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CERTIFICATE

Certified that the specification No. VFJ/VDO/SP/PNEUMATIC
CYLINDERS, for MPV contain pages 07 and they have been serially
Numbered from serial No. 01 to 07.

A.K. Rai
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Dy. GENERAL MANAGER
VEHICLE FACTORY, JABALPUR

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VFJ/VDO/SP/PNEUMATIC CYLINDRS

SPECIFICATION FOR PNEUMATIC
CYLINDERS AND ITS ACCESSORIES
FOR MPV

VEHICLE FACTORY, JABALUR
JABALPUR (M.P.)

VFJ/VDO/SP/PNEUMATIC CYLINDERS

SPECIFICATION FOR PNEUMATIC CYLINDERS AND ITS
ACCESSORIES

- 1. **SCOPE** : This specification pertains to supply of Pneumatic Cylinders, Mounting units and its connecting units like double / single Solenoid valve, Flow control valve, connecting flexible pipe etc.
- 2. **END USE** : This Pneumatic system is used to push and pull (opening and Closing) of the doors and to lift the bonnet in the special purpose Automotive vehicles.

3. Following details must be provided along with the supply.

- (i) Make
- (ii) Description of size / type.
- (iii) Month and year of manufacture.
- (iv) Material used for all major items.
- (v) Warranty card/ warranty certificate duly signed.
- (vi) Recommended air pressure and conditions of use.
- (vii) Recommended list of spare parts with their drawing numbers.
- (viii) Test certificate for all pressure parts.

3. All suppliers who quote, should give their proof demonstration on vehicle at VEHICLE FACTORY, JABALPUR premises at their own cost.

ITEMS TO BE SUPPLIED:

SL. NO.	DESCRIPTION OF THE ITEM	QTY.	REMARKS
01	Pneumatic Cylinders as per sketch No. SK-MPV-01	2 Nos.	Sketch copy enclosed
02	Pneumatic Cylinder as per sketch No. SK-MPV-02	1 No.	Sketch copy enclosed
03	Double Solenoid Valve, Spring Centered, D.C. 24 volts for pressure range up to 10 bar, Port size G 1/4, Temp. range -5 to 40 deg. Centigrade. With Silencer & mounting facility.	1 No.	For opening and closing of bonnet
04	Single Solenoid Valve, Spring centered, D.C. 24 volts for pressure range up to 10 bar, port size G 1/4, temp range -5 to 40 deg centigrade. With Silencer & mounting facility.	1 No.	For opening and closing of bonnet
05	Flexible pipe/plastic tubing of size dia 8x1.25 thk. Suitable for pneumatic pressure range up to 10 bar, made up of polyurethane material, covered with suitable corrugated pipe.	15 Meters	
06	Flow Control Valve with adjustable flow in one direction.	6 Nos.	
07	Operating switches, for both internal and external operating system.	02 Sets	One set will be supplied as spare
08	Suitable Hose Pipe with corrugated cover pipe to connect air source to solenoid valves. Length of the pipe is 2.5 meters.	2 Nos.	
09	L-Union suitable for double solenoid valve and flexible tubing of size dia 8x1.25	2 Nos.	
10	T-Union suitable for flexible tubing of size dia 8x1.25	2 Nos.	
11	L-Union suitable for single solenoid valve and flexible tubing of size dia 8x1.25	2 Nos.	
12	L-Union suitable for pneumatic cylinder and flexible tubing of size dia 8x1.25	6 Nos.	

NOTE:

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- a) The items to be supplied are as listed above. However the supplier may quote for any additional items required to meet their assembly/system to work satisfactorily.
 - b) The temperature range in engine compartment will be -5 to 55 deg. Centigrade. All the units which will be used for bonnet lifting should withstand this temperature range.
 - c) Schematic diagram of pneumatic system to sketch; No. SK-MPV-03 is given for reference.
 - d) Pneumatic system will be controlled by the driver and controlling switches will be in the panel board.
 - e) One switch will be at rear side for opening the doors when the vehicle is not in running condition and doors were closed.
 - f) The pneumatic cylinder and its accessories should conform to specification No. ISO: 6431/DIN:24335/DIN 24562/ANY standard specification.
 - g) Supplier should quote the specification Nos. for all the items supplied.

