

# MINNICH

## HAND HELD HONDA OPERATOR/SERVICE MANUAL



### MINNICH MANUFACTURING

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### **NOTICE**

It is Minnich's policy to constantly strive to improve our products. The information, specifications, and illustrations in this publication are based on the information in effect at the same time as approval for printing and publishing. Minnich therefore reserves the right to make changes in design and improvements whenever it is believed the efficiency of the machine which has been shipped or currying any obligation to incorporate such improvements in any machine which has been shipped or is in service. It is recommended that users contact Minnich or a Minnich Dealer for latest revisions.

### **NOTICE**

See engine manual for information pertaining to the engine.

### **NOTICE**

If there are any questions regarding the machine or its application which are not covered in this manual or in other literature accompanying this unit, please contact your Minnich Dealer or Minnich Manufacturing at 419-903-0010 or [sales@minnich-mfg.com](mailto:sales@minnich-mfg.com)

**⚠ WARNING**


**CALIFORNIA PROPOSITION 65**

Engine exhaust and some of its constituents, and some dust created by power sanding, sawing, grinding, drilling and other construction activities contains chemicals known to the State of California to cause cancer, birth defects and other reproductive harm. Some examples of these chemicals are:

Lead from lead-based paints.  
Crystalline silica from bricks.  
Arsenic and chromium from chemically treated lumbar.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: ALWAYS work in a well ventilated area, and work with improved safety equipment, such as dust masks that are specifically designed to filter out microscopic particles.

**⚠ WARNING**




**SILICOSIS WARNING**

Grinding/cutting/drilling of masonry, concrete, metal and other materials with silica in their composition may give off dust or mist containing crystalline silica.

Silica is a basic components of sand, quartz, brick clay, granite and numerous other minerals and rocks. Repeated and/or substantial inhalation of airborne crystalline silica can cause serious or fatal respiratory disease, including silicosis. In addition, California and some authorities have listed respirable crystalline silica as a substance known to cause cancer. When cutting such materials, always follow the respiratory precautions mentioned above.

**⚠ WARNING**

**RESPIRATORY HAZARDS**



Grinding/cutting/drilling of masonry, concrete, metal and fumes containing chemicals known to cause serious or fatal injury or illness, such as respiratory disease, cancer, birth defects or other reproduction harm, if you are unfamiliar with the risks associated with the particular process and/or material being cut or the composition of the tool being used, review the material safety data sheet and/or consult your employer, the material manufacturer/supplier, governmental agencies such as OSHA and NIOSH and other sources on hazardous materials. California and some other authorities, for instance, have published lists of substances known to cause cancer, reproductive toxicity or other harmful effects.

Control dust, mist and fumes at the source where possible. In this regard use good work practices and follow the recommendations of the manufactures of suppliers, OSHA/NIOSH, and occupational and trade associations. Water should be used for dust suppression when wet cutting is feasible. When the hazards from inhalation of dust, mist and fumes cannot be eliminated, the operator and any bystanders should always wear a respirator approved by OSHA/NIOCH for the materials being used.

## GENERAL SAFETY

**Do not** operate or service the equipment before reading the entire manual. Safety precautions should be followed at all times when operating this equipment. Failure to read and understand the safety messages and operating instructions could result in injury to yourself and others.

This operation manual has been developed to provide complete instruction for the safe and efficient operation. Refer to the engine manufactures instructions for data relative to its safe operation. **Before using, ensure that the operating individual has read and understood all instructions in the manual.** The surrounding environment and you, could be damaged if you do not follow instructions.

### SAFETY MESSAGES

The four 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 four words: **DANGER, WARNING, CAUTION** or **NOTICE**.

**⚠ DANGER**

Indicates a hazardous situation which, if not avoided, **WILL** result in **DEATH** or **SERIOUS INJURY**

**⚠ WARNING**

Indicates a hazardous situation which, if not avoided, **COULD** result in **DEATH** or **SERIOUS INJURY**

**⚠ CAUTION**




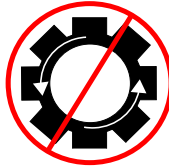
Indicates a hazardous situation which, if not avoided, **COULD** result in **MINOR** or **MODERATE INJURY**

**NOTICE**

Addresses practices not related to personal injury

### SAFETY SYMBOLS

Potential hazards associated with the operation of this equipment will be referenced with hazards symbols which may appear throughout this manual in conjunction with safety messages.

SYMBOL	SAFETY HAZARD
	Lethal exhaust gas hazards
	Explosive fuel hazards
	Burn hazard
	Overspeed hazards

**⚠ WARNING**

**DO NOT USE TOOL IF IT IS IN NEED OF SERVICE!**

## GENERAL SAFETY

### ⚠ CAUTION

△ NEVER operate this equipment without proper protective clothing, shatter proof glasses, respirator protection, hearing protection, steel-toes boots and other protective devices required by the job or city and state regulations.



△ Never operate this equipment when not feeling well due to fatigue, illness or when under medication.



△ NEVER operate this equipment under the influence of drugs or alcohol.



△ ALWAYS check the equipment for loosened threads or bolts before starting.

△ NEVER operate around corrosive chemicals or water containing toxic substances. These fluids could create serious health and environmental hazards. Contact local authorities for assistance.

△ DO NOT use the equipment for any purpose other than its intended purpose or applications.

### NOTICE

△ This equipment should only be operated by trained and qualified personnel 18 years of age and older.

△ This equipment is for industrial use only. Whenever necessary, replace nameplate, operation and safety decals when they become difficult to read.

△ Manufacturer does not assume responsibility for any accident due to equipment modifications. Unauthorized equipment modifications will void all warranties. Any modification which it could lead to change in the original characteristics of the machine should be made only by the manufacturer who shall

confirm that the machine is in comfortability with appropriate safety regulations.

△ Never use accessories or attachments that are not recommended by Minnich for the equipment. Damage to the equipment and/or injury to user may result.



△ Always know the location of the nearest fire extinguisher.

△ ALWAYS know the location of the nearest first aid kit.



△ 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 will be invaluable in the case of an emergency.



### ⚠ DANGER

△ NEVER operate the equipment in an explosive atmosphere, near combustible materials, or near flammable or low flash point fluids. An explosion or fire could result causing severe bodily harm or even death.



### ⚠ WARNING

△ NEVER disconnect any emergency or safety devices. These devices are intended for operator safety. Disconnection of these devices can cause severe injury, bodily harm or even death. Disconnection of any of these will void all warranties.

△ NEVER operate equipment with the covers or guards removed. Keep fingers, hands, hair and clothing away from all moving parts to prevent injury. Wear clothing that will not likely become caught in the equipment or snag on any moving parts.

### ⚠ CAUTION

△ ALWAYS be sure the operator is familiar with the proper safety precautions and operating techniques before using.

△ NEVER leave the machine unattended.  
Turn off when unattended

## GENERAL SAFETY

- △ DO NOT expose vibrator to rain.
- △ DO NOT use vibrator motor in damp or wet locations without proper electrical circuits.
- △ DO NOT immerse the motor part in concrete.
- △ ALWAYS keep clear of rotating or moving parts while operating.
- △ NEVER leave the machine unattended while running
- △ ALWAYS disconnect the motor from the power source when not in use, before servicing, and when changing flexible shafting and vibrator heads.

- △ Allow the machine to cool before servicing. Contact with hot components can cause serious burns.



- △ Before Each use, ALWAYS check the motor to make certain that there are no damaged parts and that all parts function properly. If any damage or malfunctioning parts are found, have them repaired or replaced by an authorized service facility.

### NOTICE

- △ ALWAYS secure forms. Make sure the form work is well made and braced to withstand the stresses made by vibration.
- △ ALWAYS keep vibrator motor clean for better and safer operation.
- △ ALWAYS store equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of reach of children and unauthorized personnel.
- △ Use only factory authorized replacement parts.
- △ Store idle vibrator motor. When not in use, motor should be stored in a dry, safe storage area.

### WARNING

DO NOT USE TOOL IF IT IS IN NEED OF SERVICE!

### NOTICE

#### POWER TOOL USE AND CARE

- △ DO NOT force the power tool. Use the correct power tool for your application. The correct power tool will do the job better at the rate for which it was designed.
- △ DO NOT use the power tool if the switch does not turn it on and off. Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
- △ Disconnect the plug from the power cord source and/or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools. Such preventative safety measures reduce the risk of starting the power tool accidentally.
- △ Store idle power tools out of reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool. Power tools are dangerous in the hands of untrained users.
- △ Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may effect the power tools operation. If damaged, have the power tools repaired before use. Many accidents are caused by poorly maintained power tools.
- △ Keep cutting tools sharp and clean. Properly maintained cutting tools with sharp cutting edges are less likely to bind and easier to control.
- △ Use the power tool, accessories and tool bits etc. In accordance with these instructions, taking into account the working conditions and the work to be performed. Use of the power tool for operations different from those intended could result in a hazardous situation

#### SERVICE

- △ Have your power tool serviced by a qualified repair person using identical replacement parts. This will ensure the safety of the power tool is maintained.

## GENERAL SAFETY

- △ Store fuel in appropriate containers, in well-ventilated areas and away from sparks and flames.
- △ NEVER use fuel as a cleaning agent.

- △ DO NOT smoke around or near the equipment. Fire or explosion could result from fuel vapors or if fuel is spilled on hot engine.



### TRANSPORTING

- △ ALWAYS shut down engine before transporting.
- △ Tighten fuel cap securely and close fuel cock to prevent fuel from spilling.
- △ ALWAYS use proper lifting techniques when using or moving the machine assembly.

### NOTICE

Decommissioning is a controlled process used to safely retire a piece of equipment that is no longer serviceable. If the equipment poses an unacceptable and unreparable safety risk due to wear or damage or is no longer cost effective to maintain (beyond life-cycle reliability) and is to be decommissioned (demolition and dismantlement), be sure to follow rules below.

- △ 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 a necessary, or, as the user, request this information and training.
- △ ALWAYS Dispose of hazardous waste properly. Examples of potentially hazardous waste include used motor oil, fuel, and fuel filters.
- △ DO NOT use food or plastic containers to dispose hazardous waste.
- △ DO NOT pour waste or oil directly onto the ground, down or drain or into any waste source.

### EMISSIONS INFORMATION

#### NOTICE

The gasoline engine used in this equipment has been designed to reduce harmful levels of carbon monoxide (CO), hydrocarbons (HC) and nitrogen oxides (NOx) contained in gasoline exhaust emissions.

This engine has been certified to meet US EPA Evaporative emission requirements in the installed configuration.

Attempting to modify or make adjustments to the engine emission, system by unauthorized personnel without proper training could damage the equipment or create an unsafe condition.

Additionally, modifying the fuel system may adversely affect evaporative emissions, resulting in fines or other penalties.

