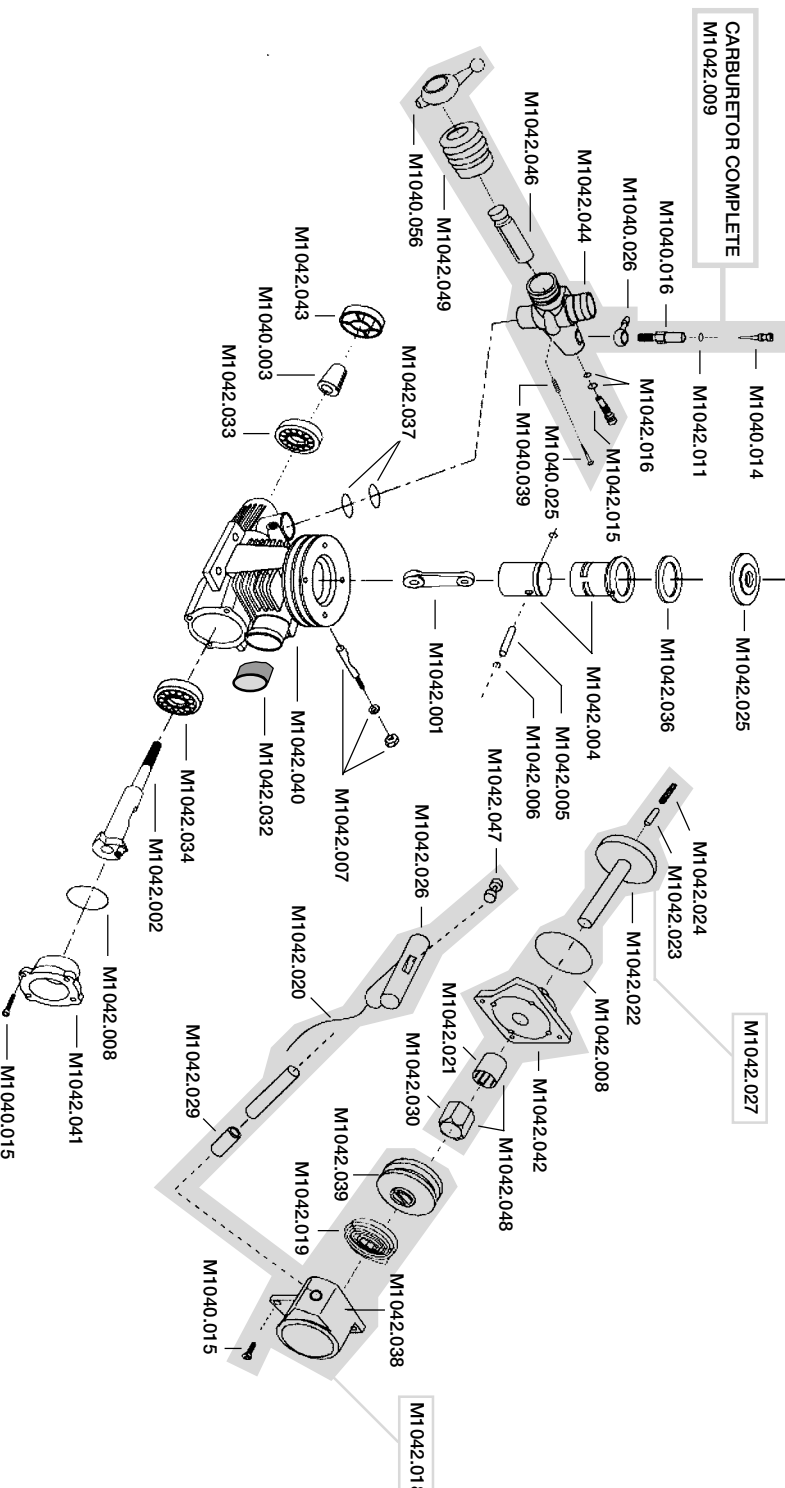
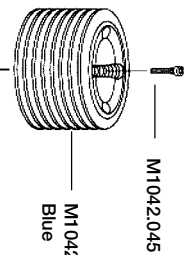
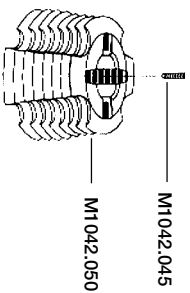


