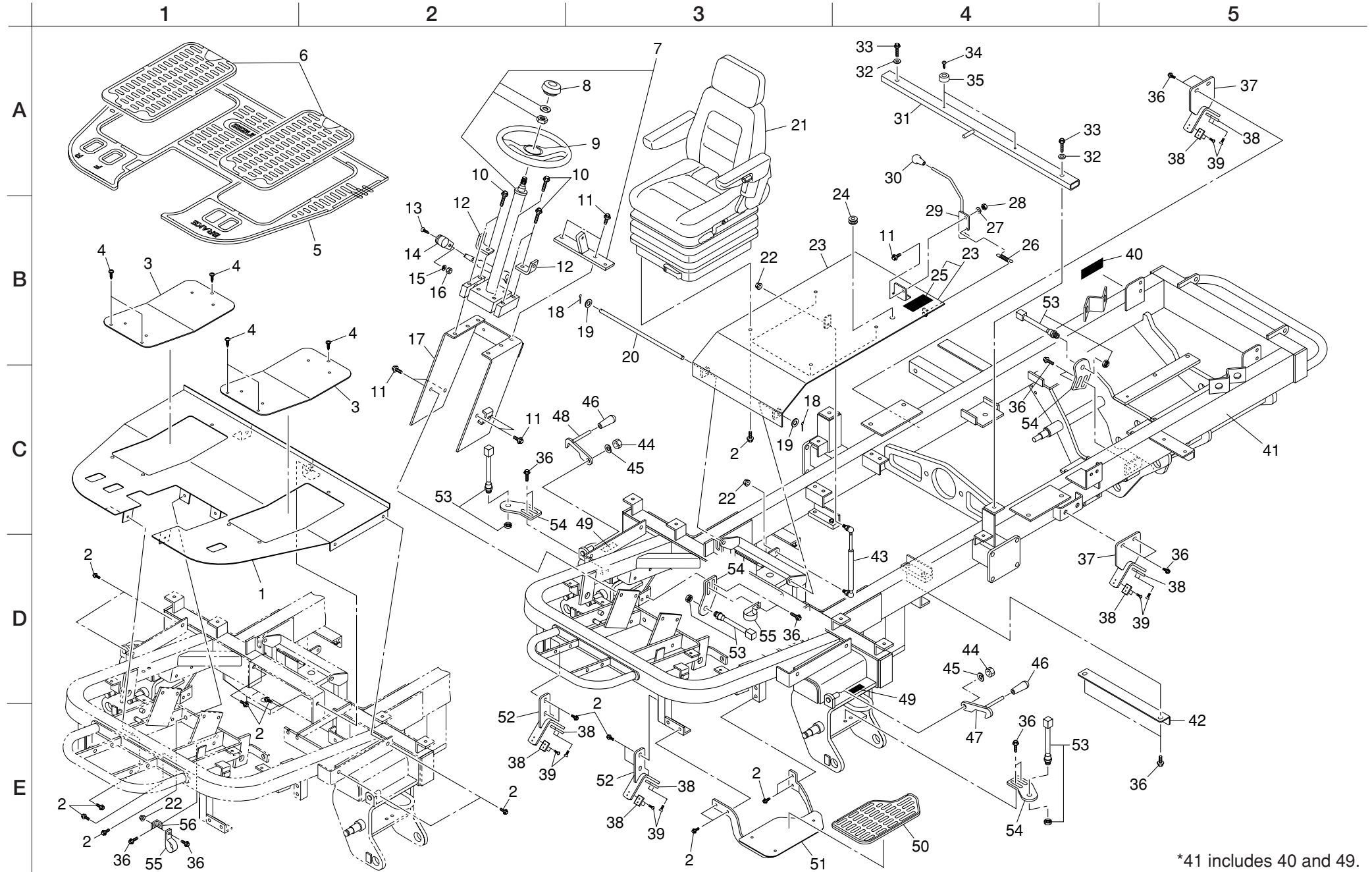
☆ **Ordering parts**

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
	1-1	LM2700-0620ZD	step	1

1. Frame parts A

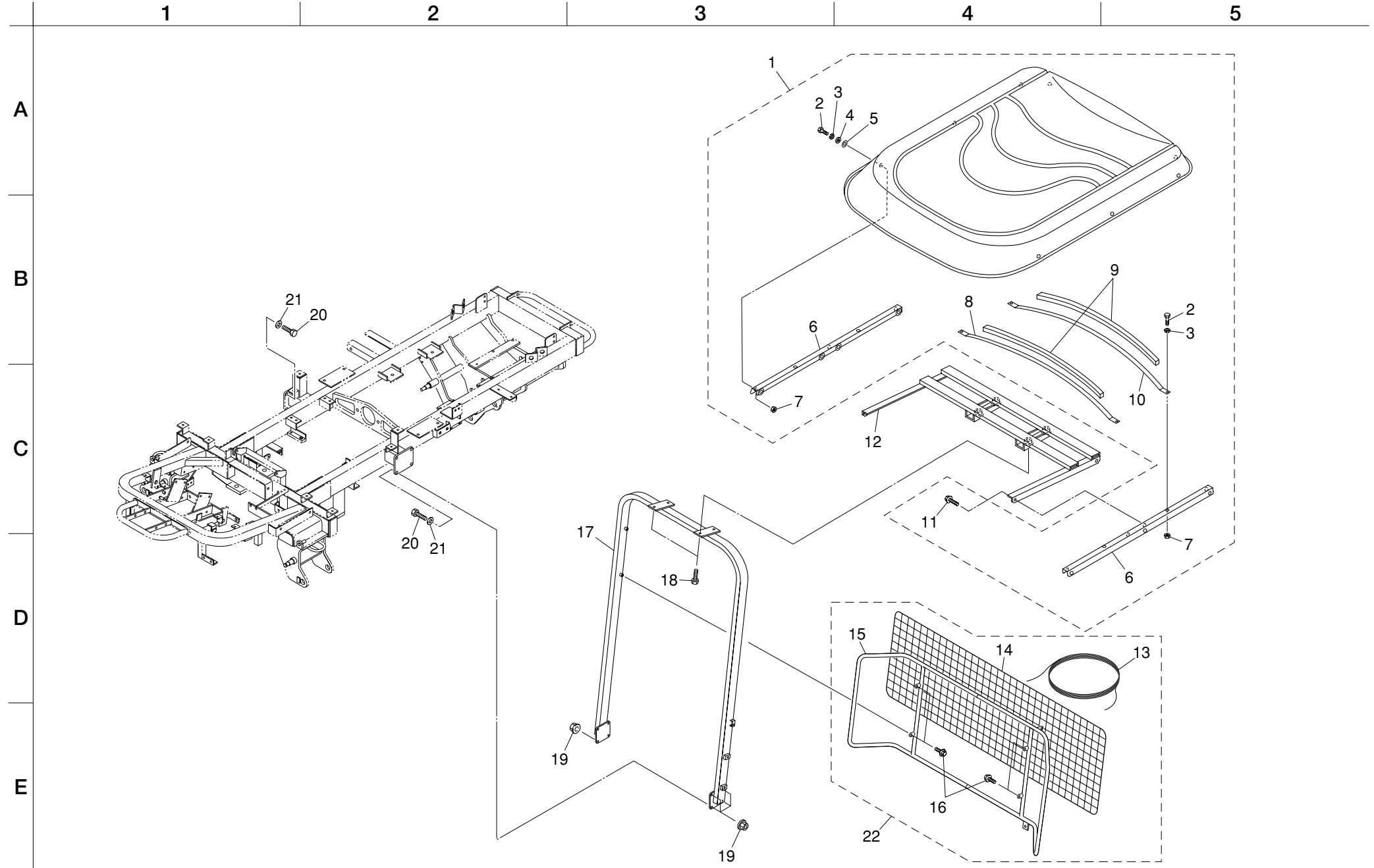


*41 includes 40 and 49.

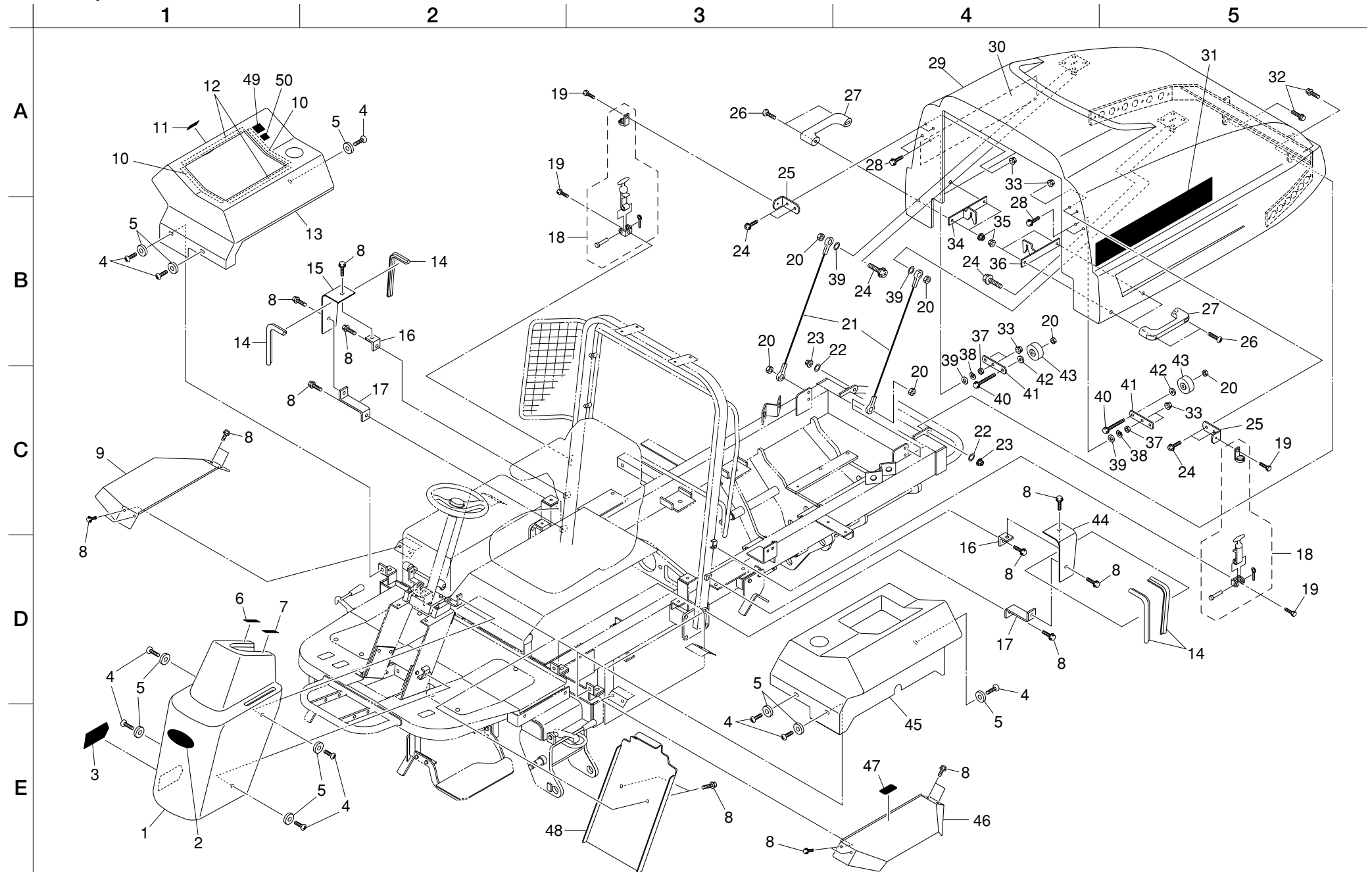
Cat No.	Code No.	Part Name	Qty	Remark
1-1	LM2700-0620ZD	step	1	
1-2	K0021080152	8 bolt with flange 15	22	
1-3	LM2700-0621ZD	step cover	2	
1-4	K0062080122	8 hexagonal socket button bolt 12	6	
1-5	LM2700-0628Z0	step rubber (L)	1	
1-6	LM2700-0629Z0	step rubber (S)	2	
1-7	K1730000040	tilt steering column	1	
1-8	K1310000130	rubber cap	1	
1-9	K1710000100	steering wheel V027220-0101A	1	
1-10	K0061100502	10 bolt with flange 50	8	
1-11	K0021100202	10 bolt with flange 20	7	
1-12	LM2700-0931ZD	front cover mount	2	
1-13	K0042050082	5+ round head small screw 8	1	
1-14	K1301000150	throttle lever grip	1	
1-15	K0200050002	5S washer	1	
1-16	K0100050002	5 nut	1	
1-17	LM2700-0602ZD	handle mount	1	
1-18	K0300020202	2 split pin 20	2	
1-19	K5000120002	12 washer	2	
1-20	LM2700-0609Z2	12 shaft with holes 333	1	
1-21	K1700000250	saddle DS85H/90	1	
1-22	K0151080002	8 nut with flange	3	
1-23	LM2700-3602Z0	seat mount COMP	1	
1-24	K0900300240	grommet with film C30SG24A	1	
1-25	K4205001580	caution mark (injury)	1	
1-26	K1030000098	1.6U hook spring 1266.8	1	
1-27	K5000100002	10 washer	1	
1-28	K0144100002	10U nut	1	
1-29	LM2700-0607ZD	lever	1	
1-30	K1300000040	9 grip black 35.5	1	
1-31	LM2700-0608ZD	seat receiver	1	
1-32	K5073210352	3.2SPHC metal washer 1035	2	
1-33	K0021100402	10 bolt with flange 40	2	
1-34	K0042050152	5+ round head small screw 15	2	
1-35	K4039000130	rubber foot TK-3220	2	

Cat No.	Code No.	Part Name	Qty	Remark
1-36	K0021080202	8 bolt with flange 20	16	
1-37	LM2700-0614ZD	mower stopper	2	
1-38	LM526A-0107Z0	stopper	8	
1-39	K0041060122	6+ countersunk head screw 12	16	
1-40	K4205001540	caution mark (hot parts)	1	
1-41	LM2700-3601Z0	frame COMP	1	
1-42	LM2700-0610ZD	stay	1	
1-43	K3381000010	gas spring C25	1	
1-44	K0145140002	14U nut P1.5	2	
1-45	K0210140002	14 conical disk spring L	2	
1-46	K1300000110	9 grip yellow 22	2	
1-47	LM526--0619AD	#5 lock lever	1	
1-48	LM526--0618AD	#4 lock lever	1	
1-49	K4205000750	arm lock caution plate	2	
1-50	LM2700-0630Z0	step rubber	1	
1-51	LM2700-0619ZD	step	1	
1-52	LM2700-0615ZD	mower stopper	2	
1-53	LM2700-0557Z0	proximity sensor E2E-X5E	4	
1-54	LM2700-0625ZD	switch mount plate	4	
1-55	K4270050080	50 harness clip M8	2	
1-56	LM2700-0571ZD	mount	1	

