

## Engine Forum



Spring 2010 Issue

www.gardnerengineforum.co.uk

#### **Gardner Engine Forum Philosophy**

"The aims of the Forum are to promote and foster interest in all Gardner engines"

#### **Subscription**

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#### Contents

	Page
Chairman's Notes	2
A.G.M. New Years Honours	3
Identified at Last	4
LW Supplementary Instructions continued	5
Birthday Greetings	11
Original flyer	18
Letter	19
For Sale	20

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#### **Cover Picture**

6LYT 1983 Show Engine at the Anson Engine Museum Photo Bob May

#### Chairman's Notes

These notes are being written after I have just taken down the Christmas decorations; outside it is while over with frozen snow and ice inches thick, even the Llangollen canal is frozen over, normally this rarely freezes due to it being the water supply route to Hurleston reservoir, therefore continually flowing.

I seem to be surrounding myself (or at least filling Chas Mills' yard) with large L2 Gardner engines. A second 6L2 arrived recently from Scotland to join the one given to me by Gill Geldread some years ago. Some L2 spares may be available at the conclusion of my plans.

The next Gardner Engine Rally is to be held at Bugsworth Basin near to Whalley Bridge in the Peak District in June 2011 (the final date will be confirmed latter). A suggestion for a rally on the River Thames has been received and will be considered for 2013,together with any other suggested locations. Organisers needed of course.

As I end may I wish all Forum members a happy and successful New Year, see you on the road or the cut.

Mike

#### WANTED

New Committee member to take on the role of Membership Secretary. Due to ill health our current membership secretary is relinquishing the post at the AGM.

If you are interested or would like more information please contact the Chairman

Welcome to new members

Mr R Peregrine of Malvern
Mr P Howard of Stoke Golding 2LW
Mr K Butler of Carlton le Morland 6LXB Marinesed
Mr W.J.K.Naylor of Knutsford

## Annual General Meeting

Notice is hereby given for the
Ordinary Annual General Meeting of the
Gardner Engine Forum

at the
Anson Engine Museum,
Anson Road,
Poynton,
Cheshire.
SK12 1TD

on Saturday 17th April 2009 at 2.30pm.

The purpose of this A.G.M is to present accounts for the year 2009/2010 and to elect officers onto the committee.

The Anson Museum will be open to the public so there should be demonstration of the engines,

Tea and coffee will be provided. Any charges for this meeting will be borne by the Forum.

0------C

#### **New Years Honours**

Geoff Challinor chairman of the Anson Engine Museum receives an MBE for 'services to industrial heritage'. Geoff described the moment as one of the proudest in his life:"There are so many amazing names on th New Years Honours list, it's something I'll treasure for the rest of my life .I am honoured and humbled to be recognised in this way. It's absolutely fantastic news and I am proud to accept it not just on behalf but as an acknowledgement of the skill and ingenuity of the people who have left us a wonderful industrial heritage legacy."Geoff has devoted his life to engines and engineering. As the collection of engines grew over the years he and the late Les Crawley founded the Anson Engine Museum in Poynton back in 1987. Over the past few years it has earned the reputation as a leading UK specialist museum and a major tourist attraction in the north West, all delivered on a shoestring budget and a workforce made up entireley of volunteers with no government subsidies or grants towards its running costs. Old Glory. 3

#### Identified at Last

The follow up to "Who am I" and "Where Have I Been" requests published in the last two forum newsletters have not been very fruitful, however there may be very good reason.

This Port side 3L3 engine was clearly of early war time manufacture. For some unknown reason the crankcase was'nt stamped with its identity number. The number and date mentioned in the first article was taken from the crankshaft presumably a Lloyds marking. The identity number on the fuel injector pump and mounting block correspond to a 5LW fitted to a Bristol tram! So one must believe thre has been some swap of parts, you know rob Peter to help Paul. The pump component parts are correctly set for a 3L3 and proved to be spot on when tested by a Gardner agent

A day spent at the Anson Engine Museum trawling through two ledger books of some 9000 engines manufactured over a three year period exposed only six 3L3 engines. In 1941 two are mentioned, one of which is stated as being a clockwise rotation "Port side" engine number 52012. Could this be the engine in question, it very much looks like it. This was tested on 30-4-1941 and dispatched to A Duthie &Co Ltd of Lossiemouth Fisheries in Northern Scotland. According to this record the engine was initially allocated to a boat called "Ruby". This information suggests it went to work in a fishing trawler and plied the North Sea for a number of years before finishing up somewhere in Southern Ireland, where it remained for a further number of years unused. It was returned to this country in a sad condition and put into storage where it deteriorated even more. By now it was getting very near to the skip! Oh dear, that would have been sacrificial