#### EMISSION CONTROL LABEL

The emission control label is an integral part of the emission system and is strictly controlled by regulation(s).

The label must remain with the engine for its entire life.

If a replacement emission label is needed, please contact your authorized Honda Engine Distributor.

#### NOTICE

- △ ALWAYS keep the machine in proper running condition.
- △ ALWAYS become familiar with the components of the machine before operation.
- △ Fix damage to machine and replace any broken parts immediately.
- △ 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 and unauthorized personnel.
- △ NEVER lubricate components or attempt service on a running machine

## GENERAL SAFETY

### ENGINE SAFETY

#### **⚠ DANGER**

- △ The engine fuel exhaust gases contain poisonous carbon monoxide. This gas is colorless and odorless, and can cause death if inhaled.
- △ The engine of this equipment requires an adequate free flow of cooling air. NEVER operate this equipment in any enclosed or narrow area where free flow of the air is restricted. If the air flow is restricted it will cause injury to people and property and serious damage to the equipment or engine. Remember the engine gives off deadly gases.

#### **⚠ WARNING**

- △ NEVER operate the engine with heat shields or guards removed.
- △ DO NOT remove the engine oil drain plug while the engine is hot. Hot oil will gush out of the engine crankcase and severely scald any persons in the general area of the machine.

#### **⚠ CAUTION**

- △ NEVER touch the hot exhaust manifold, muffler or cylinder. Allow these parts to cool before servicing equipment.



- △ ALWAYS place the engine ON/OFF switch in the OFF position when the machine is not in use.
- △ NEVER tamper with the factory settings of the engine or engine governor. Damage to the engine or equipment can result in operation in speed ranges above the maximum allowability.



#### **NOTICE**

- △ Refer to the engine Owners Manual for engine technical questions or information (if applicable).
- △ NEVER run engine without an air filter or with a dirty air filter. Severe engine damage may occur. Service air filter frequently to prevent engine malfunction (if applicable).

- △ State health safety codes and Public Resources Code specify that in certain locations, spark arrester must be used on internal combustion engines the used hydrocarbon fuels. A spark arrester is a device designed to prevent accidental discharge of sparks or flames from the engine exhaust. Spark arrestors are qualified and rated by the United States Forecast Service for this purpose. In order to comply with local laws regarding spark arresters, consult the engine distributor of the local Health and Safety Administrator (if applicable).

### FUEL SAFETY

#### **⚠ DANGER**

- △ DO NOT add fuel to equipment if it is placed inside truck bed with plastic liner. Possibility exist of explosion or fire due to static electricity.
- △ DO NOT start the engine near spilled fuel or combustion fluids. Gasoline fuel is extremely flammable and its vapors can cause an explosion if ignited.
- △ ALWAYS refuel in a well-ventilated area, away from sparks and open flames.
- △ ALWAYS use extreme caution when working with flammable liquids.
- △ DO NOT fill the fuel tank while the engine is running or hot.
- △ DO NOT overfill tank, since spilled fuel could ignite if it come into contact with hot engine parts or sparks from the ignition system.

### PERSONAL SAFETY

- △ Stay alert, watch what you are doing, and use common sense when operating the machine.
- △ DO NOT use the tool while tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating power tools may result in serious personal injury or death.
- △ Dress properly. DO NOT wear loose clothing or jewelry. Tie up long hair. Keep your hair, clothing and gloves away from moving parts. Loose clothes, jewelry, or long hair can be caught in moving parts.
- △ DO NOT overreach. Keep proper footing and balance at all times. Proper footing and balance enables better control in unexpected situations.



### SERVICE

- △ Tool service must be preformed only by qualified repair personnel. Service or maintained preformed by unqualified personnel could result in injury or death
- △ When servicing a tool, use only identical replacement parts. Use of unauthorized parts may create a risk of injury or death.

### NOTICE

Specifications and part numbers are subject to change without notice.

### NOTICE

To find the latest revision of this publication, visit our website at: [www.minnich-mfg.com](http://www.minnich-mfg.com)

### NOTICE

THIS MANUAL MUST ACCOMPANY THE EQUIPMENT AT ALL TIMES.

### NOTICE

- △ The relationship between speed and centrifugal force of a vibrator is not a straight line function. The centrifugal force varies as the square of the speed. This results in that a 10% change in RPM will be reflected by a 21% change in the centrifugal force and a 20% change in RPM will be reflected by a 44% change in the centrifugal force.
- △ When concrete, a mixture of cement, sand, aggregates and water, is placed it contains a high volume of entrapped air. If the concrete is allowed to harden in this condition, it will be porous, non-uniform in consistency and weak. Therefore, concrete must be consolidated to attain acceptable results. The most widely used method for concrete consolidation is vibration and for slip form paving this is accomplished by an internal vibrator.

### CONNECT/START

### NOTICE

If the vibration intensity drops, check that the filters are not clogged or that hoses are not kinked.

### STORAGE

### NOTICE

To properly store unit after use, hang the vibrator with the head up and set the handle (variable control assembly) in the open position to permit the discharge of possible impurities, contaminants and water.

### OIL FILTRATION

### NOTICE

The hydraulic oil must be filtered to maintain proper operation and to prevent wear and damage due to contaminates.

### PLACEMENT AND CONSOLIDATION

### NOTICE

The force exerted by an internal concrete vibrator is controlled by the weight and the speed at which the eccentric rotates. The centrifugal force exerted can be arrived at by various combinations of weight (size of eccentric weight) and the speed at which the weight rotates. For years the most favorable working speed for a vibrator was considered to be around 10,200 RPM (VPM) and consequently this figure is used in many vibrator comparisons. More recently, the optimum speed for compaction has been accepted as being between 7500 and 9000 RPM.

## GENERAL SAFETY

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### OIL PRESSURE

#### NOTICE

Oil pressure varies depending on oil temperature, flow rate, oil viscosity and the amount of hose connected between manifold and vibrator. A vibrator in good condition operates with a pressure of 700...1200 psi at 4 gpm and 140°F.

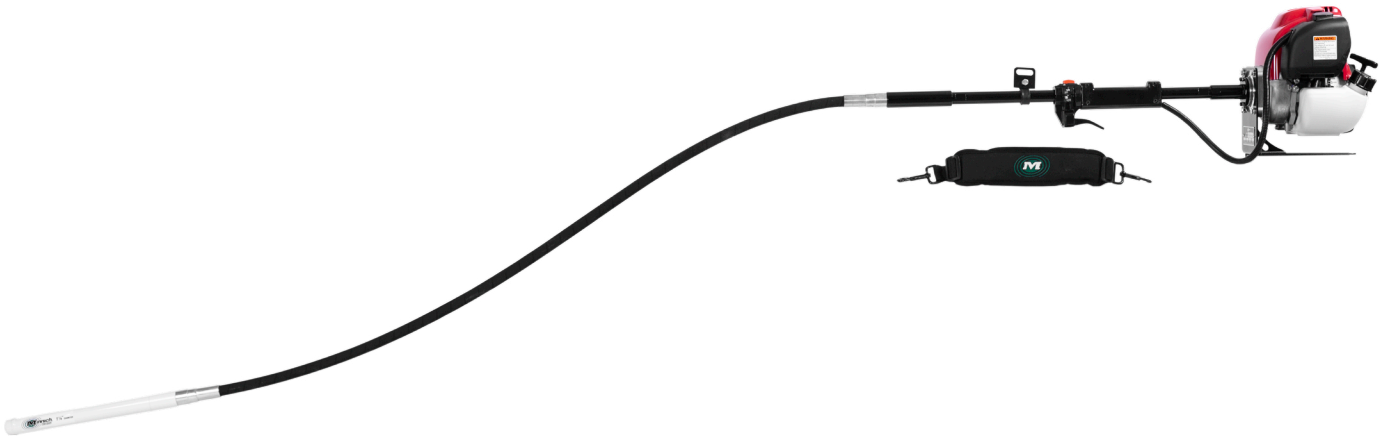
### ENVIRONMENTAL SAFETY/DECOMMISSIONING

#### NOTICE

- △ DO NOT pour waste or oil directly into the ground, down a drain or into any water source.
- △ Contact your country department of Public Works or recycling agency in your area and arrange for proper disposal of any electrical components, waste or oil associated with this equipment.
- △ When the life-cycle of this equipment is over it is recommended that the head casing and all other metal parts be sent to a recycling center.



**HAND HELD FLEX SHAFT SPECS.**



ENGINE	HONDA GX50 MINI 4-STROKE
POWER	2.0 HP (1.49kw)
DISPLACEMENT	50CC
FUEL CAPACITY	21.5 FL OZ (.64L)
CLUTCH	2 SHOE CENTRIFUGAL
IGNITION	PULL START
CARBURETOR	ALL POSITION DIAPHRAGM/PRIMER FOR EASY START
MOUNT	ANTI-VIBRATION
SHAFT	7/8" (22.2mm) OD CASING
WEIGHT	20.5lbs. (9.30kg)

**RECOMMENDED SHAFT LENGTH**    **3' STRAIGHT-RIGID WITH 2' FLEX**    **3' BENT-RIGID WITH 2' FLEX**    **2' STRAIGHT-RIGID WITH 5' FLEX**

HEAD DIAMETER	CENTRIFUGAL FORCE	AMPLITUDE	DIAMETER OF INFLUENCE
3/4" (19mm)	105lbs. (467N)	.050" (1.27mm)	4"-6" (101mm-152mm)
1" (25mm)	150lbs. (671N)	.056" (1.42mm)	5"-7"- (127mm-177mm)
1-3/8" (35mm)	424lbs. (1886N)	.070" (1.77mm)	8"-14" (203mm-355mm)
1-3/4" (45mm)	795lbs. (3536N)	.102" (2.59mm)	16"-20" (406mm-508mm)
2" (50mm)	1000lbs. (4448N)	.090" (2.28mm)	20"-124" (2508mm-609mm)
2-3/8" (60mm)	1186lbs. (5275N)	.092" (2.33mm)	23"-27" (584mm-685mm)

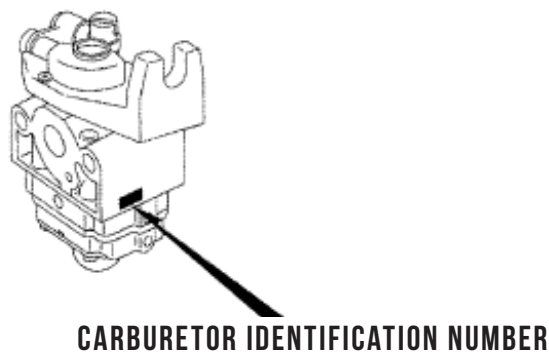
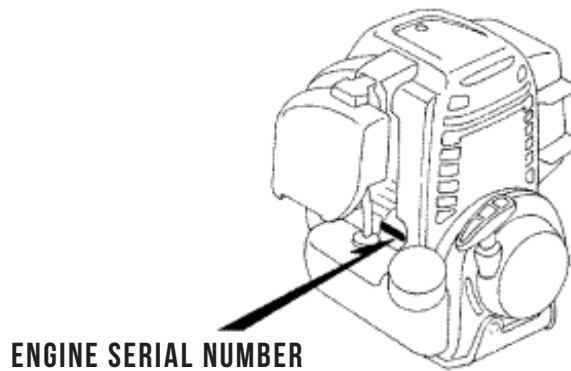
**SEE HONDA ENGINES OWNERS MANUAL FOR USE AND CARE OF GX50 ENGINE**

Specifications are nominal values and will vary depending on the size and range of aggregate, and the slump of the concrete. Specifications taken at 10,500VPM.

