

MARK-3[®]

SERIES

MARK-3 TOOLS

Overview:

New tools have been introduced for the servicing of the MARK-3 185cc engine and 12-16S pump-end. This Tech-Note lists the new tools and provides instructions on how to use them. Also listed is the tool kit for the MARK-3 operators.

Old R-952 Tool Kit for MARK-3 Engine:

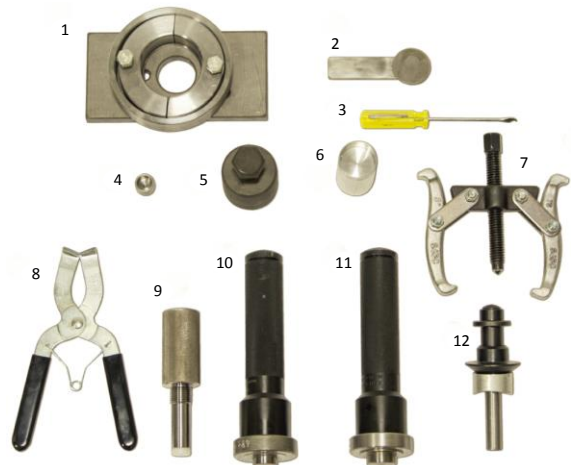
ID	ITEM NO	DESCRIPTION	QTY
-	250161	R-952 TOOL KIT FOR MARK-3 ENGINE	-
1	600157	R-938 PULLER, CRANKSHAFT BEARING 1-PIECE	1
2	600164	R-953 CRANKSHAFT JACK	1
3	700729	R-909 KEY - ALLEN 2.4 MM (3/32")	1
4	700727	R-926 SOCKET WRENCH 10/13 MM & ROD	1
5	800700	271-346 SCREWDRIVER-STANDARD 1/4x4"	1
6	800712	271-927 SCREWDRIVER - PHILIPS NO. 1	1
7	600156	R-930 PULLER, CRANKSHAFT BEARING 3-PIECE	1
8	700707	R-932 PULLER, COLLAR COUPLING	1
9	600161	R-933 OIL SEAL - PRESSING TOOL	1
10	800080	R-928 PROTECTOR CAP, SHAFT 12MM	1
11	700723	R-927 PULLER - MAGNETO (M38 X 1.5)	1
12	600171	R-954-14 TIMING GAUGE 14/18 MM	1
13	701159	PISTON LOCKING TOOL FOR 185CC	1



New R-952N Tool Kit for MARK-3 Engine:

The new R-952N Tool Kit replaces the old R-952 Tool Kit. Tools #3, 8, 10, 11 & 12 are new. Tools for the servicing of older engines have been removed from the R-952 kit; they can still be purchased separately (see page 2).

ID	ITEM NO	DESCRIPTION	QTY
-	250286	R-952N TOOL KIT FOR MARK-3 ENGINE	-
1	600157	R-938 PULLER, CRANKSHAFT BEARING 1-PIECE	1
2	600164	R-953 CRANKSHAFT JACK	1
3	701352	CIRCLIP REMOVAL TOOL FOR 185CC (new)	1
4	800080	R-928 PROTECTOR CAP, SHAFT 12MM	1
5	700723	R-927 PULLER - MAGNETO (M38 X 1.5)	1
6	600161	R-933 OIL SEAL - PRESSING TOOL	1
7	700707	R-932 PULLER, COLLAR COUPLING	1
8	701343	PISTON RING INSTALLER (new)	1
9	701159	PISTON LOCKING TOOL FOR 185CC	1
10	701349	SEAL INSTALLER 20MM FOR 185CC (new)	1
11	701350	SEAL INSTALLER 25MM FOR 185CC (new)	1
12	701351	CIRCLIP INSTALLER TOOL FOR 185CC (new)	1



TECH-NOTE

Tools Removed From R-952 Tool Kit – Still Available:

The following tools have been removed from the R-952 tool kit; they can still be ordered separately.

