

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-157
Relating to Exemptions under Section 27156
of the Vehicle Code

JAM ENGINEERING CORPORATION

JAM CARBURETOR EXCHANGE KIT USING WEBER MODEL
32/36 DGAV 3B-03B CARBURETORS

Pursuant to the authority vested in the Air Resources Board by Section 27156 of the Vehicle Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-5;

IT IS ORDERED AND RESOLVED: That the installation of the JAM Carburetor Exchange Kit No. C-101 manufactured by JAM Engineering Corporation has been found not to reduce the effectiveness of required motor vehicle pollution control devices and, therefore, is exempt from the prohibitions of Section 27156 of the Vehicle Code for the vehicles listed below:

<u>Year</u>	<u>Make</u>	<u>Model</u>	<u>Engine (CID)</u>	<u>JAM Kit No.</u>	<u>Weber Carburetor</u>
1972-1976	BMW	2002	2.0L (121)	C-101	32/36 DGAV 3B-03B

This Executive Order is valid provided that installation instructions for this device will not recommend tuning the vehicle to specifications different from those submitted by the device manufacturer.

Changes made to the design or operating conditions of the device, as exempted by the Air Resources Board, that adversely affect the performance of a vehicle's pollution control system shall invalidate this Executive Order.

Marketing of this device using an identification other than that shown in this Executive Order or marketing of this device for an application other than those listed in this Executive Order shall be prohibited unless prior approval is obtained from the Air Resources Board. Exemption of a kit shall not be construed as an exemption to sell, offer for sale, or advertise any component of a kit as an individual device.

This Executive Order does not constitute any opinion as to the effect that the use of this device may have on any warranty either expressed or implied by the vehicle manufacturer.

THIS EXECUTIVE ORDER DOES NOT CONSTITUTE A CERTIFICATION, ACCREDITATION, APPROVAL, OR ANY OTHER TYPE OF ENDORSEMENT BY THE AIR RESOURCES BOARD OF ANY CLAIMS OF THE APPLICANT CONCERNING ANTI-POLLUTION BENEFITS OR ANY ALLEGED BENEFITS OF THE JAM ENGINEERING CORPORATION KIT NO. C-101.

No claim of any kind, such as "Approved by Air Resources Board" may be made with respect to the action taken herein in any advertising or other oral or written communication.

Section 17500 of the Business and Professions Code makes untrue or misleading advertising unlawful, and Section 17534 makes violation punishable as a misdemeanor.

Section 43644 of the Health and Safety Code provides as follows:

"43644. (a) No person shall install, sell, offer for sale, or advertise, or, except in an application to the state board for certification of a device, represent, any device as a motor vehicle pollution control device for use on any used motor vehicle unless that device has been certified by the state board. No person shall sell, offer for sale, advertise, or represent any motor vehicle pollution control device as a certified device which, in fact, is not a certified device. Any violation of this subdivision is a misdemeanor."

Any apparent violation of the conditions of this Executive Order will be submitted to the Attorney General of California for such action as he deems advisable.

Executed at El Monte, California, this 26th day of August, 1985.



K. D. Drachand, Chief
Mobile Source Division

State of California
AIR RESOURCES BOARD

EVALUATION OF THE JAM ENGINEERING CORPORATION
CARBURETOR EXCHANGE KIT NO. C-101
USING MODEL 32/36 DGAV 3B-03B WEBER CARBURETORS
FOR EXEMPTION FROM THE PROHIBITIONS OF VEHICLE CODE SECTION 27156
IN ACCORDANCE WITH SECTION 2222, TITLE 13
OF THE CALIFORNIA ADMINISTRATIVE CODE

AUGUST, 1985

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by

Mobile Source Division
State of California
AIR RESOURCES BOARD
9528 Telstar Avenue
El Monte, CA 91731

(This report has been reviewed by the staff of the California Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Air Resources Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.)

SUMMARY

JAM Engineering Corporation (JAM) has applied for exemption from the prohibitions of Vehicle Code Section 27156 for the JAM Carburetor Exchange Kit No. C-101 using Weber model 32/36 DGAV 3B-03B carburetors. The JAM Carburetor Exchange Kit replaces the original equipment Solex 32/32 DIDTA carburetors on 1972-1976 model-year BMW 2002 model vehicles.

