



163cc Power Trowel

Owner's Manual



WARNING: Read and understand all instructions, warnings, and cautions before using this product. Failure to follow the instructions, warnings, and cautions may result in serious personal injury and/or property damage.

Item #49391

SAVE THESE INSTRUCTIONS

Thank you very much for choosing a North Star product!

For future reference, please complete the owner's record below:

Serial Number/Lot Date Code: _____

Purchase Date: _____

Save the receipt, warranty, and this manual.

This Power Trowel is designed for certain applications only. Northern Tool and Equipment cannot be responsible for issues arising from modification or use of this product in an application for which it was not designed. We strongly recommend that this product not be modified and/or used for any application other than that for which it was designed.

For technical questions, please call **1-800-222-5381**.

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Intended Use

This gas-powered trowel with 5.5 HP 160cc Honda GX-160 engine is great for use on big jobs like parking lots, driveways, concrete patios and more. A safety stopper located on handle grip allows for easy emergency shutdown.

Technical Specifications

Weight	209.4 lb. (95 Kgf)
Operating Size	39 x 67 x 39 (in) (1000 x 1700 x 1000 (mm))
Working Blade Diameter	36 (in) (914 mm)
Number of Blades	4
Pitch Range	0 – 15°
Trowel Speed	60 – 130 rpm
Efficiency	2152(ft ² /h)
Engine	Honda GX-160 / 163cc

Important Safety Information

⚠ WARNING

- The warnings, cautions, and instructions in this manual cannot cover all possible conditions or situations that could occur. Exercise common sense and caution when using this tool. Always be aware of the environment and ensure that the tool is used in a safe and responsible manner.
- DO NOT allow persons to assemble or operate this product until they have read this manual and have developed a thorough understanding of how the product works.
- Use the right tool for the job. DO NOT attempt to force small equipment to do the work of larger industrial equipment. There are certain applications for which this equipment was designed. It will do the job better and more safely at the capacity for which it was intended. DO NOT use this equipment for a purpose for which it was not intended.
- Industrial or commercial applications must follow OSHA requirements.

⚠ WARNING

- Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm. Some examples of these chemicals are:
 - lead from lead-based paints,
 - crystalline silica from bricks and cement and other masonry products
 - arsenic and chromium from chemically-treated lumber.Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well-ventilated area, and work with approved safety equipment, such as dust masks that are specially designed to filter out microscopic particles.
- Handling the power cord on corded products may expose you to lead, a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling.

⚠ WARNING

WORK AREA SAFETY

- Inspect the work area before each use. Keep the work area clean, dry, free of clutter, and well lit. Cluttered, wet, or dark work areas can result in injury.
- Do not use the Power Trowel where there is a risk of causing a fire or an explosion; e.g., in the presence of flammable liquids, gases, or dust.
- Keep children and bystanders away from the work area while operating the Power Trowel. Do not allow children to handle the Power Trowel.
- Be aware of all power lines, electrical circuits, water pipes, and other mechanical hazards in your work area. Some of these hazards may be hidden from your view and may cause personal injury and/or property damage if contacted.

⚠ WARNING

PERSONAL SAFETY

- Stay alert, watch what you are doing, and use common sense when operating the Power Trowel. Do not use the Power Trowel while you are tired or under the influence of drugs, alcohol, or medication.
- Dress properly. Do not wear loose clothing, dangling objects, or jewelry. Keep your hair, clothing and gloves away from moving parts. Loose clothes, jewelry, or long hair can be caught in moving parts.
- Use ANSI Z87.1-approved safety goggles or safety glasses with side shields, or when needed, a face shield. Use a dust mask in dusty work conditions. Also use non-skid safety shoes, hardhat, gloves, dust collection systems, and hearing protection when appropriate. This applies to all persons in the work area.
- Do not overreach. Keep proper footing and balance at all times.
- Remove adjusting keys or wrenches before starting the Power Trowel. A wrench or key that is left attached to a rotating part of the Power Trowel may cause personal injury.
- No smoking, matches, or open flames around machine. Fuel is flammable.
- Do not touch hot surfaces.
- Persons not operating should be at least 10 feet away while equipment is in use.
- Engine exhaust contains carbon monoxide. This is a poison you cannot see or smell. NEVER use in doors.
- Do not operate without guards in place.

⚠ CAUTION

POWER TROWEL USE AND CARE

- Do not force the Power Trowel to perform an operation other than its intended use. Power Trowels do a better and safer job when used in the manner for which they are designed. Plan your work, and use the correct Power Trowel for the job.
- Check for damaged parts before each use. Carefully check that the Power Trowel will operate properly and perform its intended function. Replace damaged or worn parts immediately. Never operate the Power Trowel with a damaged part.
- Store the Power Trowel when it is not in use. Store it in a dry, secure place out of the reach of children. Inspect the Power Trowel for good working condition prior to storage and before re-use.
- Use only accessories that are recommended by the manufacturer for use with the Power Trowel. Accessories that may be suitable for one Power Trowel may create a risk of injury when used with another Power Trowel.
- Keep guards in place and in working order. Never operate the product without the guards in place.
- Keep the Power Trowel blade clean.
- Do not leave the Power Trowel running unattended.
- Shut off the fuel valve when the engine is not in use.
- Only use the recommended fuel to avoid damaging the equipment.
- Oil does not come with the machine. Add oil to engine before the first use.
- Check oil levels before operating the machine.
- DO NOT refuel the engine while it is still hot. Fuel is flammable.
- DO NOT service engine while it is still hot.

Specific Operation Warnings

▲ WARNING

To avoid fatal accident

- Stop the engine before refueling and be careful not to spill fuel during the refueling. Spilled fuel may ignite causing a fire.
- Do not refuel the engine near flammable objects to avoid fire.
- Do not run the engine in enclosed areas to prevent carbon monoxide poisoning.

To protect the operator

- When fatigue from operation, the operator must stop the machine and take break.
- Hearing protection is required as this machine creates a noise emission while 1 m (3 feet) away from the equipment.