It is during the last eighteen months that the engine changed hands yet again and has now been fully overhauled (picture on front cover of No 15 Engine Form Newsletter)

Obviously it is an extremely rare marine engine because very few Port models were manufactured. For this reason alone care is being taken to ensure a safe future for its prosperity.

#### P.J. Freakley Oct 09

#### Supplementary Instructions for the Operation of LW Marine Oil Engines Continued

Page 10. Book Nº 60.

## GARDNER.

11. WATER CIRCULATING RAM TYPE PUMP VALVES AND CUP WASHERS. — The pump valves are disc-like in form and are made of a special oil-resisting material. If, after long use, they buckle or become "Saucer-Shaped" they may be reversed so that what was originally the upper face becomes the lower.

If, in emergency, valves which are not of Gardner manufacture have to be used, it is important that they are of the same thickness for which the stop plates were designed, if they are thicker the edges will turn up when the through bolt is tightened. This, of course, will prevent them from seating.

The cup washers, of which there are two per pump, are fitted back to back.

The design of the ram is such that when the cup washers and distance washers are fitted and the eastle mut screwed up, it first of all clamps up the cup washers, etc. and finally tightens up solidly on the brass washers. If this were not done and the nut only tightened up on the cup washers, it would soon become slack and rapidly wear away the thread.

12. WATER TEMPERATURE CONTROL. — Marine engines fitted with ram type pumps have a manually operated temperature control which "shunts" or "by passes" warm water from the discharge pipe to the suction pipe of the circulation pump, thus raising the temperature of the water going through the engine and the oil cooler. It will be readily understood that the by-pass valve serves as a means of controlling, within limits, the temperature of the water in the cylinder jackets and at the point of discharge. This is of special utility when the engine is running at light loads during which the temperature of the discharge water should be maintained at about 130° or 140°T.; that is, when it is just about as hot as the hand can momentarily bear. A direct reading thermometer for the water outlet temperature is incorporated in the water temperature control unit.

NOTE: When starting the engine or idling it is important that the control valve be closed, otherwise air may get into the circulation pump and interfere with its operation.

13. WATER FLOW INDICATOR. - A Gardner water flow indicator is fitted in the outlet pipe from the engine and a test cock is also provided for observing the continuity of the water supply through the engine. The test cock is also of use to eliminate air locks when priming the water system.

NOTE: The water circulating and bilge pumps together with the water temperature control valve, test cock drain pipe, water flow indicator and water cutlet thermometer are all clearly visible in the 5LW illustration N° 1714/1, Page 4.

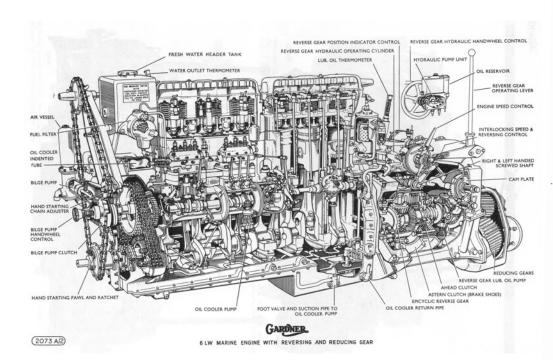
## GARDNER

14. <u>MATER OUTLET PIPE - CHOKES</u>. - All LW marine engine water outlet pipes are fitted with gun metal cadmium plated chokes and it is imperative, when fitting a new pipe, to see that it is equipped with the same number of chokes of the correct bore as those already fitted to the water pipe which is being replaced.

