

Automotive Vacuum & Pressure Test Kit

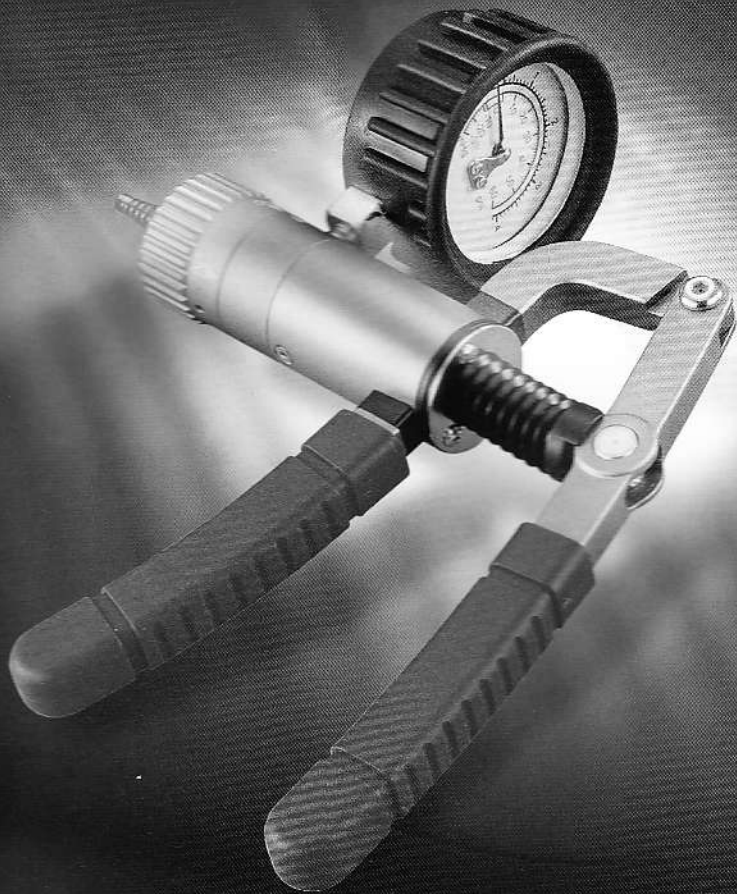




Fig.2.1 Vacuum

THE VACUUM / PRESSURE PUMP(FIG.1)

The Vacuum Pump is accurate, robust and easy to use. The unit consists of a pump-body(A), moveable handle (B) and a

gauge (C) which displays both vacuum (inHG / BAR) and pressure (Psi /Bar). Pressure and vacuum modes can be selected via the Mode Selector (D) as follows:

- 1.For vacuum testing-turn the mode selector until the selection arrow is aligned with operation arrow labelled 'IN' (Fig. 2.1)
- 2.For pressure testing - turn the mode selector until the selection arrow is aligned with the operation arrow labelled 'OUT' (Fig.2.2)

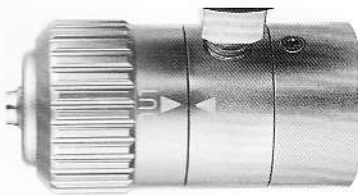


Fig.2.2 Pressure

CAUTION

Although the Pump is manufactured to exacting standards, please ensure that it is handled accordingly. Dropping, rough handling, exposure to high temperatures (hot engines, naked flames, etc) or misuse

may jeopardise the accuracy of the pump and may also invalidate the warranty.

USING THE AUTOMOTIVE VACUUM & PRESSURE TEST KIT TO DIAGNOSE ENGINE FAULTS

Before condemning the engine management system for causing any particular problem, remember that the engine's mechanical components must be in good condition for the engine to perform properly. A vacuum gauge can be used to check the mechanical condition of an engine, however it is not foolproof.

By connecting the pump to a manifold vacuum port (this must be the engine side of the throttle butterfly) with the T connectors provided, a wide array of diagnostic examinations can be conducted.