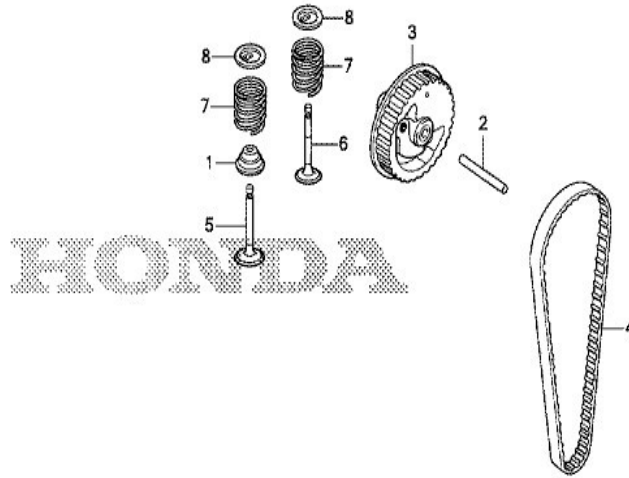
### NOTICE

All safety labels on Minnich Manufacturing units have been carefully placed so they can be easily seen at all times. There are several different types of labels on the units. Always keep these warnings free of dirt, concrete, or anything else that restricts visibility. Never remove the labels for any reason. If the label on your machine become worn or in any way difficult to read, call our parts department for replacements.

### LOCATION OF SERIAL NUMBER



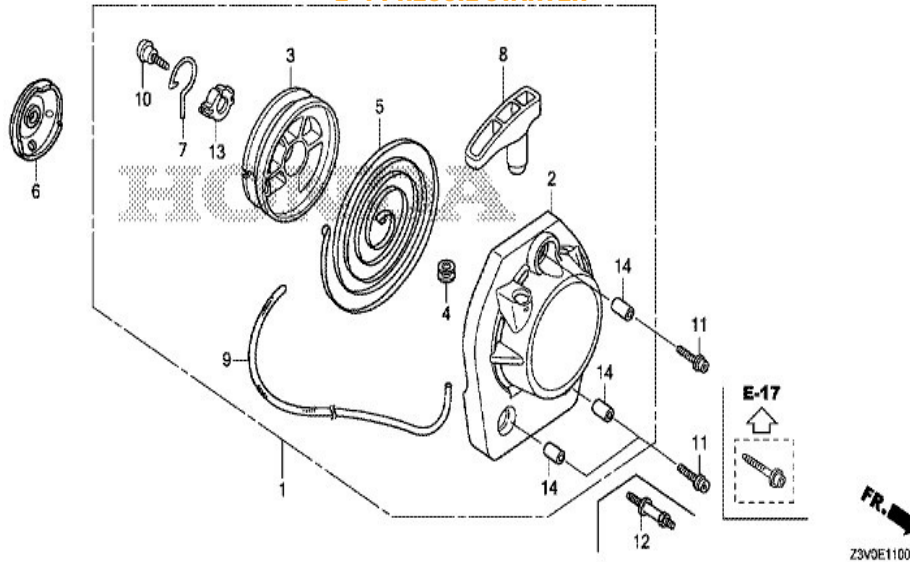
GX50NT(S3)  
E-10 CAMSHAFT PULLEY



FR. →  
Z3VDE1000

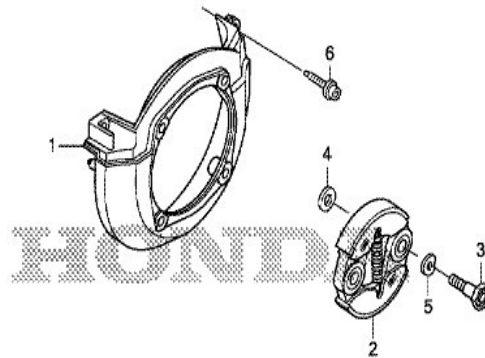
REF	PART NUMBER	DESCRIPTION	GX50 NT
001	012106-00036	SEAL, VALVE STEM	1
002	012106-00037	ROLLER, 4X31.8	1
003	012106-00038	PULLEY COMP., CAMSHAFT	1
004	012106-00039	BELT, TIMING (78ZU5 G-310)	1
005	012106-00040	VALVE, IN.	1
006	012106-00041	VALVE, EX. (ZE/ZZE)	1
006	012106-00042	VALVE, EX. (FE)	1
007	012106-00043	SPRING, VALVE	2
008	012106-00044	RETAINER, VALVE SPRING	2

**GX50NT(S3)  
E-11 RECOIL STARTER**



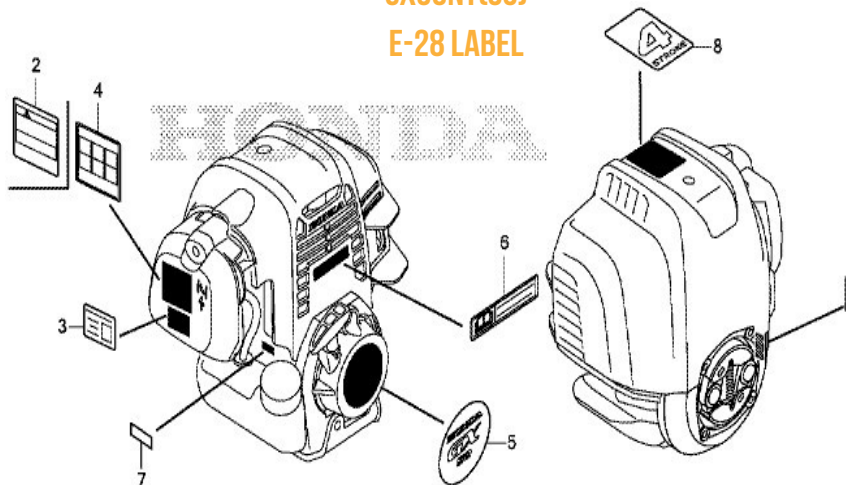
REF	PARTNUMBER	DESCRIPTION	GX50NT
001	012106-00045	STARTER ASSY., RECOIL	1
002	012106-00046	CASE, RECOIL STARTER	1
003	012106-00047	REEL, RECOIL STARTER	1
004	012106-00048	GUIDE, ROPE	1
005	012106-00049	SPRING, RECOIL STARTER	1
006	012106-00050	PULLEY, RECOIL STARTER	1
007	012106-00051	ARM, SWING	1
008	012106-00052	KNOB, RECOIL STARTER	1
009	012106-00053	ROPE, RECOIL STARTER	1
010	012106-00054	SCREW, SETTING	1
011	012106-00055	BOLT, SOCKET, 5X16	3
013	012106-00056	COLLAR	1
014	012106-00057	COLLAR A, HEAD COVER	3

**GX50NT(S3)**  
**E-12 FAN COVER/CLUTCH**



REF	PARTNUMBER	DESCRIPTION	GX50NT
001	012106-00058	COVER, FAN	1
002	012106-00059	CLUTCH ASSY.	1
003	012106-00060	BOLT, CLUTCH (8MM)	2
004	012106-00061	WASHER, CLUTCH (8X17)	2
005	012106-00062	WASHER, WAVE (10MM)	2
006	012106-00063	BOLT, SOCKET, 5X20	3

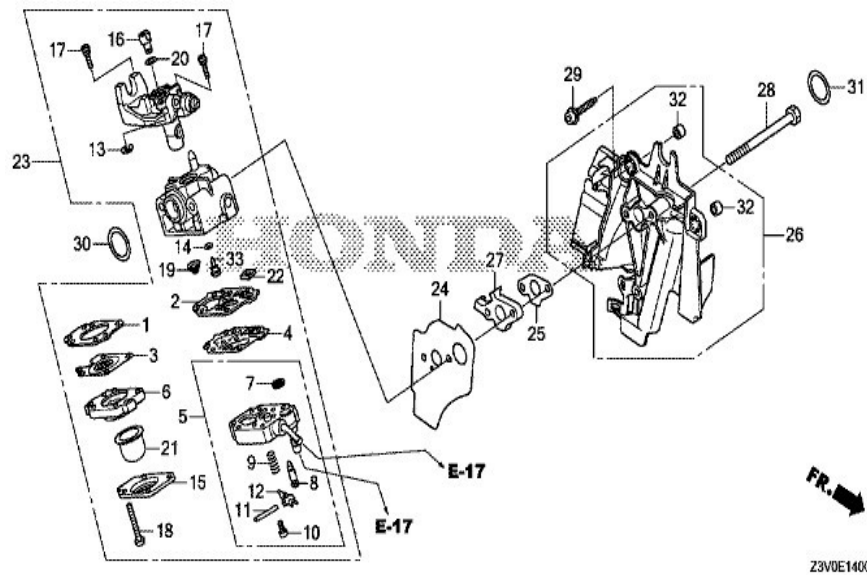
**GX50NT(S3)**  
**E-28 LABEL**



Z3VDE2800

REF	PARTNUMBER	DESCRIPTION	GX50NT
001	012106-00143	LABEL, WARNING (NOT CERTIFIED FOR SALE)	1
002	012106-00144	MARK, OPERATOR CAUTION (ENGLISH)	1
003	012106-00145	LABEL, QR CODE (SERVICE)	1
005	012106-00146	MARK, EMBLEM	1
007	012106-00147	MARK, TYPE (S3)	1
008	012106-00148	MARK (4-STROKE)	1