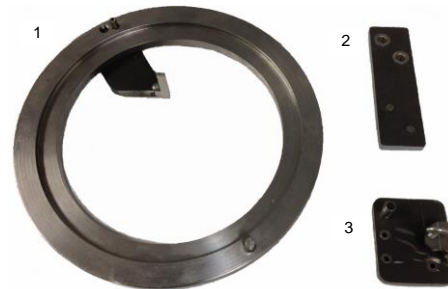
ID	ITEM NO	DESCRIPTION	QTY
1	800700	271-346 SCREWDRIVER-STANDARD 1/4x4"	1
2	800712	271-927 SCREWDRIVER - PHILIPS NO. 1	1
3	600156	R-930 PULLER, CRANKSHAFT BEARING 3-PIECE	1
4	700727	R-926 SOCKET WRENCH 10/13 MM & ROD	1
5	700729	R-909 KEY - ALLEN 2.4 MM (3/32")	1
6	600171	R-954-14 TIMING GAUGE 14/18 MM	1



Other MARK-3 Servicing Tools:

The following tools can be ordered separately.

ID	ITEM NO	DESCRIPTION	QTY
1	801146	CDI IGNITION TIMING ADJUSTMENT TOOL	1
2	801162	DIS - FRAME DRILLING TOOL	1
3	701158	JIG FOR DOS BRACKET DRILLING	1



Changes to the A-2356 Tool Kit for Pump End XX-16:

A new PRESS PIN REMOVAL TOOL and INSTALLER BUSHING BEARING has been added to the PUMP END tool kit. Tool #13 (701345) will help the user disassemble the pump end in the event the threads on the mechanical rotary seal are damaged. Tool #10 (801299) will help the user install the bronze bushing bearing in the suction cover.

ID	ITEM NO	DESCRIPTION	QTY
-	250125	A-2356 TOOL KIT FOR PUMP END XX-16	-
1	700588	A-5297 SUPPORT TOOL	1
2	600078	A-1887 ALUMINUM GUIDE FOR SHAFT INSTALLATION	1
3	600157*	R-938 PULLER, CRANKSHAFT BEARING 1-PIECE	1
4	600175**	R-904L SPARK PLUG WRENCH C/W ROD	1
5	600079	A-1888 PULLER FOR SUCTION COVER, ALU. & PLATED	1
6	600052	B-4084 PUMP BEARING PRESSING SLEEVE	1
7	700531	A-4329 PRESSING SLEEVE ROTARY SEAL	1
8	700532	A-4097 PROTECTOR SHAFT	1
9	700642	A-7711 SEAL REMOVAL PRESS TOOL, 12-28N	1
10	801299	INSTALLER BUSHING BEARING (new)	1
11	700540	A-1884 PRESSING SLEEVE DISTRIBUTOR	1
12	700090	A-7644 SEAL PULLER FOR 12-28NS	1
13	701345	PRESS PIN REMOVAL TOOL PUMP PARTS DIA .686 (new)	1
14	600080	A-1890 PRESSING PIN FOR SHAFT REMOVAL, STEEL	1
15	600077	A-1886 PRESS PIN REMOVAL TOOL PUMP PARTS DIA .925"	1



*600157 has replaced 600123 (B-4085).

**600175 contains 800084 (R-904) and 800082 (R-905)

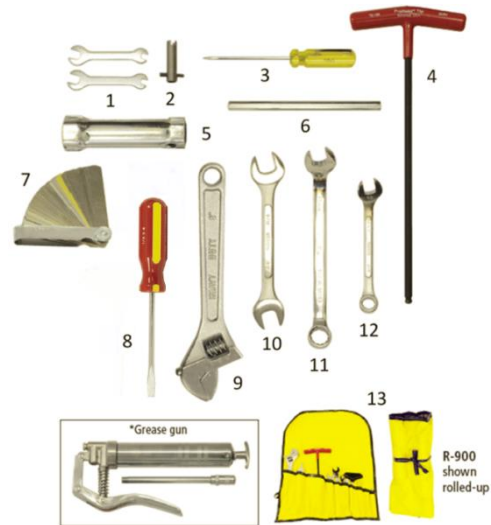
TECH-NOTE

R-900 Tool Kit for MARK-3 Pump:

The following lists the tools included in the R-900 MARK-3 tool kit.