By examining the range of vacuum readings and the movement of the gauge needle in comparison to the pressure readings of a normal engine running at idle (typically steady and between 16inHg and 22inHg), it is possible to diagnose a variety of faults*

* This is by no means an exhaustive list of tests. The hand pump and adaptors can be used to test practically any component or system that requires proper sealing, vacuum or pressure to operate.

TO TEST FUEL SYSTEMS

Professional vacuum/pressure diagnostic tool helps identify a variety of faults on vehicle systems including fuel, ignition, transmission, emission and air conditioning/heating. Set also includes reservoirs, hoses and adaptors for bleeding brake and clutch systems.. By using the appropriate connector from the selection included in the kit, most vacuum pipes can be interrupted.

When bleeding diesel fuel systems, it is recommended that the reservoir pot is used. This creates a vacuum in the pot and the diesel fuel is drawn in. This may need to be completed a few times before the procedure is complete. Connect the pot and gauge between the fuel filter and distribution pump.



FAULT	Indicator (Compare low to normal engine at idle 16-22inHg)
NORMAL ENGINE	Reads steady at between 16inHg and 22inHg
WORN VALVE GUIDES	Reads lower than normal and fluctuates rapidly in a range of approximately 3inHg. As the rpm increases, the reading will become increasingly steady
BURNED OR LEAKING VALVES	Will fluctuate between low and normal at regular intervals
STICKING VALVES	Will demonstrate rapid and intermittent drops in vacuum pressure
PISTON RING LEAKS	Will be low, constant and demonstrate a rapid rise following a quick throttle opening and closing. The vacuum reading at idle will be low but steady at approximately 12inHg to 16inHg. Increase the engine speed to 3000-rpm and close the throttle suddenly and the vacuum should increase 3inHg to 5inHg above its low steady reading. A smaller reading may indicate faulty rings.
BLOWN CYLINDER HEAD GASKETS	At idle the reading will fluctuate between a normal and a low reading. The vacuum will drop approximately 10inHg from the normal reading and return to normal each time the defective cylinder or cylinders reach firing point
INCORRECT IDLE AIR/FUEL MIXTURE	Rich mixture will read as a slow up and down movement over a range of around 4inHg-5inHG. Lean mixture appears as a drop over the same range
LATE IGNITION / VALVE TIMING	Steady, low vacuum reading at idle indicates late ignition or valve timing or a uniformly close setting of the valve lash.

TO TEST AIR CONDITIONING AND HEATING SYSTEMS

Using the connectors provided, it is possible to interrupt the vacuum system of the heating / air con system to enable safe and precise operation of the heater direction flaps in the heater box. Remove the main vacuum supply to the unit and replace with the vacuum / pressure tester. Select vacuum mode and apply a small amount of vacuum while observing operation and gauge pressure.

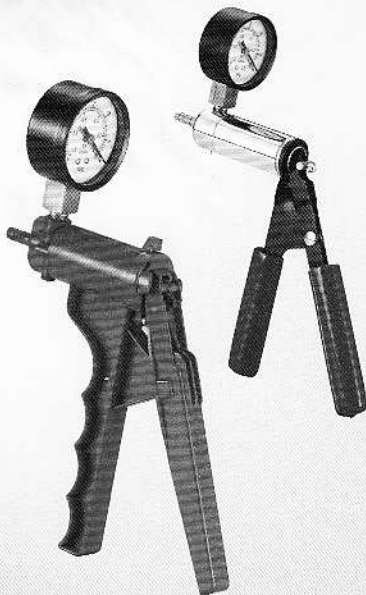
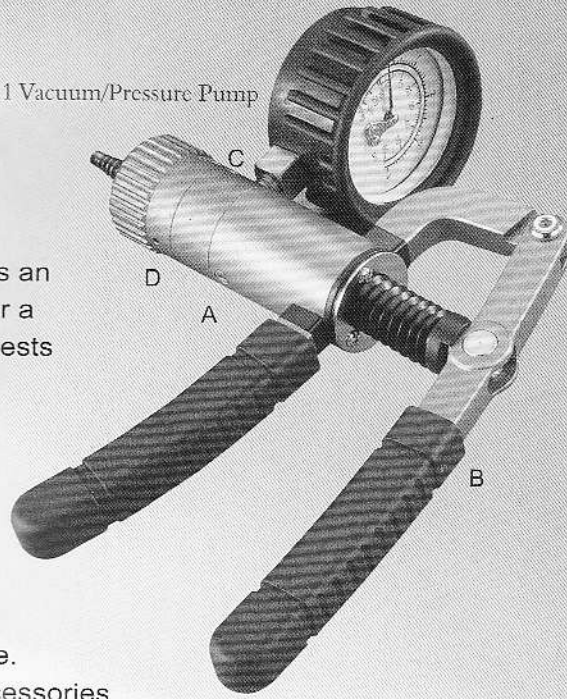
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Fig.1 Vacuum/Pressure Pump

