

# OPERATION AND PARTS MANUAL



## BA-SERIES WALK-BEHIND TROWEL

**EXPORT VERSION  
ORIGINAL INSTRUCTIONS**

MODEL # \_\_\_\_\_

SERIAL # \_\_\_\_\_

Revision #2 (03/19/04)

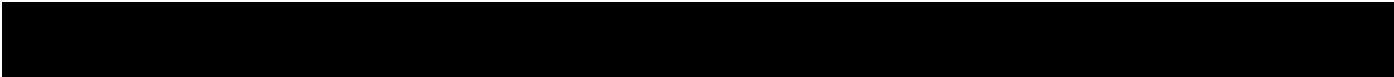


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**P/N 21618**



## **HERE'S HOW TO GET HELP**

PLEASE HAVE THE MODEL AND SERIAL  
NUMBER *ON-HAND* WHEN CALLING

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# BA-SERIES TROWEL— TABLE OF CONTENTS

|                                       |       |
|---------------------------------------|-------|
| Here's How To Get Help .....          | 3     |
| Table Of Contents .....               | 4     |
| Dimensions .....                      | 6     |
| Specifications (Engines) .....        | 7     |
| Specifications (Trowel Weights) ..... | 7     |
| Training Checklist .....              | 8     |
| Daily Pre-Operation Checklist .....   | 9     |
| Safety Message Alert Symbols .....    | 10-11 |
| Rules For Safe Operation .....        | 12-13 |
| Operation And Safety Decals .....     | 14    |
| General Information .....             | 15    |

## MQ WHITEMAN — BA-SERIES TROWEL

|   |       |
|---|-------|
| Controls and Components .....                   | 16-17 |
| Basic Engine .....                              | 18    |
| Assembly and Installation .....                 | 19-21 |
| Pre-Inspection .....                            | 22-23 |
| Initial Start-Up (Gasoline Engine) .....        | 24-25 |
| Operation .....                                 | 26-27 |
| Options .....                                   | 28-29 |
| Maintenance .....                               | 30-35 |
| Troubleshooting (Trowel) .....                  | 36-37 |
| Troubleshooting (Engine) .....                  | 38    |
| Explanation of Codes in Remarks Column .....    | 40    |
| Suggested Spare Parts .....                     | 41    |
| Nameplate and Decals .....                      | 42-43 |
| Standard Handle Assy. ....                      | 44-45 |
| Quick Pitch™ Handle Assy. ....                  | 46-48 |
| Thrust Bearing Kit Assy. ....                   | 50-51 |
| 3 and 4 Blade spider Assy. ....                 | 52-53 |
| Gearbox and Engine Mounts .....                 | 54-56 |
| Engines, Honda, Robin, & Briggs & Stratton .... | 58-59 |
| Hand Clutch Assy. ....                          | 60-61 |
| Guard Ring Assy. ....                           | 62-63 |
| Stabilizer Ring Assy. ....                      | 64-65 |
| Blades and Adjustment Fixture Assy. ....        | 66-67 |
| Lifting Bale Assy. (Option) .....               | 68-69 |

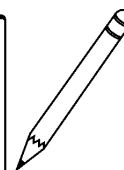
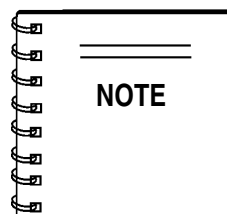
## HONDA GX-240K1 ENGINE

|                            |         |
|----------------------------|---------|
| Air Cleaner Assy. ....     | 70-71   |
| Camshaft Assy. ....        | 72-73   |
| Carburetor Assy. ....      | 74-75   |
| Control Assy. ....         | 76-77   |
| Crankcase Cover Assy. .... | 78-79   |
| Crankshft Assy. ....       | 80-81   |
| Cylinder Barrel Assy. .... | 82-83   |
| Cylinder Head Assy. ....   | 84-85   |
| Fan Cover Assy. ....       | 86-87   |
| Flywheel Assy. ....        | 88-89   |
| Fuel Tank Assy. ....       | 90-91   |
| Gasket Kit .....           | 93      |
| Ignition Coil Assy. ....   | 94-95   |
| Muffler Assy. ....         | 96-97   |
| Piston Assy. ....          | 98-99   |
| Recoil Starter Assy. ....  | 100-101 |
| Tools .....                | 102-103 |
| Labels .....               | 104-105 |

## ROBIN EH25-2 ENGINE

|                                 |         |
|---------------------------------|---------|
| Crankcase Assy. ....            | 106-107 |
| Crankshaft Assy. ....           | 108-109 |
| Intake and Exhaust Assy. ....   | 110-111 |
| Governor Assy. ....             | 112-113 |
| Cooling and Starting Assy. .... | 114-115 |
| Fuel Tank Assy. ....            | 116-117 |
| Carburetor Assy. ....           | 118-119 |
| Recoil Start Assy. ....         | 120-121 |
| Oil Sensor Assy. ....           | 122-123 |

|  |     |
|--|-----|
| Terms and Conditions of Sale — Parts ..... | 124 |
|--|-----|



**Specifications and part numbers are subject to change without notice.**



# BA-SERIES TROWEL— DIMENSIONS

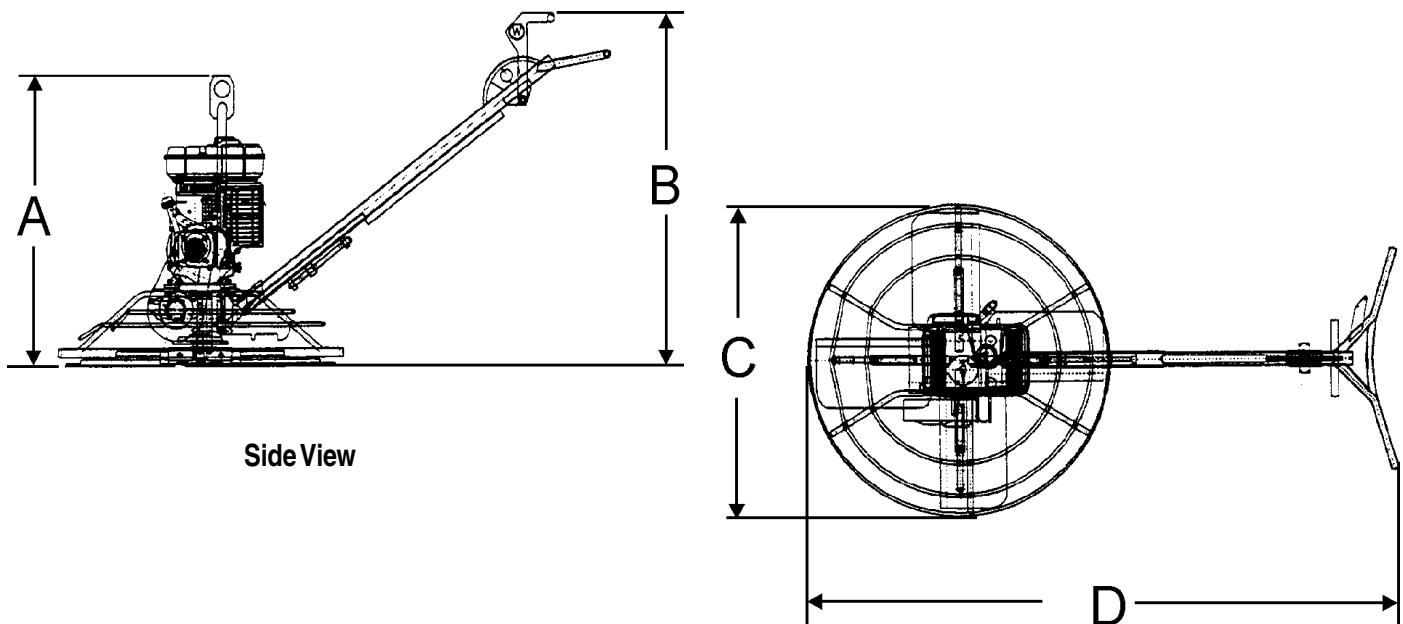


Figure 1. BA-Series Trowel Dimensions

| Table 1. BA-Series Trowel Specifications |                         |
|--|-------------------------|
| A- Height (Lifting Hook)                 | 87.62 cm (34.5 in.)     |
| B- Height Engagement Lever)              | 104.4 cm (41.1 in.)     |
| C-Width                                  | 116.84 cm (46.0 in.)    |
| D-Length                                 | 191.0 cm (75.2 in.)     |
| Weight – Operating                       | See Table 3             |
| Sound Pressure                           | 97 db                   |
| Vibration                                | (6.3 m/s <sup>2</sup> ) |
| Ring Diameter                            | 117 cm (46 in.)         |
| Number of Blades                         | 3 or 4                  |
| Blade Tip Speed – FPM (m/s)              | 1,478 fpm (7.5 m/s)     |
| Rotor – RPM (Gasoline)                   | 60 to 125               |
| Path Width – cm (in.)                    | 233 cm (48 in.)         |

**NOTE:**

1. Sound pressure is a weighted measure. Measured at the operators ear position while the walk-behind trowel is operating at full throttle on concrete in a manner most often experienced in “*normal*” circumstances. Sound pressure may vary depending upon the condition of the concrete. Hearing protection is always recommended.
2. The vibration level indicated is the maximum RMS (Root Mean Square) value obtained at the handle grip at full throttle on dry concrete, using a QP Handle and manual clutch with the blades slightly pitched. Values were obtained from all three axes of motion. The values shown represent the maximum RMS value from these measurements.

# BA-SERIES TROWEL— SPECIFICATIONS (ENGINES)

## Table 2. Specifications (Engines)

|                | Model                    | HONDA GX240K1   | ROBIN EH-25-2   |
|----------------|--------------------------|---|---|
| Engine         | Type                     | Air-cooled 4 stroke, Single Cylinder, OHV, Horizontal Shaft Gasoline Engine | Air-cooled 4 stroke, Single Cylinder, OHV, Horizontal Shaft Gasoline Engine |
|                | Bore X Stroke            | 73 mm x 58 mm<br>(2.90 in. X 2.30 in.)                                      | 75 mm x 57 mm<br>(2.95 in. x 2.24 in.)                                      |
|                | Displacement             | 14.81 cc  | 15.31 cc  |
|                | Max Output               | 5.97kW (8.0 H.P.)/3600 R.P.M.   | 6.34kW (8.5 H.P.)/4000 R.P.M.   |
|                | Fuel Tank Capacity       | Approx. 6 Liters<br>(1.59 U.S. Gallons)                                     | Approx. 6 Liters<br>(1.59 U.S. Gallons)                                     |
|                | Fuel                     | Unleaded Automobile Gasoline  | Unleaded Automobile Gasoline  |
|                | Lube Oil Capacity        | 1.1 Liters (2-1/3 U.S. pints)   | .95 Liters (2 U.S. pints)   |
|                | Speed Control Method     | Centrifugal Fly-weight Type   | Centrifugal Fly-weight Type   |
|                | Starting Method          | Recoil Start  | Recoil Start  |
|                | Dimension<br>(L x W x H) | 355 X 430 X 410 mm<br>(14.0 x 16.9 X 16.1 in.)                              | 366 X 412 X 440 mm<br>(14.40 x 16.20 X 17.32 in.)                           |
| Dry Net Weight | 25 Kg. (55.1 lbs)        | 23 Kg. (50.7 lbs)   |   |

## Table 3. Specifications (Trowel Weights)

| MODEL    | POWER SOURCE                | OPERATING WEIGHT   | SHIPPING WEIGHT    |
|----------|-----------------------------|--------------------|--------------------|
| BA-4-8BS | 8 HP Briggs and Stratton    | 103 kg. (228 lbs.) | 126 kg (278 lbs.)  |
| BA-4-7R  | 7.5 HP Robin                | 107 kg. (237 lbs.) | 130 kg. (287 lbs.) |
| BA-4-7RM | 7.5 HP Robin, Manual Clutch | 107 kg. (237 lbs.) | 130 kg. (287 lbs.) |
| BA-4-8H  | 8.0 HP Honda                | 110 kg. (242 lbs.) | 132 kg. (292 lbs.) |
| BA-4-8HM | 8.0 HP Honda, Manual Clutch | 110 kg. (242 lbs.) | 132 kg. (292 lbs.) |

# BA-SERIES TROWEL— TRAINING CHECKLIST

## TRAINING CHECKLIST

This checklist will lists some of the minimum requirements for machine maintenance and operation. Please feel free to detach it and make copies. Use this checklist whenever a new operator is to be trained or it can be used as a review for more experienced operator's.

| TRAINING CHECKLIST |   |     |      |
|--------------------|---|-----|------|
| NO.                | DESCRIPTION   | OK? | DATE |
| 1                  | Read Operator's Manual completely.  |     |      |
| 2                  | Machine layout, location of components, checking of engine and gearbox fluid level. |     |      |
| 3                  | Fuel system, refueling procedure.   |     |      |
| 4                  | Operation of controls (machine not running).  |     |      |
| 5                  | Safety controls, Engine-Off Safety Switch operation.                                |     |      |
| 6                  | Emergency stop procedures.  |     |      |
| 7                  | Startup of machine.   |     |      |
| 8                  | Maneuvering.  |     |      |
| 9                  | Pitching.   |     |      |
| 10                 | Concrete finishing techniques.  |     |      |
| 11                 | Shutdown of machine.  |     |      |
| 12                 | Lifting of machine (optional equipment).  |     |      |
| 13                 | Machine transport and storage.  |     |      |

Operator \_\_\_\_\_ Trainee \_\_\_\_\_

COMMENTS:



# BA-SERIES TROWEL— DAILY PRE-OPERATION CHECKLIST

## DAILY PRE-OPERATION CHECKLIST

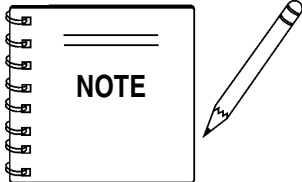
| DAILY PRE-OPERATION CHECKLIST |   | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
|-------------------------------|---|---|---|---|---|---|---|
| 1                             | Engine Oil Level.                       |   |   |   |   |   |   |
| 2                             | Gearbox Fluid Level.                    |   |   |   |   |   |   |
| 3                             | Condition of Blades.                    |   |   |   |   |   |   |
| 4                             | Blade Pitch Operation.                  |   |   |   |   |   |   |
| 5                             | Clutch Operation.                       |   |   |   |   |   |   |
| 6                             | Engine Shutdown Safety Switch Operation |   |   |   |   |   |   |

COMMENTS:

# BA-SERIES TROWEL — SAFETY MESSAGE ALERT SYMBOLS

## FOR YOUR SAFETY AND THE SAFETY OF OTHERS!

Safety precautions should be followed at all times when operating this equipment. Failure to read and understand and comply with the Safety Messages and Operating Instructions could result in injury to yourself and others.



This Owner's Manual has been developed to provide complete instructions for the safe and efficient operation of the MQ Whiteman BA SERIES TROWEL. For engine maintenance information, please refer to the engine manufacturers instructions for data relative to its safe operation.

**Before using this WALK-BEHIND TROWEL, ensure that the operating individual has read and understands all instructions in this manual.**

## SAFETY MESSAGE ALERT SYMBOLS

The three (3) Safety Messages shown below will inform you about potential hazards that could injure you or others. The Safety Messages specifically address the level of exposure to the operator, and are preceded by one of three words: **DANGER**, **WARNING**, or **CAUTION**.

### **DANGER**

You **WILL** be **KILLED** or **SERIOUSLY INJURED** if you **DO NOT** follow these directions.

### **WARNING**

You **CAN** be **KILLED** or **SERIOUSLY INJURED** if you **DO NOT** follow these directions.

### **CAUTION**

You **CAN** be **INJURED** if you **DO NOT** follow these directions.

Potential hazards associated with BA SERIES TROWEL operation will be referenced with **Hazard Symbols** which appear throughout this manual, and will be referenced in conjunction with **Safety Message Alert Symbols**.

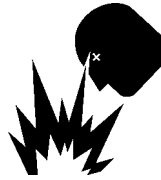
## HAZARD SYMBOLS

### **Lethal Exhaust Gases**



Engine exhaust gases contain poisonous carbon monoxide. This gas is colorless and odorless, and can cause death if inhaled. **NEVER** operate this equipment in a confined area or enclosed structure that does not provide ample free flow air.

### **Explosive Fuel**



Gasoline is extremely flammable, and its vapors can cause an explosion if ignited. **DO NOT** start the engine near spilled fuel or combustible fluids. **DO NOT** fill the fuel tank while the engine is running or hot. **DO NOT** overfill tank, since spilled fuel could ignite if it comes into contact with hot engine parts or sparks from the ignition system. Store fuel in approved containers, in well-ventilated areas and away from sparks and flames. **NEVER** use fuel as a cleaning agent.

### **Burn Hazards**



Engine components can generate extreme heat. To prevent burns, **DO NOT** touch these areas while the engine is running or immediately after operations. **NEVER** operate the engine with heat shields or heat guards removed.

### **Rotating Parts**



**NEVER** operate equipment with covers, or guards removed. Keep **fingers, hands, hair** and **clothing** away from all moving parts to prevent injury.

# BA-SERIES TROWEL — SAFETY MESSAGE ALERT SYMBOLS



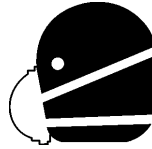
## Accidental Starting



**ALWAYS** place the engine **ON/OFF** switch in the **OFF** position, when the trowel is not in use.



## Respiratory Hazard



**ALWAYS** wear approved respiratory protection.



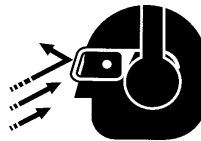
## Over Speed Conditions



**NEVER** tamper with the factory settings of the engine governor or settings. Personal injury and damage to the engine or equipment can result if operating in speed ranges above maximum allowable.



## Sight and Hearing hazard



**ALWAYS** wear approved eye and hearing protection.



## Equipment Damage Messages

Other important messages are provided throughout this manual to help prevent damage to your trowel, other property, or the surrounding environment.



## CAUTION

This walk-behind trowel, other property, or the surrounding environment could be damaged if you do not follow instructions.

# BA-SERIES TROWEL — RULES FOR SAFE OPERATION

## RULES FOR SAFE OPERATION

### **WARNING**

Failure to follow instructions in this manual may lead to serious injury or even death! This equipment is to be operated by trained and qualified personnel only! This equipment is for industrial use only.

The following safety guidelines should always be used when operating the BA Series.

### SAFETY

- **DO NOT** operate or service this equipment before reading this entire manual. The manual must be kept available and accessible to the operator.
- This equipment should not be operated by persons under the minimum statutory age limit.
- **NEVER** use this machine for any purpose other than those described in this manual.
- **NEVER** operate the trowel without proper protective clothing, shatterproof glasses, steel-toed boots and other protective devices required for the job.

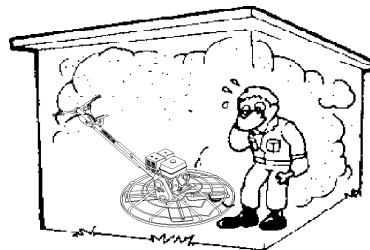


- **NEVER** use accessories or attachments which are not recommended by Multiquip for this equipment. Damage to the equipment and/or injury to user may result.
- Manufacturer does not assume responsibility for any accident due to equipment modifications. Unauthorized equipment modification will void all warranties. Any modification which could lead to a change in the original characteristics of the machine should be made only by the manufacturer who shall confirm that the machine is in conformity with appropriate safety regulations.

- **NEVER** operate this equipment when not feeling well due to fatigue, illness or taking medicine.
- **NEVER** operate the trowel under the influence of drugs or alcohol.
- Replace nameplate, operation and safety decals when they become difficult to read.
- **ALWAYS** check the trowel for loosened hardware such as nuts and bolts before starting.
- **NEVER** touch the hot exhaust manifold, muffler or cylinder. Allow these parts to cool before servicing the trowel.



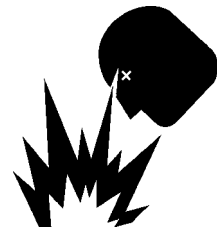
- **High Temperatures** – Allow the engine to cool before adding fuel or performing service and maintenance functions. Contact with **hot!** components can cause serious burns.



- The engine of this trowel requires an adequate free flow of cooling air. **NEVER** operate the trowel in any enclosed or narrow area where free flow of the air is restricted. If the air flow is restricted it will cause serious damage to the engine and may cause injury to people. Remember the

engine gives off **DEADLY** carbon monoxide gas.

- **ALWAYS** refuel in a well-ventilated area, away from sparks and open flames.
- **ALWAYS** use extreme caution when working with **flammable** liquids. When refueling, **STOP** the engine and allow it to cool.
- **NEVER** operate the trowel in an explosive atmosphere where fumes are present, or near combustible materials. An explosion or fire could result in severe **bodily harm or even death**.




- **NEVER** **smoke** around or near the machine. Fire or explosion could result from **fuel vapors**, or if fuel is spilled on a **hot!** engine.



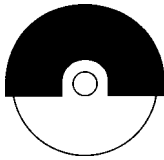
- Topping-off to filler port is dangerous, as it tends to spill fuel.
- **NEVER** use fuel as a cleaning agent.

# BA-SERIES TROWEL — RULES FOR SAFE OPERATION

- **NEVER** Run engine without air filter. Severe engine damage may occur. Service air filter frequently to prevent carburetor malfunction.
- **NEVER** place your **feet** or **hands** inside the guard rings while starting or operating this equipment.
- **AVOID** wearing jewelry or loose fitting clothing that may snag on the controls or moving parts as this can cause a serious injury.
- **ALWAYS** keep clear of **rotating** or **moving parts** while operating the trowel.
- **Moving Parts** – Shut down the engine before performing service or maintenance functions. Contact with moving parts can cause serious injury.
- **ALWAYS** check to make sure that the operating area is clear before starting the engine.
- **NEVER** leave the machine **unattended** while running.
- **ALWAYS** be sure the operator is familiar with proper safety precautions and operations techniques before using trowel.
- **ALWAYS** keep the work area well organized.
- **ALWAYS** clear the work area of any debris, tools, etc. that would constitute a hazard while the trowel is in operation.

 **WARNING**

**ALWAYS** check to make sure that the operating area is clear before starting the engine.



- No one other than the operator is to be in the working area when the saw is in operation.
- Always observe all applicable compulsory regulations relevant to environmental protection, especially, fuel storage, the handling of hazardous substances, and the wearing of protective clothing and equipment. Instruct the user as necessary, or, as the user, request this information and training.
- **ALWAYS** store equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of the reach of children.

## Transporting

- **ALWAYS** shutdown engine before transporting.
- Tighten fuel tank cap securely and close fuel cock to prevent fuel from spilling.
- Drain fuel when transporting trowel over long distances or bad roads.

- When placing the trowel inside a truck-bed for transport, always tie-down the trowel.
- **ALWAYS** use proper lifting techniques when moving the trowel.

## Maintenance Safety

- **NEVER** lubricate components or attempt service on a running trowel.
- **ALWAYS** allow the trowel a proper amount of time to cool before servicing.
- Keep the trowel in proper running condition.
- Fix damage to the trowel immediately and always replace broken parts.
- Dispose of hazardous waste properly. Examples of potentially hazardous waste are used motor oil, fuel and fuel filters.
- **DO NOT** use food or plastic containers to dispose of hazardous waste.

## Emergencies

- **ALWAYS** know the location of the nearest **fire extinguisher**.



- **ALWAYS** know the location of the nearest and **first aid kit**.



- In emergencies **always** know the location of the nearest phone or **keep a phone on the job site**. Also know the phone numbers of the nearest **ambulance, doctor** and **fire department**. This information is invaluable in the case of an emergency and could keep a serious situation from becoming a tragic one.



# BA-SERIES TROWEL— OPERATION AND SAFETY DECALS

## OPERATION AND SAFETY DECALS

The BA-Series walk-behind trowel is equipped with a number of operation, safety, and maintenance decals. Should any of these decals become unreadable, replacements can be obtained from your dealer.

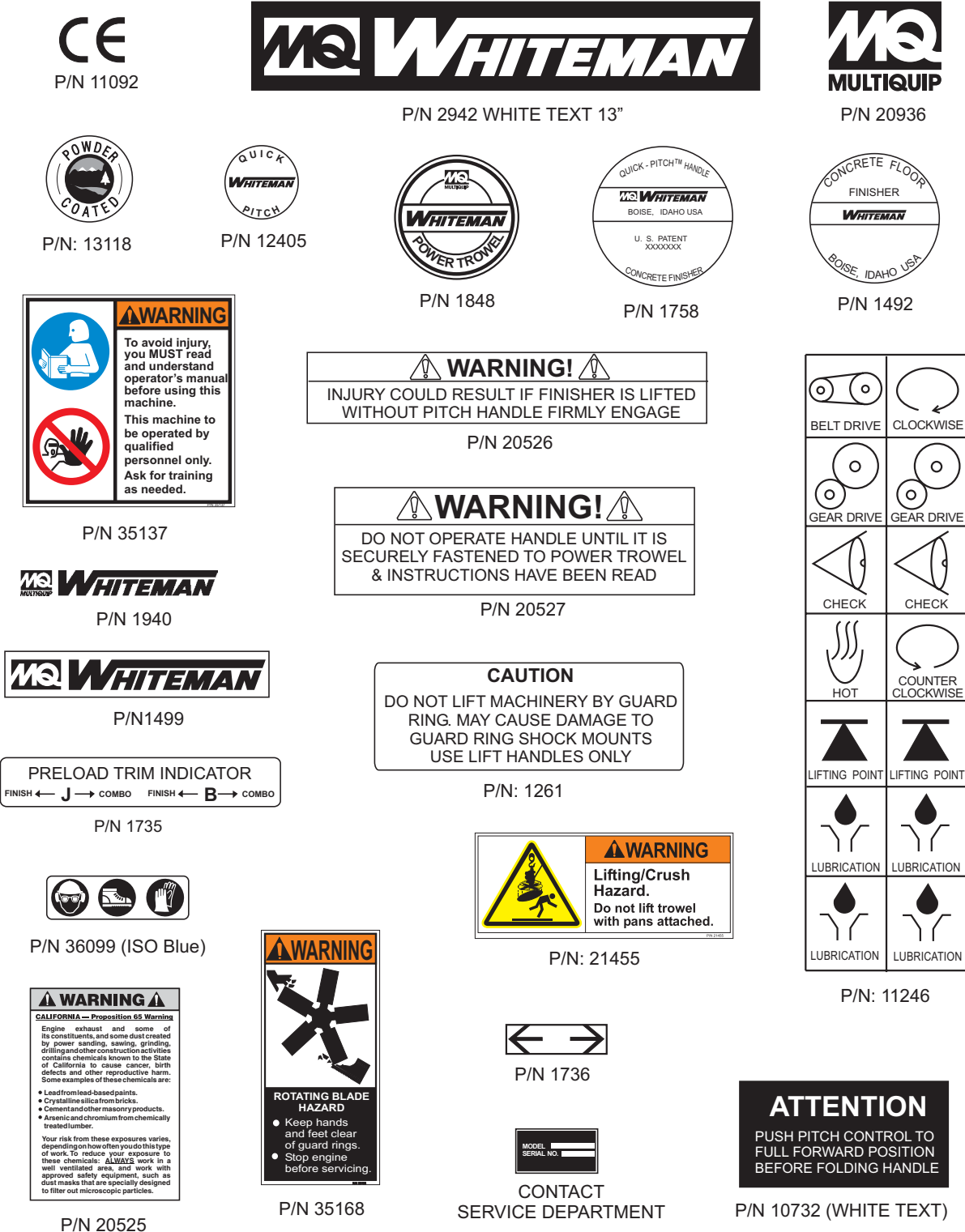


Figure 2. BA-Series Trowel Decals

# BA-SERIES TROWEL—GENERAL INFORMATION

## Intended Use

Operate the BA Series Trowel, tools and components in accordance with the manufacturer's instructions. Use of any other tools for stated operation is considered contrary to designated use. The risk of such use lies entirely with the user. The manufacturer cannot be held liable for damages as a result of misuse.

## BA-Series Trowel Familiarization

This walk-behind trowel is designed for the **floating** and **finishing** of concrete slabs.

Take a walk around the trowel. Take notice of all the major components (see Figure 2, page 18) like the engine, blades, quick pitch control, air cleaner, centrifugal stop switch, etc. Check that there is always oil in the engine.

**Read** all the safety instructions carefully. Safety instructions will be found throughout this manual and on the trowel. Keep all safety information in good, readable condition. Operators should be well trained on the operation and maintenance of the trowel.

Before using your trowel, test it on a flat watered down section of finished concrete that is free of any debris and other objects.

This trial test run will increase your confidence in using the trowel and at the same time it will familiarize you with the trowel's controls. In addition you will understand how the trowel handles under actual conditions.

## Engines

This trowel is available with a 5.97kW (8.0 HP) **HONDA**, 6.34 kW (8.5 HP) **ROBIN**, or a 5.97kW (8.0 HP) **Briggs and Stratton** gasoline engine. Refer to the engine owner's manual for instructions regarding the operation and maintenance of your engine. The engine manual is included with your trowel at the time of shipment from Whiteman. Please contact your nearest Multiquip Dealer for a replacement should the original manual disappear.

## Drive System

Power is transferred from the engine to the gearbox input shaft via a V-belt pulley drive system. The pulley engages using a manual clutch. See Parts section of this manual.

## Gearbox

The **gearbox** is located beneath the engine and transfers power to the **rotor** or **spider** assembly. The gearbox controls the rotational speed of the trowel and is equipped with two shafts (input and output).

## Spider

The vertical output shaft of the gearbox connects to a cast hub called the **spider**. The spider has either 3 or 4 arms that extend outward that are used for attachment of blades or other accessories. Remember as the gearbox output shaft rotates so does the spider assembly.

## Blades

The blades of the trowel finish the concrete as they are rotated around the surface. Blades are classified as **combination** (203mm wide [8 in.]), **float** (254 mm [10 in.]) or (203 mm wide [8 in.]), and **finish** (152 mm wide [6 in.]). This trowel comes equipped with either **three** or four **blades** per rotor equally spaced in a radial pattern and attached to vertical rotating shaft by means of a **spider assembly**.

## Centrifugal Stop Switch

In the event of a trowel runaway condition (operator releases the handle), a **centrifugal stop switch** or **manual clutch** depending on which trowel you have, will stop the engine and bring the trowel to a halt.

## CAUTION

**NEVER** attempt to **lift** the trowel by yourself. **ALWAYS** get the assistance of another person to help lift the trowel or use a crane or lifting device to move the trowel.

## Moving the BA-Series Walk-Behind Trowel

This walk-behind trowel is designed to be moved and handled in several ways. The easiest way to lift the trowel is to use the **auxiliary lifting tube** that is attached to the main handle. See page 24, Figure 21. When using the auxiliary tube, always use **two persons** to lift the trowel.

Some models have a **lifting bale** (option) installed. A strap or chain can be attached to the lifting bale, allowing a forklift or crane to lift the trowel up onto a slab of concrete. Use a lifting device of adequate lifting capacity to lift the trowel.

## Training

For proper training, please use the "**TRAINING CHECKLIST**" located in the front of this manual (Page 8). This checklist will provide an outline for an experienced operator to provide training to a new operator

# BA-SERIES TROWEL—CONTROLS AND COMPONENTS

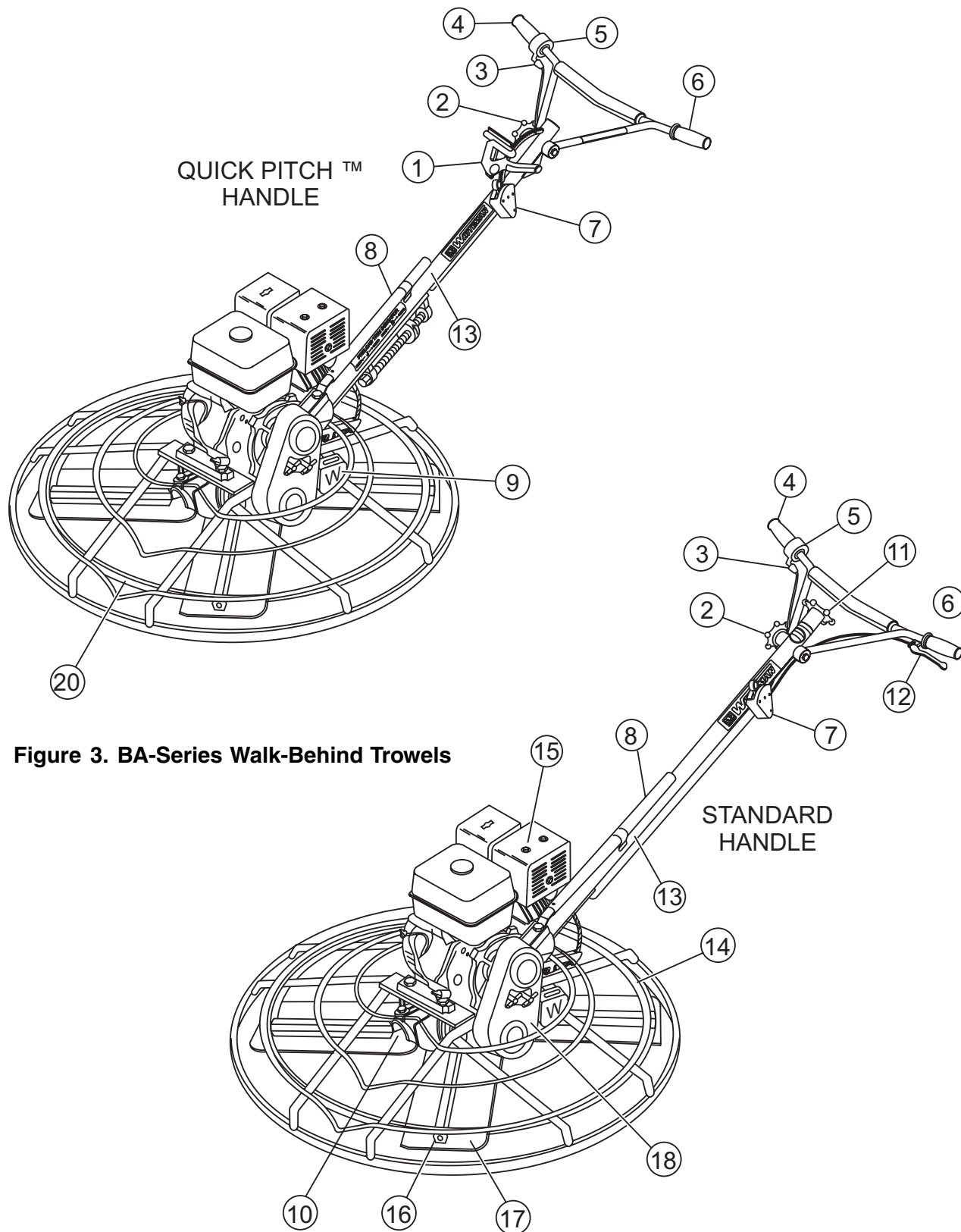


Figure 3. BA-Series Walk-Behind Trowels



## BA-SERIES TROWEL— CONTROLS AND COMPONENTS

Figure 3 shows the location of the basic controls or components, for the BA-Series trowel. Listed below is a brief explanation of each control or component

1. **Quick Pitch™ Control Handle** – To adjust the pitch of the blades, grasp the handle then squeeze and either move the handle forward or backward to achieve the desired blade pitch.
2. **Handlebar Adjuster** – Change the angle/height of the handle bars by loosening star wheel, adjust handlebars to desired location, tighten starwheel firmly to hold handlebars in that position.
3. **Hand Grip/Handle Bar** – When operating the trowel, place both hands on each grip to maneuver the trowel. Replace hand grips when they become worn or damaged.
4. **Throttle Control Grip** – Controls the speed of the engine. Rotate the hand grip away from the operator to increase engine speed (high), toward the operator to decrease engine speed (low).
5. **Throttle** – Controls engine speed when throttle control grip is rotated.
6. **Hand Grip/Handle Bar** – When operating the trowel, place both hands on each grip to maneuver the trowel. Replace hand grips when they become worn or damaged.
7. **Centrifugal Engine-Off Safety Switch** – In the event the operator loses control of the trowel, this switch will shut-down the engine.
8. **Auxiliary Lifting Tube** - Use this tube to lift the trowel onto a slab. Tube is to be inserted into socket located in front of the gearbox.
9. **Weights** – The trowel may be equipped with two 4.5 kg (10 lb.) weights. The weights may be removed to reduce the operating weight of the trowel.
10. **Trowel Lifting Point** – Insert the auxiliary lifting tube here. See Figure 21.
11. **Pitch Control (standard models)** - Turn this "Star Wheel" clockwise for increase blade pitch, and counter-clockwise for decrease blade pitch.
12. **Clutch Lever** - Clutch engagement lever. When this lever is engaged, the blades will begin to rotate. May be used with either Quick Pitch™ or Standard handle.
13. **Main Tube** - When disassembling components inside the tube exercise extreme **CAUTION!** Tube is spring-loaded, severe injury could result if not disassembled correctly.
14. **Guard Ring- NEVER!** put hands or feet inside guard ring.
15. **Engine** – This trowel uses Honda, Robin and Briggs and Stratton type gasoline engines.
16. **Trowel Arm** – **NEVER** operate the trowel with a bent, broken or out of adjustment trowel arm. If the blades show uneven wear patterns or some blades wear out faster than others, the trowel arm may need to be adjusted. Use the trowel arm adjustment tool P/N 1817 to adjust the trowel arms.
17. **Blades** – This trowel is equipped with combination blades. These blades are versatile and should take care of most troweling needs. In addition float discs can be attached to the trowel arms that will allow the trowel to float on "wet" concrete.
18. **V-Belt Cover** – Remove this cover to gain access to the V-belt. **NEVER** operate the trowel with this cover removed.
20. **Stabilizer Ring** – Reduces trowel arm vibration. Helps stabilize trowel arm.

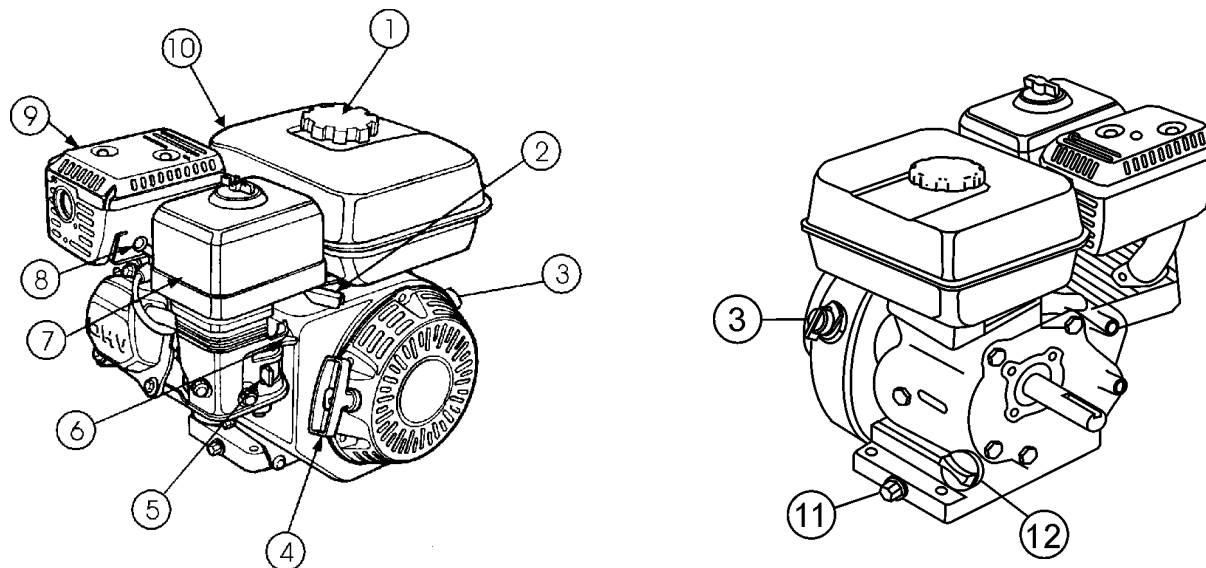


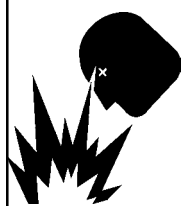
Figure 4. Engine Controls and Components

## INITIAL SERVICING

The engine (Figure 4) must be checked for proper lubrication and filled with fuel prior to operation. Refer to the manufacturer's engine manual for instructions & details of operation and servicing. The engine shown above is a **HONDA** engine, operation for other types of engines may vary somewhat.

1. **Fuel Filler Cap** – Remove this cap to add unleaded gasoline to the fuel tank. Make sure cap is tightened securely. **DO NOT** over fill.

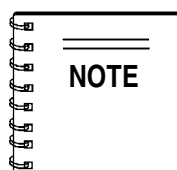
## DANGER



Adding fuel to the tank should be done only when the engine is stopped and has had an opportunity to cool down. 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.

2. **Throttle Lever** – Used to adjust engine RPM speed (lever advanced forward **SLOW**, lever back toward operator **FAST**).
3. **Engine ON/OFF Switch** – ON position permits engine starting, OFF position stops engine operations.
4. **Recoil Starter (pull rope)** – Manual-starting method. Pull the starter grip until resistance is felt, then pull briskly and smoothly.

5. **Fuel Valve Lever** – **OPEN** to let fuel flow, **CLOSE** to stop the flow of fuel.
6. **Choke Lever** – Used in the starting of a cold engine, or in cold weather conditions. The choke enriches the fuel mixture.
7. **Air Cleaner** – Prevents dirt and other debris from entering the fuel system. Remove wing-nut on top of air filter cannister to gain access to filter element.



Operating the engine without an air filter, with a damaged air filter, or a filter in need of replacement will allow dirt to enter the engine, causing rapid engine wear.

8. **Spark Plug** – Provides spark to the ignition system. Set spark plug gap according to engine manufacturer's instructions. Clean spark plug once a week.
9. **Muffler** – Used to reduce noise and emissions.
10. **Fuel Tank** – Holds unleaded gasoline. For additional information refer to engine owner's manual.
11. **Oil Drain Plug** – Remove this plug to remove oil from the engine's crankcase.
12. **Dipstick/Oil Filler Cap** – Remove this cap to determine if the engine oil is low. Add oil through this filler port as recommended in Table 3.