ID	ITEM NO	DESCRIPTION	QTY
-	250158	R-900 TOOL KIT FOR MARK-3 PUMP	-
1	800081	R-908 WRENCH - OPEN END 5 & 8 MM	2
2	700541	A-3023 CARBURETOR ADJUSTING TOOL	1
3	800492	R-902 SCREWDRIVER 1/8" BLADE	1
4	700539	271-928 6MM T-HANDLE HEX 10.5" LG	1
5	800084	R-904 WRENCH - SPARK PLUG	1
6	800082	R-905 HANDLE - ROD	1
7	700732	R-903 FEELER GAUGE 32 BLADES	1
8	800700	271-346 SCREWDRIVER FLAT 1/4" X 4"	1
9	700538	271-923 WRENCH - ADJUSTABLE 8"	1
10	700726	R-910 WRENCH - OPEN END 1/2" & 9/16"	1
11	600153	R-911M WRENCH, BOX & OPEN END 13MM	1
12	600160	R-906M WRENCH, BOX & OPEN END 10 MM	1
13	700537	271-488 TOOL ROLL BAG	1
-	700734*	PART-117 GREASE GUN U.S. STYLE	-

* Grease gun no longer included in tool kit. Can be ordered separately.



Offset Screwdriver Flat MARK-3 Carburetor Adjustment:

The following offset screwdriver is available and can be purchased separately. It allows for an easy adjustment of the low speed jet on the MARK-3 carburetor. Item number is 801147.



TECH-NOTE

Instructions for New Tools:

701352 CIRCLIP REMOVAL TOOL FOR 185CC

- 1- Insert the CIRCLIP REMOVAL TOOL into the piston notch as shown in the picture and pry out the circlip from its groove.



701351 CIRCLIP INSTALLER TOOL FOR 185CC

- 1- Insert circlip into CIRCLIP INSTALLER TOOL as shown in the picture.

Ensure that the circlip opening is properly oriented in the sleeve so that once installed in the piston, the circlip opening is pointing at the bottom and away from the piston notch.



- 2- Push in the circlip into the sleeve with the knob portion of the handle.



- 3- Push the circlip all the way into the groove in the sleeve using the handle.



TECH-NOTE

- 4- Mount the CIRCLIP INSTALLER TOOL onto the Piston.
Ensure that the circlip opening is towards the bottom.



- 5- Slide and center the handle and push pin into the piston pin bore. Use a deadblow hammer or a mallet to strike the CIRCLIP INSTALLER TOOL handle on the knob.

Important: firmly support the piston with your hand before striking the knob.

The circlip should now be in place. Inspect to ensure it has been properly inserted into the groove of the piston.



701349 SEAL INSTALLER 20MM FOR 185CC

701350 SEAL INSTALLER 25MM FOR 185CC

- 1- Push in the oil seal in the crankcase using the OIL SEAL INSTALLER. Make sure to properly oil the seal installer on the surface that comes in contact with the oil seal to avoid damage.

Important: The 20 mm seal installer is for the PTO side and the 25 mm is for the MAG side of the crankcase.



701343 PISTON RING INSTALLER

- 1- Insert the piston ring into the PISTON RING EXPANDER and expand the ring. Carefully slide into piston ring groove.



701345 PRESS PIN REMOVAL TOOL PUMP PARTS DIA .686

- 1- Use the PRESS PIN REMOVAL TOOL to press out the impellers and distributors through the mechanical rotary seal. This tool should be used when the threads on the mechanical rotary seal are damaged, which will prevent the use of tool A-7644 SEAL PULLER FOR 12-28NS.

Important: due to the limited contact surface between the tool and the impeller hub, this procedure will most likely damage the first impeller it comes in contact with. A new impeller may need to be installed.

