



SERVICE DATA

ENGINE DRILL

EDR-2100 EDR-2100/1E

EDR-2400 EDR-2400/1E

INTRODUCTION

We are constantly working on technical improvement of our products. For this reason, technical data, equipment and design are subject to change without notice. All specifications, illustrations and directions in this SERVICE DATA are based on the latest products information available at the time of publication.

For further information about the engine to service these models, please refer to ECHO SERVICE MANUAL Ord. No. 402-18.

CONTENTS

	page
1 SERVICE INFORMATION	2
1-1 Specifications	2
1-2 Technical data	3
1-3 Torque limits	4
1-4 Special repairing materials	4
1-5 Service limits	5
1-6 Special tools	6
2 SERVICE HINT	7
2-1 Transmission construction	7
2-2 Clutch function	8

Remarks:

Please use this revised edition (Reference No. 19-21A-02) and discard all previous issues.

Reference No. **19-21A-02**
REVISED: 199807

ISSUED: 199609



KIORITZ CORPORATION

1 SERVICE INFORMATION

1-1 Specifications

Models		EDR-2100	EDR-2100/1E	EDR-2400	EDR-2400/1E
Dimensions	Length	mm(in)	430 (16.9)		430 (16.9)
	Width	mm(in)	320 (12.6)		320 (12.6)
	Height	mm(in)	255 (10.0)		255 (10.0)
Dry weight (without drill)		kg(lb)	4.6 (10.1)		4.7 (10.3)
Engine	Type	KIORITZ, air-cooled, two-stroke, single cylinder			
	Rotation	Counterclockwise as viewed from the output end			
	Displacement	cm ³ (in ³)	21.2 (1.294)		23.6 (1.440)
	Bore	mm(in)	32.2 (1.268)		34.0 (1.339)
	Stroke	mm(in)	26.0 (1.024)		26.0 (1.024)
	Compression ratio	6.5		6.3	
Carburetor	Type	Walbro diaphragm, horizontal-draught, with primer (purge pump)			
	Model	WYL-23	WYL-53	WYL-56	
	Venturi size-Throttle bore	mm(in)	9.0 - 9.0 (0.354 - 0.354)		
Ignition	Type	CDI (Capacitor discharge ignition) system in a single integrated piece			
	Spark plug	BPM7Y, RCJ-8Y		BPM7Y, BPMR7A	
Starter	Type	Automatic rewind			
	Rope diameter x length	mm(in)	3.0 x 1000 (0.12 x 39.4)		
Fuel	Type	Premixed two-stroke fuel (Refer to Operator's manual.)			
	Tank capacity	cm ³ (U.S.fl.oz.)	420 (14.2)		
Clutch	Type	Centrifugal, 2-shoe slide			
Handle	Type	Front	Bar with rubber grip		
		Rear	Rubber grip with throttle trigger		
Transmission	Reduction ratio	17.1 (Regular)			
		18.6 (Reverse)			
	Gear tooth	Spur			
	Lubrication	Grease			
	Chucking capacity(dia. max)	mm(in)	13.0 (0.51)		
Drill	Maximum diameter	mm(in)	30.0 (1.18)		

1-2 Technical data

Models	EDR-2100	EDR-2100/1E	EDR-2400	EDR-2400/1E
Engine				
Idling speed rpm	2500 - 3500			
Engine speed at maximum power rpm	7000			
Maximum speed rpm	9000			
Clutch-in speed rpm	4000			
Compression pressure kgf/cm ² (psi)	9.5 (135)		8.5 (120)	
Carburetor				
Main jet	#37		#38	
Metering needle initial setting turns in	12*	---	---	
Test pressure, minimum kgf/cm ² (psi)	0.5 (7.0)			
Metering lever height mm(in)	1.5 (0.06) lower than diaphragm seat			
Ignition system				
Spark plug gap mm(in)	0.6 - 0.7 (0.024 - 0.028)			
Minimum secondary voltage at 1000 rpm kV	15			
Secondary coil resistance kΩ	1.0 - 2.0			
Pole shoe air gaps mm(in)	0.3 - 0.4 (0.012 - 0.016)			
Ignition timing °BTDC	(33)	28	28	

* Screw in metering needle from initial threads engagement.