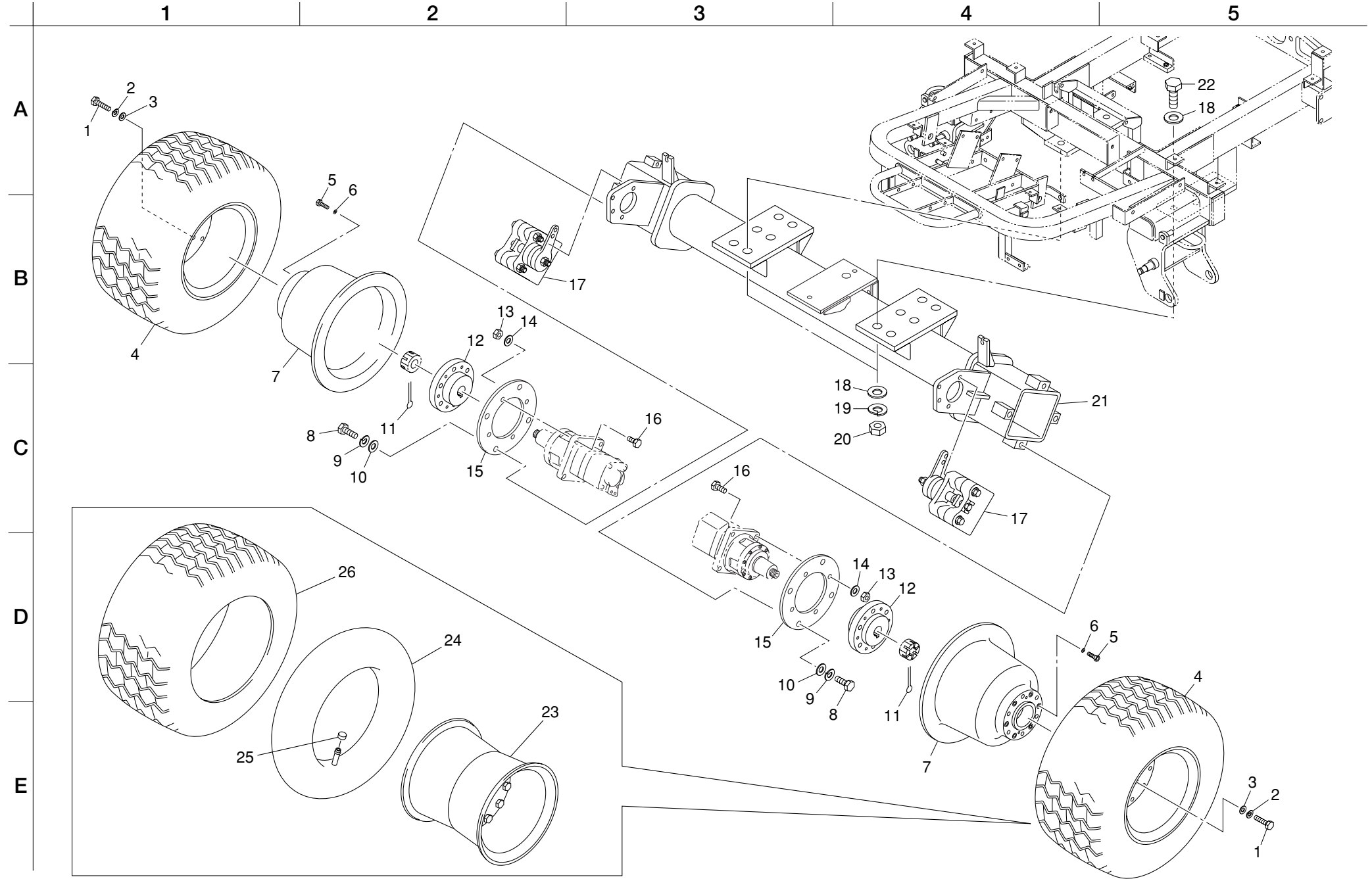
2. Frame parts B



3. Cover parts



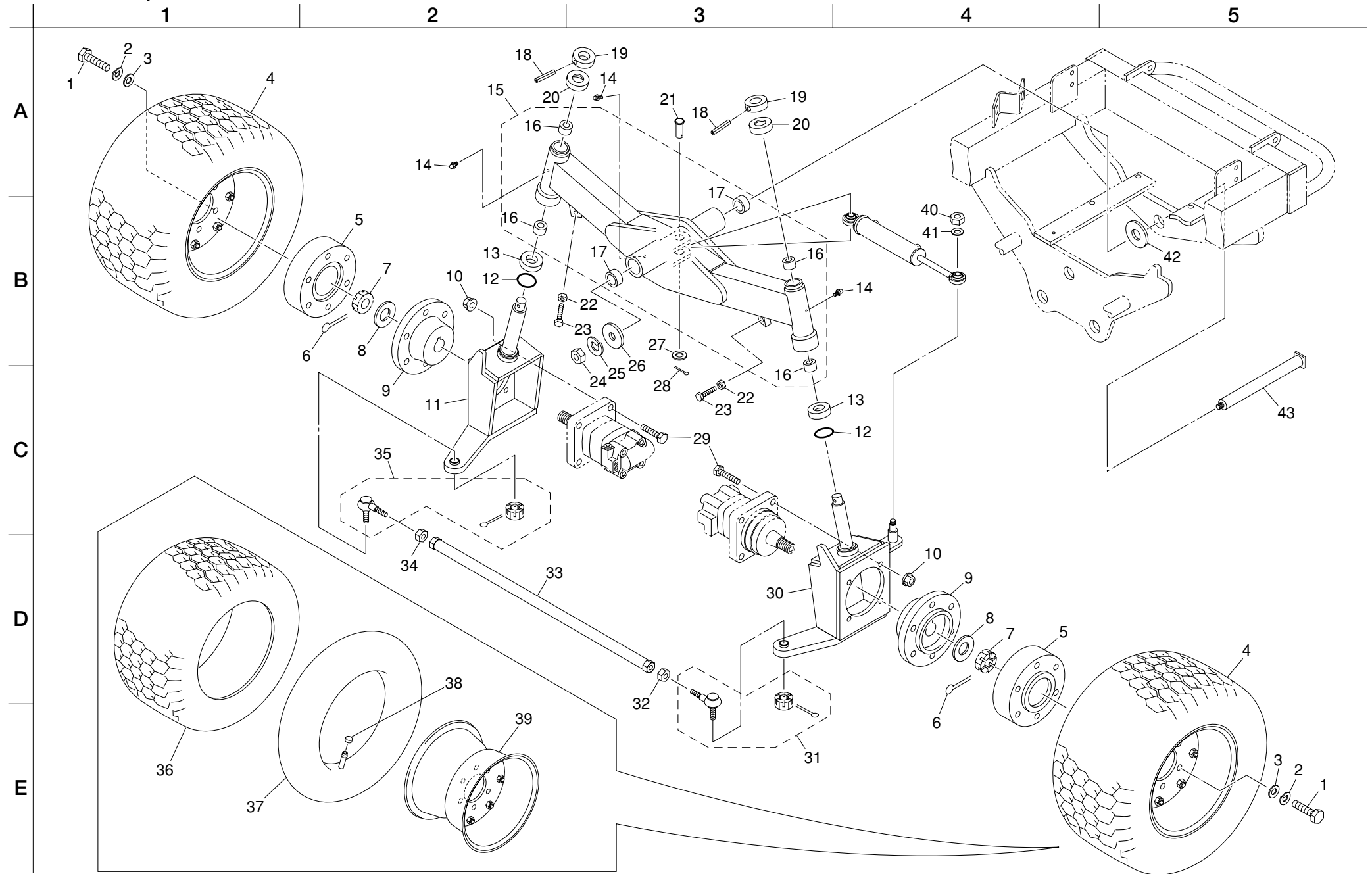
4. Front wheel parts



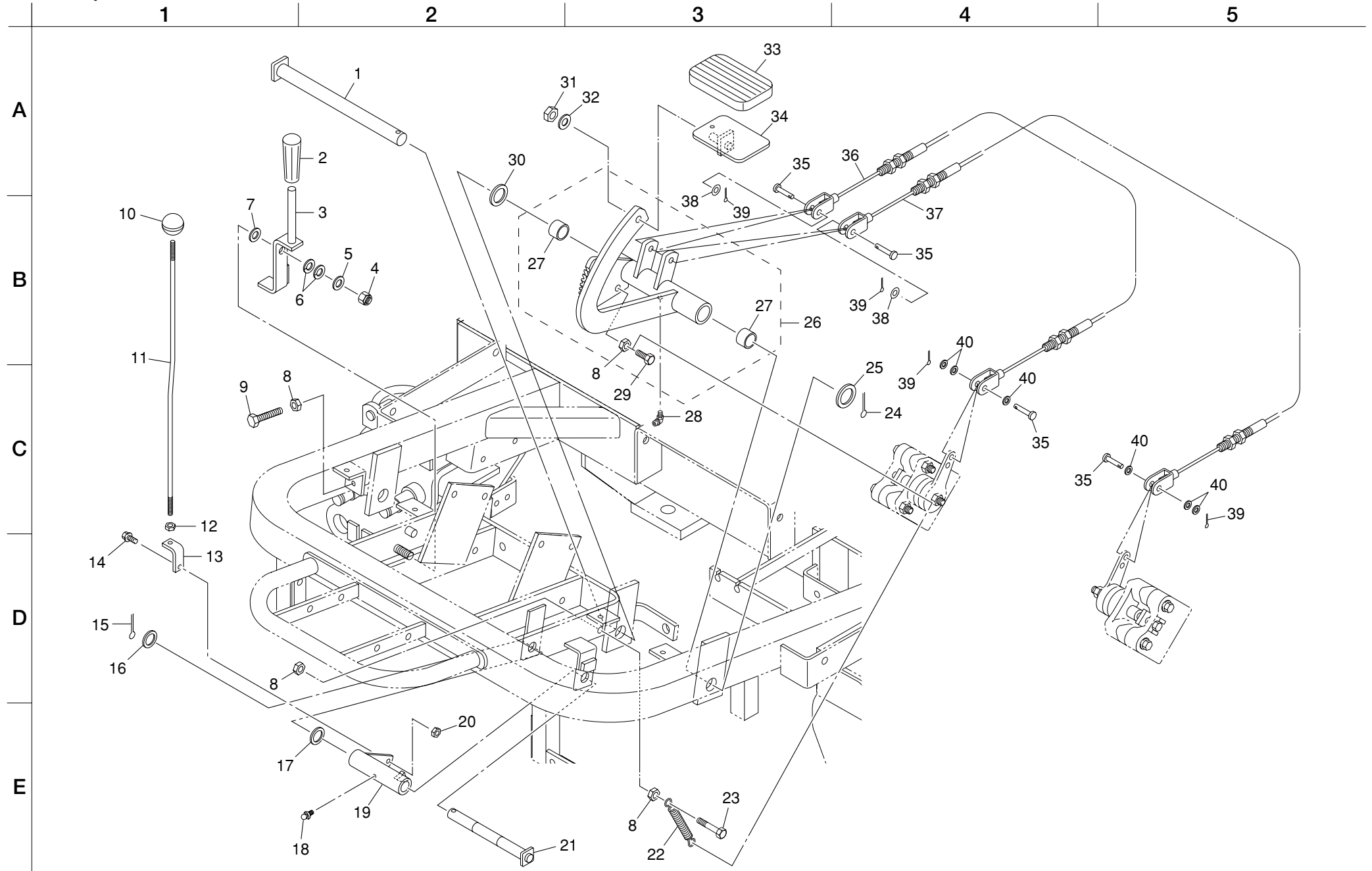
Cat No.	Code No.	Part Name	Qty	Remark
4-1	K0014120652	12 heat-treated bolt 65P1.5	12	
4-2	K0200120002	12S washer	12	
4-3	K5000120002	12 washer	12	
4-4	K2040000510	tyre Ass'y 26.5×14.00-12TL	2	
4-5	K0024080401	8 hexagonal socket bolt 40	12	
4-6	K0215080002	8 metal washer with conical disk spring 2H	12	
4-7	LM2700-0305ZD	brake disk	2	
4-8	K0014160402	16 heat-treated bolt 40P1.5	8	
4-9	K0200160002	16S washer	8	
4-10	K5000160002	16 washer	8	
4-11	K0300040502	4 split pin 50	2	
4-12	LM2700-0306ZD	wheel clamping seat	2	
4-13	K0100140002	14 nut	8	
4-14	K0200140002	14S washer	8	
4-15	LM2700-0307Z2	motor mount plate	2	
4-16	K0013140502	14 heat-treated bolt 50	8	
4-17	K1720000190	RT brake Ass'y	2	
4-18	K5000200002	20 washer	8	
4-19	K0200200002	20S washer	4	
4-20	K0152200002	20 nylon nut P1.5	4	
4-21	LM2700-0308ZD	front axle	1	
4-22	K0015200702	20 heat-treated bolt 70P1.5	4	
4-23	K209000079L	wheel 12I×12	2	
4-24	K2091000280	tube 26×14.00-12	2	
4-25	K2093000010	valve cap	2	
4-26	K2041000300	tyre 26.5×14.00-12TL	2	

Cat No.	Code No.	Part Name	Qty	Remark

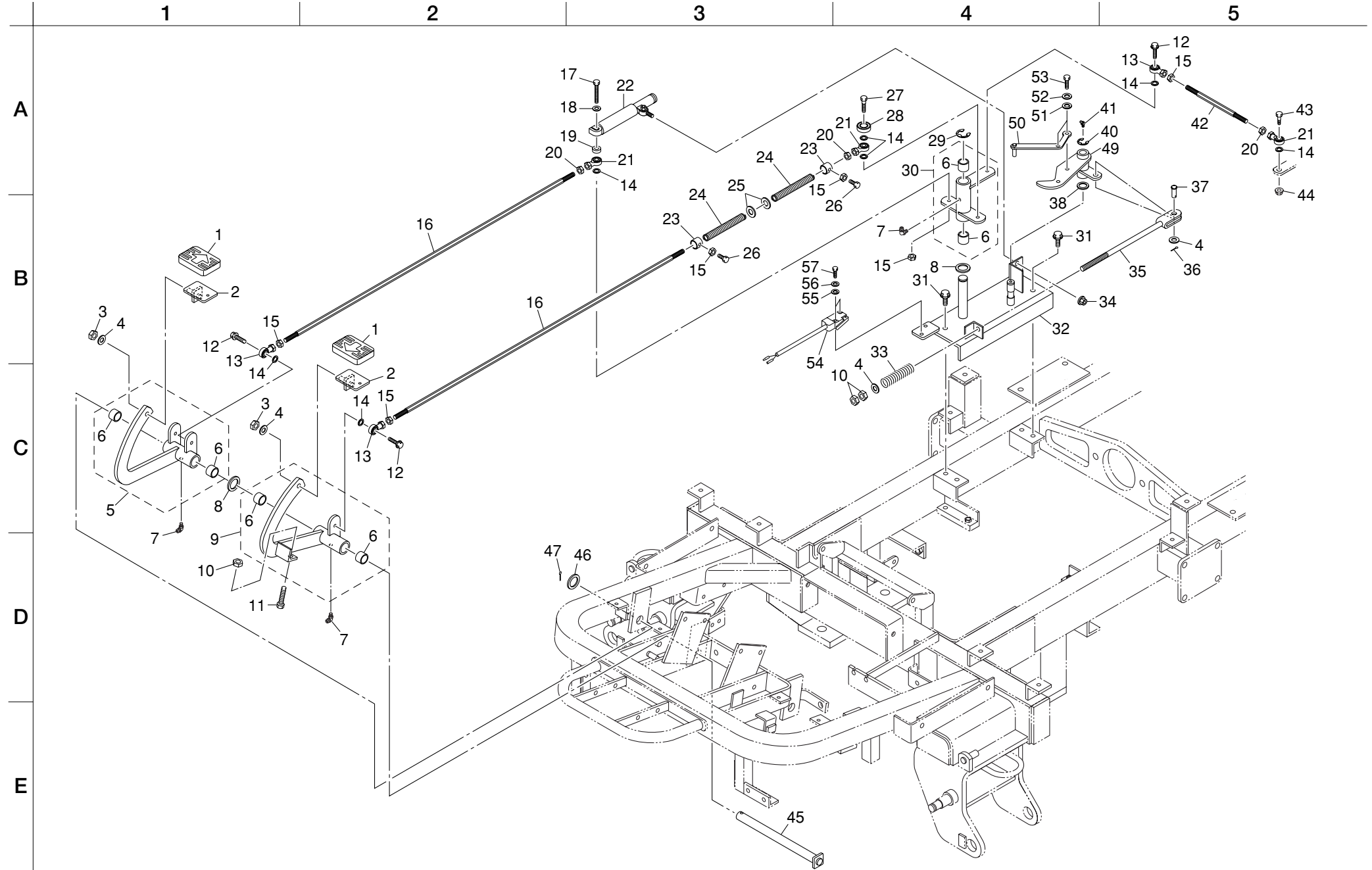
5. Rear wheel parts



6. Pedal parts A



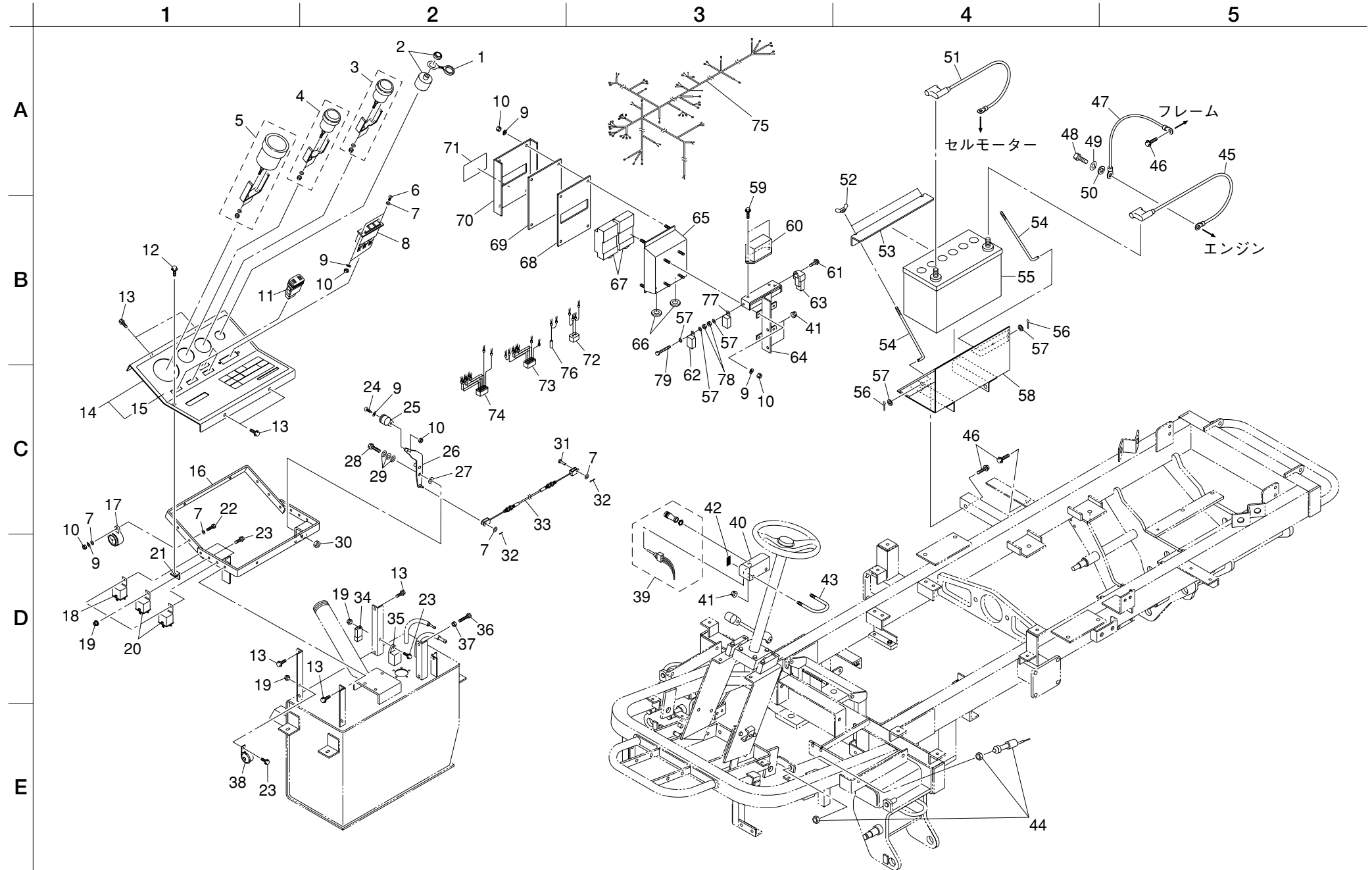
7. Pedal parts B



Cat No.	Code No.	Part Name	Qty	Remark
7-1	LM2700-0420Z0	pedal rubber 5575	2	
7-2	LM2700-0408ZD	pedal B	2	
7-3	K0144100002	10U nut	2	
7-4	K5000100002	10 washer	4	
7-5	LM2700-0402ZD	backward pedal	1	
7-6	K6000000280	20 bush 2420	6	
7-7	K1440000020	C-shaped grease nipple	3	
7-8	K5011020322	1SPCC metal washer 2032	2	
7-9	LM2700-0401ZD	forward pedal	1	
7-10	K0100100002	10 nut	3	
7-11	K0000100352	10 bolt 35	1	
7-12	K0021080302	8 bolt with flange 30	3	
7-13	K1601080000	pillow ball rod end PHS8	3	
7-14	K5073208202	3.2SPHC metal washer 820	7	
7-15	K0100080002	8 nut	6	
7-16	LM2700-0415Z2	screw rod 875	2	
7-17	K0003080552	8 bolt 55	1	
7-18	K5000080002	8 wahser	1	
7-19	LM184--0310Z2	damper collar	1	
7-20	K0180080002	8 left-hand thread nut	3	
7-21	K16010800L0	pillow ball rod end PHS8LA	3	
7-22	K3380000010	lever damper	1	
7-23	K6218000012	12 collar with tap 2220	2	
7-24	K1000000558	2 compression spring 18100	2	
7-25	K5000120002	12 washer	2	
7-26	K0000080152	8 bolt 15	2	
7-27	LM2700-0418Z2	special bolt with M8	1	
7-28	K0608006290	bearing 6292RS	1	
7-29	K0400015002	stop ring E15	1	
7-30	LM2700-0413Z2	pump idle lever	1	
7-31	K0021100152	10 bolt with flange 15 (1pc)	2	
7-32				
7-33	K100000082D	2.6 compression spring 17.270	1	
7-34	K0151080002	8 nut with flange	1	
7-35	LM2700-0419Z2	lever adjuster	1	