Comparative exhaust emission tests demonstrate that the aftermarket JAM Carburetor Exchange Kit No. C-101 using Weber model 32/36 DGAV 3B-03B carburetors does not adversely affect emissions. Based on the results of the tests and the evaluation of the JAM Carburetor Exchange Kit, the staff recommends that the exemption be granted as requested for the 1972-1976 model-year BMW 2002 model vehicles.

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EVALUATION OF THE JAM ENGINEERING CORPORATION CARBURETOR EXCHANGE KIT NO. C-101 USING MODEL 32/36 DGAV 3B-03B WEBER CARBURETORS FOR EXEMPTION FROM THE PROHIBITIONS OF VEHICLE CODE SECTION 27156 IN ACCORDANCE WITH SECTION 2222, TITLE 13 OF THE CALIFORNIA ADMINISTRATIVE CODE

I. INTRODUCTION

JAM Engineering Corporation (JAM) of Monterey, California, has applied for exemption from the prohibitions of Vehicle Code Section 27156 for a Carburetor Exchange Kit designated as JAM Kit No. C-101 utilizing Weber model 32/36 DGAV 3B-03B carburetors. The Carburetor Exchange Kit is designed to replace the original equipment manufacturer (OEM) Solex 32/32 DIDTA carburetors as found on 1972-1976 model-year BMW 2002 vehicles equipped with 121 cubic inch displacement (CID) engines.

This report describes the evaluation of the JAM Carburetor Exchange Kit and the findings.

II. CONCLUSIONS

Comparative exhaust emission data and other information submitted by the applicant demonstrated that the JAM kit using Weber model 32/36 DGAV 3B-03B carburetors meets the Air Resources Board (ARB) requirements for exemption from the prohibitions of Vehicle Code Section 27156.

III. RECOMMENDATIONS

Based on the submitted comparative data of the JAM Carburetor Exchange Kit, the staff recommends that JAM be granted exemption from the prohibitions of Vehicle Code Section 27156 for the JAM Carburetor Exchange Kit No. C-101 using model 32/36 DGAV 3B-03B Weber carburetors for the years, make, and model of vehicles listed below:

<u>Years</u>	<u>Make</u>	<u>Model</u>	<u>Engine Description</u>
1972-1976	BMW	2002	121 CID (2.0L)

IV. DEVICE DESCRIPTION

The JAM Carburetor Exchange Kit No. C-101 uses Weber model 32/36 DGAV 3B-03B carburetors to replace the OEM Solex model 32/32 DIDTA carburetors. The Solex 32/32 DIDTA carburetor is used on 1972-1976 BMW 2002 vehicles. The Solex carburetor is a progressive two barrel downdraft carburetor. The carburetor assembly consists of a throttle body, a main body and an air horn. It incorporates a vacuum operated secondary which opens when the primary is open more than halfway and a high load condition exists. A diaphragm-type accelerator pump is operated by movement of the primary butterfly and injects fuel into the primary barrel. The Solex is equipped with an automatic choke which is sensitive to engine coolant temperature (see Appendix A-1).

The Weber 32/36 DGAV 3B-03B carburetor is a progressive, two-barrel downdraft design. Like the Solex, the Weber carburetor consists of a throttle body, a main body and an air horn. It incorporates a mechanically-operated secondary which starts to open after the primary throttle opens approximately 68 percent. A diaphragm accelerator pump is operated by movement of the primary butterfly and injects fuel into the primary barrel. The Weber is equipped with an automatic choke which is sensitive to engine coolant temperature and is very similar in design to the Solex choke (see Appendix A-2).

The JAM kit No. C-101 includes air cleaner adapter, throttle adapters, gaskets, hoses, fittings and mounting hardware. The Weber carburetors included in the JAM kits are fitted with an anti-dieseling solenoid (see Appendix A-3). This solenoid cuts off the fuel flow to the idle circuit of the carburetor when the ignition is turned off. This prevents the engine from running-on after it is shut off. This anti-dieseling solenoid is included with all the JAM kits. Some of the early BMW 2002 vehicles for which the JAM

kit is applicable were not factory-equipped with such a solenoid. Because of this, the JAM kit updates the earlier vehicles by including this anti-dieseling feature.