# BA-SERIES TROWEL — ASSEMBLY AND INSTALLATION

## Assembly and Installation

Before the trowel can be put into operation there are some components that must be installed before the trowel can be used. This section provided general instructions on how to install those components. Instruction sheet P/N 20485 provides further details for the handle assembly.

### Handle Tube Installation (All Models)

1. Install the **handle tube** to the gearbox as shown in (Figure 5). The mounting hardware should be contained in the shipping container.

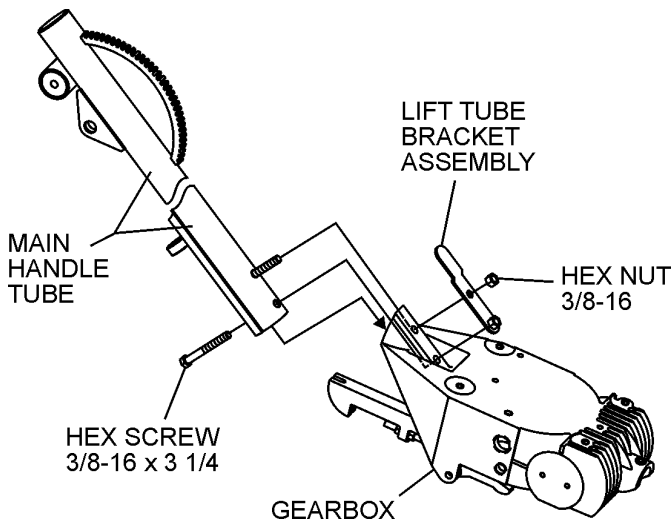


Figure 5. Handle Tube Installation

2. On Quick-Pitch™ models, pivot the **T-handle** back (full pitch) (Figure 6). This will relax the spring inside the handle tube. On either model, spread the handle bar ends just enough to engage the teeth on the handle tube. Attach the hand wheel assembly, position handlebar to desired location, and tighten hand wheel firmly.

**CAUTION**

The Quick-Pitch™ handle is spring loaded, personal injury or damage could result from improper handling or installation. Be careful when installing this component.

**NOTE**

Considerable force may be required when moving the Quick-Pitch™ **T-handle** forward or backward.

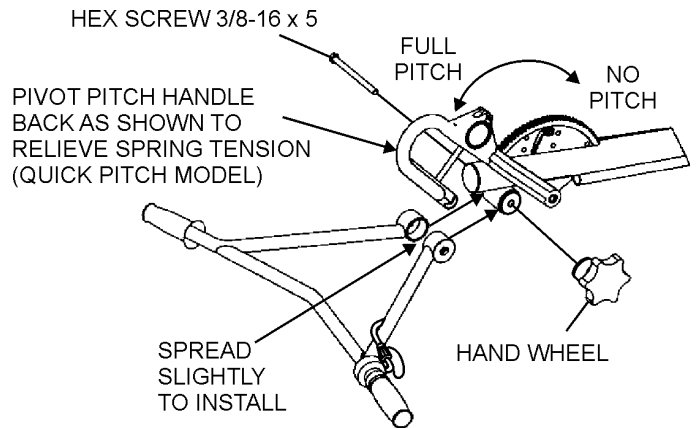


Figure 6. Handlebar Installation

### Throttle Cable Installation (Honda and Robin Engines)

1. Set the **throttle** (Figure 7) to the idle position by rotating the grip toward the operator and away from the engine.

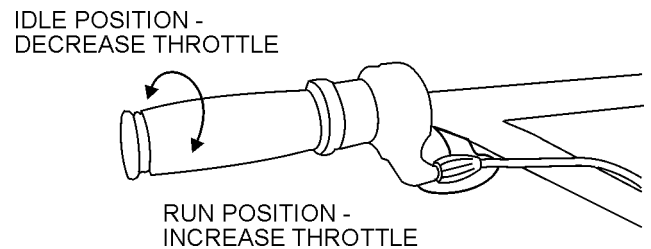


Figure 7. Throttle

2. Feed the throttle cable through the cable housing. Make sure the throttle indicator is on 25.4mm (1 in.).
3. Connect the throttle cable to the engine. (Figure 8), **Honda** and (Figure 9), **Robin**. There should be a piece of wire installed on the trowel to show where to route the throttle cable. When connecting the cable housing, make sure that no more than **6 mm (1/4 in.)** of the cable housing protrudes past the housing clamp on the engine.

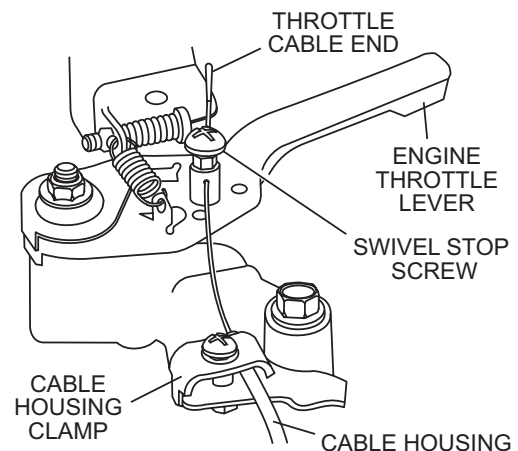
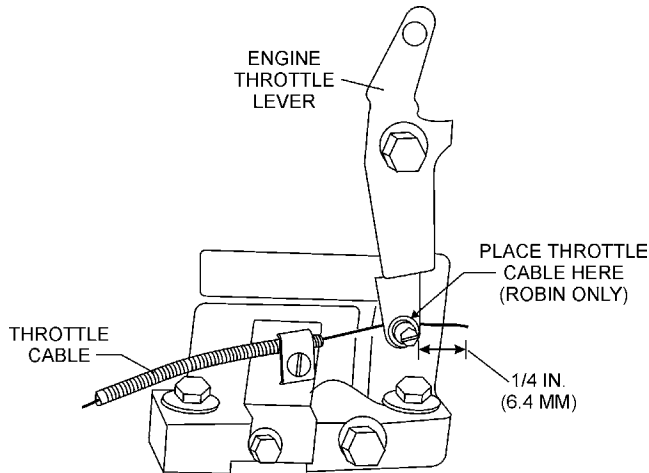


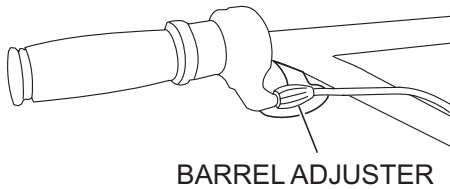
Figure 8. Throttle Cable Connection (HONDA)

# BA-SERIES TROWEL — ASSEMBLY AND INSTALLATION



**Figure 9. Throttle Cable Connection (ROBIN)**

4. Tighten cable clamp screw and swivel stop screw.
5. After the cable has been installed on the engine, adjust and tighten operator position of the handle to lock the throttle cable at the proper length.
6. Adjust cable tension by rotating the barrel adjuster. (Figure 10)



**Figure 10. Barrel Adjuster**

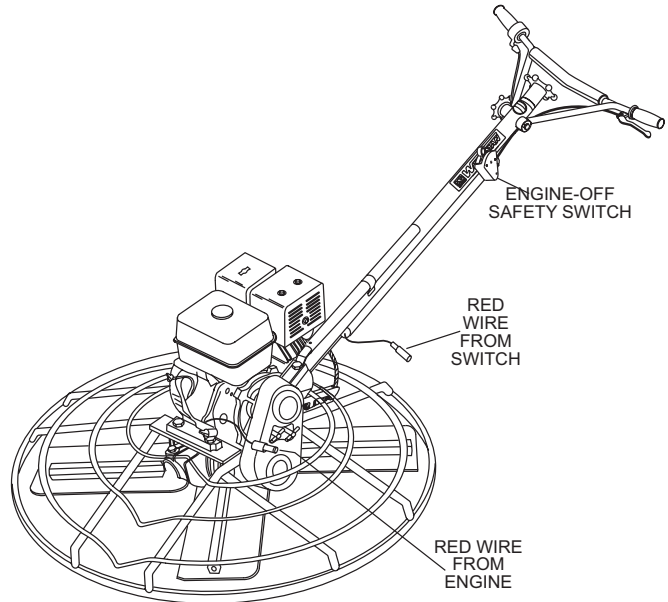
7. These are general instructions. Installation of the throttle cable may vary for different engine configurations. Please look for more detailed instructions inside the box containing the handle. These more detailed instructions should provide adequate guidance for installing.

## Handle Height Adjustment

If handle height adjustment is desired, a handle wedge kit can be purchased for your trowel by ordering P/N 2576 from your Multiquip dealer. These wedges are placed between the handle and the gearbox to adjust the operating height of the handle. This kit comes complete with wedges, new bolts and installation instructions. This will move your operating handle position up or down approximately 76mm (3 in.).

## Engine-Off Safety Switch Wire

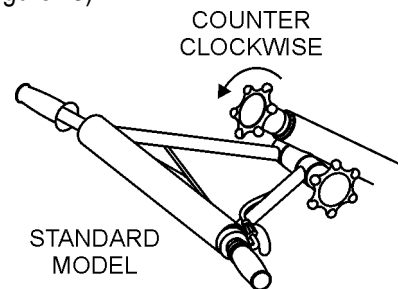
Locate the **RED** wire protruding from the handle tube (Figure 11) and connect it to the **RED** tail wire on the engine. Test the Engine-Off Safety Switch to insure proper operation.



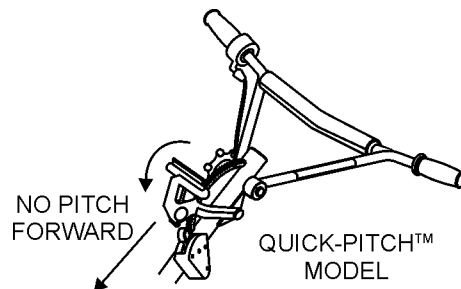
**Figure 11. Engine-Off Safety Switch Wire Connection**

## Pitch Cable Installation

1. Expose the pitch cable to maximum by adjusting the handle pitch to the "no pitch" position. On the standard model turn the pitch control counter-clockwise, (Figure 12). On the Quick-Pitch™ model, pivot the pitch handle forward or no pitch, (Figure 13).



**Figure 12. "No Pitch" Position (Standard)**



**Figure 13. "No Pitch" Position (Quick-Pitch™)**

# BA-SERIES TROWEL — ASSEMBLY AND INSTALLATION

2. Lock the spring in the compressed position, by releasing the blade pitch adjustment trigger, (Quick-Pitch™ model).
3. Remove one brass set nut from the blade pitch cable end as shown in (Figure 14).
4. Thread the second brass set nut towards the cable as far as possible.

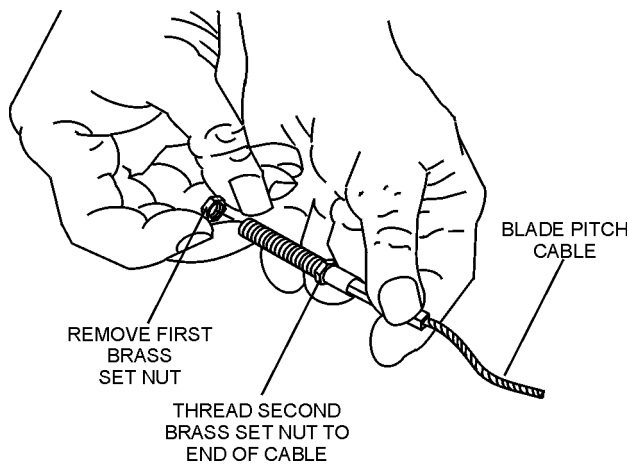


Figure 14. Blade Pitch Cable

5. Insert the cable end through the yoke eyelet (Figure 15) Tighten the first brass set nut by hand to remove all the slack from the cable.
6. Using a wrench, tighten the second brass set nut up against the yoke boss. This will lock the cable in place.
7. Use a wrench and finish tightening the first brass set nut up against the yoke boss.

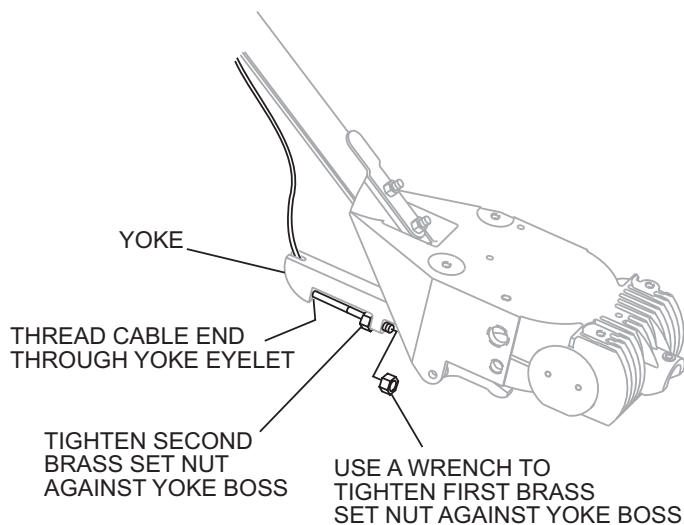


Figure 15. Cable Yoke Attachment

## Pre-load Adjustment (Quick-Pitch™ Models Only)

1. After the Quick-Pitch™ handle has been installed on the trowel, spring pre-load adjustment will be required.
2. Locate the adjustment screw on the underside of the handle tube (Figure 16).

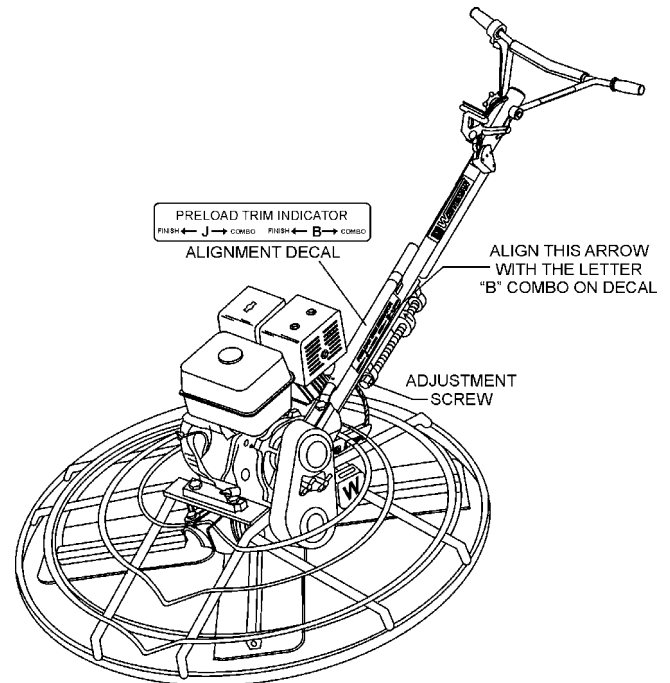


Figure 16. Pre-load Adjustment

3. A **decal** has been placed on the side of the handle tube to assist the user in the adjustment of the spring.
4. Align the **arrow** on the adjustment screw with the letter "**B**" **COMBO** on the **decal**. The letter "**B**" stands for BA-Series Walk-Behind trowel.
5. Test the pitch control operation and adjust if necessary.

# BA-SERIES TROWEL— PRE-INSPECTION

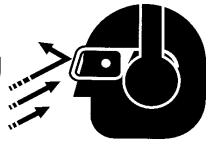
## **⚠ DANGER**

**NEVER** operate the trowel in a confined area or enclosed area structure that does not provide ample *free flow of air*.

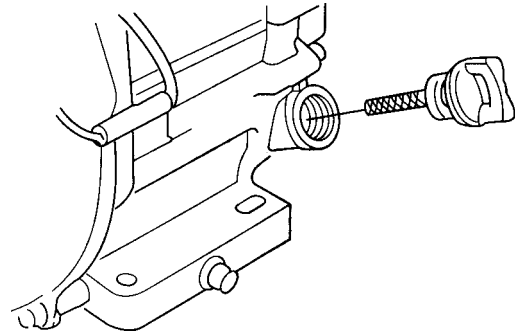
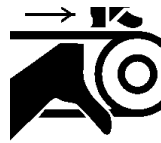


## **⚠ CAUTION**

**ALWAYS** wear approved eye and hearing protection before operating the trowel.



**NEVER** place hands or feet inside the guard rings while the engine is running. **ALWAYS** shut the engine down before performing any kind of maintenance service on the trowel.



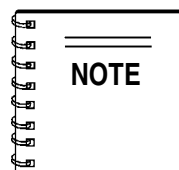
**Figure 17. Engine Oil Dipstick (Removal)**

3. Insert and remove the dipstick without screwing it into the filler neck. Check the oil level shown on the dipstick.
4. If the oil level is low (Figure 18), fill to the edge of the oil filler hole with the recommended oil type (Table 4). Maximum oil capacity is 400 cc.

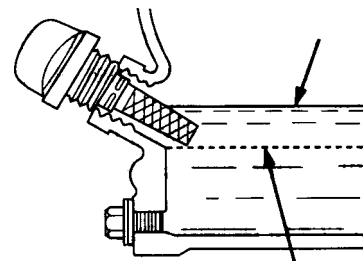
It is recommended that the trowel's **Engine-Off Safety Switch** be used to stop the engine after every use. Doing this will verify that the switch is working properly and presents no danger to the operator.

### **Before Starting**

1. Read safety instructions at the beginning of manual.
2. Clean the **trowel**, removing dirt and dust, particularly the engine cooling air inlet, carburetor and air cleaner.
3. Check the air filter for dirt and dust. If air filter is dirty, replace air filter with a new one as required.
4. Check carburetor for external dirt and dust. Clean with dry compressed air.
5. Check fastening nuts and bolts for tightness.



Reference manufacturer engine manual for specific servicing instructions.



**Figure 18. Engine Oil Dipstick (Oil Level)**

### **Engine Oil Check**

1. To check the engine oil level, place the trowel on secure level ground with the engine stopped.
2. Remove the filler dipstick from the engine oil filler hole (Figure 17) and wipe it clean.

**Table 4. Oil Type**

| Season      | Temperature    | Oil Type      |
|-------------|----------------|---------------|
| Summer      | 25°C or Higher | SAE 10W-30    |
| Spring/Fall | 25°C~10°C      | SAE 10W-30/20 |
| Winter      | 0°C or Lower   | SAE 10W-10    |



## DANGER

### EXPLOSIVE FUEL!

Motor fuels are highly flammable and can be dangerous if mishandled. **DO NOT** smoke while refueling. **DO NOT** attempt to refuel the trowel if the engine is **hot** or **running**.



### Fuel Check

1. Remove the gasoline cap located on top of fuel tank.
2. Visually inspect to see if fuel level is low. If fuel is low, replenish with unleaded fuel.
3. When refueling, be sure to use a strainer for filtration. **DO NOT** top-off fuel. Wipe up any spilled fuel.

### Gearbox Oil

1. Determine if the **gearbox** oil is low by removing the oil plug located on the side of the gearbox. This plug will be marked by the "**check**" decal. See Figure 19. The correct level of the lubrication oil should be to the bottom of the fill plug.

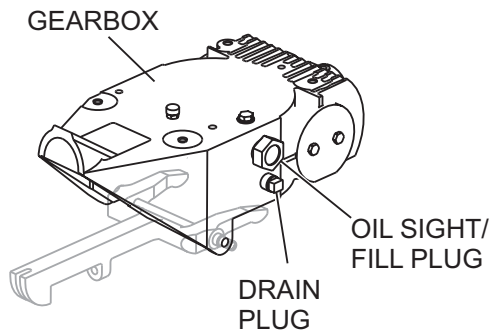


Figure 19. Gearbox

2. If lubrication oil begins to seep out as the drain plug is being removed, then it can be assumed that the gearbox has a sufficient amount of oil.
3. If lubrication oil does not seep out as the drain plug is being removed, fill with type ISO 680 (Whiteman P/N 10139) gearbox lubricant oil until the oil filler hole overflows.

### V-belt Check

A worn or damaged V-belt can adversely affect the performance of the trowel. If a V-belt is defective or worn simply replace the V-belt as outlined in the maintenance section of this manual.

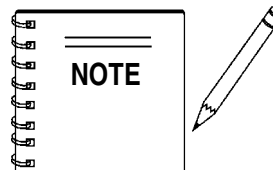
### Blade Check

Check for worn or damaged blades. Check to see if one blade is worn out while the others look new. If this is the case there could be a blade pitch problem. Refer to the maintenance section of this manual for blade pitch adjustment procedure. Replace any worn blades.

### CONTROLS

#### Safety Engine-Off Switches

This trowel has been equipped with a safety Engine-Off switch or a hand operated clutch. Safety Engine-Off switches or hand clutches should be tested every time the engine is started.



**NEVER** disable or disconnect the Engine-Off Switch. It is provided for operator safety. Injury may result if it is disabled, disconnected or improperly maintained.

#### Centrifugal Type Engine-Off Switch

(Figure 20) The switching mechanism of this switch should operate freely and should **always** be kept in this condition. With the switch in the **OFF** position, the engine should not start or run. The purpose of this switch is to stop the engine in a runaway situation, (i.e.-the operator releasing the handle during operation).

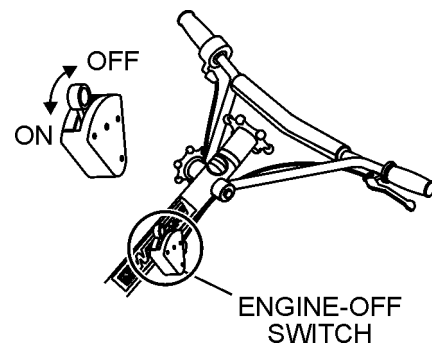


Figure 20. Centrifugal Engine-Off Switch

#### Hand Clutch

Some finisher models are equipped with a **hand operated clutch**. These units are not equipped with an Engine-Off Switch. The unit automatically stops rotating when the clutch lever is released.

**DO NOT** let the machine sit unused with the engine at high speed for an extended period of time. It will cause premature belt wear or may destroy the belt. Always set the engine speed to idle when the hand clutch is disengaged.

# BA-SERIES TROWEL — INITIAL START-UP

## CAUTION

The trowel is **heavy** and **awkward** to move around. Use proper heavy lifting procedures and **DO NOT lift the trowel by the guard rings**.

### Lifting the Trowel Onto a Slab.

#### Auxiliary Lifting Tube

Remove the auxiliary lifting tube located on top of the main handle. Insert the tube into the socket located on the opposite side of the gearbox (Figure 21) from the handle.

Make sure that the hole in the tube engages with the pin in the socket. With one person lifting from the main handle, and another lifting from the auxiliary lifting tube pick up the machine to move onto a slab.

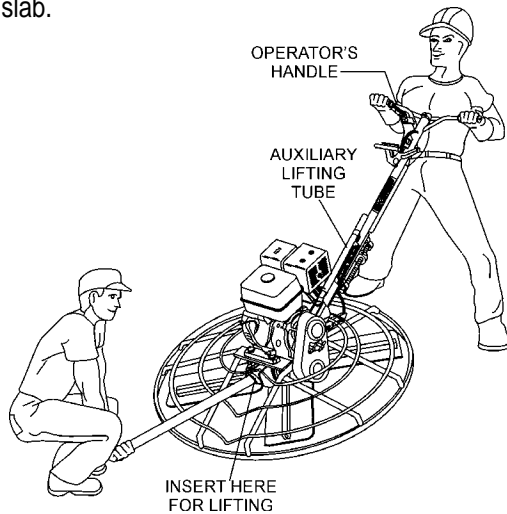


Figure 21. Lifting the Trowel

## CAUTION

The trowel must be stabilized by the person carrying the **operator's handle** (Figure 21). If it is not stabilized properly the handle may swing around and **flip** the trowel, thus causing damage to the trowel and bodily injury.

### Lifting Bale (Option)

The lift bale is optional on new trowels. It provides an optimal lift point for moving the trowel. **Lift bales** or **forklift** can be used to lift a trowel up onto a building with a crane. See "**Optional Equipment**" section in this manual for ordering information.

Using a **crane** to move a machine with a lift bale is highly recommended, and is perfectly safe for the machine. Extra care should be taken when lifting the machine off the ground, though. Serious damage to the machine or personal injury could be caused by dropping a trowel.

This section is intended to assist the operator with the initial start-up of the walk-behind trowel. It is extremely important that this section be read carefully before attempting to use the trowel in the field.

**DO NOT** use your trowel until this section is thoroughly understood.

## CAUTION

**DO NOT** attempt to operate the trowel until the Safety, General Information and Inspection sections of this manual have been read and thoroughly understood. Depending on engine manufacturer, operating steps may vary. See engine manufacturer's operating manual. The following start-up procedure makes reference to a **HONDA 5.97 kW (8 HP) Engine (Manual Start)**.

### Starting the Engine (*HONDA* engine)

1. Place the engine **fuel valve lever** (Figure 22) to the "ON" position.

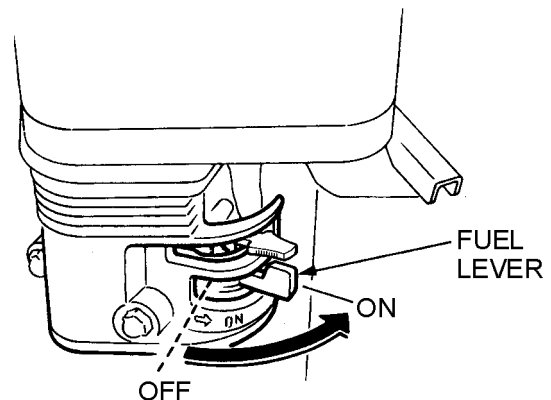


Figure 22. Engine Fuel Valve Lever

2. Rotate the **throttle** (Figure 23) to the "idle" position.

IDLE POSITION

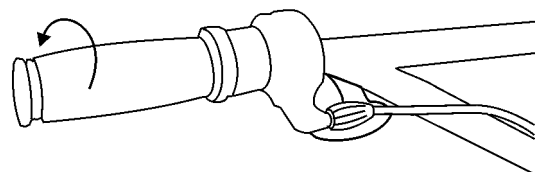


Figure 23. Throttle (Idle Position)



## BA-SERIES TROWEL — INITIAL START-UP

- Place the **centrifugal Engine-Off switch** (Figure 24) in the "ON" position. For models that use this feature.

### **WARNING**

**NEVER** disable or disconnect the centrifugal Engine-Off switch. It is provided for the operators' safety and injury may result if it is disabled, disconnected or improperly maintained.

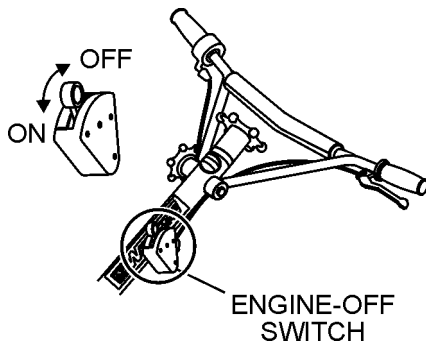


Figure 24. Centrifugal Engine-Off Switch

- Place the **Choke Lever** (Figure 25) in the "OPEN" position

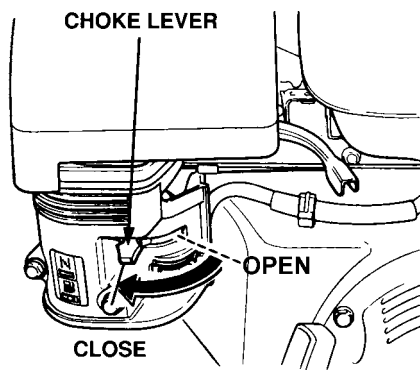


Figure 25. Engine Choke Lever

- Grasp the starter grip (Figure 26) and slowly pull it out. The resistance becomes the hardest at a certain position, corresponding to the compression point. Pull the starter grip briskly and smoothly for starting.

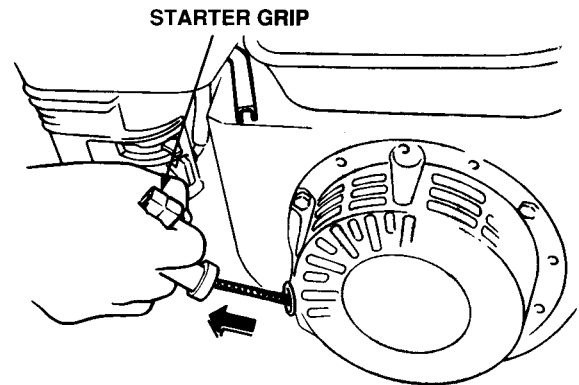


Figure 26. Starter Grip

- If the engine has started, slowly return the choke lever (Figure 25) to the **CLOSED** position. If the engine has not started repeat steps 1 through 5.
- Before the trowel is placed into operation, run the engine for several minutes. Check for fuel leaks, and noises that would associate with a loose guard ring and/or covers.
- To begin troweling, rotate the throttle (Figure 27) toward the "RUN" position.

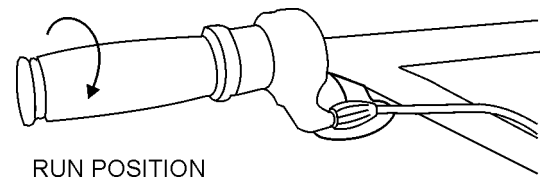


Figure 27. Throttle (Run Position)

# BA-SERIES TROWEL — OPERATION

The following steps are intended as a basic guide to machine operation, and are not to be considered a complete guide to concrete finishing. We suggest that all operators (experienced and novice) read "*Slabs on Grade*" published by the **American Concrete Institute, Detroit, Michigan**. Read the "Training" section of this manual for more information.

## Pitching The Blades

### Quick Pitch Handle

1. To pitch the blades upwards using the "**Quick-Pitch™**" **T-handle**, (Figure 28) simply squeeze the trigger lock and pull the **T-handle** towards the operator. Pushing the **T-handle** towards the engine will cause the blades to lay flat.

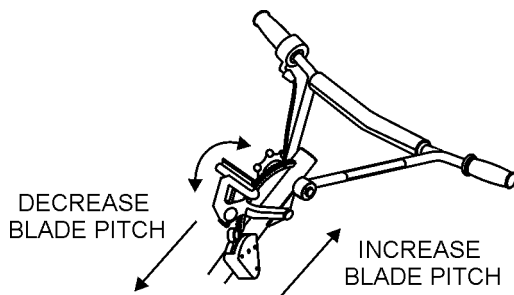


Figure 28. Quick-Pitch™ T-Handle

### Standard Handle

1. To pitch the blades upwards using the "**Standard**" handle, (Figure 29) simply turn the **star-wheel** clockwise. Turning the star wheel counter clockwise will cause the blades to lay flat.

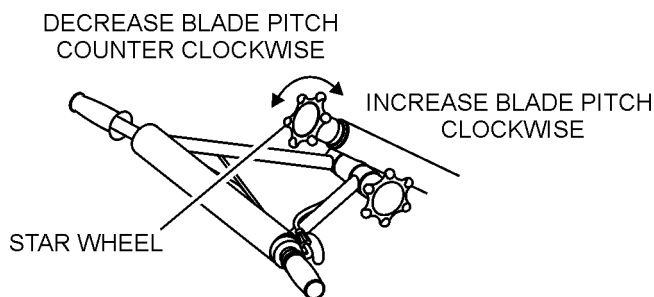


Figure 29. Standard Handle

## Maneuvering the Trowel

1. Get into the operator's position behind the handle. With a secure foothold and a firm grasp on the handles slowly increase the engine speed until the desired blade speed is obtained.

If your trowel has a **hand clutch** (Figure 30), set your engine speed with the throttle, then pull on the hand clutch lever to start the blades turning. Adjust the blade speed after the hand clutch is fully engaged.

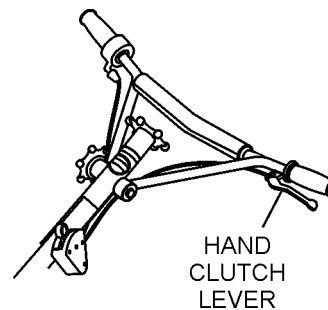


Figure 30. Hand Clutch Lever

2. To maneuver the trowel, gently lift up on or press down on the main trowel handle. To move the machine to the operator's left, **lift up** on the handle, to move machine to the right, **push down** on the handle.
3. The best method for finishing concrete is to slowly walk backwards (Figure 31) with the trowel, guiding the trowel from side to side. This will cover all footprints on wet concrete.
4. Remember that if you let go of the trowel, just step away and let the trowel come to a complete stop before trying to recover the trowel.

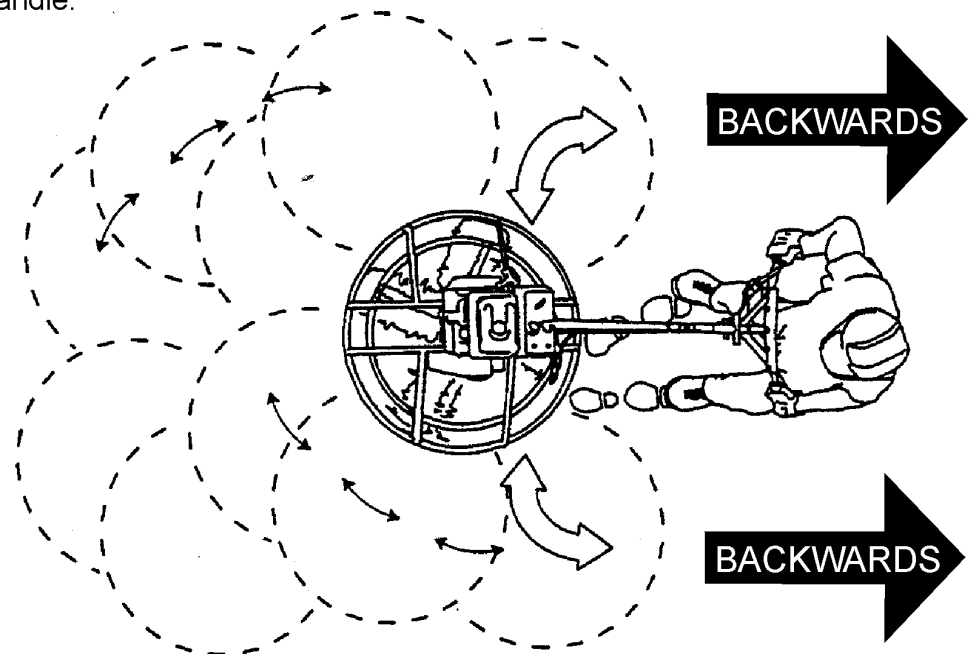
## BA-SERIES TROWEL — OPERATION

Figure 32 below illustrates a typical walk-behind trowel application. Practice maneuvering the trowel. The trick is to "let the trowel do the work".

Continue to practice maneuvering the trowel. Try to practice as if you were finishing a slab of concrete. Practice edging and covering a large area. Remember a good finishing technique is to work backwards. Be careful when moving backwards so that hazards can be avoided. The best way to get accustomed to the trowel is repeated use.

To move the trowel to the operator's left, **lift up** on the handle, to move the trowel to the right **push down** on the handle.

**Remember!** that if you let go of the trowel, just **step away** and let the trowel come to a complete **STOP** before trying to recover the trowel.



The best method for finishing concrete is to slowly walk **backwards** with the trowel, guiding the trowel from side to side. This will cover all footprints on wet concrete.

Figure 31. Maneuvering The Trowel

### **CAUTION**

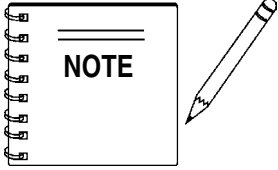
**NEVER** place your **feet** or **hands** inside the guard rings while starting or operating this equipment.

### **CAUTION**

**ALWAYS** keep clear of **rotating** or **moving** parts while operating this equipment.

# BA-SERIES TROWEL — OPTIONS

## Blades



Blades should be changed when they fail to finish concrete in a satisfactory manner.

Blades are a vital part of finishing concrete. This trowel, or **finisher**, has been designed to finish concrete and the blades are built to stringent quality standards out of the finest trowel steel. If you need replacement blades, consult your parts list in this manual for part numbers and order them from your Multiquip parts dealer or importer.

## Combo Blades

This trowel was equipped with combination **float/finish** (Figure 32) blades as original equipment. These blades have been designed for optimum performance in both the floating and finishing operations. These blades are versatile and should take care of most troweling needs.

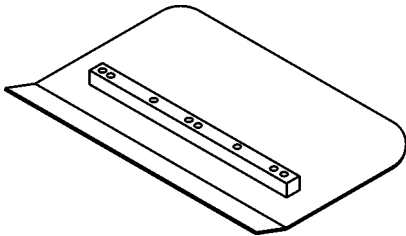


Figure 32. Combination Blade

## Finish Blades (Optional)

These blades (Figure 33) have been specifically designed for finish operations with this trowel. They will provide a premium surface finishing capability from your trowel. They should only be used after the concrete has set to the point where the trowel does not sink into the concrete when placed on it.

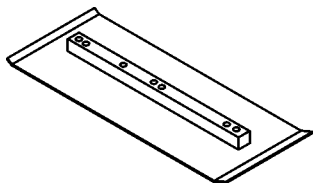


Figure 33. Finish Blade

## Clip-On Float Blades (Optional)

These blades will clip (Figure 34) on to an existing installed blade, allowing your finisher to float on “wet” concrete so that the troweling operation can begin as early as possible. They are easily removable, so that after the floating operation, when the concrete is sufficiently cured, they can be removed to expose the finish blades for continued troweling.

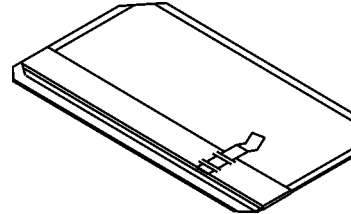


Figure 34. Clip-On Float Blade

## Float Discs (Optional)

These round discs (Figure 35) attach to the spiders and allow the machine to “float” on “wet” concrete. The disc design allows early floating and easy movement from wet to dry areas. They are also very effective in embedding large aggregates and surface hardeners.

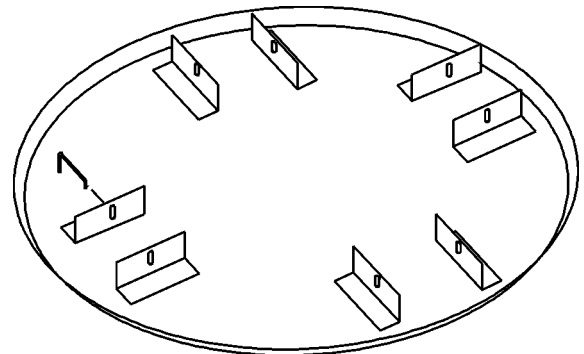


Figure 35. Float Disk



## Grinding Attachments

Available grinding attachments are used for grinding surface imperfections or joints. These attachments allow greater utilization of your trowel. Figure 36 illustrates a typical grinding disk assembly, complete with hub and stone mounting plate.

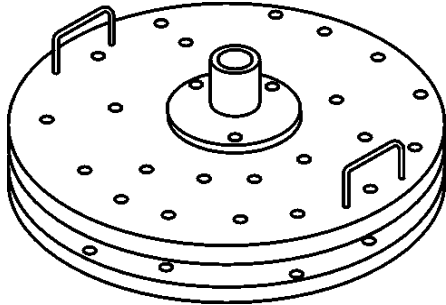


Figure 36. Grinding Disk

## Trowel Arm Adjustment Tool

If blades show uneven wear patterns or some tend to wear out faster than others, the trowel arms may need to be adjusted. Whiteman makes a special tool (Figure 38) that will adjust all of the trowel arms consistently. The Trowel Arm Fixture P/N is 1817.

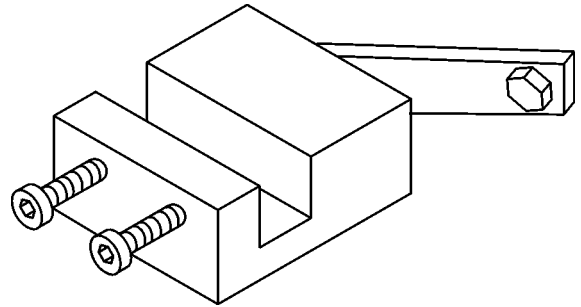


Figure 38. Trowel Arm Adjustment Fixture

## Lifting Bale

There is a heavy duty, center balance type lifting bale (Figure 37) made specifically for your trowel. These bales are ideal for lifting and transporting your trowel. They are designed to lift the finisher and balance it on its center of gravity, providing great stability while lifting. This option is not available on electric trowel models.

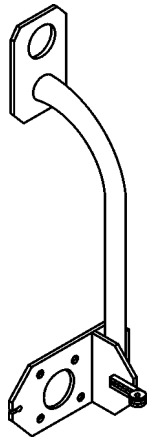
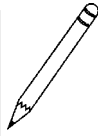
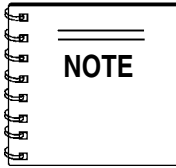
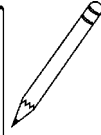
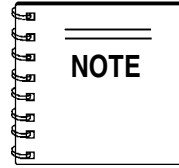


Figure 37. Lifting Bale

# BA-SERIES TROWEL — MAINTENANCE



See the engine manual supplied with your machine for appropriate engine maintenance schedule and troubleshooting guide for problems.



The following procedure should be followed to adjust trowel arms when it becomes apparent that the trowel is finishing poorly or in need of routine maintenance.

At the front of the book (Page 7) there is a "**Daily Pre-Operation Checklist**". Make copies of this checklist and use it on a daily basis.

## WARNING

**ALWAYS** disconnect spark plug and secure away from the engine before performing service or maintenance.

## CAUTION

**ALWAYS** allow the engine to cool before servicing. **NEVER** attempt any maintenance work on a **hot!** engine.



## MAINTENANCE SCHEDULE

### Daily (8-10 Hours)

1. Check the oil level in the engine crankcase and gear box, fill as necessary.
2. Check V-belt.

### Weekly (50-60 Hours)

1. Relube arms, thrust collar and clutch.
2. Replace blades if necessary.
3. Check and clean or replace the engine air filter as necessary.
4. Replace engine oil and filter as necessary, see engine manual.