Cat No.	Code No.	Part Name	Qty	Remark
7-36	K0300025202	2.5 split pin 20	1	
7-37	K6031100258	10 hardened flat head pin 25	1	
7-38	K5011016242	1SPCC metal washer 1624	1	
7-39				
7-40	K0400012002	stop ring E12	1	
7-41	K1440000030	B-shaped grease nipple	1	
7-42	LM2700-0416Z2	screw rod 170	1	
7-43	LM2700-0417Z2	special bolt with M6	1	
7-44	K0151060002	6 nut with flange	1	
7-45	LM2700-0411Z2	pedal shaft	1	
7-46	K5012320402	2.3SPCC metal washer 2040	1	
7-47	K0300032322	3.2 split pin 32	1	
7-48	LM2700-1801Z2	pump center fitting	1	
7-49	LM2700-1802Z2	pump center lever	1	
7-50	LM2700-1803Z2	lever	1	
7-51	K5000060002	6 washer	2	
7-52	K0200060002	6S washer	2	
7-53	K0000060152	6 bolt 15	2	
7-54	K3670000130	limit switch AZ3725-1	1	
7-55	K0042040252	4+ round head small screw 25	2	
7-56	K0200040002	4S washer	2	
7-57	K5000040002	4 washer	2	

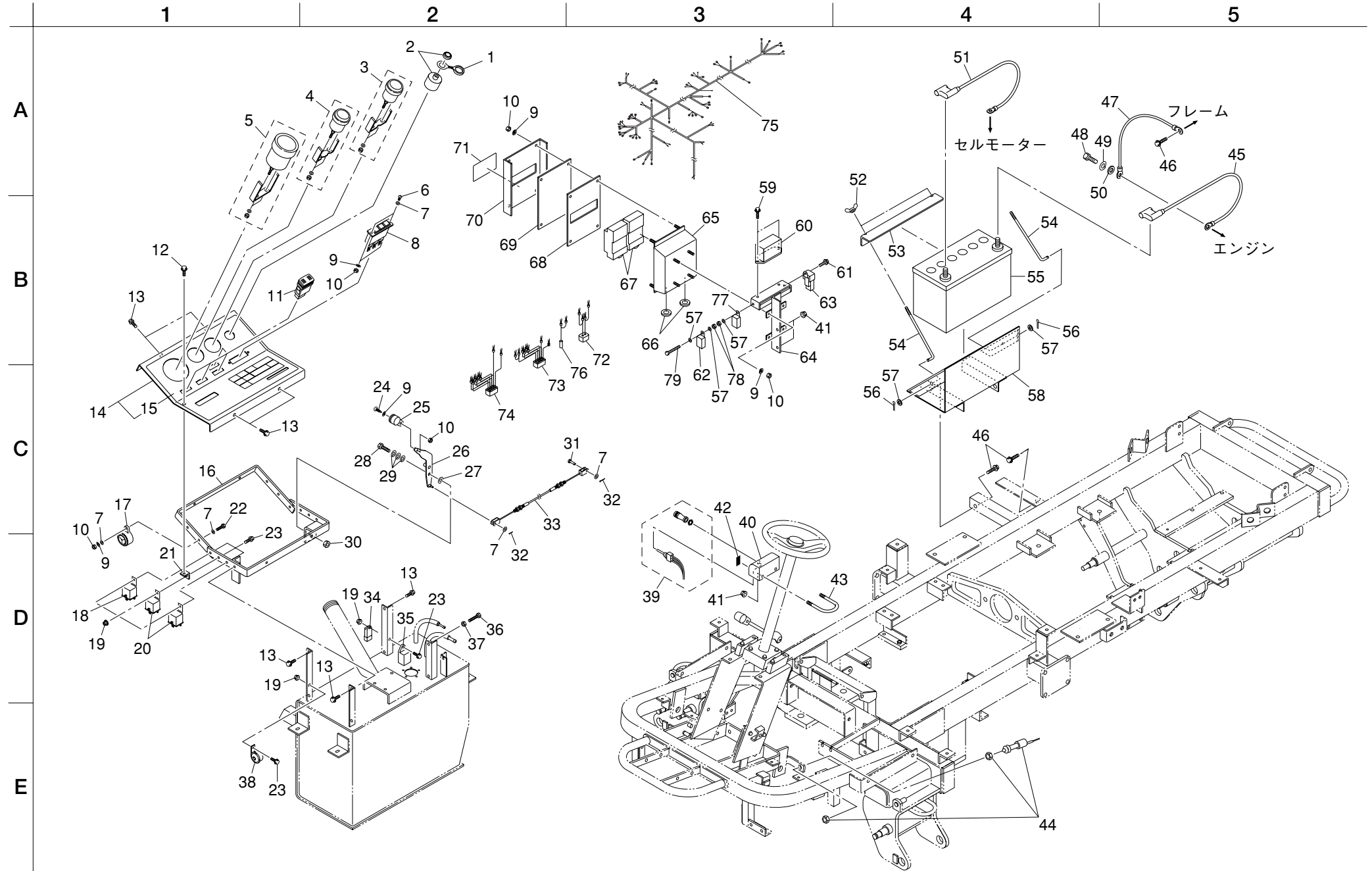
9. Engine parts B



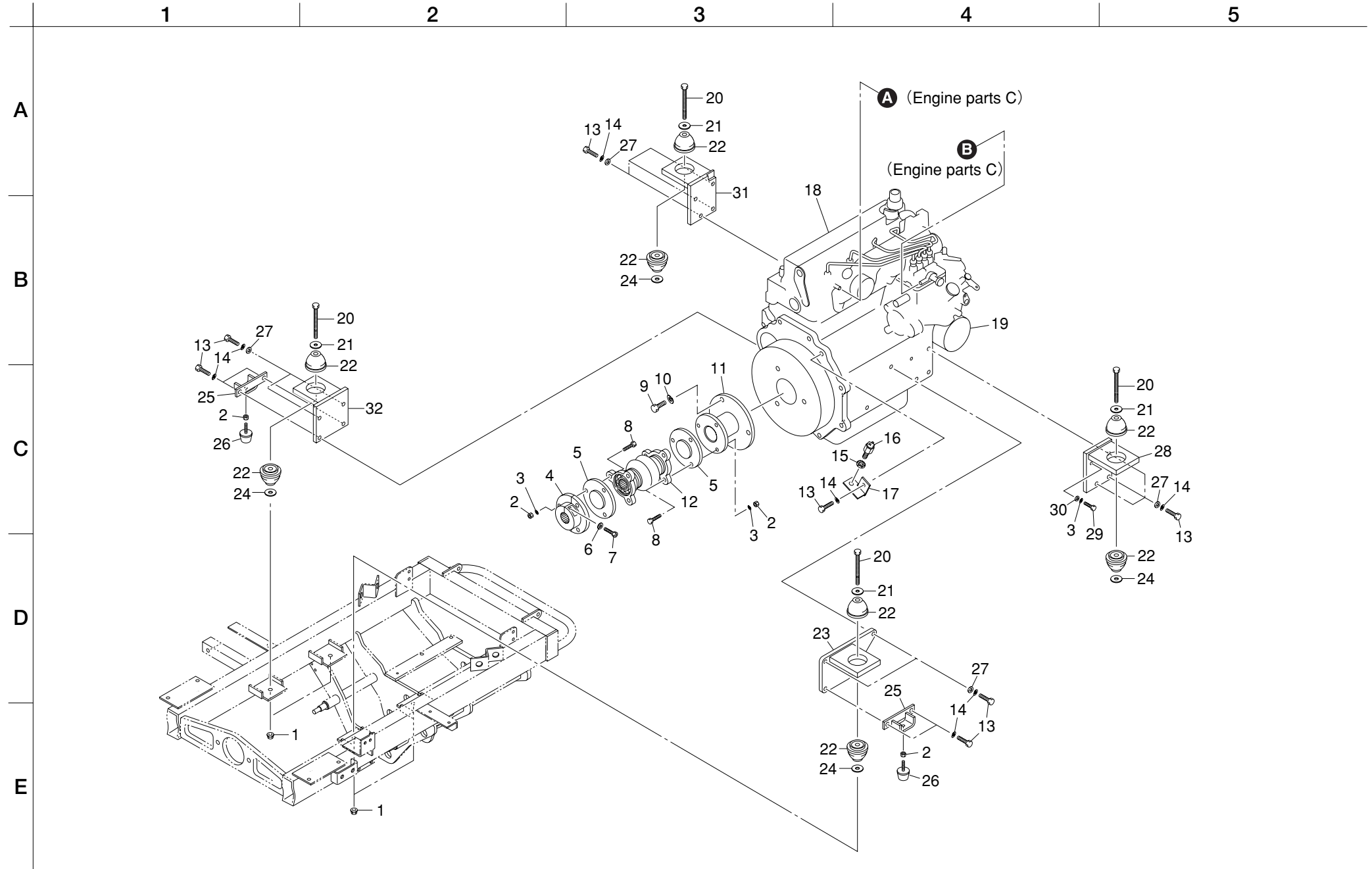
Cat No.	Code No.	Part Name	Qty	Remark
9-1	PF54611-4112-1	starter switch cap	1	
9-2	PF15248-6359-2	starter switch Ass'y	1	
9-3	K3653000010	fuel gauge 52BG2	1	
9-4	PF19488-8303-2	water temperature gauge	1	
9-5	PF17492-8301-2	hour meter Ass'y (with RPM, HR)	1	
9-6	K0042050122	5+ round head small screw 12	2	
9-7	K5000050002	5 washer	6	
9-8	K3641000040	pilot lamp	1	
9-9	K0200050002	5S washer	12	
9-10	K0100050002	5 nut	12	
9-11	K3661000050	see-saw switch	4	
9-12	K0062080122	8 button bolt with hex. hole 12	1	
9-13	K0021080202	8 bolt with flange 20	7	
9-14	LM2700-3901Z0	instrument mount plate COMP	1	
9-15	LM2700-0957Z0	operation label	1	
9-16	LM2700-0937ZD	instrument mount frame	1	
9-17	K3700000010	buzzer type EBM-12	1	
9-18	K3681000080	power relay MR5A602A1K	1	
9-19	K0151060002	6 nut with flange	5	
9-20	K3681000070	power relay MR5A411A1K	2	
9-21	LM2700-0954ZD	3 angle with tap 2525	1	
9-22	K0000050252	5 bolt 25	1	
9-23	K0000060202	6 bolt 20	4	
9-24	K0042050082	5+ round head small screw 8	1	
9-25	K1301000150	throttle lever grip	1	
9-26	LM2700-0560Z2	throttle lever	1	
9-27	K5011010222	1SPCC metal washer 1022	1	
9-28	K0001100302	10 bolt 30P1.25	1	
9-29	K0210100001	10 conical disk spring L	3	
9-30	K0103100002	10 nut P1.25	1	
9-31	K6030050152	5 flat-head pin 15	1	
9-32	K0300020162	2 split pin 16	2	
9-33	LM2700-0535Z0	throttle wire 1610	1	
9-34	PF1K574-6022-1	relay COMP (12VA, D)	1	
9-35	PF15694-6599-2	timer (glow lamp)	1	

Cat No.	Code No.	Part Name	Qty	Remark
9-36	K0000080402	8 bolt 40	1	
9-37	K0100080002	8 nut	1	
9-38	K3700000020	buzzer U-WBS12	1	
9-39	K3662000030	auto-return switch ET1115G	1	
9-40	LM2700-0552ZD	switch box	1	
9-41	K0151080002	8 nut with flange	4	
9-42	K4203001420	differential lock mark	1	
9-43	K0073000052	U bolt M8X40A	1	
9-44	K3671000150	safety switch V17680A	1	
9-45	LM2700-0533Z0	battery (-) wire 530	1	
9-46	K0021080152	8 bolt with flange 15	3	
9-47	LM2700-0534Z0	ground wire 300	1	
9-48	K0002120202	12 bolt 20P1.25	1	
9-49	K0200120002	12S washer	1	
9-50	K5000120002	12 washer	1	
9-51	LM2700-0532Z0	battery (+) wire 520	1	
9-52	K0140060002	6 wing nut	2	
9-53	GM2800-0604ZD	battery support	1	
9-54	LM2700-0546ZD	battery support rod	2	
9-55	K3600000180	battery FX105D31R	1	
9-56	K0300016102	1.6 split pin 10	2	
9-57	K5000060002	6 washer	5	
9-58	LM2700-0545ZD	battery case	1	
9-59	K0021060152	6 bolt with flange 15	2	
9-60	K3630000090	mini-fuse block 10P-A	1	
9-61	K0021060102	6 bolt with flange 10	2	
9-62	K3681000060	relay CA1aF-12V-N-5	1	
9-63	K3620000720	fusible link	1	
9-64	LM2700-0551ZD	box bracket	1	
9-65	GM2800-0516ZD	relay box	1	
9-66	K0900300160	grommet with film C305G16A	2	
9-67	K3680000030	terminal relay G6B-4CB	2	
9-68	GM2800-0517Z0	1 rubber packing 134189	1	
9-69	GM2800-0518Z0	1.5 acrylic board 134189	1	
9-70	GM2800-0519ZD	box cover	1	