INTRODUCTION

Professional Automotive Vacuum & Pressure Test Kit is an apparatus that can be used for a variety of automotive system tests and functions.

The hand pump and adaptors can be used to test vacuum motors and control valves as well as component or system that requires proper sealing, vacuum or pressure to operate. The pump and associated accessories can also be used to transfer fluids and to bleed brakes.



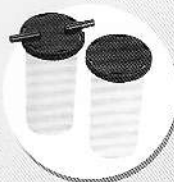
Connectors



24" Pipe



Connection Pipes



Reservoir Pot



Bleed Adapters

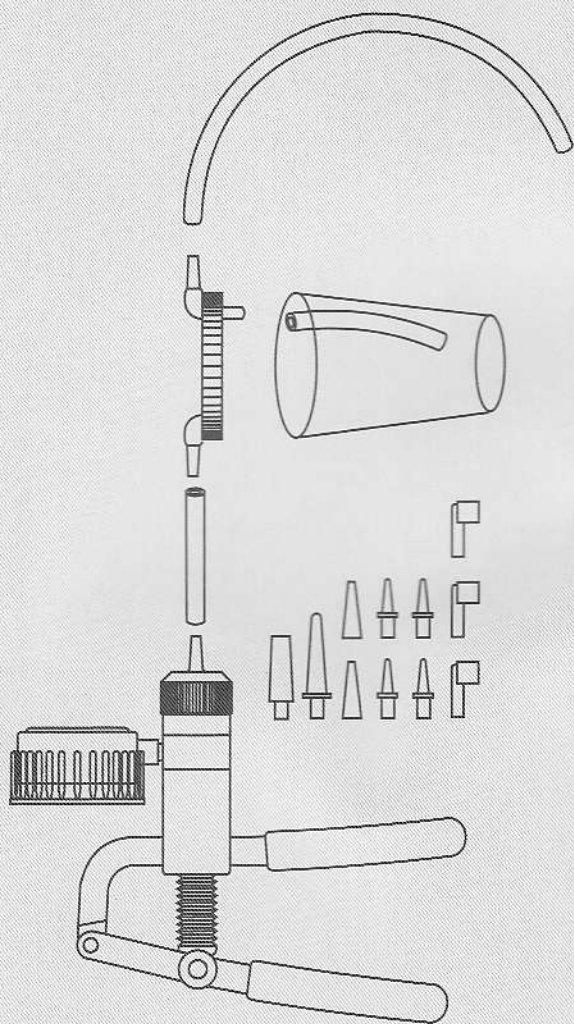
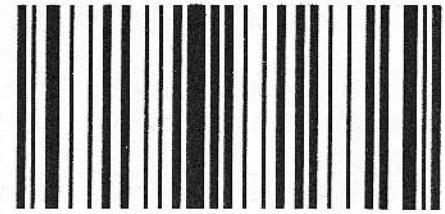