To avoid injury or damage

- The power trowel is only operated by authorized persons who:
 - are at least 18 years of age.
 - are physically and mentally able to operate the power trowel.
 - are properly trained in the operation and the maintenance of the power trowel by the owner or its authorized representative.
 - are assessed to be able to carry out their duties reliably.
- People who are drinking alcohol beverages and/or taking drugs are not allowed to operate the power trowel.
- People are not allowed to enter into the danger zone of the power trowel.
- The operator has to monitor the danger zone all the time. It is not allowed to operate if there is a person in the danger zone.
- The operator has to give warning signs in case of an emergency situation.
- The power trowel can only be operated when the adequate stability is granted.
- The operator has to control the running speed of the power trowel all the time during its operation so that the machine can be stopped at any time.
- The operator must turn off the power trowel completely as described in this manual before leaving the operating position. Also, the power trowel must be secured against unauthorized use.
- The engine has to be turned off and secured against re-starting by pulling out the sparking plug socket during the maintenance and servicing.
- The operator has to control the power trowel as regards functions and obvious defects before use.
- Discovered defects must be reported to supervising personnel and to the operator. Do not leave the defects which may cause serious injury of the operator.
- Do not operate the power trowel when a defect endangers the safety of the operator until the defect is rectified.
- The power trowel has to be checked by an expert in regular bases (at least once a year). And it must be checked by an expert before the initial use and after the essential modification.
- The power trowel generates mechanical heat so do not touch the body of engine, muffler or other parts during the operation, which may cause heat burn. Please wait until it cools down to touch.
- The operator must be fully equipped with safety equipment including a crash helmet, safety

gloves, safety shoes, safety glasses and mask before operating the power trowel.

- Do not insert your hand or finger between pulley cover and engine during the operation, it may break your hand or finger.
- Do not transport the power trowel by motor vehicle with fuel in the trowel's fuel tank.
- Do not lift the power trowel by a person when putting on and off from vehicle. Always use a proper lifting crane to move. Lifting by person may cause personal injury due to its heavy weight.
- Make sure to securely fasten the power trowel for transportation. Improper fastening as holding the handle of the power trowel during the transportation may cause an injury.

Note: Also refer to the enclosed engine manual if there is a problem or a question on engine.

Main Parts of Power Trowel

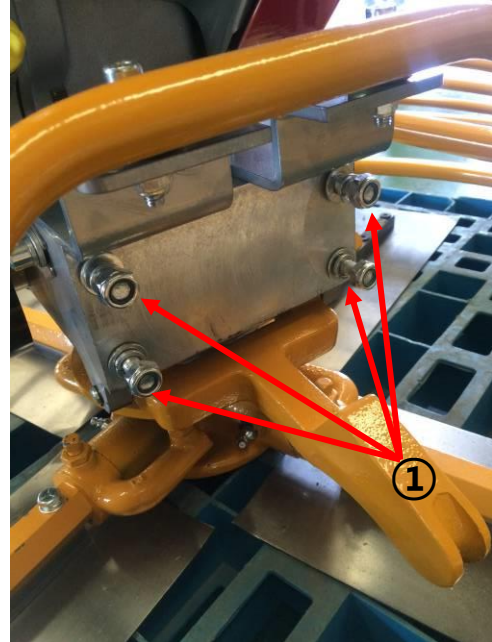


01	Throttle Lever
02	Blade Pitch Handle
03	Engine Stop Switch
04	Handle
05	Belt Cover
06	Blade Holder
07	Blade
08	Safety Ring
09	Engine Stop Switch
10	Engine Fuel Cap
11	Engine Air Filter
12	Engine Muffler

Assembly Instructions

Note: To allow clearance to adjust the blade pitch in step 5, support the safety ring of the screed on some bricks between the blade tips so the blade pitch can be changed during testing of this feature.

1. Attach the handle to the screed using 4 bolts, Plain Washers, Spring Washers, and Nuts (see the Handle parts diagram; items 25, 26, 27, & 30). Be sure to check the direction of the handle before attaching it.



2. Tighten the Nuts with the 17mm wrench. Torque should be 60 ft-lbs. (830 kgf.cm).



3. Turn the Blade Pitch Handle counter-clockwise.



4. Continue to turn the Blade Pitch Handle counter-clockwise until the Adjust Screw Nut is at the bottom.

(The Adjust Screw Nut is the silver piece in the bottom center of the green piping in the picture at right. Also see Handle parts diagram, item 19.)



5. Install the wire to the Yoke Arm (Handle parts diagram, item 24) and tighten the nut.

Test the blade pitch by turning the Blade Pitch Handle and observe the blades changing pitch (angle).

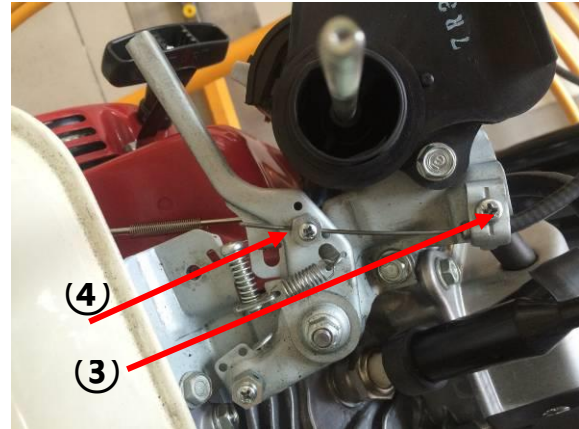


6. Take out the Engine Air Filter Cover and Air Filter Element.

7. Move the Throttle Lever on the handle fully counter-clockwise (toward the screed).



8. Check that the engine throttle lever (silver lever in picture) is at its idle position (fully left in picture) then attach the Accelerator Cable position (3) and wire (4).



9. Assemble the Air Filter Element and the Air Filter Cover.
10. Unplug the wiring connector of the Engine Stop Switch (on the red section of the engine housing).

11. Plug the supplied connector of the Engine Stop Switch into the engine connector (not the switch connector) from the above step.



12. Remove a bolt from the engine housing, put the ring terminal of the Engine Stop Switch over the bolt, replace the bolt and retighten it.



13. Gather the cables and tie them with a cable tie.

Before Each Use

Engine

Recommended Fuel

- The trowel engine requires fresh, clean, regular, unleaded gasoline. Fuel containing water or dirt will damage the fuel system. Consult to engine owner's manual for complete fuel specifications.