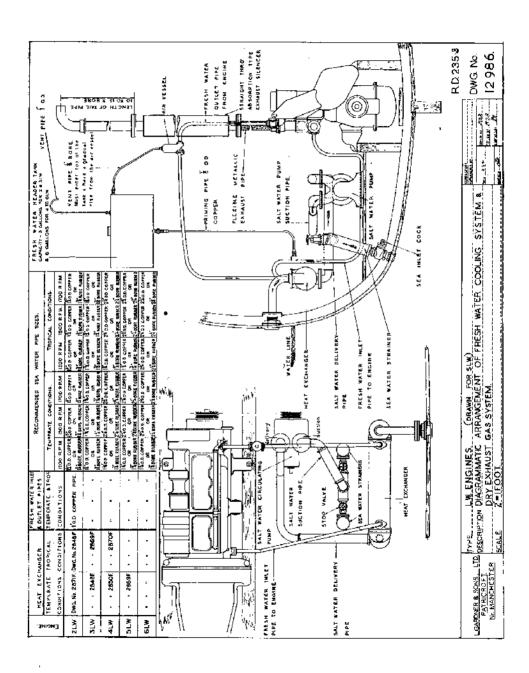
If new chokes are being fitted to an existing water pipe, it is also imperative that the bore of the chokes are of the same size as the existing chokes. It is not necessary to fit chokes to the water pipes of ZIW to GIN engines which are fitted with centrifugal type water circulating pumps. The following table shows the correct sizes of the bore of the chokes for IW marine engines with ram type water circulating pumps:

2IW - 52 in.
3IW - 18 in.
4IW - 53 in.
5IW - 53 in.
6IW - 53 in.

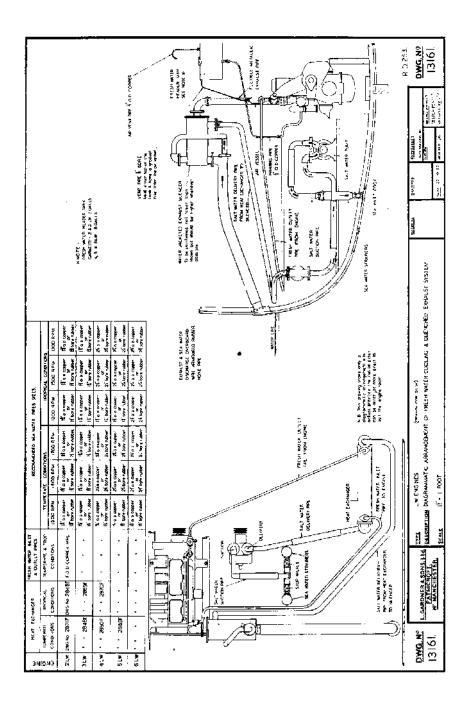
15. WATER CIRCULATING & BILGE PUMP LUBRICATION. - Inspection should be made regularly to see that the wick feed lubricators fitted to the body of the pump are kept filled with lubricating oil.



## GARDNER.

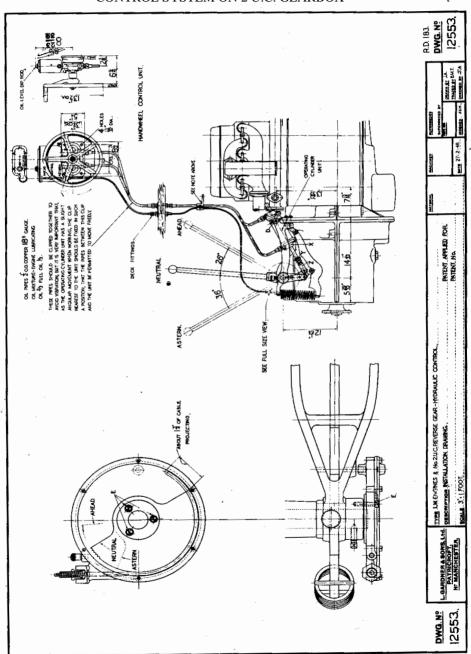








## INSTRUCTIONS FOR THE INSTALLATION OF THE HYDRAULIC REMOTE CONTROL SYSTEM ON 2 U.C. GEARBOX





INSTRUCTIONS FOR THE INSTALLATION OF "GARDNER" HYDRAULIC CONTROL
FOR No. 2 U.C. REVERSE GEAR AS FITTED TO IM TYPE ENGINE
AND AS OUTLINED ON DRAWING No.12553.

#### FAR HELL CONTROL UNIT & ROTATION OF HANDWHEEL.

The HANDWHEEL CONTROL UNIT is identical for PORT & STARBOARD regimes of a twin screw installation. The "AHEAD" rotation indicator represed plate fitted, is available to suit either CLOCKWISE or ANTI-CLOCKWISE rotation of the handwheel for such engagement. The direction of rotation of the handwheel can be decided during installation to suit the requirements, and the appropriate rotation indicator engraved plate attached at that time.