**GX50NT(S3)  
E-14 CARBURETOR**



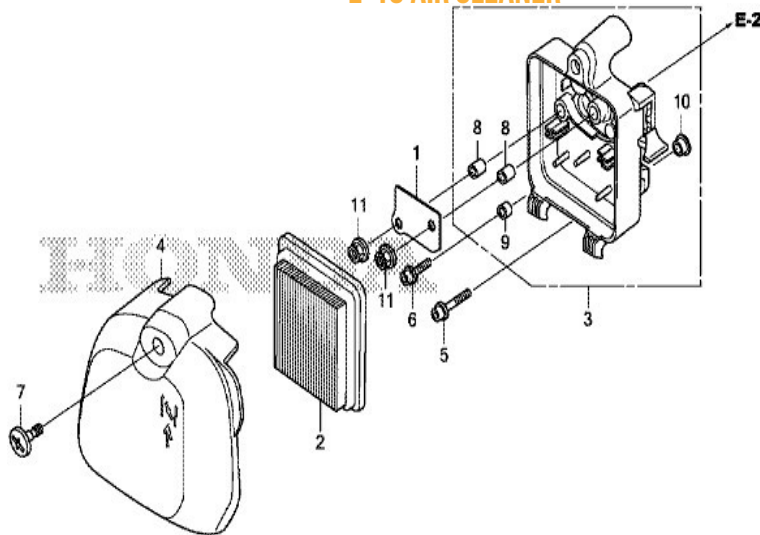
Z3V0E1400

REF	PARTNUMBER	DESCRIPTION	GX50NT
001	012106-00064	GASKET, METERING DIAPHRAGM	1
002	012106-00065	GASKET, PUMP	1
003	012106-00066	DIAPHRAGM ASSY., METERING	1
004	012106-00067	DIAPHRAGM, PUMP	1
005	012106-00068	BODY ASSY., PUMP	1
006	012106-00069	BODY ASSY., AIR PURGE	1
007	012106-00070	SCREEN, INLET	1
008	012106-00071	VALVE, INLET NEEDLE	1
009	012106-00072	SPRING, METERING LEVER	1
010	012106-00073	SCREW, METERING LEVER PIN	1
011	012106-00074	PIN, METERING LEVER	1
012	012106-00075	LEVER, METERING	1
013	012106-00076	RING, RETAINING	1
014	012106-00077	O-RING	1
015	012106-00078	COVER, PRIMER PUMP	1
016	012106-00079	SWIVEL	1
017	012106-00080	SCREW, THROTTLE COLLAR	2
018	012106-00081	SCREW, PUMP COVER	4
019	012106-00082	SPRING, PUMP	1
020	012106-00083	WASHER	1
021	012106-00084	PUMP, PRIMER	1
022	012106-00085	FILTER, FUEL INLET	1
023	012106-00086	CARBURETOR ASSY. (WYB 53)	1



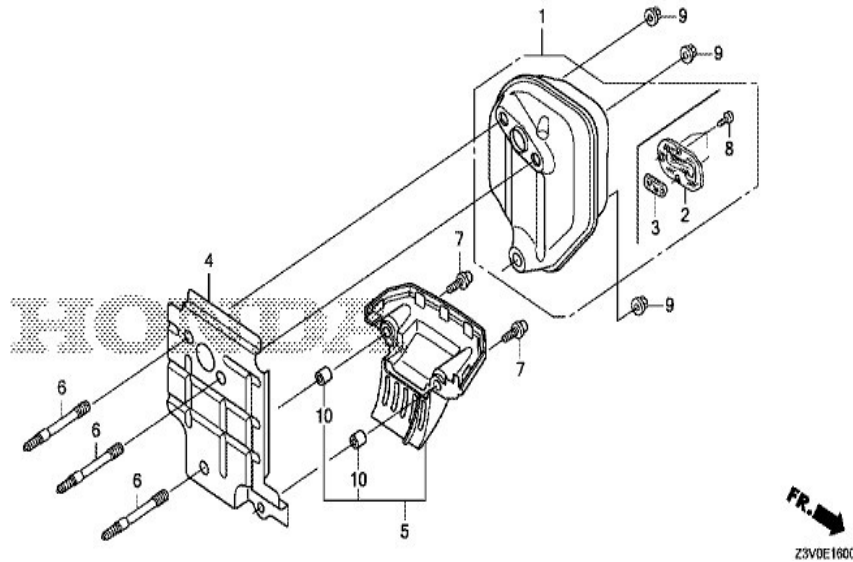
024	012106-00087	PACKING, CARBURETOR	1
025	012106-00088	PACKING, SHROUD	1
026	012106-00089	SHROUD	1
027	012106-00090	SPACER,SHROUD	1
028	012106-00091	BOLT, 5X58	2
029	012106-00092	BOLT, SOCKET, 5X16	2
030	012106-00093	O-RING, 14.8X2.4	1
031	012106-00094	O-RING, 14.8X2.4	1
032	012106-00095	COLLAR A, HEAD COVER	2
033	012106-00096	JET (#42)	(1)
033	012106-00097	JET (#43)	(1)
033	012106-00098	JET (#44)	1

**GX50NT(S3)  
E-15 AIR CLEANER**



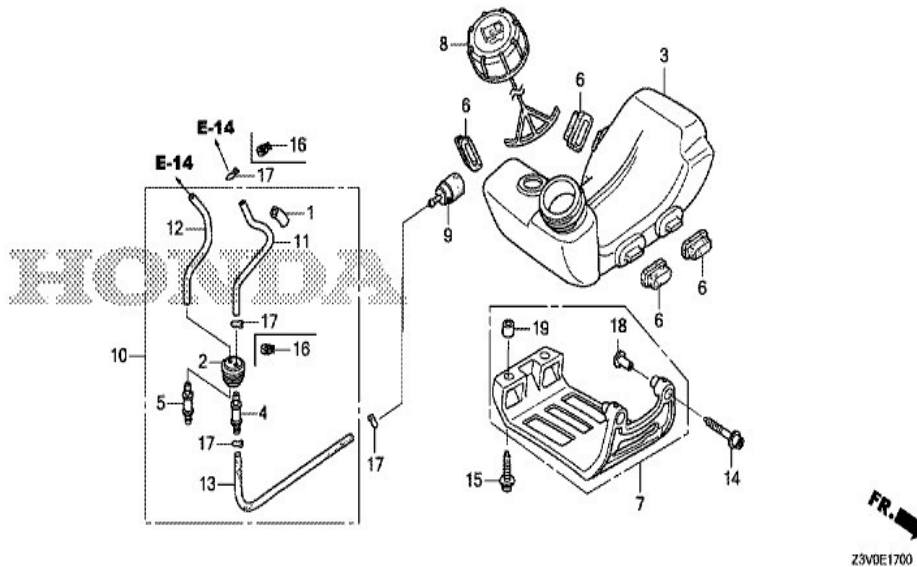
REF	PARTNUMBER	DESCRIPTION	GX50NT
001	012106-00099	PLATE, OIL TRAP	1
002	012106-00100	ELEMENT, AIR CLEANER	1
003	012106-00101	CASE COMP., AIR CLEANER	1
004	012106-00102	COVER, AIR CLEANER	1
005	012106-00103	BOLT, SOCKET, 5X25	1
006	012106-00104	BOLT, SOCKET, 5X16	1
007	012106-00105	SCREW, SPECIAL, 6X16	1
008	012106-00106	COLLAR, AIR CLEANER CASE (A)	2
009	012106-00107	COLLAR, AIR CLEANER CASE (B)	1
010	012106-00108	COLLAR, AIR CLEANER CASE (C)	1
011	012106-00109	NUT, FLANGE, 5MM	2

**GX50NT(S3)  
E-16 MUFFLER**



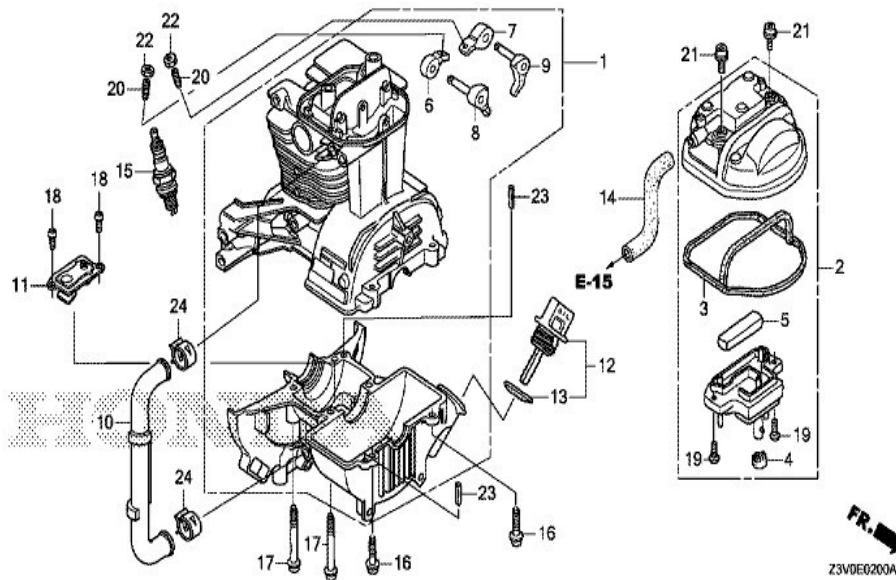
REF	PARTNUMBER	DESCRIPTION	GX50NT
001	012106-00110	MUFFLER COMP.	1
002	012106-00111	ARRESTER COMP., SPARK	1
003	012106-00112	FILTER, EXHAUST	1
004	012106-00113	GUIDE, AIR	1
005	012106-00114	GUIDE COMP., UNDER AIR	1
006	012106-00115	BOLT, STUD, 5X56.5	3
007	012106-00116	BOLT, SOCKET, 5X16	2
008	012106-00117	SCREW, TAPPING, 4X6	3
009	012106-00118	NUT, SELF-LOCK, 5MM	3
010	012106-00119	COLLAR A, HEAD COVER	2

GX50NT(S3)  
E-17 FUEL TANK



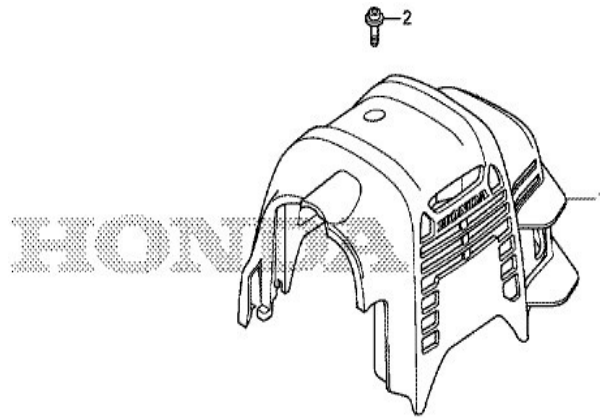
REF	PARTNUMBER	DESCRIPTION	GX50NT
001	012106-00120	PROTECTOR, TUBE	1
002	012106-00121	GROMMET, FUEL TUBE	1
003	012106-00122	TANK, FUEL	1
004	012106-00123	JOINT, FUEL TANK	1
005	012106-00124	FITTING	1
006	012106-00125	RUBBER, TANK MOUNTING	4
008	012106-00126	CAP ASSY., FUEL TANK	1
009	012106-00127	FILTER, FUEL	1
010	012106-00128	GROMMET ASSY., FUEL TANK	(1)
011	012106-00129	TUBE, FUEL (FKM)	1
012	012106-00130	TUBE, FUEL RETURN	1
013	012106-00131	TUBE A, FUEL	1
016	012106-00132	CLAMP, TUBE (D5.5)	2
017	012106-00133	CLIP, TUBE (B1 5)	2