BTDC: Before top dead center.

1-3 Torque limits

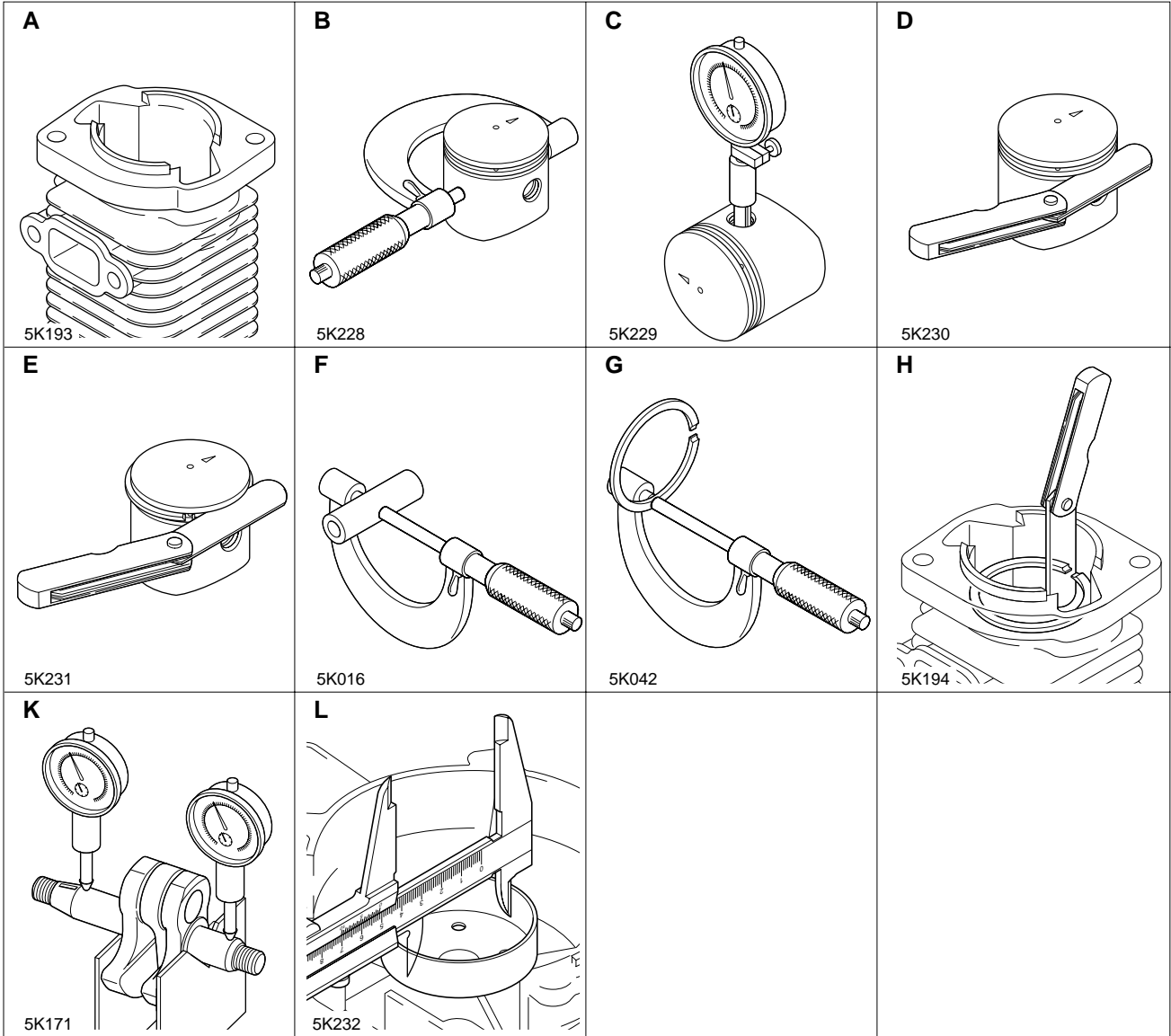
Descriptions		Size	kgf•cm	in•lbf
Starter system	Pawl carrier	M 8	160 - 200	140 - 175
	Ignition coil (CDI module)	M 4	30 - 50	26 - 45
Ignition system	Spark plug	M14	150 - 170	130 - 150
	Carburetor insulator	M 5 *	25 - 40	22 - 35
Fuel system	Carburetor	M 5	30 - 40	26 - 35
	Throttle wire housing nut	M 6	25 - 35	22 - 30
	Fuel tank	M 5 *	30 - 45	26 - 40
	Clutch	M 8	160 - 200	140 - 175
Clutch	Clutch case	M 4	15 - 28	13 - 24
	Engine Crankcase	M 5	70 - 110	60 - 95
Engine	Cylinder	M 5	70 - 110	60 - 95
	Cylinder cover (fan side)	M 4	15 - 28	13 - 24
	Cylinder cover (starter side)	M 4	10 - 20	9 - 17
	Muffler	M 5	60 - 90	52 - 78
	Handle Rear handle (gear case)	M 5	60 - 80	52 - 70
Handle	Rear handle (supporter)	M 5	30 - 45	26 - 40
	Rear handle supporter w/stand & starter case	M 4 *	30 - 50	26 - 45
	Gear case Shaft for small spur gear	M 6 *	70 - 110	60 - 95
Gear case	PTO shaft	M12	350 - 450	300 - 390
	Chuck	M12	350 - 450	300 - 390
	Chuck center bolt	M 6 *	150 - 180	130 - 155
	Gear case	M 5	60 - 80	52 - 70
	Regular bolt, nut, and screw	M 3	6 - 10	5 - 9
M 4		15 - 25	13 - 22	
M 5		25 - 45	22 - 40	
M 6		45 - 75	40 - 65	
M 8		110 - 150	95 - 130	