6. WARRANTY:

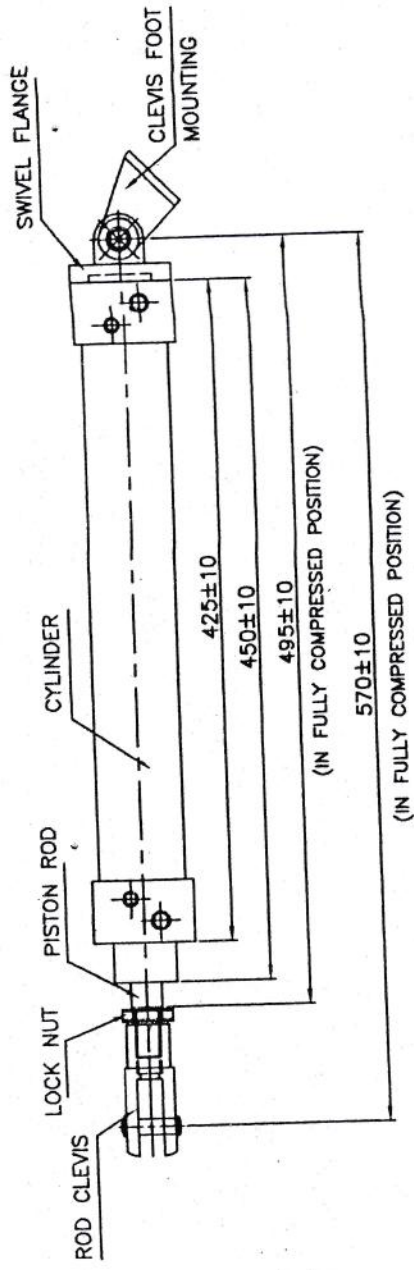
Supplier should indicate period of warranty and its conditions related to Pneumatic cylinders.

7. All other commercial conditions are as per Supply Order.

8. NOTE :

VEHICLE FACTORY, JABALPUR, reserves the right to reject the above item of supply. If they do not meet the conditions specified in this specification, technically, on inspection, on receipt at Vehicle Factory, Jabalpur.

SKETCH NO : SK-MPV-01
 PNEUMATIC CYLINDER FOR DOORS



TECHNICAL DATA :

1. TYPE OF CYLINDER : DOUBLE ACTING CYLINDER WITH ADJUSTABLE CUSHIONING.
2. PISTON DIA : 50mm
3. STROKE LENGTH : 330±10mm
4. MEDIUM OF OPERATION : COMPRESSED AIR
5. OPERATING TEMPERATURE RANGE : -20 TO +80° C
6. MAX. PERMISSIBLE OPERATING PRESSURE : 10 TO 12 BAR
7. MATERIAL : STAINLESS STEEL
 PISTON ROD : STAINLESS STEEL
 BARREL BODY AND END COVERS : PRECISION STEEL
 PISTON AND SEALS : POLYURETHANE/PERBUNAN
8. THE OPERATION, DIMENSIONS AND MOUNTING OPTIONS OF THIS CYLINDER ARE TO MEET THE SPECIFICATION OF ISO: 6431/
 DIN: 24335(VDMA)/DIN: 24562 (VDMA)/ANY STANDARD SPECIFICATION.

NOTE:

1. ALL DIMENSIONS ARE IN mm.
2. PNEUMATIC CYLINDER HAS TO FULFIL THE TECHNICAL DATA MENTIONED IN THE DRAWING.
3. CYLINDER SHOULD BE SUPPLIED ALONG WITH SUITABLE SWIVEL FLANGE, CLEVIS FOOT MOUNTING, LOCK NUT AND ROD CLEVIS AS SHOWN IN THE DRAWING AS A SET.
4. SWIVEL FLANGE SHOULD SUPPLY ALONG WITH SPHERICAL BALL, KING PIN, LOCK PIN, LOCK PLATE AND MOUNTING BOLTS.
5. ROD CLEVIS SHOULD BE SUPPLIED ALONG WITH HEX. NUT AND KING PIN.
6. SKETCHES FOR MOUNTING THE CYLINDER LIKE SWIVEL FLANGE AND CLEVIS FOOT MOUNTINGS ARE GIVEN FOR REFERENCE AND SUPPLIER MAY QUOTE THEIR OWN TYPE OF MOUNTINGS.
7. WEIGHT OF THE DOOR TO BE OPERATED IS APPROXIMATELY 125 KG.