**GX50NT(S3)  
E-2 CRANKCASE SET**



REF	PARTNUMBER	DESCRIPTION	GX50NT
001	012106-00002	CRANKCASE SET	1
002	012106-00003	COVER COMP., CYLINDER HEAD	1
003	012106-00004	SEAL, HEAD COVER	1
004	012106-00005	GROMMET, HEAD COVER	1
005	012106-00006	FILTER, BREATHER	1
006	012106-00007	ARM, IN. VALVE ROCKER	1
007	012106-00008	ARM, EX. VALVE ROCKER	1
008	012106-00009	LIFTER COMP., IN. VALVE	1
009	012106-00010	LIFTER COMP., EX. VALVE	1
010	012106-00011	TUBE, OIL	1
011	012106-00012	PLATE ASSY., OIL OUTLET VALVE	1
012	012106-00013	CAP ASSY., OIL FILLER	1
013	012106-00014	PACKING, OIL FILLER CAP	1
014	012106-00015	TUBE, BREATHER	1
015	012106-00016	PLUG, SPARK (CMR4H) (NGK)	(1)
015	012106-00017	PLUG, SPARK (CMR5H) (NGK)	1
015	012106-00018	PLUG, SPARK (CMR6H) (NGK)	(1)
016	012106-00019	BOLT, SOCKET, 5X20	2
017	012106-00020	BOLT, SOCKET, 5X39	4
018	012106-00021	SCREW, PAN, 4X8	2
019	012106-00022	SCREW, PAN, 4X8	2
020	012106-00023	SCREW, TAPPET ADJUSTING	2
021	012106-00024	BOLT, SOCKET, 5X12	2
022	012106-00025	NUT, TAPPET ADJUSTING	2
023	012106-00026	PIN, SPRING, 4X10	2
024	012106-00027	CLAMP, TUBE (D12)	2

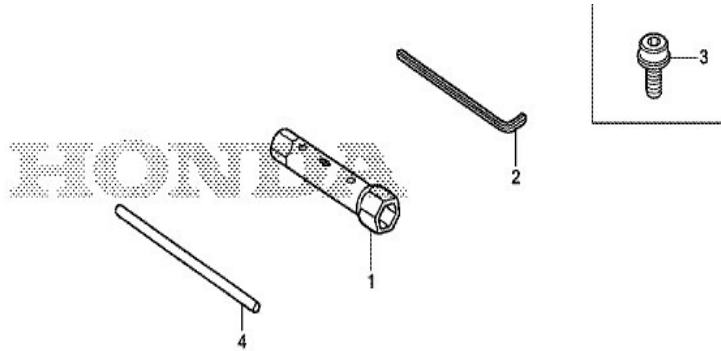
GX50NT(S3)  
E-27 TOP COVER



FR.   
Z3V0E2700

REF	PARTNUMBER	DESCRIPTION	GX50NT
001	012106-00140	COVER COMP., TOP *R280*	1
001	012106-00141	COVER COMP., TOP *NH1*	1
002	012106-00142	BOLT, TOP COVER	1

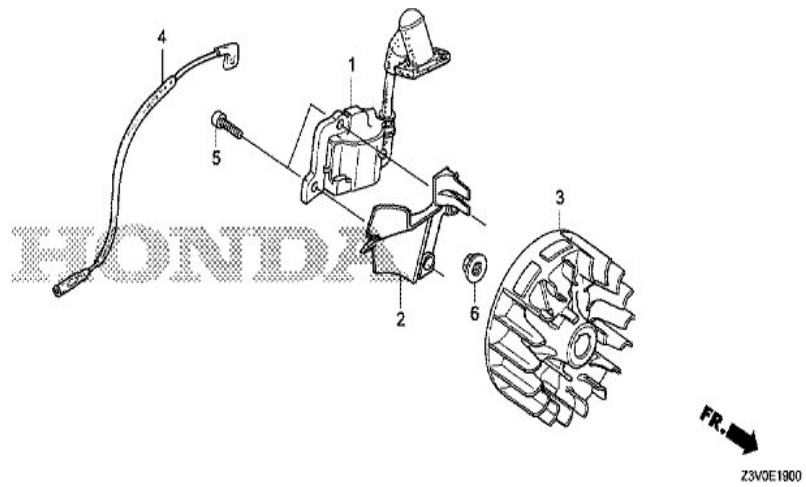
GX50NT(S3)  
E-29 TOOL



Z3V0E2900

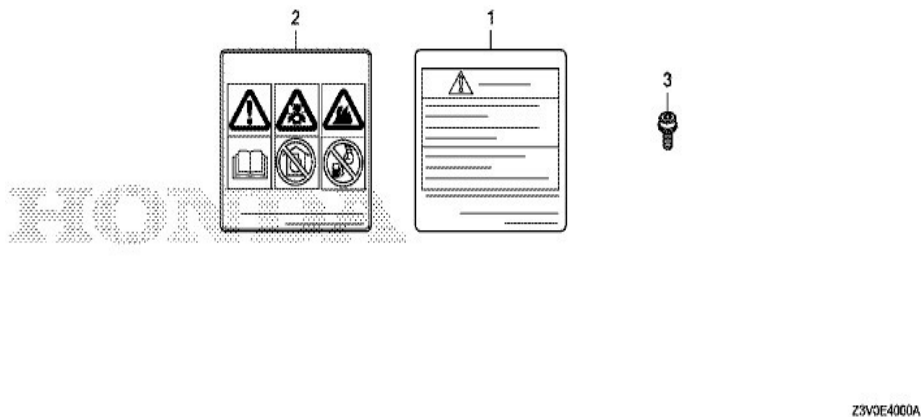
REF	PARTNUMBER	DESCRIPTION	GX50NT
001	012106-00149	WRENCH, PLUG (16X19)	(1)
002	012106-00150	WRENCH, HEX., 4MM	(1)
003	012106-00151	BOLT, SOCKET, 5X9	(1)
004	012106-00152	BAR A, HANDLE	(1)

**GX50NT(S3)**  
**E-19 FLYWHEEL**



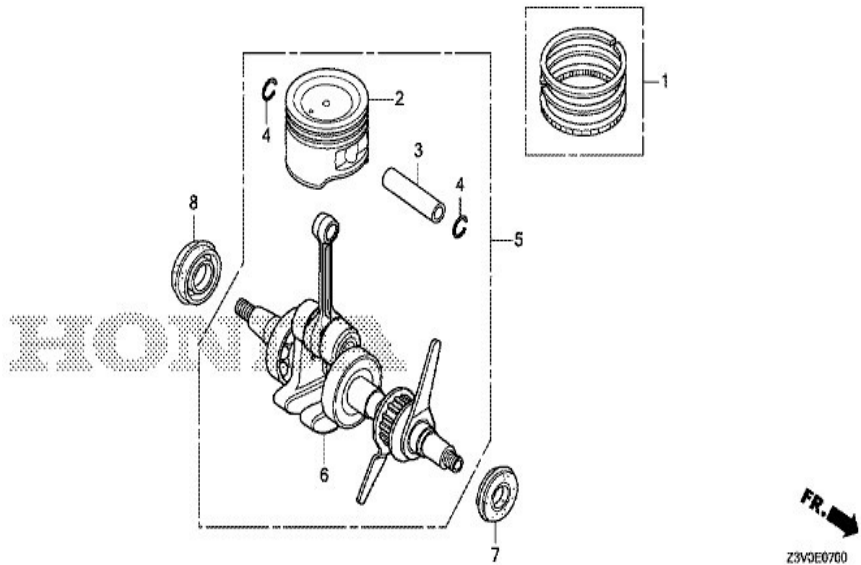
REF	PARTNUMBER	DESCRIPTION	GX50NT
001	012106-00134	COIL ASSY., IGNITION	1
002	012106-00135	CLIP, AIR GUIDE	1
003	012106-00136	FLYWHEEL COMP.	1
004	012106-00137	CORD, STOP SWITCH	1
005	012106-00138	BOLT, SOCKET, 4X14	2
006	012106-00139	NUT, FLANGE, 8MM	1

**GX50NT(S3)**  
**E-40 OTHER PARTS**



REF	PARTNUMBER	DESCRIPTION	GX50NT
001	012106-00153	MARK, OPERATOR CAUTION (FRENCH)	1
002	012106-00154	MARK, OPERATOR CAUTION (PICTOGRAPH)	1

**GX50NT(S3)**  
**E-7 CRANKSHAFT/PISTON**



REF	PARTNUMBER	DESCRIPTION	GX50NT
001	012106-00028	RING SET, PISTON	1
002	012106-00029	PISTON	1
003	012106-00030	PIN, PISTON	1
004	012106-00031	CLIP, PISTON PIN, 9MM	2
005	012106-00032	CRANKSHAFT COMP.	1
006	012106-00033	CRANKSHAFT COMP.	(1)
007	012106-00034	OIL SEAL, 10X20X5	1
008	012106-00035	OIL SEAL, 15X25X6	1

REVISIONS		
REV.	DESCRIPTION	DATE

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	708-4	NAME PLATE, MODEL & SERIAL #	1
2	2189-2	CASING ADAPTOR	1
3	6036--75	1/4-20 X 3/4 HHCS GR.5	1
4	6070	1/4-20 HEX NUT	1
5	6145	#10 LOCK WASHER	4
6	6147	LOCKWASHER 1/4	5
7	6213-0.625	SHCS, #10-24 X 5/8	4
8	6262-1	SCREW, DRIVE HD RD, #4 X 1/4"	2
9	6323-0.375	SHSS, 3/8-16 X 3/8 CUP POINT	1
10	6377-13	RETAINING RING	1
11	8152	CORE - 5/16 - 5-0"	1
12	9185-35	HHCS, M6 X 35 MM	4
13	10146	HOUSING ADAPTOR	1
14	10147	CORE ADAPTOR	1
15	10148	BALL BEARING	1
16	12096	FLEXSHAFT WAND TUBE	1
17	12099	FLEXSHAFT BEARING SLEEVE	1
18	12106-1	HONDA ENGINE GX50NT S3	1
19	12127	BENT FLEXSHAFT COUPLER HOUSING	1
20	12128	7/8" CUSHIONED TUBE CLAMP	1
21	12129	SHOULDER STRAP MOUNTING CLIP	1
22	12138	FLEXSHAFT MOUNTING FLANGE	1
23	A2079-1	SHOULDER STRAP	1
24	A8157	CASING, 1-1/16 x 2'	1
25	A10283-4	THROTTLE HAND HELD ASSEMBLY	1
26	A12110	UPPER PLATE WELDMENT	1