⚠ WARNING

DANGER: Adding fuel to the tank should be done only when the engine is stopped and has had an opportunity to cool down to avoid a risk of an explosion or fire from a fuel spill. In the event of a fuel spill, **DO NOT** attempt to start the engine until the fuel residue has been completely wiped up, and the area surrounding the engine is dry.

Before starting

- Read and understand the safety and operating instruction manual of the engine.
- Check:
 - Oil level in engine; refill if necessary.
 - Fuel level; refill the tank if necessary.
 - Condition of fuel lines.
 - Condition of air filter.
 - The spark plug

Trowel

Check all the bolts, nuts and belts and tighten any if necessary.

Check the belt tension.

Check the condition of the blades. Repair or replace any blades that are damaged or bent.

Check the general condition of the trowel and its components and clean any foreign material (dirt, fragments, etc.) from the trowel that may be thrown off and cause injury.

Operating Instructions

⚠ WARNING

Operators must be trained in the use of the power trowel and maintain practiced skill. It is dangerous to operate this machine improperly or by an untrained person. An operator should read and understand the manual and follow its directions.

This power trowel is equipped with an engine stop switch. Test the switch each time the engine is started. NEVER disable or disconnect the switch. It is provided for operator safety. Injury may result if it is disabled, disconnected, or improperly maintained.

⚠ CAUTION

In an emergency situation, stop the engine immediately with the engine stop switch. In normal conditions, do not stop the engine when the power trowel is at high speed or the engine temperature will rise suddenly, possibly causing engine parts to jam or the oil to deteriorate.

Start the Engine

1. Open the fuel valve on the engine.
2. Close the choke lever on the engine. A warm engine may not need to be choked.
3. Close the engine stop switch (set it to ON).
4. Pull the starter rope to start the engine.
5. Open the choke and allow the engine to warm up at slow speed for 5 minutes.
6. Test the engine stop switch. If it is working properly, the engine will stop.
7. Perform steps 3 and 4 again to restart the engine to use the power trowel.

Operation

1. While firmly grasping the power trowel handle and with the engine stop switch closed, pull the throttle lever back toward the operator to increase the speed of the engine and start the blades turning.
2. Use the handle to move the power trowel: to move left, apply a slight upward pressure on the handle, to move right, press down slightly; to move forward, twist handle clockwise; to move backward, twist handle counterclockwise; to rotate in one spot, hold handle in a neutral position
3. A good practice to finish concrete is move the trowel from side to side while moving backward.

Stop the Engine

1. If the engine has been running for a while and is hot, push the throttle lever fully toward the trowel to minimize the engine speed then let the engine idle for a few minutes.
2. Release the engine stop switch to stop the engine.
3. Close the fuel valve.

See engine the instruction manual for further information.

After Each Use

Cleanup

⚠ WARNING

Check that the compactor engine is turned off and cooled before attempting any maintenance, cleaning, or inspection. Performing maintenance on an operating compactor can cause injury.

1. Wash the trowel with water immediately after use so concrete does not dry on the machine, taking care to not get the engine or electrical controls wet.
2. Clean the engine cylinder cooling fins. A broom or old brush are good tools to remove concrete before it becomes solid.
3. Apply a thin coat of diesel fuel to the blades and blade arms to prevent rust.
-
- Refer to the engine manufacturer's instruction manual for additional information about engine maintenance.

Storage

If storing the trowel for an extended period of time (more than 30 days) or transporting it:

1. Clean the trowel as described above
2. Remove the blades.
3. Drain the fuel tank and run the engine briefly until the fuel in the carburetor is completely consumed.
4. Clean or replace the air filter.
5. Change the engine oil. Follow the procedures described in the engine manual for engine storage.
6. Store the trowel and blades separately in a clean, dry area
7. Cover the trowel and blades completely with a cloth or tarp.
-
- If transporting the power trowel, lift it using a proper lifting crane when moving it on and off a truck. Lifting the trowel by hand may cause personal injury due to its heavy weight.

Maintenance

⚠ WARNING

Check that the compactor engine is turned off and cooled before attempting any maintenance, cleaning, or inspection. Performing maintenance on an operating compactor can cause injury.

Maintain the Power Trowel by adopting a program of conscientious repair and maintenance in accordance with the following recommended procedures. Also refer to the engine manufacturer's instruction manual for additional information about engine maintenance. The following chart is based on a normal operation schedule.

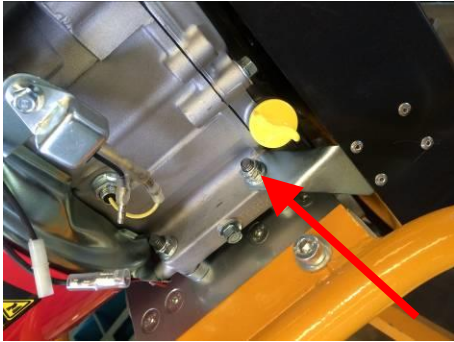
Maintenance Interval	Maintenance Point
Daily before operating	Check and tighten the external hardware Check and adjust the belt tension Check the fuel level Check the engine oil level (see the engine manual) Inspect the fuel lines Inspect the air filter and replace it if needed Check the spark plug
After the first 20 operating hours	Check and adjust the belt tension Change the engine oil (see the engine manual)
After the first 50 operating hours or every week	Check and adjust the belt tension Clean the air filter and replace if needed Change the engine oil (see the engine manual) Check and clean the spark plug
After the first 100 operating hours or every month	Clean the fuel strainer Change the engine oil (see the engine manual)
After the first 300 operating hours or every year	Change the grease in gear operating parts Check and adjust the valve clearance Clean the cylinder head Change the engine oil (see the engine manual)

Change V-Belt

⚠ WARNING

Check that the power trowel engine is turned off and cool before attempting to change the V-belt. Changing the V-belt while the trowel is still hot or operating will cause injury.

1. Remove the bolts to remove the belt cover. The pictures below show the front and rear brackets that hold the black belt cover to the engine.



2. Remove the belt
3. Prepare a new belt (item 9 in the belt cover parts list).
4. When fitting each belt, fit to the smaller pulley first, then fit the bigger pulley.
5. Reinstall the belt cover.