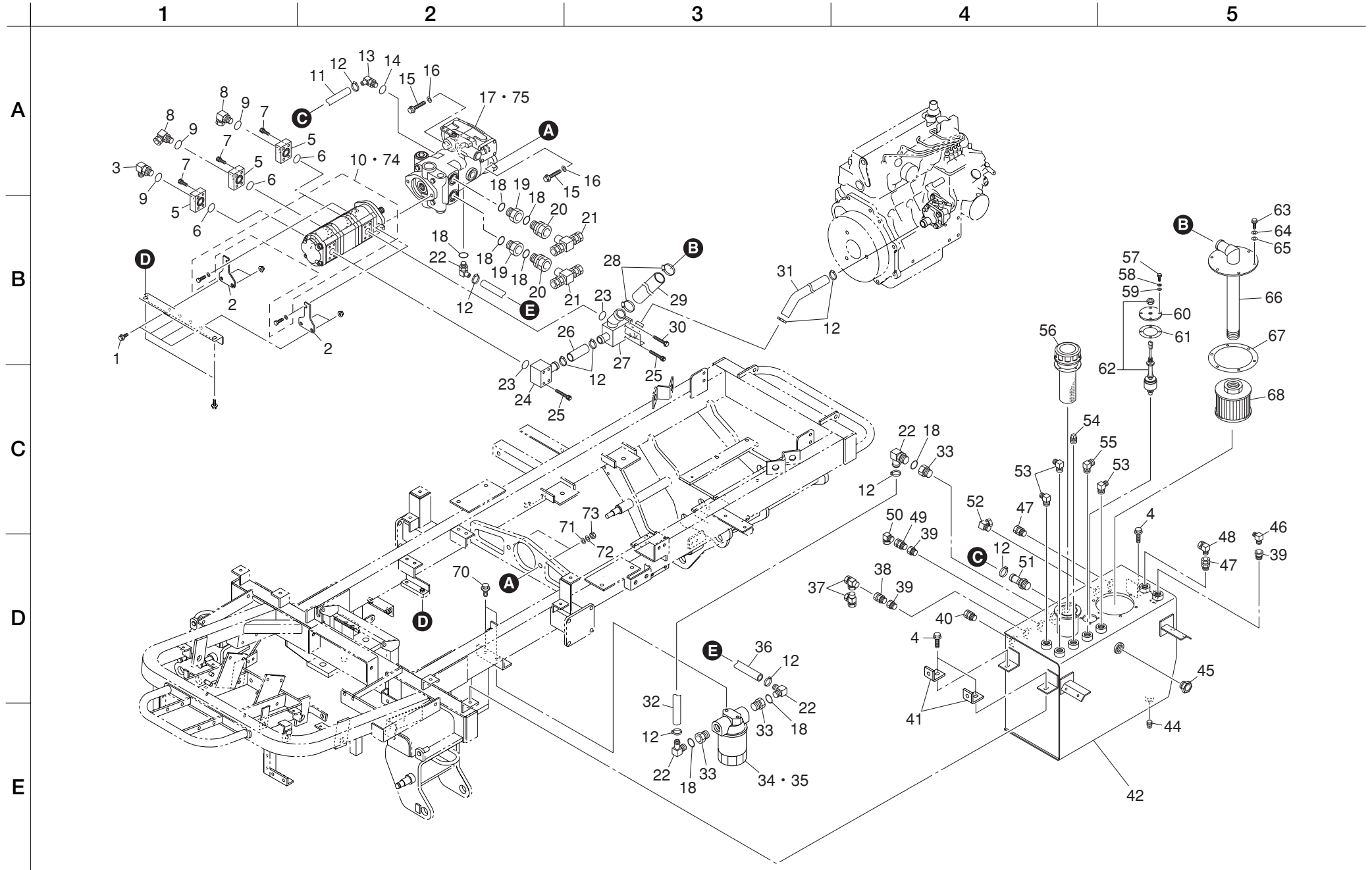
9. Engine parts B



11. Engine parts D



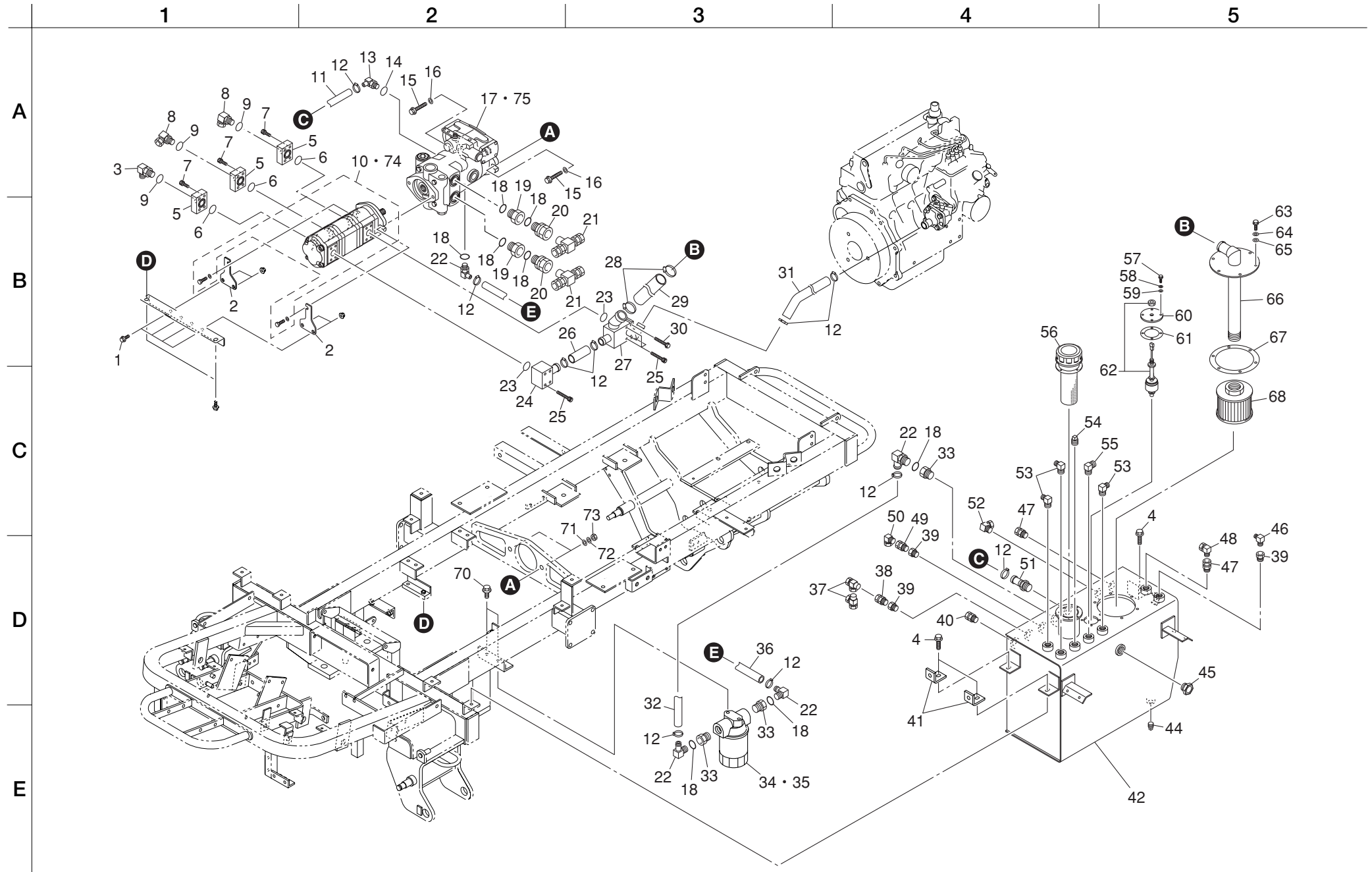
12. Hydraulic parts A



Cat No.	Code No.	Part Name	Qty	Remark
12-1	K0021080202	8 bolt with flange 20	4	
12-2	LM2700-0803ZD	pump support plate	2	
12-3	K3008000352-Y	90 different diameter elbow PF3/8 PF1/2	1	
12-4	K0021080152	8 bolt with flange 15	3	
12-5	LM2700-0830Z2-Y	discharge flange	3	
12-6	K0881028000	O-ring P28B	3	
12-7	K0024080251	8 bolt with hex. hole 25	12	
12-8	K3026412081-Y	elbow nipple KL012-040E	2	
12-9	K0881018000	O-ring P18B	3	
12-10	K3252000040	gear pump PBBB222	1	
12-11	LM2700-0870Z0	25suction hose 630	1	
12-12	K4260000190	jubilee band 1	10	
12-13	K3008000302-Y	adjustable elbow FPD21941	1	
12-14	K0887009120	O-ring AS568-912	1	
12-15	K0013120501	12 heat-treated bolt 50	2	
12-16	K5073212302	3.2SPHC metal washer 1230	2	
12-17	K3244000030	piston pump 72400	1	
12-18	K0887009160	O-ring AS568-916	8	
12-19	K3008000632-Y	O-ring connector 4043-1 5/16-O	2	
12-20	K3008000622-Y	O-ring connector 1202-25-1 5/16	2	
12-21	K3027025001-Y	tee KTB25-000E	2	
12-22	K3008000312-Y	adjustable elbow FPD21939	4	
12-23	K0883025000	1AG-25 O-ring	2	
12-24	LM2700-0805Z2-Y	suction flange	1	
12-25	K0024080601	8 bolt with hex. hole 60	7	
12-26	LM2700-0867Z0	bypass hose	1	
12-27	LM2700-0804Z2-Y	common suction flange	1	
12-28	K4260000200	jubilee band 2A	2	
12-29	LM2700-0872Z0	38 suction hose 390	1	
12-30	K0061080602	8 bolt with flange 60	1	
12-31	LM2700-0871Z0	25 suction hose 780	1	
12-32	LM2700-0868Z0	25 suction hose 210	1	
12-33	K3008000642-Y	O-ring connector 4400-25-16	3	
12-34	K3410000020	cartridge filter CF-80-10U	1	
12-35	K3410000030	filter for the substitute F-913-1	1	

Cat No.	Code No.	Part Name	Qty	Remark
12-36	LM2700-0869Z0	25 suction hose 140	1	
12-37	K3027210001-Y	tee KTC10-000E	2	
12-38	K3026610061-Y	connector KCT10-030E	1	
12-39	K3020080601-Y	bushing BUT1/2×3/8	3	
12-40	K3026612081-Y	connector KCT12-040E	1	
12-41	LM2700-0950ZD	side cover mount plate	2	
12-42	LM2700-0801ZD-Y	hydraulic tank	1	
12-43				
12-44	K1421060002-Y	tapered plug with square head PT3/	1	
12-45	K1400000044-Y	PF3/4 oil quantity plug type M	1	
12-46	K3006000012-Y	different diameter elbow PT3/8 PF1/4	1	
12-47	K3026610081-Y	connector KCT10-040E	2	
12-48	K3027110001-Y	elbow KLC10-000E	1	
12-49	K3026612061-Y	connector KCT12-030E	1	
12-50	K3027112001-Y	elbow KLC12-000E	1	
12-51	K3009000132-Y	special adaptor MO-JS-25	1	
12-52	K3028012081-Y	elbow KLN12-040E	1	
12-53	K3006000022-Y	different diameter elbow PT1/2 PF3/8	3	
12-54	K1421080002-Y	tapered plug with square head PT1/2	1	
12-55	K3001120002-Y	90 elbow 1033-12	1	
12-56	K3400000030	refueling hole breather FAB-50	1	
12-57	K0000060202	6 bolt 20	4	
12-58	K0200060002	6S washer	4	
12-59	K5000060002	6 washer	4	
12-60	LM526--0809Z2-Y	oil level sensor mount plate	1	
12-61	LM526--0808Z0	packing	1	
12-62	K3720000130	level switch	1	
12-63	K0000080202	8 bolt 20	6	
12-64	K0200080002	8S washer	6	
12-65	K5000080002	8 washer	6	
12-66	LM2700-0802Z2-Y	suction hose attachment	1	
12-67	LM535E-0434Z0	suction port packing	1	
12-68	K3413000040	suction filter SFT-10-150W	1	
12-69	K0151080002	8 nut with flange	4	
12-70	K0021100202	10 bolt with flange 20	2	

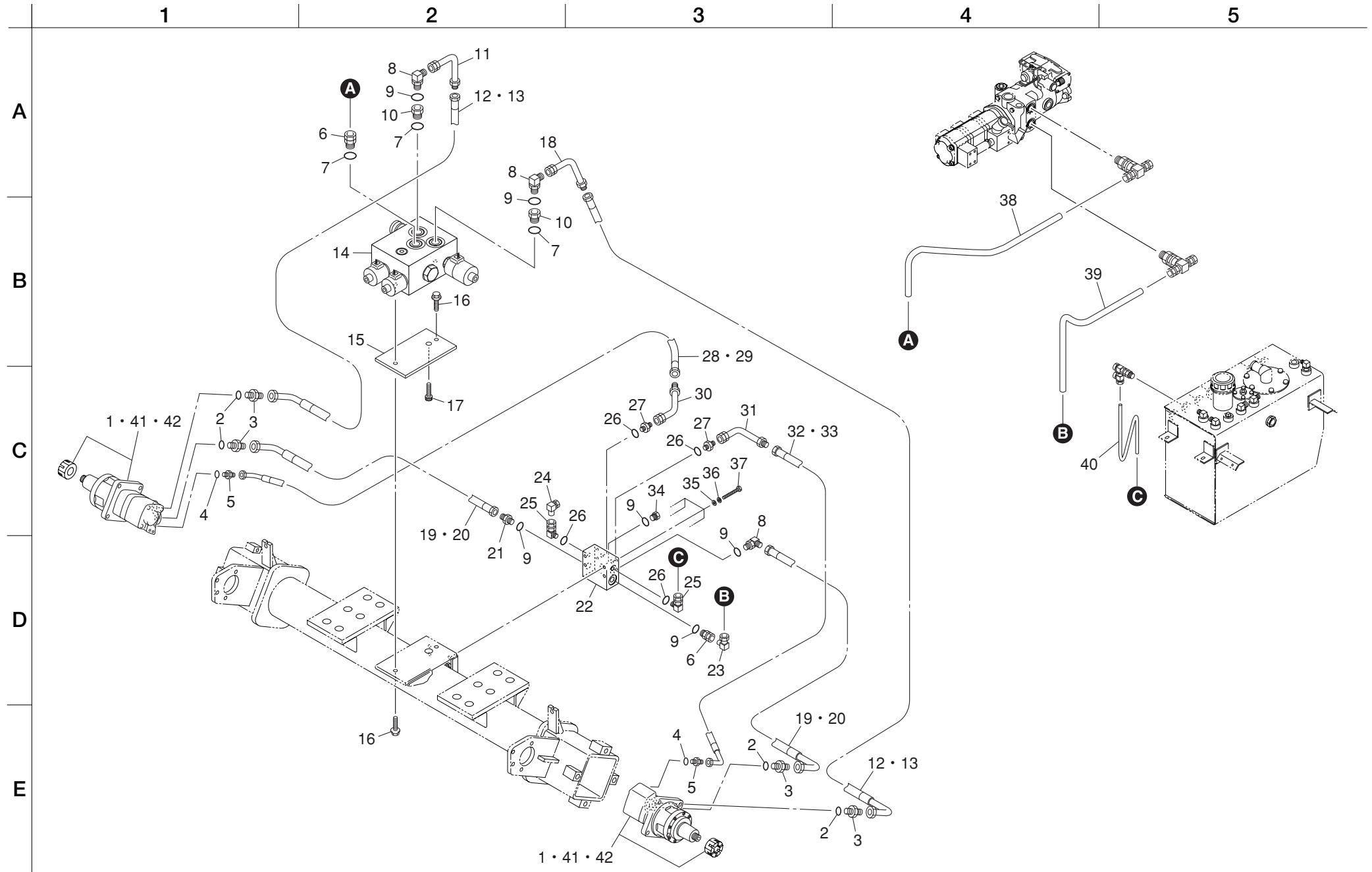
12. Hydraulic parts A



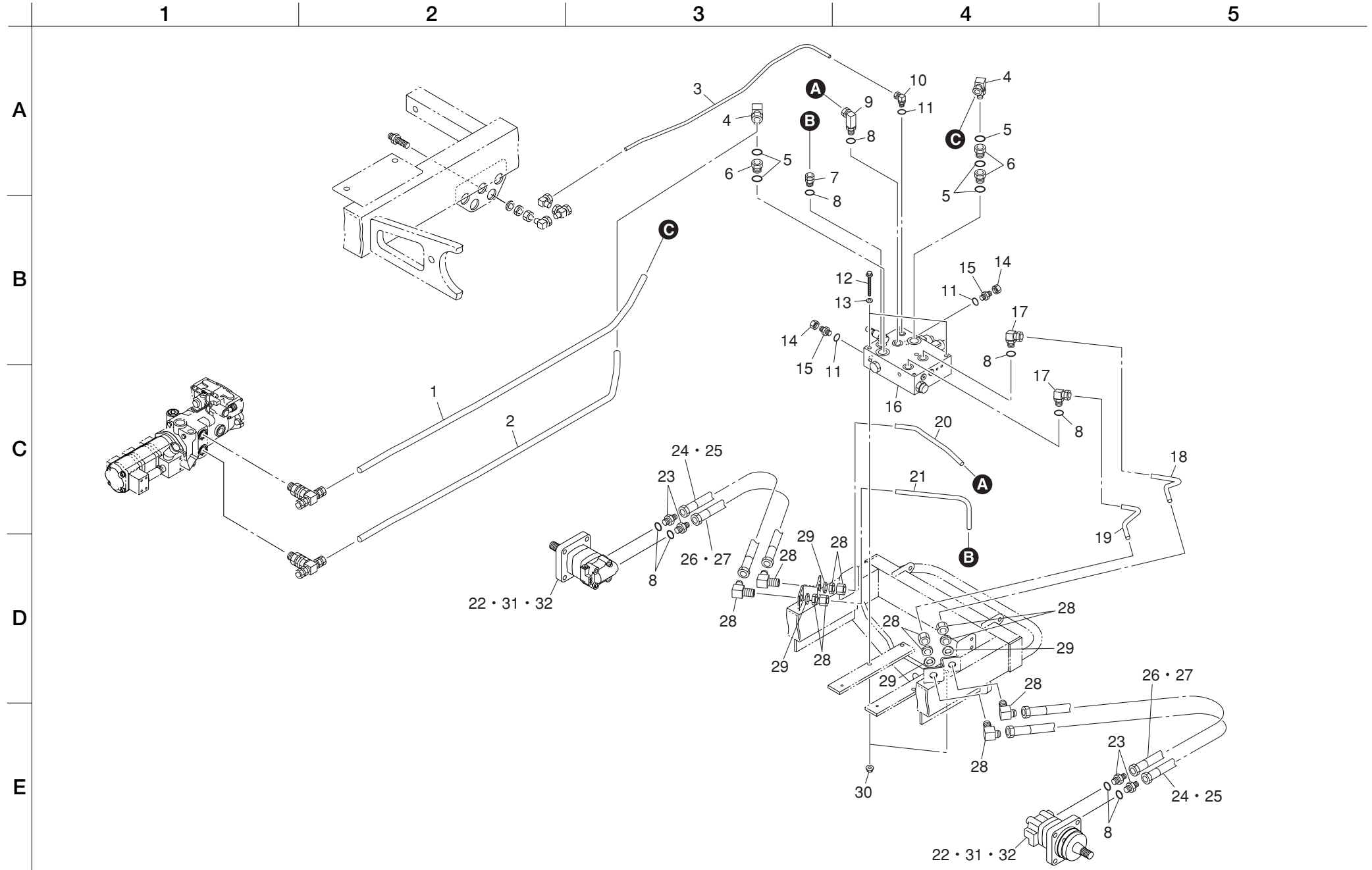
Cat No.	Code No.	Part Name	Qty	Remark
12-71	K5000120002	12 washer	2	
12-72	K0200120002	12S washer	2	
12-73	K0100120002	12 nut	2	
12-74	Y61-24603	repair kit	1	
12-75	Y72400-908	piston pump 72400 seal kit	1	