Drilled Hole Size	Tolerance
0.125 (1/8)	+0.004/-0.01
0.1875 (3/16)	+0.004/-0.01
0.250 (1/4)	+0.004/-0.01
0.3125 (5/16)	+0.004/-0.01
0.375 (3/8)	+0.004/-0.01
0.4375 (7/16)	+0.004/-0.01
0.500 (1/2)	+0.004/-0.01
0.5625 (9/16)	+0.004/-0.01
0.625 (5/8)	+0.004/-0.01
0.6875 (11/16)	+0.004/-0.01
0.750 (3/4)	+0.004/-0.01
0.8125 (13/16)	+0.004/-0.01
0.875 (7/8)	+0.004/-0.01
0.9375 (1 1/16)	+0.004/-0.01
1.000 (1)	+0.004/-0.01

Dimension in accordance with ANSI Y14	FIXTURE NO.	LOCATION

TOLERANCES
Dimension in accordance with ANSI Y14
XXX ± .005
XX ± .010
XX ± .015
X ± .030

TITLE:  
HONDA HAND HELD W/3 BENT SHAFT ASSEMBLY  
ROUTING NO: A10273-53B  
DRAWING NUMBER: A10273-53B

DO NOT SCALE DRAWING

CHECKED BY: AEB  
APPROVED BY: AEB

DATE: 10/22/2021

KEY LEVEL: -

MANUFACTURED IN: USA

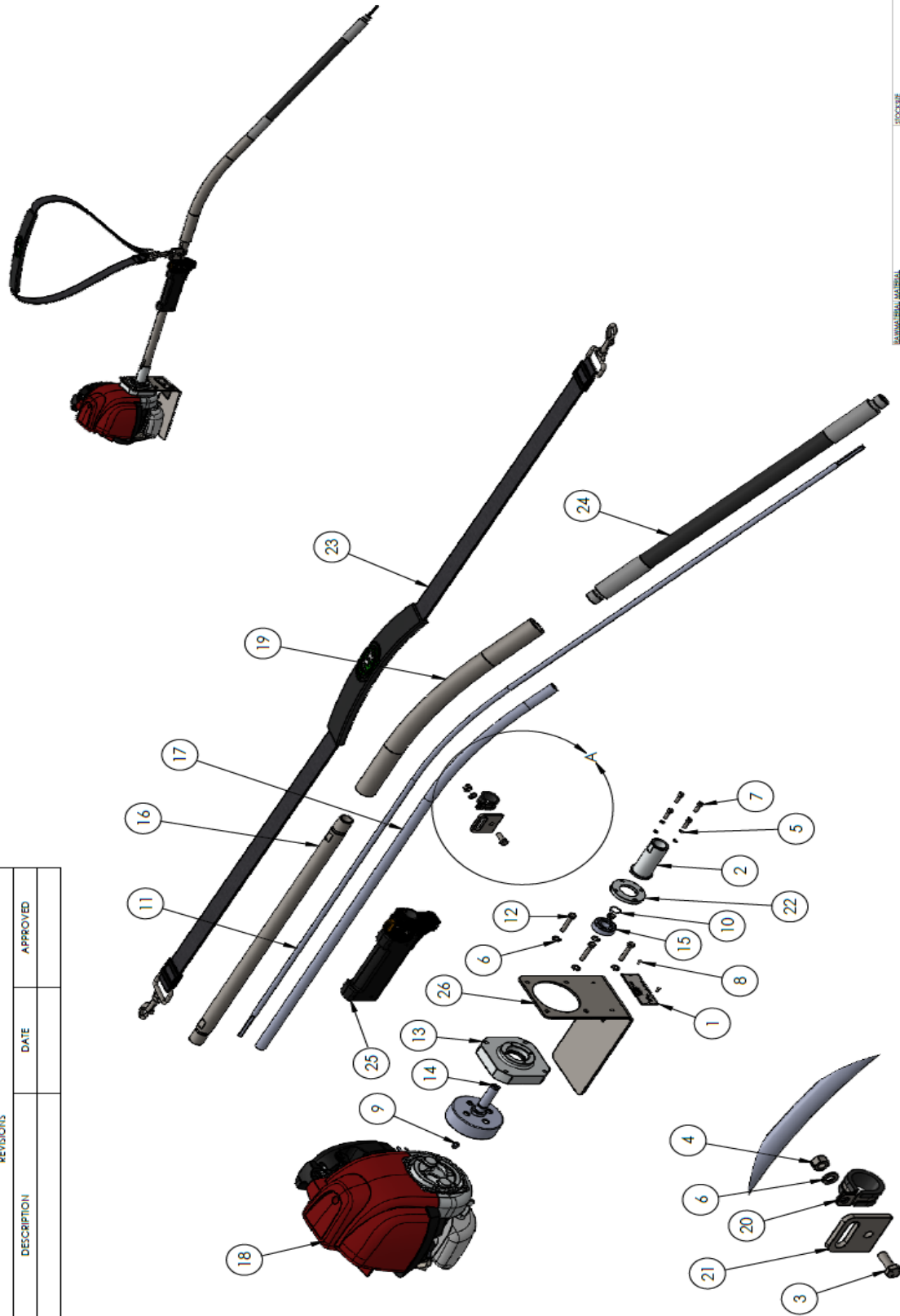
ISSUED BY: MISSOURI METAL CO., INC.

FOR INFORMATION ONLY, SEE THE PARTS LIST FOR THE MOST CURRENT LISTING OF PARTS AND MATERIALS.

DRAWN BY: RJ



REVISIONS		DATE	APPROVED
REV.	DESCRIPTION		



DETAIL A  
SCALE 1:3

UNITED HOLES SIZE	TOLERANCE
Ø1.18 (30.2)	±0.004 (-0.01)
Ø1.18 (30.2)	±0.004 (-0.01)
Ø1.18 (30.2)	±0.004 (-0.01)
Ø1.18 (30.2)	±0.004 (-0.01)
Ø1.18 (30.2)	±0.004 (-0.01)
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Ø1.18 (30.2)	±0.004 (-0.01)
Ø1.18 (30.2)	±0.004 (-0.01)
Ø1.18 (30.2)	±0.004 (-0.01)
Ø1.18 (30.2)	±0.004 (-0.01)

Dimension in accordance with ANSI Y14  
 TOLERANCES (INCHES UNITS)  
 XX ± .000  
 XXX ± .005  
 XXX ± .010  
 XXX ± .015  
 XXX ± .020

MINISOLID METAL CO., INC. 1000 W. 10TH AVENUE, SUITE 100, DENVER, CO 80202 TEL: 303.733.1111 FAX: 303.733.1112	DO NOT SCALE DRAWING
MINISOLID METAL CO., INC.	TITLE: HONDA HAND HELD W/3' BENT SHAFT ASSEMBLY
MINISOLID METAL CO., INC.	ROUTING NO: DRAWING NUMBER: A10273-53B
MINISOLID METAL CO., INC.	REV. LEVEL
MINISOLID METAL CO., INC.	DATE: 10/22/2021
MINISOLID METAL CO., INC.	APPROVED BY: AEB
MINISOLID METAL CO., INC.	CHECKED BY: AEB
MINISOLID METAL CO., INC.	DRAWN BY: R.J.

REVISIONS		
REV.	DESCRIPTION	DATE

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	708-4	NAME PLATE, MODEL & SERIAL #	1
2	2189-2	CASING ADAPTOR	1
3	2262	HOUSING FOR FLEX-SHAFT COUPLER	1
4	6036-.75	1/4-20 X 3/4 HHCS GR.5	1
5	6070	1/4-20 HEX NUT	1
6	6145	#10 LOCK WASHER	4
7	6147	LOCKWASHER 1/4	5
8	6213-0.625	SHCS, #10-24 X 5/8	4
9	6262-1	SCREW, DRIVE HD RD, #4 X 1/4"	2
10	6323-0.375	SHSS, 3/8-16 X 3/8 CUP POINT	1
11	6377-13	RETAINING RING	1
12	8153	CORE - 5/16 - 7-0"	1
13	9185-35	HHCS, M6 X 35 MM	4
14	10146	HOUSING ADAPTOR	1
15	10147	CORE ADAPTOR	1
16	10148	BALL BEARING	1
17	12096	FLEXSHAFT WAND TUBE	1
18	12097	FLEXSHAFT BEARING SLEEVE	1
19	12106-1	HONDA ENGINE GX50NT S3	1
20	12128	7/8" CUSHIONED TUBE CLAMP	1
21	12129	SHOULDER STRAP MOUNTING CLIP	1
22	12138	FLEXSHAFT MOUNTING FLANGE	1
23	A2079-1	SHOULDER STRAP	1
24	A2212	CASING ASSEMBLY	1
25	A10283-4	THROTTLE HAND HELD ASSEMBLY	1
26	A12110	UPPER PLATE WELDMENT	1



Drilled Hole Size	Tolerance
1/8" (3.175)	+0.004/-0.001
3/16" (4.762)	+0.004/-0.001
1/4" (6.350)	+0.004/-0.001
5/16" (7.937)	+0.004/-0.001
3/8" (9.525)	+0.004/-0.001
1/2" (12.700)	+0.004/-0.001
5/8" (15.875)	+0.004/-0.001
3/4" (19.050)	+0.004/-0.001