Change BLADES SET

⚠ WARNING

Check that the power trowel engine is turned off and cool before attempting to change the V-belt. Changing the V-belt while the trowel is still hot or operating will cause injury.

Supplies: Blade Set, Bolt for Blade Set, Plain Washer for bolt, Spring Washer for Bolt, 1/2" Spanner(or 13mm), Torque Wrench for 1/2(Including Socket)



Check that the blade arms are not bent or damaged before replacing the blade set. Replace the arms first if they are bent.

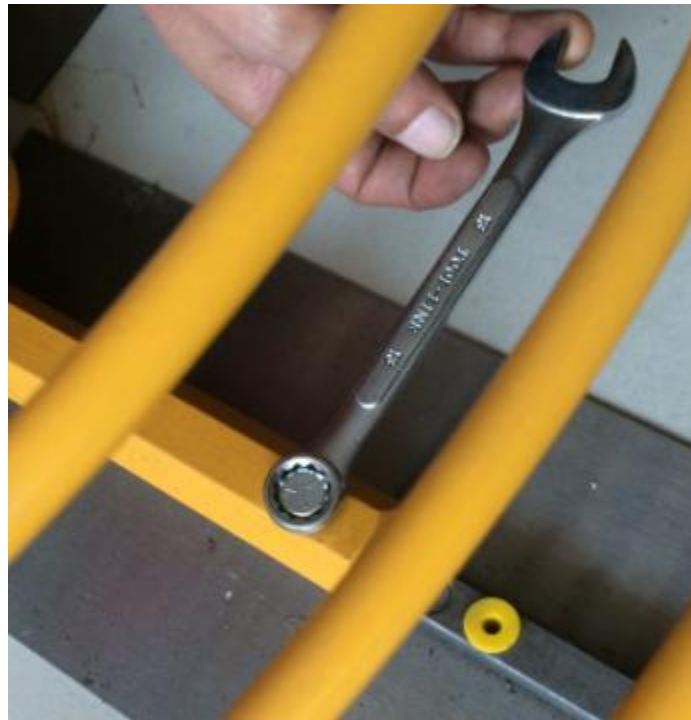
1. Place the power trowel on the flat floor.
2. Twist the angle controller knob to the left until the blades are parallel to the floor (Fig. 1).



3. Loosen the inner bolt with the 1/2 in. wrench (Fig. 2).



4. Loosen the outside bolt with the 1/2 in. wrench (Fig. 3).



5. Remove the blade.
6. Clean the lower part of the blade arm of foreign debris.
7. Place the new blade under the blade arm and align the bolt holes on each.
8. Place a spring washer and plain washer on a bolt in that order. Place one bolt through the inner bolt hole on the blade arm and screw the bolt into the blade. Tighten by hand. Repeat for the outer bolt hole on the same blade arm.
9. Alternate tightening the inner and outer bolts twice, increasing the torque setting each time. Do not skip a step or raise the torque too much. The blade will not be properly balanced and this will affect the concrete finish.
 - 9.1 Set the torque wrench to 13.02 ft-lb (17.66 N-m or 180 kgf.cm) and tighten the inner bolt (Fig. 4).



9.2 Keep the torque wrench setting at 13.02 ft-lb and tighten the outer bolt (Fig. 5).

9.3 Reset the torque wrench to 14.46 ft-lb (19.62 N-m or 200 kgf.cm) and tighten the outer bolt again.

9.4 Keep the torque wrench setting at 14.46 ft-lb and tighten the inner bolt a second time.

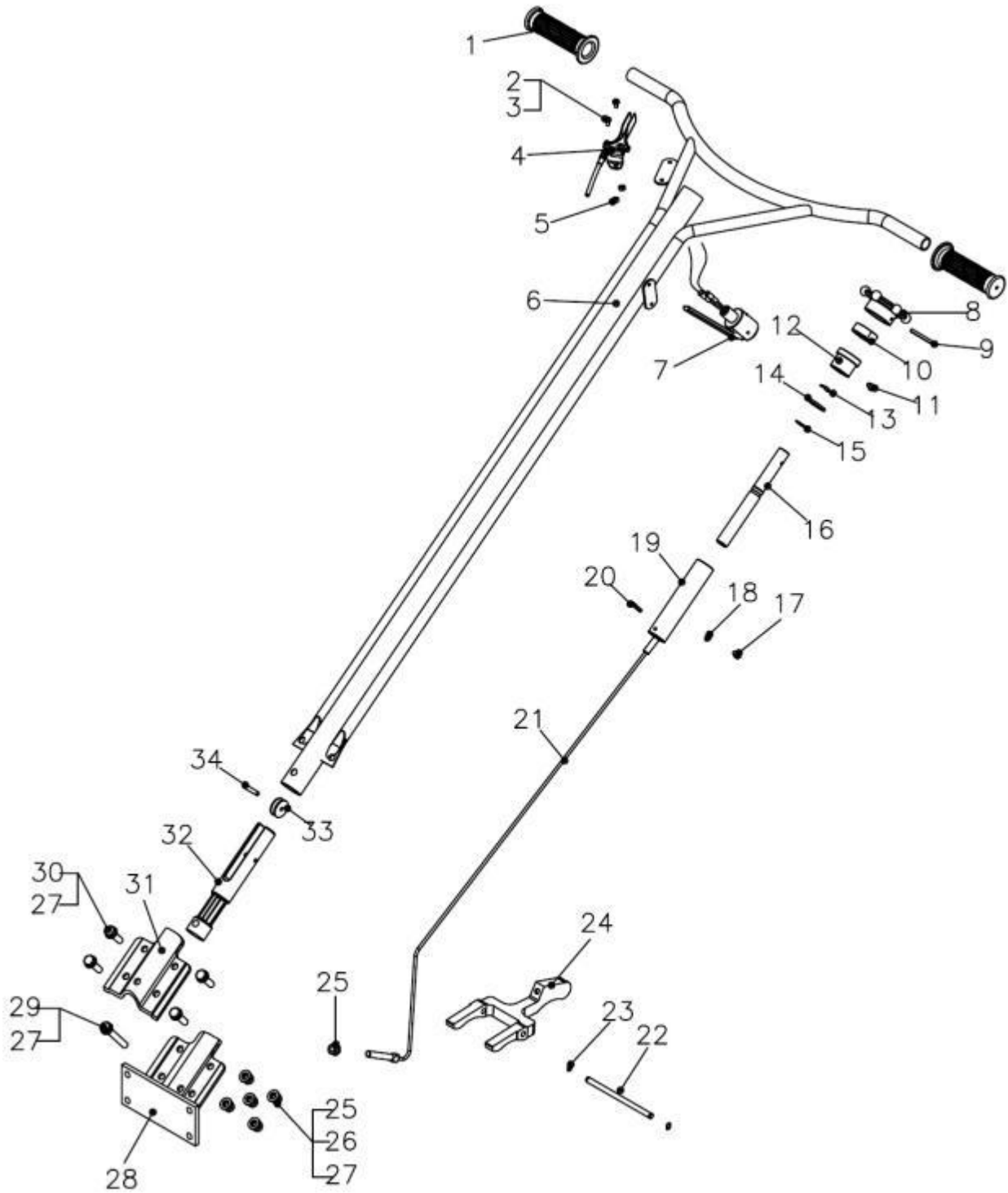
9.5 Set the torque wrench to 17.36 ft-lb (23.54 N-m or 240 kgf.cm) and tighten the inner bolt for the third time.

