

ROYAL CANADIAN AIR FORCE



HANDBOOK WITH PART LIST
TESTER AIRSPEED INDICATOR
PART 211852-1 MODEL 1105

(IDEAL AEROSMITH)

ISSUED ON AUTHORITY OF THE CHIEF OF THE AIR STAFF

21 MAR 57

LIST OF RCAF REVISIONS

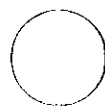
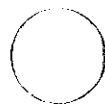
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PART 1

DESCRIPTION

INTRODUCTION

1 This manometer, Ideal Model 1105, mfgd by Ideal Aerosmith Inc., is designed to quickly and conveniently test most types and ranges of airspeed indicators. The scale combination used, see Figure 1-1, has a 220 knot column for use with all low range instruments and a 0-650 knot column which is ample for any but the highest range military types. This instrument is 37" in height and weighs 16 lbs. It contains a stainless steel liquid well.

2 The manometer contains a pressure reservoir which can be charged by squeezing the rubber bulb several times, storing sufficient pressure to make a complete test without interruption. Control is provided by extremely sensitive needle valves which have been designed for this application. Two valves are provided, the upper one raising the pressure and the lower releasing it. Ideal #1 fluid Sp. Gr. 1.00, a manometer fluid of the same gravity as water but better suited for manometer application, is used in the 0-220 knot column. The mercury used in the 0-650 knot column is Sp. Gr. 13.5951 at 0°C, redistilled USP or CP grade. Mercury of this quality or better must always be used when refilling.

3 A quick-acting mounting fixture is provided at approximately eye level for holding the instrument being tested. This fixture is adjustable for height and if preferred can be installed on the opposite side of the manometer or it can be used as table fixture. Extra holding fixtures can be installed on the manometer, two on each side if required.

4 The instrument mounting fixture is designed to support any standard 3 1/8 case by only three corners. The cut out corner can be

turned to any position, providing for ring lighting, rotating knobs, or any other interference. This fixture also provides for making a balance test with the instrument at any pressure level.

SPECIAL SERVICE TOOLS

5 No special tools are required to service this manometer.

PREPARATION FOR USE

6 Care must be exercised in handling manometers in order to avoid breakage of the glass tubing, or damage to any other part. In removing a manometer from the crate or at any other time, avoid touching the glass tubes when lifting.

7 Blow off any dust or lint from the packing materials and remove the corks or sealing tapes from the connection openings. All manometers are shipped unfilled, and the necessary fluids for filling them is packed in separate containers. The fluids are labeled for the unit or column in which they are to be used.

8 For filling the manometer, place it on a fairly level surface in its normal upright position and fill according to the following instructions:

(a) The 1105 airspeed manometer is filled by removing the plug from the top of reservoir, then pour fluid directly into the reservoir. Fill to the zero line on the scale, with the scale in central position.

9 On the manometer having control valves, the upper valve runs the liquid column up and lower one down. Open valves slowly and observe the action of the column to check correct hook up.

OPERATING INSTRUCTIONS

10 Selection of high or low range is accomplished with a valve in the manifold at the back of the instrument, see Figure 1-2. Test

runs can be made completely on one column, or if preferred the low range can be checked using the low range column, then by switching the column valve the test can be run on up to the highest range without dropping pressure or interrupting the test in any way.