Fig.3 Brake Bleeding Assembly

To assemble the unit for brake bleeding

- a. Attach one of the 3" pipe lengths to the hand pump and to the reservoir lid
- b. Attach another 3" pipe to the bottom of the cap
- c. Attach the 24" pipe length to the free reservoir lid port
- d. Select an appropriate adapter and attach to the reservoir hose
- e. Attach the adaptor to the bleed nipple
- f. Place a wrench on the brake bleeding fitting, but do not turn
- g. Ensuring that the mode selector is in the "IN" position, pump around 15-20 times to build up a vacuum in the pump system
- h. Open the fitting until the fluid starts to enter the reservoir jar
- i. Remove approx. 2oz of fluid and then tighten the fitting
- j. Repeat on remaining wheels



Art. 5119 – POMPA MANUALE PER SOTTOVUOTO
– POMPE A BRAS POUR LE SOUS VIDE
– MANUAL VACUUM PUMP

MANUALE ISTRUZIONI - MODE D'EMPLOI - USER INSTRUCTIONS

RACCOMANDIAMO DI LEGGERE IL MANUALE DI ISTRUZIONI DEL MOTOCICLO E/O CHIEDERE CHIARIMENTI AL PROPRIO MECCANICO DI FIDUCIA

INTRODUZIONE

Questa pompa si utilizza per il controllo della depressione e della pressione particolarmente per i motori a scoppio.

Questa pompa manuale, completa dei suoi adattatori, è usata per controllare la depressione e/o la pressione nei motori e anche per sostituire liquidi e per scaricare i freni

La pompa per sottovuoto/pressione (fig.1 sul manuale inglese)

La pompa per sottovuoto manuale è precisa, robusta e facile da usare. L'unità è formata dal corpo della pompa (A), dal manico mobile (B) e da un manometro (C) che mostra sia il sottovuoto (inHG/BAR) sia la pressione (Psi/Bar). I metodi di misurazione della pressione e della depressione possono essere selezionati attraverso il Selettore Modalità (D) come segue:

1. per il controllo del sottovuoto – ruotare il selettore fino a che la freccia è allineata con 'IN' (fig. 2.1 sul manuale inglese)
2. per il controllo della pressione – ruotare il selettore fino a che la freccia è allineata con 'OUT' (fig. 2.2 sul manuale inglese)

Precauzioni

Sebbene la pompa sia costruita secondo standard qualitativi elevati, si prega di utilizzarla nel modo appropriato. Cadute, uso approssimativo, esposizione ad elevate temperature (motori caldi, fiamma viva, ecc.) o uso improprio possono comprometterne l'accuratezza e possono invalidarne l'uso.

Utilizzo della pompa per diagnosticare difetti nel motore

Per ottenere un risultato corretto accertarsi che i componenti meccanici del motore siano in buone condizioni. Un misuratore di sottovuoto può essere usato per testare le condizioni meccaniche del motore, tuttavia non è infallibile.

Connettendo la pompa alle molteplici valvole di depressione con i collettori a T forniti, può essere fatto un vasto numero di esami diagnostici.

Esaminando l'intervallo dei valori di sottovuoto letti sul manometro e i movimenti dell'ago del manometro in comparazione con i valori della pressione di un normale motore funzionante in folle (normalmente stabili e compresi tra 16inHg e 22inHg), è possibile diagnosticare una varietà di difetti.

Problema	Indicatore (comparato ad un normale motore in folle 16-22inHg)
Motore normale	La lettura è stabile tra 16inHg e 22inHg
Guide delle valvole usurate	La lettura è inferiore al normale e fluttua velocemente con una variazione di 3inHg. Come i grm crescono, i valori diventeranno mano a mano più stabili.
Valvole bruciate o mancanti nella tenuta	L'ago fluttua tra valori bassi e normali a intervalli regolari
Valvole incollate	Ci sono rapide e intermittenti perdite di pressione
Fasce elastiche mancanti nella tenuta	In seguito a rapido operare con il comando del gas ci sono bassi, costanti e dimostrati rapidi salti. La lettura della pressione con motore in folle è bassa ma stabile e compresa approssimativamente tra 12inHg e 16inHg. Aumentando il regime del motore a 2000 grm e chiudendo immediatamente l'acceleratore il valore dovrebbe aumentare di 2-5inHg. Una lettura minore può indicare fasce elastiche difettose