All factory-installed emission control devices are retained and functional with the installation of the JAM kit.

V. EVALUATION PROGRAM

A. METHOD

The applicant performed comparative cold-start CVS-75 exhaust emission tests at Emissions Testing Laboratories of Northern California, San Carlos, California. A 1976 model-year BMW 2002 equipped with a 121 CID engine and 4-speed manual transmission was used as the test vehicle. The baseline test was performed with the Solex 32/32 DIDTA carburetor. A representative production JAM Kit No. C-101 was used for the comparative testing.

A 1976 model-year vehicle was used as the test vehicle since vehicles of this model-year were required to meet more stringent standards. It would be expected that vehicles of previous model-years would meet the respective emissions standards using the same JAM Kit.

B. TEST RESULTS

The applicant's submitted comparative exhaust emission data are given in Table 1.

Table 1

Emission Test Data - CVS-75

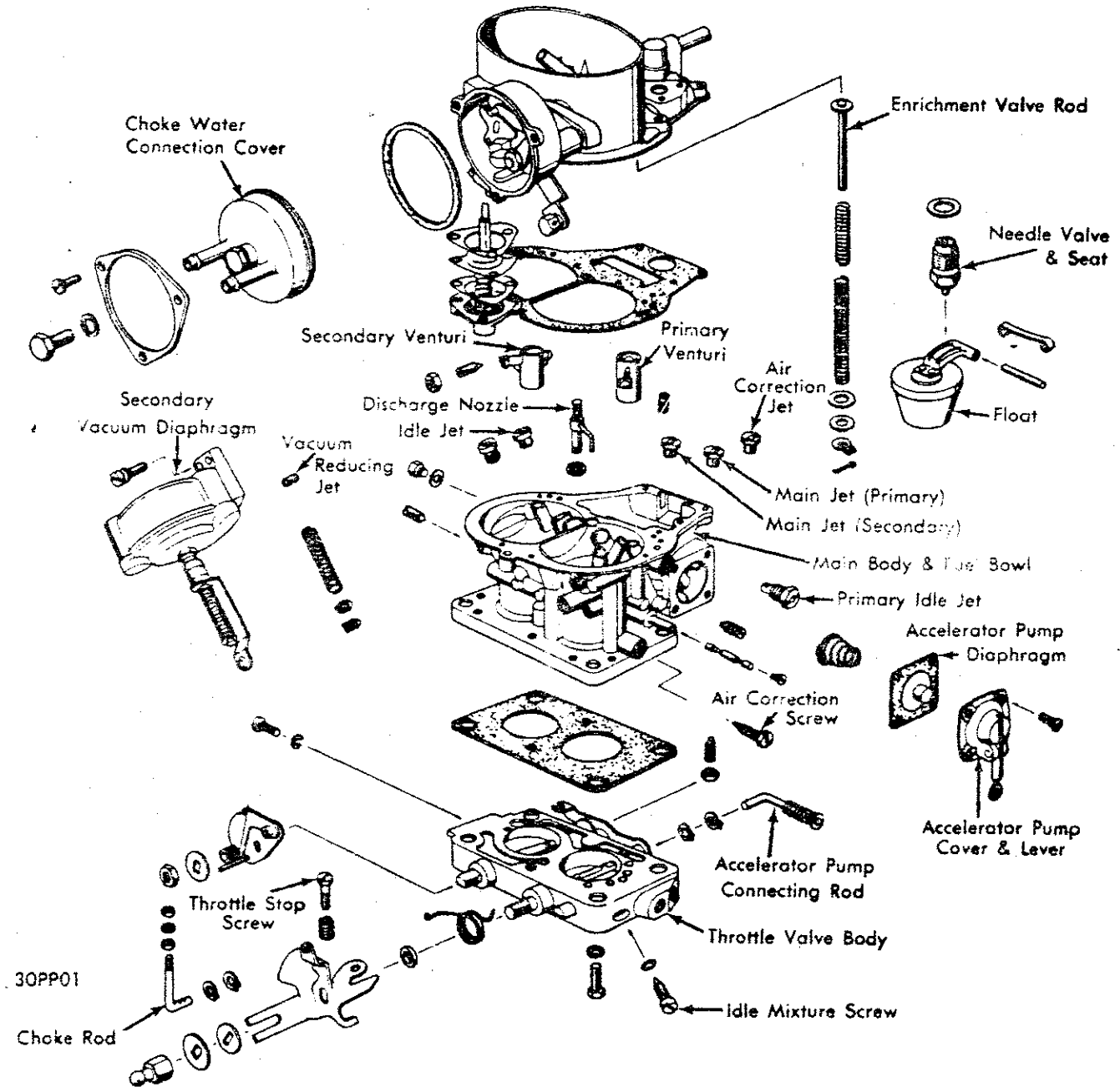
Condition	Exhaust Emissions			Fuel Economy City mi/gal
	HC	CO gm/mi	NOx	
Baseline	1.7	16.0	2.4	21.1
JAM Kit	1.8	11.5	2.3	20.5
1976 Passenger Car Standards	0.9	9.0	2.0	--