9.6 Keep the torque wrench setting at 17.36 ft-lb and tighten the outer bolt a third time.

10. Repeat for the other three blades.

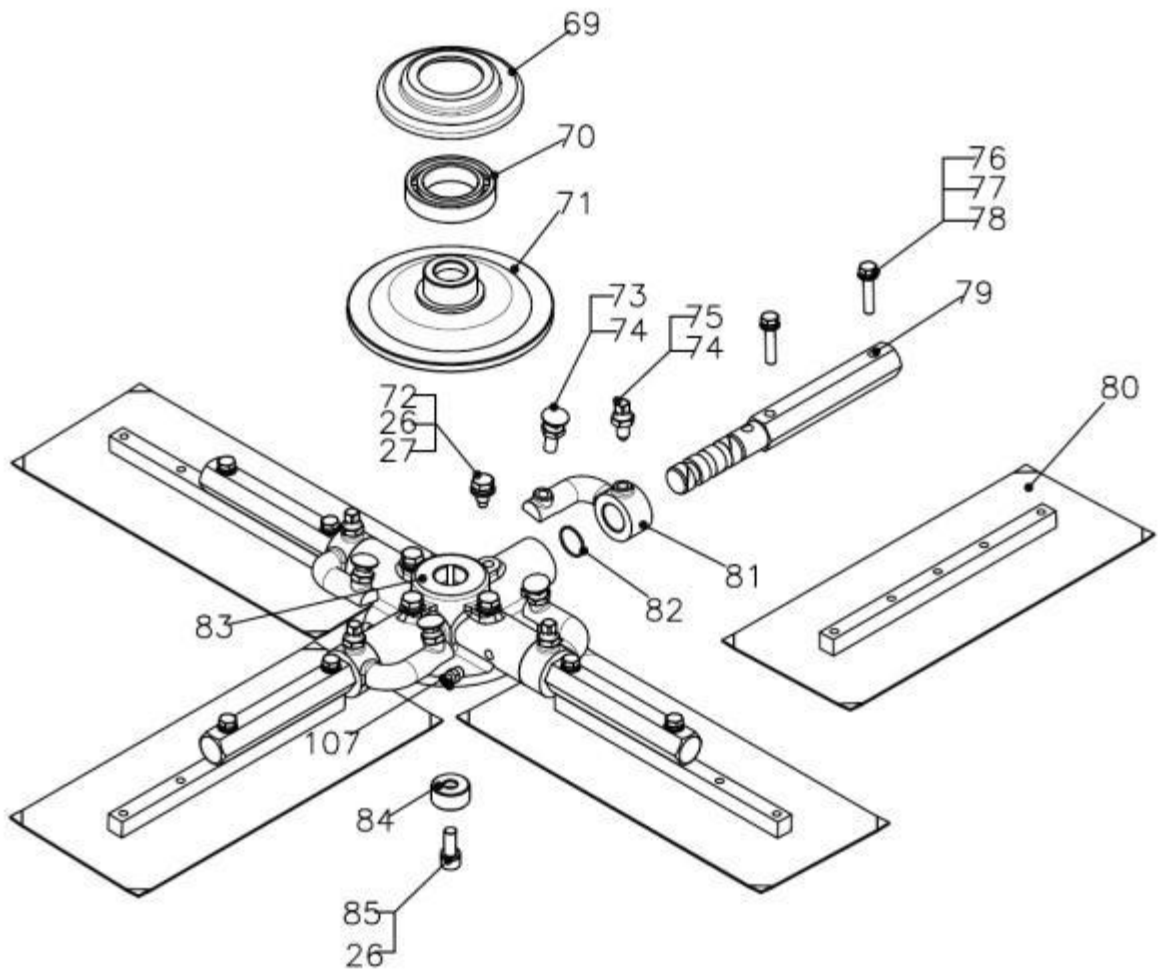
Parts Diagram

Handle



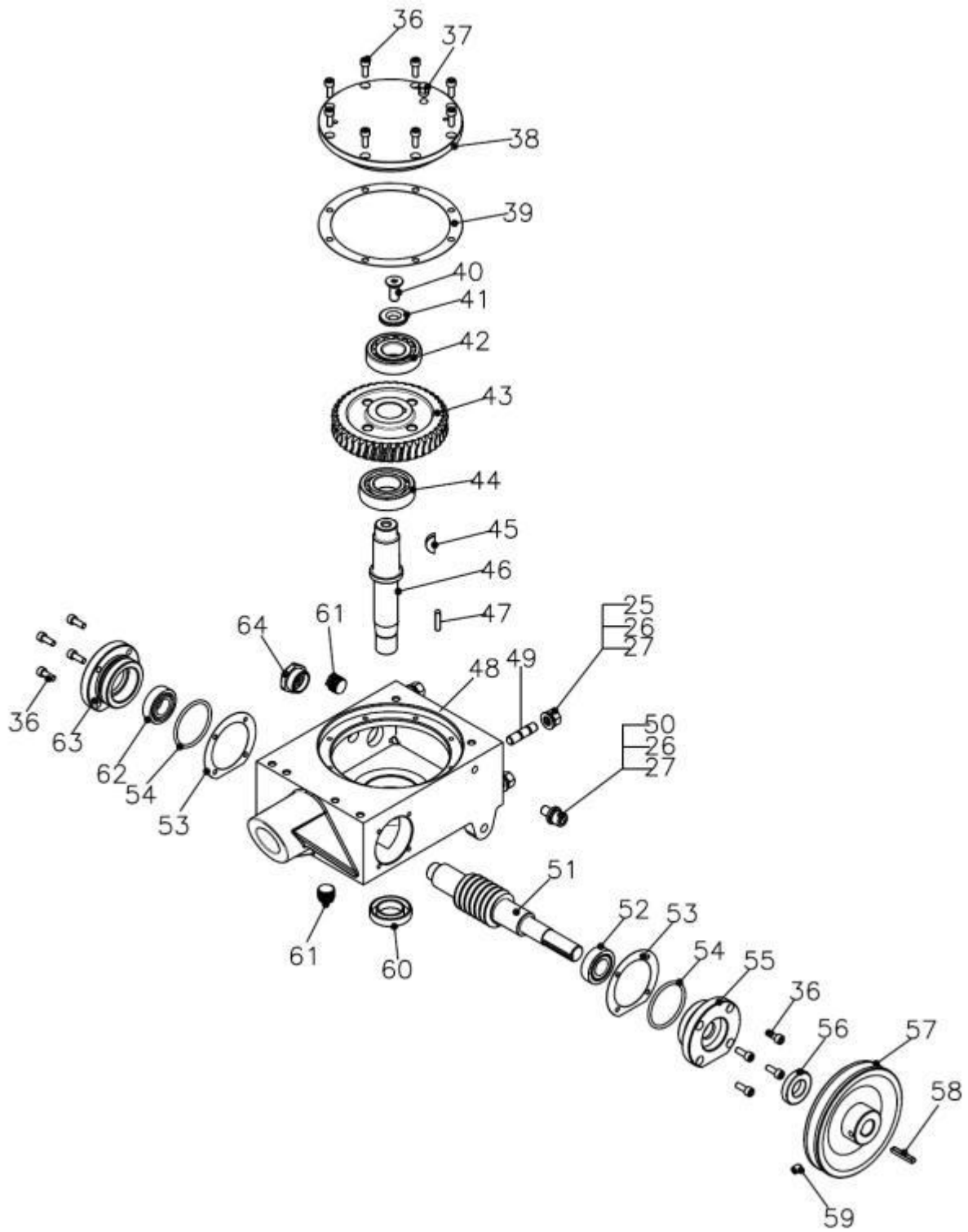
REF	Parts No.	Description	Q'TY	Dimension
1	RG-003	Plastic Cover	2	
2	QSC-M4*8	Screw	2	M4x8
3	QWS-PM4	Plate Washer	2	M4
4	TSA-01	Throttle Assy.	1	
5	QNT-NM4	Nylock Nut	2	M4
6	W436F-001	Handle WA	1	
7	PAS-02	Stop Switch(release bar Type)	1	
8	436F-01-001	Adjust Knob	1	
9	QSP-5X50	Spring Pin	1	5x50
10	QBR-51104	Bearing	1	
11	QBL-M6X10	Bolt	1	M6x10
12	436F-01-004	Aluminium Guide	1	
13	QWS-WM19	Wave Washer	1	M19
14	QWS-PM19	Plate Washer	1	M19
15	QSR-S18	Snap Ring	1	S18
16	436F-01-002	Adjust Screw Pipe	1	
17	QBL-M6X8	Bolt	1	M6x8
18	QWS-PM6	Spring Washer	1	M6
19	436F-01-003	Screw Guide	1	
20	QSP-5X30	Spring Pin	1	5x30
21	436F-01-007 WT	Steel Wire	1	
22	436F-02-004	Yoke Arm Pin	1	
23	QSR-S10	Snap Ring	2	S10
24	436F-02-003B	Yoke Arm	1	
25	QNT-NM10	Nylock Nut	10	M10
26	QWS-SM10	Spring Washer	14	M10
27	QWS-PM10	Plate Washer	18	M10
28	436F-02-001	Handle Support Base	1	
29	QBL-M10X70	Bolt	1	M10x70
30	QBL-M10X35	Bolt	4	M10x35
31	436F-02-002	Upper Bracket	1	
32	436F-01-005	Alumium yoke	1	
33	436A-01-010	Wheel	1	
34	QSP-3X30	Spring Pin	1	3x30