Guarnizioni usurate della testa del cilindro	In folle la lettura fluttua tra normale e bassa. La pressione cala approssimativamente di 10inHg dalla lettura normale, per poi ritornarvi ogni volta che il cilindro o i cilindri difettosi raggiungono il punto di scoppio
Scorretta miscelazione aria/carburante a motore in folle	Con miscela ricca l'ago si muove in alto e in basso lentamente con una variazione di 4inHg-5inHg. Con miscela povera l'ago fa lo stesso movimento ma verso il basso.
Ritardo nella valvola di iniezione	A motore in folle la lettura di un valore basso indica un ritardo nel sistema di iniezione o una incorretta sincronizzazione della valvola

Controllo del sistema di alimentazione

Ci sono numerosi impieghi che la pompa manuale per depressione e pressione può avere per il controllo del sistema di alimentazione. Dallo svuotamento al test dei regolatori di pressione.

Come assemblare l'unità per lo svuotamento dei freni (fig. 3 manuale in inglese)

- a. Posizionare uno dei tubetti lungo 3" alla pompa manuale e al tappo della tanica
- b. Attaccare l'altro tubetto da 3" alla base del tappo
- c. Mettere il tubetto da 24" sul beccuccio libero del tappo del serbatoio
- d. Selezionare l'adattatore appropriato e attaccarlo al foro del serbatoio dei freni
- e. Unire l'adattatore al nipplo di sfogo
- f. Mettere una chiave sulla valvola di svuotamento dei freni, ma non girarla
- g. Assicurarci che il selettore sia in modalità 'IN' e pompare 15-20 volte per creare il sottovuoto nel sistema di pompaggio
- h. Aprire la valvola fino a quando il fluido inizia a entrare nel serbatoio
- i. Rimuovere approssimativamente 2oz di fluido e quindi chiudere la valvola
- j. Ripetere con le rimanenti ruote

NOUS RECOMMANDONS DE LIRE LE "MODE D'EMPLOI" DE LA MOTO ET/OU DE DEMANDER DES CLARIFICATIONS À VOTRE MÉCANICIEN DE CONFIANCE

INTRODUCTION

Cette pompe est utilisée pour contrôler la dépression et la pression, en particulier pour les moteurs à explosion.

Cette pompe manuelle, avec ses adaptateurs, est utilisée pour contrôler la dépression et / ou la pression dans les moteurs et aussi pour remplacer les fluides et décharger les freins.

La pompe pour le sous vide / pression (fig. 1 du manuel en anglais)

La pompe manuelle à vide est précise, robuste et facile à utiliser. L'unité est composée du corps de la pompe (A), de la poignée mobile (B) et d'un manomètre (C) montrant le sous vide (in HG / BAR) et la pression (Psi / Bar). Les méthodes de mesurage de la pression et de la dépression peuvent être sélectionnés par le mode de sélection (D) comme suit:

1. Pour contrôler le vide tourner le sélecteur jusqu'à ce que la flèche soit alignée avec 'IN' (Fig. 2,1 sur manuel anglais)
2. Pour contrôler la pression, tourner le sélecteur jusqu'à ce que la flèche soit alignée avec "OUT" (Fig. 2,2 sur manuel anglais)

Précautions

Bien que la pompe est construite dans les normes de haute qualité, veuillez la utiliser d'une manière appropriée. Chutes, utilisation approximative, exposition à des températures élevées (moteurs chaud, flamme vive, etc.) ou usage impropre peuvent compromettre la précision et peuvent invalider l'utilisation.

Utilisation de la pompe pour diagnostiquer les défauts dans le moteur

Pour obtenir un bon résultat s'assurer que les composants mécaniques du moteur sont en bon état. Un mesureur de dépression peut être utilisé pour vérifier l'état mécanique du moteur, mais il n'est pas infaillible. Joignant la pompe aux multiples soupapes de dépression avec des collecteurs à T fournis, peut être fait un grand nombre de tests diagnostiques.

