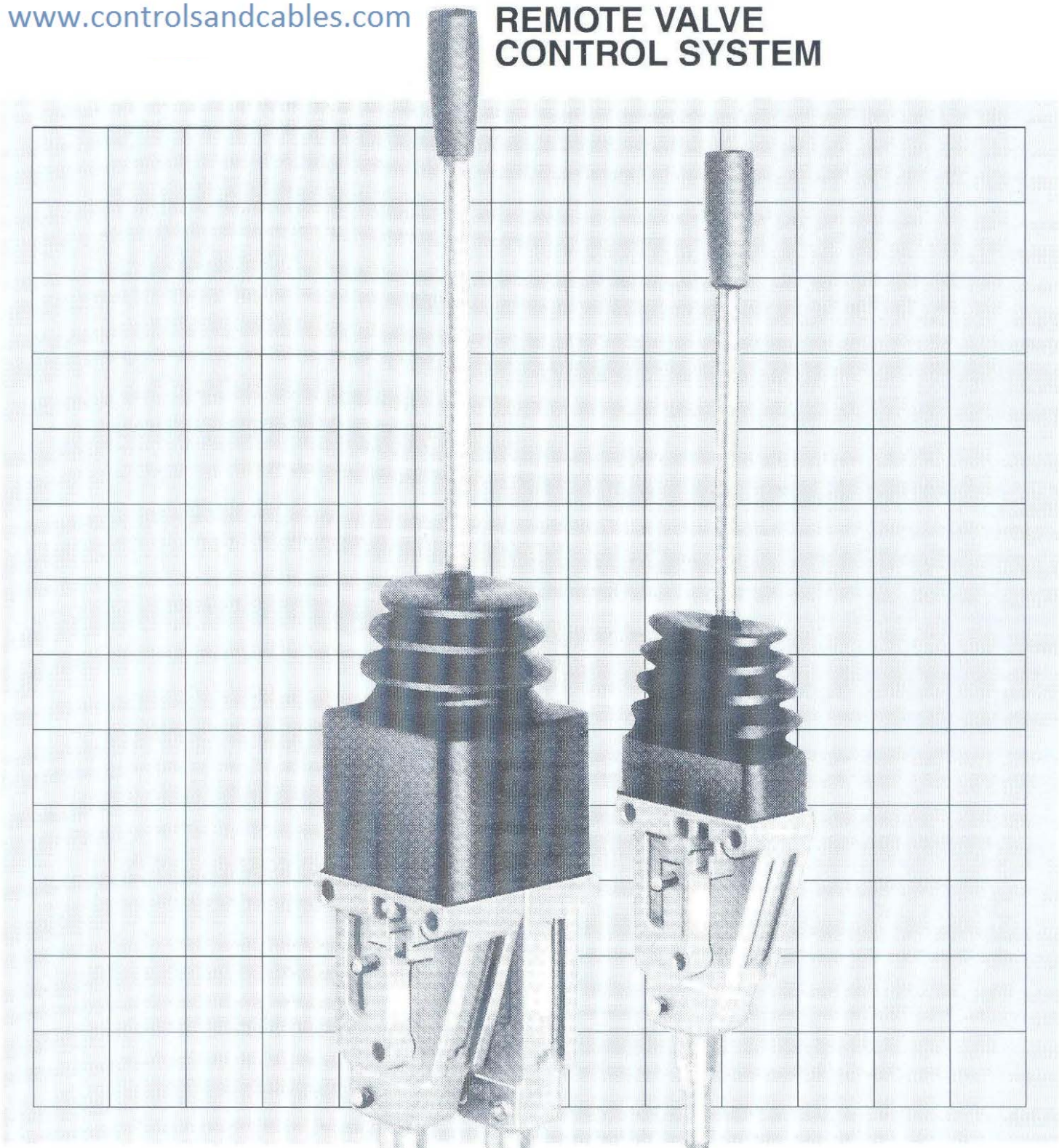
HINDLE CONTROLS

REMOTE VALVE CONTROL SYSTEM



The Morse Remote Spool Valve Control is designed to satisfy the demand for a robust cable control system for remote operation of high pressure hydraulic control valves. The increasing use of suspended and quieter cabs, coupled with the growing need to improve driver safety by removal of high pressure hydraulics from the vicinity of the machine operator, has increased the need for a versatile,low cost remote control system.