Blade



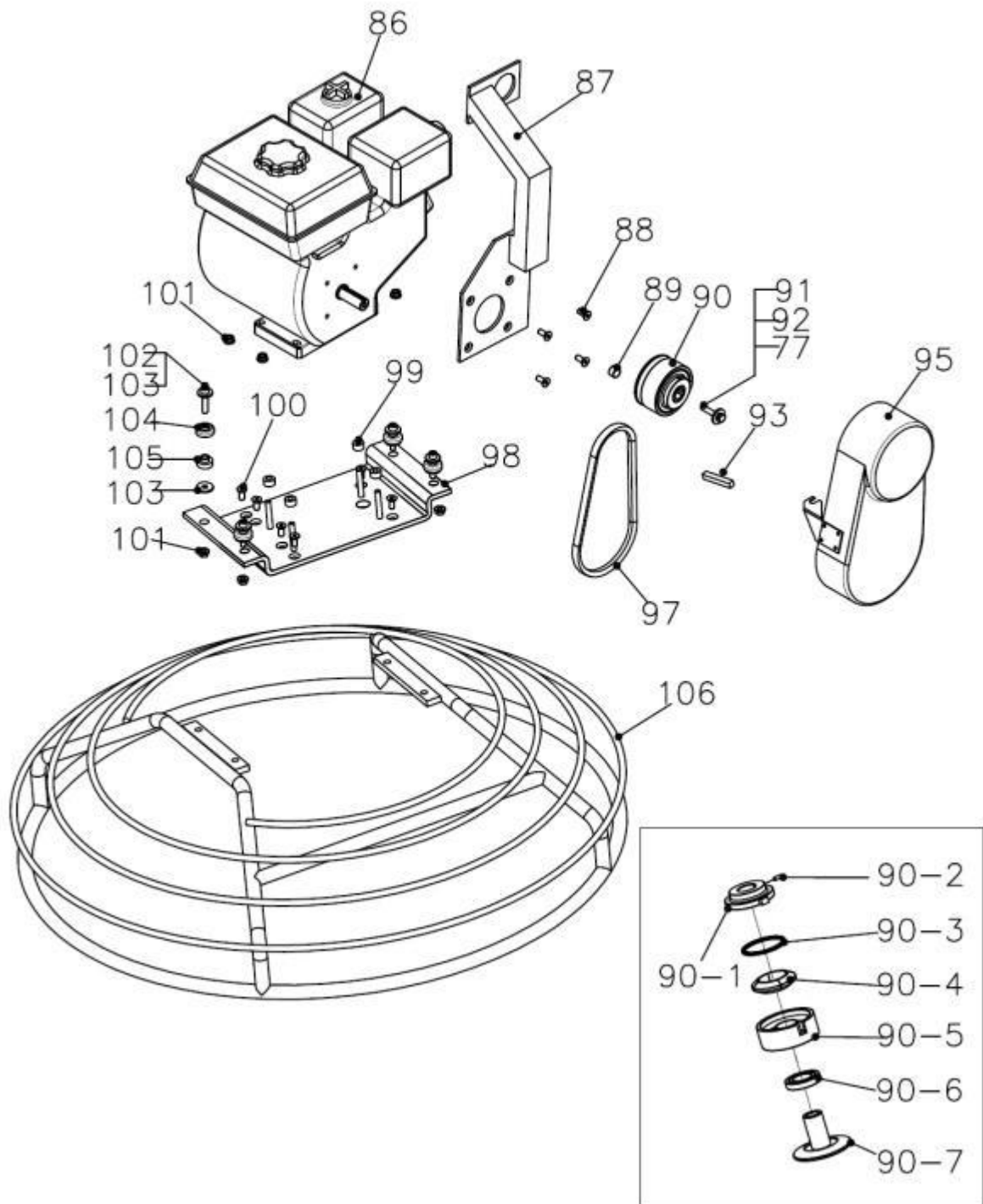
REF	Parts No.	Description	Q'TY	Dimension
26	QWS-SM10	Spring Washer	5	M10
27	QWS-PM10	Plate Washer	4	M10
69	436F-02-005B	Press Plate Cap	1	
70	QBR-6009	Bearing	1	6009
71	436F-02-006B	Press Plate Cap	1	
72	QBL-M10X20	Bolt	4	M10x20
73	QBL-BBM10X35	Round Head Bolt	4	M10x35
74	QNT-TM10	Thin Nut	8	M10
75	QBL-SHM10X30	Square Head Bolt	4	
76	QBL-7/16X1 1/2	Bolt	8	7/16*3/2L
77	QWS-SM8	Spring Washer	8	M8
78	QWS-PM8	Plate Washer	8	M8
79	436F-02-009B	Blade Arm	4	
80	436F-02-014	Blade Assembly	4	
81	436F-02-008	Tilt Arm	4	
82	QOR-S22	O-ring	4	22x1.5t
83	436F-02-007B	Spider	1	
84	436F-02-010	Spider Bushing	1	
85	QBL-LM10X30	Socket Bolt	1	M10x30

Gear Box



REF	Parts No.	Description	Q'TY	Dimension
	436F-03	Gear Box Assembly	1	
25	QNT-NM10	Nylock Nut	4	M10
26	QWS-SM10	Spring Washer	5	M10
27	QWS-PM10	Plate Washer	5	M10
36	QBL-M6X16	Bolt	16	M6x16L
37	QRV-M8	Release Valve	1	
38	436F-03-004	Big Cover	1	
39	436F-03-005	Gasket of Big Cover	1	
40	QBL-FHM10x25	Flat Socket Head Bolt	1	M10x25
41	QWS-SSM10	Washer	1	M10
42	QBR-30305	Bearing	1	30305
43	436F-03-008	Worm Gear	1	
44	QBR-6206	Bearing	1	6206
45	QKY-W6X10X25	Wood Key	1	6x10x25
46	436F-02-012	Main Shaft	1	
47	QKY-6X25	Key	1	6x25
48	436F-03-001	Shell	1	
49	QBL-STM10x40	Stud Bolt	4	M10x40
50	QBL-M10X16	Bolt	1	M10x16
51	436F-03-007	Worm Shaft	1	
52	QBR-32004	Bearing	1	32004
53	436F-03-006	Gasket of Side Cover	2	
54	QOR-P55	O-Ring	2	55x3.5t
55	436F-03-003	Output Side Cover	1	
56	QOS-20X40X8	Oil Seal	1	20x40x8t
57	436F-04-005	Pulley	1	
58	QKY-5X35	Key	1	5x35
59	QBL-M8X10	Bolt	1	M8x10
60	QOS-27X47X10	Oil Seal	1	27x47x10t
61	436A-03-008WT	Oil Drain	2	
62	QBR-6004	Bearing	1	6004
63	436F-03-002	Side Cover	1	
64	QOCW-M27x1.5	Oil Check Windows	1	M27x1.5