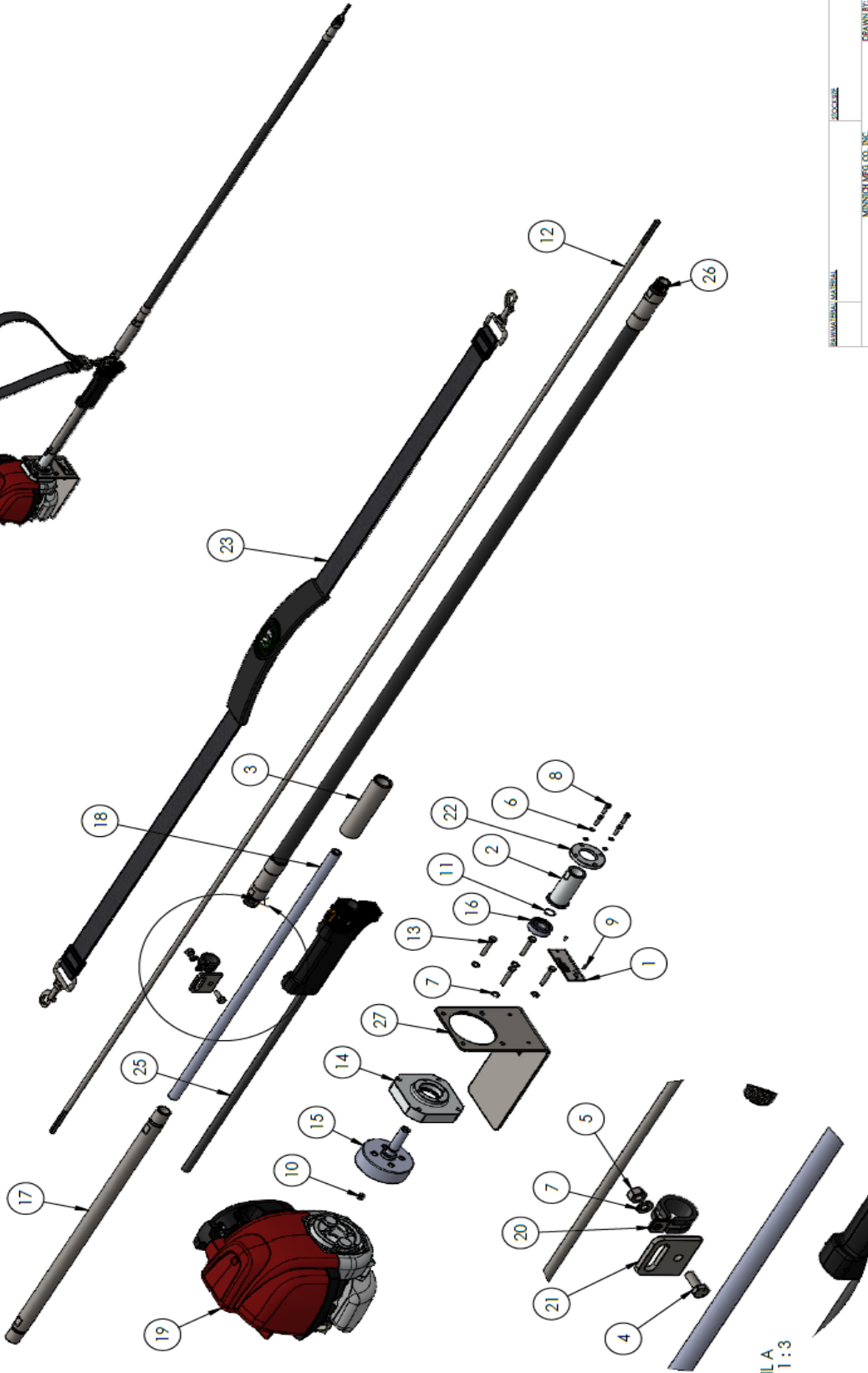
**NOTE:**  
A2212 CORE & CASING MUST BE PURCHASED AND (NOT SEEN #12)  
8152 CORE REMOVED AND REPLACED WITH 8153 CORE

GENERAL INFORMATION	LOCKING
MITSUBISHI MFG. CO., INC.	
THIS INFORMATION IS FOR INFORMATIONAL PURPOSES ONLY. IT IS NOT A CONTRACT. A SMALL LIST IS IDENTIFIED TO THE USER WITHOUT THE PERMISSION OF MITSUBISHI.	
DRAWN BY:	RJ
CHECKED BY:	AEB
APPROVED BY:	
DATE:	10/21/2001
REV. LEVEL:	

**TITLE:**  
HONDA HAND HELD W/2' STRAIGHT SHAFT ASSEMBLY  
with ANSI Y14  
ROUTING NO. LOCATION: DRAWING NUMBER:  
A10273-52S

**DO NOT SCALE DRAWING**

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED



DETAIL A  
SCALE 1 : 3

NOTE:  
A2217 CORE & CASING MUST BE PURCHASED AND (NOT SEEN #12)  
8152 CORE REMOVED AND REPLACED WITH 8153 CORE

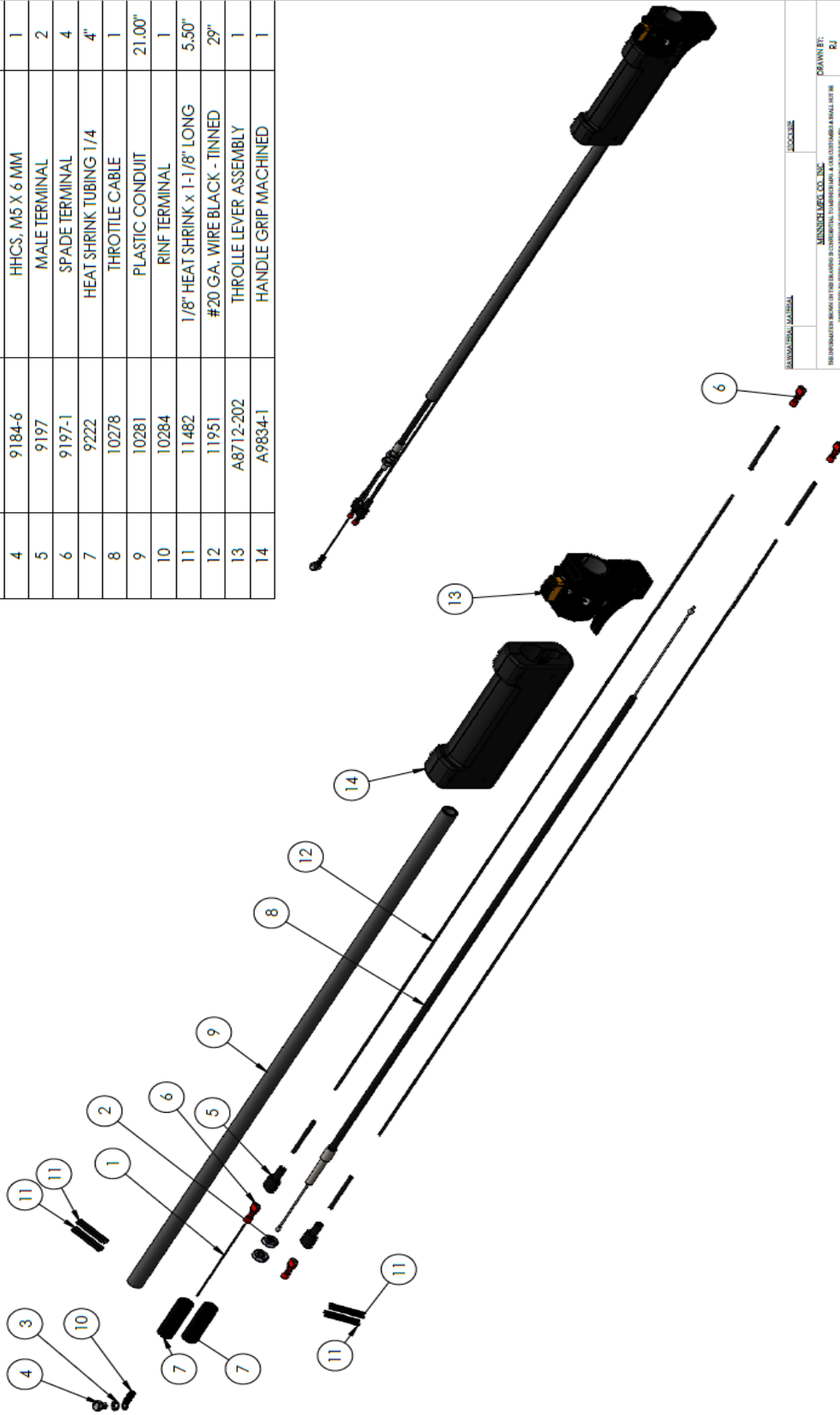
Drilled Hole Size	TOLERANCE
.0150 (1/16) / .125	+0.004/-0.003
.1500 (1/8) / .200	+0.004/-0.003
.2510 (1/4) / .300	+0.004/-0.003
.2510 (1/4) / .300	+0.004/-0.003
.2510 (1/4) / .300	+0.004/-0.003
.1000 (1/8) / .1250	+0.010/-0.005

Dimension in accordance with ANSI Y14  
FITURE NO. LOCATION ROUTING NO. DRAWING NUMBER:  
A 10273-52S

MESSICK MFG. CO., INC. 1000 W. 10TH ST. S.W. ALBUQUERQUE, NM 87102-1000 TEL: 505-263-1000 FAX: 505-263-1001	DRAWN BY: RJ CHECKED BY: AES APPROVED BY: AES DATE: 10/21/2021 KEY LEVEL: -
TITLE: HONDA HAND HELD W/2 STRAIGHT SHAFT ASSEMBLY ROUTING NO. DRAWING NUMBER: A 10273-52S	DO NOT SCALE DRAWING

REVISIONS		APPROVED	
REV.	DESCRIPTION	DATE	

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	4044	18 GA ELECTRICAL WIRE	3.50"
2	6469-1	NUT, HEX JAM 1/4-28	2
3	6765	LOCKWASHER, EXTERNAL TOOTH #10	1
4	9184-6	FHCS, M5 X 6 MM	1
5	9197	MALE TERMINAL	2
6	9197-1	SPADE TERMINAL	4
7	9222	HEAT SHRINK TUBING 1/4"	4"
8	10278	THROTTLE CABLE	1
9	10281	PLASTIC CONDUIT	21.00"
10	10284	RINF TERMINAL	1
11	11482	1/8" HEAT SHRINK x 1-1/8" LONG	5.50"
12	11951	#20 GA. WIRE BLACK - TINNED	29"
13	A8712-202	THROTTLE LEVER ASSEMBLY	1
14	A9834-1	HANDLE GRIP MACHINED	1



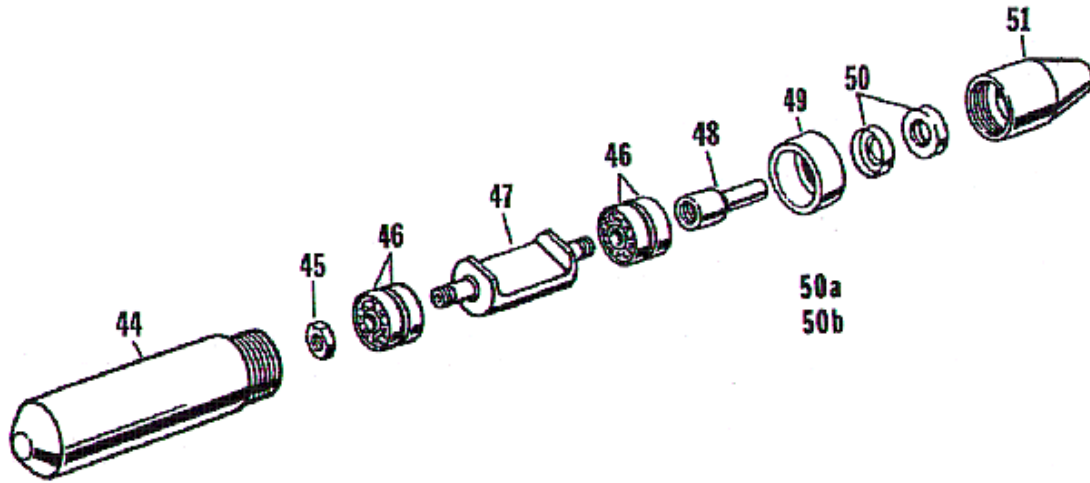
DRYED HOLE SIZE	TOLERANCE
1/8" DIA	+0.0000
3/16" DIA	+0.0015
1/4" DIA	+0.0030
5/16" DIA	+0.0045
3/8" DIA	+0.0060
1/2" DIA	+0.0075
5/8" DIA	+0.0090
3/4" DIA	+0.0105
1" DIA	+0.0120
1 1/4" DIA	+0.0135
1 1/2" DIA	+0.0150