VI. DISCUSSION

The JAM Carburetor Exchange Kit is identified as Kit No. C-101. The kit uses Weber model 32/36 DGAV 3B-03B carburetors to replace the Solex 32/32 DIDTA carburetors for 1972-1976 model-year BMW 2002 model vehicles.

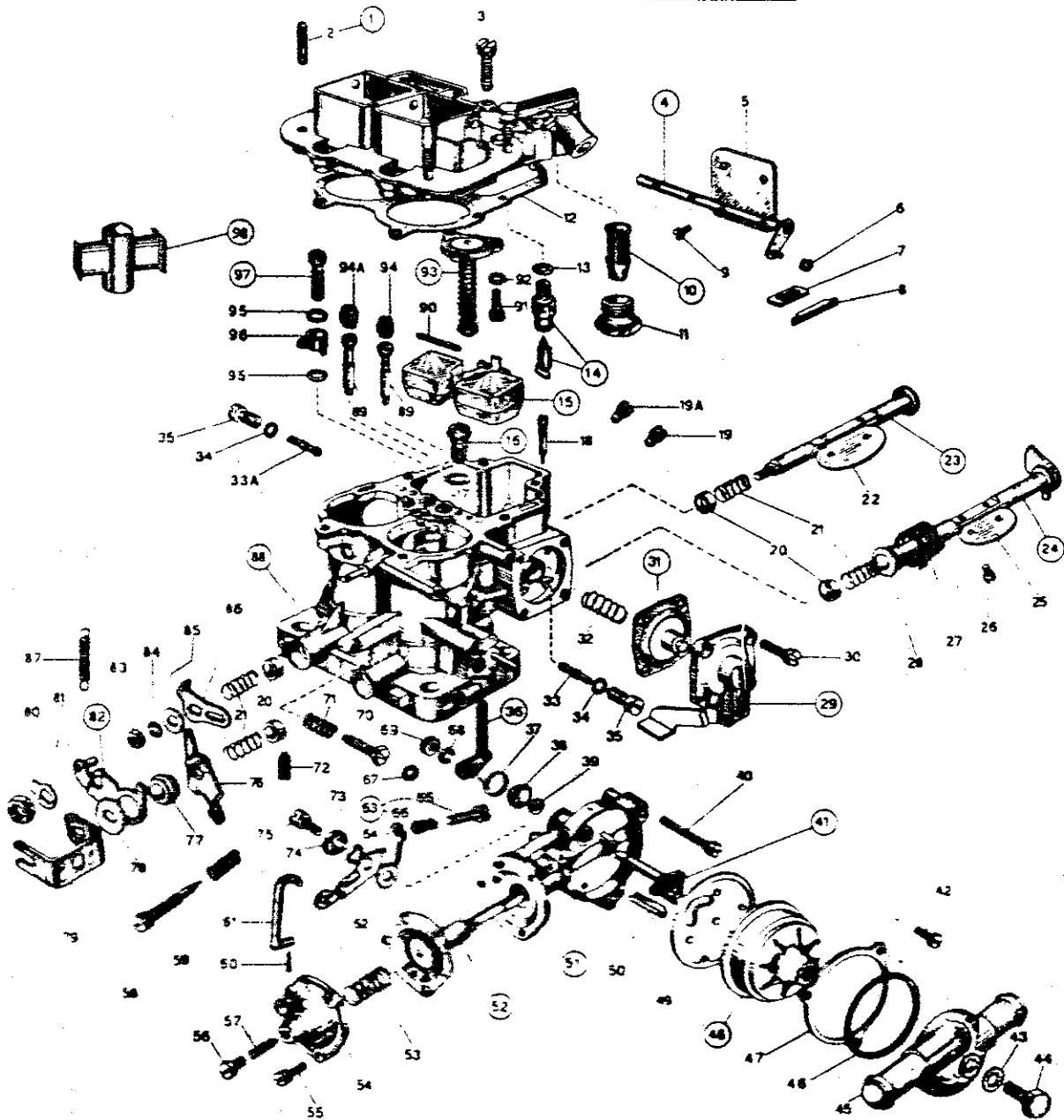
The applicant's submitted comparative emission test data are acceptable. The vehicle baseline exhaust hydrocarbon and carbon monoxide emissions exceeded the standards by a factor of approximately two and the baseline exhaust oxides of nitrogen emissions was about 20 percent above the standard. However, the baseline emission values, based on in-house data bank for that model-year vehicle and mileage of service, are typical and therefore acceptable. With the JAM kit installed, the carbon monoxide emissions of the test vehicle were lowered while the changes in hydrocarbons and oxides of nitrogen emissions were considered to be within the limits of laboratory test variability.