* Apply thread locking sealant. (See below.)

1-4 Special repairing materials

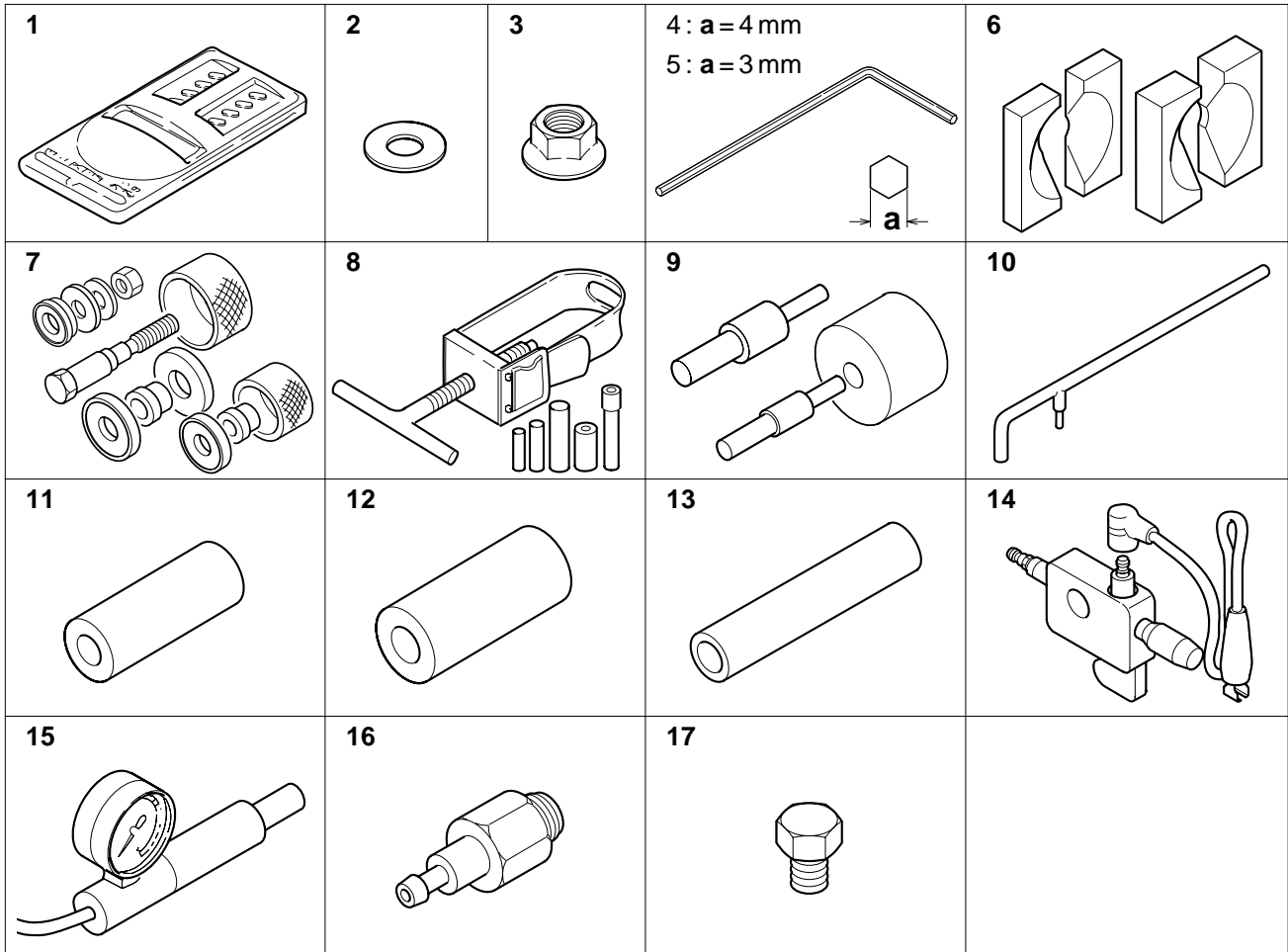
Material	Location	Remarks
Grease	Rewind spring	Lithium based grease
	Starter center shaft	
	Gear case bearing collar	
	PTO shaft press-in	
	Gear case	15g in each gear case Total 45g
Thread locking sealant	Carburetor insulator screws	Loctite #222, ThreeBond #1342 or equivalent
	Fuel tank screws	
	Rear handle supporter w/stand & starter case bolts	
	Shaft for small spur gear bolt	
	Clutch case bearing press-in	Loctite #675

1-5 Service limits



Description			EDR-2100	EDR-2400
A	Cylinder bore		When plating is worn and aluminum can be seen	
B	Piston outer diameter	Min. mm(in)	32.10 (1.264)	33.90 (1.335)
C	Piston pin bore	Max. mm(in)	8.030 (0.3161)	
D	Piston ring groove	Max. mm(in)	1.6 (0.063)	
E	Piston ring side clearance	Max. mm(in)	0.1 (0.004)	
F	Piston pin outer diameter	Min. mm(in)	7.98 (0.3142)	
G	Piston ring width	Min. mm(in)	1.45 (0.057)	
H	Piston ring end gap	Max. mm(in)	0.5 (0.02)	
K	Crankshaft runout	Max. mm(in)	0.05 (0.002)	
L	Clutch drum bore	Max. mm(in)	51.5 (2.03)	