En regardant la gamme des valeurs de dépression lit sur le manomètre et le mouvement de l'aiguille en comparaison avec les valeurs de la pression d'un fonctionnement normal du moteur en position neutre (en général stable et entre 16inHg et 22inHg), il est possible de diagnostiquer une variété de défauts.

Problème	Indicateur (comparé à un moteur normale au point mort 16 - 22inHg)
Moteur normale	La lecture est stable entre 16inHg et 22inHg
Guides de soupapes usés	La lecture est inférieure à la normale et fluctue rapidement avec un changement de 3inHg. Comme les tpm grandissent, les valeurs deviennent progressivement plus stables.
Valves brûlés ou pas étanchés	L'aiguille oscille entre valeurs normales et basses à intervalles réguliers
Soupapes collées	Il y a intermittents et rapide pertes de la pression
Les bandages élastiques ne tiennent plus	En suit à un rapide fonctionnement de la commande de gaz il y a faibles, cohérente et constatée rapide sauts. La lecture de la pression avec moteur neutre est faible, mais stable, et compris environ entre 12inHg et 16inHg. L'augmentation de la vitesse du moteur à 2000 tpm et son arrêt devrait augmenter la valeur de 2 - 5inHg. Une lecture inférieure peut indiquer bandages élastiques défectueux
Garniture usés de la tête du cylindre	Avec le moteur au point mort la lecture oscille entre normale et basse. La pression chute environ de 10inHg à la lecture normale, pour y retourner chaque fois que le cylindre ou les cylindres défectueux attendent le point de l'explosion
Mélange air / carburant erronée	Avec mélange riche l'aiguille monte et descend lentement, avec un changement de 4inHg - 5inHg. Avec mélange pauvre l'aiguille fait le même mouvement, mais vers le baisse.
Un retard dans la soupape d'injection	Avec le moteur neutre la lecture d'une valeur faible indique un retard dans le système d'injection ou d'une erronée synchronisation de la soupape

Contrôle de système d'alimentation

Il existe de nombreux emplois que la pompe à bras pour la dépression et la pression peut avoir pour contrôler le système d'alimentation. Depuis le vidange jusqu'à le test des régulateurs de pression.

Comment monter l'unité pour vider les freins (Fig. 3 du manuel en anglais)

- Mettre un des tubes de longueur 3" sur la pompe manuelle et sur le bouchon du réservoir
- Placer l'autre tube de 3" à la base du bouchon
- Mettre le tube de 24" au bec libre du bouchon du réservoir
- Sélectionner l'adaptateur approprié et le joindre à l'orifice du réservoir des freins
- Joindre l'adaptateur au nipple de l'ouverture
- Mettre une clé sur la soupape de frein, mais ne la tourner pas
- S'assurer que le mode de sélection est 'IN' et pomper 15-20 fois pour créer le vide dans le système de pompage
- Ouvrir le robinet jusqu'à ce que le liquide commence à pénétrer dans le réservoir
- Enlever environ 2 onces de liquide, puis fermer la soupape
- Répéter avec les autres roues

WE RECOMMEND TO READ THE USER INSTRUCTIONS OF THE MOTORCYCLE AND/OR ASK CLARIFICATIONS TO YOUR CONFIDENT MECHANIC

INTRODUCTION

This pump is used to check depression and pressure particularly for piston engines.

This manual pump, complete with its adapters, is used to check depression and / or pressure in the engines and also to replace fluids and to empty the brakes

The vacuum / pressure pump (fig.1 on the English manual)

The manual vacuum pump is accurate, robust and easy to use. The unit consists of body pump (A), a moveable handle (B) and a gauge (C) which displays both vacuum (in HG / BAR) and pressure (Psi / Bar).

Methods of measuring pressure and depression can be selected via the mode selector (D) as follows:

1. To vacuum testing: rotate the mode selector until the arrow is aligned with 'IN' (fig. 2.1 on the English manual)
2. To pressure testing: rotate the mode selector until the arrow is aligned with 'OUT' (fig. 2.2 on the English manual)

Cautions

Although the pump is manufactured in high quality standards, please use it in an appropriate manner. Fall, approximate use, exposure to high temperatures (hot engines, naked flame, etc.) or misuse may jeopardize the accuracy of it and may invalidate its use.