SOLEX DIDTA 2-BARREL



WEBER CARBURETOR

Type 32 36 DGAV 3B - 03B



THE BEST BY DESIGN
JAM-PAK
CONVERSIONS™

PARTS LIST

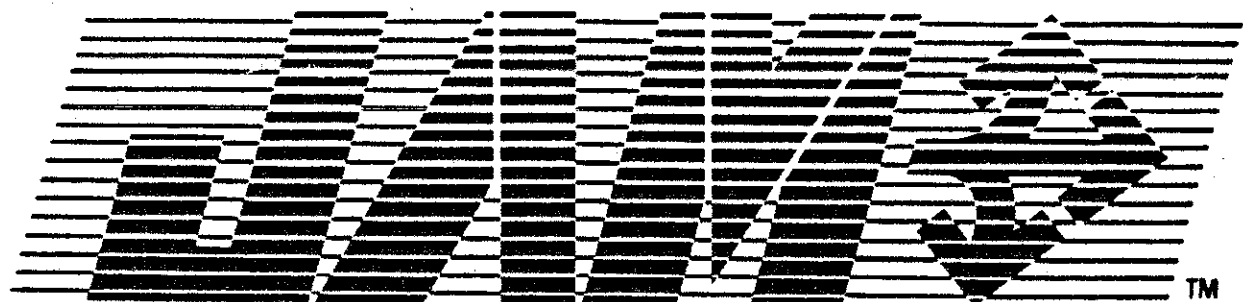
APPLICATION	BMW 2002
CARBURETOR REQUIRED	22680.049 OR .051
SOLENOID RECOMMENDED	JAM-2 ⁹⁵⁵ INCLUDED

1	BMW-4D-INS	INSTRUCTION MANUAL
1	RC-2	WARRANTY AND REPORT CARD
1	J-2. 5x3-D	DECAL
1	DGAV-PL	CARBURETOR PARTS SHEET
1	8X12-PB	POLY BAG
1	ACA-G	CARB. TO AIR CLEANER ADAPTER GASKET
1	BMW-4D-GA-3	AIR CLEANER ADAPTER TO A/C GASKET
2	DGV-1	CARBURETOR BASE GASKETS
1	DGV-IS-1	CARBURETOR INSULATOR/SPACER
1	32444. 016	WATER CHOKE HOUSING
1	BMW-4D-ACA-3/SM	AIR CLEANER ADAPTER
1	6X10-PB	POLY BAG
3	BWM6-30	BODY/FENDER WASHERS
3	912M6-55	ALLEN BOLTS
6	HC-516	HOSE CLAMPS
2	V3-316	3-WAY PLASTIC FITTING
1	VH-532. 2	VACUUM HOSE
1	BMW-4D-CA	CARBURETOR ARM
1	PS-14	1/4 PLASTIC SLEEVE
1	RH-516. 9	FUEL HOSE
1	RH-516. 16	WATER HOSE
1	RH-516. 23	WATER HOSE
2	NT-7	NYLON TIES
1	JAM-2	JAM ANTI-DIESELING SOLENOID