When bolting the unit to a bulkhead or other structure, the exfaces in contact must be quite flat, and care exercised to avoid distortion of the unit due to irregular surfaces or undue tightening of the securing bolts.

#### TOS CLIPS & THEIR POSITION.

The OPERATING CYLINDER UNIT is hinged at point "D" and has a slight regular movement about this point when working. Therefore, the two pipes corrected to this unit must be arranged so that they are free to move with it.

\*\*Leaver possible, the pipes should be installed as shown on the drawing, and the first clip fixed at some distance from the OPERATING CYLINDER UNIT, as

Any alternative run of pipes must provide for equivalent flexibility, and the first clip must not be nearer the unit than shown on the desire. If possible, the pipes should rise gradually from the OPERATING CALLER UNIT to the HANDWHEEL CONTROL UNIT, but this is not essential. It is also desirable that the length of pipes be kept to a minimum, consistent with reasonable facility of installation, and sultably clipped to avoid vibration.

#### CAPTING CYLINDER UNIT STOP ADJUSTMENT.

For the "AHEAD" engagement, the cylinder cover "X" provides the stop for the piston within the cylinder. For the "ASTERN" engagement the cover "X" provides the stop for the collar "Y".

In order to avoid excessive hydraulic pressure being applied to the stops within the reverse gear case, it is very important that the forked eye and the collar "Y" be so adjusted that the stops on the unit make contact before the stops within the reverse gear.



## INSTRUCTIONS FOR THE INSTALLATION OF THE INDICATOR CONTROL AS OUTLINED ON DRAWING No. 12553.

#### 

This control comprises a pull-push type flexible cable within a brass conduit and couples the unit on the reverse gear to the indicator forming part of the handwheel control unit in the wheelhouse.

The brass conduit should be first fitted between these points, using the water-tight fittings shown on drawing No. 12553 where necessary. It must be carefully bent to the required shape, using a minimum number of bends. No bend should be made to a smaller radius than 5" (8" is preferable) and no bend should exceed 90°.

A length of cable inserted in the conduit before bending will assist in maintaining the bore of the conduit and at the same time ensuring that the conduit has not been damaged during transit to destination. The cable should be capable of being push-pulled through the conduit freely.

Having bent the conduit to shape and with the ends sawn off square, remove the screwed mipples at the bottom of the indicator body and from the unit at the Reverse Gear end. These two mipples should be run on the conduit and the ends of the conduit then bellmouthed with the special drift provided.

Should the length of indicator run exceed 10 feet, then two or more lengths of conduit will be necessary, and they must be coupled together with a greaser connector; exactly the same procedure is to be observed as for the extreme ends. The conduit should be clipped to the engine and elsewhere along the run with the special clips provided, upon completion of installation.

The length of the flexible cable can only be settled after the brass conduit has been installed. Its length must be - approximately 16" longer than the fitted brass conduit. The cable should be pushed through the conduit, and with one end flush with the end of the conduit, out through at 16" projecting through the opposite end. Lubricate the cable with the thin anti-freeze grease when assembling.

Dress the ends of the flexible cable. It is essential that no sharp edge be present at the reverse gear end, since such will cut the inside of the unit easing during operation.

Connect the bellmouthed end of the brass conduit to the reverse gear unit only and screw home the nipple. The cable should temporarily be pushed up the conduit.

Set the reverse gear lever in the "NEUTRAL" position.



The  $7\frac{1}{2}$ " diameter cover of the unit on the reverse gear must be removed and also the three screws marked "E" on drawing No. 12553. The removal of these screws disconnects the cable gear from its shaft.

Rotate the cable gear on its shaft to a position which will permit entry of the flexible cable through the vertical hole in the unit casing. Push the cable down the conduit and engage the teeth of the cable gear with the spiral wire coil of the cable by rotating the cable gear. This engagement must allow about  $1\frac{3}{4}$  of cable projecting past the cable gear, as shown on drawing No. 12553.

Re-assemble the cover and screws "E". It is important that the cable gear and cable shall be in the position shown on the drawing No. 12553 when the reverse gear lever is in "NEUTRAL" position before the three screws are inserted in their tapped holes.