### Monthly (200-300 Hours)

1. Remove, clean, reinstall and relube the arms and thrust collar. Adjust the blade arms.
2. Remove, clean, reinstall clutch.

### Yearly (2000-2500 Hours)

1. Check and replace if necessary the arm bushings, thrust collar bushings and shaft seals.
2. Check pitch control cables for wear.
3. Adjust blade speed.

## Trowel Arm Adjustment Procedure

A **level**, clean area to test the trowel prior to and after is essential. Any unlevel **spots** in the floor or debris under the trowel blades will give an incorrect perception of adjustment. Ideally, a 13 cm x 13 cm (5 x 5 in.), 19 mm (3/4 in.) thick **flat** steel plate should be used for testing.

1. To determine which blades need adjustment, place the trowel in the test area (three-quarter inch thick plate) and look for the following conditions:
  - Pitch the blades as flat as possible and look at the **adjustment bolts**. They should all barely make contact with the **lower wear plate** on the spider. If you can see that one of them is not making contact, some adjustment will be necessary.
  - Is the machine wearing out blades unevenly (i.e. one blade is completely worn out while the others look new)?

Figure 39 below illustrates a "**worn spider bushings or bent trowel arms**". Check to see that adjustment bolt is barely touching (.25 mm [.010 in.] max. clearance) lower wear plate. All alignment bolts should be spaced the same distance from the lower wear plate.

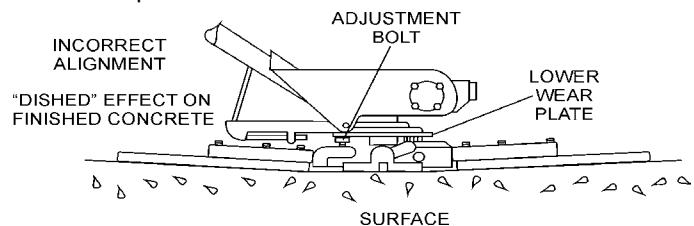


Figure 39. Worn Spider Plate

Figure 40 below illustrates the "**correct alignment**" for a spider plate (as shipped from the factory).

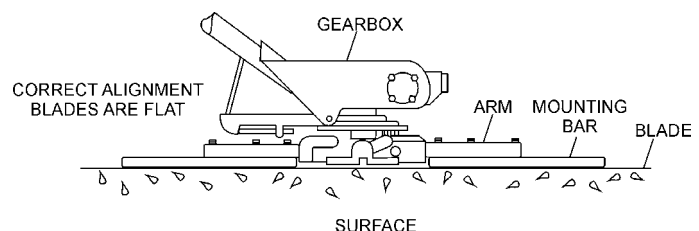


Figure 40. Correct Spider Plate Alignment

# BA-SERIES TROWEL — MAINTENANCE

2. Start engine, and bring trowel blades up to full speed and look for the following conditions:
  - Does the trowel have a perceived rolling or bouncing motion when in use?
  - Look at the trowel while it is running, does the guard ring “rock up and down” relative to the ground?

## Spider Removal

1. Once it is determined that an adjustment is required, remove the spider assembly from the gearbox shaft as follows:
  - a. Locate the cone point square head set screw (Figure 41) and attached jam nut found on the side of the spider assembly.

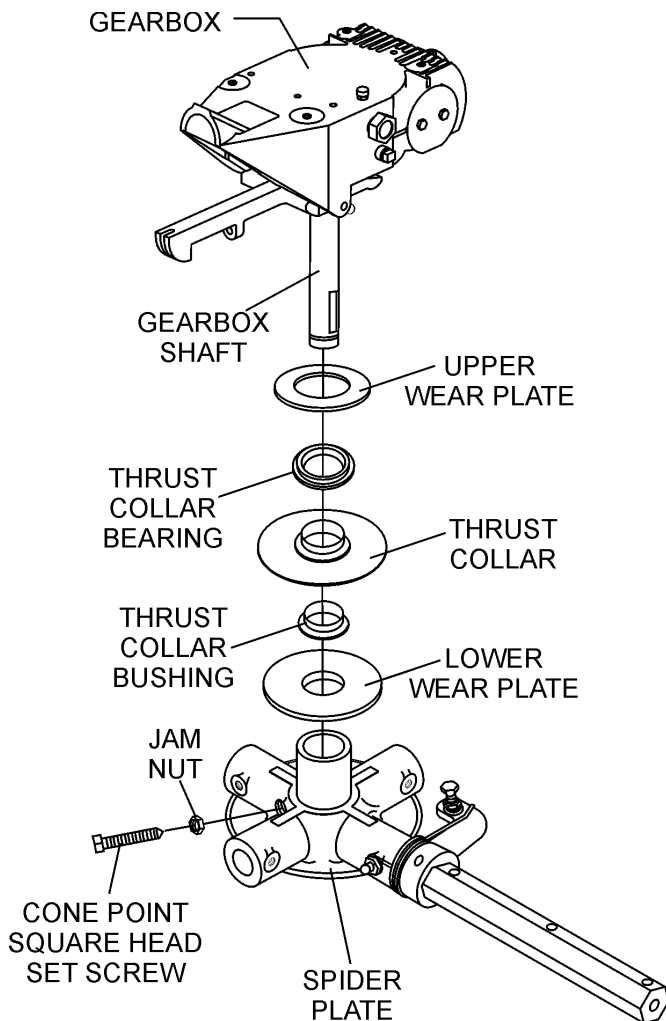


Figure 41. Spider/Gearbox Removal

- b. Loosen the jam nut and cone point square head set screw, and carefully lift the **upper trowel assembly** off of the spider assembly. A slight tap with a rubber mallet may be necessary to dislodge the spider from the main shaft of the gearbox.
  - c. If the trowel is equipped with an outer stabilizer ring (Figure 42), remove the four bolts at the end of each spider arm.

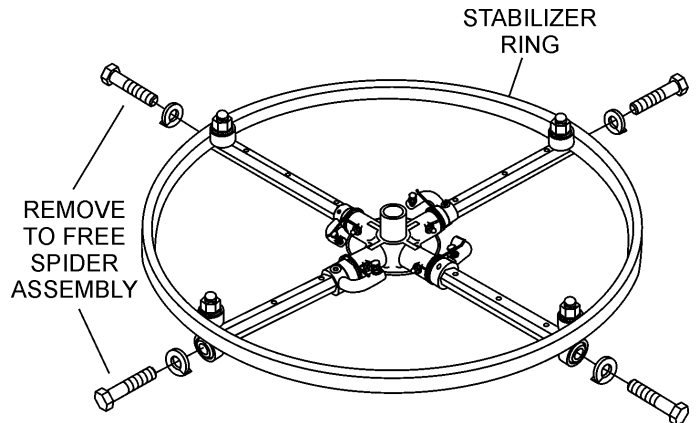


Figure 42. Stabilizer Ring

- d. Examine stabilizer ring for out of round or bends. If ring is damaged, replace ring. If ring is found to be correct with no damage, set aside.

## Trowel Arm Removal

1. Each trowel arm is held in place at the spider plate by a hex head bolt (zerk grease fitting) and a roll pin. Remove both the hex head bolt and the roll pin (Figure 43) from the spider plate.
2. Remove the trowel arm from the spider plate.

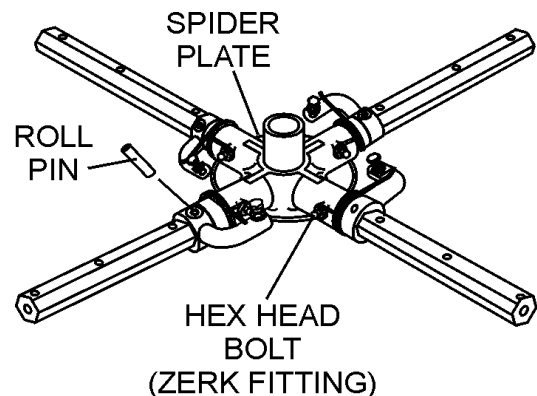


Figure 43. Removing Roll Pin and Zerk Grease Fitting

# BA-SERIES TROWEL — MAINTENANCE

- Should the trowel arm inserts (bronze bushing) come out with the trowel arm, remove the bushing from the trowel arm and set aside in a safe place. If the bushing is retained inside the spider plate, carefully remove the bushing.
- Examine the bronze trowel arm bushing insert (Figure 44), clean if necessary. Replace bushing if out of round or worn.

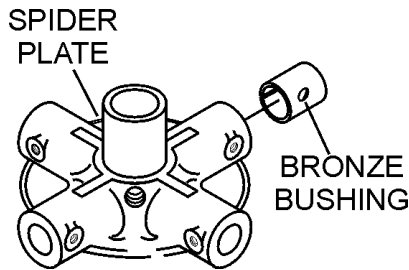


Figure 44. Bronze Bushings

## Trowel Blade Removal



### WARNING

**ALWAYS** disconnect spark plug and secure away from the engine before performing service or maintenance.

- Remove the trowel blades from the trowel arm by removing the three hex head bolts (Figure 45) from the trowel arm. Set blades aside.

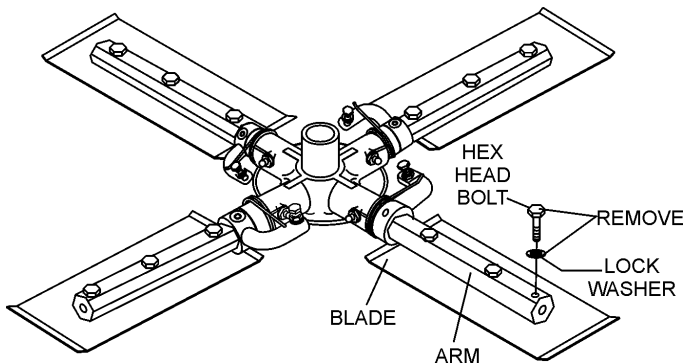


Figure 45. Trowel Blades

- Wire brush** any build-up of concrete from all six sides of the trowel arm. Repeat this for the remaining three arms.

## Trowel Arm Flatness Test

- Using a piece of 19 mm (3/4 in.) thick steel plate or any surface which is **true** and **flat**, check all **six sides** of each trowel arm for flatness.
- Check each of the six sides of the trowel arm (hex section only) using a ten thousandths of an inch (max.) feeler gauge (Figure 46) between the flat of the trowel arm and an **extremely flat** test surface.

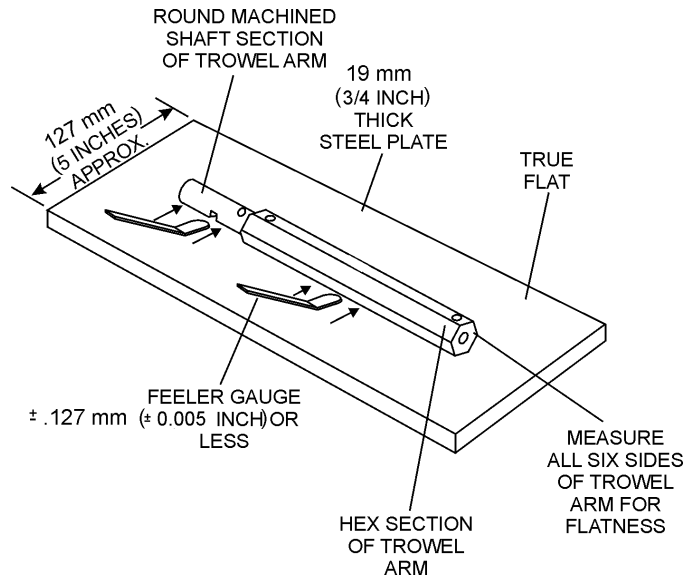
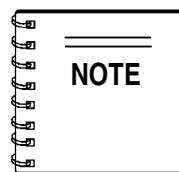


Figure 46. Trowel Arm Flatness Test

- If the trowel arm is found to be **uneven** or **bent**, replace the trowel arm. A bent trowel will not allow the trowel to operate in a smooth fluid rotation.
- Next, check each of the six sides of the round machined shaft section of the trowel arm. Each section should have the **same clearance** between the round of the trowel arm shaft and the test surface.



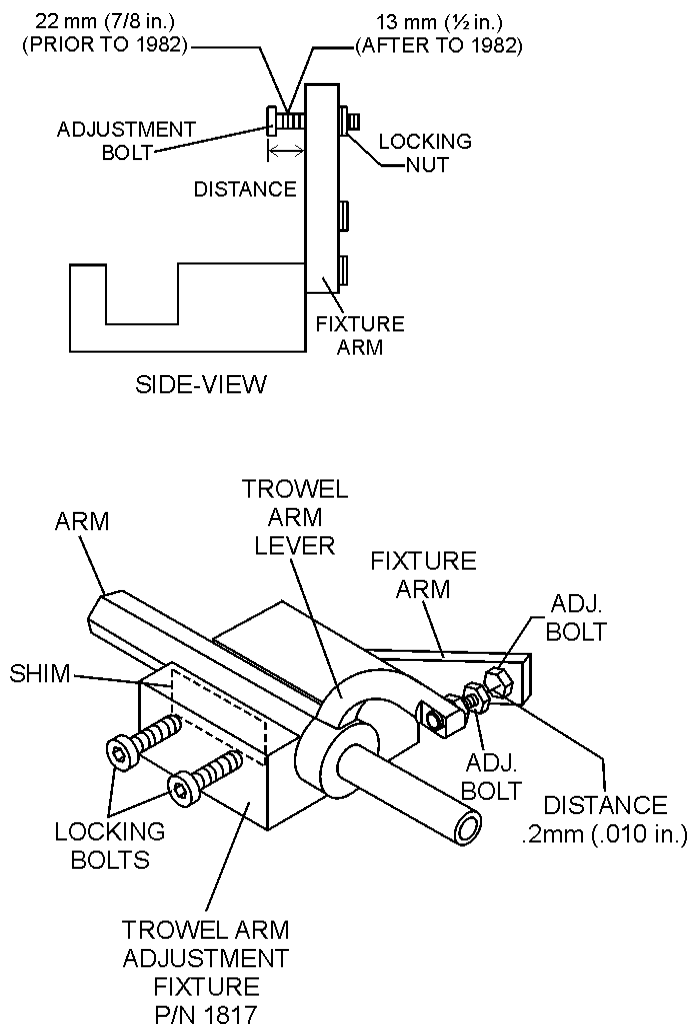
Trowel arms can be damaged by rough handling or by striking exposed plumbing or forms while in operation. **ALWAYS** look-out for objects which might cause damage to the trowel arms.



## Trowel Arm Adjustment

Shown in Figure 47 is the adjustment fixture with a trowel arm inserted. As each trowel arm is locked into the fixture, the arm bolt is adjusted to where it contacts a stop on the fixture. This will consistently adjust all of the trowel arms, keeping the finisher as flat and evenly pitched as possible.

1. Locate the trowel arm adjustment tool P/N 1817. Set the adjustment tool for a clock-wise blade rotation, meaning the fixture arm is in the "UP" position.



**Figure 47. Trowel Arm Adjustment Tool**

2. Trowels manufactured prior to June of 1982 require that the distance from the end of the adjusting bolt and the fixture arm must be 22 mm (7/8 in.) (Figure 48). Conversely, trowels manufactured after June of 1982 require that the distance from the end of the adjusting bolt and the fixture arm must be 13 mm (1/2 in.).

3. Un-screw the locking bolts on the adjustment tool, and place the trowel arm into the adjustment fixture channel as shown in Figure 48. A **thin shim** may be required to cover the blade holes on the trowel arm. Make sure to align the trowel adjustment bolt with the fixture adjustment bolt.
4. Using an allen wrench, tighten the locking bolts on the adjustment tool and securely lock the trowel arm in place.
5. Loosen the locking nut on the trowel arm lever, then turn the trowel arm adjusting bolt until it barely touches (.25 mm [.010in.]) the adjusting bolt on the fixture.
6. After the correct adjustment has been made, tighten lock nut on trowel arm lever to lock in place.
7. Loosen locking bolts on adjustment fixture, and remove trowel arm from fixture.
8. Repeat steps 2-7 for the remaining trowel arms.

## Re-Assembly

1. Clean and examine the upper/lower wear plates and thrust collar. Examine the entire spider assembly. Wire brush any concrete or rust build-up. If any of the spider components are found to be damaged or out of round, replace them.
2. Make sure that the bronze trowel arm bushing is not damage or out of round. Clean the bushing if necessary. If the bronze bushing is damage or worn, replace it.
3. Reinstall bronze bushing onto trowel arm.
4. Repeat steps 2-3 for each trowel arm.
5. Make sure that the spring tensioner is in the correct position to exert tension on the trowel arm.
6. Insert all trowel arms with levers into spider plate (with bronze bushing already installed) using care to align grease hole on bronze bushing with grease hole fitting on spider plate.
7. Lock trowel arms in place by tightening the hex head zerk grease fitting and jam nut.
8. Re-install the blades back onto the trowel arms.
9. Install stabilizer ring onto spider assembly.
10. Reinstall **lower wear plate**, **thrust collar** and **upper wear ring** in the **reverse order** that they were dis-assembled onto the spider shaft. Make sure that there is little or no lateral movement between the thrust collar and the spider shaft.

# BA-SERIES TROWEL — MAINTENANCE

11. Carefully lift *the upper trowel assembly*, line up the key-way on gear box main shaft and insert into spider assembly.
12. Reinstall square head cone point into spider plate and tighten in place. Tighten jam nut. Use care in making sure point of set screw engages groove in gear box main shaft.
13. Lubricate all grease points (zerk fittings) with premium "Lithum 12" based grease, conforming to NLG1 Grade #2 consistency.

## Testing

1. Place trowel in test area, start engine and test trowel for smoothness.
2. If trowel bounces has excessive vibration or does not run smoothly repeat alignment procedure.

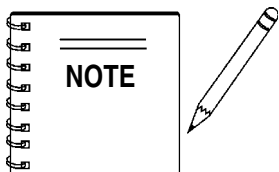
## Changing a Blade

Whiteman recommends that ***all the blades be changed at the same time***. The machine may wobble or bounce if only some of the blades are changed at one time.

## WARNING

**ALWAYS** disconnect spark plug and secure away from the engine before performing service or maintenance.

1. Place the machine on a flat, level surface. Adjust the blade pitch control to make the blades as flat as possible. Note the blade orientation on the trowel arm.



Before removing the blades, please note the orientation of the blade on the trowel arm.

1. Remove the three bolts and lock washers that secure the blade to the trowel arm. Remove the blade.
2. Using a wire brush, scrape all concrete particles and foreign debris from the trowel arm.
3. Install the new trowel blade onto the trowel arm. Make sure blade is installed correctly, maintaining the proper orientation for direction of rotation.
4. Reinstall the three bolts and lock washers that secure the blade to the trowel arm. Tighten all three bolts securely.
5. Repeat steps 1-4 for all remaining blades.

## Hand Clutch - Optional CE Compliant Trowels

CE compliant trowels are equipped with one of two types of hand-operated clutches instead of an automatic centrifugal clutch. Both are belt-tightener type clutches and operate by removing slack in the V-belt which then transmits power from the engine to the gearbox.

There are two reasons to adjust the hand clutch: 1) operator comfort; 2) initial belt stretch and break-in.

The easiest and most simple adjustment is to adjust the clutch cable housing using the adjustment nut (Figure 48) located on the clutch lever. Rotating the nut provides either more or less (depending upon the direction of rotation) clutch engagement.

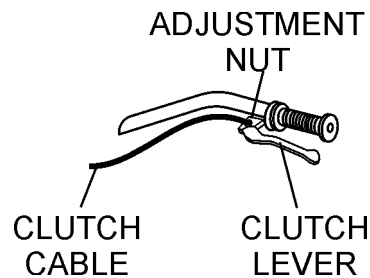


Figure 48. Hand Clutch Adjustment

## Hand Clutch Disengagement

1. Start the trowel as outlined in the "Initial Start-up" section in this manual. Move the throttle lever so that the engine is running about 1/4 to 1/3 of full speed.
2. Grip the trowel handle firmly and carefully engage the clutch by squeezing the clutch lever toward the handle with your left hand. After the trowel is stabilized and you feel comfortable with its operation, use your right hand to adjust the housing adjustment nut.
3. Rotating the nut so that it backs out of the lever housing increases the engagement and also the squeezing force required to keep it engaged.

Too much squeezing force may cause premature hand fatigue. Too little squeezing force may cause belt slippage and premature belt wear. Each operator should experiment with the adjustment to get the optimum combination of squeeze force and belt grip.

4. After initial break-in (approximately 8 hours) the above procedure should be repeated to attain optimum operator comfort and belt wear.
5. After considerable belt wear, the adjustments mentioned above may have a little or no effect on clutch engagement. If this is the case, the belt should be replaced.

## Installing Pans Onto Finisher Blades

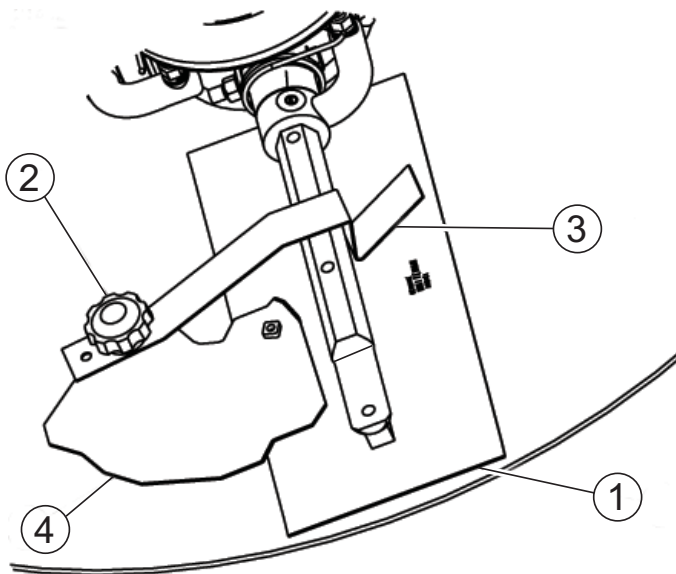


### **! WARNING**

**ALWAYS** install pans either on the work area or on an area that is next to and level with the work area. **DO NOT** lift the trowel when the pans are attached.

1. Lower finisher onto pan with blades (item #1) adjacent to Z-Clips (item #4).
2. Rotate blades into position under Z-Clips. Ensure that the blades are rotated in the direction of travel when the machine is in operation or use the engine to rotate the blades into position.
3. Attach the blade tie-downs (item #3) to the far side of the Z-Clip brackets (item #4) with tie-down knobs (item #2) as shown in figure 49.
4. Check to make certain that the blade edges are secured under the Z-Clips and the tie-downs are secured completely over the edges of the blade bar before the machine is put back into operation.

Refer to Figure 49 when installing pans onto finisher blades.



- |   |                            |
|---|----------------------------|
| 1 | BLADE ASSEMBLY             |
| 2 | KNOB, TIE DOWN Z-CLIP PANS |
| 3 | TIED OWN, BLADE            |
| 4 | Z-CLIP, PAN                |

**Figure 49. Pan Installation**

# BA-SERIES TROWEL — TROUBLESHOOTING (TROWEL)

**TABLE 6. TROUBLESHOOTING**

| SYMPTOM  | POSSIBLE PROBLEM               | SOLUTION   |
|--|--------------------------------|--|
| Engine running rough or not at all.                                      | Engine-Off switch malfunction? | Make sure that the Engine-Off switch is ON or replace switch if necessary.   |
|  | Fuel?                          | Look at the fuel system. Make sure there is fuel being supplied to the engine. Check to ensure that the fuel filter is not clogged.  |
|  | Ignition?                      | Check to ensure that the ignition switch has power and is functioning correctly.   |
| Safety Engine-Off switch not functioning.                                | Other problems?                | Consult engine manufacturer's manual.  |
|  | Loose wire connections?        | Check wiring. Replace as necessary.  |
|  | Bad contacts?                  | Replace switch.  |
| If trowel "bounces, rolls concrete, or makes uneven swirls in concrete". | Blades?                        | Make certain blades are in good condition, not excessively worn. Finish blades should measure no less than 2" (50mm) from the blade bar to the trailing edge, combo blades should measure no less than 3.5" (89mm). Trailing edge of blade should be straight and parallel to the blade bar. |
|  | Spider?                        | Check that all blades are set at the same pitch angle as measured at the spider. A field adjustment tool is available for height adjustment of the trowel arms (see Optional Equipment).   |
|  | Bent trowel arms?              | Check the spider assembly for bent trowel arms. If one of the arms is even slightly bent, replace it immediately.  |
|  | Trowel arm bushings?           | Check the trowel arm bushings for tightness. This can be done by moving the trowel arms up and down. If there is more than 1/8" (3.2 mm) of travel at the tip of the arm, the bushings should be replaced. All bushings should be replaced at the same time.                                 |
|  | Thrust collar?                 | Check the flatness of the thrust collar by rotating it on the spider. If it varies by more than 0.02" (0.5 mm) replace the thrust collar.  |
|  | Thrust collar bushing?         | Check the thrust collar by rocking it on the spider. If it can tilt more than 3/32" (2.4 mm) [as measured at the thrust collar O.D.], replace the bushing in the thrust collar.  |
|  | Thrust bearing worn?           | Check the thrust bearing to see that it is spinning free. Note: Thrust cap, replace if necessary.  |
| Machine has a perceptible rolling motion while running.                  | Main shaft?                    | The main output shaft of the gearbox assembly should be checked for straightness. The main shaft must run straight and cannot be more than 0.003" (0.08 mm) out of round at the spider attachment point.   |
|  | Yoke?                          | Check to make sure that both fingers of the yoke press evenly on the wear cap. Replace yoke as necessary.  |
|  | Blade Pitch?                   | Check to ensure that each blade is adjusted to have the same pitch as all other blades. Adjust per maintenance section in manual.  |

# BA-SERIES TROWEL — TROUBLESHOOTING (TROWEL)

**TABLE 6. TROUBLESHOOTING (CONTINUED)**

| SYMPTOM  | POSSIBLE PROBLEM                          | SOLUTION   |
|--|---|--|
| Clutch slipping or sluggish response to engine speed change. | Worn V-belts?                             | Replace V-belt.  |
|  | Dirty centrifugal clutch?                 | Disassemble and clean clutch.  |
|  | Defective or worn out centrifugal clutch? | Replace entire clutch.   |
|  | Hand clutch out of adjustment?            | Adjust per instructions in maintenance section of this manual.   |
|  | Worn or defective hand clutch parts?      | Replace parts as necessary.  |
|  | Worn bearings in gearbox?                 | Rotate input shaft by hand. If shaft rotates with difficulty, check the input and output shaft bearings. Replace as necessary. |
|  | Worn or broken gears in gearbox?          | Verify that the gearbox shaft rotates when the input shaft is rotated. Replace both the worm and worm gear as a set.           |

# BA-SERIES TROWEL — TROUBLESHOOTING (ENGINE)

**TABLE 7. TROUBLESHOOTING (ENGINE)**

| SYMPTOM  | POSSIBLE CAUSE  | SOLUTION  |
|--|---|---|
| Difficult to start, "fuel is available, but no SPARK at spark plug".                 | Spark plug bridging?                                    | Check gap, insulation or replace spark plug.              |
|  | Carbon deposit on spark plug?                           | Clean or replace spark plug.                              |
|  | Short circuit due to deficient spark plug insulation?   | Check spark plug insulation, replace if worn.             |
|  | Improper spark plug gap?                                | Set to proper gap.  |
| Difficult to start, "fuel is available, and SPARK is present at the spark plug".     | ON/OFF switch is shorted?                               | Check switch wiring, replace switch.                      |
|  | Ignition coil defective?                                | Replace ignition coil.                                    |
|  | Improper spark gap, points dirty?                       | Set correct spark gap and clean points.                   |
|  | Condenser insulation worn or short circuiting?          | Replace condenser.  |
|  | Spark plug wire broken or short circuiting?             | Replace defective spark plug wiring.                      |
| Difficult to start, "fuel is available, spark is present and compression is normal". | Wrong fuel type?  | Flush fuel system, and replace with correct type of fuel. |
|  | Water or dust in fuel system?                           | Flush fuel system.  |
|  | Air cleaner dirty?                                      | Clean or replace air cleaner.                             |
|  | Choke Open?   | Close Choke.  |
| Difficult to start, "fuel is available, spark is present and compression is low".    | Suction/exhaust valve stuck or protruded?               | Re-seat valves.   |
|  | Piston ring and/or cylinder worn?                       | Replace piston rings and or piston.                       |
|  | Cylinder head and/or spark plug not tightened properly? | Torque cylinder head bolts and spark plug.                |
|  | Head gasket and/or spark plug gasket damaged?           | Replace head and spark plug gaskets.                      |
| No fuel present inside priming bulb.   | Fuel not available in fuel tank?                        | Fill with correct type of fuel.                           |
|  | Fuel filter clogged?                                    | Replace fuel filter.                                      |
|  | Fuel tank cap breather hole clogged?                    | Clean or replace fuel tank cap.                           |
|  | Air in fuel line?                                       | Bleed fuel line.  |



# BA-SERIES TROWEL — EXPLANATION OF CODES IN REMARKS COLUMN

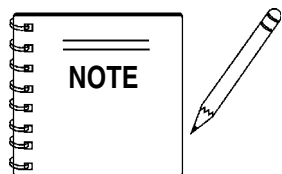
How to read the marks and remarks used in this parts book.

## Items Found In the “Remarks” Column

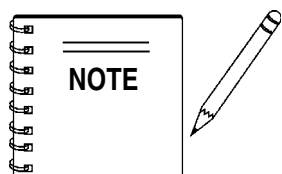
Serial Numbers-Where indicated, this indicates a serial number range (inclusive) where a particular part is used.

Model Number-Where indicated, this shows that the corresponding part is utilized only with this specific model number or model number variant.

All parts with same symbol in the number column, \*, #, +, %, or ■, belong to the same assembly or kit.



If more than one of the same reference number is listed, the last one listed indicates newest (or latest) part available.



The contents of this parts catalog are subject to change without notice.



# BA-SERIES TROWEL — SUGGESTED SPARE PARTS

## BA-SERIES TROWEL 1 TO 3 UNITS WITH HONDA GX-240K1 ENGINE.

### *1 to 3 Units*

| Qty ..... | P/N .....   | Description                    |
|-----------|-------------|--------------------------------|
| 3         | 20478       | GRIP                           |
| 2         | 20856       | SAFETY SWITCH                  |
| 1         | 20285       | CABLE STANDARD HANDLE          |
| 1         | 20297       | CABLE QUICK-PITCH™             |
| 1         | 20435       | THROTTLE CABLE                 |
| 4         | 1157 A      | BUSHING                        |
| 1         | 2828        | ARM (298 mm [11-3/4 in.])      |
| 4         | 1162 A      | LUBE CAP                       |
| 4         | 1167 A      | SCREW                          |
| 4         | 1456        | NUT                            |
| 4         | 1875        | WASHER                         |
| 4         | 1322        | SCREW                          |
| 1         | 21046       | GASKET KIT                     |
| 1         | 21047       | BEARING KIT                    |
| 4         | 1247        | RUBBER GROMMET                 |
| 4         | 1245        | SPACER                         |
| 1         | 2827        | ARM (419 mm [16-1/2 in.])      |
| 2         | 0261        | BELT (A-31) HONDA              |
| 2         | 0262        | BELT (A-33) HONDA W/HANDCLUTCH |
| 1         | 10968       | THRUST COLLAR KIT              |
| 2         | 9807955846  | SPARK PLUG HONDA               |
| 2         | 17620ZH7023 | TANK CAP (HONDA)               |
| 2         | 17210ZE2505 | AIR CLEANER ELEMENT (HONDA)    |
| 2         | 17218ZE2505 | FILTER OUTER (HONDA)           |

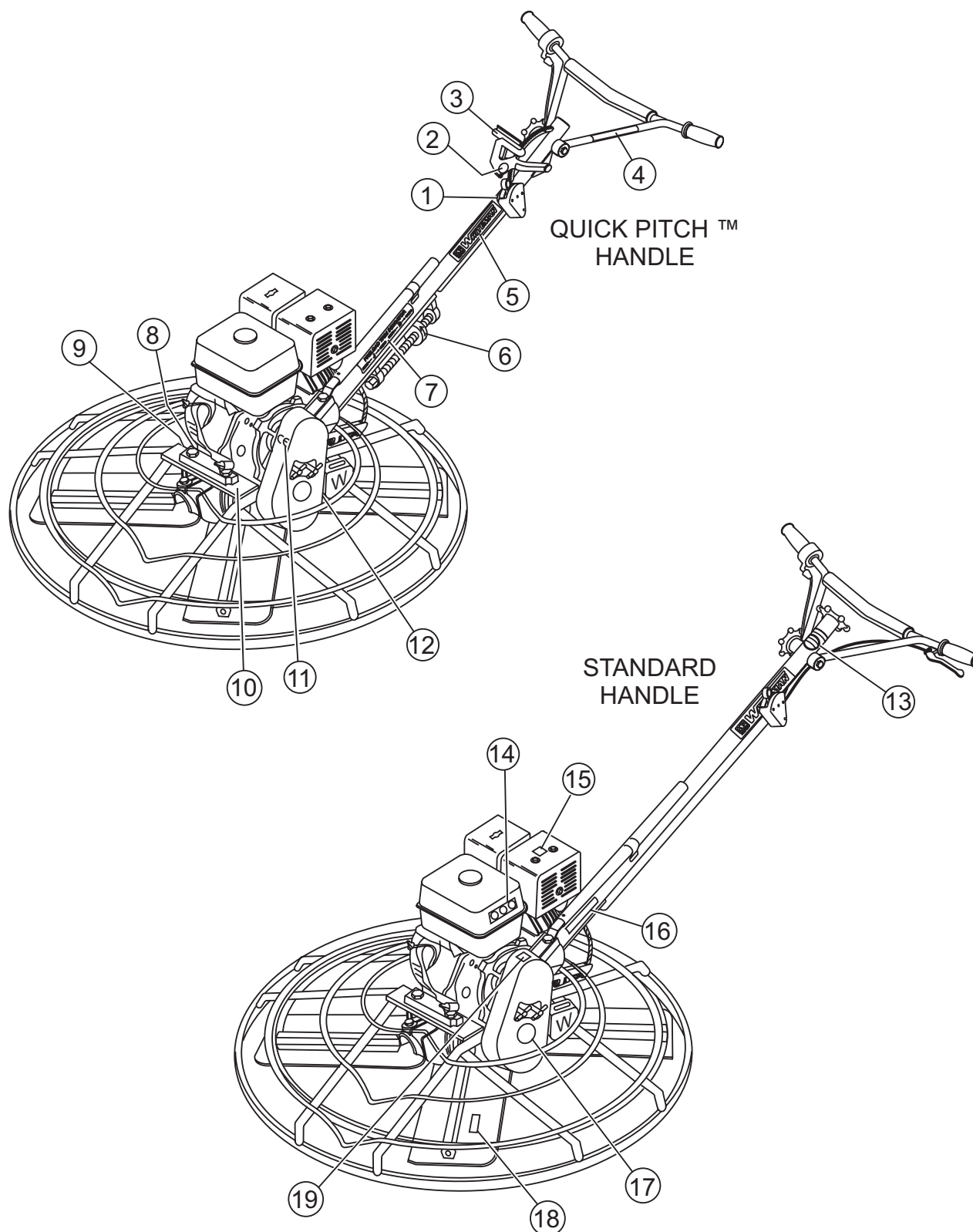
## BA-SERIES TROWEL 1 TO 3 UNITS WITH ROBIN EH25-2 ENGINE.

### *1 to 3 Units*

| Qty ..... | P/N .....  | Description                 |
|-----------|------------|-----------------------------|
| 3         | 20478      | GRIP                        |
| 2         | 20856      | SAFETY SWITCH               |
| 1         | 20285      | CABLE STANDARD HANDLE       |
| 1         | 20297      | CABLE QUICK-PITCH™          |
| 1         | 20435      | THROTTLE CABLE              |
| 4         | 1157 A     | BUSHING                     |
| 1         | 2828       | ARM (298 mm [11-3/4 in.])   |
| 4         | 1162 A     | LUBE CAP                    |
| 4         | 1167 A     | SCREW                       |
| 4         | 1456       | NUT                         |
| 4         | 1875       | WASHER                      |
| 4         | 1322       | SCREW                       |
| 1         | 21046      | GASKET KIT                  |
| 1         | 21047      | BEARING KIT                 |
| 4         | 1247       | RUBBER GROMMET              |
| 4         | 1245       | SPACER                      |
| 1         | 2827       | ARM (419 mm [16-1/2 in.])   |
| 2         | 0152 1     | BELT (A-30) (ROBIN)         |
| 1         | 10968      | THRUST COLLAR KIT           |
| 2         | 0650140031 | SPARK PLUG (ROBIN)          |
| 2         | 0430430015 | TANK CAP (ROBIN)            |
| 2         | 2703261008 | AIR CLEANER ELEMENT (ROBIN) |

# BA-SERIES TROWEL — NAMEPLATE AND DECALS

## NAMEPLATES AND DECALS



# BA-SERIES TROWEL — NAMEPLATE AND DECALS

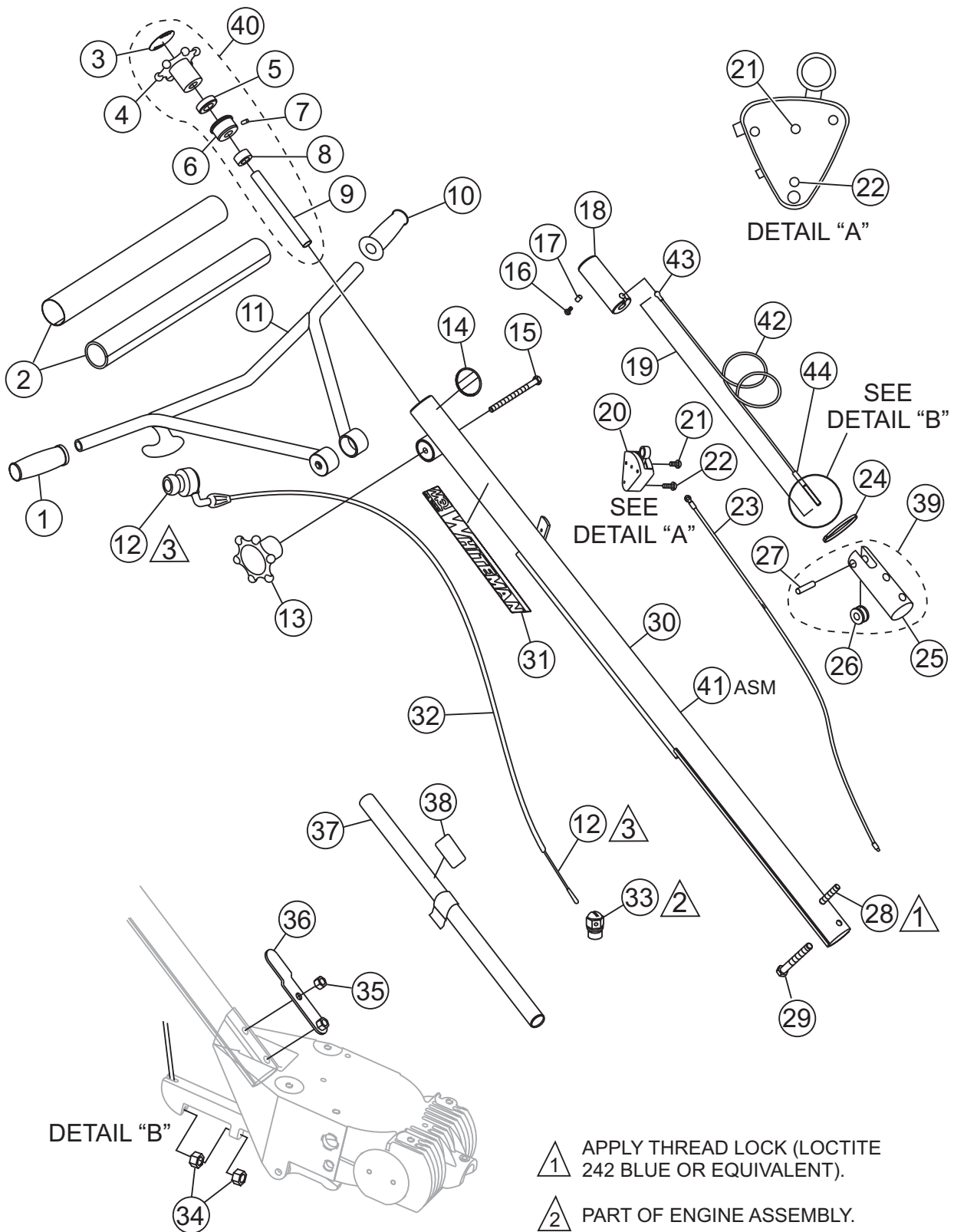
## NAMEPLATE AND DECALS

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>                         | <u>QTY.</u> | <u>REMARKS</u>                              |
|------------|-----------------|--|-------------|---|
| 1          | 1758            | DECAL: QUICK-PITCH™ HANDLE               | 1           |   |
| 2          | 12405           | DECAL: QUICK-PITCH™ HANDLE INSERT        | 2           |   |
| 3          | 20527           | DECAL: QUICK-PITCH™ WARNING .....        | 1 .....     | SAFETY ITEM                                 |
| 4          | 20526           | DECAL: QUICK-PITCH™ LATCH WARNING .....  | 1 .....     | SAFETY ITEM                                 |
| 5          | 2942            | DECAL: MQ WHITEMAN 13"                   | 1           |   |
| 6          | 1736            | DECAL: ARROWS                            | 1           |   |
| 7          | 1735            | DECAL: PRE-LOAD INDICATOR                | 1           |   |
| 8          | 11246           | DECAL: OIL CHECK .....                   | 1 .....     | PART OF DECAL KIT P/N 12620                 |
| 9          |                 | NAMEPLATE .....                          | 1 .....     | CONTACT MULTIQUIP<br>SERVICE DEPT.          |
| 10         | 1940            | DECAL: MQ WHITEMAN (SMALL)               | 1           |   |
| 11         | 11092           | DECAL: CE                                | 1           |   |
| 12         | 11246           | DECAL: GEAR DRIVE .....                  | 1 .....     | SAFETY ITEM,<br>PART OF DECAL KIT P/N 12620 |
| 13         | 1492            | DECAL: STANDARD HANDLE (FINISHER)        | 1           |   |
| 14         | 1147            | DECAL: HELMET, FOOT AND GLOVE .....      | 1 .....     | SAFETY ITEM,<br>PART OF DECAL KIT P/N 12620 |
| 15         | 11246           | DECAL: HOT .....                         | 1 .....     | SAFETY ITEM,<br>PART OF DECAL KIT P/N 12620 |
| 16         | 1261            | DECAL: DO NOT LIFT .....                 | 1 .....     | SAFETY ITEM                                 |
| 17         | 1848            | DECAL: POWER TROWEL                      | 1           |   |
| 18         | 2938            | DECAL: METRIC                            | 1           |   |
| 19         | 11246           | DECAL: BELT DRIVE .....                  | 1 .....     | SAFETY ITEM,<br>PART OF DECAL KIT P/N 12620 |
| 20         | 35137           | DECAL: WARNING, READ MANUAL .....        | 1 .....     | SAFETY ITEM                                 |
| 21         | 35168           | DECAL: WARNING, ROTATING BLADE HAZ ..... | 1 .....     | SAFETY ITEM                                 |
| 22         | 21455           | DECAL: WARNING, LIFTING/CRUSH HAZ .....  | 1 .....     | SAFETY ITEM                                 |

SEE DECAL ILLUSTRATIONS ON PAGE 12

# BA-SERIES TROWEL — STANDARD HANDLE

## STANDARD HANDLE



- ▲ 1 APPLY THREAD LOCK (LOCTITE 242 BLUE OR EQUIVALENT).
- ▲ 2 PART OF ENGINE ASSEMBLY.
- ▲ 3 CABLE IS ATTACHED TO THROTTLE AND SEALED AT THE FACTORY. ORDERABLE AS A UNIT ONLY.