The Morse flexible push-pull cable has all the qualifications to satisfy this need, and cable systems are available for valves of all leading manufacturers.

- Proven robust design- over 500,000 units in service
- Extremely adaptable - suits most valve types
- Safety - no pressure hoses in cab
- Cost effective - Morse supply the complete system
- Easy installation and low maintenance

THE MORSE CABLE CONTROL SYSTEM FOR REMOTE OPERATION OF HYDRAULIC SPOOL VALVES

The Morse Remote Spool Valve Control has been designed as a simple modular block which can be banked to control any number of valve spools and can incorporate dual axis systems. The cable system can be applied to any spool valve with travels of 40mm (1.6 in) or less, with loads within the operation limits of the system, and can be applied to float or detented valves where required.

The systems comprises three items:

1. **The Control Head**
2. **The Push - Pull Cable**
3. **A connection kit engineered to suit the valve**

Control heads are available in either single or dual axis configuration and with or without self centring action.

THE DUAL AXIS CONTROL HEADS

Dual axis remote valve controls provide a total of 32mm (1.25 in) of cable travel to operate two valves with a single lever. The two valves may be operated either independently or simultaneously, depending upon control lever movement. All dual axis control heads are self centring.

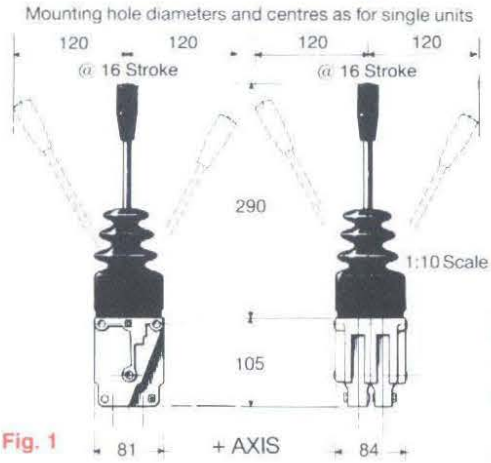


Fig. 1

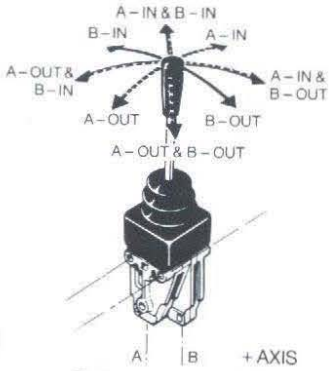


Fig. 2

THE MODE OPTIONS

THE SINGLE AXIS CONTROL HEADS

The single axis control is normally self centring and provides 40mm(1.6 in) of cable travel to operate a single valve. The control head has a compact diecast housing which need not be dissembled to attach the control cable . No cable brackets or clamps are required at the control head . All moving parts are either hardened or bushed. The sealing gaiter at the base of the control lever prevents unnecessary ingress of dirt and contamination. The single axis control is available in three standard handle lengths, 150, 250 and 300 mm (see Fig 3) and with handles bent to the configuration in Figure 4. Handles can be bent to suit individual requirements, provided a suitable bending fixture is used. The minimum bend radius for handles is 25mm (1inch).

Fig. 3

	150 Lever	250 Lever	300 Lever
A	110	166	196
B	188	288	388

Fig. 4

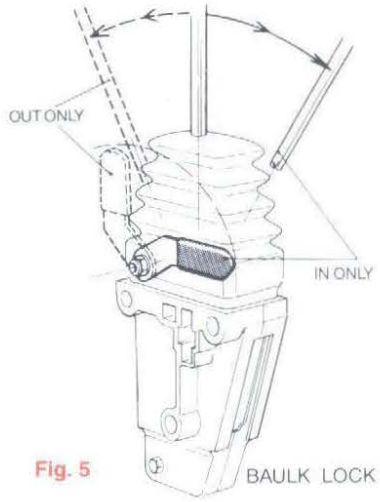


Fig. 5

OPTIONAL LOCKING CONTROLS

To meet the need for increased safety on certain types of applications, the control is available with either a Neutral lock mechanism, which secures the control handle in the neutral position, or a Baulk lock mechanism which isolates the control travel to one or other side of the neutral position, used for control applications such as two speed power take-offs, etc., (see Fig.5.)