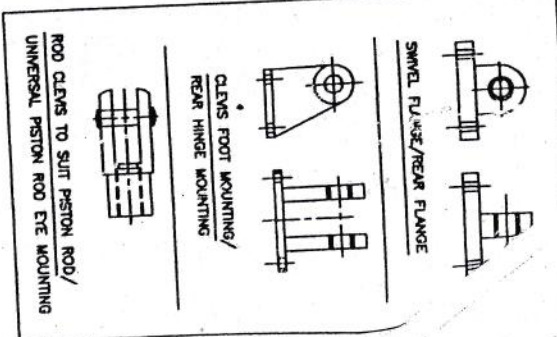
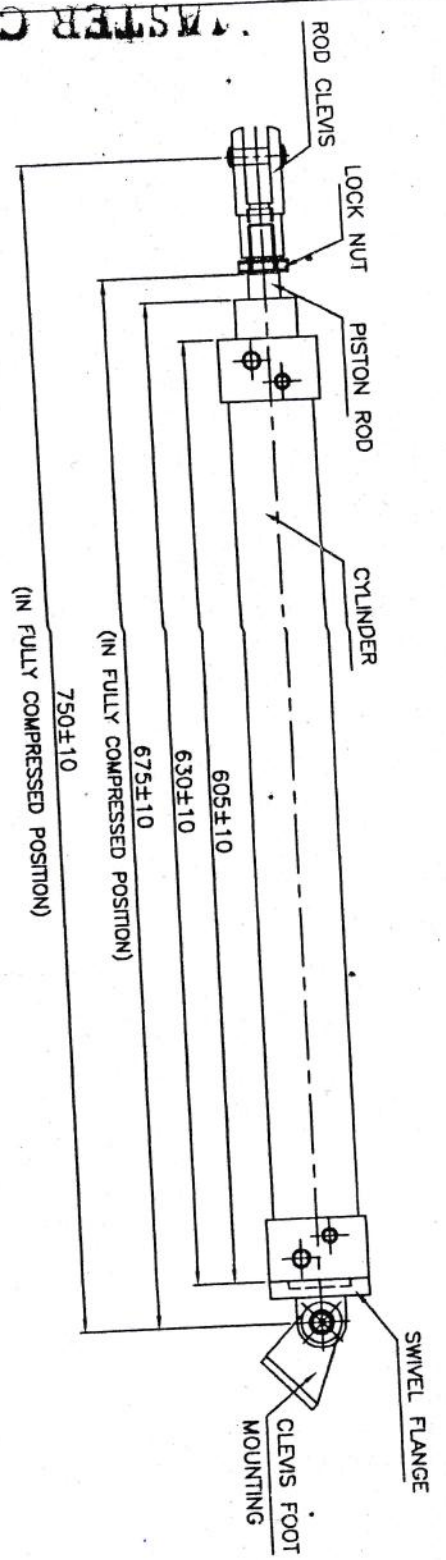
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SKETCH NO : SK-MPV-02
 PNEUMATIC CYLINDER FOR BONNET



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TECHNICAL DATA :

1. TYPE OF CYLINDER : DOUBLE ACTING CYLINDER WITH ADJUSTABLE CUSHIONING.
2. PISTON DIA : 50mm
3. STROKE LENGTH : 500±10mm
4. MEDIUM OF OPERATION : COMPRESSED AIR
5. OPERATING TEMPERATURE RANGE : -20 TO +80° C
6. MAX. PERMISSIBLE OPERATING PRESSURE : 10 TO 12 BAR
7. MATERIAL : STAINLESS STEEL
 PISTON ROD : PRECISION STEEL
 BARREL BODY AND END COVERS : POLYURETHANE/PERBUNAN
 PISTON AND SEALS
8. THE OPERATION, DIMENSIONS AND MOUNTING OPTIONS OF THIS CYLINDER ARE TO MEET THE SPECIFICATION OF ISO: 6431/ DIN: 24335(VDMA)/DIN: 24562 (VDMA)/ANY STANDARD SPECIFICATION.

NOTE:

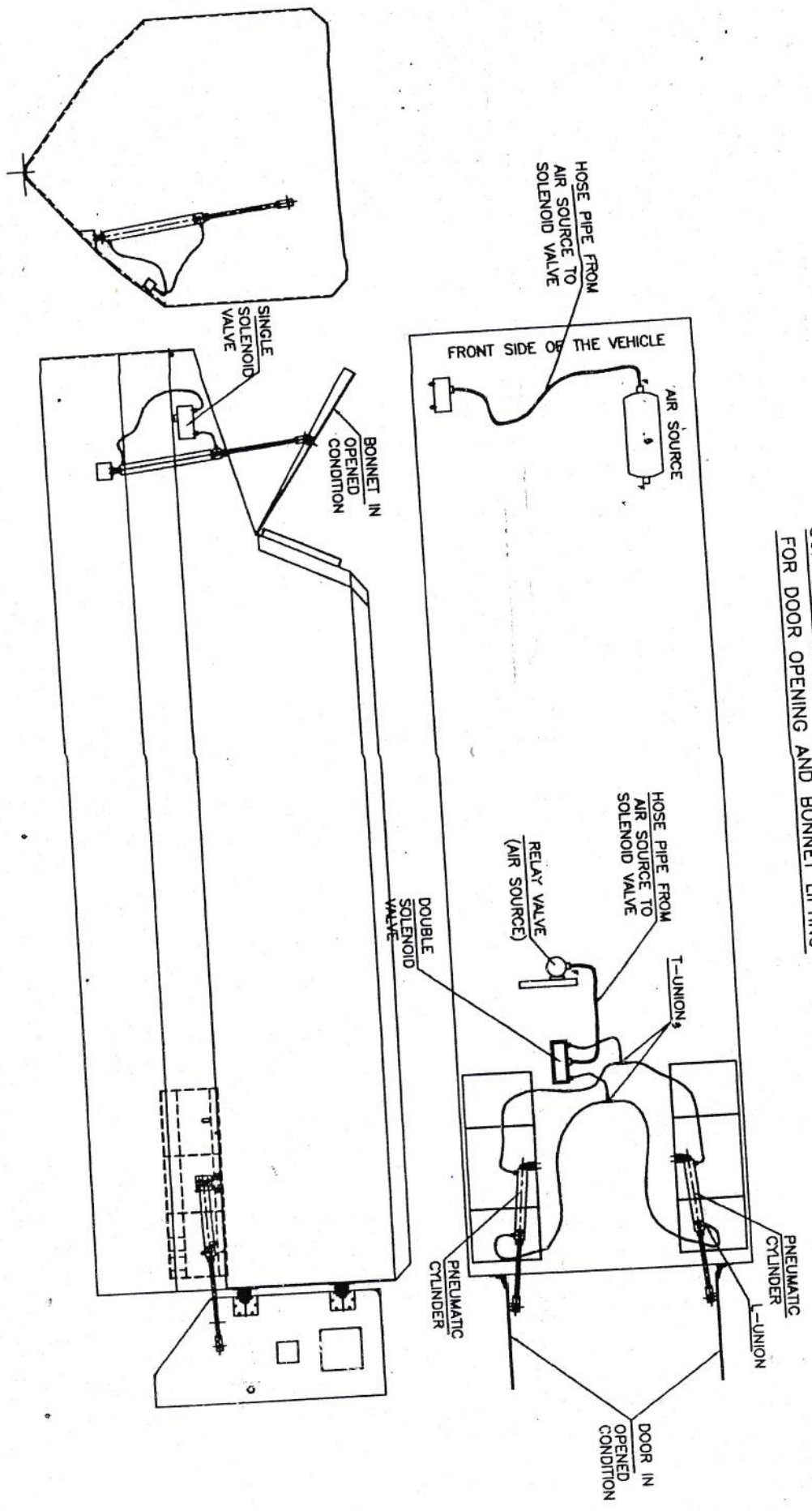
1. ALL DIMENSIONS ARE IN mm.
2. PNEUMATIC CYLINDER HAS TO FULLY THE TECHNICAL DATA MENTIONED IN THE DRAWING.
3. PNEUMATIC CYLINDER SHOULD BE SUPPLIED ALONG WITH SUITABLE SWIVEL FLANGE, CLEVIS FOOT MOUNTING, LOCK NUT AND ROD CLEVIS AS SHOWN IN THE DRAWING AS A SET.
4. SWIVEL FLANGE SHOULD BE SUPPLIED ALONG WITH SPHERICAL BALL, KING PIN, LOCK PIN MOUNTING, LOCK NUT AND MOUNTING BOLTS.
5. SWIVEL FLANGE SHOULD SUPPLY ALONG WITH HEX. NUT AND KING PIN AS PER DIN 439.
6. ROD CLEVIS SHOULD SUPPLY ALONG WITH HEX. NUT AND KING PIN AS PER DIN 439.
7. WEIGHT OF THE BONNET TO BE OPERATED IS APPROXIMATELY 90 KG.

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SKETCH NO : SK-MPV-03
SCHEMATIC DIAGRAM OF PNEUMATIC SYSTEM
FOR DOOR OPENING AND BONNET LIFTING



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