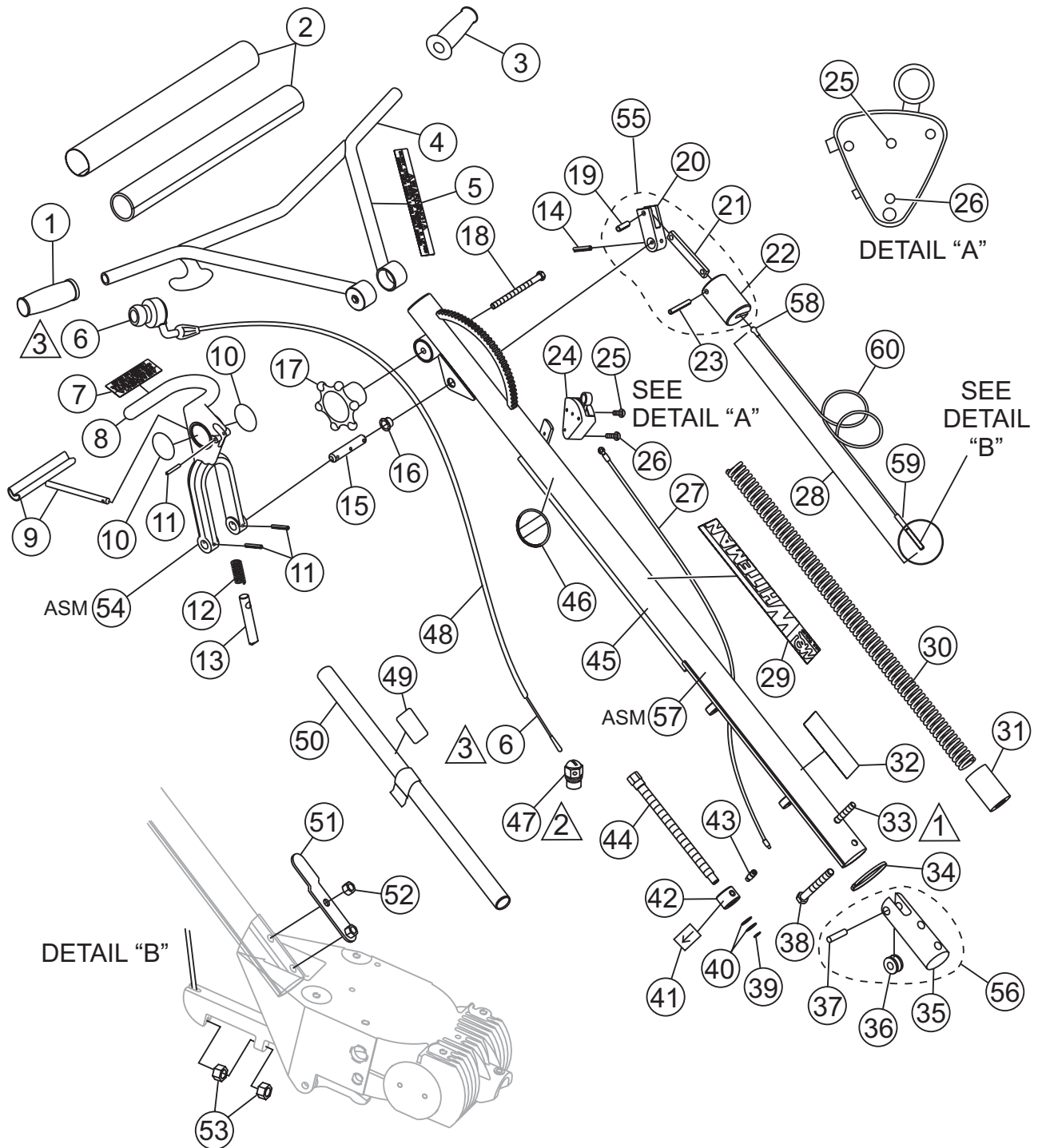
# BA-SERIES TROWEL — STANDARD HANDLE

## STANDARD HANDLE

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>                            | <u>QTY.</u> | <u>REMARKS</u>             |
|------------|-----------------|---|-------------|----------------------------|
| 1          | 20463           | GRIP, HANDLE RIGHT                          | 1           |                            |
| 2          | 20774           | COVER, PAD HANDLE                           | 1           |                            |
| 3          | 20818           | DECAL, STD PITCH.....                       | 1           | OBSOLETE ON LATER MODELS   |
| 4*         | 20817           | WHEEL, HAND J-B HANDLE                      | 1           |                            |
| 5*         | 0281            | BEARING, THRUST, NICE 607                   | 1           |                            |
| 6*         | 20282           | BEARING, TROWEL CONTROL                     | 1           |                            |
| 7*         | 0122 C          | SCREW, SHS 3/8-16 X 1/2                     | 1           |                            |
| 8*         | 3615            | COLLAR, SET 3/4 ID                          | 1           |                            |
| 9*         | 1478            | SHAFT, TROWEL CONTROL                       | 1           |                            |
| 10         | 20478           | GRIP, HANDLE LEFT                           | 1           |                            |
| 11         | 12556           | HANDLE, ADJUSTABLE                          | 1           |                            |
| 12         | 20435           | THROTTLE, J-B                               | 1           |                            |
| 13         | 20439           | WHEEL ASSY, HAND                            | 1           |                            |
| 14         | 1492            | DECAL, CUSTOM 2 1/2 CHROME                  | 1           |                            |
| 15         | 20438           | SCREW, HHC 3/8-16 X 5.00                    | 1           |                            |
| 16         | 0786            | SCREW, BHC 1/4- 20 X 3/8 NYL PATCH, NP      | 1           |                            |
| 17         | 0786 A          | SPACER, .360 X 17/64 X 1/8L                 | 1           |                            |
| 18         | 20287           | SLIDE BLOCK TROWEL CONTROL                  | 1           |                            |
| 19         | 20285           | CABLE ASSY, LENGTH 1.227m (48.29" )STD FIN. | 1           |                            |
| 20         | 20856           | SWITCH ASSY, ENGINE-STOP SAFETY .....       | 1           | SAFETY ITEM                |
| 21         | 1602            | SCREW, RHM 10-24 X 3/8.....                 | 1           | COMES WITH #20 SWITCH ASSY |
| 22         | 20988           | SCREW, FHSC PHILLIPS 8-32 X 1 1/4           | 1           |                            |
| 23         | 20514           | WIRE ASSY, ENGINE-OFF SAFETY SWITCH         | 1           |                            |
| 24         | 1662            | TIE, CABLE TY-RAP, BLACK                    | 1           |                            |
| 25#        | 20275           | BLOCK, SUPPORT                              | 1           |                            |
| 26#        | 1118            | PULLEY, SUPPORT BLOCK                       | 1           |                            |
| 27#        | 20279           | PIN, SUPPORT BLOCK 3/8 X 1.59               | 1           |                            |
| 28         | 21017           | SCREW, HHC 3/8-16 X 3 1/2 FULL THREAD       | 1           |                            |
| 29         | 1493            | SCREW, HHC 3/8-16 X 3 1/4                   | 1           |                            |
| 30         | 12567           | HANDLE, J/B STD                             | 1           |                            |
| 31         | 2942            | DECAL, MQ WHITEMAN, 330 mm (13")            | 1           |                            |
| 32         | 20434           | HOUSING, CABLE 1.88 m (74")                 | 1           |                            |
| 33         | 20845           | SWIVEL, THROTTLE CABLE                      | 1           |                            |
| 34         | 1116            | NUT, BRASS JAM 5/16-18                      | 2           |                            |
| 35         | 10133           | NUT, NYLOC 3/8-16                           | 1           |                            |
| 36         | 20392           | BRACKET, LIFT TUBE                          | 1           |                            |
| 37         | 20471           | HANDLE, LIFT ASSY                           | 1           |                            |
| 38         | 1261            | DECAL, CAUTION, LIFT HANDLE                 | 1           |                            |
| 39         | 20280           | BLOCK, CABLE ASSY.....                      | 1           | INCLUDES ITEMS W/ #        |
| 40         | 20819           | HAND WHEEL ASSY, PITCH CONTROL.....         | 1           | INCLUDES ITEMS W/ *        |
| 41         | 20299           | HANDLE ASSY, STD FINISHERS.....             | 1           | CONTACT SALES DEPT.        |
| 42         | 20301           | CABLE, CNTL 5/32 GALV AIRCRFT 1.17m (46")   | 1           |                            |
| 43         | 20421           | CLEVIS, BALL END CONTROL CABLE              | 1           |                            |
| 44         | A8638           | END-BOLT, CNTL CABLE                        | 1           |                            |

# BA-SERIES TROWEL — QUICK-PITCH™ HANDLE

## QUICK-PITCH™ T-HANDLE



- ▲ 1 APPLY THREAD LOCK (LOCTITE 242 BLUE OR EQUIVALENT).
- ▲ 2 PART OF ENGINE ASSEMBLY.
- ▲ 3 CABLE IS ATTACHED TO THROTTLE AND SEALED AT THE FACTORY. ORDERABLE AS A UNIT ONLY.

# BA-SERIES TROWEL — QUICK-PITCH™ HANDLE

## QUICK-PITCH HANDLE

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>                          | <u>QTY.</u> | <u>REMARKS</u>           |
|------------|-----------------|---|-------------|--------------------------|
| 1          | 20463           | GRIP, HANDLE RIGHT                        | 1           |                          |
| 2          | 20774           | COVER, PAD HANDLE                         | 1           |                          |
| 3          | 20478           | GRIP, HANDLE LEFT                         | 1           |                          |
| 4          | 12556           | HANDLE, ADJUSTABLE                        | 1           |                          |
| 5          | 20526           | DECAL, LATCH WARNING .....                | 1           | SAFETY ITEM              |
| 6          | 20435           | THROTTLE, J-B                             | 1           |                          |
| 7          | 20527           | DECAL, Q.P. WARNING .....                 | 1           | SAFETY ITEM              |
| 8*         | 20389           | HANDLE, QUICK-PITCH™                      | 1           |                          |
| 9*         | 1746            | TRIGGER, QP CHROMED                       | 1           |                          |
| 10*        | 12405           | DECAL, WHITEMAN QUICK-PITCH™              | 2           |                          |
| 11         | 1729            | PIN, ROLL 3/16 X 1 1/4                    | 3           |                          |
| 12*        | 1706            | SPRING, ENCLOSED QP CLAMP                 | 1           |                          |
| 13*        | 20437           | PIN, QP LATCH                             | 1           |                          |
| 14         | 4568            | PIN, ROLL 3/16 X 1                        | 1           |                          |
| 15         | 1711            | SHAFT, CONTROL QP                         | 1           |                          |
| 16         | 1719            | BUSHING, PIVOT PLATE                      | 1           |                          |
| 17         | 20439           | WHEEL ASSY, HAND                          | 1           |                          |
| 18         | 20438           | SCREW, HHC 3/8-16 X 5.00                  | 1           |                          |
| 19+        | 1731            | PIN, ROLL 1/4 X 3/4                       | 1           |                          |
| 20+        | 20443           | ARM, SLIDE CONTROL                        | 1           |                          |
| 21+        | 1709            | CONNECTOR, QP CONTROL ARM                 | 1           |                          |
| 22+        | 20269           | LINKAGE, QP CONTROL                       | 1           |                          |
| 23+        | 20276           | PIN, ROLL 1/4 X 1 3/4                     | 1           |                          |
| 24         | 20856           | SWITCH ASSY, ENGINE-OFF SAFETY .....      | 1           | SAFETY ITEM              |
| 25         | 1602            | SCREW, RHM 10-24 X 3/8.....               | 1           | COMES W/ #24 SWITCH ASSY |
| 26         | 20988           | SCREW, FHSC PHILLIPS 8-32 X 1 1/4         | 1           |                          |
| 27         | 20514           | WIRE ASSY, ENGINE-OFF SAFETY SWITCH ..... | 1           | SAFETY ITEM              |
| 28         | 20297           | CABLE ASSY, QP CONTROL, 1.143 m (45")     | 1           |                          |
| 29         | 2942            | DECAL, MQ WHITEMAN, 330 mm (13")          | 1           |                          |
| 30         | 1715            | SPRING, COUNTER BALANCE                   | 1           |                          |
| 31         | 20270           | BLOCK, QP ADJUSTMENT                      | 1           |                          |
| 32         | 1735            | DECAL, PRELOAD TRIM INDICATOR             | 1           |                          |
| 33         | 21017           | SCREW, HHC 3/8-16 X 3 1/2 FULL THREAD     | 1           |                          |
| 34         | 1662            | TIE, CABLE, TY-RAP BLACK                  | 1           |                          |
| 35#        | 20275           | BLOCK, SUPPORT                            | 1           |                          |
| 36#        | 1118            | PULLEY, SUPPORT BLOCK                     | 1           |                          |
| 37#        | 20279           | PIN, SUPPORT BLOCK 3/8 X 1.59             | 1           |                          |
| 38         | 1493            | SCREW, HHC 3/8-16 X 3 1/4                 | 1           |                          |
| 39         | 1737            | SNAP RING, TRUARC #5100-50                | 1           |                          |
| 40         | 1733            | WASHER, 1/2 X 1/32, HARDENED              | 2           |                          |

CONTINUED NEXT PAGE

# BA-SERIES TROWEL — QUICK PITCH™ HANDLE

## QUICK PITCH HANDLE

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>                            | <u>QTY.</u> | <u>REMARKS</u>      |
|------------|-----------------|---|-------------|---------------------|
| 41         | 1736            | DECAL, ARROW                                | 1           |                     |
| 42         | 1718            | NUT, QP TRIM CTRL ADJ                       | 1           |                     |
| 43         | 1732            | BOLT, STRIPPER 3/8 X 1/2                    | 1           |                     |
| 44         | 1717            | SCREW, QP TRIM ADJUSTMENT                   | 1           |                     |
| 45         | 12642           | TUBE, MAIN HANDLE                           | 1           |                     |
| 46         | 1758            | DECAL, PATENT QP                            | 1           |                     |
| 47         | 20845           | SWIVEL, ENGINE THROTTLE CABLE               | 1           |                     |
| 48         | 20434           | HOUSING, THROTTLE CABLE 1.88 m (74")        | 1           |                     |
| 49         | 1261            | DECAL, CAUTION, LIFT HANDLE .....           | 1           | SAFETY ITEM         |
| 50         | 20471           | HANDLE, LIFT ASSY                           | 1           |                     |
| 51         | 20392           | BRACKET, LIFT TUBE                          | 1           |                     |
| 52         | 10133           | NUT, NYLOC 3/8-16                           | 1           |                     |
| 53         | 1116            | NUT, BRASS JAM 5/16-18                      | 2           |                     |
| 54         | 20390           | TRIGGER, QP ASSY .....                      | 1           | INCLUDES ITEMS W/ * |
| 55         | 20293           | LINKAGE, QP CONTROL ASSY.....               | 1           | INCLUDES ITEMS W/ + |
| 56         | 20280           | BLOCK, CABLE ASSY.....                      | 1           | INCLUDES ITEMS W/ # |
| 57         | 12645           | HANDLE ASSY, MAIN .....                     | 1           | CONTACT SALES DEPT. |
| 58         | 20421           | CLEVIS, BALL END CONTROL CABLE              | 1           |                     |
| 59         | A8638           | END-BOLT, CNTRL CABLE                       | 1           |                     |
| 60         | 20271           | CABLE, CNTL 5/32 GALV AIRCRFT 1.1m (43.19") | 1           |                     |



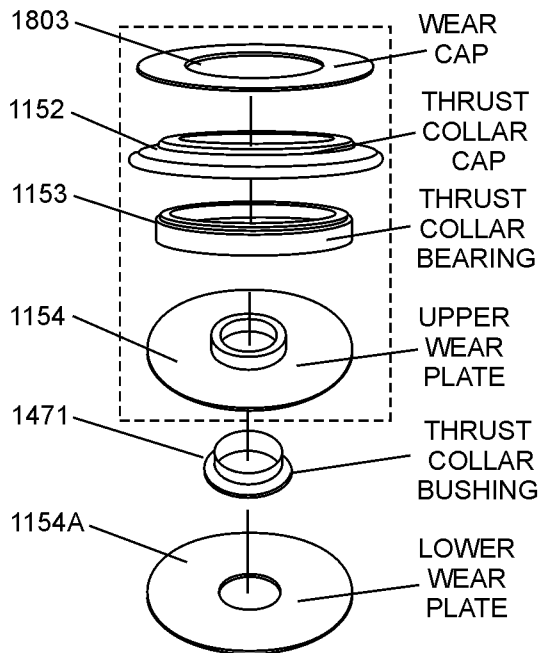


# BA-SERIES TROWEL — THRUST BEARING KIT ASSY

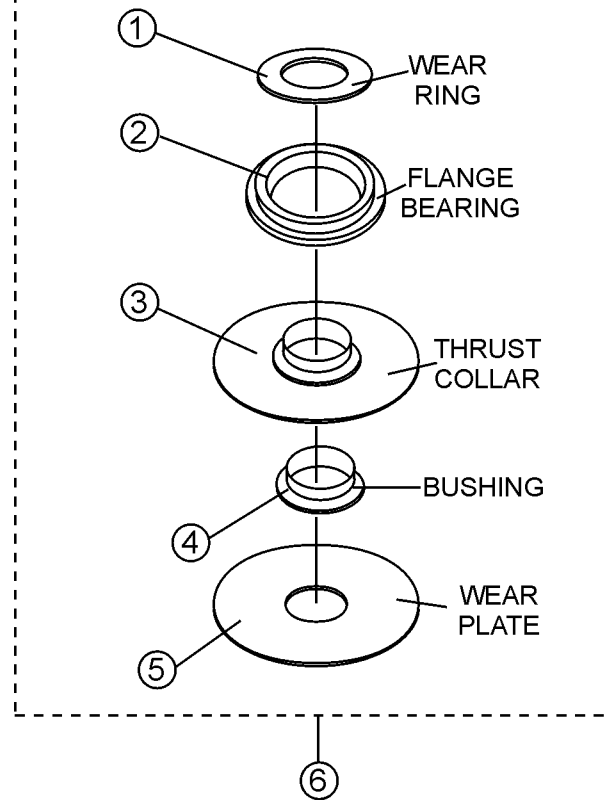
THRUST BEARING KIT ASSEMBLY.

## THRUST BEARING KIT No. 10968

### OLD STYLE THRUST BEARING NO LONGER USED



### NEW STYLE THRUST BEARING



WHEN RE-ORDERING ***MUST*** USE  
THRUST BEARING KIT P/N 10968.  
***OLD STYLE*** IS NOT AVAILABLE.

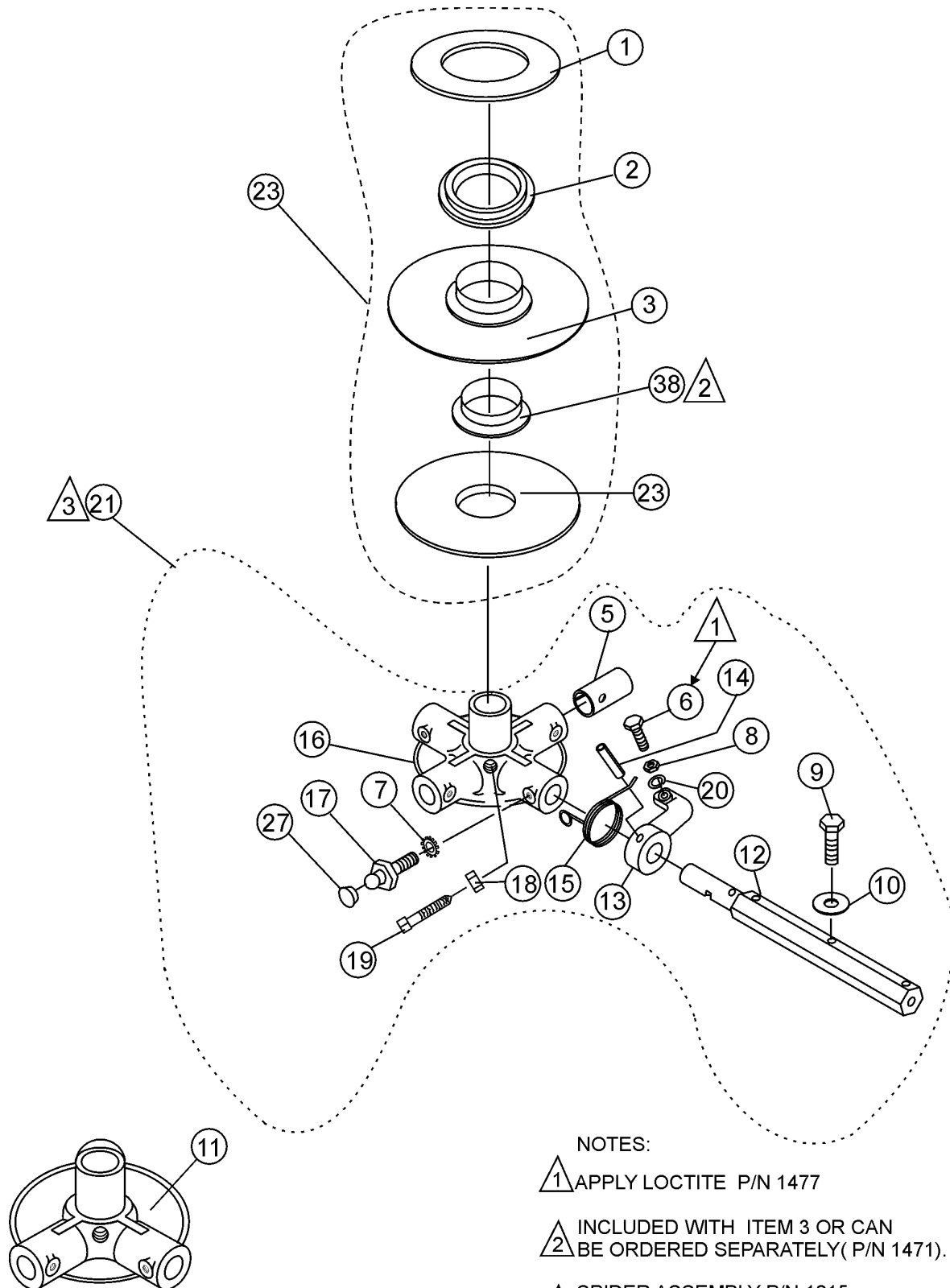
# BA-SERIES TROWEL — THRUST BEARING KIT ASSY

## THRUST BEARING KIT ASSEMBLY.

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>        | <u>QTY.</u> | <u>REMARKS</u>    |
|------------|-----------------|-------------------------|-------------|-------------------|
| 1*         | 12208           | WEAR RING               | 1           |                   |
| 2*         | 12778           | FLANGE BEARING          | 1           |                   |
| 3*         | 10793           | THRUST COLLAR W/BUSHING | 1           |                   |
| 4*         | 1471            | BUSHING                 | 1           |                   |
| 5*         | 1154 A          | LOWER WEAR PLATE        | 1           |                   |
| 6          | 10968           | THRUST BEARING KIT      | 1           | INCLUDES ITEM W/* |

# BA-SERIES TROWEL — 3 AND 4-BLADE SPIDER ASSY

## 3 AND 4 BLADE SPIDER ASSY



NOTES:

- ① APPLY LOCTITE P/N 1477
- ② INCLUDED WITH ITEM 3 OR CAN BE ORDERED SEPARATELY ( P/N 1471).
- ③ SPIDER ASSEMBLY P/N 1215 INCLUDES ALL ITEMS WITHIN OUTLINE.

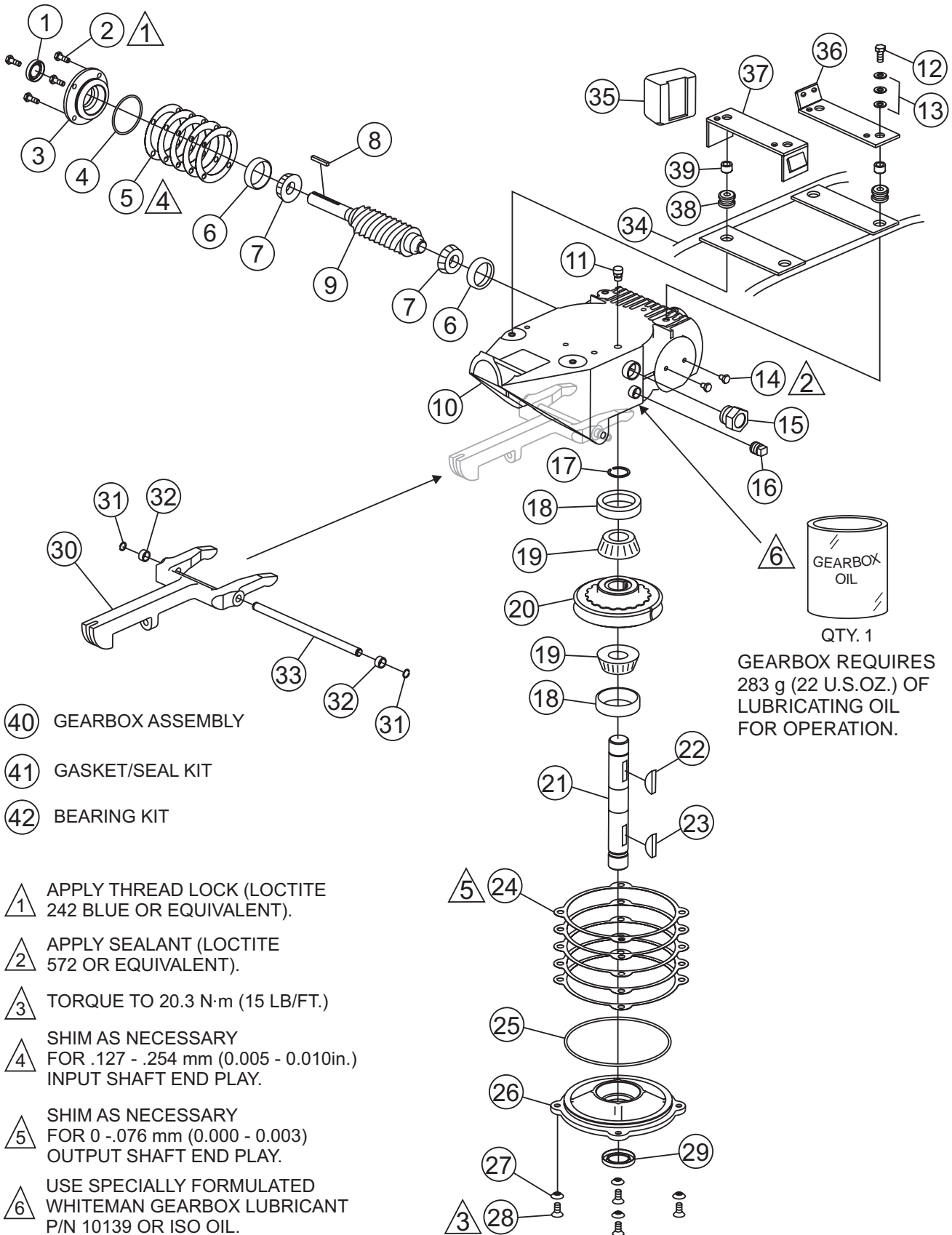
# BA-SERIES TROWEL — 3 AND 4-BLADE SPIDER ASSY

## 3 AND 4 BLADE SPIDER ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>                   | <u>QTY.</u> | <u>REMARKS</u>     |
|------------|-----------------|------------------------------------|-------------|--------------------|
| 1*         | 12208           | WEAR RING                          | 1           |                    |
| 2*         | 12778           | FLANGE BEARING                     | 1           |                    |
| 3*         | 10793           | THRUST COLLAR .....                | 1           | INCLUDES ITEMS W/# |
| 4*         | 1154 A          | WEAR PLATE                         | 1           |                    |
| 5%         | 1157 A          | BEARING INSERT                     | 3,4         |                    |
| 6%         | 0164 B          | RADIUS HEAD 3/8- 16 x 1-1/4" ..... | 3,4         | FULL THREAD        |
| 7%         | 1875            | INT. SHKP. WASHER 3/8"             | 3,4         |                    |
| 8%         | 1876            | JAM NUT 3/8- 16 .....              | 3,4         | CLASS 2B           |
| 9%         | 0105            | HHCS 5/16- 18 x 1-1/2"             | 6,8         |                    |
| 10%        | 0161 C          | LOCK WASHER 5/16"                  | 6,8         |                    |
| 11%        | 1156            | SPIDER PLATE ONLY .....            | 1           | 3 BLADE ONLY       |
| 12%        | 2827            | TROWEL ARM EXTENDED, 16-1/2"       | 3,4         |                    |
| 12%        | 2828            | TROWEL ARM 11-3/4                  |             |                    |
| 13%        | 1163            | TROWEL ARM LEVER                   | 3,4         |                    |
| 14%        | 4164            | ROLL PIN 5/16 x 1-3/4"             | 3,4         |                    |
| 15%        | 1316            | SPRING (RIGHT HAND)                | 3,4         |                    |
| 16%        | 1161            | SPIDER PLATE ONLY .....            | 1           | 4 BLADE ONLY       |
| 17%        | 1322            | RETAINING SCREW ASSY               | 3,4         |                    |
| 18%        | 1456            | HEX NUT 3/8-16                     | 1           |                    |
| 19%        | 1167 A          | SHSS 3/8-16 x 1-1/2" CONE POINT    | 1           |                    |
| 20%        | 0166 A          | LOCK WASHER 3/8"                   | 3,4         |                    |
| 21         | 1210            | SPIDER PLATE ASSY (3 BLADE)        | 1           | INCLUDES ITEMS W/% |
| 21         | 1215            | SPIDER PLATE ASSY (4 BLADE)        | 1           | INCLUDES ITEMS W/% |
| 22         | 1162 A          | LUBRA- CAP                         | 3,4         |                    |
| 23         | 10968           | THRUST BEARING KIT .....           | 1           | INCLUDES ITEMS W/* |
| 24*#       | 1471            | THRUST COLLAR BUSHING              | 1           |                    |

# BA-SERIES TROWEL — GEARBOX AND ENGINE MOUNTS ASSY

## GEARBOX AND ENGINE MOUNTS ASSY



- ④0 GEARBOX ASSEMBLY
- ④1 GASKET/SEAL KIT
- ④2 BEARING KIT

- △ 1 APPLY THREAD LOCK (LOCTITE 242 BLUE OR EQUIVALENT).
- △ 2 APPLY SEALANT (LOCTITE 572 OR EQUIVALENT).
- △ 3 TORQUE TO 20.3 N·m (15 LB/FT.)
- △ 4 SHIM AS NECESSARY FOR .127 - .254 mm (0.005 - 0.010in.) INPUT SHAFT END PLAY.
- △ 5 SHIM AS NECESSARY FOR 0 - .076 mm (0.000 - 0.003) OUTPUT SHAFT END PLAY.
- △ 6 USE SPECIALLY FORMULATED WHITEMAN GEARBOX LUBRICANT P/N 10139 OR ISO OIL.

# BA-SERIES TROWEL — GEARBOX AND ENGINE MOUNTS ASSY

## GEARBOX AND ENGINE MOUNTS ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>                     | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|--------------------------------------|-------------|----------------|
| 1%*        | 0753            | SEAL, OIL NATIONAL #470954           | 1           |                |
| 2%         | 0131 A          | SCREW, HHC 1/4-20 X 3/4              | 4           |                |
| 3%         | 12876           | FLANGE, INPUT SHAFT                  | 1           |                |
| 4%*        | 20395           | RING, O -139 BUNA N                  | 1           |                |
| 5%*        | 20397           | SHIM, INPUT 0.002 THICK              | 1           |                |
|            | 20398           | SHIM, INPUT 0.003 THICK              | 1           |                |
|            | 20399           | SHIM, INPUT 0.005 THICK              | 1           |                |
|            | 20400           | SHIM, INPUT 0.010 THICK              | 1           |                |
|            | 20401           | SHIM, INPUT 0.020 THICK              | 1           |                |
| 6%#        | 20466           | BEARING, CUP, TIMKEN #LM11910        | 2           |                |
| 7%#        | 20465           | BEARING, CONE, TIMKEN #LM11949       | 2           |                |
| 8%         | 0627            | KEY, SQUARE 3/16 X 1 1/4             | 1           |                |
| 9%         | 1851            | GEAR, WORM & SHAFT ASSY              | 1           |                |
| 10%        | 12874           | CASE, GEAR, J, B FINISHER            | 1           |                |
| 11%        | 1132            | VENT, AIR                            | 1           |                |
| 12         | 0655            | SCREW, HHC 5/16-18 X 3/4             | 1           |                |
| 13         | 0300 B          | WASHER, FLAT 5/16 SAE                | 3           |                |
| 14%        | 20476           | SCREW, HHC 1/4-28 X 3/8              | 2           |                |
| 15%        | 21033           | SIGHT GLASS, 3/4 M PIPE STEEL        | 1           |                |
| 16%        | 0121 A          | FITTING, PLUG 3/8 MP SQ HEAD         | 1           |                |
| 17%        | 1138            | RING, SNAP, TRUARC 5100-112          | 1           |                |
| 18%#       | 20475           | BEARING, CUP TIMKEN #M86610          | 2           |                |
| 19%#       | 20474           | BEARING, CONE TIMKEN #M86647         | 2           |                |
| 20%        | 1140            | GEAR, WORM, BRONZE                   | 1           |                |
| 21%        | 20470           | SHAFT, OUTPUT J/B FIN                | 1           |                |
| 22%        | 1139            | KEY, WOODRUFF #21 HARDENED           | 1           |                |
| 23         | 1238            | KEY, WOODRUFF #25                    | 1           |                |
| 24%*       | 20402           | SHIM, OUTPUT 0.002 THICK             | 1           |                |
|            | 20403           | SHIM, OUTPUT 0.003 THICK             | 1           |                |
|            | 20404           | SHIM, OUTPUT 0.005 THICK             | 1           |                |
|            | 20405           | SHIM, OUTPUT 0.010 THICK             | 1           |                |
|            | 20406           | SHIM, OUTPUT 0.020 THICK             | 1           |                |
| 25%*       | 20396           | RING, O -257 BUNA N                  | 1           |                |
| 26%        | 12875           | COVER, GEARBOX                       | 1           |                |
| 27%        | 10235           | WASHER, C/S EXT. SHKP                | 4           |                |
| 28%        | 1146            | SCREW, FHSC 5/16-18 X 1, NYLOC NP    | 4           |                |
| 29%*       | 0254            | SEAL, OIL, NATIONAL #470712          | 1           |                |
| 30         | 1150            | ARM, YOKE                            | 1           |                |
| 31         | 20802           | RING, SNAP, TRUARC 5100-37 OR EQUIV. | 2           |                |
| 32         | 20803           | SPACER, .50 OD X .40 ID X 0.25L      | 2           |                |
| 33         | 20801           | PIN, YOKE                            | 1           |                |
| 34         | 20811           | STATIONARY GUARD RING                | 1           |                |
| 35         | 1810            | WEIGHT                               | 2           |                |

CONTINUED NEXT PAGE

# BA-SERIES TROWEL — GEARBOX AND ENGINE MOUNTS ASSY

## GEARBOX AND ENGINE MOUNTS ASSY

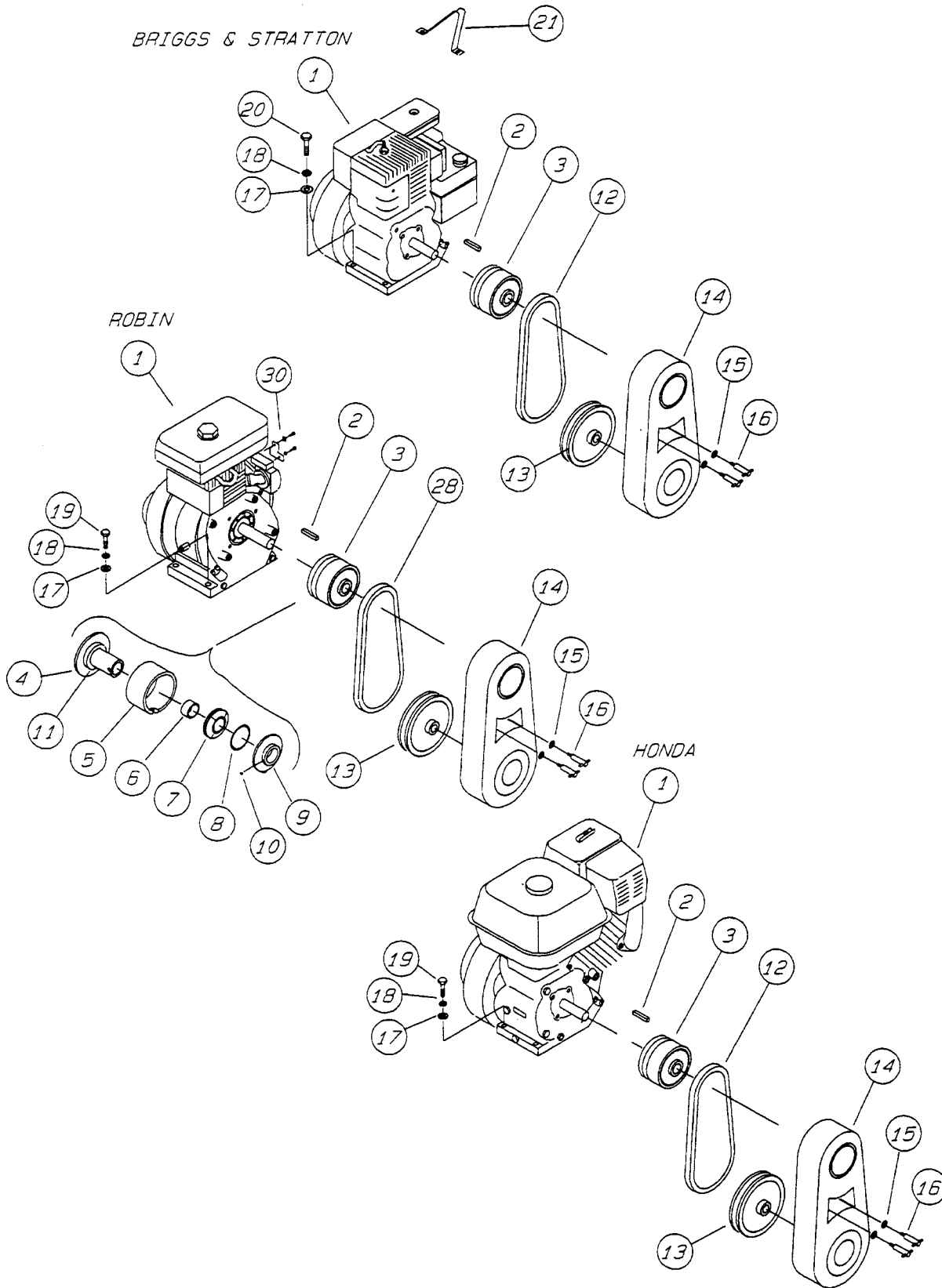
| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>                       | <u>QTY.</u> | <u>REMARKS</u>      |
|------------|-----------------|--|-------------|---------------------|
| 36         | 1958            | FRONT ENGINE MOUNT (HONDA)             | 1           |                     |
| 36         | 1965            | FRONT ENGINE MOUNT (ROBIN)             | 1           |                     |
| 36         | 20536           | FRONT ENGINE MOUNT (BRIGGS)            | 1           |                     |
| 37         | 1964            | REAR ENGINE MOUNT (HONDA 8HP)          | 1           |                     |
| 37         | 20954           | REAR ENGINE MNT. (HONDA W/HAND CLUTCH) | 1           |                     |
| 37         | 20545           | REAR ENGINE MOUNT (ROBIN)              | 1           |                     |
| 37         | 20558           | REAR ENGINE MOUNT (BRIGGS)             | 1           |                     |
| 38         | 1247            | GROMMET 1/4 X .875 ID X 1-5/8 OD       | 4           |                     |
| 39         | 1245            | BUSHING, GUARD RING                    | 4           |                     |
| 40         | 20407           | GEARBOX ASSY.....                      | 1.....      | INCLUDES ITEMS W/ % |
| 41         | 21046           | GASKET/SEAL KIT.....                   | 1.....      | INCLUDES ITEMS W/ * |
| 42         | 21047           | BEARING KIT.....                       | 1.....      | INCLUDES ITEMS W/ # |