# PROTECH<sup>®</sup> SX-21

## Engine Instructions



ITEM N°	DESCRIPTION
M1040.003	DRIVE COPPER CONE
M1040.014	MAIN NEEDLE VALVE
M1040.015	REAR COVER BOLT (M2.6X6) 4PCS
M1040.016	MAIN NEEDLE VALVE HUB
M1040.025	THROTTLE STOP ADJUST SCREW
M1040.026	FUEL NOZZLE
M1040.039	ADJUSTED SCREW/SPRING
M1040.056	THROTTLE SCREW CAP
M1042.001	CONNECTING ROD
M1042.002	CRANKSHAFT
M1042.004	CYLINDER SLEEVE/PISTON
M1042.005	PISTON/GUDGEON PIN
M1042.006	"G" PIN SNAP RING 2 PCS
M1042.007	CARBURETOR SETTING PIN
M1042.008	REAR COVER "O" RING
M1042.009	CARBURETOR COMPLETELY (SLIDE TYPE)
M1042.011	MAIN NEEDLE VALVE "O" RING
M1042.015	SUPPLY NEEDLE VALVE
M1042.016	SUPPLY NEEDLE VALVE "O" RING
M1042.018	RECOIL STARTING UNIT
M1042.019	EDDY SPRING
M1042.020	STARTING STRING
M1042.021	ONE WAY BALL BEARING
M1042.022	STARTING AXLE
M1042.023	STARTING PIN
M1042.024	PRESSURE SPRING
M1042.025	BURN ROOM
M1042.026	HANDLE
M1042.027	PULL START CRANKCASE COVER SET
M1042.029	BUFFER HEAD WASHER SEAT
M1042.030	ONE WAY BEARING SEAT
M1042.032	SILICON EXHAUST GASKET
M1042.033	BALL BEARING FRONT
M1042.034	BALL BEARING REAR
M1042.035	CYLINDER HEAD (BLUE)
M1042.036	CYLINDER HEAD WASHER
M1042.037	CARBURETOR "O" RING
M1042.038	REAR COVER
M1042.039	THREAD SEAT
M1042.040	CRANKCASE BLACK COLOUR
M1042.041	REAR BACK COVER
M1042.042	CONNECTIVE SEAT
M1042.043	DRIVE GEAR
M1042.044	CARBURETOR MAIN BODY
M1042.045	CYLINDER HEAD BOLT (M3X12) 4PCS
M1042.046	THROTTLE NEEDLE
M1042.047	STRING SEAT
M1042.048	ONE WAY BALL BEARING + SEAT
M1042.049	THROTTLE COVER
M1042.050	CYLINDER HEAD

# **THE PROTECH SIDE EXHAUST CAR ENGINE INSTRUCTIONS RECOMMENDED BREAK-IN PROCEDURE**

- Please note that the carburetor low-end adjustment needle valve situated on the the side of the carburetor has already been factory preset. Please do not attempt to adjust it at this stage .
- To initially start the engine, the main needle valve must be opened to rich setting. To do this, turn the needle in a clockwise direction until it is fully closed and then open it up five complete turns in an anti clockwise direction.
- We recommend that you run the engine at this setting for at least the first six tanks full of fuel
- At this early stage, you may find that because of the rich setting, the engine may initially develop a hydraulic lock because of the excess fuel and be impossible to turn over with the pull starter.
- Whenever this happens, it is necessary to take the glow plug out and turn the car upside down and vigorously spin the engine over with approximately pulls on 10 the starter.
- You will notice a spray of unburnt fuel coming out of the plug hole, which will clear the engine. Whilst the glow plug is out, it is a good idea to connect it to your starting battery and check that the element is showing a healthy red glow. If it is not, your battery or starting system has lost power or the glow plug burnt out.
- Having corrected either fault, replace the glow plug and go through the initial starting period again with the same rich needle setting.
- After six tanks full of fuel, we recommend that you gradually turn the main needle valve inwards in a clockwise direction by quarter of a turn to gradually increase the engine speed, but still with a protective rich smoky exhaust.
- Do not at any time run the motor flat out and certainly not more than half throttle with the car wheels off the ground. You must not run the engine in with the car sitting on "blocks" with wheels off the ground.
- If while the engine is running, there is no smoky exhaust evident, then the setting is too lean and because of the heat and lack of oil present, the motor can be potentially damaged.
- When you feel that you have mastered the starting procedure and the engine is run in, you can adjust the low-end needle to improve idling and quick engine response to full throttle.
- The low-end needle should be turned cautiously only by 1/8 turn at a time. A clockwise movement will produce a leaner mixture which may be necessary if the motor hesitates and blows exhaust smoke when move to full throttle. Conversely, if when switched to full throttle from idle, the engine cuts abruptly, then it is too lean and the low end should be rotated 1/8 turn in an anti clockwise direction.

## **AIR FILTERS**

Always use a high quality air filter and check and replace it regularly. Dust and dirt will quickly reduce the performance of your engine and shorten its life. Foam air filters are inexpensive; however if you are using a paper type, please note that the paper can get full of dust restricting the air flow and causing the engine to run rich.

## **FUEL**

Always use a high quality model aircraft of car fuel, which contains at least 20% oil. We recommend Daytona fuel, which gives maximum protection and should be the part of any fuel you use. Nitromethane helps to increase idling and power and whilst PROTECH engines will run on high percentages of nitro, we recommend that you don't run on any more than a total of 15% nitro. For general sport operation, a mix of 20% castor, 5% nitromethane and 75% methanol will give a good performance.

## **WHY THE ENGINE WON'T START**

- Fuel flow into the carburetor is blocked. Unscrew the needle valve and blow air into the carburetor.
- The tank may have a blockage ... check it carefully.
- The fuel line from the tank to the motor may be split or have a small pin hole causing air bubbles ... replace it.
- The glow plug may not be operating ... check your battery or replace the plug.
- The fuel filter is clogged up ... replace it.
- The fuel line has slipped off the carburetor or tank.
- You are using the wrong type of fuel.
- The muffler is loose.
- The glow plug connector or lead from the starting battery has a fault ... check it carefully.
- The engine has no compression ... check the head screws and perhaps the cylinder & piston has been scored with dirt.

### **EC-DECLARATION OF CONFORMITY FOR MACHINERY** (Directive 89/392/EEC, Annex II, sub. A.)

PROTECH® for the following products

**engine for R/C models**

type: 12SX

- are in conformity with the provisions of the Machinery (Directive 89/392/EEC), as amended, and with national implementing legislation and furthermore declares that:

- following (parts/clauses of) harmonized standards have been applied: **EN-292-1 / EN-292-2**

Herentals, 13.08.2001



Stefan Engelen

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