How use the pump for diagnosing faults in the engine

To obtain a correct result ensure that the mechanical components of the engine are in good condition. A vacuum gauge can be used to test the mechanical condition of the engine, but it is not infallible. By connecting the pump to the manifold depression valves with T collectors provided, can be made a large number of diagnostic tests.

Looking at the range of vacuum values read on the gauge and at the movements of the gauge needle in comparison with the values of a normal engine running in neutral (usually stable and between 16inHg and 22inHg), it is possible to diagnose a variety of defects.

Problem	Indicator (compared to a normal engine at idle 16-22inHg)
Normal engine	Reads steady at between 16inHg and 22inHg
Worn valve guides	Reads lower than normal and fluctuates rapidly in a range of approximately 3inHg. As the rpm increases, the values become gradually more stable
Burned or leaking valves	The needle fluctuates between normal and low values at regular intervals
Sticking valves	There are intermittent and rapid loss of pressure
Piston ring leaks	Will be low, constant and demonstrate a rapid leap following a quick throttle opening and closing. The reading pressure at idle is low but steady, including approximately between 12inHg and 16inHg. Increasing the engine speed to 2000 rpm and immediately closing the throttle, the vacuum should increase the value of 2-5inHg. A smaller reading may indicate faulty rings
Blown cylinder head gasket	At idle the reading fluctuates between normal and low. The vacuum will drop approximately 10inHg from the normal reading, and then return to normal each time the defective cylinder or cylinders reach firing point
Incorrect idle air / fuel mixture	With rich mixture the needle moves up and down slowly in a range of 4inHg-5inHg. With poor mixture the needle has the same movement but downwards
Late ignition / valve timing	Steady, low vacuum reading at idle indicates late ignition or valve timing or a uniformly close setting of the valve lash

Control of power system

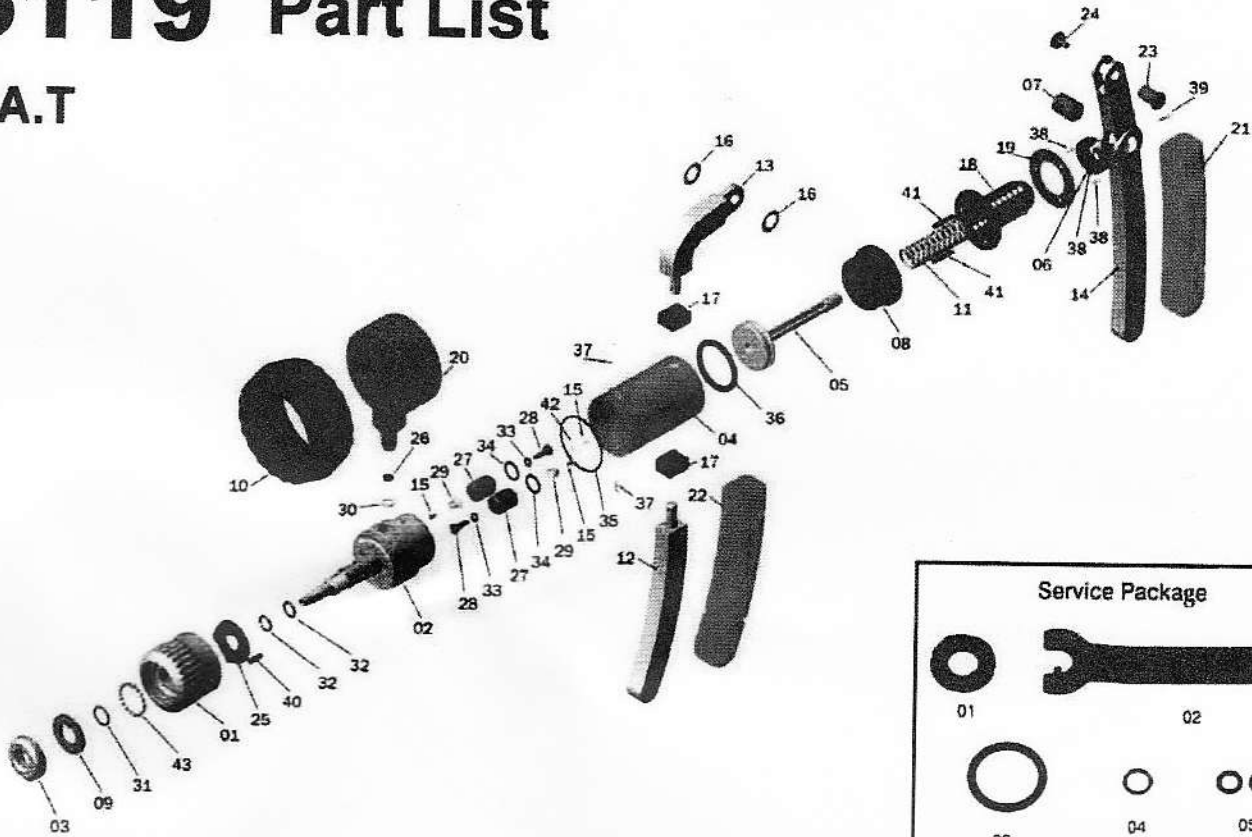
There are many uses that manual pump for depression and pressure can have for checking the power supply system, since empty of the system to test the pressure regulators.