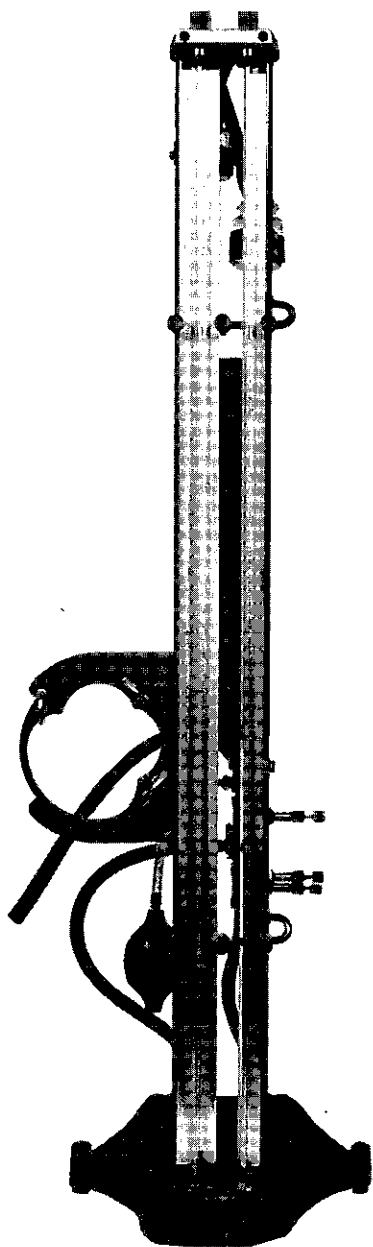


Figure 1-1

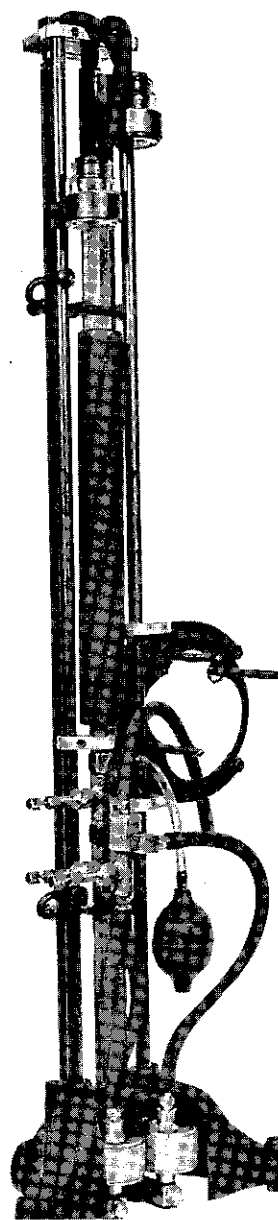


Figure 1-2

11 The airspeed manometer has a pressure reservoir and a pump for charging. BE SURE UPPER OR PRESSURE FEED VALVE IS CLOSED BEFORE OPERATING PUMP. Check operations of column selector valve with very low pressure in order to become thoroughly familiar with its operation.

12 Avoid the use of excessive pressure on the control valves. These valves are designed to give sensitive, accurate control and may be damaged by twisting too tight. Do not use pliers to close the valves.

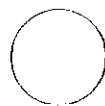
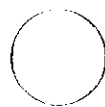
PERIODIC INSPECTION AND MAINTENANCE

13 The manometer requires occasional cleaning for satisfactory operation. A removable fitting is built at the top and by

removing it the tube can be cleaned with a tube brush or with a pipe stem cleaner attached to a wire. If cleaning the tube fails to make a mercury manometer operate satisfactorily, it may be necessary to replace the mercury or reclean it by running it through small paper funnels several times. Some users prefer to place a small amount of glycerine and water on top of the gland tube as a lubricant and to prevent oxidation.

14 Valves and joints should be inspected periodically for leaks and tightened as required.

15 Major repairs such as the replacement of broken glass tube etc. is not to be attempted in the field. The manometer is to be returned to stores as repairable when major repair is required.