THE FLEXIBLE RED-JAKET® CABLE

The heart of the Morse Remote Control System is the high efficiency Red-Jaket Control Cable. The cable system is specially engineered to suit the needs of hydraulic valves and fits into the control head with a simple nut and cotter connection, giving a well protected and sealed coupling. There are no tensioning springs in the cable system and there is no need for additional modification to standard valves to incorporate safety features. The cables can be installed with a minimum bend radius of 150mm (6in) without impairing the efficiency of the system.

Fig. 6

For design purposes, the cable can be considered as having 90% efficiency per 90° bend. As a general rule, the number of bends in the cable path should be kept to a minimum. The cables are lubricated for life and under no circumstances should be relubricated with mineral based oils or greases of any kind. Protect the cable from physical damage, such as pinching or crushing and do not use cable supports which may crush or deform the conduit.

When measuring conduit lengths allow an adequate margin for parts having relative movement so that the cable does not become kinked or stretched.

Operating temperature limits are -40°C to +100°C. Maximum system spool load is 45kg (100lb) in either direction.

CABLE CONNECTION TO VALVE

Connection to most valves is by an in-line arrangement which uses a sleeve and flange anchored to the valve body, (see Fig.7). This system protects the cable/valve coupling from damage and contaminants and earths conduit reaction loads directly back into the valve face. Because of the many types of valve configurations used most valves require a particular cable fitting.
Morse can supply connection kits for most popular mobile valves, which greatly simplifies cable connection and ensures correct spool travels. These kits all connect to the standard RVC cable part number 210498 or the LLVC cable 211450. (See LLVC brochure for details).
To determine the cable length measure from the bottom of the control head, along the cable path to the connection to the valve spool.
For valves not covered by enclosed cable types use the conventional Rod Ended cables as shown in Figs 8 and 9 choosing the cable part number from the table of standard Rod Ended cables under Ordering Information.
In this case it will be necessary to fabricate a suitable bracket from the valve or vehicle structure to support the conduit end of the cable assembly as shown. Ensure the bracket is sufficiently stiff to withstand the valve load without flexing and that the cable anchorage is in line with the valve spool.