Remove the screwed plug at the base of the indicator unit and also the sliding split collar from inside the indicator bored hole. Connect the conduit to the screwed plug. The cable should project  $3\frac{7}{16}$  beyond the screwed plug when in "NEUTRAL" position. Fit the split collar to the cable allowing the end of the cable to stand out from the collar about  $\frac{1}{16}$ , and re-assemble in the indicator bored hole. The conduit nipple must be temporarily screwed out of its tapped hole to permit screwing in the plug. The indicator button should be in line with the "NEUTRAL" marking.

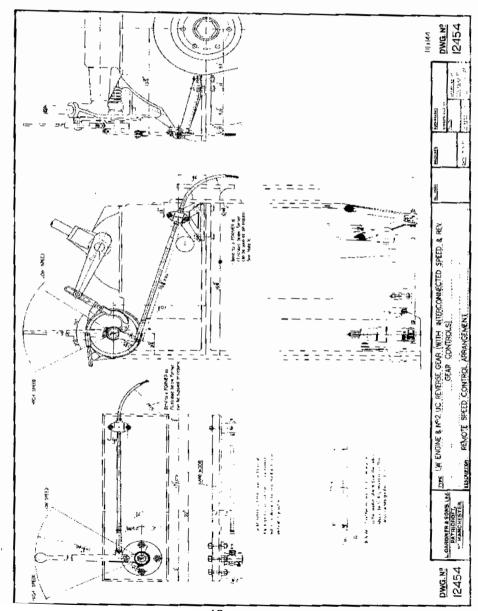
Check up after assembly to ensure that the run is free and that the button indicates correctly.

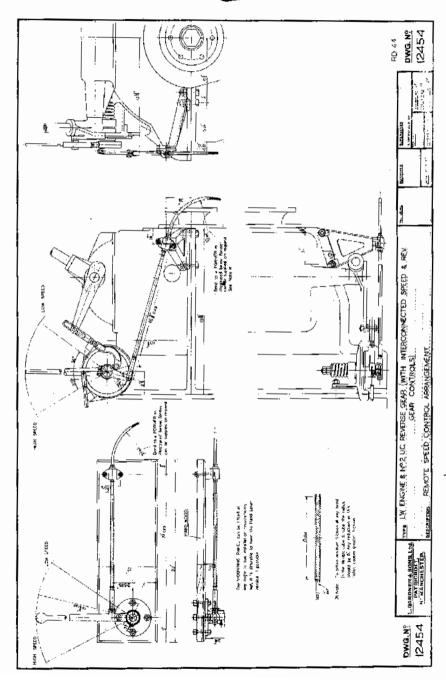
The cable can be readily cut with a fine hacksaw and the ends will not unravel. It is preferable to grind the ends of the cable to a conical point. Whilst the cable must be lubricated, only thin grease must be used, and this sparingly, since overgreasing can be responsible for creating undue friction and the locking of the cable within the tube.

## INSTRUCTIONS FOR THE INSTALLATION OF THE "TELEFLEX" REMOTE SPEED CONTROL

Page 26 Book Nº 60.







## GARDNER.

## INSTRUCTIONS FOR THE INSTALLATION OF "TELEFLEX" REMOTE SPEED CONTROL AS OUTLINED ON DRAWING Nº 1,2454.

At the operating end secure the swivel assembly to the board in the position shown on drawing. Similarly, at the engine end the swivel body to be bolted to bracket.

Two fork assemblies are provided. Each fork body should be unscrewed from its tube and plug, and inside the fork bodies will be found a lock spring — these should be removed from the bodies but kept handy. The outer slide tubes of these fork assemblies should now be slid on to the slide tubes of the swivel assemblies.

Having secured the end fittings, the run of conduit can now be commenced. This should be as direct as possible with the minimum number of bends, and no bend should exceed 90°. Incidentally, in any run involving a bend, it is preferable to run the lead of conduit straight with a bend at the ends rather than have an easy continuous curve all the way.

Before using any conduit a length of cable should be pushed through to verify that the conduit has not been dented or distorted.

The assembly of the run can be commenced from either end. Unscrew the mipple from the swivel and run it on the end of the first length of conduit. This end should then be belimouthed with the special drift provided, and by inserting the end in the swivel body and screwing home the nipple, the joint is made.