PART 2
PART LIST



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PART NUMBER	DESCRIPTION	REQUIRED PER ASSEMBLY	REQUIRED PER UNIT
211852-1	Manometer Assembly	1	1
210295	Base - Manometer	1	1
	Foot - Rubber (Atlantic India Rubber Co. #1392).	3	3
	Screw - Round head, steel cadmium plated, 8-32 x 3/8	3	3
214598	Nameplate	1	1
AN535-0-3	Drivescrews	2	2
210297	Rod - Frame	2	2
	Setscrews - Hexagonal socket, steel cadmium plated, 10-32 x 1/4, flat point	2	2
211944	Plate - Frame	2	2
	Screw - Hexagonal slotted countersunk head, steel cadmium plated, 10-32 x 5/8	8	8
212026	Block - Lower, coupling	2	2
210305	Tube - Reservoir, support	2	2
212020	Reservoir - Assembly	2	2
212018	Plate - Reservoir, lower	1	2
MS29513-28	Packing "O"-Ring	2	8
212015	Cylinder - Reservoir, lower	1	2
212019	Plate - Reservoir, upper	1	2
212016	Screw - Reservoir clamping	1	2
211953	Plug - Seal	2	4
MS29513-13	Packing "O"-Ring	2	4
210330	Post - Scale support	2	2
210341	Clamp - Pressure reservoir mounting	1	1
	Screw - Hexagonal slotted countersunk head, steel cadmium plated, 10-32 x 3/4	1	1
210819-1	Control - Valve assembly	1	1
210337	Pressure Reservoir Assembly	1	1
210340	Nipple 1/8 Pipe	1	1
210338	Tee - Special	2	2
	Pump - Rubber, bulb, (Fisher Scientific #14075)	1	1
5125	Valve - Ideal	3	3
AN-911-1	Nipple - 1/8 Pipe thread	1	1
210344	Cross - 1/8 Pipe thread	1	1
210060-1	Nipple	3	3
AN-B42-4	Elbow - 1/8 Pipe thread 90°	1	1
210073	Clamp - Bracket mounting	2	2
210072-2	Bracket - Instrument mounting ring	1	1
	Screw - Hexagonal slotted countersunk head, steel cadmium plated, 10-32 x 7/8	2	2
	Screw - Hexagonal slotted countersunk head, steel cadmium plated, 10-32 x 3/8	6	6
210074-2	Nut - Ring retaining	4	4
210070-2	Instrument mounting assembly	1	1
210071-2	Ring - Instrument mounting	1	1

PART NUMBER	DESCRIPTION	REQUIRED PER ASSEMBLY	REQUIRED PER UNIT
210079-2	Sleeve - Hookshaft guide	3	3
210078-2	Post - Instrument support	3	3
	Screw - Round head steel cadmium plated, 8-32 x 5/16	3	3
210075-2	Hook - Instrument retaining	3	3
	Washer - Flat steel cadmium plated, 3/16 x 5/16 x 1/16	6	6
210077-2	Spring - Comp.	3	3
	Pin - Cotter steel 1/16 x 1/2 cadmium plated	3	3
212035-1	Tube - Manometer	2	2
AN6227B9	"O"-Ring 3/32 x 7/16 x 5/8	4	4
211990	Gland - Packing	4	4
211945	Block - Upper coupling	2	2
211952	Plug - Seal	2	2
MS29513-16	"O"-Ring 1/16 x 5/8 x 3/4	2	2
211989	Nipple	8	8
AN6227B7	"O"-Ring 1/16 x 3/8 x 1/2	10	10
212005	Clamp - Tube support	2	2
	Screw - Hexagonal slotted countersunk head, steel cadmium plated 8-32 x 5/8	2	2
	Screw - Hexagonal slotted countersunk head, steel cadmium plated, 10-32 x 1/2	4	4
212011-1	Overflow Tube Assembly	2	2
212007	Cap - Overflow tube assembly	1	2
MS29523-28	"O"-Ring 1/16 x 1 3/8 x 1 1/2	2	Ref.
212006	Tube	1	2
212008	Base - Overflow tube	1	2
	Screw - Hexagonal slotted countersunk head, steel cadmium plated, 10-32 x 2 3/4	4	4
211988	Plug	2	2
210381-5	Hose	2	2
210381-6	Hose	1	1
210381-8	Hose	1	1
210381-12	Hose	1	1
210331-1	Rod - Scale support	2	2
210332-1	Stud - Scale support	4	4
210333	Washer - Scale support	4	4
210334	Nut - Retaining	4	4
	Setscrew - Hexagonal socket steel cadmium plated, flat point, 10-32 x 3/16	8	8
210347	Washer - Scale support	Opt.	Opt.
214587	Scale - 0-33 inches hg.	Opt.	Opt.
214588	Scale - 0-16 psi	Opt.	Opt.
214589	Scale - 0-250 mph	Opt.	Opt.
214590	Scale - 0-420 mph	Opt.	Opt.
214591	Scale - 0-800 mph	Opt.	Opt.
214592	Scale - 0-220 knots	Opt.	Opt.
214593	Scale - 0-360 knots	Opt.	Opt.
214594	Scale - 0-700 knots	Opt.	Opt.

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