P. O. BOX 2570, 886 ABREGO ST., MONTEREY, CA 93940-2570 6/85

C-101

“THE BEST BY DESIGN”



ENGINEERING CORPORATION

Instruction manual



PLEASE READ INSTRUCTIONS PRIOR TO CONVERSION

INSTALLATION INSTRUCTIONS C-101 CONVERSION

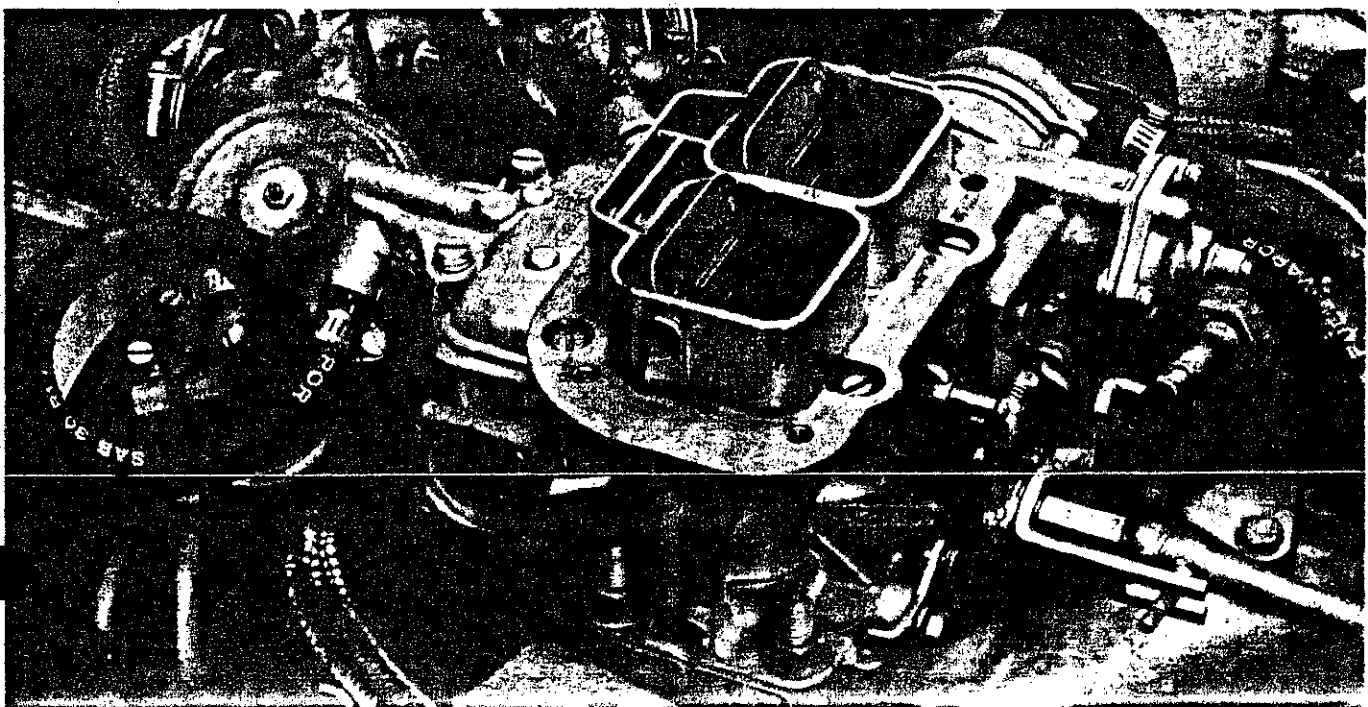
BMW 4 CYLINDER 2002, MODELS 1972-76

1. REMOVE THE BATTERY GROUND TO AVOID FIRES.
2. DRAIN ABOUT ONE GALLON OF COOLANT.
3. REMOVE AND RETAIN THE STOCK AIR CLEANER - INSTRUCTIONS FOR ITS MODIFICATION WILL BE FOUND BELOW. REMOVE BOTH AIR CLEANER BRACKETS AND REPLACE THE BOLTS AND NUTS. (LABEL VACUUM HOSES "PORTED" FOR THOSE ABOVE THROTTLE PLATES AND "MANIFOLD" FOR THOSE THAT ATTACH BELOW THE THROTTLE PLATES.)
4. REMOVE THE STOCK CARBURETOR INCLUDING THE WATER CHOKE HOSES AND FUEL LINE TO THE PRESSURE REGULATOR. REMOVE THE THROTTLE LINKAGE BY FIRST WITHDRAWING THE WIRE CLIP WHICH RETAINS THE BALL SOCKET ENABLING THE BALL TO BE EASILY WITHDRAWN.
5. REMOVE THE LONG NUT WITH BALL-JOINT END FROM THE STOCK CARBURETOR.
6. REMOVE THE CARBURETOR ARM FROM THE WEBER CARBURETOR AND INSTALL THE NEW ARM PROVIDED SO THAT THE LONG ARM EXTENDS TOWARD YOU AND IS TO THE LEFT OF THE CARBURETOR SHAFT AS YOU FACE IT. SECURE THE ARM USING THE LOCKING WASHER FROM THE WEBER CARBURETOR AND THE BALL-JOINT NUT REMOVED FROM THE STOCK CARBURETOR. DO NOT OVERTIGHTEN - TO DO SO WILL LEAD TO "STICKY" THROTTLE ACTION. (SEE PHOTO)
7. REMOVE THE ORIGINAL WEBER WATER CHOKE HOUSING AND REPLACE IT WITH THE 5/16 WATER CHOKE HOUSING SUPPLIED IN THE KIT. ORIENT THE

OUTLETS SO THAT THEY POINT TOWARDS THE BACK OF THE CAR AND DOWNWARD AT A 45° ANGLE WHEN INSTALLED.