Cat No.	Code No.	Part Name	Qty	Remark

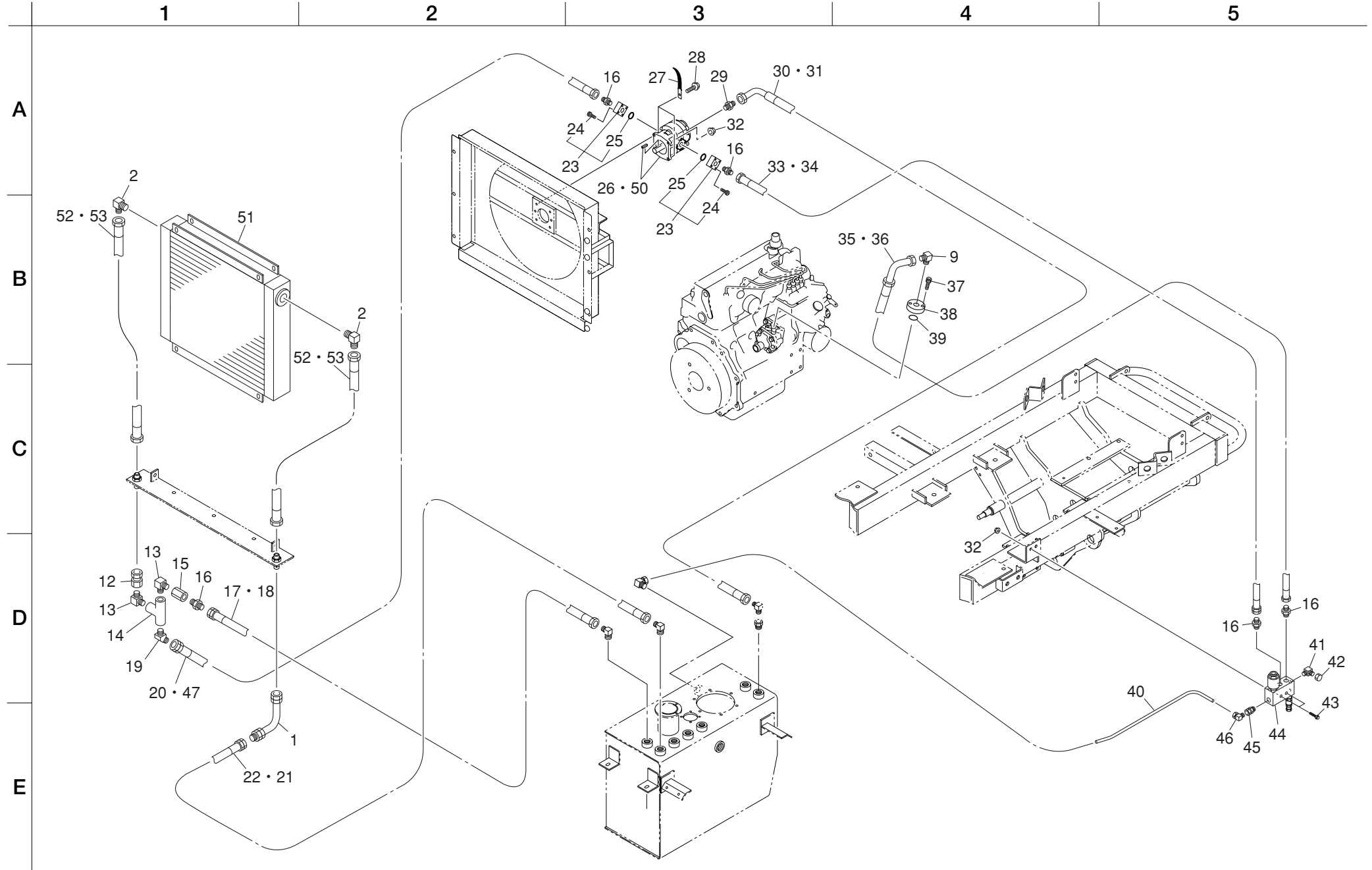
13. Hydraulic parts B



14. Hydraulic parts C



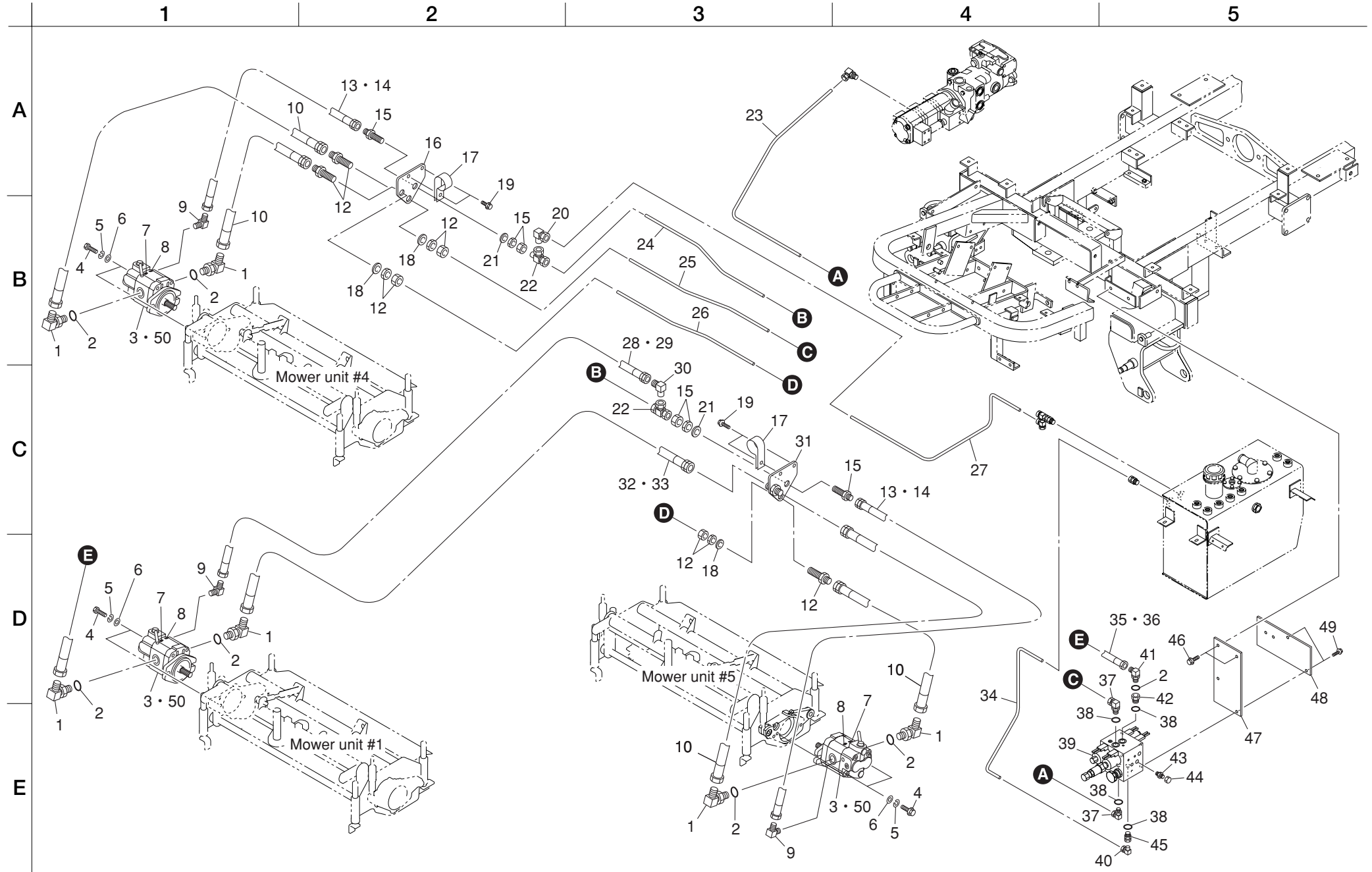
15. Hydraulic parts D



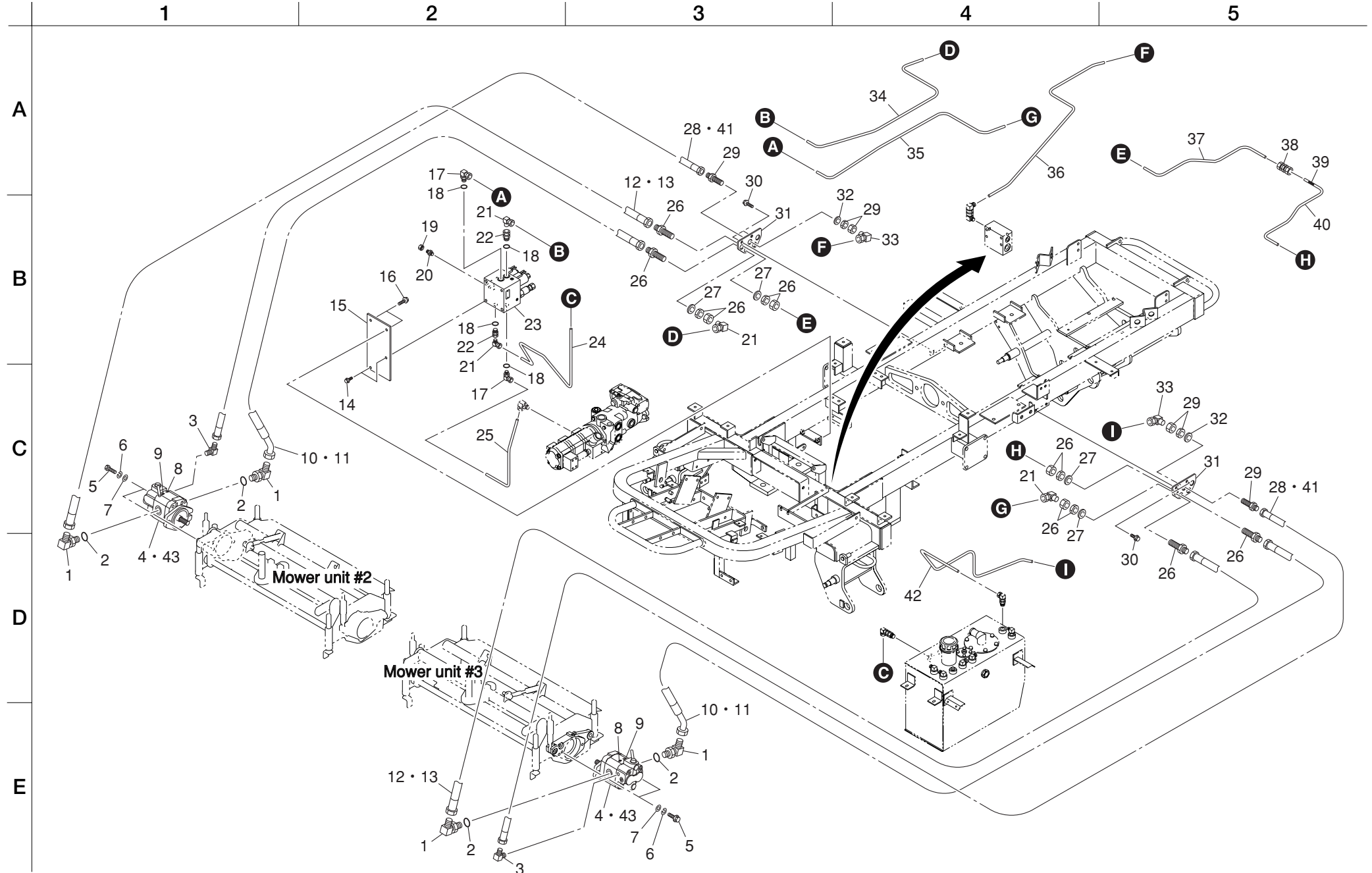
Cat No.	Code No.	Part Name	Qty	Remark
15-1	K3025069062-Y	pipe adaptor 069-06	1	
15-2	K3006000022-Y	different diameter elbow PT1/2PF3/8	2	
15-3				
15-4				
15-5				
15-6				
15-7				
15-8				
15-9	K3001090002-Y	90 elbow 1033-9	1	
15-10				
15-11				
15-12	K3008000712-Y	swivel connector 06	1	
15-13	K3006000072-Y	same diameter elbow PT3/8	2	
15-14	K3021060002-Y	screwed type tee TEFPT3/8	1	
15-15	K3340000030	in-line check valve 03-100	1	
15-16	K3000090002-Y	adaptor 1013-9	5	
15-17	K3100311050	WP35-9 hose 1-1050	1	
15-18	K3191009500	SP-15 coil tube 950	1	
15-19	K3003090002-Y	45 elbow 1035-9	1	
15-20	K3100310700	WP35-9 hose 1-700	1	
15-21	K3191008000	SP-15 coil tube 800	1	
15-22	K3100310900	WP35-9 hose 1-900	1	
15-23	K3281000010	φ 14.8 port flange type D	2	
15-24	K0024060301	6 bolt with hex. hole 30	2	
15-25	K0881022000	O-ring P22B	2	
15-26	K3281000230	gear motor MA7AD661	1	
15-27	K4281000020	8.5 harness clamp 80	1	
15-28	K0021080202	8 bolt with flange 20	2	
15-29	K3007000032-Y	different diameter adaptor PT1/8 PF1/4	1	
15-30	K3101231520	WP70-6 hose 3-1520	1	
15-31	K3190014200	SP-12 coil tube 1420	1	
15-32	K0151080002	8 nut with flange	4	
15-33	K3101310550	WP70-9 hose 1-550	1	
15-34	K3191004500	SP-15 coil tube 450	1	
15-35	K3101330360	WP70-9 hose 3-360	1	

Cat No.	Code No.	Part Name	Qty	Remark
15-36	K3191002600	SP-15 coil tube 260	1	
15-37	K0024080251	8 bolt with hex. hole 25	2	
15-38	LM2700-0811Z2-Y	pump flange	1	
15-39	K0881020000	O-ring P20B	1	
15-40	LM2700-0851Z2-Y	V4127A tank pipe	1	
15-41	K3006000152-Y	different diameter elbow PT1/8 PF1/4	1	
15-42	K3008000482-Y	screw cap female PF1/4	1	
15-43	K0021080502	8 bolt with flange 50	2	
15-44	K3313000250	solenoid valve V4209	1	
15-45	K3026612061-Y	connector KCT12-030E	1	
15-46	K3027112001-Y	elbow KLC12-000E	1	
15-47	K3191006000	SP-15 coil tube 600	1	
15-48				
15-49				
15-50	Y61-25070	seal kit for MA gear motor 661	1	
15-51	LM2700-3838Z0	oil cooler	1	
15-52	K3100310380	WP35-9 hose 1-380	2	
15-53	K3191002800	SP-15 coil tube 280	2	