# BA-SERIES TROWEL — ENGINES, HONDA, ROBIN, BRIGGS & STRATTON

ENGINES, 5.96 Kw HONDA, 5.96 Kw ROBIN, & 5.96 Kw HP BRIGGS AND STRATTON  
ENGINES, 8 HP HONDA, 8 HP ROBIN, & 8 HP BRIGGS AND STRATTON



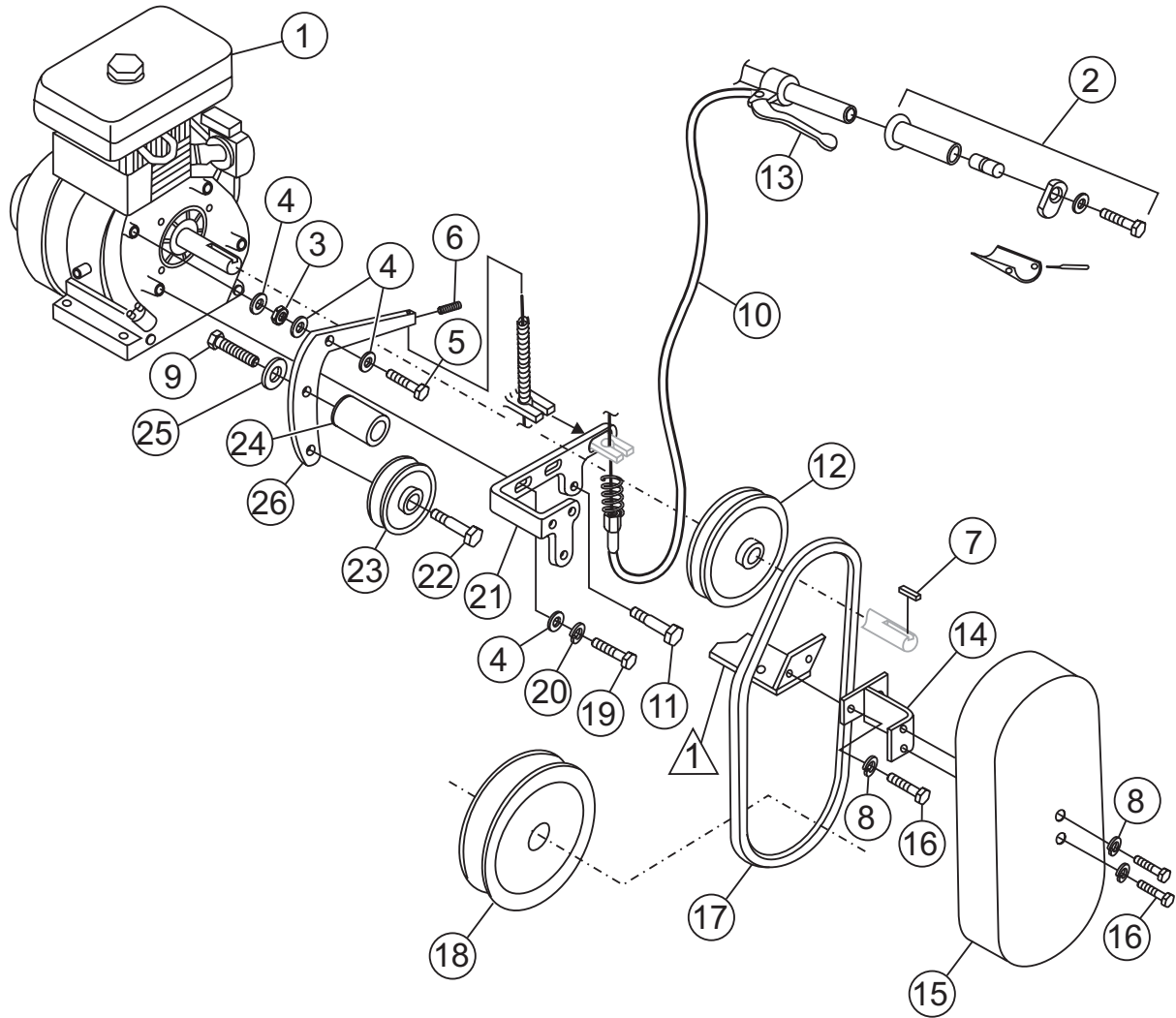
# BA-SERIES TROWEL — ENGINES, HONDA, ROBIN, BRIGGS & STRATTON

ENGINES, 5.96 Kw HONDA, 5.96 Kw ROBIN, & 5.96 Kw HP BRIGGS AND STRATTON  
 ENGINES, 8 HP HONDA, 8 HP ROBIN, & 8 HP BRIGGS AND STRATTON

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>            | <u>QTY.</u> | <u>REMARKS</u>   |
|------------|-----------------|-----------------------------|-------------|--|
| 1          | 1387            | ENGINE 5.96 kW HONDA        | 1           |  |
| 1          | 20469           | ENGINE 5.96 kW B & S        | 1           |  |
| 1          | 1256            | ENGINE 5.96 kW ROBIN        | 1           |  |
| 2          | 0310            | SQUARE KEY 1/4X1/4X1.1/2"   | 1           |  |
| 3          | 0250            | AUTOMATIC CLUTCH 1" BORE    | 1           | ..... INCLS. ALL ITEMS W/*                             |
| 4*         | 0252            | SPINDLE 1" BORE             | 1           |  |
| 5*         | 0251            | CLUTCH HOUSING DRUM         | 1           |  |
| 6*         | 0458            | CLUTCH HSNG DRUM BUSHING    | 1           |  |
| 7*         | 0454            | WEIGHT SET (INCL 4 WEIGHTS) | 1           |  |
| 8*         | 0855            | SPRING                      | 1           |  |
| 9*         | 0253            | CLUTCH EXPANSION PLATE      | 1           |  |
| 10*        | 0457            | HSSS 3/8-24X1/2"            | 1           |  |
| 11*        | 0456            | BELT RUNNER (BEARING)       | 1           |  |
| 12         | 0261            | BELT (A31)(HONDA,B&S)       | 1           |  |
| 13         | 1127            | PULLEY                      | 1           |  |
| 14         | 1335            | BELT GUARD .....            | 1           | ..... SAFETY ITEM                                      |
| 15         | 0181 B          | LOCK WASHER 1/4"            | 2           |  |
| 16         | 2577            | T-BOLT 1/4-20               | 2           |  |
| 17         | 0300 B          | FLAT WASHER 5/16"           | 4           |  |
| 18         | 0161 C          | LOCK WASHER 5/16"           | 4           |  |
| 19         | 10181           | HHCS 5/16-24 x 1-1/4"       | 4           |  |
| 20         | 1391            | HHCS 5/16-24 x 1-1/2"       | 4           |  |
| 21         |                 | LIFT STRAP .....            | 1           | ..... CONTACT UNIT SALES DEPT.<br>..... ACCESSORY ITEM |
| 28         | 0152 1          | BELT (A30) GATES (ROBIN)    | 1           |  |

# BA-SERIES TROWEL — MANUAL CLUTCH ASSY CE COMPLIANT OPTION

## MANUAL CLUTCH ASSY- CE COMPLIANT OPTION



⚠ SEE GEARBOX AND ENGINE MOUNTS ITEM 36 PAGE 52.

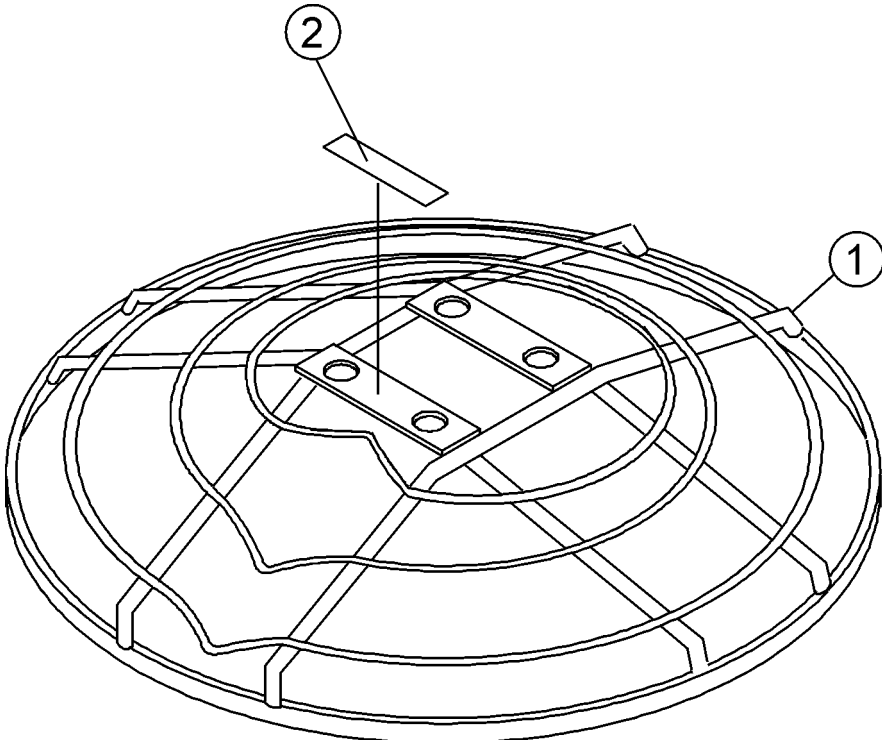
# BA-SERIES TROWEL — MANUAL CLUTCH ASSY CE COMPLIANT OPTION

## MANUAL CLUTCH ASSY- CE COMPLIANT OPTION

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>               | <u>QTY.</u> | <u>REMARKS</u>    |
|------------|-----------------|--------------------------------|-------------|-------------------|
| 1          | 1387            | ENGINE DR ASSY 5.96kW HONDA    | 1           |                   |
| 2          | 10036           | CLUTCH ASSIST HANDLE ASSY      | 1           |                   |
| 3          | 6014 C          | HEX FINISH NUT 5/16-24         | 1           |                   |
| 4          | 0300 B          | FLAT WASHER 5/16"              | 5           |                   |
| 5          | 10181           | SCREW, HHC 5/16-24X1.1/4"      | 1           |                   |
| 6          | 10450           | SHSS 10-32X1/4"                | 1           |                   |
| 7          | 0310            | KEY, CLUTCH 1/4 x 1/4 x 1.1/2" | 1           |                   |
| 8          | 0181 B          | LOCK WASHER 1/4"               | 4           |                   |
| 9          | 1672            | SCREW, HHC 3/8-24 x 1"         | 1           |                   |
| 10         | 10936           | HAND CLUTCH CABLE ASSY         | 1           |                   |
| 11         | 10971           | SHOULDER BOLT 5/16X1.1/2"      | 1           |                   |
| 12         | 2469            | PULLEY,ENGINE                  | 1           |                   |
| 13         | 1512            | HAND CLUTCH CONTROL LEVER      | 1           | ..... SAFETY ITEM |
| 14         | 10831           | BELT GUARD MOUNT               | 1           |                   |
| 15         | 10833           | BELT GUARD .....               | 1           | ..... SAFETY ITEM |
| 16         | 0730            | HHCS 1/4-20X1"                 | 4           |                   |
| 17         | 0262            | BELT,(A33)(HONDA)              | 1           |                   |
| 18         | 1127            | PULLEY,DRIVEN(HONDA)           | 1           |                   |
| 19         | 10229           | HHCS 5/16-24X1"                | 2           |                   |
| 20         | 0161 C          | LOCK WASHER 5/16"              | 2           |                   |
| 21         | 10898           | CLUTCH BRKT.                   | 1           |                   |
| 22         | 10281           | BOLT, SHOULDER 3/8-x 1.1/2"    | 1           |                   |
| 23         | 10935           | PULLEY,IDLER                   | 1           |                   |
| 24         | 20981           | SHOE, BELT HAND CLUTCH         | 1           |                   |
| 25         | 13351           | WASHER, FLAT 3/8 USS           |             |                   |
|            | .....           | EXT THK HI STR                 | 1           |                   |
| 26         | 10822           | CLUTCH IDLER LEVER             | 1           |                   |

# BA-SERIES TROWEL — GUARD RING ASSY

## GUARD RING ASSY



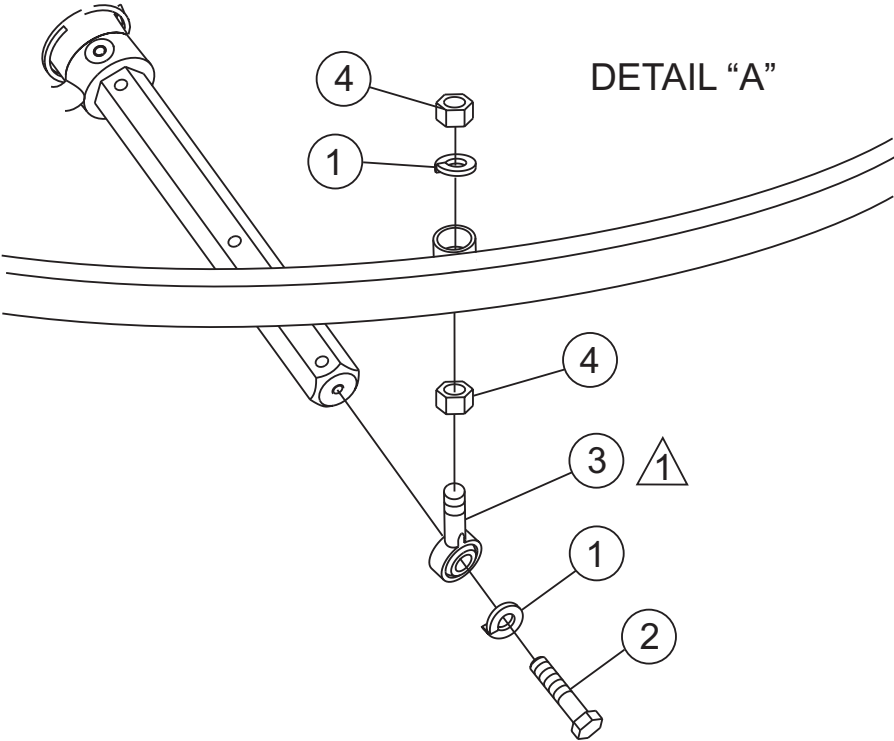
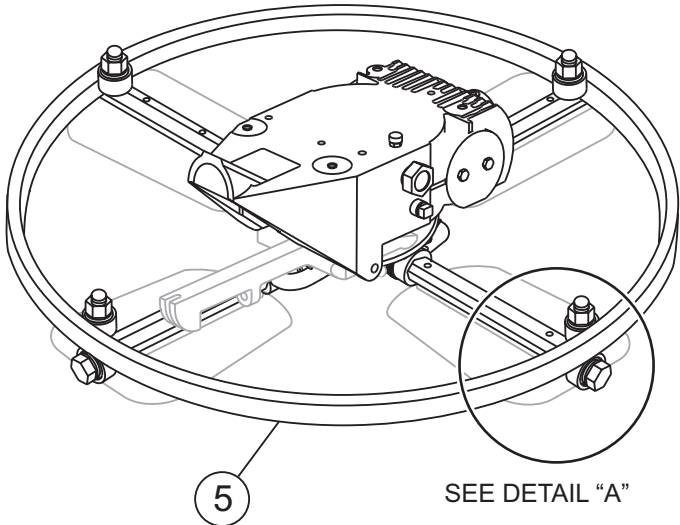
# BA-SERIES TROWEL — GUARD RING ASSY

## GUARD RING ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>                          | <u>QTY.</u> | <u>REMARKS</u>                    |
|------------|-----------------|---|-------------|-----------------------------------|
| 1          | 2273            | STATIONARY GUARD RING .....               | 1 .....     | SAFETY ITEM,<br>REPLACES P/N 1244 |
| 2          | 1489            | SPIDER PLATE ASSY 16-1/2" ARM (EXT) ..... | 1 .....     | 3-BLADE MODEL                     |
| 2          | 1490            | SPIDER PLATE ASSY 16 1/2" ARM (EXT) ..... | 1 .....     | 4-BLADE MODEL                     |

# BA-SERIES TROWEL — STABILIZER RING ASSY

## STABILIZER RING ASSY



1 APPLY LOCTITE 242 BLUE OR EQUIVALENT.



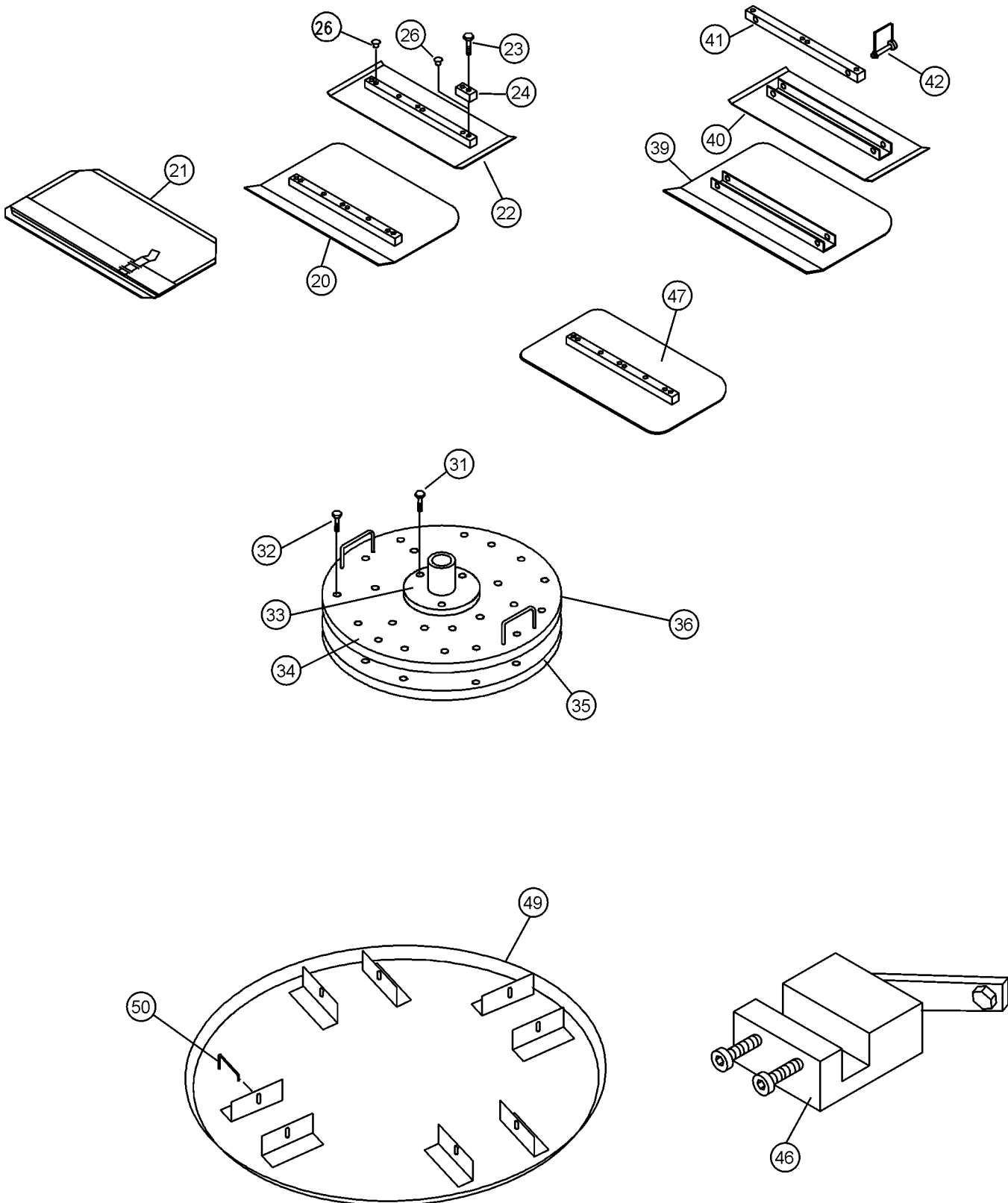
# BA-SERIES TROWEL — STABILIZER RING ASSY

## STABILIZER RING ASSY

| <u>NO</u> | <u>PART NO</u> | <u>PART NAME</u>               | <u>QTY.</u> | <u>REMARKS</u>   |
|-----------|----------------|--------------------------------|-------------|--|
| 1         | 0161 C         | WASHER, LOCK, 5/16 MED         | 4           |  |
| 2         | 1237           | SCREW, SCH 5/16-18 X 7/8 ..... | 4 .....     | NYL, NP  |
| 3         | 1723           | ROD END, 5/16-24 MALE          | 4           |  |
| 4         | 6014 C         | NUT, HEX FINISH 5/16-24        | 8           |  |
| 5         | 1482           | RING, STABILIZER, .....        | 1 .....     | 368 mm/14-1/2" ARM<br>..... 3-BLADE MODEL, REPLACES P/N 1234 |
| 5         | 1483           | RING, STABILIZER, .....        | 1 .....     | 368 mm/14-1/2" ARM<br>..... 4-BLADE MODEL, REPLACES P/N 1235 |

# BA-SERIES TROWEL — BLADES & ADJUSTMENT FIXTURE ASSY

## BLADES & ADJUSTMENT FIXTURE ASSY



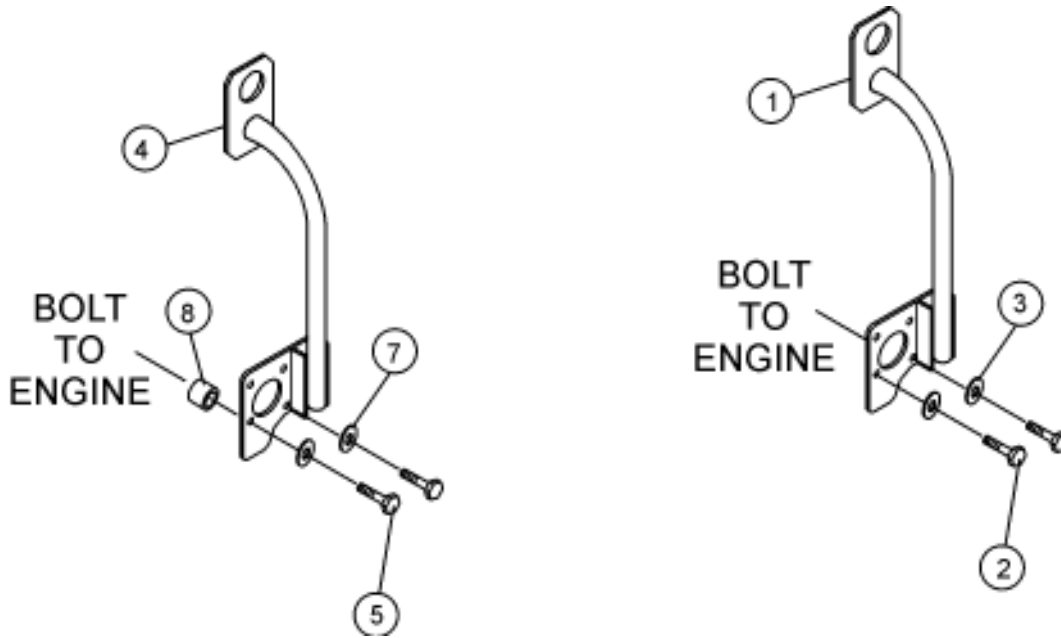
# BA-SERIES TROWEL — BLADES & ADJUSTMENT FIXTURE ASSY

## BLADES & ADJUSTMENT FIXTURE ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>                             | <u>QTY.</u> | <u>REMARKS</u>                           |
|------------|-----------------|--|-------------|--|
| 20         |                 | COMBO FLOAT & FINISH BLADE .....             | 3,4         | .... CONTACT UNIT SALES DEPT./ACC. ITEM  |
| 20         |                 | ENDURO COMBO FLOAT &FINISH BLD .             | 3,4         | .... CONTACT UNIT SALES DEPT./ACC. ITEM  |
| 21         |                 | FLOAT BLADE .....                            | 3,4         | .... CONTACT UNIT SALES DEPT./ACC. ITEM  |
| 22         |                 | FINISH BLADE .....                           | 3,4         | .... CONTACT UNIT SALES DEPT./ACC. ITEM  |
| 22         |                 | ENDURO FINISH BLADE W/ROTATING ...           | 3,4         | .... CONTACT UNIT SALES DEPT./ACC. ITEM  |
| 23         | 0202            | HHCS 5/16-18X1" RING                         | 3,4         |  |
| 24         | 0201            | GUARD RING LUG RING                          | 3,4         |  |
| 26         | 1434            | TROWEL LUG (FINISH BLADE ONLY)               | 3,4         |  |
| 27         | 1162 A          | LUBRA-CAP                                    | 3,4         |  |
| 28         | 1482            | STABILIZER RING 368.3 mm (14.5") ARM 1 ..... | 1           | (B-3 MODEL)                              |
| 28         | 1483            | STABILIZER RING 368.3 mm (14.5") ARM 1 ..... | 1           | (B-4 MODEL)                              |
| 29         | 6014 C          | HEX NUT 5/16-24                              | 6,8         |  |
| 30         | 1237            | HHCS 5/16-18X7/8" NY-LOC                     | 3,4         |  |
| 31         | 0490            | SHCS 7/16-14X1"                              | 3           |  |
| 32         | 0487            | SHCS 3/8-16X1/2"                             | 20          |  |
| 33         | 0489            | GRINDING DISC HUB                            | 1           |  |
| 34         | 0488            | STONE MOUNT PLATE                            | 1           |  |
| 35         |                 | GRINDING DISC STONE ONLY .....               | 1           | ..... CONTACT UNIT SALES DEPT./ACC. ITEM |
| 36         |                 | GRINDING DISC ASSY .....                     | 1           | ..... CONTACT UNIT SALES DEPT./ACC. ITEM |
| 39         |                 | UNIVERSAL COMBO BLADE .....                  | 3,4         | .... CONTACT UNIT SALES DEPT./ACC. ITEM  |
| 39         |                 | ENDURO UNIVERSAL COMBO BLADE ..              | 3,4         | .... CONTACT UNIT SALES DEPT./ACC. ITEM  |
| 40         |                 | UNIVERSAL FINISH BLADE .....                 | 3,4         | .... CONTACT UNIT SALES DEPT./ACC. ITEM  |
| 40         |                 | ENDURO UNIVERSAL FINISH BLADE ....           | 3,4         | .... CONTACT UNIT SALES DEPT./ACC. ITEM  |
| 41         |                 | UNIVERSAL MOUNTING BAR .....                 | 3,4         | .... CONTACT UNIT SALES DEPT./ACC. ITEM  |
| 42         |                 | SNAP PIN 1/4"X1.3/4" .....                   | 6,8         | .... CONTACT UNIT SALES DEPT./ACC. ITEM  |
| 44         | 0166 A          | LOCK WASHER 3/8"                             | 3,4         |  |
| 46         |                 | TROWEL ARM ADJ. FIXTURE ASSY .....           | 1           | ..... CONTACT UNIT SALES DEPT./ACC. ITEM |
| 47         |                 | REVERSIBLE COMBO BLADE .....                 | 3,4         | .... CONTACT UNIT SALES DEPT./ACC. ITEM  |
| 48         | 1723            | MALE R.H. ROD END 5/16"                      | 1           |  |
| 49         |                 | FLOAT DISC .....                             | 1           | ..... CONTACT UNIT SALES DEPT./ACC. ITEM |
| 50         |                 | FLOAT DISC LATCH PIN .....                   | 4           | ..... CONTACT UNIT SALES DEPT./ACC. ITEM |

# BA-SERIES TROWEL — LIFTING BALE ASSY (OPTION)

## LIFTING BALE ASSY (OPTION)



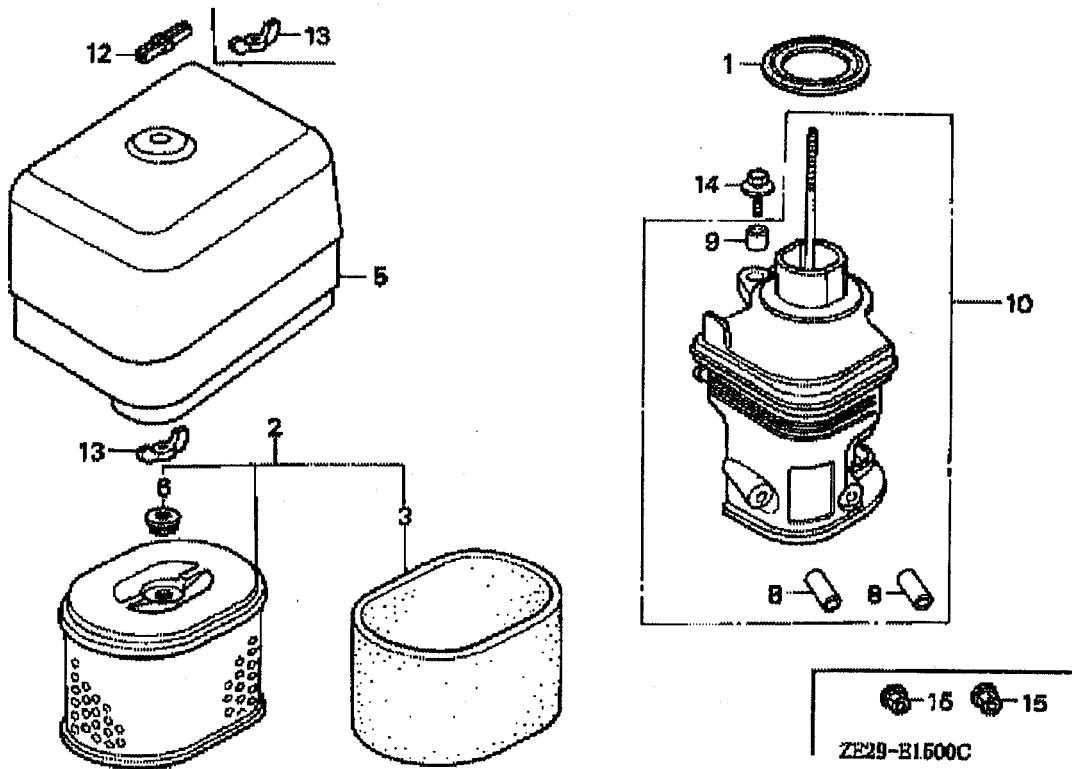
## BA-SERIES TROWEL — LIFTING BALE ASSY (OPTION)

### LIFTING BALE ASSY (OPTION)

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>        | <u>QTY.</u> | <u>REMARKS</u>   |
|------------|-----------------|-------------------------|-------------|--|
| 1          |                 | LIFTING BALE ASSY ..... | 1 .....     | SAFETY ITEM<br>..... CONTACT UNIT SALES DEPT./ACC. ITEM  |
| 2          | 10229           | HHCS 5/16-24X1"         | 4           |  |
| 3          | 0161 C          | LOCK WASHER 5/16"       | 4           |  |
| 4          |                 | LIFTING BALE ASSY ..... | 1 .....     | SAFETY ITEM<br>..... CONTACT UNIT SALES DEPT. /ACC. ITEM |
| 5          | 0205            | HHCS 3/8-16X1"          | 3           |  |
| 6          | 1394            | FHSCS 3/8-16X1"         | 1           |  |
| 7          | 0166 A          | LOCK WASHER 3/8"        | 3           |  |
| 8          | 1897            | SPACER (ROBIN ENGINE)   | 4           |  |

# HONDA GX-240K1 ENGINE — AIR CLEANER ASSY

## AIR CLEANER ASSY



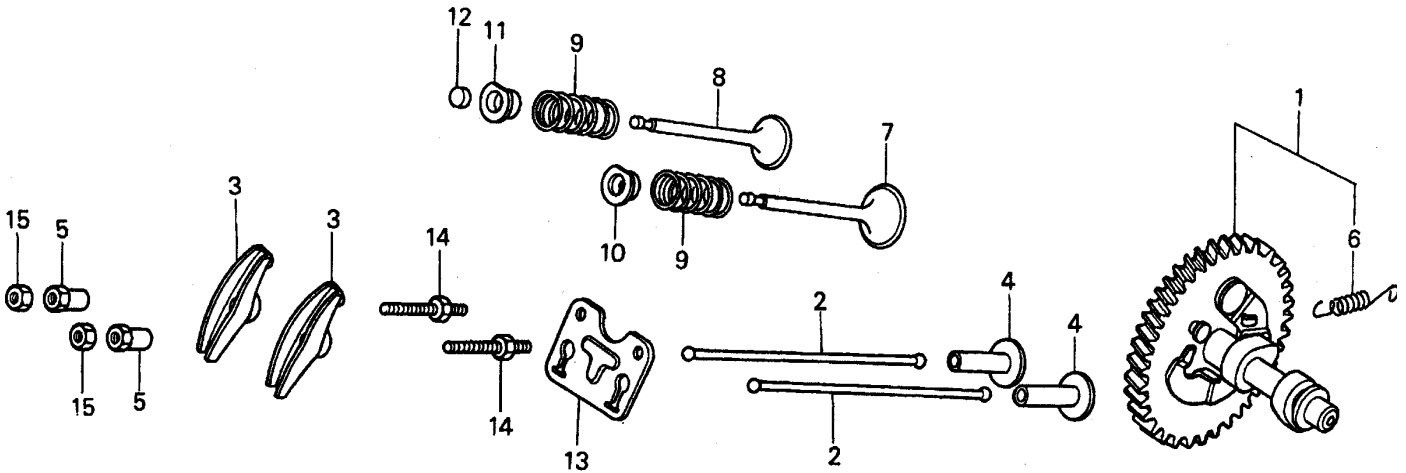
## HONDA GX-240K1 ENGINE — AIR CLEANER ASSY

### AIR CLEANER ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>           | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|----------------------------|-------------|----------------|
| 1          | 16271ZE2000     | GASKET, ELBOW              | 1           |                |
| 2          | 17210ZE2505     | ELEMENT, AIR CLEANER, DUAL | 1           |                |
| 2          | 17210ZE2822     | ELEMENT, AIR CLEANER, DUAL | 1           |                |
| 3          | 17218ZE2505     | FILTER, OUTER              | 1           |                |
| 3          | 17218ZE2821     | FILTER, OUTER              | 1           |                |
| 5          | 17231ZH9820     | COVER, AIR CLEANER         | 1           |                |
| 6          | 17232891000     | GROMMET, AIR CLEANER       | 1           |                |
| 8          | 17238ZE2310     | COLLAR, AIR CLEANER        | 2           |                |
| 9          | 17239ZE1000     | COLLAR B, AIR CLEANER      | 1           |                |
| 10         | 17410ZE2020     | ELBOW COMP., AIR CLEANER   | 1           |                |
| 12         | 90203ZA0800     | WINGNUT 6MM                | 1           |                |
| 13         | 90325044000     | WINGNUT, TOOL BOX SETTING  | 2           |                |
| 14         | 90009ZE2003     | BOLT- WASHER 6 X 22        | 1           |                |
| 15         | 9405006000      | NUT, FLANGE 6MM            | 2           |                |

# HONDA GX-240K1 ENGINE — CAMSHAFT ASSY

## CAMSHAFT ASSY





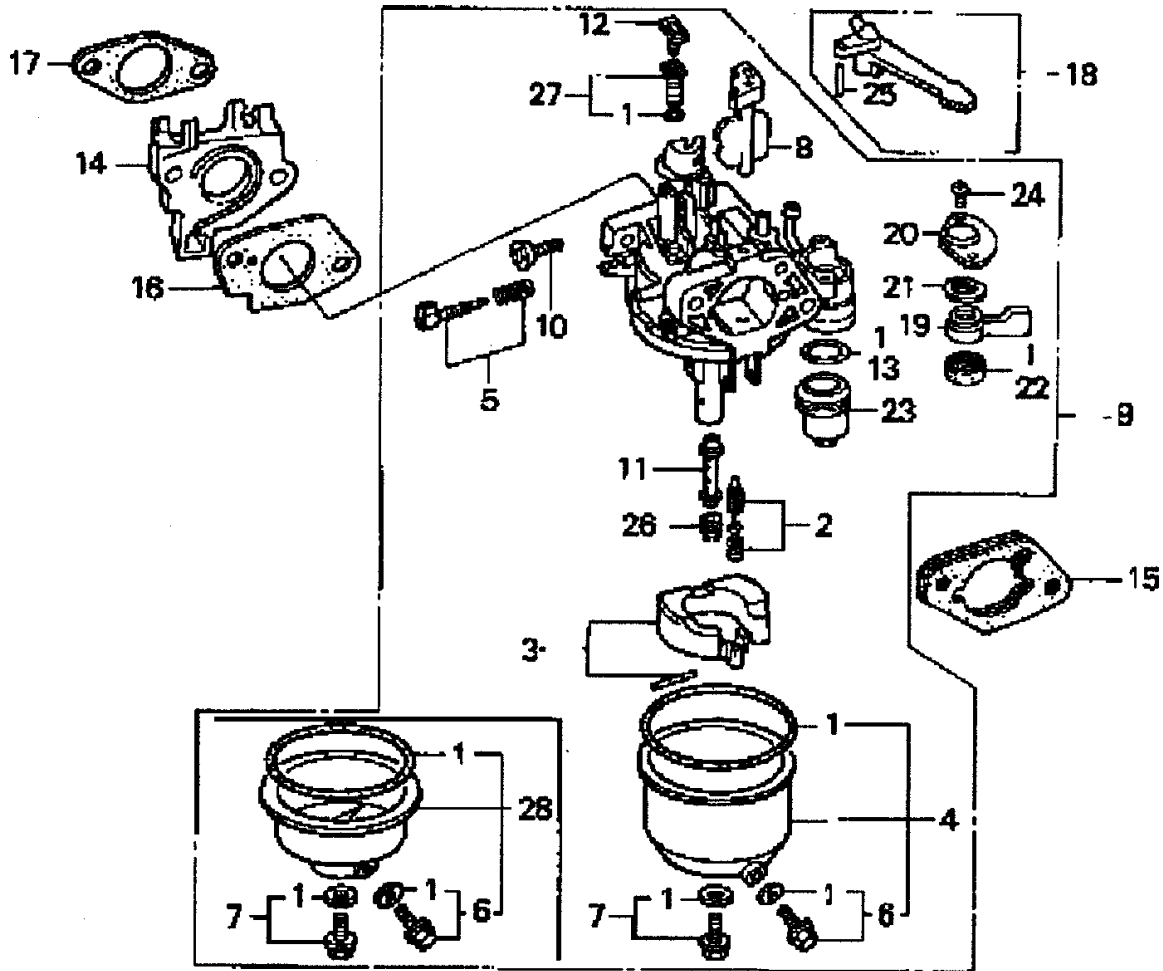
## HONDA GX-240K1 ENGINE — CAMSHAFT ASSY

### CAMSHAFT ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>           | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|----------------------------|-------------|----------------|
| 1          | 14100ZE2W00     | CAMSHAFT ASSY              | 1           |                |
| 1          | 14100ZE2W01     | CAMSHAFT ASSY              | 1           |                |
| 1          | 14100ZE2306     | CAMSHAFT                   | 1           |                |
| 2          | 14410ZE2013     | ROD PUSH                   | 2           |                |
| 3          | 14431ZE2010     | ARM VALVE ROCKER           | 2           |                |
| 4          | 14441ZE2000     | LIFTER VALVE               | 2           |                |
| 5          | 14451ZE1013     | PIVOT ROCKER ARM           | 2           |                |
| 6          | 14568ZE1000     | SPRING, WEIGHT RETURN      | 1           |                |
| 7          | 14711ZE2000     | VALVE, IN.                 | 1           |                |
| 8          | 14721ZE2000     | VALVE, EX.                 | 1           |                |
| 9          | 14751ZE2003     | SPRING, VALVE              | 2           |                |
| 10         | 14771ZE2000     | RETAINER, IN. VALVE SPRING | 1           |                |
| 11         | 14773ZE2000     | RETAINER, EX. VALVE SPRING | 1           |                |
| 12         | 14781ZE2000     | ROTATOR, VALVE             | 1           |                |
| 13         | 14791ZE2010     | PLATE, PUSH ROD GUIDE      | 1           |                |
| 14         | 90012ZE0010     | BOLT, PIVOT 8MM            | 2           |                |
| 15         | 90206ZE1000     | NUT, PIVOT ADJ.            | 2           |                |

# HONDA GX-240K1 ENGINE — CARBURETOR ASSY

## CARBURETOR ASSY



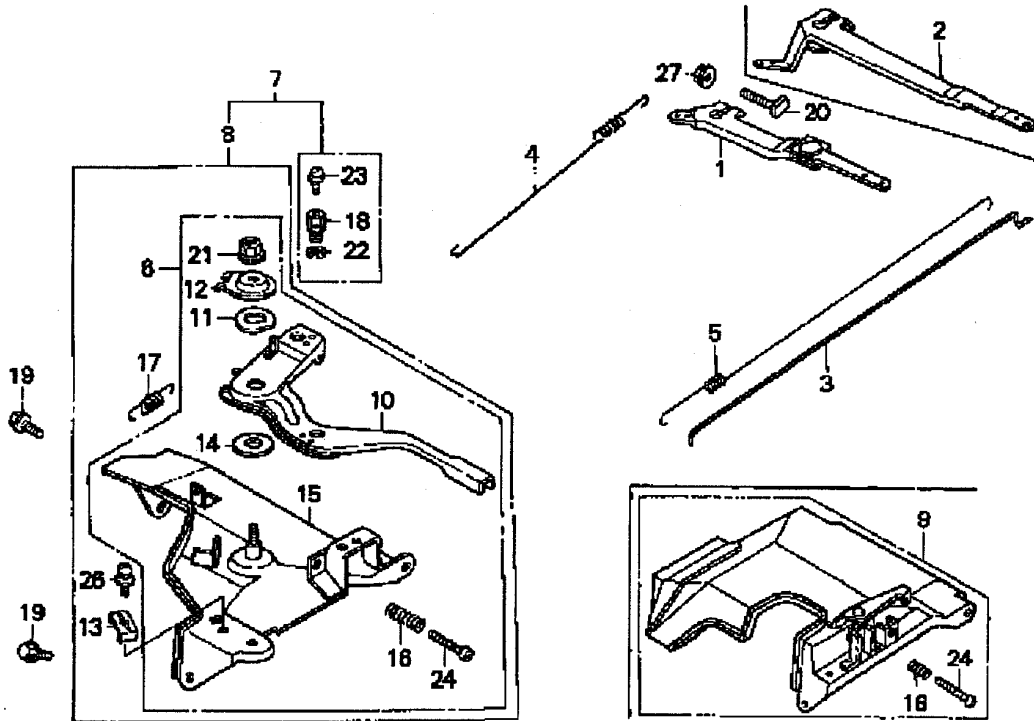
# HONDA GX-240K1 ENGINE — CARBURETOR ASSY