If the length of run exceeds 10 feet a connector will be necessary for each additional length, and the same procedure applies for connectors as for the swivels. Proceed until the whole run is installed.

It is preferable to pre-set the conduit wherever bends are involved to avoid straining the ends when connecting together. Always make a bend using the circular former supplied, and a length of cable inserted in the conduit when making the bend will act as a flexible mandrel in maintaining the bore of the conduit during this operation. The ends of the conduit should be sawn off and squared before bellmouthing, and the conduit should be secured by the clips provided and fitted about 3ft. apart.

Having completed the run, the cable should be pushed through from one end until about two inches is projecting beyond the plug and slide tube at the remote end. Proceed to this end and screw the lock spring anti-clockwise on to the end of the cable until there are two helices of the cable visible beyond the end of the lock spring. Push the cable and lock spring into the fork body and screw the plug and outer slide tube in tightly. The end of the cable is now definitely locked within the fork body.



Remove the pin and split pin from the fork and connect same to the lever, and set this lever to its extreme travel either full open or shut. Now go back to the other end and set this lever in the SAME RELATIVE POSITION as at the other end. With the lever so positioned fit the fork body to the lever, and the cable must now be cut to length so that when the lock spring is run on and the body of the fork screwed to its slide tube that any movement of one lever will operate the other without backlash.

It might be noted that if the cable has been cut too long all that need be done is to run the lock spring further along the cable and cut off a corresponding length from the end. The cable, however, cannot be lengthened after cutting as it is essential that two turns of the cable helix must protrude beyond the end of the lock spring.

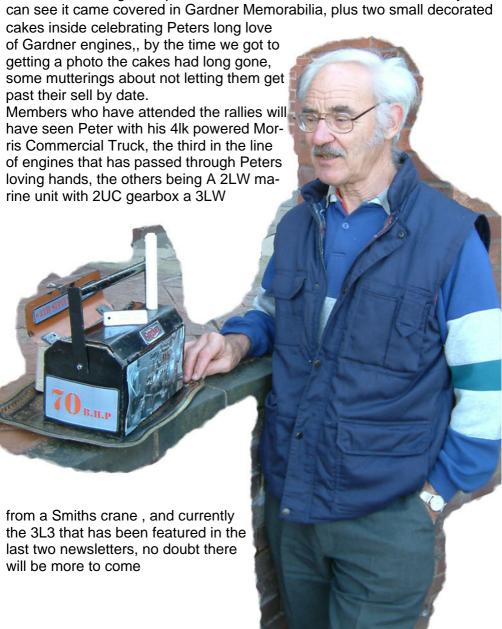
Teleflex cables can be readily cut with a fine hacksaw and the ends will not unravel. It is preferable to grind the end of the cable to a conical point as this will assist in screwing on the lock spring.

As the cable is inserted in the conduit it should be liberally greased with an anti-freeze grease.

Check up after assembly to ensure that the run is free, that the two levers synchronise throughout their travels, and that there is no backlash. Finally, go over each connection and see that all nipples, etc., are tight.

#### Birthday Greetings

To Peter Freakley, who attained 70 bhp last year, as a special treat, family and friends arranged a special tool box to celebrate the occasion, As you can see it came covered in Gardner Memorabilia, plus two small decorated



A bonus item found in the middle of an ebay purchase, at £0.95 pre tax this seems like a remarkable bargain, this small flyer is obviously post decimalization but pre V.a.t

Anyone care to hazard a guess as to its age?



"Elstow Cottage" Manor Road Sendmarsh, Ripley, Woking, Surrey, GU23 6JW

Home: 01483 224710

Office: 01932 866626

#### 24th October 2009

Mr. Colin Paillin. Ivy Cottage, Hose, Melton Mowbray, Leicestershire LE14 4JP

Dear Colin,

With apologies for the delay in this correspondence. The show season, as you know, is quite a busy time for us, but I would like to write and thank you for your Chairmanship of the Association over the past years. I know without your continued support The Forum would have folded and your efforts and success will be a hard act to follow.

On behalf of the Gardner HF13 Team, I would like to say how pleased and grateful we were for your continued efforts, and also your hospitality to us to the various Rallies we have enjoyed with you and your Partner.

Kindest regards,

Yours sincerely,

Cliff Noble/Tony Bowman/John Charman

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