Read the instructions on the back of the wire to be used in this assembly. The following are general guidelines and should apply to all cases unless otherwise noted.  
 DIMENSIONS ARE IN INCHES  
 DIMENSIONS IN ACCORDANCE WITH ANSI Y14  
 DIMENSIONAL TOLERANCES SHALL BE:  
 XX ± .005  
 XXX ± .003  
 XXXX ± .0015  
 XXXX ± .001

SEMI-CUSTOM MATERIAL LOCKED  
 MANUFACTURED BY: MESSERLE, CO., INC.  
 THE INFORMATION BEING PRINTED HEREON IS CONFIDENTIAL TO MESSERLE, CO., INC. AND IS TO BE USED ONLY FOR THE MANUFACTURE OF THE PARTS IDENTIFIED BY THIS NUMBER IN THE PART NUMBER OF THE DRAWING.  
 DO NOT SCALE DRAWING  
 TITLE: THROTTLE HAND HELD ASSEMBLY  
 LOCATION: ROUTING NO.: DRAWING NUMBER: A10283-4  
 REV. LEVEL: -

DRAWN BY: RJ
CHECKED BY: AEB
APPROVED BY:
ORIG DATE: 10/21/2021
REV. LEVEL: -

**VIBRATOR HEADS AND SHAFTS MAINTENANCE**



**HEADS**

	<b>A2231</b>	<b>A2232</b>	<b>A2233</b>	<b>A2234</b>	<b>A2235</b>	<b>A2236</b>	
<b>FIG #</b>	3/4" Dia	1-1/8" Dia	1 3/8" Dia	1 3/4" Dia	2" Dia	2 3/8" Dia	Complete Head Assy.
44	0A2158-00001	0A2026-00001	0A2046-00001	0A2018-00002	0A2146-00001	00A745-00002	Housing
45	006362-00000	002023-00000	002023-00000	001244-00000	000651-00000	000651-00000	Lock nut, Bearing
46	002156-00000	002038-00001	002039-00000	002040-00000	002041-00000	002041-00000	Bearing (4)
47	002153-00000	002025-00000	002032-00001	001241-00001	002142-00001	006542-00001	Weight, Eccentric
48	0A2679-00000	002676-00000	002021-00000	002024-00000	002028-00000	002028-00000	Core Adapter
49						000655-00001	Housing Bearing
50			020451-00000	020221-00000	020221-00000	020221-00000	Seal (2)
50a	002681-00000	002681-00000					Seal (Oil)
50b	002677-00000	002677-00000					Seal (Grease)
51	002192-00000	002193-00001	002194-00002	002195-00002	002196-00001	002197-00001	Casing Adapter

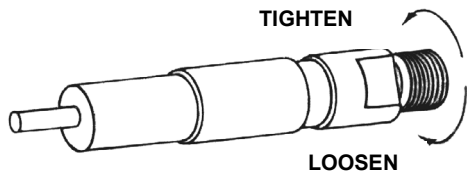
ASSEMBLY

**⚠ CAUTION**

Turn off the motor before performing any maintenance or fitting any components to the motor.

ASSEMBLING SHAFT TO MOTOR

1. The end of casing with the strain relief spring goes into the motor casing adapter.
2. Insert inner core of the shaft into the core adapter on motor. Make sure the core is fully inserted.
3. Coat threads on casing coupler with Permatex Form-A-Gasket #1.
4. Thread casing coupler counterclockwise into adapter on power unit and tighten securely using open end wrenches on the flats. NOTE: These are Left-Hand Threads.



ASSEMBLING VIBRATOR HEAD TO SHAFT

1. Coat threads on casing coupler with Permatex Form-A-Gasket #1.
2. Push core toward motor end to make certain it is still engaged in the motor. Insert exposed end of core into head core adapter.
3. Holding casing coupler with an open end wrench on the flats, thread the head on counterclockwise and securely tighten with a pipe wrench.

**⚠ CAUTION**

Put pipe wrench only on the very end of the head to which the flexible shaft is being attached.

FLEXIBLE SHAFTS

LUBRICATION – After every 50 hours of operation, remove the inner core and wipe it clean. Coat core with a 1/16" layer of MINNICH #002120-00000 high temperature grease.

**⚠ CAUTION**

DO NOT use solvents. Solvents trapped in the core or casing will breakdown the new grease and risk premature failure.

Reverse the core in the casing at every lubrication to even the wear and extend service life.

Replace worn or broken casing to prevent damage to core and head.

To insure long life of flexible shafts, avoid putting undue bends in them. Whenever a casing becomes kinked, or worn to extreme, replace with original equipment.

Never install a new core in a kinked casing or a kinked core in a new casing. This will cause the new parts to fail prematurely.

Core and casing assemblies are shipped from the factory pre-lubricated. However, separate cores and casings are shipped without lubrication and must be lubricated with MINNICH #002120-00000 high temperature grease at assembly as noted above.

Always apply Permatex Form-A-Gasket #1 to the threads of the casing adapter when reassembling the core and casing assembly to the vibrator head and motor.

Break in a newly lubricated core and casing assembly before putting it to work. During this break-in the core will turn slower than normal, could rattle a little bit and draw the motor speed down, causing the motor to draw more current. After this break-in period, the unit will run smoothly.

**VIBRATOR HEADS**

The vibrator heads require very little maintenance since they are lubricated with oil and sealed at the factory.

Wash concrete and dirt from heads after each job or at the end of a workday – whichever occurs first.

To extend the bearing life in the head, change the oil in the head after every 100 hours of operation.

**TO CHANGE OIL IN HEADS:**

1. Secure tip of vibrator head in vise and use a chain or pipe wrench on the casing adapter, rotating adapter counterclockwise for a right hand thread. Remove head from vise and drain out old oil in a container and dispose properly.
2. Insert open end of head into the appropriate size bump tube. With open end facing down, strike bottom end of bump tube on a block of wood until eccentric weight assembly drops out.
3. Flush eccentric weight assembly and housing with clean solvent and wipe all parts clean.
4. Inspect bearings, core adapter and seals for signs of wear. If parts pass inspection, reassemble eccentric weight assembly into the housing. Clamp head vertically in a vise and refill with proper amount of MINNICH #002119-00000 long life oil (see chart below).

**NOTICE**

If there are signs of wear (grooving) from the seals on the core adapter, worn seals or looseness in the bearings see the service portion of the manual for further instructions.

5. Put oil on core adapter for ease of assembly of casing adapter containing the two (2) seals. Start thread of adapter into housing for a turn or two. Stop and apply a generous coating of Permatex Form-A-Gasket #1 all around the threads on the casing adapter.

**NOTICE**

It is very important that the casing adapter fits tightly against the housing. In order to guarantee a waterproof seal, allow 15 minutes for sealant to set up.

Grease-Flexible Shaft.....Part No. 002120-00000  
 Oil-Lubricating.....Part No. 002119-00000

**LUBRICATING OIL CAPACITIES**

HEAD DIA.	OIL CAPACITY
3/4"	1/4 oz.
1-1/8"	1/2 oz.
1 3/8"	1/2 oz.
1 3/4"	3/4 oz.
2"	1 oz.
2 3/8"	1 oz.





## LIMITED WARRANTY, DISCLAIMER AND REMEDIES

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Supplier warrants to Customer that the Services shall be provided in a workmanlike manner and that the Goods shall be free from defects in material and workmanship at the date of shipment from Supplier's facility. This warranty shall not run to any person other than Customer.

All claims under this warranty must be made in writing and delivered to Supplier prior to the expiration of one (1) year after the Goods have been delivered (or, if applicable, within one (1) year after the Services have been performed) or be forever barred. Supplier will repair or replace Goods or parts recognized and acknowledged by Supplier as being defective at the time of delivery without charge. However, Supplier will bill Customer for Goods and/or Services not covered by the warranty, including travel expenses incurred while performing warranty service calls. EQUIPMENT, COMPONENTS OR OTHER GOODS FURNISHED THAT ARE NOT MANUFACTURED BY SUPPLIER ARE ONLY COVERED TO THE EXTENT OF THE ORIGINAL MANUFACTURER'S WARRANTY, WHICH MAY VARY FROM THE ABOVE. Further, the above warranty shall not apply to any hardware or software that has been repaired or altered without Supplier's written permission by anyone other than Supplier's personnel. The foregoing states the sole and exclusive remedy for any breach of warranty or for any other claim based on any defect in, or nonperformance of, the Goods or Services, whether based upon contract, warranty, negligence, tort (including strict liability) or otherwise.

NO EXPRESS WARRANTIES AND NO IMPLIED WARRANTIES, WHETHER OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR WEAR CAPACITY, OR OTHERWISE, SHALL APPLY TO THE GOODS AND SERVICES. SUPPLIER SPECIFICALLY DISCLAIMS AND EXCLUDES ALL OTHER EXPRESS AND IMPLIED WARRANTIES. NO WAIVER, ALTERATION, ADDITION OR MODIFICATION OF THE FOREGOING SHALL BE VALID UNLESS MADE IN WRITING AND SIGNED BY AN EXECUTIVE OFFICER OF SUPPLIER. IN NO EVENT WILL SUPPLIER BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

### WHAT IS NOT COVERED

This Limited Warranty does not cover any damage, deterioration or malfunction resulting from normal wear or tear, or any alteration, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to excess moisture, fire, improper packing and shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature. This Limited Warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by Minnich to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product.

### WHAT IS COVERED

This limited warranty ("Limited Warranty") covers manufacturing defects in materials and workmanship of a product.

### WHO IS COVERED:

Only the original purchaser of this product is covered under this Limited Warranty. This Limited Warranty is not transferable to subsequent purchasers or owners of this product. The product must have been purchased directly from Minnich or from an authorized Minnich reseller.

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Contact us at:  
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**WE ACCEPT THE FOLLOWING CARDS!**

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**DISCOVER**



**SCAN FOR HELPFUL VIDEOS!**

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**NON-DEALER AND INTERNATIONAL CUSTOMERS:**

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Contact Minnich Manufacturing through the following number to locate a dealer near you.  
(419-903-0010)

**NOTICE**

All orders are treated as Standard Orders and will ship the same day if received prior to 3PM EST