8. MOUNT THE CARBURETOR USING THE TWO GASKETS AND INSULATOR SUPPLIED IN THE CONVERSION, GASKET-INSULATOR-GASKET. NOTE: THE GASKETS AND INSULATOR ARE NOT SYMMETRICAL AND MUST BE INSTALLED TO MATCH THE CARBURETOR BASE.
9. INSTALL THE CARBURETOR LINKAGE, AS SHOWN IN PHOTO, REPLACING THE WIRE CLIP REMOVED IN STEP 4.
10. LOOSEN THE FUEL PRESSURE REGULATOR BRACKET BOLTS AND REORIENT THE FUEL REGULATOR TO CLEAR THE WEBER CARBURETOR, BENDING THE BRACKET SLIGHTLY IF NECESSARY. RETIGHTEN THE BRACKET BOLTS.
11. INSTALL THE 9 INCH LENGTH OF 5/16" FUEL LINE SUPPLIED, WITH THE HOSE CLAMPS SUPPLIED.
12. INSTALL THE CHOKE WATER LINES USING THE TWO 14 INCH HOSES AND HOSE CLAMPS SUPPLIED. THE LOWER CHOKE HOUSING OUTLET SHOULD BE CONNECTED TO THE BLOCK FITTING AND THE UPPER CHOKE HOUSING OUTLET TO THE MANIFOLD FITTING.
13. RECONNECT THE VACUUM LINES USING THE "TEE" OR "CROSS" AND 2 INCH VACUUM HOSE SUPPLIED AS NECESSARY TO SUPPLY "PORTED" AND/OR "MANIFOLD" CONNECTIONS. NOTE: FOR CONVERSIONS SUPPLIED WITH IDLE CIRCUIT SOLENOID ONLY: INSTALL THE JAM IDLE CIRCUIT SOLENOID KIT FOLLOWING THE INSTRUCTIONS SUPPLIED WITH THAT CONVERSION AND CONNECT THE STOCK ELECTRIC SOLENOID LEAD TO THE JAM SOLENOID.
14. NEXT, MODIFY THE AIR CLEANER. INVERT THE STOCK AIR CLEANER AND REMOVE THE RUBBER GASKET FROM THE DOWNSPOUT.
15. LOCATE THE JAM AIRCLEANER ADAPTOR ON THE BOTTOM OF THE AIRCLEANER HOUSING AND SPOT THE THREE 17/64 HOLES. DRILL THRU THE AIR CLEANER HOUSING USING THE ADAPTOR AS A GUIDE.
16. CUT 3/8 INCH FROM THE BOTTOM OF THE AIR CLEANER DOWNSPOUT.