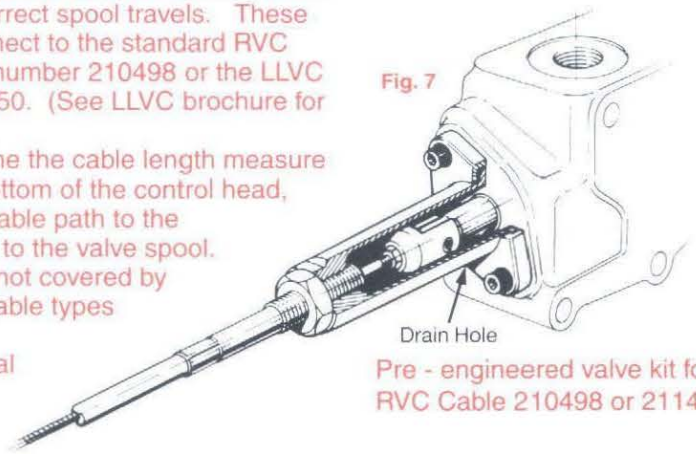


Fig. 7
Pre - engineered valve kit for STD RVC Cable 210498 or 211450

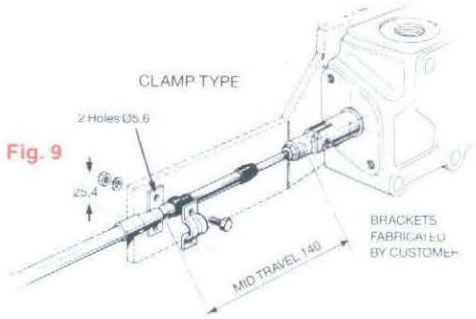


Fig. 9

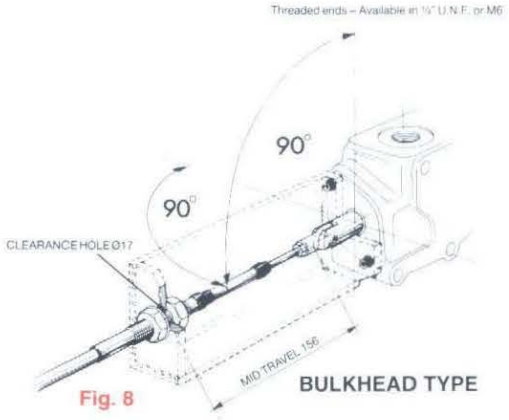


Fig. 8 BULKHEAD TYPE

MOUNTING THE CONTROL HEADS

Control heads can be mounted to the machine using the detachable Mounting Kit (see Fig.10) which allows either a quick snap-in fitting for demountable equipment, or a more permanent fitting if required.
The kit can be positioned on either face of the valve control head. Both single and dual axis controls may be side mounted by means of long through-bolts mounted to a suitable bulkhead etc. They may also be stacked together using this method, see Fig.11.
The correct directions of the lever movement, relative to the valve function can usually be obtained by changing the hydraulic lines at the valve. If this is not convenient, control operation can be reversed by simply turning the control through 180°, (see Fig.11).
Working clearance for the levers of dual axis controls, when used together, is obtained by either bending the levers away from each other until sufficient clearance is available or using blank spacer castings which are available in two thicknesses. (See Ordering Information for part numbers of all controls heads, cable and accessory equipment).

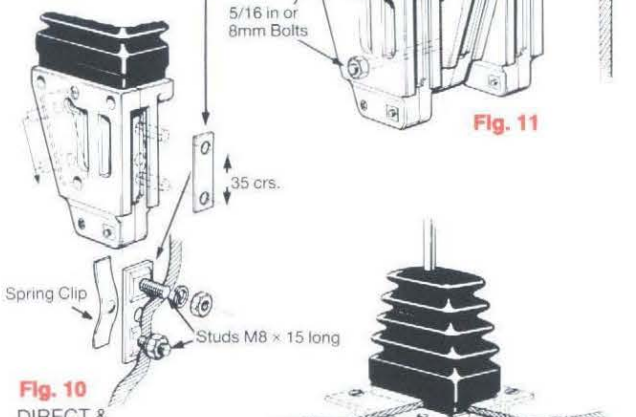


Fig. 10
DIRECT & DETACHABLE MOUNTING

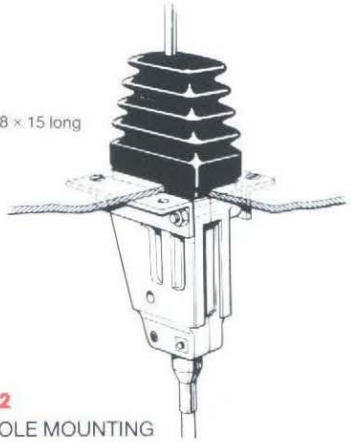


Fig. 12
CONSOLE MOUNTING
Suggested method of mounting. Brackets not Morse supply.

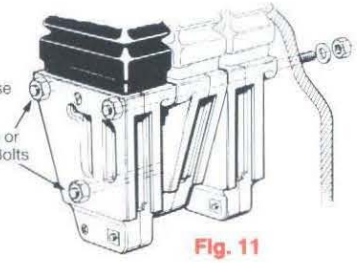


Fig. 11

CONTROL KNOBS STANDARD

All control heads are available with the standard pear shaped knob; alternatively most controls can be supplied without the knob if required,and some are available with the handle threaded 3/8 x 24 UNF. See part number list for reference.