How to assemble the drive for emptying brake (Fig. 3 on English manual)

- a. Attach one of the 3" pipe lengths to the hand pump and to the reservoir lid
- b. Attach another 3" pipe to the bottom of the cap
- c. Attach the 24" pipe length to the free reservoir lid port
- d. Select the appropriate adapter and attach it to the reservoir hose
- e. Attach the adaptor to the bleed nipple
- f. Place a wrench on the brake bleeding fitting, but do not turn
- g. Make sure that the mode selector is ' IN ' and pump 15-20 times to create the vacuum in the pumping system
- h. Open the valve until the fluid begins to enter into the reservoir
- i. Remove approximately 2oz of fluid and then close the valve
- j. Repeat with the remaining wheels

5119 Part List

P.A.T



No.	Item No.	Part Name	QT'Y	No.	Item No.	Part Name	QT'Y
01	5119-0001	Valve	1	26	5119-0026	Washer	1
02	5119-0002	Holder	1	27	5119-0101	Body	2
03	5119-0003	Nut	1	28	5119-0102	Plug	2
04	5119-0004	Cylinder	1	29	5119-0103	Spring	2
05	5119-0005	Piston	1	30	20022-07	Washer	1
06	5119-0006	Trap	1	31		O Ring	1
07	5119-0007	Holder	1	32		O Ring	2
08	5119-0008	Cover	1	33		O Ring	2
09	5119-0009	Washer	1	34		O Ring	2
10	5119-0010	Gauge Trap	1	35		O Ring	1
11	5119-0011	Spring	1	36		O Ring	1
12	5119-0012	Shaft	1	37		Screw	2
13	5119-0013	Holder	1	38		Screw	3
14	5119-0014	Shaft	1	39		Screw	1
15	5119-0015	Screw	3	40		Spring Pin	1
16	5119-0016	Washer	2	41		Spring Pin	2
17	5119-0017	Washer	2	42		Washer	1
18	5119-0018	Cover	1	43		1/8" Steel Ball	19
19	5119-0019	Washer	1	Service Package			
20	5119-0020	Gauge	1	No.	Item No.	Part Name	QT'Y
21	5119-0021	Trap	1	01	5119-0025	Washer	1
22	5119-0022	Trap	1	02	5119-0200	Wrench	1
23	5119-0023	Nut	1	03		O Ring	1
24	5119-0024	Screw	1	04		O Ring	1
25	5119-0025	Washer	1	05		O Ring	2