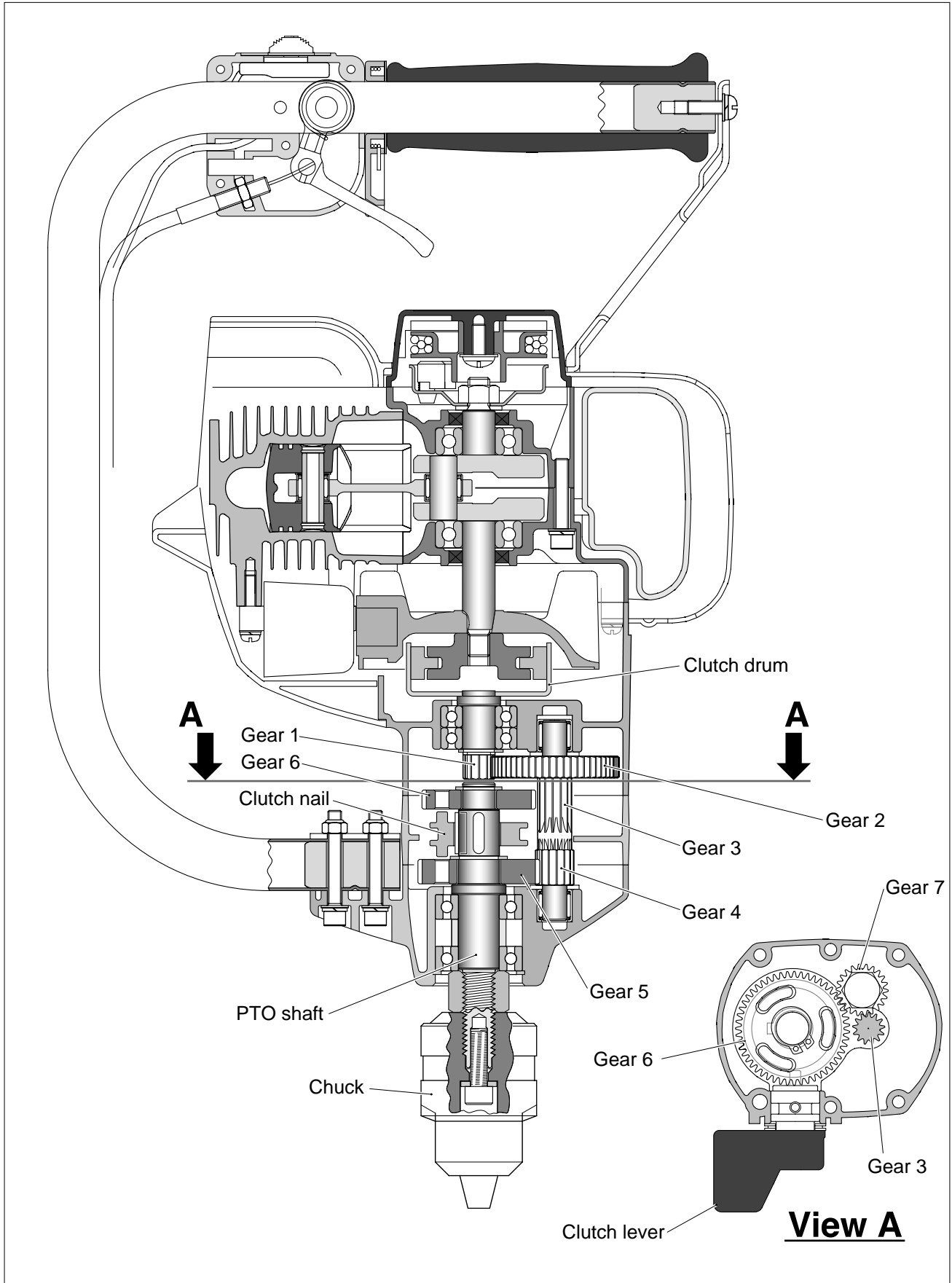
1-6 Special tools



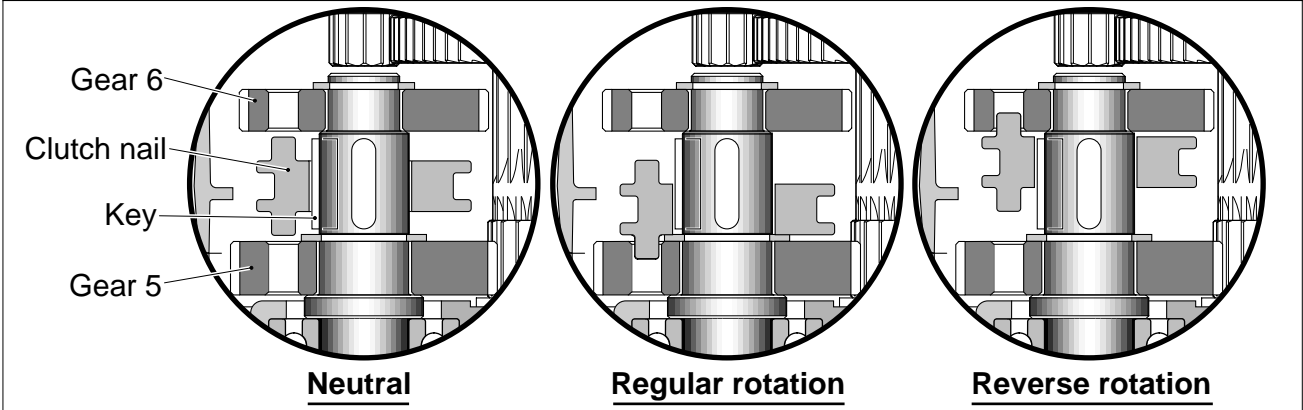
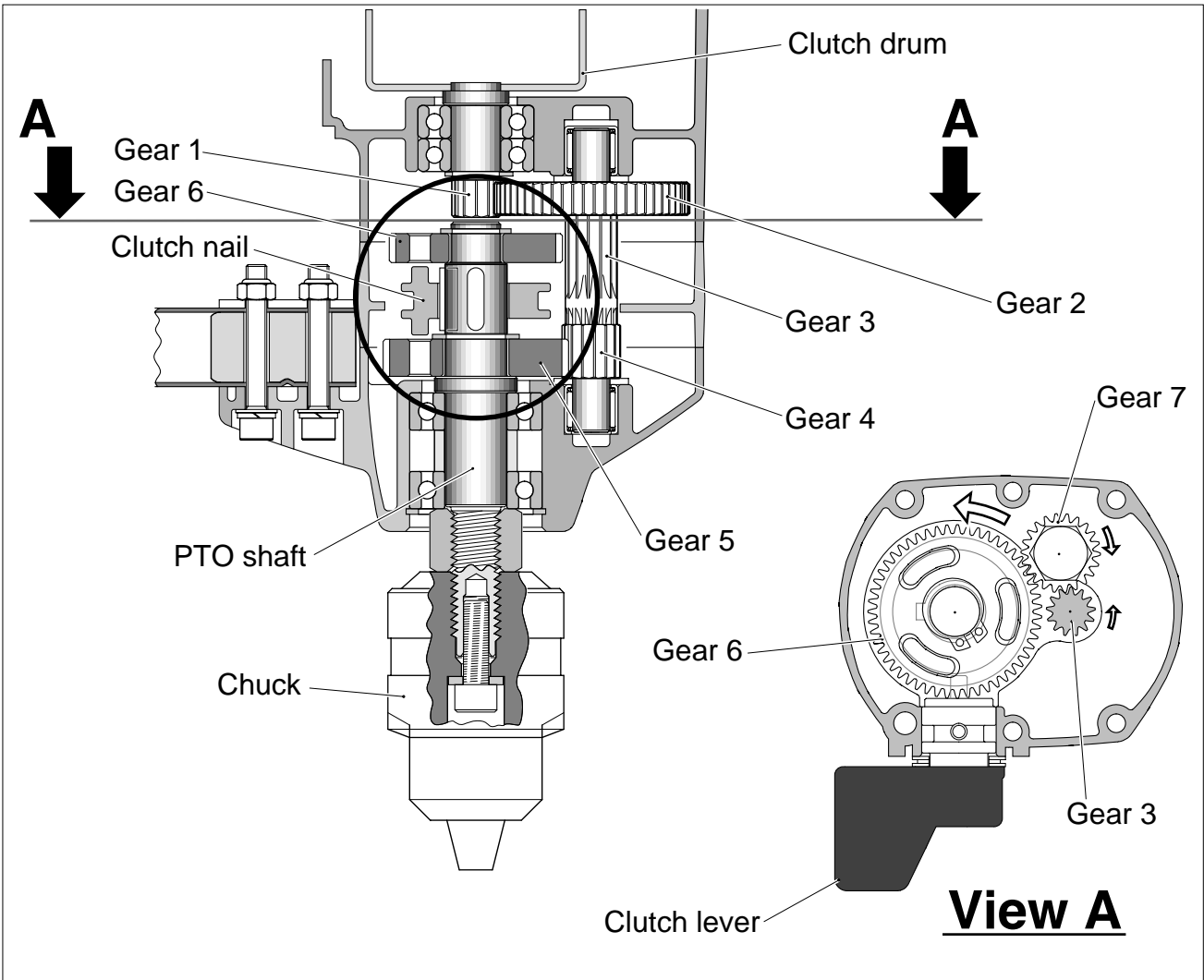
Key	Part Number	Description	Used for:
1		Tachometer	Measuring engine speed
2	363018-00310	Washer	Installing crankcase oil seal of starter side
3	433019-12330	Flange nut	Removing magneto rotor (flywheel)
4	895610-79920	L-hex wrench (4 mm)	Removing and installing hex. socket bolts (M5)
5	895612-79920	L-hex wrench (3 mm)	Removing and installing hex. socket bolts (M4)
6	897701-06030	Bearing wedge	Removing ball bearings on crankshaft
7	897701-14732	Bearing tool	Removing and installing crankcase ball bearings