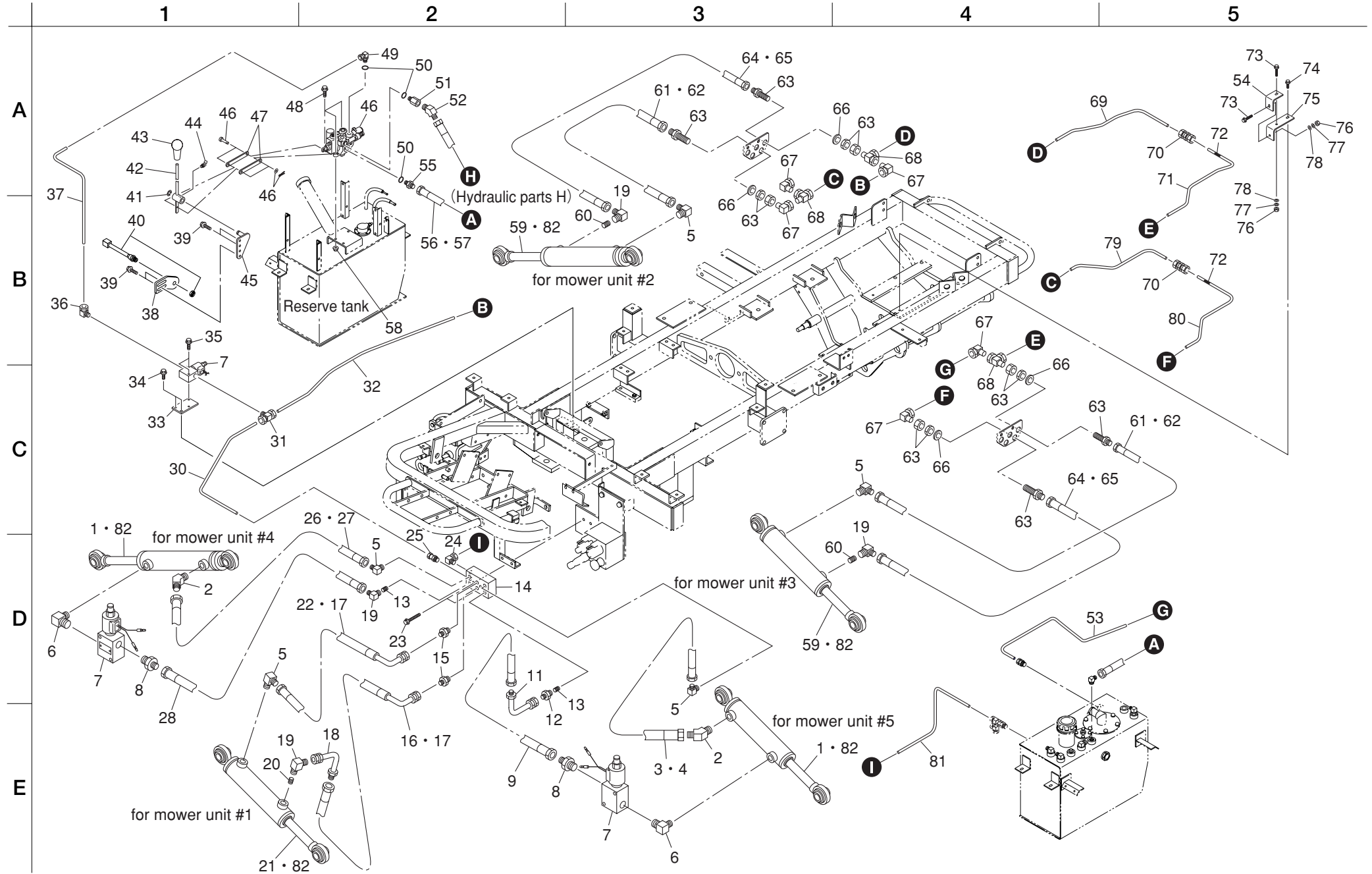
16. Hydraulic parts E



17. Hydraulic parts F



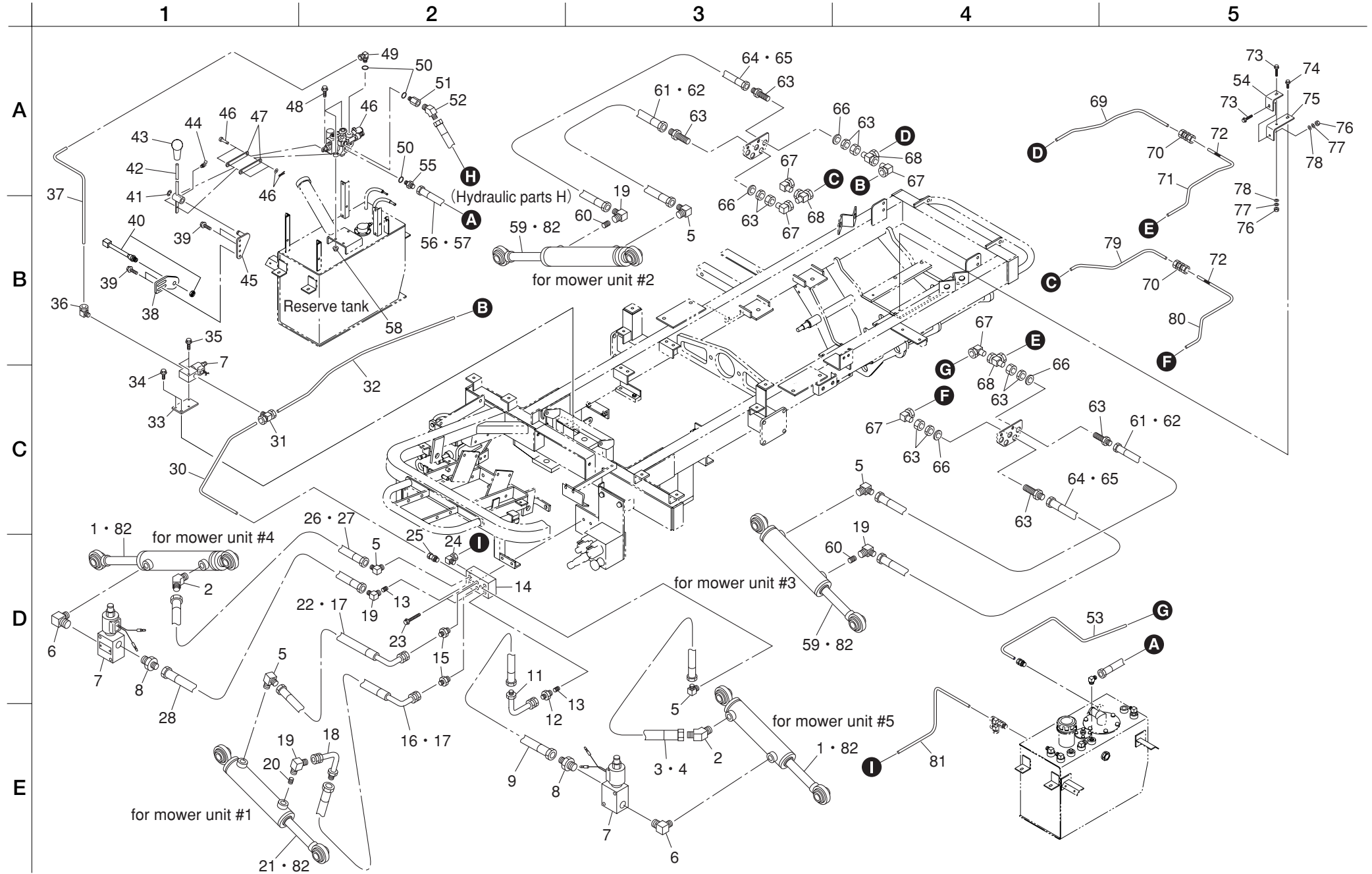
18. Hydraulic parts G



Cat No.	Code No.	Part Name	Qty	Remark
18-1	K 3 2 1 2 0 0 0 4 5 0	40-200 cylinder 387	2	
18-2	K 3 0 0 3 0 6 0 0 0 2 - Y	45 elbow 1035-6	2	
18-3	K 3 1 0 1 2 1 0 6 5 0	WP70-6 hose 1-650	1	
18-4	K 3 1 9 0 0 0 5 5 0 0	SP-12 coil tube 550	1	
18-5	K 3 0 0 1 0 6 0 0 0 2 - Y	90 elbow 1033-6	5	
18-6	K 3 0 0 6 0 0 0 0 3 2 - Y	different diameter elbow PT1/4 PT3/8	2	
18-7	K 3 3 1 3 0 0 0 0 4 0	electro-check valve V4029	3	
18-8	K 3 0 0 9 0 0 0 0 4 2 - Y	special adaptor PF1/4 PT3/8	2	
18-9	LM2700 - 3842Z0	WP105-6 hose 2-800	1	
18-10				
18-11	K 3 0 2 5 0 6 L 0 4 2 - Y	pipe adaptor 06L-04	1	
18-12	K 3 0 0 9 0 0 0 2 7 2 - Y	special adaptor 1013-6M6	1	
18-13	K 0 0 2 3 0 0 0 0 5 1	6 hollow set screw 6-1.2	2	
18-14	LM2700 - 0834Z2 - Y	cylinder manifold	1	
18-15	K 3 0 0 0 0 6 0 0 0 2 - Y	adaptor 1013-6	2	
18-16	K 3 1 0 2 2 3 0 6 0 0	WP105-6 hose 3-600	1	
18-17	K 3 1 9 0 0 0 5 0 0 0	SP-12 coil tube 500	2	
18-18	K 3 0 2 5 0 6 9 0 4 2 - Y	pipe adaptor 069-04	1	
18-19	K 3 0 2 9 0 0 0 2 5 2 - Y	90 elbow 1033-6M6	4	
18-20	K 0 0 2 3 0 0 0 0 6 1	6 hollow set screw 6-1.6	1	
18-21	K 3 2 1 2 0 0 0 4 4 0	40-138 cylinder 363	1	
18-22	K 3 1 0 1 2 3 0 6 0 0	WP70-6 hose 3-600	1	
18-23	K 0 0 2 1 0 8 0 5 0 2	8 bolt with flange 50	2	
18-24	K 3 0 2 8 0 1 0 0 4 1 - Y	elbow KLN10-020E	1	
18-25	K 3 0 2 6 6 1 0 0 4 1 - Y	connector KCT10-020E	1	
18-26	K 3 1 0 1 2 1 1 0 4 0	WP70-6 hose 1-1040	1	
18-27	K 3 1 9 0 0 0 9 4 0 0	SP-12 coil tube 940	1	
18-28	LM2700 - 3843Z0	WP105-6 hose 2-1100	1	
18-29				
18-30	LM2700 - 0847Z2 - Y	# 1 • 4 • 5 cylinder pipe	1	
18-31	K 3 0 2 8 2 1 0 0 6 1 - Y	nipple-in-tee KTN10-030E	1	
18-32	LM2700 - 0840Z2 - Y	# 2 cylinder pipe	1	
18-33	LM2700 - 0865ZD	valve plate	1	
18-34	K 0 0 2 1 0 8 0 2 0 2	8 bolt with flange 20	2	
18-35	K 0 0 2 1 0 8 0 4 0 2	8 bolt with flange 40	2	

Cat No.	Code No.	Part Name	Qty	Remark
18-36	K 3 0 2 8 0 1 2 0 6 1 - Y	elbow KLN12-030E	1	
18-37	LM2700 - 0856Z2 - Y	cylinder pipe	1	
18-38	LM2700 - 0625ZD	switch mount plate	1	
18-39	K 0 0 2 1 0 8 0 1 5 2	8 bolt with flange 15	4	
18-40	LM2700 - 0557Z0	proximity sensor E2E-X5E	1	
18-41	K 0 4 0 0 0 1 2 0 0 2	stop ring E12	1	
18-42	LM2700 - 0874Z2	lever	1	
18-43	K 1 3 0 0 0 0 0 0 5 0	9 grip red 35.5	1	
18-44	K 1 4 4 0 0 0 0 0 3 0	B-shaped grease nipple	1	
18-45	LM2700 - 0873Z2	lever support	1	
18-46	K 3 3 0 0 0 0 0 1 9 0	stuck valve SV3-1191	1	
18-47	LM2700 - 0875Z2	joint plate	2	
18-48	K 0 0 2 1 0 8 0 3 0 2	8 bolt with flange 30	3	
18-49	K 3 0 2 6 4 1 2 0 6 1 - Y	elbow nipple KL012-030E	1	
18-50	K 0 8 8 1 0 1 8 0 0 0	O-ring P18B	3	
18-51	K 3 0 2 9 0 0 0 0 7 2 - Y	special bushing PF3/8 PT3/8	1	
18-52	K 3 0 0 3 0 9 0 0 0 2 - Y	45 elbow 1035-9	1	
18-53	LM2700 - 0842Z2 - Y	# 3 cylinder drain pipe	1	
18-54	LM2700 - 0864ZD	pipe retaining tool B	1	
18-55	K 3 0 0 9 0 0 0 1 7 2 - Y	special adaptor PF3/8 PTF1/2	1	
18-56	K 3 1 0 0 4 2 1 0 5 0	WP35-12 hose 2-1050	1	
18-57	K 3 1 9 1 0 0 9 5 0 0	SP-15 coil tube 950	1	
18-58	K 0 1 5 1 0 8 0 0 0 2	8 nut with flange	3	
18-59	K 3 2 1 2 0 0 0 4 3 0	40-90 cylinder 307	2	
18-60	K 0 0 2 3 0 0 0 0 1 1	6 hollow set screw 6-1	2	
18-61	K 3 1 0 2 2 2 0 4 6 0	WP105-6 hose 2-460	2	
18-62	K 3 1 9 0 0 0 3 6 0 0	SP-12 coil tube 360	2	
18-63	K 3 0 2 6 9 1 0 0 4 1 - Y	bulkhead union KUE10-020E	4	
18-64	K 3 1 0 2 2 3 0 4 3 0	WP105-6 hose 3-430	2	
18-65	K 3 1 9 0 0 0 3 3 0 0	SP-12 coil tube 330	2	
18-66	K 0 2 1 4 1 6 0 0 0 1	16 metal washer with conical disk spring 2L	4	
18-67	K 3 0 2 7 1 1 0 0 0 1 - Y	elbow KLC10-000E	5	
18-68	K 3 0 2 7 2 1 0 0 0 1 - Y	tee KTC10-000E	3	
18-69	LM2700 - 0837Z2 - Y	# 2 • 3 cylinder drain pipe	1	
18-70	K 3 0 2 8 6 1 0 0 0 1 - Y	union KUA10-000E	2	

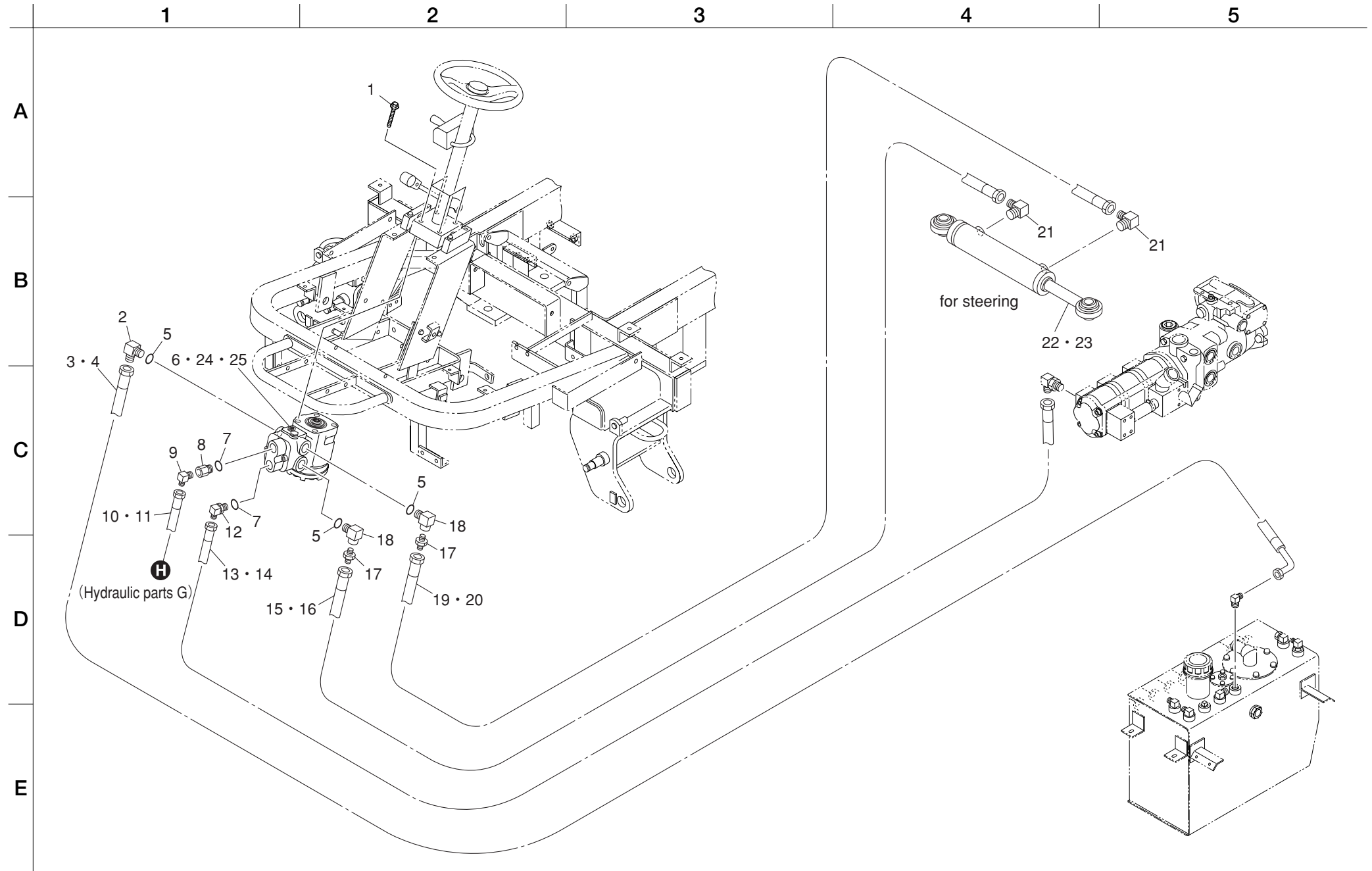
18. Hydraulic parts G



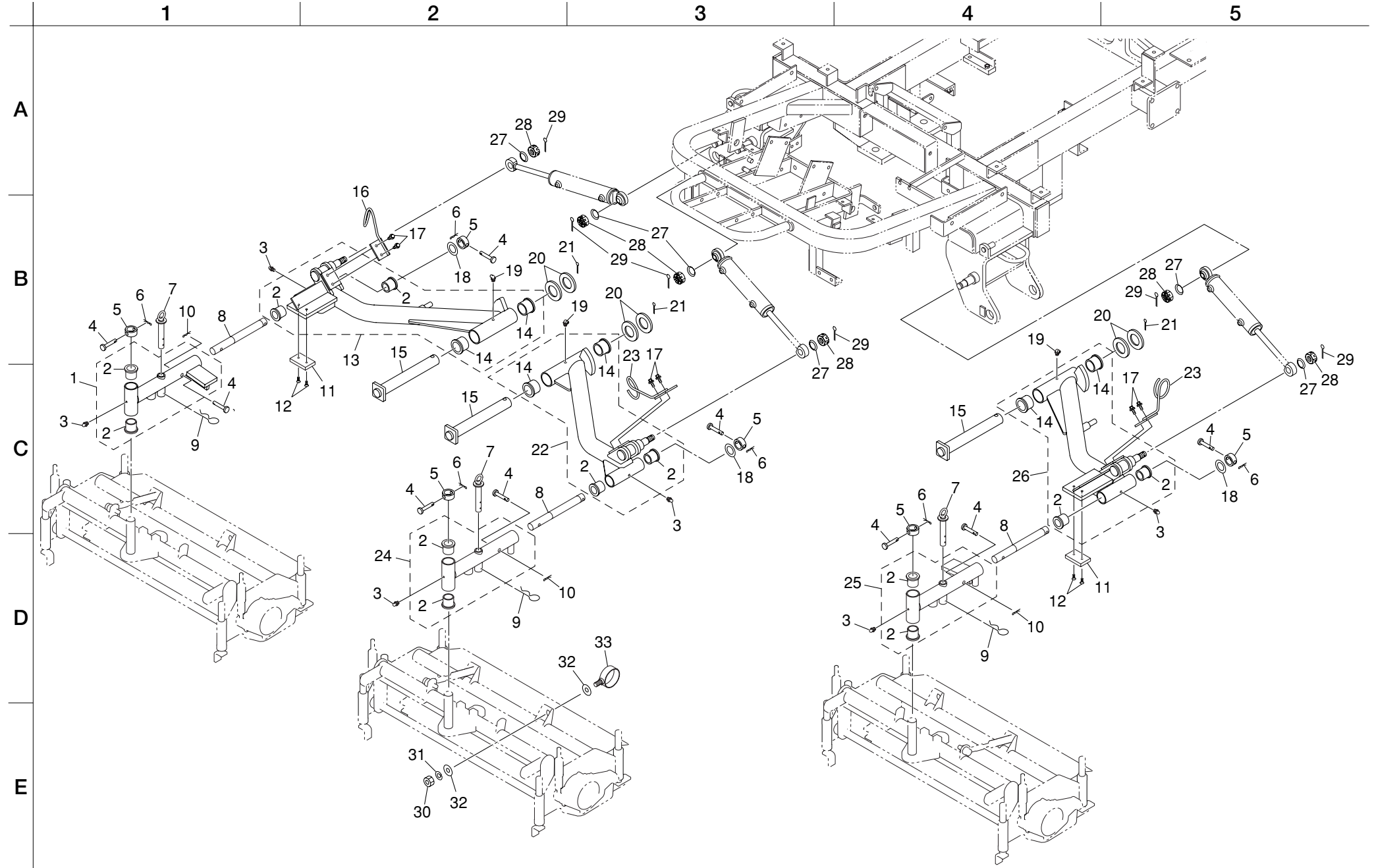
Cat No.	Code No.	Part Name	Qty	Remark
18-71	LM2700-0861Z2-Y	#3 cylinder drain pipe	1	
18-72	K3186000500	φ 10 tetoron braid hose 50	2	
18-73	K0021060302	6 bolt with flange 30	2	
18-74	K0021060152	6 bolt with flange 15	1	
18-75	LM2700-0863ZD	pipe retaining tool A	1	
18-76	K0100060002	6 nut	2	
18-77	K0200060002	6S washer	2	
18-78	K5000060002	6 washer	2	
18-79	LM2700-0838Z2-Y	#2 · 3 cylinder pipe	1	
18-80	LM2700-0860Z2-Y	#3 cylinder pipe	1	
18-81	LM2700-0848Z2-Y	#1 · 4 · 5 cylinder drain pipe	1	
18-82	Y80209-00301	cylinder seal kit	2	