## CARBURETOR ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>         | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|--------------------------|-------------|----------------|
| 1          | 16010ZE2812     | GASKET SET               | 1           |                |
| 2          | 16011ZA0931     | VALVE SET, FLOAT         | 1           |                |
| 3          | 16013ZA0931     | FLOAT SET                | 1           |                |
| 4          | 16015ZE2005     | CHAMBER SET, FLOAT       | 1           |                |
| 4          | 16015ZE8005     | CHAMBER SET, FLOAT       | 1           |                |
| 5          | 16016ZHW01      | SCREW SET                | 1           |                |
| 6          | 16024ZE1811     | SCREW SET, DRAIN         | 1           |                |
| 7          | 16028ZE0005     | SCREW SET B              | 1           |                |
| 8          | 16028ZE2005     | CHOKE SET                | 1           |                |
| 9          | 16100ZE2W71     | CARBURETOR ASSY          | 1           |                |
| 10         | 16124ZE0005     | SCREW, THROTTLE STOP     | 1           |                |
| 11         | 16166ZE2W70     | NOZZLE, MAIN             | 1           |                |
| 12         | 16172ZE3W10     | COLLAR, SET              | 1           |                |
| 13         | 16173001004     | O-RING                   | 1           |                |
| 14         | 16211ZE2000     | INSULATOR, CARBURETOR    | 1           |                |
| 15         | 16220ZA0702     | SPACER COMP., CARBURETOR | 1           |                |
| 16         | 16221ZA0800     | GASKET, CARBURETOR       | 1           |                |
| 17         | 16223ZA0800     | GASKET, INSULATOR        | 1           |                |
| 18         | 16610ZE1000     | LEVER COMP., CHOKE, STD. | 1           |                |
| 19         | 16953ZE1406     | LEVER, VALVE             | 1           |                |
| 19         | 16953ZE1811     | LEVER, VALVE             | 1           |                |
| 19         | 16953ZE1812     | LEVER, VALVE             | 1           |                |
| 20         | 16954ZE1811     | PLATE, LEVER SETTING     | 1           |                |
| 20         | 16954ZE1812     | PLATE, LEVER SETTING     | 1           |                |
| 21         | 16956ZE1811     | SPRING, VALVE LEVER      | 1           |                |
| 22         | 16957ZE1812     | GASKET, VALVE            | 1           |                |
| 23         | 16967ZE0811     | CUP, FUEL STRAINER       | 1           |                |
| 24         | 93500030060H    | SCREW, PAN 3 X 6         | 2           |                |
| 24         | 93500030080G    | SCREW, PAN 3 X 8         | 2           |                |
| 25         | 9430520122      | PIN, SPRING 2 X 12       | 1           |                |
| 26         | 99101ZH80820    | JET, MAIN #82, OPTIONAL  | 1           |                |
| 26         | 99101ZH80850    | JET, MAIN #85, OPTIONAL  | 1           |                |
| 26         | 99101ZH80880    | JET, MAIN #88            | 1           |                |
| 27         | 99204ZE20400    | JET SET, PILOT #40       | 1           |                |
| 28         | 16015ZE8005     | CHAMBER SET, FLOAT       | 1           |                |

# HONDA GX-240K1 ENGINE — CONTROL ASSY

## CONTROL ASSY



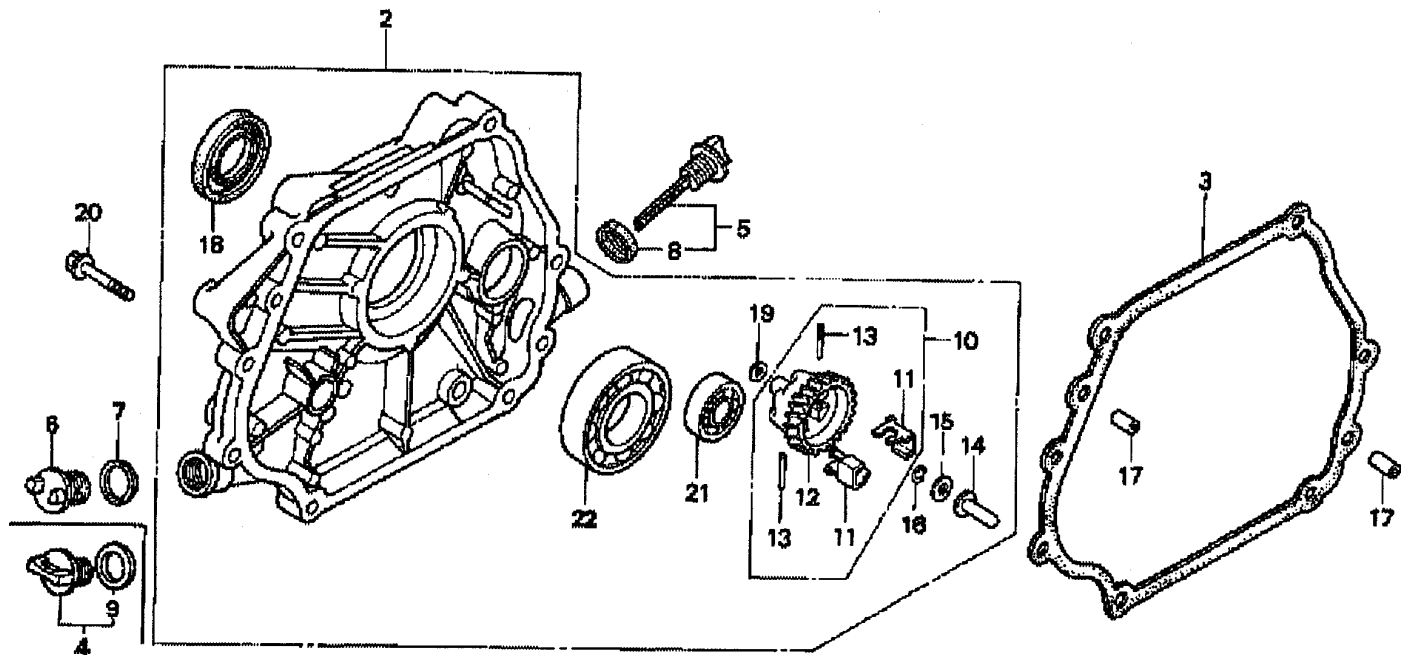
# HONDA GX-240K1 ENGINE — CONTROL ASSY

## CONTROL ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>          | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|---------------------------|-------------|----------------|
| 2          | 16551ZE2000     | ARM, GOVERNOR             | 1           |                |
| 3          | 16555ZE2000     | ROD, GOVERNOR             | 1           |                |
| 4          | 16561ZE2000     | SPRING, GOVERNOR          | 1           |                |
| 5          | 16562ZE2000     | SPRING, THROTTLE RETURN   | 1           |                |
| 8          | 16570ZE2W20     | CONTROL ASSY, REMOTE      | 1           |                |
| 10         | 16571ZE2W00     | LEVER, CONTROL            | 1           |                |
| 11         | 16574ZE1000     | SPRING, LEVER             | 1           |                |
| 12         | 16575ZE2W00     | WASHER, CONTROL LEVER     | 1           |                |
| 13         | 16576891000     | HOLDER, CABLE             | 1           |                |
| 14         | 16578ZE1000     | SPACER, CONTROL LEVER     | 1           |                |
| 15         | 16581ZE2W00     | BASE COMP., CONTROL       | 1           |                |
| 16         | 16584883300     | SPRING, CONTROL ADJUSTING | 1           |                |
| 17         | 16592883310     | SPRING, CABLE RETURN      | 1           |                |
| 19         | 90013883000     | BOLT, FLANGE 6 X 12 CT200 | 2           |                |
| 20         | 90015ZE5010     | BOLT, GOVERNOR ARM        | 1           |                |
| 21         | 90114SA0000     | NUT, SELF-LOCK 6MM        | 1           |                |
| 24         | 93500050280A    | SCREW, PAN 5 X 28         | 1           |                |
| 26         | 93500050160A    | SCREW, PAN 5 X 16         | 1           |                |
| 27         | 9405006000      | NUT, FLANGE 6MM           | 1           |                |

# HONDA GX-240K1 ENGINE — CRANKCASE COVER ASSY

## CRANKCASE COVER ASSY



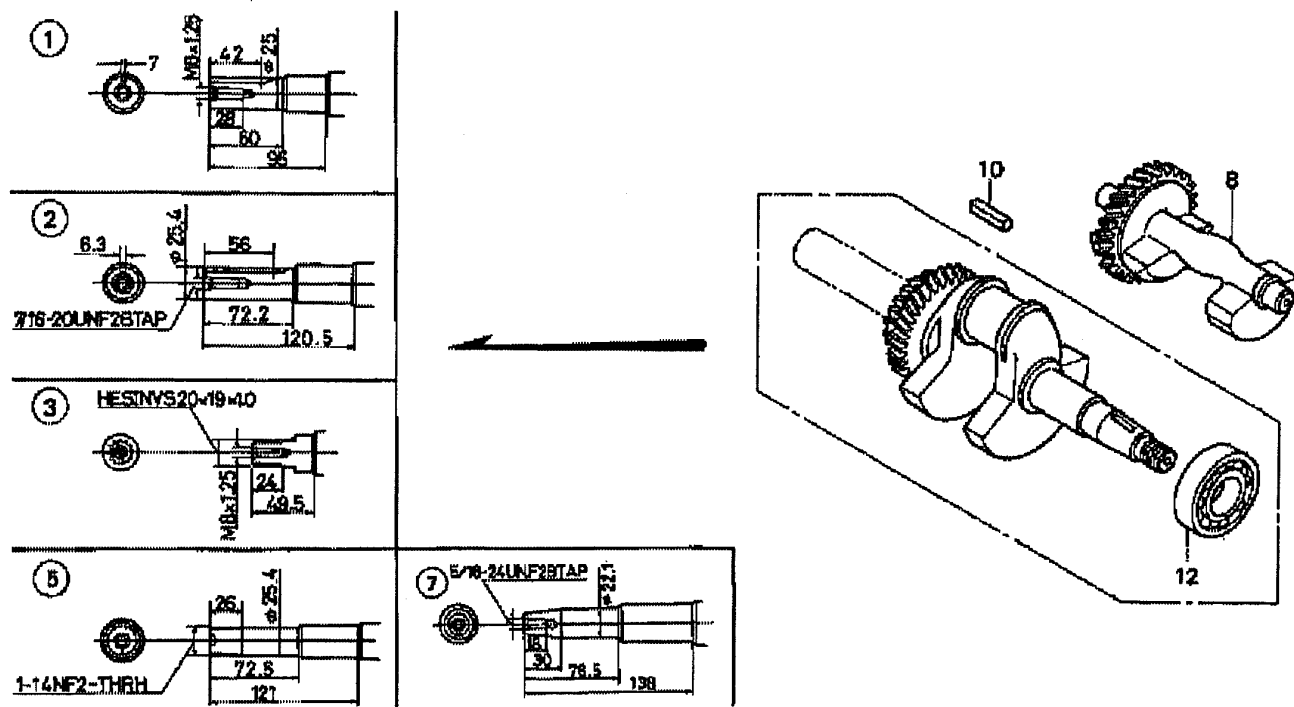
# HONDA GX-240K1 ENGINE — CRANKCASE COVER ASSY

## CRANKCASE COVER ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>          | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|---------------------------|-------------|----------------|
| 2          | 11400ZE2601     | COVER ASSY, CRANKCASE     | 1           |                |
| 3          | 11381ZE2800     | GASKET, CASE COVER        | 1           |                |
| 3          | 11381ZE2801     | GASKET, CASE COVER        | 1           |                |
| 4          | 15600ZG4003     | CAP ASSY, OIL FILLER      | 1           |                |
| 5          | 15600735003     | CAP ASSY, OIL FILLER      | 1           |                |
| 5          | 156000735700    | CAP ASSY, OIL FILLER      | 1           |                |
| 6          | 15620ZG4910     | CAP, OIL FILLER           | 1           |                |
| 7          | 15621896010     | GASKET, OIL FILLER CAP    | 1           |                |
| 8          | 15625ZE1000     | GASKET, OIL FILLER CAP    | 1           |                |
| 9          | 15625ZE1003     | GASKET, OIL FILLER CAP    | 1           |                |
| 10         | 16510ZE2811     | GOVERNOR ASSY, BALANCER   | 1           |                |
| 11         | 16511ZE2000     | WEIGHT, GOVERNOR          | 2           |                |
| 12         | 16512ZE2811     | HOLDER, GOVERNOR WEIGHT   | 1           |                |
| 13         | 16513ZE2000     | PIN, GOVERNOR WEIGHT      | 2           |                |
| 14         | 16531ZE2000     | SLIDER, GOVERNOR          | 1           |                |
| 15         | 90473147000     | WASHER 6 X 16             | 1           |                |
| 16         | 90602ZE1000     | CLIP, GOVERNOR HOLDER     | 1           |                |
| 17         | 90701HC4000     | PIN, DOWEL 8 X 12         | 2           |                |
| 18         | 91201890003     | OIL SEAL 30 X 46 X 8      | 1           |                |
| 19         | 9410106800      | WASHER, PLAIN 6MM         | 1           |                |
| 20         | 957010803500    | BOLT, FLANGE 8 X 35       | 7           |                |
| 21         | 961006202000    | BEARING, RADIAL BALL 6202 | 1           |                |
| 22         | 961006206000    | BEARING, RADIAL BALL 6206 |             |                |

# HONDA GX-240K1 ENGINE — CRANKSHAFT ASSY

## CRANKSHAFT ASSY





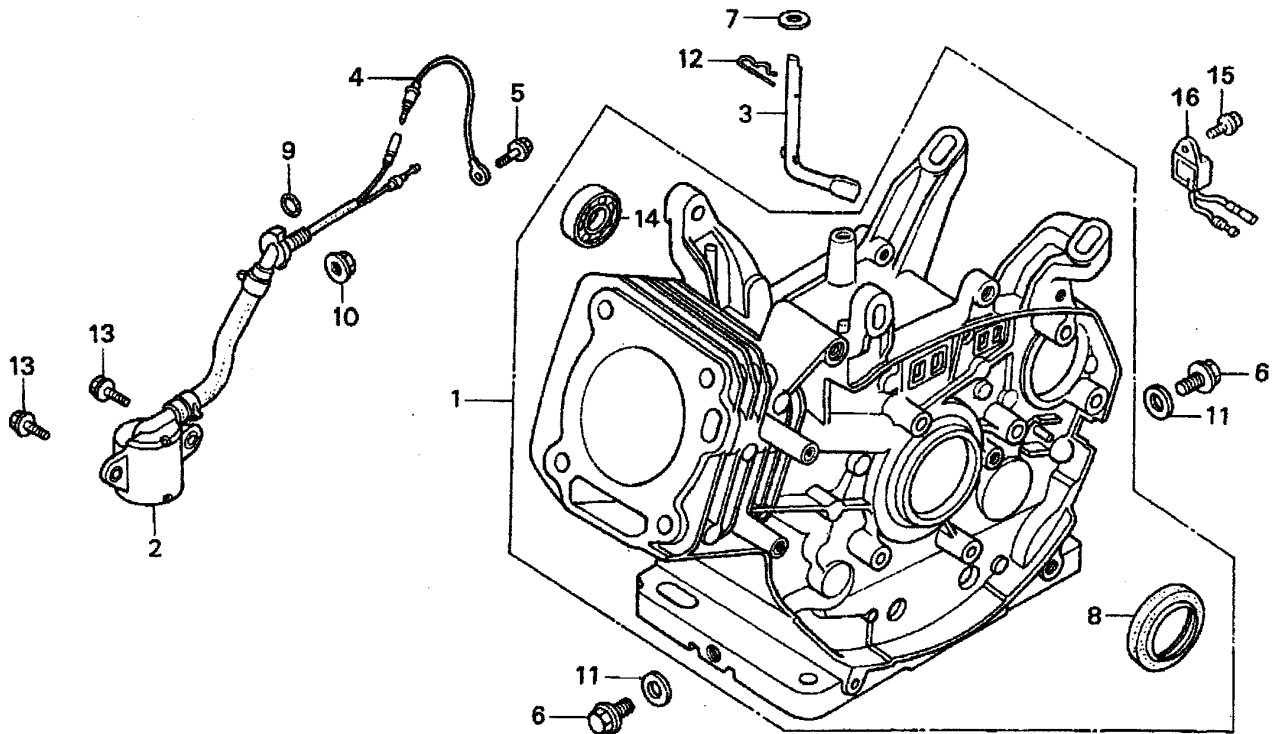
# HONDA GX-240K1 ENGINE — CRANKSHAFT ASSY

## CRANKSHAFT ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>          | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|---------------------------|-------------|----------------|
| 2          | 13320ZE2601     | CRANKSHAFT COMP., Q- TYPE | 1           |                |
| 8          | 13351ZE2010     | WEIGHT, BALANCER          | 1           |                |
| 10         | 90745ZE2600     | KEY 6.3 X 6.3 X 43        | 1           |                |
| 12         | 961006206000    | BEARING, RADIAL BALL 6206 | 1           |                |

# HONDA GX-240K1 ENGINE — CYLINDER BARREL ASSY

## CYLINDER BARREL ASSY



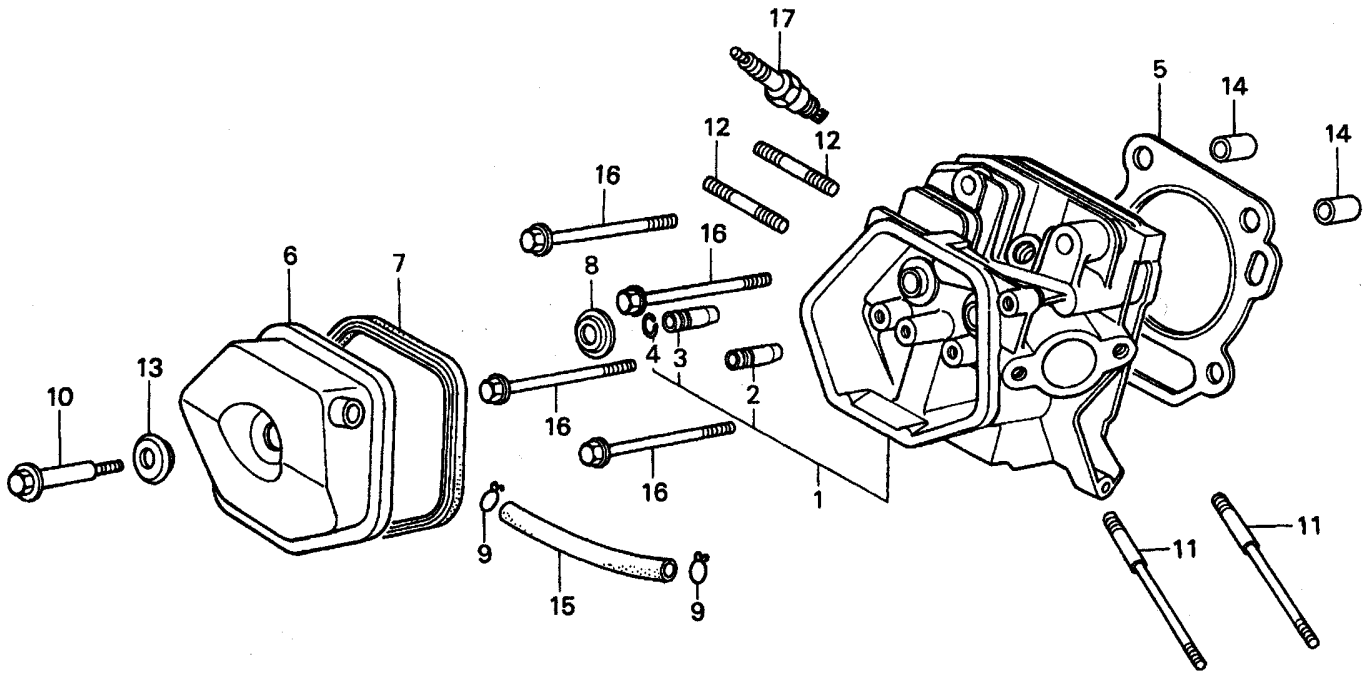
# HONDA GX-240K1 ENGINE — CYLINDER BARREL ASSY

## CYLINDER BARREL ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>                    | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|-------------------------------------|-------------|----------------|
| 1          | 12000ZE2834     | CYLINDER ASSY, BALANCER + OIL ALERT | 1           |                |
| 2          | 15510ZE2023     | SWITCH ASSY, OIL LEVEL              | 1           |                |
| 2          | 15510ZE2033     | SWITCH ASSY, OIL LEVEL              | 1           |                |
| 2          | 15510ZE2043     | SWITCH ASSY, OIL LEVEL              | 1           |                |
| 3          | 16541ZE2000     | SHAFT, GOVERNOR ARM                 | 1           |                |
| 3          | 16541ZE2010     | SHAFT, GOVERNOR ARM                 | 1           |                |
| 4          | 32197ZE2003     | SUB- HARNESS                        | 1           |                |
| 5          | 90013883000     | BOLT, FLANGE 6 X12 CT200            | 1           |                |
| 6          | 90131896650     | BOLT, DRAIN PLUG                    | 2           |                |
| 7          | 90446KE1000     | WASHER 8.2 X17X0.8                  | 1           |                |
| 8          | 91201890003     | OIL SEAL 30X46X8                    | 1           |                |
| 9          | 91353671003     | O-RING 14MM ARAI                    | 1           |                |
| 10         | 9405010000      | NUT FLANGE 10MM                     | 1           |                |
| 11         | 9410912000      | WASHER, DRAIN PLUG 12MM             | 2           |                |
| 12         | 9425108000      | PIN, LOCK 8MM                       | 1           |                |
| 12         | 9425110000      | PIN, LOCK 10MM                      | 1           |                |
| 13         | 957010601200    | BOLT, FLANGE 6X12                   | 2           |                |
| 14         | 961006202000    | BEARING, RADIAL BALL 6202           | 1           |                |
| 15         | 90013883000     | BOLT, FLANGE 6X12 CT200             | 1           |                |
| 16         | 34150ZH7003     | ALERT UNIT, OIL                     | 1           |                |

# HONDA GX-240K1 ENGINE — CYLINDER HEAD ASSY

## CYLINDER HEAD ASSY



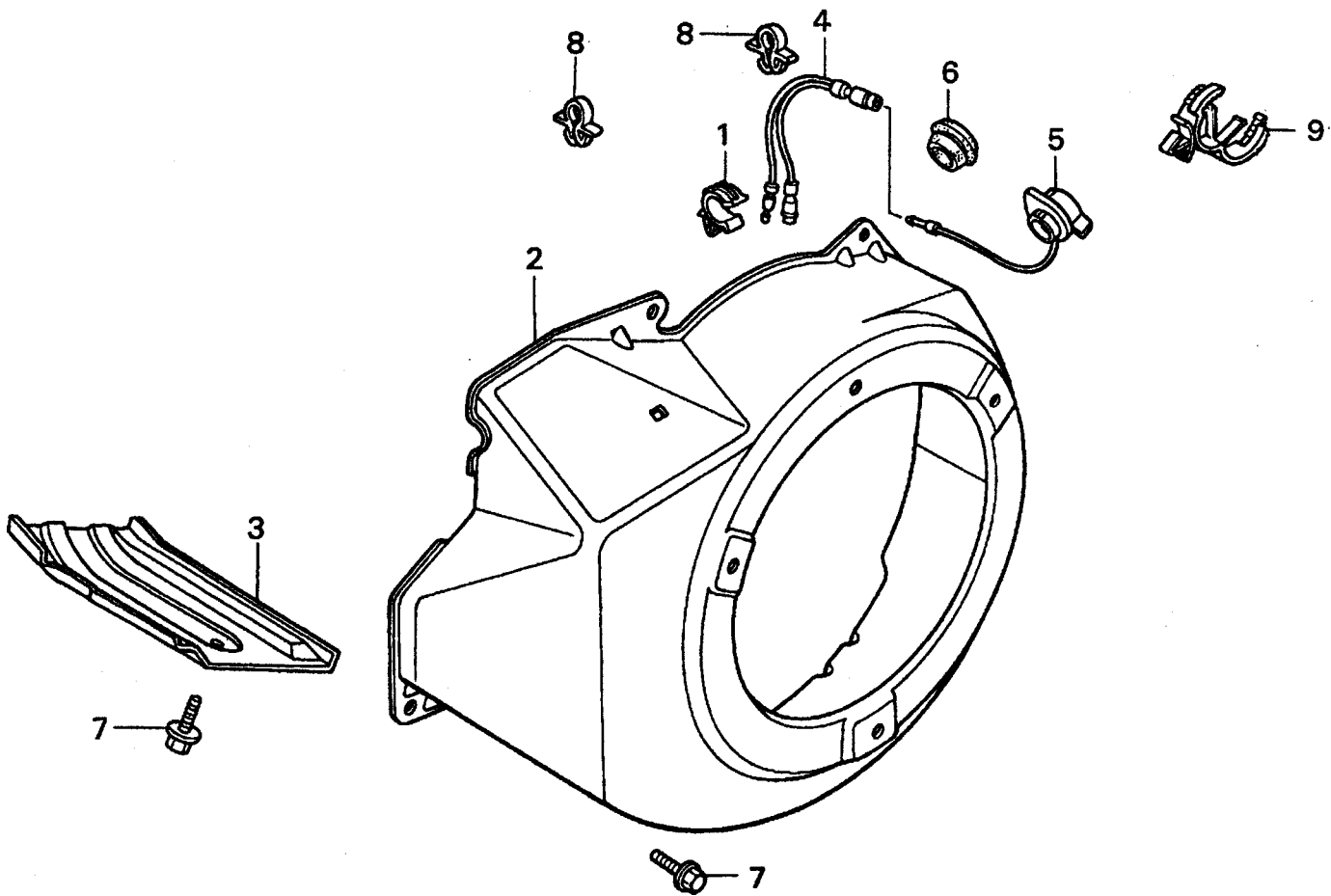
# HONDA GX-240K1 ENGINE — CYLINDER HEAD ASSY

## CYLINDER HEAD ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>                      | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|---------------------------------------|-------------|----------------|
| 1          | 12200ZH9000     | CYLINDER HEAD COMP.                   | 1           |                |
| 2          | 12204ZE2306     | GUIDE, VALVE, OS, OPTIONAL            | 1           |                |
| 3          | 12205ZE2305     | GUIDE, EX. VALVE, OS, OPTIONAL        | 1           |                |
| 4          | 12216ZE2300     | CLIP, VALVE GUIDE                     | 1           |                |
| 5          | 12251ZE2800     | GASKET, CYLINDER HEAD                 | 1           |                |
| 6          | 12310ZE2020     | COVER COMP., HEAD                     | 1           |                |
| 7          | 12391ZE2020     | GASKET, CYLINDER HEAD COVER           | 1           |                |
| 8          | 14775ZE2010     | SEAT, VALVE SPRING                    | 1           |                |
| 10         | 90014ZE2000     | BOLT, HEAD COVER                      | 1           |                |
| 11         | 90042ZE2000     | BOLT, STUD 8X123                      | 2           |                |
| 12         | 90047ZE2000     | BOLT, STUD 8X47                       | 2           |                |
| 12         | 92900080320E    | BOLT 2, STUD 8X32                     | 2           |                |
| 13         | 90441ZE2010     | WASHER COMP., HEAD COVER              | 1           |                |
| 14         | 9430112200      | PIN A, DOWEL 12X20                    | 2           |                |
| 15         | 950051100130M   | BULK HOSE, VACUUM 11X1000, 11X100     | 1           |                |
| 16         | 957011008000    | BOLT, FLANGE 10X80                    | 4           |                |
| 17         | 9807955846      | SPARK PLUG, BPR5ES, NGK               | 1           |                |
| 17         | 9807955855      | SPARK PLUG, W16EPR-U, DENSO, OPTIONAL | 1           |                |
| 17         | 9807956846      | SPARK PLUG, BPR6ES, NGK               | 1           |                |
| 17         | 9807956855      | SPARK PLUG, W20EPR-U, DENSO           | 1           |                |

# HONDA GX-240K1 ENGINE — FAN COVER ASSY

## FAN COVER ASSY



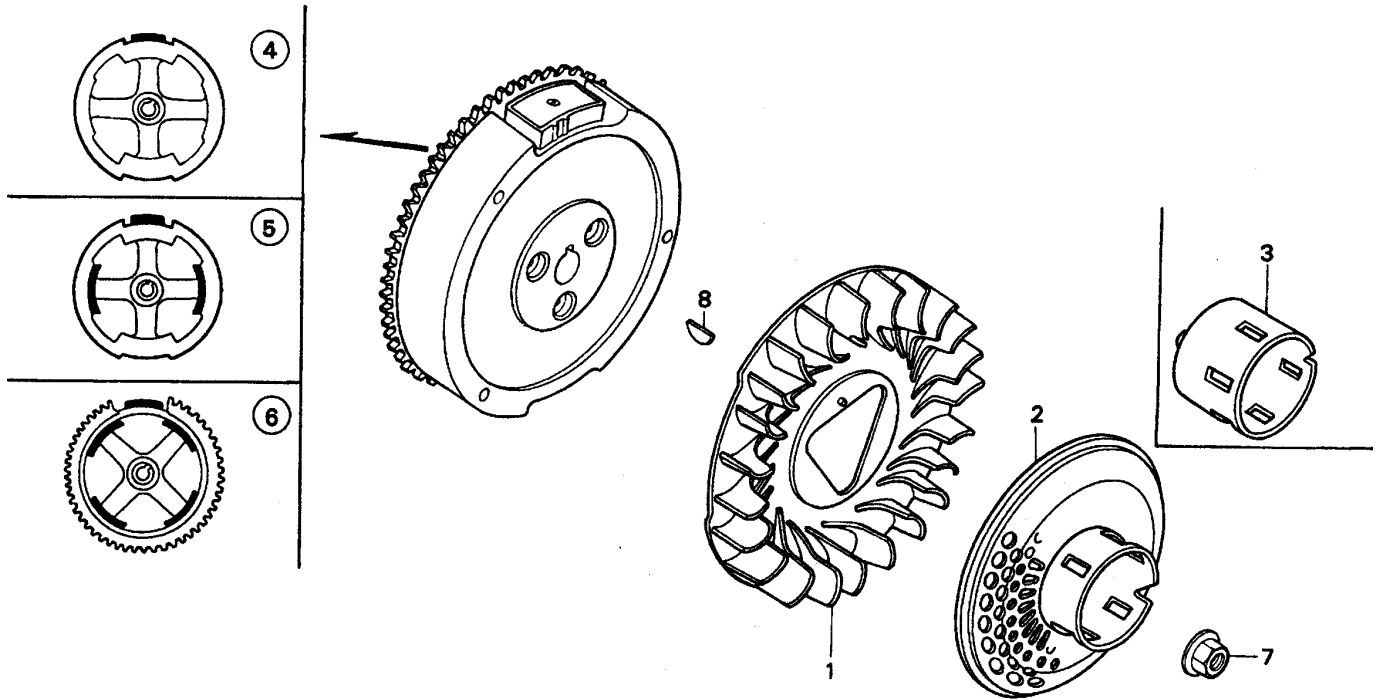
# HONDA GX-240K1 ENGINE — FAN COVER ASSY

## FAN COVER ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>                 | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|----------------------------------|-------------|----------------|
| 1          | 16731ZE2003     | CLIP, TUBE                       | 1           |                |
| 2          | 19610ZE2010ZA   | COVER COMP., FAN *R8* BRIGHT RED | 1           |                |
| 2          | 19610ZE2010ZC   | COVER COMP., FAN *NH1* BLACK     | 1           |                |
| 3          | 19631ZE2D00     | SHROUD                           | 1           |                |
| 4          | 32197ZH8003     | SUB-HARNESS                      | 1           |                |
| 5          | 36100ZE1015     | SWITCH ASSY, ENGINE STOP         | 1           |                |
| 5          | 36100ZH7003     | SWITCH ASSY, ENGINE STOP         | 1           |                |
| 7          | 90013883000     | BOLT, FLANGE 6X12, CT200         | 6           |                |
| 9          | 90684ZA0601     | CLIP, WIRE HARNESS               | 1           |                |

# HONDA GX-240K1 ENGINE — FLYWHEEL ASSY

## FLYWHEEL ASSY





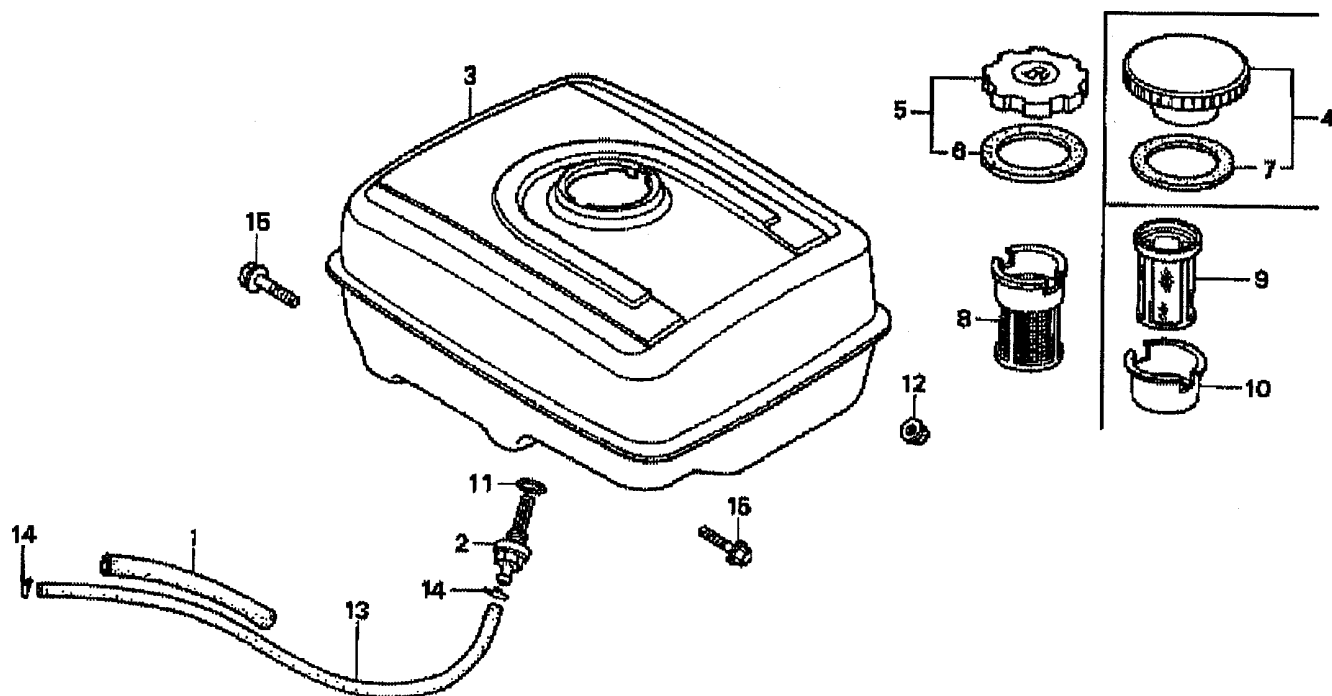
## HONDA GX-240K1 ENGINE — FLYWHEEL ASSY

### FLYWHEEL ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>                   | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|------------------------------------|-------------|----------------|
| 1          | 19511ZE2000     | FAN, COOLING                       | 1           |                |
| 2          | 28450ZE2W11     | PULLEY COMP., STARTER, SCREEN GRID | 1           |                |
| 4          | 31100ZE2010     | FLYWHEEL COMP.                     | 1           |                |
| 7          | 90201ZE3V00     | NUT, SPECIAL 16MM                  | 1           |                |
| 8          | 90741ZE2000     | KEY, SPECIAL WOODRUFF 25X18        | 1           |                |

# HONDA GX-240K1 ENGINE — FUEL TANK ASSY

## FUEL TANK ASSY



## HONDA GX-240K1 ENGINE — FUEL TANK ASSY

### FUEL TANK ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>                        | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|---|-------------|----------------|
| 1          | 16854ZH8000     | RUBBER SUPPORTER 107MM                  | 1           |                |
| 2          | 16955ZE1000     | JOINT, FUEL TANK                        | 1           |                |
| 3          | 17510ZE2010ZA   | TANK COMP., FUEL *NH31*, MCKINLEY WHITE | 1           |                |
| 3          | 17510ZE2020ZD   | TANK COMP., FUEL *NH1*, BLACK           | 1           |                |
| 4          | 17620ZE2W00     | CAP COMP., FUEL FILLER                  | 1           |                |
| 5          | 17620ZH7023     | CAP COMP., FUEL FILLER                  | 1           |                |
| 6          | 17631ZH7003     | GASKET, FUEL FILLER CAP                 | 1           |                |
| 7          | 17631329003     | GASKET, FUEL FILLER CAP                 | 1           |                |
| 8          | 17672ZE2W01     | FILTER, FUEL                            | 1           |                |
| 9          | 17672880000     | FILTER, FUEL                            | 1           |                |
| 10         | 17673893000     | HOLDER, FUEL FILTER                     | 1           |                |
| 11         | 91353671003     | O-RING 14MM, ARAI                       | 1           |                |
| 12         | 9405008000      | NUT, FLANGE 8MM                         | 2           |                |
| 13         | 950014500360M   | BULK HOSE, FUEL 4.5X3000, 4.5X222       | 1           |                |
| 14         | 9500202080      | CLIP, TUBE, B8                          | 2           |                |
| 15         | 957010802500    | BOLT, FLANGE 8X25                       | 2           |                |



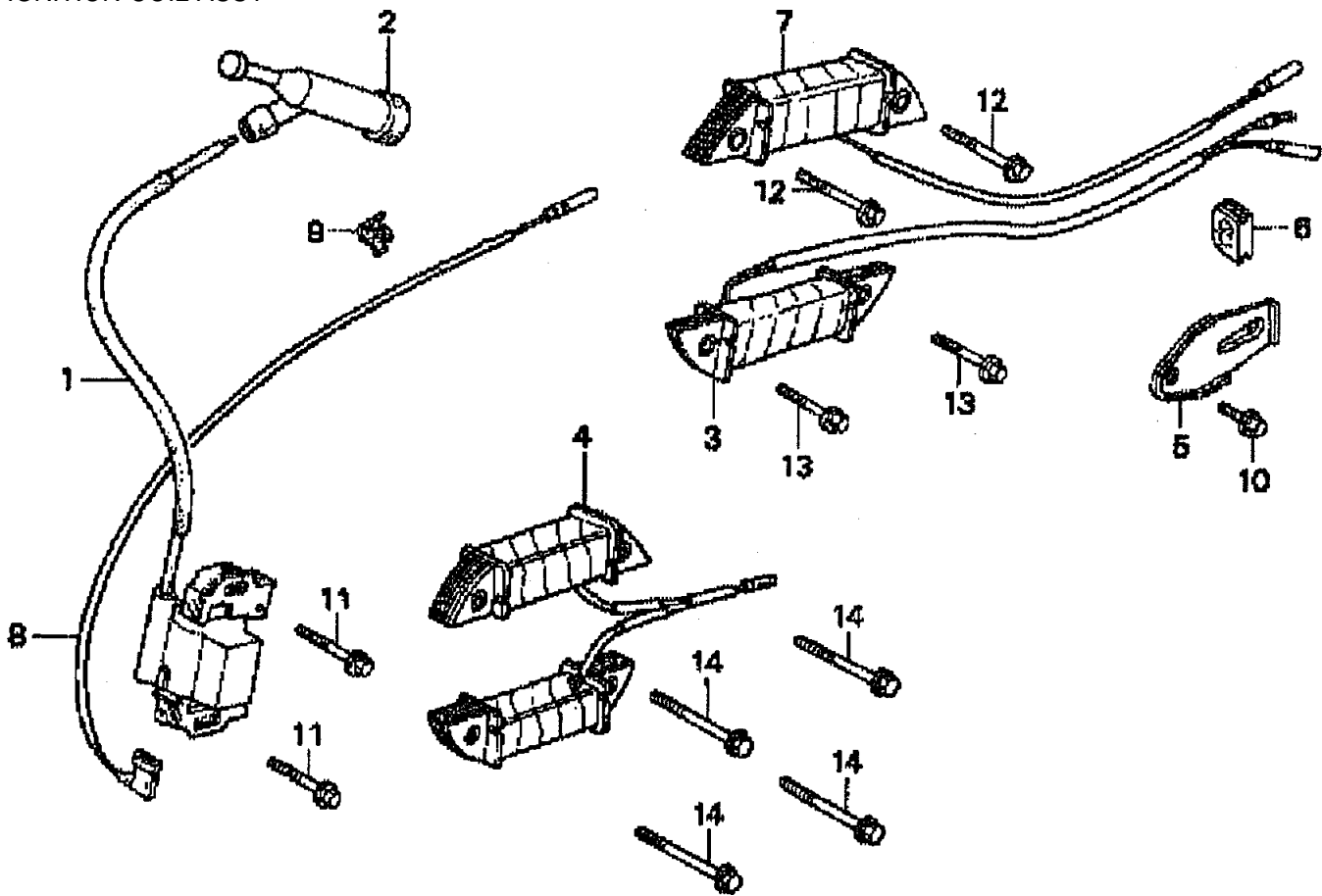
# HONDA GX-240K1 ENGINE — GASKET KIT

## GASKET KIT ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>            | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|-----------------------------|-------------|----------------|
|            | 06111ZE2408     | GASKET KIT                  | 1           |                |
| 1          | 11381ZE2800     | GASKET, CASE COVER          | 1           |                |
| 1          | 11381ZE2801     | GASKET, CASE COVER          | 1           |                |
| 2          | 12251ZE2800     | GASKET, CYLINDER HEAD       | 1           |                |
| 3          | 12391ZE2020     | GASKET, CYLINDER HEAD COVER | 1           |                |
| 4          | 16221ZA0800     | GASKET, CARBURETOR          | 1           |                |
| 5          | 16223ZA0800     | GASKET, INSULATOR           | 1           |                |
| 6          | 18333ZE3800     | GASKET, EX. PIPE            | 1           |                |
| 6          | 18333ZK6Y00     | GASKET, EX. PIPE, WACKER    | 1           |                |