8	897702-30131	Piston pin tool	Removing and installing piston pin (Use 8 mm dia. adapter.)
9	897705-11520	Bearing tool	Removing and installing con-rod small end needle bearing
10	897712-04630	2-pin wrench	Removing and installing pawl carrier
11	897714-22830	Bearing and seal tool	Installing ball bearing in gear case
12	897714-24330	Oil seal tool	Installing crankcase oil seals
13	897726-09130	Bearing and seal tool	Removing clutch drum and installing clutch drum ball bearing
14	897800-79931	Spark tester	Checking ignition system
15	897803-30130	Pressure tester	Checking carburetor and crankcase leakages
16	897835-16131	Pressure connector	Checking crankcase and cylinder leakages
17	900100-08008	Bolt	Removing magneto rotor (flywheel)

2 SERVICE HINT

2-1 Transmission construction



2-2 Clutch function



1. Gear 2 engages with Gear 1 on Clutch drum shaft. Gear 3 engages with Gear 7 and Gear 7 engages with Gear 4. Gear 4 engages with Gear 5.

2. When engine speed goes up and centrifugal clutch engages, the clutch drum(Gear 1) drives Gear 2. Gear 2, Gear 3 and Gear 4 are one solid part. Gear 5 is driven by Gear 4 to turn clockwise. Gear 7 is driven by Gear 3.

3. In the neutral position, Gear 5 and Gear 6 rotate freely on PTO shaft. When clutch nail is moved by clutch lever to engage with Gear 5, PTO shaft turns clockwise. When clutch nail is moved by clutch lever to engage with Gear 6, PTO shaft turns counterclockwise.