Cat No.	Code No.	Part Name	Qty	Remark

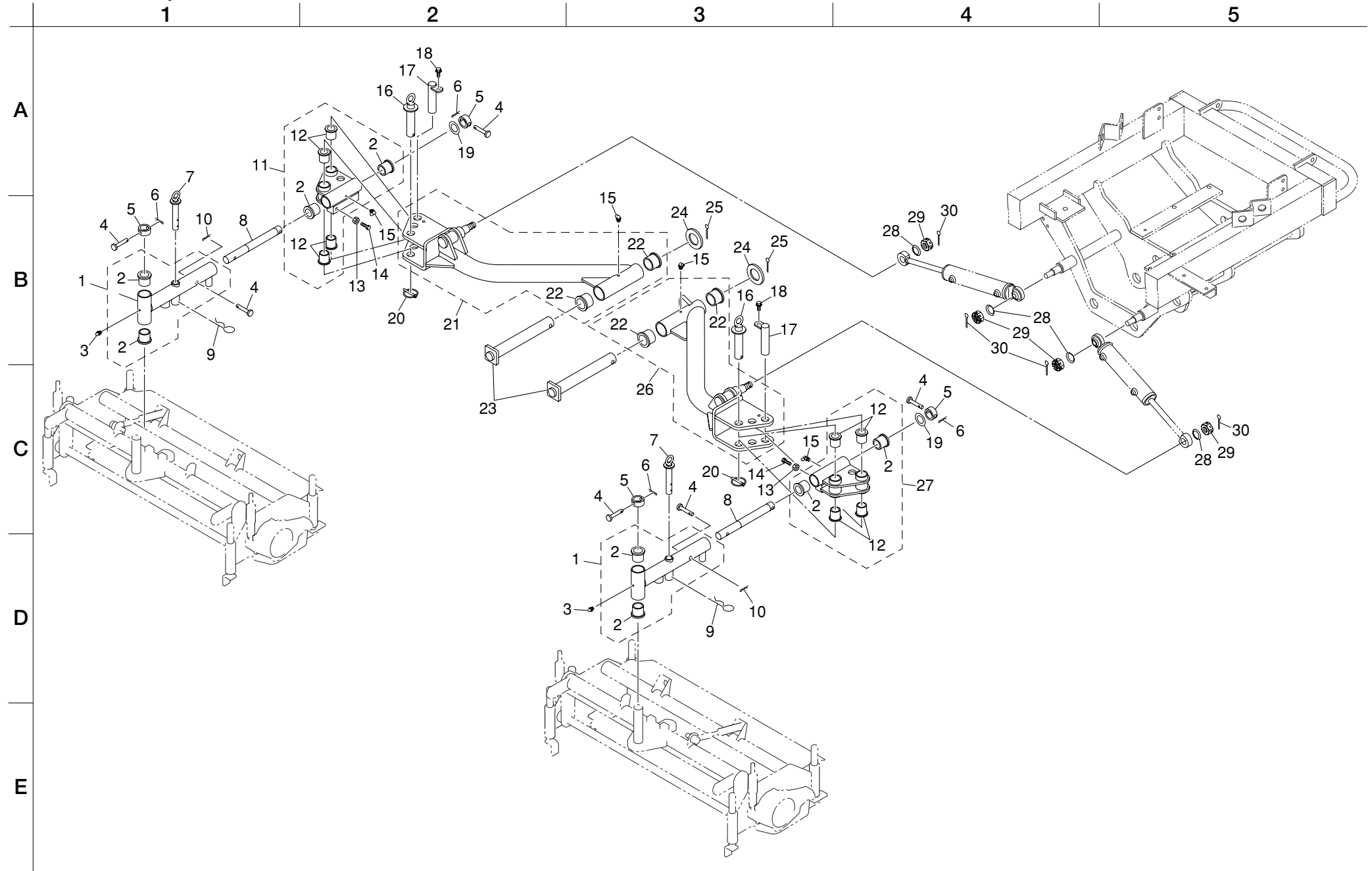
19. Hydraulic parts H



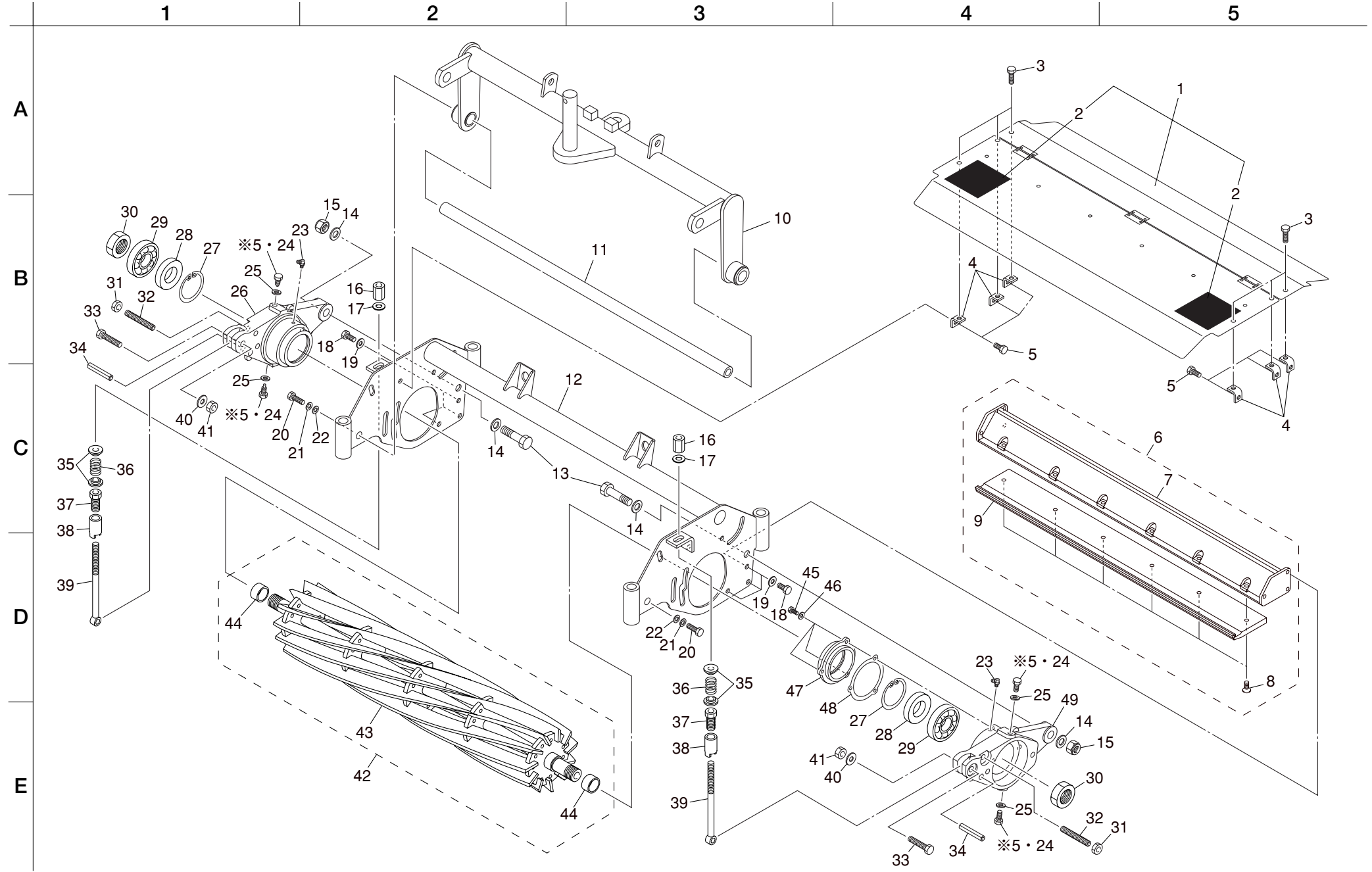
20. Lift arm front part



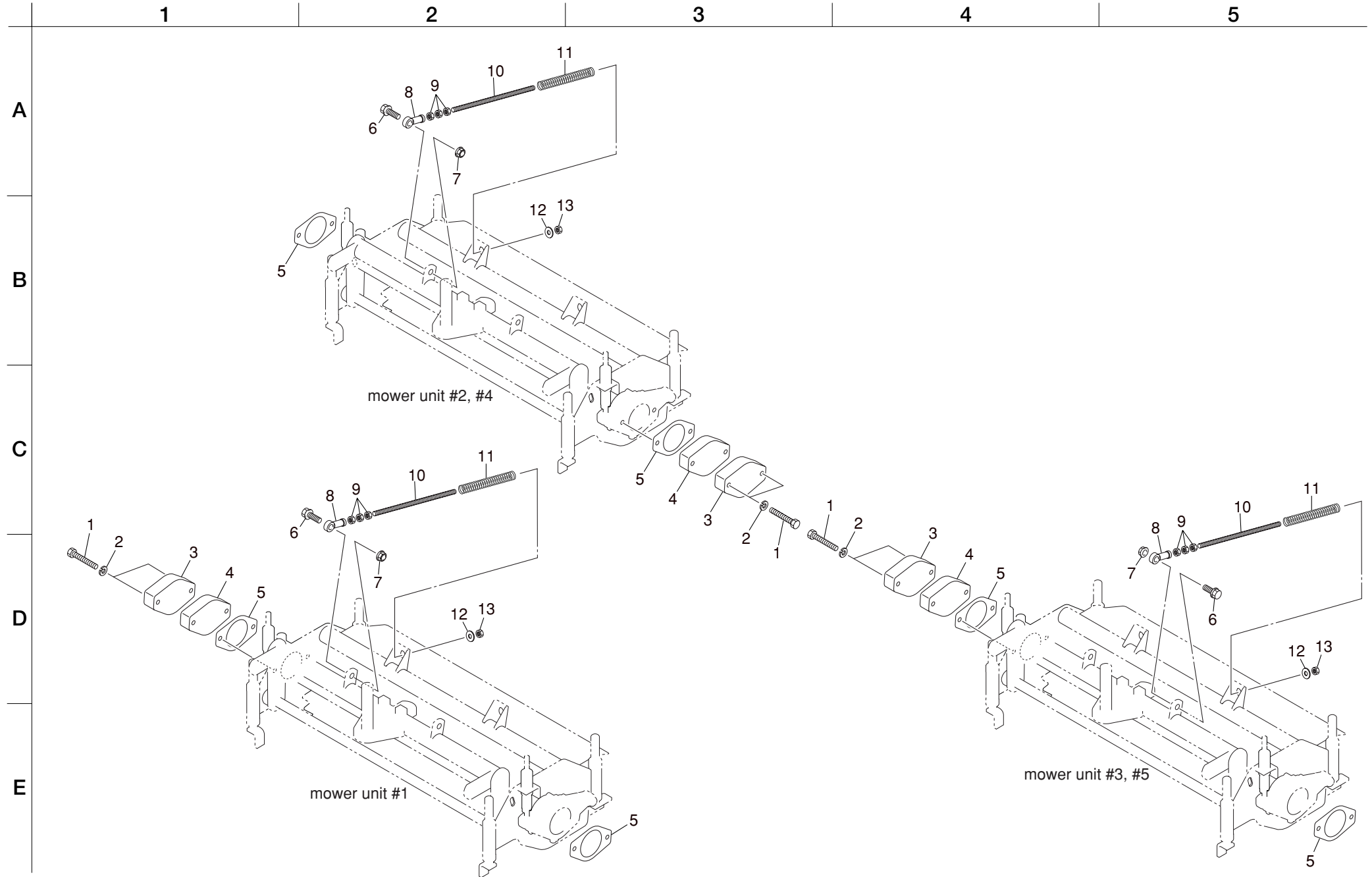
21. Lift arm rear part



22. Mower parts A



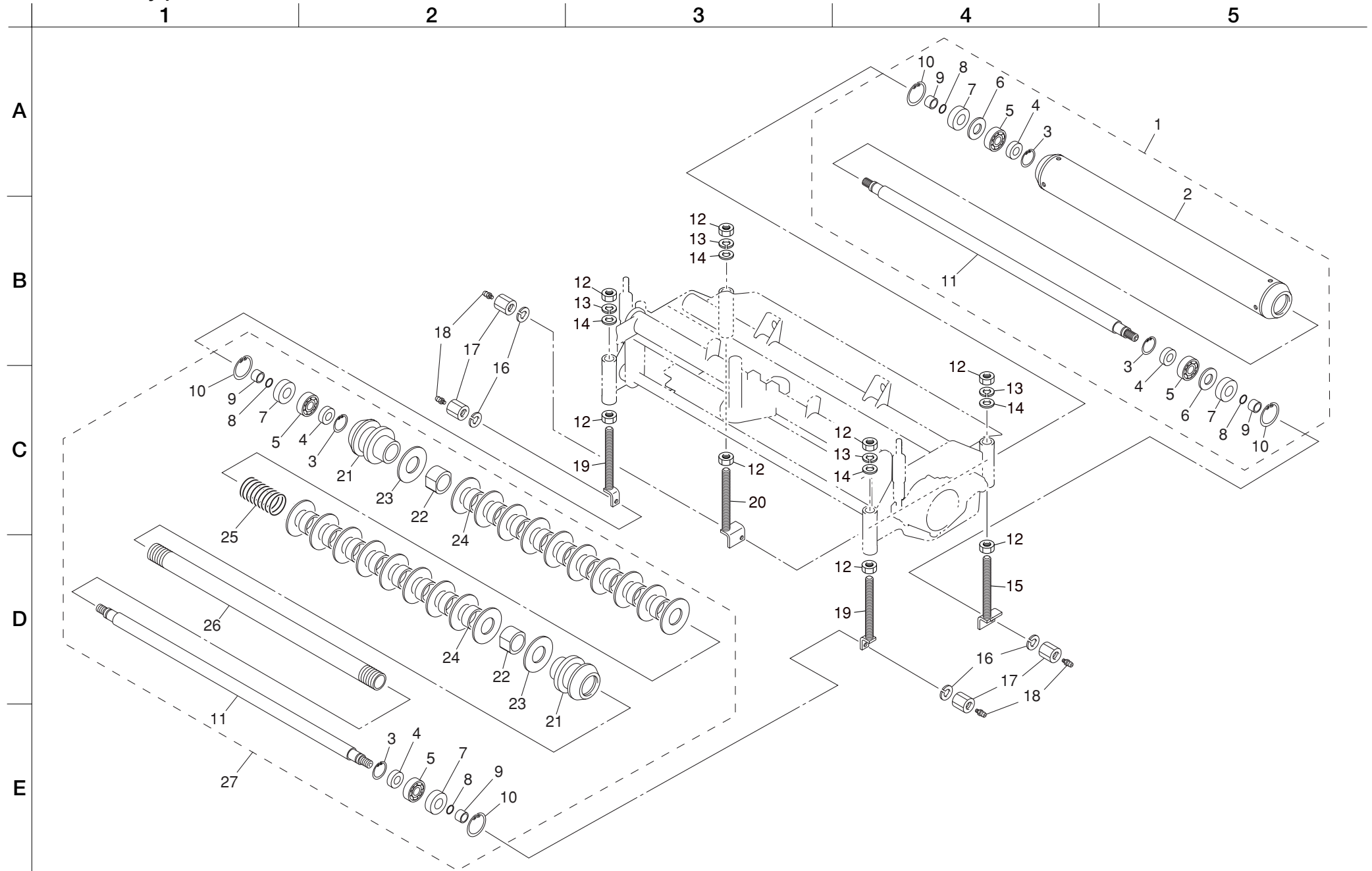
23. Mower parts B



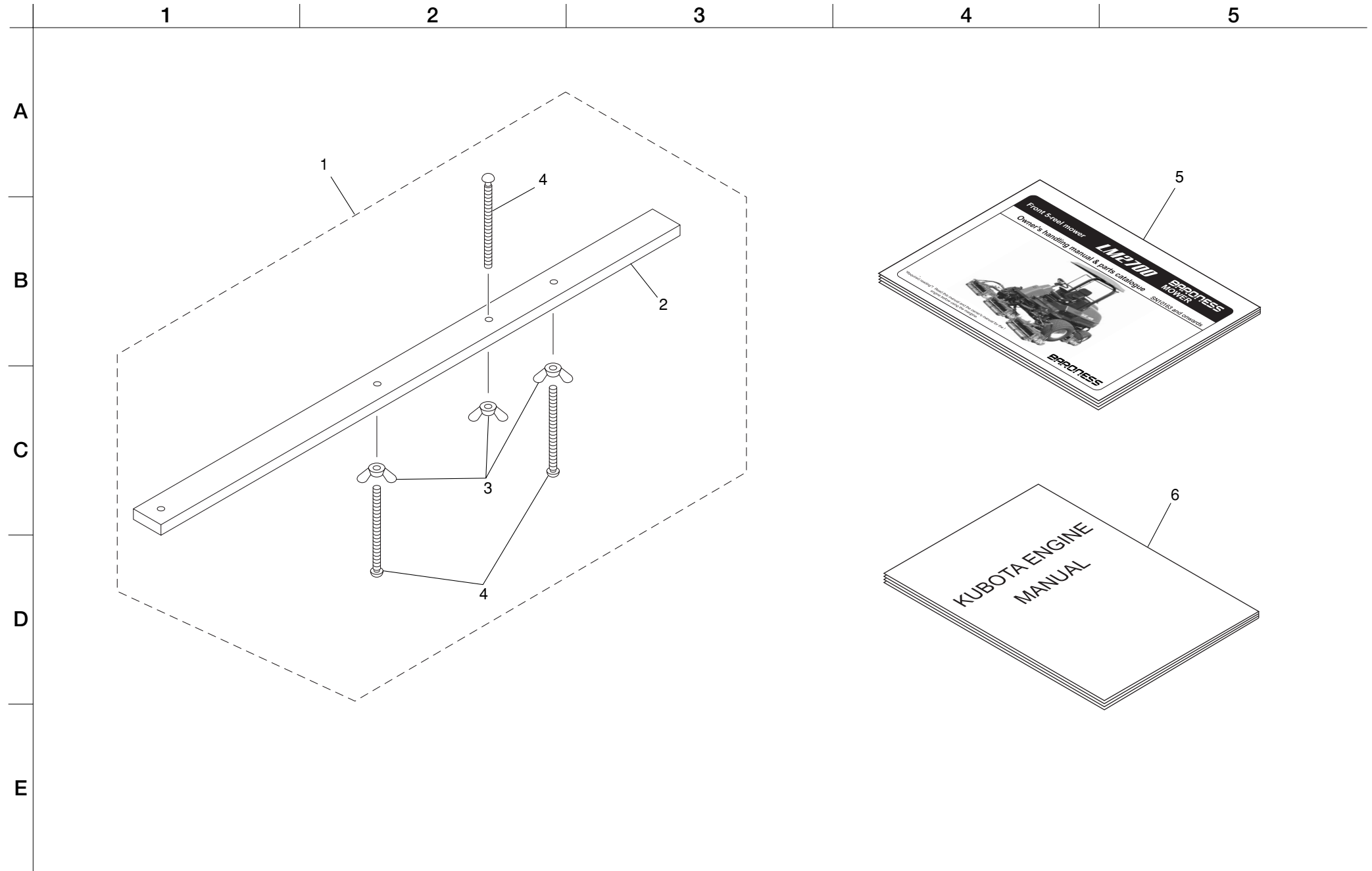
Cat No.	Code No.	Part Name	Qty	Remark
23-1	K0003100702	10 bolt 70	10	
23-2	K0200100002	10S washer	10	
23-3	K690300017D	reel housing cover	5	
23-4	LM2700-1201ZD	mower weight	5	
23-5	K4011000290	packing	10	
23-6	K0000120352	12 bolt 35	5	
23-7	K0151120002	12 nut with flange	5	
23-8	K1603120000	pillow ball rod end PHSA12	5	
23-9	K0102120002	12 nut 3	15	
23-10	LM2700-0219Z2	M12 screw shaft 240	5	
23-11	K1000000118	3 compression spring 21150	5	
23-12	K5073212352	3.2SPHC metal washer 1235	5	
23-13	K0144120002	12U nut	5	