A range of ergonomic handles with a variety of electrical switch options is available in the LLVC range. Thread connection is M12

All dimensions mm unless otherwise stated

Ordering Information

Please order by part number.

For further information see installation instructions, available on request.

CONTROL HEADS

Note: SC - self centring NC - non centring

	Part No
Single, RVC MK3 150mm Handle SC	212501
Single, RVC MK3 250mm Handle SC	212502
Single, RVC MK3 300mm Handle SC	212503
Single, RVC MK3 150mm Handle NC	212504
Single, RVC MK3 250mm Handle NC	212505
Sing;e, RVC MK3 300mm Handle NC	212506
Single, RVC MK3 425mm Handle NC	212508
Single, RVC MK3 300mm Handle, threaded 3/8-24 UNF, SC	212507
Single, RVC MK3 175mm Handle, 10mm Diam. SC	212509
Single, RVC MK3 90° bend Handle SC	212510
Single, RVC, 150mm Handle, lock in neutral	207778
Single, RVC, 250mm Handle, lock in neutral	207780
Single, RVC, 250mm Handle, baulk in neutral	207671
Single, RVC, 250mm Handle 90° bend, baulk in neutral	207671/ BO1
Dual axis, heavy duty, 32mm travel, std. knob 250mm Handle	211711
Dual axis, heavy duty, 32mm travel, 3/8-24 UNF, 250mm Handle	211713
Dual axis, heavy duty, 32mm travel, std. knob, 350mm Handle	211714

MODULAR COMPONENTS

RVC CONTROL	Part No:
RVC MK 3 Body assy. SC	212500/001
RVC,MK3 Body assy NC	212500/002
RVC,MK3 lever, hexagonal, 150mm	212560/001
RVC,MK 3 lever, hexagonal, 250mm	212560/002
RVC,MK 3 lever, hexagonal, 300mm	212560/003
RVC,MK 3 lever, hexagonal, 425mm	212560/004
RVC.MK 3 lever, round, 150mm	212560/005
RVC,MK3 lever, round 190mm	212560/007
RVC.MK 3 lever, round, 300mm	212560/006
RVC,MK 3 lever, threaded, 3/8-24 UNF 250mm	212561/001
Gaiter RVC MK3	206317
Knob, push-on	206906

ERGONOMIC KNOBS (as used on light duty dual)

Bent knob, no switch fits to any hollow shaft with an M12 x 1.75mm P. thread.	294785-002
Bent knob, one push button	294781-001
Bent knob, two push buttons	294781-002
Bent knob, one push button, one slide switch	294781-003
Bent knob, one slide switch	294781-004

Switched handles come with flying lead.

CABLE ASSEMBLIES FOR RVC AND HEAVY DUTY DUAL AXIS CONTROLS

Standard cable use with all valve connection kits	210498/L
Bulk head end, 6mm Rod output	206362/L
Clamp end, 6mm Rod output	206363/L

VALVE KITS USE WITH CABLES 210498, 212572 & 211450

BLB 40	212042
BLB 70/150	212044
Cessna	212402
Dinoil DN, Bondioli DVS-4	212042
Dinoil DL,	212044
Hamworthy 06 & SVO33	212579
Hamworthy 07	212429
Husco 5000	211632
Hypro 8 GPM	211631
Hydro Control, HCD-2,	211710
Hydro Control, HCD-3, HCD-10	211624
Hydro Control, HCD-4	293124/001
Johnson S & R Servo	212403
Johnson Float Valve Kit	210152
Kontak Unit 10	211596
Kontak Unit 18	211597
Monsun Tison HVO5/HVO9	293112/001
Monsun Tison HVO7	212408
Nord U1000, MV60, MV50, VM500, RM240	212401
Nord RM200, RS210, RM230	211630
Nord R200, RM250, U200, U700, M400	212404
Nord RM300	211629
Rexroth SM10	211626
Valvoil SD5, VCD20	211623
Voac F130	293126

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