17. REMOVE THE AIRCLEANER HOLDDOWN STUD FROM THE WEBER ON THE PRIMARY SIDE TO THE REAR OF THE CAR. NOTE: MANUAL CHOKE CARBURETORS ALSO REQUIRE REPLACEMENT OF THE STOCK SHORT 5MM STUDS WITH LONG 5MM ALLEN SCREWS SUPPLIED IN THE CONVERSION.
18. ASSEMBLE THE JAM ADAPTER AND AIRCLEANER HOUSING TO THE WEBER CARBURETOR USING THE GASKETS SUPPLIED BETWEEN THE ADAPTER AND THE CARBURETOR AND THE ADAPTER AND THE AIRCLEANER HOUSING. THREE 6MM NYLOCK NUTS AND FENDER WASHERS (AUTOMATIC CHOKE CARBURETORS) ARE INCLUDED, TO SECURE THE AIRCLEANER ASSEMBLY TO THE WEBER CARBURETOR.
19. REFILL THE COOLING SYSTEM AND CHECK FOR LEAKS.
20. START ENGINE AND BRING TO OPERATING TEMPERATURE.
21. ADJUST IDLE SPEED AND IDLE MIXTURE FOR OPTIMUM PERFORMANCE. ADJUST THE AUTOMATIC CHOKE ONLY IF NECESSARY. IN GENERAL, THE WEBER CARBURETORS ARE IN EXCELLENT ADJUSTMENT AS THEY COME FROM THE BOX AND REQUIRE LITTLE OR NO FINE TUNING. INSTALLATION IS NOW COMPLETE.



NOTICE

ALTERATION OF INDUCTION SYSTEMS OF VEHICLES USED ON THE STREETS MAY BE CONTRARY TO LOCAL OR FEDERAL LAW. CONSULT APPROPRIATE LEGAL AUTHORITIES PRIOR TO MODIFYING ANY VEHICLE DRIVEN ON PUBLIC STREETS. JAM ENGINEERING ASSUMES NO LIABILITY FOR CONSEQUENTIAL DAMAGES RESULTING FROM THE INSTALLATION OF ANY PRODUCT OR PART PROVIDED.

JAM ENGINEERING WARRANTY

IT IS JAM ENGINEERING'S GOAL TO PROVIDE OUR CUSTOMERS WITH THE HIGHEST QUALITY PRODUCTS AVAILABLE. JAM WARRANTS EACH NEW PRODUCT TO BE FREE FROM DEFECTS IN BOTH WORKMANSHIP AND MATERIAL TO A PERIOD OF ONE YEAR FROM DATE OF PURCHASE, PROVIDED THAT THE PRODUCT IS PROPERLY INSTALLED AND SUBJECTED TO NORMAL USE AND SERVICE AND THAT THE PRODUCT IS NOT MODIFIED OR CHANGED IN ANY WAY.

CUSTOMERS REQUIRING WARRANTY SERVICE SHOULD CONTACT THE DEALER FROM WHOM THEY PURCHASED THE PRODUCT. IN TURN THE DEALER WILL CONTACT JAM ENGINEERING, AND WE WILL DETERMINE THE METHOD OF SATISFYING THE WARRANTY. THIS WARRANTY COVERS ONLY THE PRODUCT ITSELF AND NOT THE COST OF INSTALLATION OR REMOVAL.

DISCLAIMER OF WARRANTIES

JAM ENGINEERING EXPRESSLY DISCLAIMS LIABILITY FOR ANY AND ALL CONSEQUENTIAL DAMAGES OCCASIONED BY THE BREACH OF ANY WRITTEN OR IMPLIED WARRANTY PERTAINING TO THIS SALE, IN EXCESS OF THE PURCHASE PRICE OF THE PRODUCT SOLD. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.