Cat No.	Code No.	Part Name	Qty	Remark

24. Roller Ass'y parts



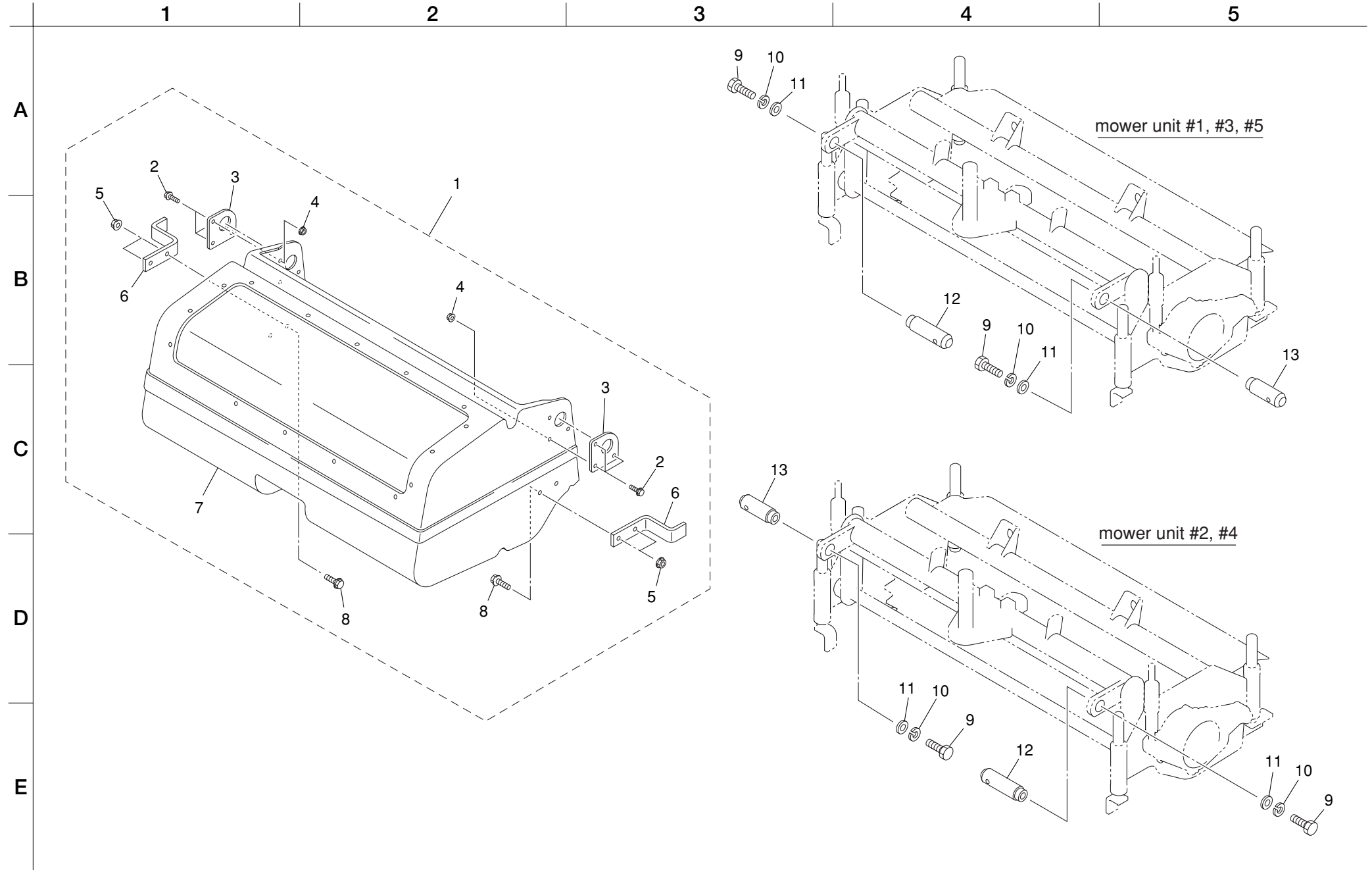
25. Accessory parts



Cat No.	Code No.	Part Name	Qty	Remark
25-1	LM2700-1502Z0	cutting height gauge bar 600 Ass'y	1	
25-2	LM2700-1501Z2	cutting height gauge bar 600A	1	
25-3	K0141060002	6 wing nut 3	3	
25-4	K0071000522	6 cutting height adjusting screw 75	3	
25-5	LM2700E08D-01	LM2700 manual & parts catalogue	1	
25-6	1J464-8916-1	Kubota engine manual	1	

Cat No.	Code No.	Part Name	Qty	Remark

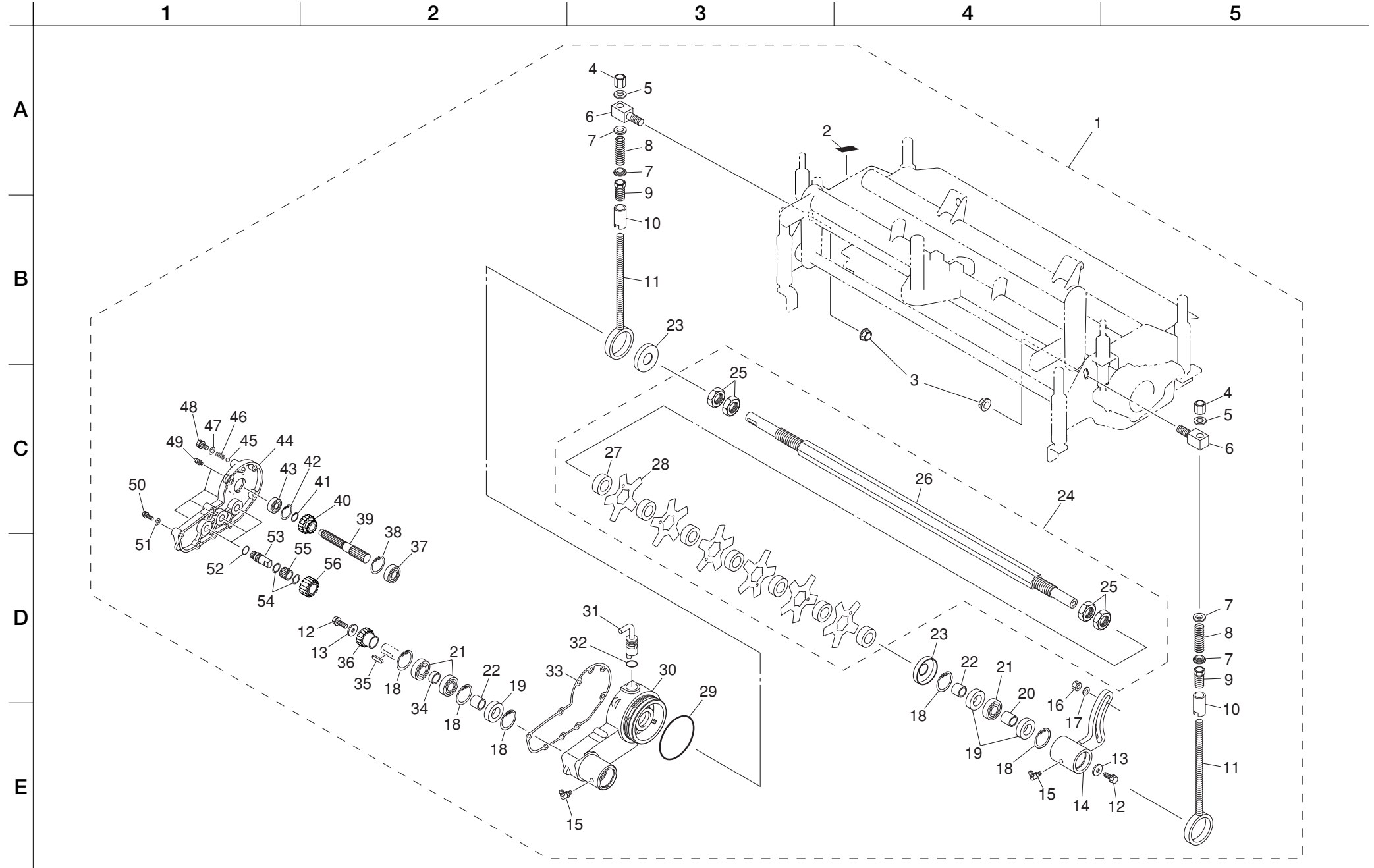
26. Option (Grass catcher parts)



Cat No.	Code No.	Part Name	Qty	Remark
26-1	LM2700-1101Z0	26 grass catcher Ass'y	5	
26-2	K0021060202	6 bolt with flange 20	30	
26-3	LM2700-1110ZD	reinforcement plate	10	
26-4	K0151060002	6 nut with flange	30	
26-5	K0151080002	8 nut with flange	20	
26-6	LM2700-1116ZD	stopper	10	
26-7	LM2700-1102Z0	26 grass catcher COMP	5	
26-8	K0021080202	8 bolt with flange 20	20	
26-9	K0000140252	14 bolt 25	10	
26-10	K0200140002	14S washer	10	
26-11	K5000140002	14 washer	10	
26-12	LM2700-1104Z2	catcher pin 95	5	
26-13	LM2700-1105Z2	catcher pin 75	5	

Cat No.	Code No.	Part Name	Qty	Remark

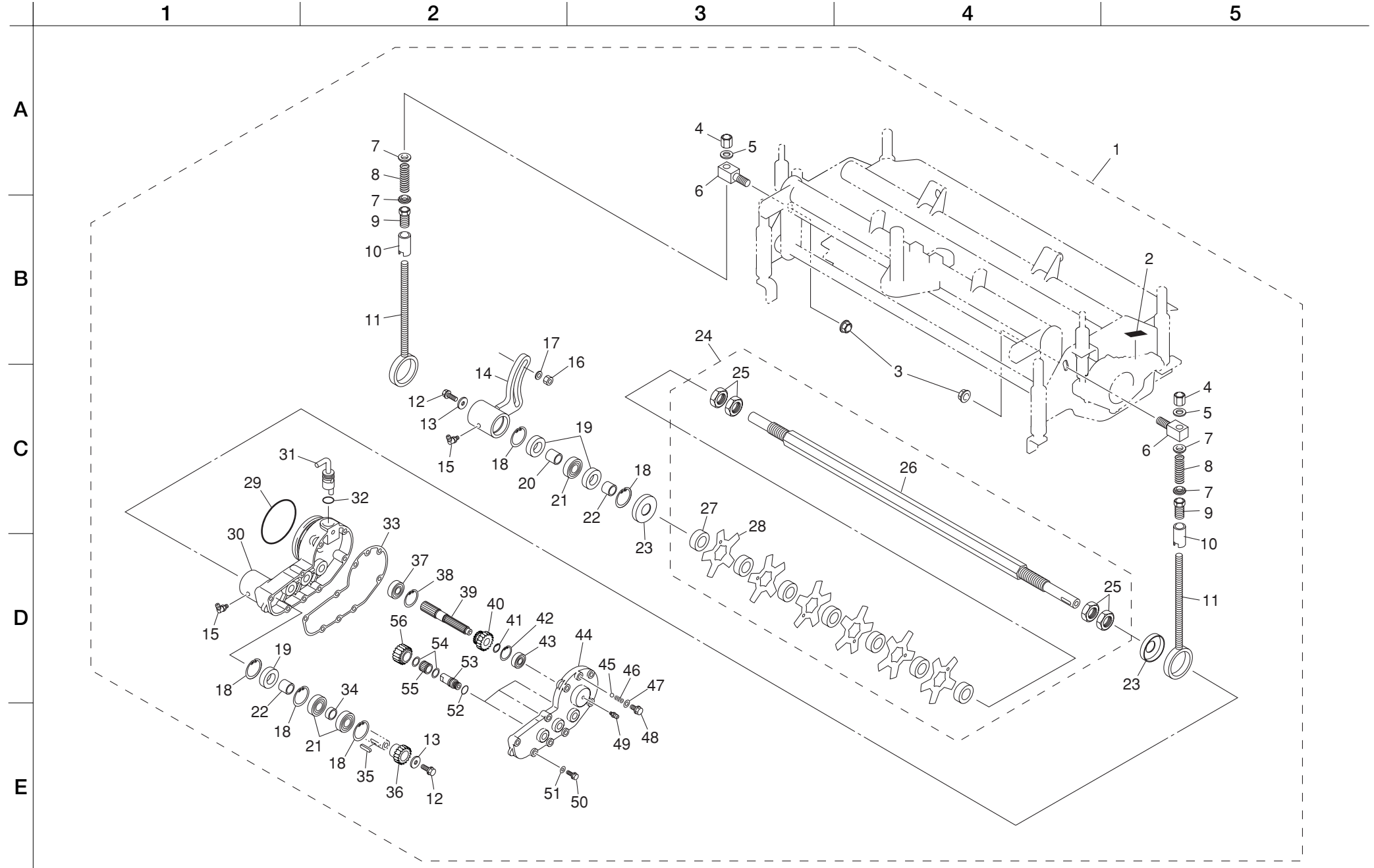
27. Option (Groomer Ass'y parts for mower unit #1、#3、#5)



Cat No.	Code No.	Part Name	Qty	Remark
27-1	LM2700-0197Z0	left mower groomer Ass'y	3	
27-2	K4203000080	ON OFF mark	3	
27-3	K0151100002	10 nut with flange	6	
27-4	K0160000032	10 receiving blade adjusting nut P1	6	
27-5	K5051010200	1C5191P metal washer 1020	6	
27-6	LM2700-0136Z2	10 rod receiver	6	
27-7	K6206000052	spring receiver	12	
27-8	K1000000578	3.5 compression spring 2273	6	
27-9	LM535E-1335Z2	pipe with cutter adjusting screw	6	
27-10	LM2700-0135Z2	adjusting pipe	6	
27-11	LM2700-0134Z2	groomer adjusting bolt	6	
27-12	K0021080152	8 bolt with flange 15	6	
27-13	K5012308242	2.3SPCC metal washer 824	6	
27-14	LM2700-0132Z2	groomer housing (L)	3	
27-15	K1440000030	B-shaped grease nipple	6	
27-16	K0144100002	10U nut	3	
27-17	K5012310252	2.3SPCC metal washer 1025	3	
27-18	K0402035001	stop ring R35	15	
27-19	K0822235080	oil seal MHSA22358	9	
27-20	K0737000070	multi-purpose inner ring LRT172223	6	
27-21	K0600060030	bearing 6003	9	
27-22	K0737000060	multi-purpose inner ring LRT172216	3	
27-23	K5370000312	dustproof cover	6	
27-24	LM2700-0189Z0	groomer shaft Ass'y	3	
27-25	K0108240002	24 nut 3P1.5	12	
27-26	LM2700-0126Z2	groomer shaft	3	
27-27	K6214000020	28AC collar 4224.6	72	
27-28	K2570000039	1.2-5 piece blade 85	69	
27-29	K0885080000	O-ring S80	3	
27-30	LM2700-0101Z0	groomer case (R)	3	
27-31	LM2700-0114Z8	clutch lever (R)	3	
27-32	K0880015000	O-ring P15	3	
27-33	LM2700-0129Z0	groomer packing	3	
27-34	LM2700-0131Z0	17STKM collar 227.4	3	
27-35	K0500404180	4 both-end round key 418	3	

Cat No.	Code No.	Part Name	Qty	Remark
27-36	LM2700-0112Z0	17 gear	3	
27-37	K0612060020	bearing 60022RD	3	
27-38	K0402032001	stop ring R32	3	
27-39	LM2700-0109Z0	spline shaft	3	
27-40	LM2700-0110Z0	18 clutch gear	3	
27-41	K0403015001	round stop ring S15	3	
27-42	K0402028001	stop ring R28	3	
27-43	K0600006001	bearing 6001	3	
27-44	LM2700-0103Z0	groomer cover (R)	3	
27-45	K1500635000	6.35 steel ball	3	
27-46	K1000000090	1 compression spring 618	3	
27-47	K0922080000	seal washer 8WF	3	
27-48	K0021080102	8 bolt with flange 10 (1pc)	3	
27-49	K1440000010	grease nipple	12	
27-50	K0000060252	6 bolt 25	24	
27-51	K0212060002	6 metal washer with conical disk spring 1L	24	
27-52	K0885014000	O-ring S14	9	
27-53	LM2700-0111Z0	intermediate shaft	9	
27-54	K5051013280	1C5191P metal washer 1328	18	
27-55	K0701317120	needle KT131712	9	
27-56	K6186000030	18 gear	9	

28. Option (Groomer Ass'y parts for mower unit #2, #4)



Manufacturer's Declaration of Conformity for

Product Identification

Product :
Brand :
Model / Type
Starting Serial No. :
Measured Sound Power Level :
Guaranteed Sound Power Level :
Manufacturer
Name :
Address :

Ride-on lawnmower
BARONESS
LM2700
10163
LWA 101.42 dB
LWA 104 dB
Kyoisha Co., Ltd.
1-26 Miyuki-cho, Toyokawa, Aichi-pref.,
Japan

Technical Documentation

Keeper's Name :
Keeper's Address :

Kyoisha Co., Ltd.
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 :
Address :

SNC-H
11, Route de Sandweiler
5230 Sandweiler
Luxembourg

Technical Construction File

Date :
Technical Construction File No. :
Test Laboratory

March 27, 2008
No. TG2700-00
TUV Rheinland Luxembourg 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.
Kyoisha Co., Ltd.


Date :

April 7, 2008

BRONSS Turf Care Machinery
Tel: (0533) 84-1390
Fax: (0533) 89-3623

KYOISHA CO.,LTD.

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

The logo for KYOISHA CO.,LTD. is a stylized, bold, black square containing a white geometric shape that resembles a stylized letter 'K' or a similar symbol.