Safety Ring



REF	Parts No.	Description	Q'TY	Dimension
77	QWS-SM8	Spring Washer		M8
86	GX160	Engine GX-160	1	
87	W436F-005	Hook Lift	1	(Option)
88	QBL-SHM8X20	Socket Head Cap Bolt	4	(Option)
89	436F-04-013	Clutch Busing	1	
90	CA-01	Clutch	1	
90-1	CA-01-004	Face Plate	1	
90-2	QBL-AM8x16	Set Screw	2	M8x16
90-3	CA-01-005	Clutch Spring	1	
90-4	CA-01-003	Shoe Weight	1	
90-5	CA-01-002	Clutch Drum	1	
90-6	QBR-6006	Bearing	1	6006
90-7	CA-01-001	Clutch Shaft	1	
91	QBL-M8X35	Bolt	1	
92	QWS-SPM8	Special Plate Washer	1	
93	QKY-5x5x50	Key	1	
95	436F-04-006	Belt Cover	1	
97	QBT-A26	V-Belt	1	A26
98	W436F-002	Engine Mount Plate		
99	436F-04-107	Engine Mount Bushing		
100	QBL-FHM8X20	Flat Head Cap Bolt	4	
101	QNT-M8	Nut	8	M8
102	QBL-LM8X40	Socket Head Bolt	4	M8X40
103	QWS-PM8	Plate Washer	8	M8
104	436F-04-004	Cup	4	
105	436F-04-003	Rubber	4	
106	W436F-004B	Safety Ring	1	

Troubleshooting

⚠ WARNING

To avoid risk of severe injury, turn off the engine and allow it to cool before performing any maintenance, cleaning, or inspection.

Check the list below before addressing the problems to servicing personnel including local dealer. If the problem continues after the following troubleshooting, call your local dealer for future assistance.

Problem	Possible Cause	Solution
Trowel does not develop its full speed (poor performance)	<ul style="list-style-type: none"> Engine throttle control does not completely open 	<ul style="list-style-type: none"> Open the engine throttle control completely
	<ul style="list-style-type: none"> Throttle control does not adjusted correctly 	<ul style="list-style-type: none"> Adjust the throttle control correctly
	<ul style="list-style-type: none"> The cement is too wet for finishing 	<ul style="list-style-type: none"> Dry the cement before operation
	<ul style="list-style-type: none"> Drive belt is loosened up or worn out, slipping on pulleys 	<ul style="list-style-type: none"> Adjust/replace the belt. or check whether the engine mounting bolts are tightened
	<ul style="list-style-type: none"> Warm gear binding 	<ul style="list-style-type: none"> Check grease and wear of gear. Add /change grease.
	<ul style="list-style-type: none"> Automatic clutch/ pulley are loosened up. 	<ul style="list-style-type: none"> Check status of contact. Add lubricant or replace the clutch
	<ul style="list-style-type: none"> Air filter clogged with dust, reducing engine performance 	<ul style="list-style-type: none"> Clean/replace the air filter
	<ul style="list-style-type: none"> Engine speed is too low 	<ul style="list-style-type: none"> Check engine speed with tachometer. Adjust/repair engine to run at correct speed. Note: Refer to engine manual.
Engine running, but no blade rotation	<ul style="list-style-type: none"> Engine throttle is not opened 	<ul style="list-style-type: none"> Drive belt is loosened or broken. Adjust/replace it
	<ul style="list-style-type: none"> Clutch damage 	<ul style="list-style-type: none"> Inspect / replace clutch
	<ul style="list-style-type: none"> Engine speed is too low 	<ul style="list-style-type: none"> Check and adjust engine speed
	<ul style="list-style-type: none"> Too much oil in exciter 	<ul style="list-style-type: none"> Adjust the oil level in exciter correctly
Trowel jumps or works unevenly.	<ul style="list-style-type: none"> Cement surface is too hard 	<ul style="list-style-type: none"> Wet cement (if possible)
	<ul style="list-style-type: none"> V-belt is loose or worn out 	<ul style="list-style-type: none"> Adjust/replace the V-belt

Replacement Parts

- For replacement parts and technical questions, please call Customer Service at **1-800-222-5381**.
- Not all product components are available for replacement. The illustrations provided are a convenient reference to the location and position of parts in the assembly sequence.
- When ordering parts, the following will be required: model number, serial number/lot date code, and description.
- The distributor reserves the rights to make design changes and/or improvements to product lines and manuals without notice.

Limited Warranty

Northern Tool and Equipment Company, Inc. ("We" or "Us") warrants to the original purchaser only ("You" or "Your") that the North Star product purchased will be free from material defects in both materials and workmanship, normal wear and tear excepted, for a period of **two years** from date of purchase with the Honda GX engine having a period of three years from date of purchase. The foregoing warranty is valid only if the installation and use of the product is strictly in accordance with product instructions. There are no other warranties, express or implied, including the warranty of merchantability or fitness for a particular purpose. If the product does not comply with this limited warranty, Your sole and exclusive remedy is that We will, at our sole option and within a commercially reasonable time, either replace the product or product component without charge to You or refund the purchase price (less shipping). This limited warranty is not transferable.

Limitations on the Warranty

This limited warranty does not cover: (a) normal wear and tear; (b) damage through abuse, neglect, misuse, or as a result of any accident or in any other manner; (c) damage from misapplication, overloading, or improper installation; (d) improper maintenance and repair; and (e) product alteration in any manner by anyone other than Us, with the sole exception of alterations made pursuant to product instructions and in a workmanlike manner.

Obligations of Purchaser

You must retain Your product purchase receipt to verify date of purchase and that You are the original purchaser. To make a warranty claim, contact Us at 1-800-222-5381, identify the product by make and model number, and follow the claim instructions that will be provided. The product and the purchase receipt must be provided to Us in order to process Your warranty claim. Any returned product that is replaced or refunded by Us becomes our property. You will be responsible for return shipping costs or costs related to Your return visit to a retail store.

Remedy Limits

Product replacement or a refund of the purchase price is Your sole remedy under this limited warranty or any other warranty related to the product. We shall not be liable for: service or labor charges or damage to Your property incurred in removing or replacing the product; any damages, including, without limitation, damages to tangible personal property or personal injury, related to Your improper use, installation, or maintenance of the product or product component; or any indirect, incidental or consequential damages of any kind for any reason.

Assumption of Risk

You acknowledge and agree that any use of the product for any purpose other than the specified use(s) stated in the product instructions is at Your own risk.

Governing Law

This limited warranty gives You specific legal rights, and You also may have other rights which vary from state to state. Some states do not allow limitations or exclusions on implied warranties or incidental or consequential damages, so the above limitations may not apply to You. This limited warranty is governed by the laws of the State of Minnesota, without regard to rules pertaining to conflicts of law. The state courts located in Dakota County, Minnesota shall have exclusive jurisdiction for any disputes relating to this warranty.



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