# HONDA GX-240K1 ENGINE — IGNITION COIL ASSY

## IGNITION COIL ASSY



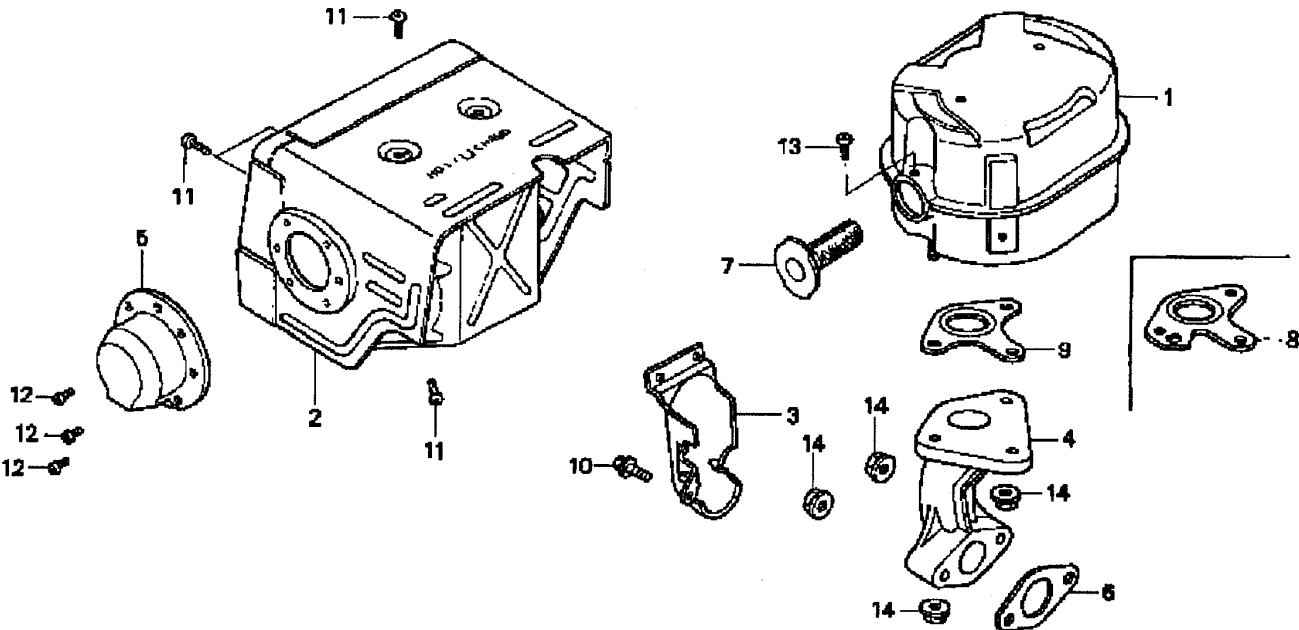
# HONDA GX-240K1 ENGINE — IGNITION COIL ASSY

## IGNITION COIL ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>           | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|----------------------------|-------------|----------------|
| 1          | 30500ZE2023     | COIL ASSY, IGNITION        | 1           |                |
| 2          | 30700ZE1013     | CAP ASSY, NOISE SUPPRESSOR | 1           |                |
| 6          | 31512ZE2000     | GROMMET, WIRE              | 1           |                |
| 8          | 36101ZE1010     | WIRE, STOP SWITCH 370MM    | 1           |                |
| 11         | 90015883000     | BOLT, FLANGE 6X28          | 2           |                |

# HONDA GX-240K1 ENGINE — MUFFLER ASSY

## MUFFLER ASSY





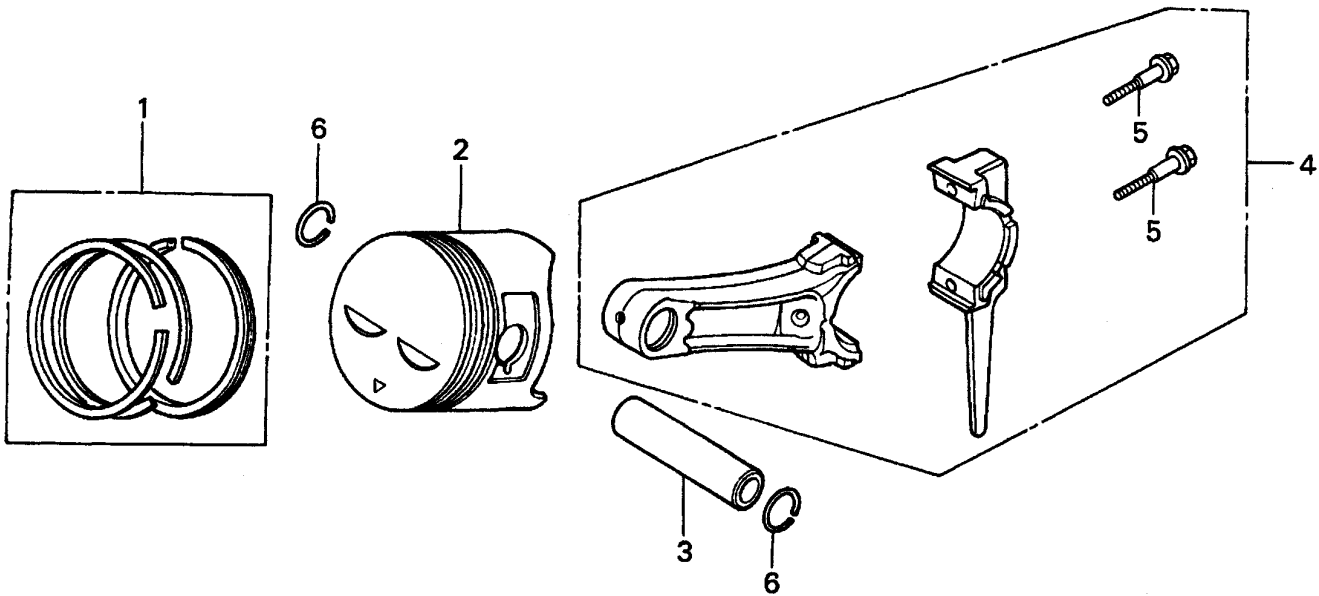
# HONDA GX-240K1 ENGINE — MUFFLER ASSY

## MUFFLER ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>          | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|---------------------------|-------------|----------------|
| 1          | 18310ZE2W00     | MUFFLER COMP.             | 1           |                |
| 2          | 18320ZE2W01     | PROTECTOR COMP., MUFFLER  | 1           |                |
| 3          | 18323ZE2W00     | PROTECTOR, EX. PIPE       | 1           |                |
| 4          | 18330ZE2W00     | PIPE, EX.                 | 1           |                |
| 5          | 18331ZE2810     | CAP, MUFFLER              | 1           |                |
| 6          | 18333ZE3800     | GASKET, EX. PIPE          | 1           |                |
| 6          | 18333ZK6Y00     | GASKET, EX. PIPE, WACKER  | 1           |                |
| 7          | 18355ZE2010     | ARRESTER, SPARK           | 1           |                |
| 8          | 18381ZE2W10     | GASKET, MUFFLER, ARRESTER | 1           |                |
| 10         | 90013883000     | BOLT, FLANGE 6X12 CT200   | 1           |                |
| 11         | 90050ZE1000     | SCREW, TAPPING 5X8        | 6           |                |
| 12         | 90055ZE1000     | SCREW, TAPPING 4X6        | 3           |                |
| 13         | 90050ZE1000     | SCREW, TAPPING 5X8        | 1           |                |
| 14         | 9405008000      | NUT, FLANGE 8MM           | 5           |                |

# HONDA GX-240K1 ENGINE — PISTON ASSY

## PISTON ASSY



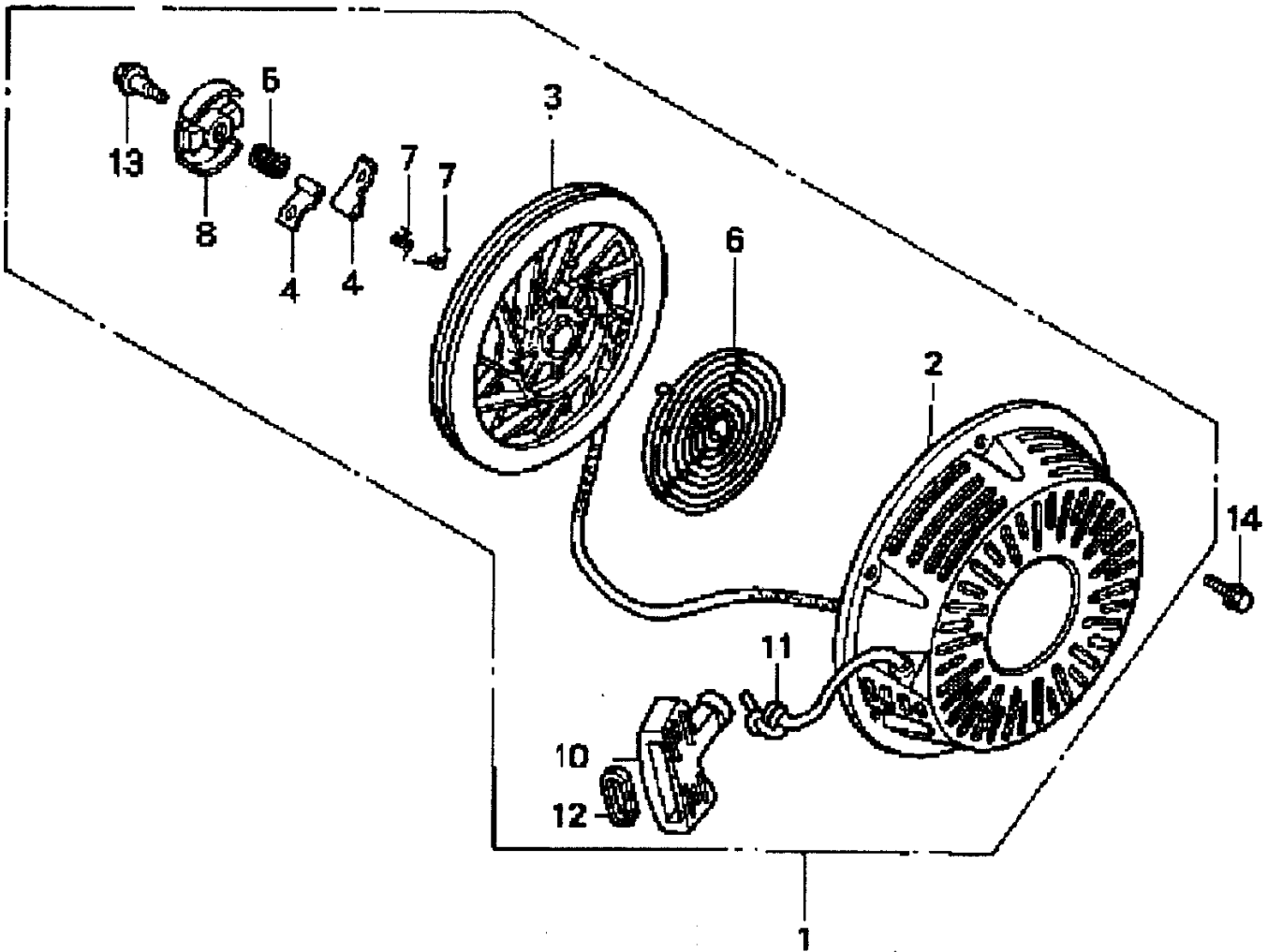
# HONDA GX-240K1 ENGINE — PISTON ASSY

## PISTON ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>                    | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|-------------------------------------|-------------|----------------|
| 1          | 13010ZE2013     | RING SET, PISTON, STD.              | 1           |                |
| 1          | 13011ZE2013     | RING SET, PISTON, OS 0.25, OPTIONAL | 1           |                |
| 1          | 13011ZE2014     | RING SET, PISTON, OS 0.25, OPTIONAL | 1           |                |
| 1          | 13012ZE2013     | RING SET, PISTON, OS 0.50, OPTIONAL | 1           |                |
| 1          | 13013ZE2013     | RING SET, PISTON, 0.75, OPTIONAL    | 1           |                |
| 2          | 13101ZE2W00     | PISTON, STANDARD                    | 1           |                |
| 2          | 13102ZE2W00     | PISTON, OS 0.25, OPTIONAL           | 1           |                |
| 2          | 13103ZE2W00     | PISTON, OS 0.50, OPTIONAL           | 1           |                |
| 2          | 13104ZE2W00     | PISTON, 0.75, OPTIONAL              | 1           |                |
| 3          | 13111ZE2000     | PIN, PISTON                         | 1           |                |
| 4          | 13200ZE2000     | ROD ASSY, CONNECTING STANDARD       | 1           |                |
| 4          | 13200ZE2305     | ROD ASSY, CONNECTING, US 0.25, OPT. | 1           |                |
| 5          | 90001ZE8000     | BOLT, CONNECTING ROD                | 2           |                |
| 6          | 90551ZE1000     | CLIP, PISTON PIN 18MM               | 2           |                |

# HONDA GX-240K1 ENGINE — RECOIL STARTER ASSY

## RECOIL STARTER ASSY

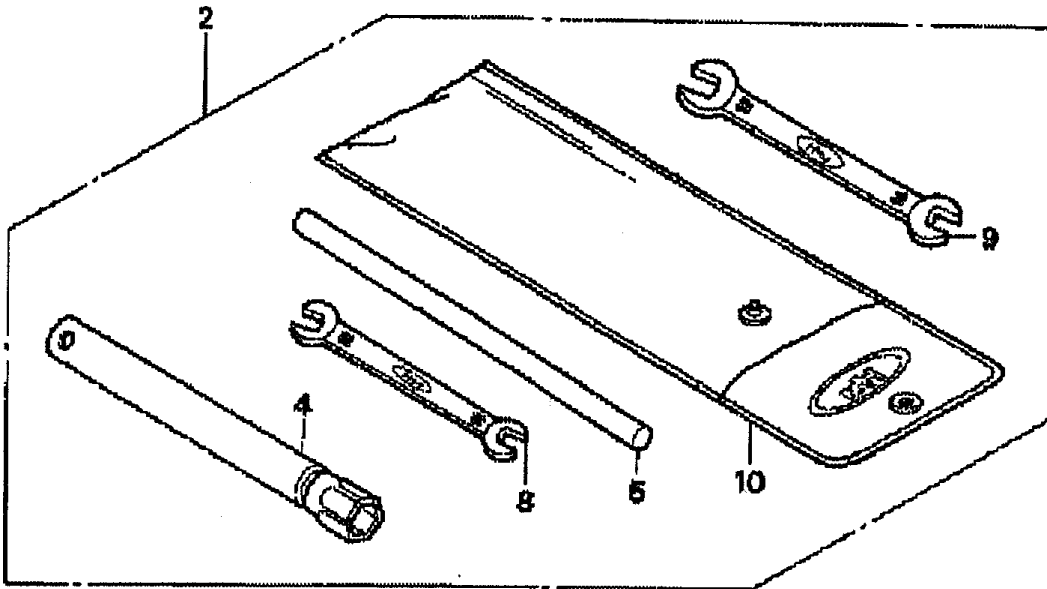


# HONDA GX-240K1 ENGINE — RECOIL STARTER ASSY

## RECOIL STARTER ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>                                 | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|--|-------------|----------------|
| 1          | 28400ZE2W01ZA   | STARTER ASSY, RECOIL *R8* BRIGHT RED             | 1           |                |
| 1          | 28400ZE2W01ZB   | STARTER ASSY, RECOIL *NH1*, BLACK                | 1           |                |
| 2          | 28410ZE2W01ZA   | CASE COMP., RECOIL STARTER *R8* BRT. RED         | 1           |                |
| 2          | 28410ZE2W01ZB   | CASE COMP., RECOIL STARTER *NH1*, BLACK          | 1           |                |
| 3          | 28421ZE2W01     | PULLEY, RECOIL STARTER                           | 1           |                |
| 4          | 28422ZE2W01     | RATCHET, STARTER                                 | 2           |                |
| 5          | 28441ZE2W01     | SPRING, FRICTION                                 | 1           |                |
| 6          | 28442ZE2W01     | SPRING, STARTER RETURN                           | 1           |                |
| 7          | 28443ZE2W01     | SPRING RATCHET                                   | 2           |                |
| 8          | 28444ZE2W01     | RETAINER, SPRING                                 | 1           |                |
| 10         | 28461ZE2W02     | GRIP, STARTER                                    | 1           |                |
| 11         | 28462ZE2W01     | ROPE, RECOIL STARTER , NA USE ALT:08550-ZG921-11 | 1           |                |
| 11         | 28462ZE2W11     | ROPE, RECOIL STARTER                             | 1           |                |
| 12         | 28469ZE2W01     | GRIP, REINFORCEMENT                              | 1           |                |
| 13         | 90004ZE2W01     | SCREW, CENTER                                    | 1           |                |
| 14         | 90008ZE2003     | BOLT, FLANGE 6X10                                | 3           |                |

## TOOLS ASSY



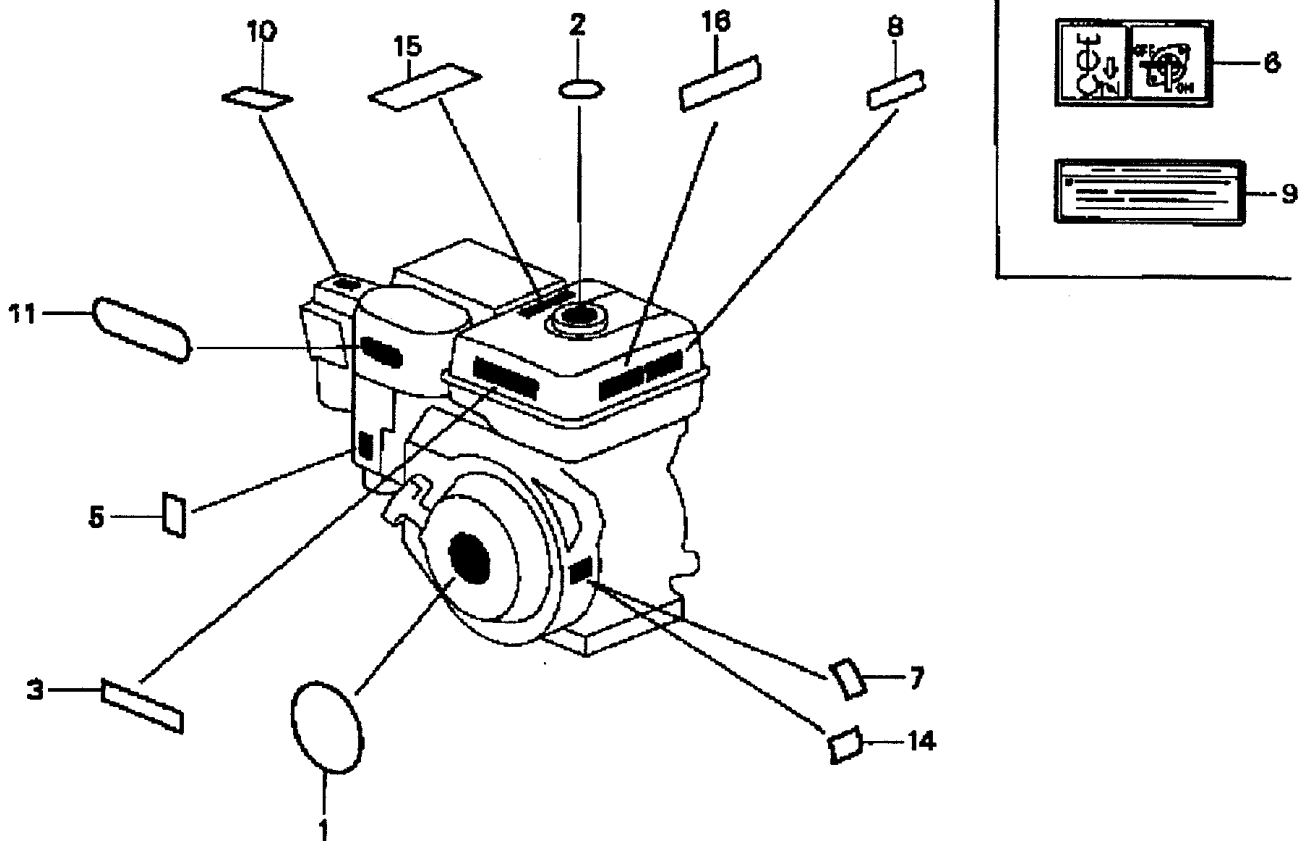
# HONDA GX-240K1 ENGINE — TOOLS

## TOOLS ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>         | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|--------------------------|-------------|----------------|
| 4          | 89218ZE1000     | WRENCH COMP., SPARK PLUG | 1           |                |

# HONDA GX-240K1 ENGINE — LABELS

## LABELS ASSY





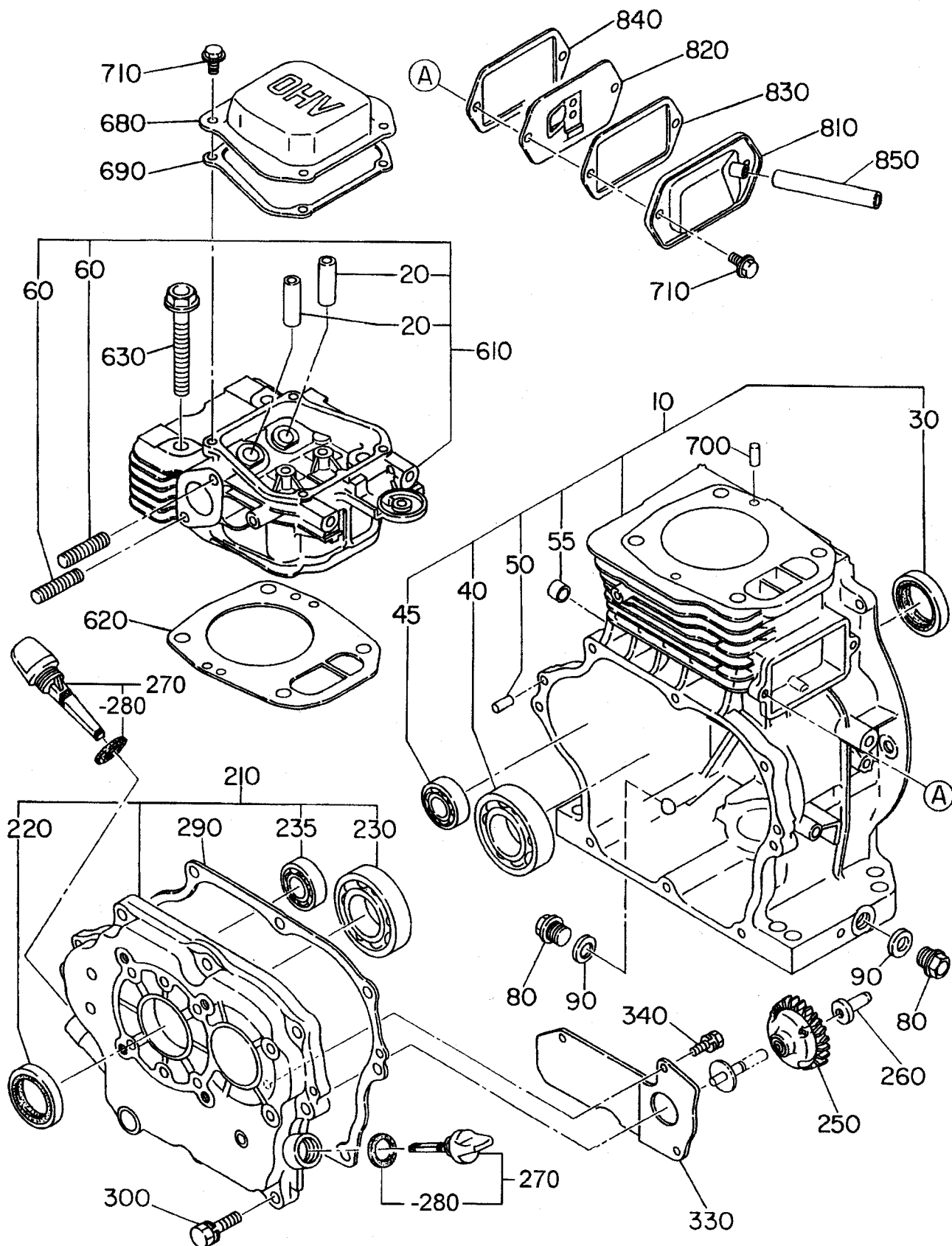
# HONDA GX-240K1 ENGINE — LABELS

## LABELS ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>        | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|-------------------------|-------------|----------------|
| 1          | 87521ZE2W01     | EMBLEM, INTERNAL        | 1           |                |
| 2          | 87522ZE1810     | MARK, CAUTION, EXTERNAL | 1           |                |
| 3          | 87522ZH9000     | LABEL, CAUTION          | 1           |                |
| 5          | 87528ZE2810     | MARK, CHOKE, EXTERNAL   | 1           |                |
| 8          | 87532ZB4G60     | MARK, OIL ALERT, GERMAN | 1           |                |
| 8          | 87532ZB4H50     | MARK, OIL ALERT, FRENCH | 1           |                |
| 15         | 87586ZH7W00     | LABEL, FUEL CAUTION     | 1           |                |
| 16         | 87532ZH8810     | MARK, OIL ALERT, E      | 1           |                |

# ROBIN EH25-2 ENGINE — CRANKCASE ASSY

## CRANKCASE ASSY



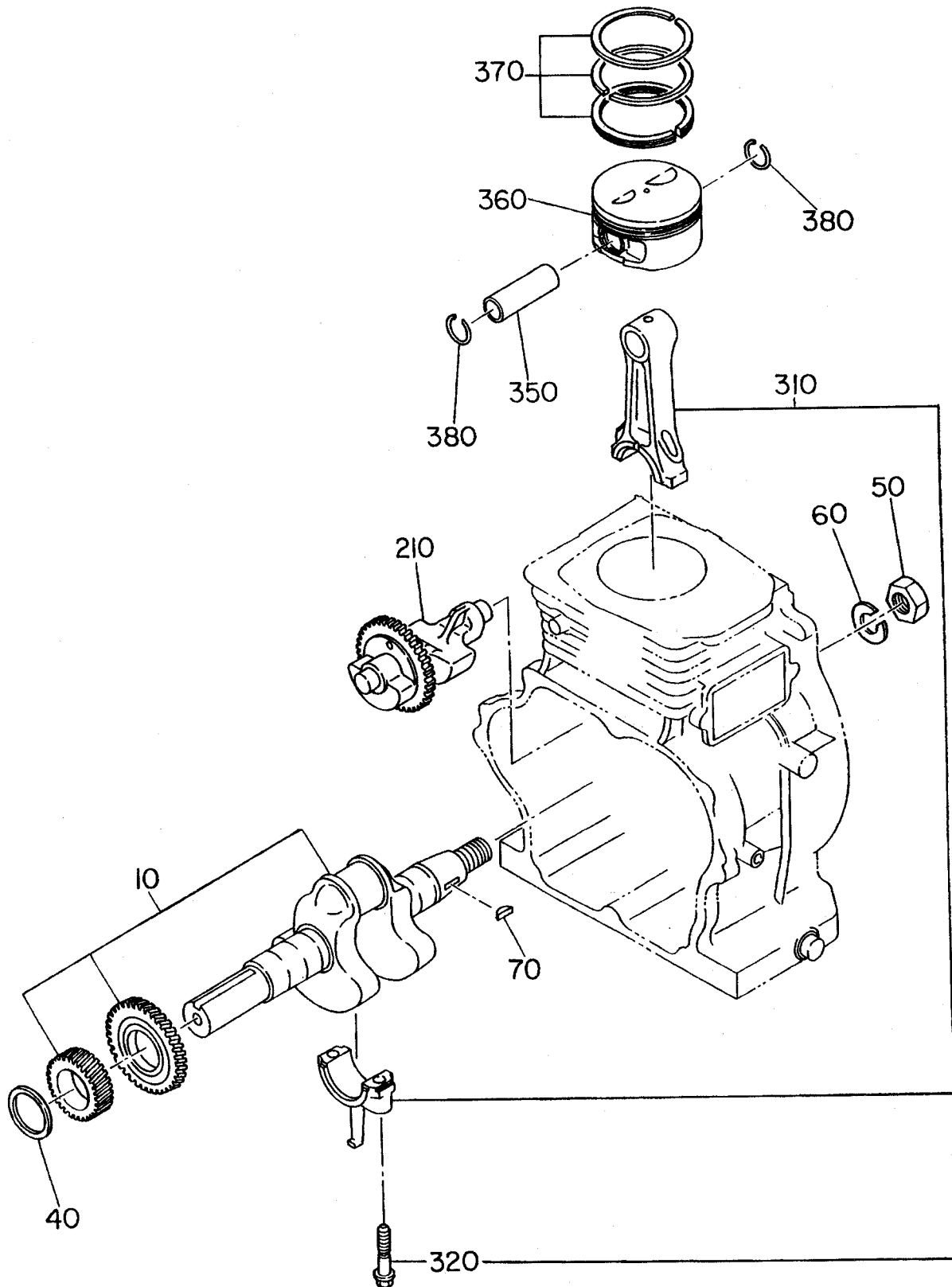
# ROBIN EH25-2 ENGINE — CRANKCASE ASSY

## CRANKCASE ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>            | <u>QTY.</u> | <u>REMARKS</u>           |
|------------|-----------------|-----------------------------|-------------|--------------------------|
| 10         | 2541010131      | CRANKCASE CP                | 1           |                          |
|            | 2541010231      | CRANKCASE CP .....          | 1 .....     | ELECTRIC START TYPE      |
| 20         | 13212AA080      | VALVE GUIDE .....           | 2 .....     | STANDARD                 |
| 30         | 0440300030      | OIL SEAL .....              | 1 .....     | 30 X 45 X 8              |
| 40         | 0600300020      | BALL BEARING .....          | 1 .....     | BB-6206C3 060-03002-20   |
| 45         | 0600150010      | BALL BEARING .....          | 1 .....     | BB-6202C3                |
| 50         | 0310060020      | DOWEL PIN                   | 2           |                          |
| 55         | 1425560103      | PIPE .....                  | 2 .....     | ELECTRIC START TYPE      |
| 60         | 0105080290      | STUD                        | 2           |                          |
| 80         | 0401140030      | PLUG                        | 2           |                          |
| 90         | 0211140020      | GASKET                      | 2           |                          |
| 210        | 2541100301      | MAIN BEARING COVER CP ..... | 1 .....     | METRIC                   |
| 220        | 0440300030      | OIL SEAL .....              | 1 .....     | 30 X45 X 8               |
| 230        | 0600300020      | BALL BEARING .....          | 1 .....     | BB-6206C3 060-03002-20   |
| 235        | 0600150010      | BALL BEARING .....          | 1 .....     | D,DS TYPE BB-6202C3      |
|            | 1600280010      | BALL BEARING .....          | 1 .....     | BB-62/28C3               |
| 250        | 2344500101      | GOVERNOR GEAR CP            | 1           |                          |
| 260        | 2054190103      | GOVERNOR SLEEVE             | 1           |                          |
| 270        | 2276360107      | OIL GAUGE ASSY              | 2           |                          |
|            | 2276360107      | OIL GAUGE ASSY .....        | 1 .....     | W/OIL SENSOR             |
| -280       | 0213160020      | GASKET                      | 2           |                          |
|            | 0213160020      | GASKET .....                | 1 .....     | W/OIL SENSOR             |
| 290        | 2541600103      | GASKET, BEARING COVER       | 1           |                          |
| 300        | 0011308300      | BOLT AND WASHER ASSY        | 8           |                          |
| 330        | 2541750213      | OIL SHELTER (SENSOR) .....  | 1 .....     | W/OIL SENSOR             |
| 340        | 0043505100      | SCREW AND WASHER ASSY ..... | 3 .....     | W/OIL SENSOR             |
| 610        | 2701300101      | CYLINDER HEAD CP            | 1           |                          |
| 620        | 2541500113      | GASKET, HEAD                | 1           |                          |
| 630        | 0110100040      | FLANGE BOLT                 | 4           |                          |
| 680        | 2701550303      | ROCKER COVER                | 1           |                          |
| 690        | 2701600403      | GASKET, ROCKER COVER        | 1           |                          |
| 700        | 0310060020      | DOWEL PIN                   | 2           |                          |
| 710        | 0110060020      | FLANGE BOLT                 | 6           |                          |
| 810        | 2541430101      | BREATHER COVER CP           | 1           |                          |
| 820        | 2541440111      | BREATHER PLATE CP           | 1           |                          |
| 830        | 2461600603      | GASKET, BREATHER COVER      | 1           |                          |
| 840        | 2461600713      | GASKET, BREATHER PLATE      | 1           |                          |
| 850        | 0851080000      | RUBBER PIPE .....           | 1 .....     | 8 X11 X 60               |
|            | 0851080000      | RUBBER PIPE .....           | 1 .....     | CYCLONE TYPE 8 X 11 X 75 |
| 960        | 2549900107      | GASKET SET                  | 1           |                          |

# ROBIN EH25-2 ENGINE — CRANKSHAFT ASSY

## CRANKSHAFT ASSY



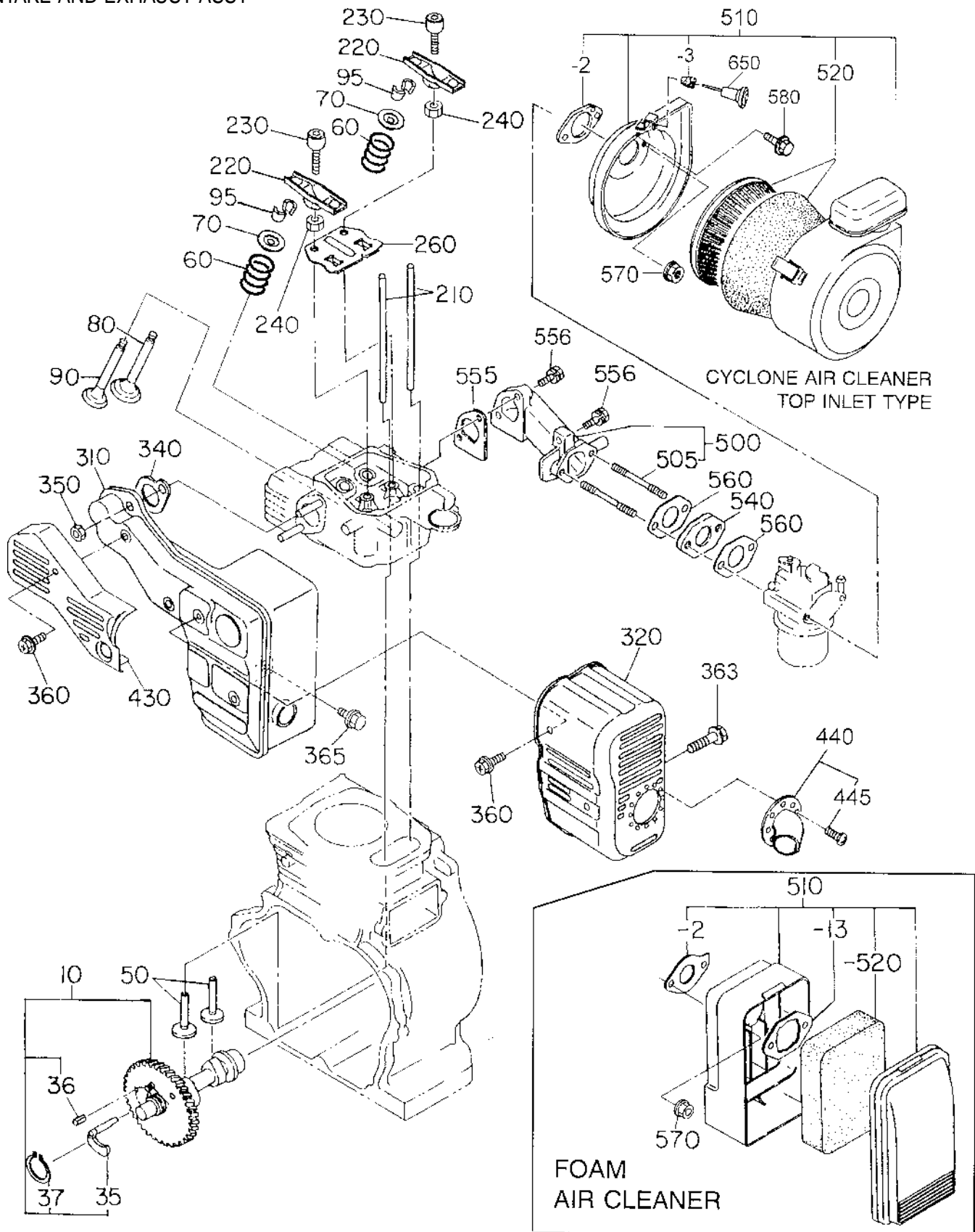
# ROBIN EH25-2 ENGINE — CRANKSHAFT ASSY

## CRANKSHAFT ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>      | <u>QTY.</u> | <u>REMARKS</u>        |
|------------|-----------------|-----------------------|-------------|-----------------------|
| 10         | 2542090101      | CRANKSHAFT CP .....   | 1 .....     | SAE 1" KEYED SHAFT    |
|            | 2542100101      | CRANKSHAFT CP .....   | 1 .....     | SAE PUMP SHAFT        |
|            | 2542120101      | CRANKSHAFT CP .....   | 1 .....     | SAE TAPER SHAFT       |
|            | 2542020101      | CRANKSHAFT CP .....   | 1 .....     | METRIC DS TYPE        |
|            | 2542030101      | CRANKSHAFT CP .....   | 1 .....     | METRIC PUMP TYPE      |
|            | 2542070101      | CRANKSHAFT CP .....   | 1 .....     | METRIC GENERATOR TYPE |
| 40         | 0230300170      | SPACER T=0.6 .....    | 1 .....     | SELECT 1 SPACER ONLY  |
|            | 0230300180      | SPACER T=0.8 .....    | 1 .....     | SELECT 1 SPACER ONLY  |
|            | 0230300190      | SPACER T=1.0 .....    | 1 .....     | SELECT 1 SPACER ONLY  |
| 50         | 0021808000      | NUT                   | 1           |                       |
| 60         | 0032018000      | SPRING WASHER         | 1           |                       |
| 70         | 0323030010      | WOODRUFF KEY          | 1           |                       |
| 210        | 2542410103      | BALANCER SHAFT        | 1           |                       |
| 310        | 2542250100      | CONNECTING ROD ASSY   | 1           |                       |
| 320        | 2462300103      | CONNECTING ROD BOLT   | 2           |                       |
| 350        | 2702330103      | PISTON PIN            | 1           |                       |
| 360        | 2702340103      | PISTON .....          | 1 .....     | STANDARD              |
|            | 2702340203      | PISTON .....          | 1 .....     | OVERSIZE 0.25 MM      |
|            | 2702340303      | PISTON .....          | 1 .....     | OVERSIZE 0.50 MM      |
| 370        | 2542350107      | PISTON RING SET ..... | 1 .....     | STANDARD              |
|            | 2542350207      | PISTON RING SET ..... | 1 .....     | OVERSIZE 0.25 MM      |
|            | 2542350307      | PISTON RING SET ..... | 1 .....     | OVERSIZE 0.50 MM      |
| 380        | 0565180010      | CLIP                  | 2           |                       |

# ROBIN EH25-2 ENGINE — INTAKE AND EXHAUST ASSY

## INTAKE AND EXHAUST ASSY



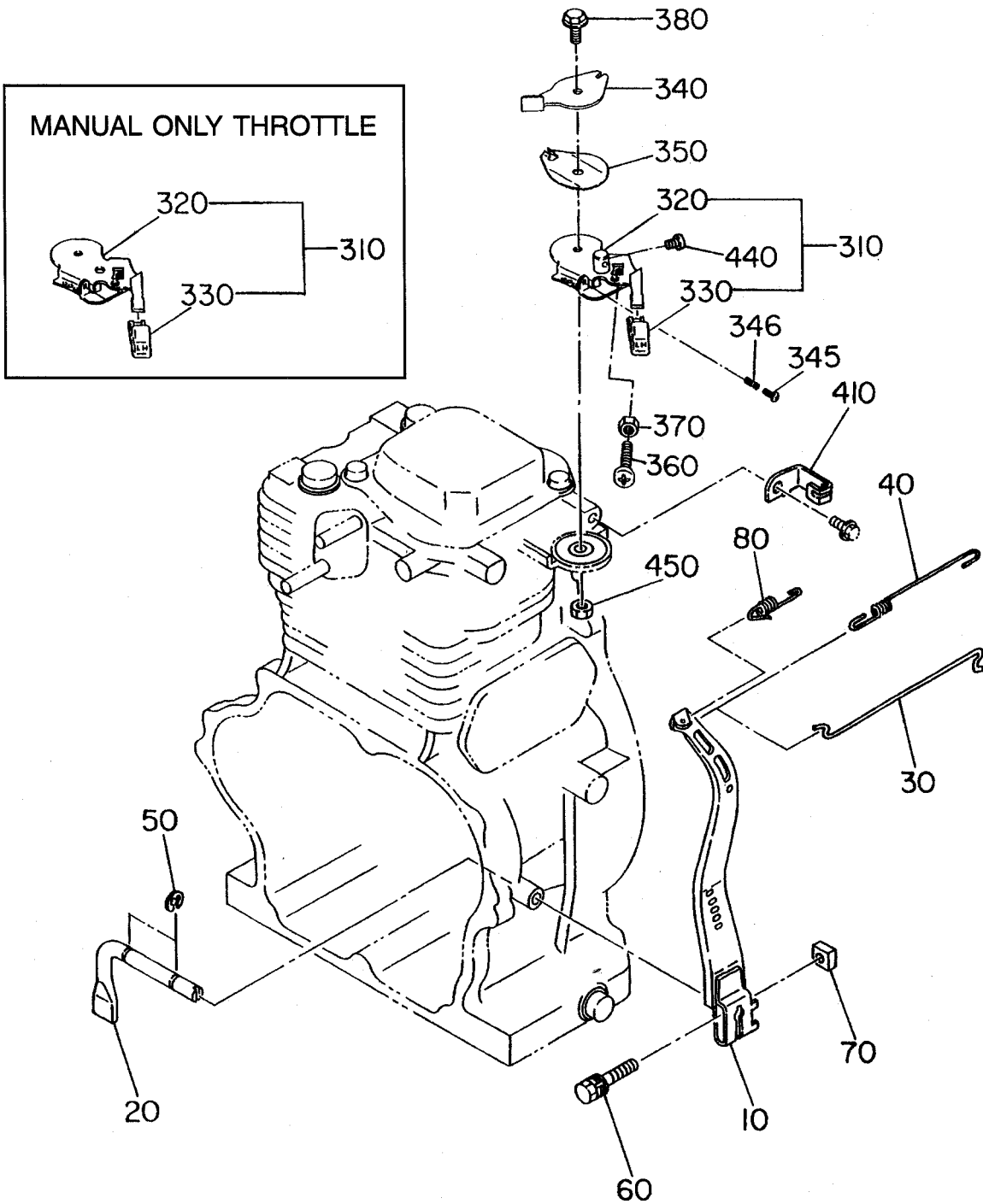
# ROBIN EH25-2 ENGINE — INTAKE AND EXHAUST ASSY

## INTAKE AND EXHAUST ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>           | <u>QTY.</u> | <u>REMARKS</u>          |
|------------|-----------------|----------------------------|-------------|-------------------------|
| 10         | 2543170141      | CAMSHAFT CP                | 1           |                         |
| 35         | 2543640113      | RELEASE LEVER              | 1           |                         |
| 36         | 0051904100      | SPRING PIN                 | 1           |                         |
| 37         | 0031522000      | SNAP RING                  | 1           |                         |
| 50         | 2393330113      | TAPPET                     | 2           |                         |
| 60         | 2463361103      | VALVE SPRING               | 2           |                         |
| 70         | 2463371103      | SPRING RETAINER            | 2           |                         |
| 80         | 2703340103      | INTAKE VALVE               | 1           |                         |
| 90         | 2703350103      | EXHAUST VALVE              | 1           |                         |
| 95         | 2463550103      | COLLET VALVE               | 4           |                         |
| 210        | 2703530103      | PUSH ROD                   | 2           |                         |
| 220        | 26136001A3      | ROCKER ARM                 | 2           |                         |
| 230        | 2693580103      | BOLT, PIVOT                | 2           |                         |
| 240        | 0170060090      | NUT                        | 2           |                         |
| 260        | 2703650103      | GUIDE PLATE                | 1           |                         |
| 310        | 2703010101      | MUFFLER CP                 | 1           |                         |
| 320        | 2543420111      | MUFFLER COVER              | 1           |                         |
| 340        | 2463520103      | GASKET, MUFFLER            | 1           |                         |
| 350        | 0170080030      | NUT                        | 2           |                         |
| 360        | 0152006090      | TAPPING BOLT               | 4           |                         |
| 363        | 0152060100      | TAPPING BOLT               | 1           |                         |
| 365        | 0011008160      | BOLT AND WASHER ASSY       | 1           |                         |
| 430        | 2703480103      | EXHAUST PIPE COVER         | 1           |                         |
| 440        | 2463700107      | DEFLECTOR ASSY             | 1           |                         |
| 445        | 0150040060      | TAPPING SCREW              | 3           |                         |
| 500        | 2543300101      | INTAKE PIPE CP             | 1           |                         |
| 505        | 0105060191      | STUD                       | 2           |                         |
| 510        | 2543261310      | AIR CLEANER ASSY .....     | 1 .....     | CYCLONE, TOP INLET TYPE |
| -2         | 2343600308      | PACKING .....              | 1 .....     | CYCLONE, TOP INLET TYPE |
| -3         | 2073269008      | GROMMET .....              | 1 .....     | CYCLONE, TOP INLET TYPE |
| 510        | 2703260100      | AIR CLEANER ASSY .....     | 1 .....     | FOAM AIR CLEANER TYPE   |
| -2         | 2343600308      | PACKING .....              | 1 .....     | FOAM AIR CLEANER TYPE   |
| -13        | 2703265008      | PLATE .....                | 1 .....     | FOAM AIR CLEANER TYPE   |
| -520       | 2703261008      | CLEANER ELEMENT .....      | 1 .....     | FOAM AIR CLEANER TYPE   |
| 520        | 2343260407      | ELEMENT SET .....          | 1 .....     | CYCLONE TYPE            |
| 540        | 2343290103      | INSULATOR                  | 1           |                         |
| 555        | 2463600113      | GASKET, INTAKE PIPE        | 1           |                         |
| 556        | 0011308280      | BOLT AND WASHER ASSY       | 3           |                         |
| 560        | 2343590203      | GASKET 2, INSULATOR        | 2           |                         |
| 570        | 2263921200      | NUT AND WASHER ASSY .....  | 2 .....     | CYCLONE, TOP INLET TYPE |
|            | 0023806000      | FLANGE NUT .....           | 2 .....     | FOAM AIR CLEANER TYPE   |
| 580        | 0011006120      | BOLT AND WASHER ASSY ..... | 2 .....     | CYCLONE, TOP INLET TYPE |
| 650        | 2304390101      | CHOKE KNOB .....           | 1 .....     | CYCLONE, TOP INLET TYPE |

# ROBIN EH25-2 ENGINE — GOVERNOR ASSY

## GOVERNOR ASSY





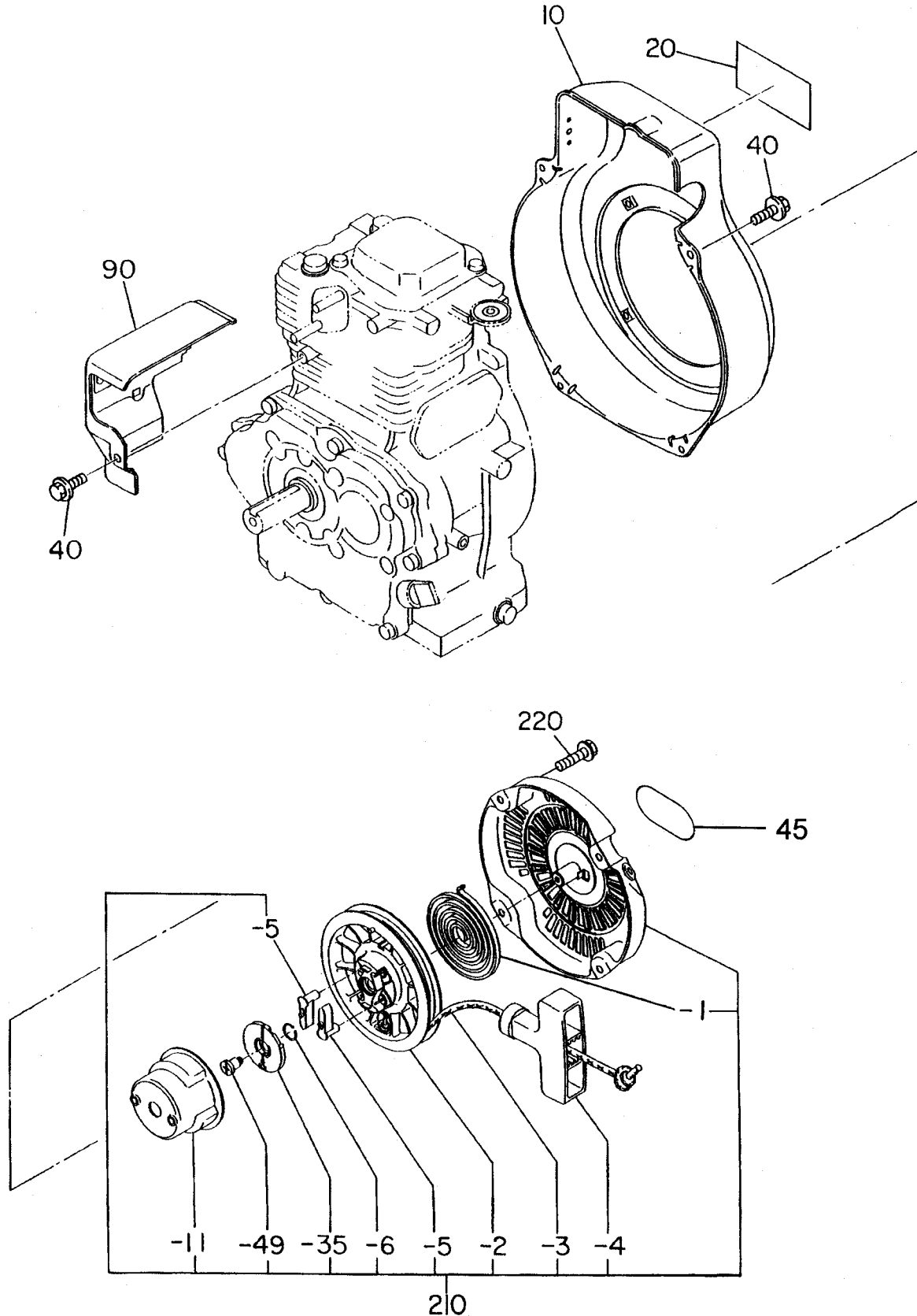
# ROBIN EH25-2 ENGINE — GOVERNOR ASSY

## GOVERNOR ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>         | <u>QTY.</u> | <u>REMARKS</u>             |
|------------|-----------------|--------------------------|-------------|----------------------------|
| 10         | 2544230123      | GOVERNOR LEVER           | 1           |                            |
| 20         | 2464220123      | GOVERNOR SHAFT           | 1           |                            |
| 30         | 2544270101      | GOVERNOR ROD CP          | 1           |                            |
| 40         | 2544280103      | ROD SPRING               | 1           |                            |
| 50         | 0031306000      | CLIP                     | 2           |                            |
| 60         | 0011406300      | BOLT AND WASHER ASSY     | 1           |                            |
| 70         | 0186060020      | NUT                      | 1           |                            |
| 80         | 2544250113      | GOVERNOR SPRING          | 1           |                            |
| 310        | 2704330200      | SPEED CONTROL ASSY ..... | 1           | MANUAL W/REMOTE CABLE OPT. |
|            | 2704330100      | SPEED CONTROL ASSY ..... | 1           | MANUAL ONLY CONTROL        |
| 320        | 2704330201      | SPEED CONTROL CP .....   | 1           | MANUAL W/REMOTE CABLE OPT. |
|            | 2704330101      | SPEED CONTROL .....      | 1           | MANUAL ONLY CONTROL        |
| 330        | 2274360103      | KNOB                     | 1           |                            |
| 340        | 2704350103      | STOP PLATE               | 1           |                            |
| 345        | 0043104250      | SCREW                    | 1           |                            |
| 346        | 2694550303      | IDLE SET SPRING          | 1           |                            |
| 350        | 2274500203      | SPRING WASHER            | 1           |                            |
| 360        | 0043106300      | SCREW                    | 1           |                            |
| 370        | 0022706000      | NUT                      | 1           |                            |
| 380        | 0110060050      | FLANGE-BOLT .....        | 1           | MANUAL W/REMOTE CABLE OPT. |
|            | 0110060030      | FLANGE BOLT .....        | 1           | MANUAL ONLY CONTROL        |
| 410        | 2544420123      | WIRE BRACKET .....       | 1           | MANUAL W/REMOTE CABLE OPT. |
| 440        | 0043104080      | SCREW .....              | 1           | MANUAL W/REMOTE CABLE OPT. |
| 450        | 0022706000      | NUT .....                | 1           | MANUAL W/REMOTE CABLE OPT. |

# ROBIN EH25-2 ENGINE — COOLING AND STARTING ASSY

## COOLING AND STARTING ASSY



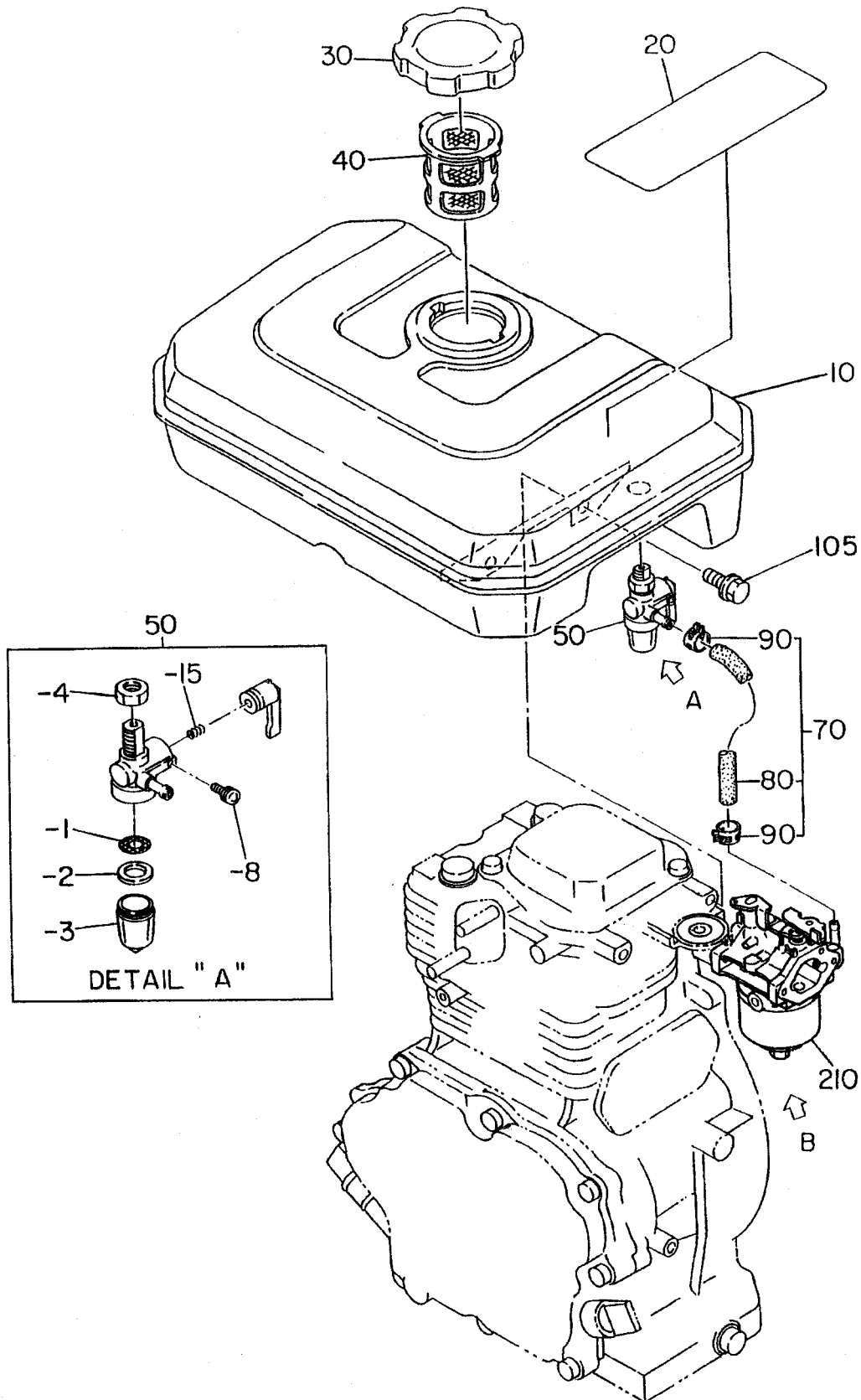
# ROBIN EH25-2 ENGINE — COOLING AND STARTING ASSY

## COOLING AND STARTING ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>          | <u>QTY.</u> | <u>REMARKS</u>             |
|------------|-----------------|---------------------------|-------------|----------------------------|
| 10         | 2545345001      | BLOWER HOUSING CP .....   | 1 .....     | BLACK                      |
|            | 2545355011      | BLOWER HOUSING CP .....   | 1 .....     | BLACK, ELECTRIC START TYPE |
| 20         | 2709170303      | LABEL, TRADE MARK .....   | 1 .....     | ROBIN/SUBARU               |
| 40         | 0110060020      | FLANGE BOLT               | 5           |                            |
| 45         | 0732004950      | LABEL, RECOIL OHV         | 1           |                            |
| 90         | 2545270103      | HEAD COVER                | 1           |                            |
| 210        | 2705020100      | RECOIL STARTER ASSY ..... | 1 .....     | D TYPE                     |
| -1         | 2705011508      | SPIRAL SPRING             | 1           |                            |
| -2         | 2705012008      | REEL                      | 1           |                            |
| -3         | 2705011008      | STARTER ROPE              | 1           |                            |
| -4         | 2615010008      | STARTER KNOB              | 1           |                            |
| -5         | 2705012508      | RATCHET                   | 2           |                            |
| -6         | 2275013108      | FRICTION SPRING           | 1           |                            |
| -11        | 2705014508      | STARTER PULLEY            | 1           |                            |
| -35        | 2705026108      | RATCHET GUIDE .....       | 1 .....     | D TYPE                     |
| -49        | 2275015208      | SET SCREW                 | 1           |                            |
| 220        | 0110060010      | FLANGE BOLT               | 4           |                            |

# ROBIN EH25-2 ENGINE — FUEL TANK ASSY

## FUEL TANK ASSY



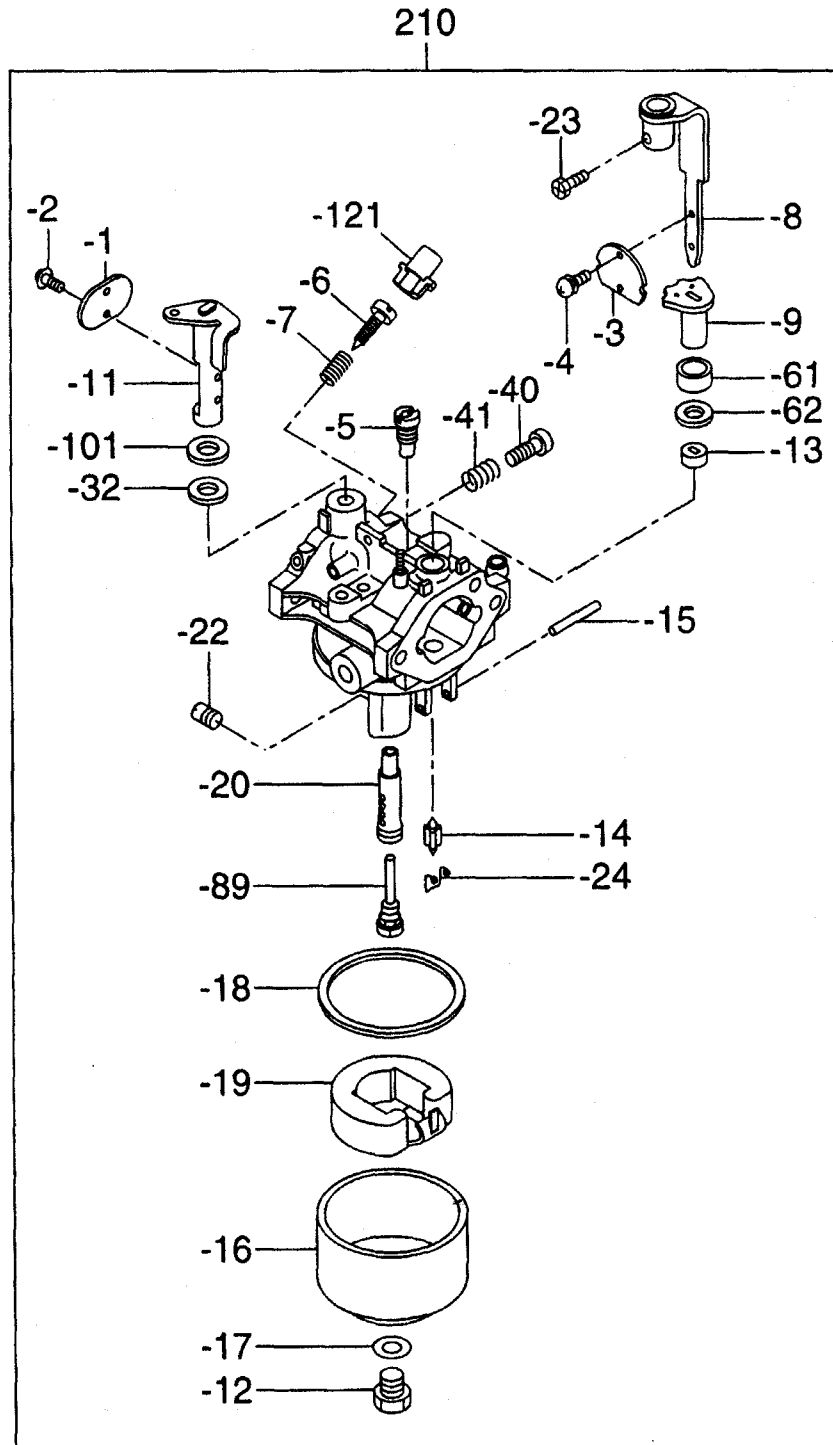
# ROBIN EH25-2 ENGINE — FUEL TANK ASSY

## FUEL TANK ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>     | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|----------------------|-------------|----------------|
| 10         | 2546105011      | FUEL TANK CP .....   | 1 .....     | BLACK          |
| 20         | 0732003900      | LABEL, CAUTION       | 1           |                |
| 30         | 0430430015      | FUEL TANK CAP CP     | 1           |                |
| 40         | 0641360010      | FUEL FILTER CP       | 1           |                |
| 50         | 0642008600      | FUEL STRAINER ASSY   | 1           |                |
| -1         | 0642004110      | FILTER               | 1           |                |
| -2         | 0642001430      | RUBBER PACKING       | 1           |                |
| -3         | 0642001410      | CLIP                 | 1           |                |
| -4         | 0642002360      | LOCK NUT             | 1           |                |
| -8         | 0642002790      | LOCK BOLT            | 1           |                |
| -15        | 0642003230      | SPRING               | 1           |                |
| 70         | 2346260101      | FUEL PIPE CP         | 1           |                |
| 80         | 0851060000      | RUBBER PIPE .....    | 1 .....     | 6 X 12 X 75    |
| 90         | 0561110020      | HOSE CLAMP           | 2           |                |
| 105        | 0011308200      | BOLT AND WASHER ASSY | 4           |                |

# ROBIN EH25-2 ENGINE — CARBURETOR ASSY

## CARBURETOR ASSY



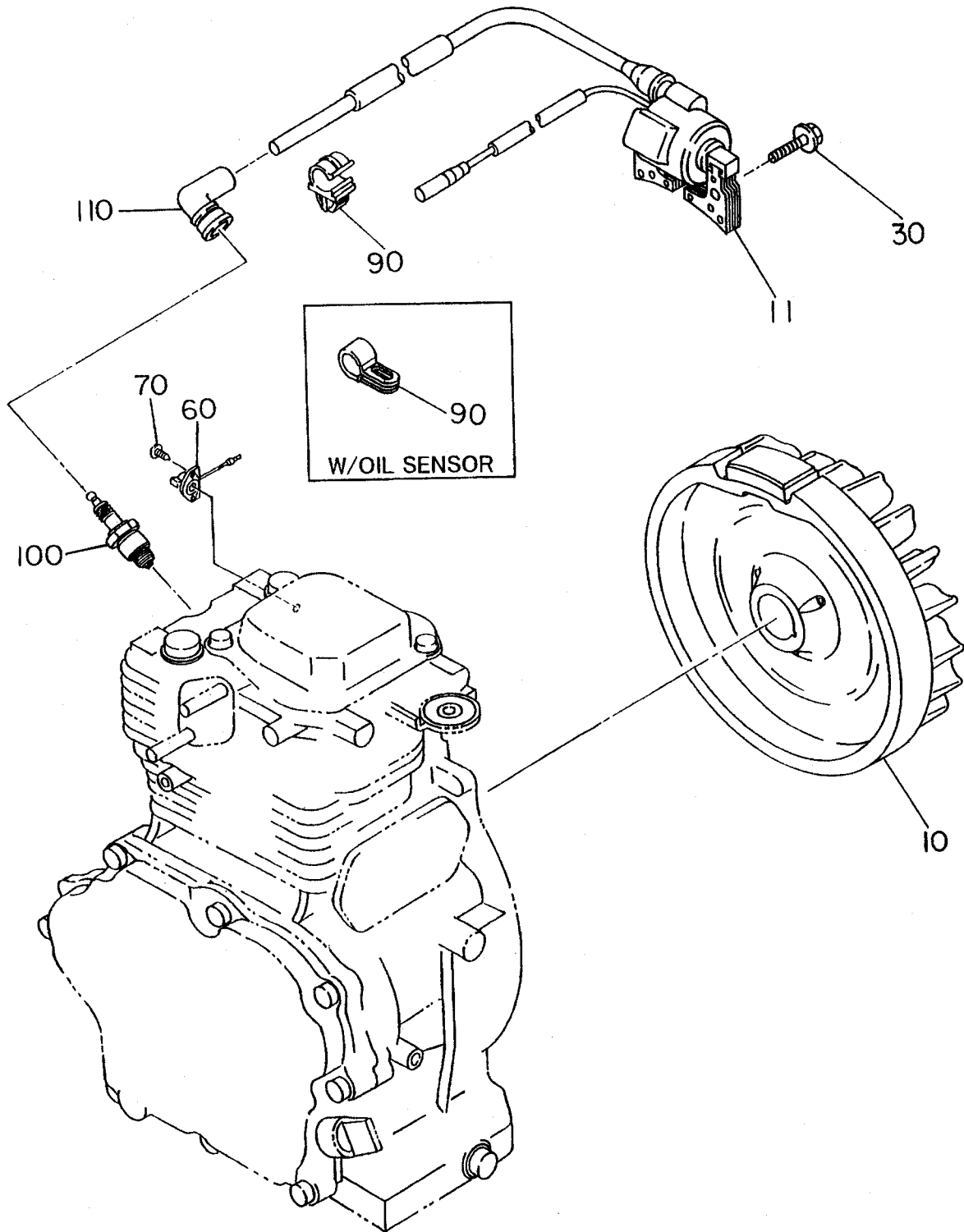
# ROBIN EH25-2 ENGINE — CARBURETOR ASSY

## CARBURETOR ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>           | <u>QTY.</u> | <u>REMARKS</u>          |
|------------|-----------------|----------------------------|-------------|-------------------------|
| 210        | 2546252300      | CARBURETOR ASSY .....      | 1           | CYCLONE, TOP INLET TYPE |
|            | 2546256010      | CARBURETOR ASSY .....      | 1           | FOAM AIR CLEANER TYPE   |
| -1         | 2396253508      | THROTTLE VALVE             | 1           |                         |
| -2         | 2096235108      | SCREW                      | 2           |                         |
| -3         | 2546252508      | VALVE, CHOKE               | 1           |                         |
| -4         | 2376245108      | SCREW, PANHEAD             | 2           |                         |
| -5         | 2546242008      | PILOT JET                  | 1           |                         |
| -6         | 2466243608      | ADJUSTER                   | 1           |                         |
| -7         | 2306244808      | SPRING                     | 1           |                         |
| -8         | 2346252108      | CHOKE LEVER ASSY .....     | 1           | CYCLONE, TOP INLET TYPE |
|            | 2346252008      | CHOKE LEVER ASSY .....     | 1           | FOAM AIR CLEANER TYPE   |
| -9         | 2396256008      | RING .....                 | 1           | CYCLONE, TOP INLET TYPE |
|            | 2346255008      | RING .....                 | 1           | FOAM AIR CLEANER TYPE   |
| -11        | 2546253108      | SHAFT ASSY, THROTTLE ..... | 1           | CYCLONE, TOP INLET TYPE |
|            | 2546253008      | SHAFT ASSY, THROTTLE ..... | 1           | FOAM AIR CLEANER TYPE   |
| -12        | 2246254408      | BOLT                       | 1           |                         |
| -13        | 2266255008      | RING                       | 1           |                         |
| -14        | 2246231208      | NEEDLE VALVE ASSY          | 1           |                         |
| -15        | 2146251508      | FLOAT PIN                  | 1           |                         |
| -16        | 2246255208      | FLOAT CHAMBER BODY1        |             |                         |
| -17        | 2076234508      | INSERT WASHER              | 1           |                         |
| -18        | 2066254008      | PACKING, CHAMBER           | 1           |                         |
| -19        | 2346250608      | FLOAT ASSY                 | 1           |                         |
| -20        | 2546244008      | MAIN NOZZLE                | 1           |                         |
| -22        | 2546240308      | MAIN JET .....             | 1           | CYCLONE, TOP INLET TYPE |
|            | 2546240208      | MAIN JET .....             | 1           | FOAM AIR CLEANER TYPE   |
| -23        | 2466245508      | BOLT .....                 | 1           | CYCLONE, TOP INLET TYPE |
| -24        | 2246256918      | CLIP .....                 | 1           | CYCLONE, TOP INLET TYPE |
|            | 2266270118      | CLIP .....                 | 1           | FOAM AIR CLEANER TYPE   |
| -32        | 1066239208      | SEAL .....                 | 1           | CYCLONE, TOP INLET TYPE |
| -40        | 2466243508      | ADJUST SCREW               | 1           |                         |
| -41        | 2306244608      | SPRING                     | 1           |                         |
| -61        | 2476255008      | CAP .....                  | 1           | CYCLONE, TOP INLET TYPE |
| -62        | 2366268008      | SEAL .....                 | 1           | CYCLONE, TOP INLET TYPE |
| -89        | 2466242508      | GUIDE HOLDER               | 1           |                         |
| -101       | 1566235108      | PACKING .....              | 1           | CYCLONE, TOP INLET TYPE |
| -121       | 2466255108      | CAP                        |             |                         |

# ROBIN EH25-2 ENGINE — RECOIL START ASSY

## RECOIL START ASSY





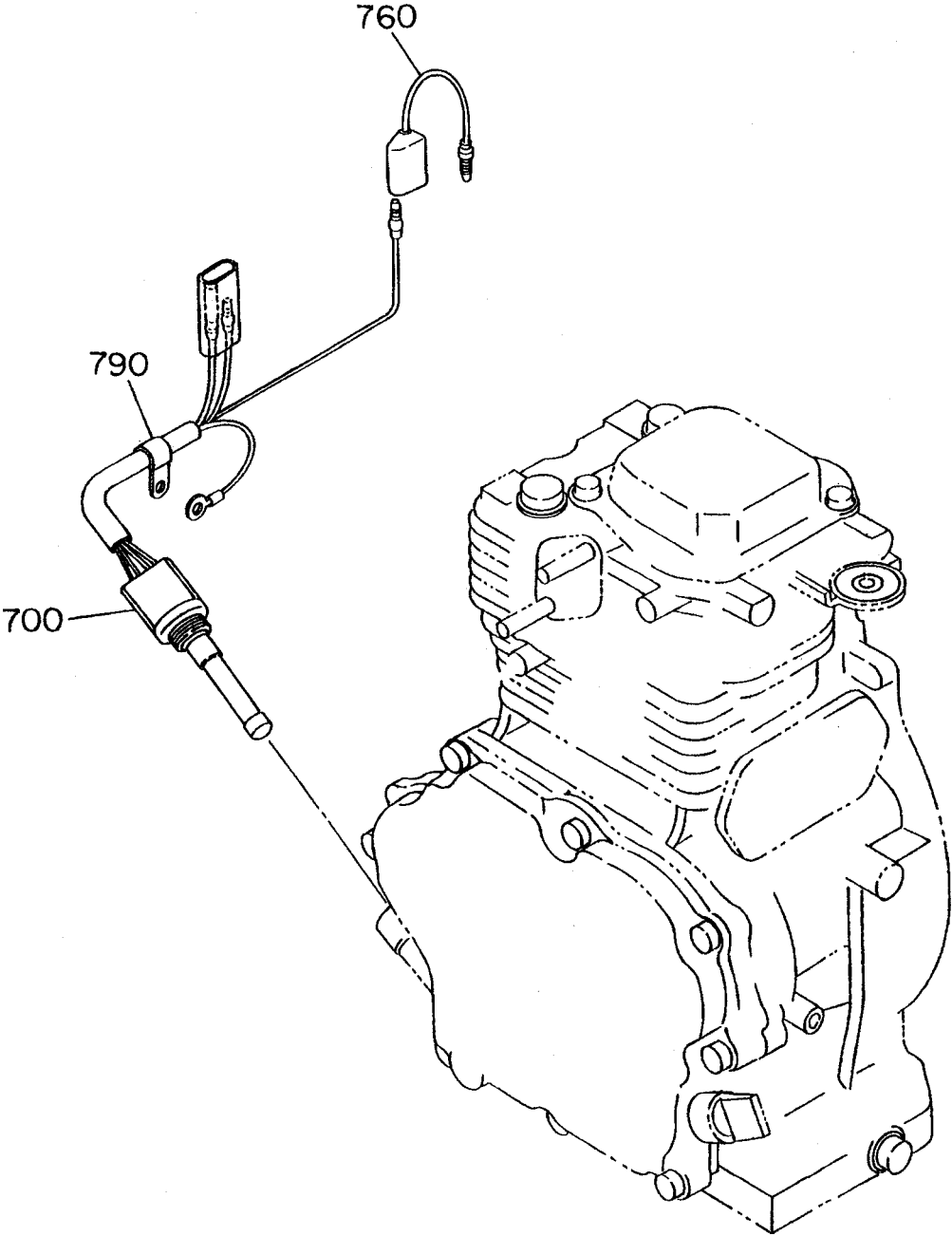
# ROBIN EH25-2 ENGINE — RECOIL START ASSY

## RECOIL START ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>     | <u>QTY.</u> | <u>REMARKS</u>           |
|------------|-----------------|----------------------|-------------|--------------------------|
| 10         | 2347020111      | FLYWHEEL CP          | 1           |                          |
| 11         | 2547943021      | IGNITION COIL CP     | 1           |                          |
| 30         | 0011406250      | BOLT AND WASHER ASSY | 2           |                          |
| 60         | 0660000361      | SWITCH ASSY          | 1           |                          |
| 70         | 0150040090      | TAPPING SCREW        | 2           |                          |
| 90         | 0566000190      | CLAMP                | 1           |                          |
|            | 0566120050      | CLAMP .....          | 1           | W/OIL SENSOR             |
| 100        | 0650140031      | SPARK PLUG .....     | 1           | NGK B-6HS                |
|            | 0650140150      | SPARK PLUG .....     | 1           | EXPORT (CE) NGK (BR-6HS) |
|            | 0650141030      | SPARK PLUG .....     | 1           | CHAMPION (L86C)          |
|            | RL86C           | SPARK PLUG .....     | 1           | EXPORT (CE) CHAMPION     |
| 110        | 0655000051      | SPARK PLUG CAP       | 1           |                          |

# ROBIN EH25-2 ENGINE — OIL SENSOR ASSY

## OIL SENSOR ASSY



# ROBIN EH25-2 ENGINE — OIL SENSOR ASSY

## OIL SENSOR ASSY

| <u>NO.</u> | <u>PART NO.</u> | <u>PART NAME</u>       | <u>QTY.</u> | <u>REMARKS</u> |
|------------|-----------------|------------------------|-------------|----------------|
| 700        | KS31102801      | OIL SENSOR CP 19 ..... | 1 .....     | W/OIL SENSOR   |
| 760        | 2147312201      | WIRE 22 CP .....       | 1 .....     | W/OIL SENSOR   |
| 790        | 2147900301      | CLAMP CP .....         | 1 .....     | W/OIL SENSOR   |

**PAYMENT TERMS**

Terms of payment for parts are net 10 days.

**FREIGHT POLICY**

All parts orders will be shipped collect or prepaid with the charges added to the invoice. All shipments are F.O.B. point of origin. Multiquip's responsibility ceases when a signed manifest has been obtained from the carrier, and any claim for shortage or damage must be settled between the consignee and the carrier.

**MINIMUM ORDER**

The minimum charge for orders from Multiquip is \$15.00 net. Customers will be asked for instructions regarding handling of orders not meeting this requirement.

**RETURNED GOODS POLICY**

Return shipments will be accepted and credit will be allowed, subject to the following provisions:

1. A Returned Material Authorization (RMA) must be approved by Multiquip prior to shipment.
2. To obtain a Return Material Authorization, a list must be provided to Multiquip Parts Sales that defines item numbers, quantities, and descriptions of the items to be returned.
  - a. The parts numbers and descriptions must match the current parts price list.
  - b. The list must be typed or computer generated.
  - c. The list must state the reason(s) for the return.
  - d. The list must reference the sales order(s) or invoice(s) under which the items were originally purchased.
  - e. The list must include the name and phone number of the person requesting the RMA.
3. A copy of the Return Material Authorization must accompany the return shipment.
4. Freight is at the sender's expense. All parts must be returned freight prepaid to Multiquip's designated receiving point.

5. Parts must be in new and resalable condition, in the original Multiquip package (if any), and with Multiquip part numbers clearly marked.

6. The following items are not returnable:
  - a. Obsolete parts. (If an item is in the price book and shows as being replaced by another item, it is obsolete.)
  - b. Any parts with a limited shelf life (such as gaskets, seals, "O" rings, and other rubber parts) that were purchased more than six months prior to the return date.
  - c. Any line item with an extended dealer net price of less than \$5.00.
  - d. Special order items.
  - e. Electrical components.
  - f. Paint, chemicals, and lubricants.
  - g. Decals and paper products.
  - h. Items purchased in kits.

7. The sender will be notified of any material received that is not acceptable.

8. Such material will be held for five working days from notification, pending instructions. If a reply is not received within five days, the material will be returned to the sender at his expense.

9. Credit on returned parts will be issued at dealer net price at time of the original purchase, less a 15% restocking charge.

10. In cases where an item is accepted for which the original purchase document can not be determined, the price will be based on the list price that was effective twelve months prior to the RMA date.

11. Credit issued will be applied to future purchases only.

**PRICING AND REBATES**

Prices are subject to change without prior notice. Price changes are effective on a specific date and all orders received on or after that date will be billed at the revised price. Rebates for price declines and added charges for price increases will not be made for stock on hand at the time of any price change.

**PRICING AND REBATES**

Prices are subject to change without prior notice. Price changes are effective on a specific date and all orders received on or after that date will be billed at the revised price. Rebates for price declines and added charges for price increases will not be made for stock on hand at the time of any price change.

Multiquip reserves the right to quote and sell direct to Government agencies, and to Original Equipment Manufacturer (OEM) accounts who use our products as integral parts of their own products.

**SPECIAL EXPEDITING SERVICE**

A \$35.00 surcharge will be added to the invoice for special handling including bus shipments, insured parcel post or in cases where Multiquip must personally deliver the parts to the carrier.

**LIMITATIONS OF SELLER'S LIABILITY**

Multiquip shall not be liable hereunder for damages in excess of the purchase price of the item with respect to which damages are claimed, and in no event shall Multiquip be liable for loss of profit or good will or for any other special, consequential or incidental damages.

**LIMITATION OF WARRANTIES**

No warranties, expressed or implied, are made in connection with the sale of parts or trade accessories nor as to any engine not manufactured by Multiquip. Such warranties made in connection with the sale of new, complete units are made exclusively by a statement of warranty packaged with such units, and Multiquip neither assumes nor authorizes any person to assume for it any other obligation or liability whatever in connection with the sale of its products. Apart from such written statement of warranty, there are no warranties, expressed, implied or statutory, which extend beyond the description of the products on the face hereof.



# OPERATION & PARTS MANUAL

## HERE'S HOW TO GET HELP

PLEASE HAVE THE MODEL AND SERIAL  
NUMBER *ON-HAND* WHEN CALLING

### UNITED STATES

#### **MULTIQUIP CORPORATE OFFICE**

18910 Wilmington Ave.

Carson, CA 90746

Contact: mq@multiquip.com

Tel. (800)-421-1244

Fax (310)-537-3927

### MEXICO

#### **MQ CIPSA**

Carr. Fed. Mexico-Puebla KM 126.5

Momoxpan, Cholula, Puebla 72760 Mexico

Contact: pmastretta@cipsa.com.mx

Tel. (52) 222-225-9900

Fax (52) 222-285-0420

### UNITED KINGDOM

#### **MULTIQUIP (UK) LIMITED HEAD OFFICE**

Hanover Mill, Fitzroy Street,

Ashton-under-Lyne,

Lancashire OL7 0TL

Contact: kcassell@multiquip.com.uk

Tel. 0161 339 2223

Fax 0161 339 3226

### CANADA

#### **MULTIQUIP**

4110 Industriel Boul.

Laval, Quebec, Canada H7L 6V3

Contact: jmartin@multiquip.com

Tel. (450) 625-2244

Fax (450) 625-8664

### BRAZIL

#### **MULTIQUIP**

Av. Evandro Lins e Silva, 840 - grupo 505

Barra de Tijuca - Rio de Janeiro

RJ CEP 22631-470

Contact: cnavarro@multiquip.com.br, srentes@multiquip.com.br

Tel. 011-55-21-3433-9055

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#### **MULTIQUIP (UK)**

##### **HANOVER MILL**

FITZROY STREET  
ASHTON-UNDER-LYNE  
LANCASHIRE, OL7 0TL  
UNITED KINGDOM

PH. 0161-339-2223

FAX. 0161-339-3226

E-MAIL: [mq@multiquip.com](mailto:mq@multiquip.com)

[www.multiquip.com](http://www.multiquip.com)

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